Acta Zoologica Fennica 177:1—346. 1984.
© Finnish Zoological Publishing Board 1984.
ISBN 951-9481-22-2
ISSN 0001-7299

A monograph of the genus Mycomya Rondani in the Holarctic region (Diptera, Mycetophilidae)

Rauno Väisänen

Väisänen, R. 1984: A monograph of the genus Mycomya Rondani in the Holarctic region (Diptera, Mycetophilidae). — Acta Zool. Fennica 177:1—346.

The Holarctic species of the genus *Mycomya* are revised. Keys and redescriptions of 99 previously known species are presented and 65 new species and two subspecies are described. The higher classification of the Mycetophiloidea and the systematic relations within the subfamily Mycomyinae, viz. the tribe Mycomyini sensu Edwards, are discussed. A reconstruction of the phylogeny of *Mycomya* is presented. A new genus, *Mycoleia*, is erected for *M. unicolor* (Walker) and a subgeneric classification is proposed for *Mycomya*, in which 9 subgenera are recognized. Different aspects of the biogeography of the genus are discussed: the general distribution patterns, Gagné's model for the distribution of Holarctic Mycetophilidae, vicariance, and the distribution in eastern Fennoscandia. The known distributions and biology of the species are presented.

The following new subgenera are described: *Calomycomya* (type species: *Sciophila pulchella* Dziedzicki), *Cymomya* (type species: *Sciophila circumdata* Staeger), *Tlingitmyia* (type species: *Mycomya lutealis* n. sp.), *Coheromyia* (type species: *Mycomya branderi* n. sp.), *Myacymo* (type species: *Mycomya midea* n. sp.), *Neomycomya* (type species: *Sciophila fimbriata* Meigen), *Mycomyopsis* (type species: *Sciophila trilineata* Zetterstedt), *Lycomya* (type species: *Mycomya praeda* n. sp.). In the subgenus *Mycomya* s. str. 22 species groups are recognized.

The following new species are described: *M. matrona, M. monosta, M. thula, M. imperatrix, M. novagallica, M.* n. sp. (Canary Isls.), *M. magnifica, M. shewelli, M. ostensackeni, M. matilei, M. simulans, M. arnaudi, M. aluco, M. ultima, M. hackmani, M. kurildisa, M. disa, M. islandica, M. saga, M. safena, M. zaitsevi, M. woodi, M. neohyalinata, M. electa, M. aneura, M. bryanti, M. pygmalion, M. muscovita, M. wirthi, M. abegena, M. arcuata, M. leporina, M. stares, M. canoak, M. montalba, M. tamerlani, M. norna, M. accrescens, M. comesa, M. pyriformis, M. rebellicosa, M. lividella, M. pini, M. festivalis, M. pura, M. yunga, M. tolteca, M. amica, M. avala, M. altaica, M. insulana, M. wuorentausi, M. macateei, M. lutealis, M. branderi, M. oreades, M. midea, M. permixta, M. paradentata. M. neodentata, M. esox, M. byersi, M. neolittoralis, M. amurensis, M. praeda.* Two new subspecies are described: *M. permixta breviseta* and *M. winnertzi schmidi. M. pulchella* is considered to have a Nearctic subspecies, ssp. *imitans* Johannsen. *Neoempheria insignis* (Winnertz) is transferred to *Mycomya* and *Mycomya andreinii* (Bezzi) to *Neoempheria*. Several new synonyms have been found, and lectotypes are selected when necessary.

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Helsinki 10.II.1984 Helsingfors

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1. Introduction

Though one of the largest genera of fungus gnats (Diptera, Mycetophilidae), *Mycomya* has also been one of the most poorly known. Up to now, no comprehensive revision of the Holarctic species has been available.

Recent studies on the immature stages of fungus gnats (Plachter 1979a, b, c) have paid attention to the systematic position of *Mycomya* in this group and a revision of *Mycomya* was thus expected to be useful for future studies of the whole Mycetophiloidea system.

The solution of the taxonomy at species level and the establishment of a phylogenetic dendrogram for a group make it possible to proceed to biogeographic and ecological studies. The articles on the Mycetophilidae by Gagné (1975, 1981) raised questions about the structure and history of the Holarctic fauna. Further independent material was urgently needed to test his hypotheses and it was hoped that valuable information could be obtained from phylogenetic studies and application of the ideas of vicariance biogeography.

Mycomya species have been studied by dipterists since the beginning of the nineteenth century, when the first species were described by Meigen (1804, 1818, 1830), Fabricius (1805), Latreille (1809), Say (1824) and Macquart (1826). New species were later described by Zetterstedt (1838, 1852, 1860), Staeger (1840) and Walker (1856). Winnertz (1863) divided the Mycetophilidae into groups based on the wing venation, wing trichiation, and number and position of the ocelli, and also gave descriptions for several new species. Since then new species have been described from time to time, but they were usually included in *Sciophila* until Johannsen (1909) recognized Rondani's (1856) concept of the genus *Mycomya* (see further on p. 30). The descriptions were usually unsatisfactory, especially the older ones, with no or unrecognizable figures of the male hypopygia. In this respect Dziedzicki's (1885) paper was a remarkable exception, containing detailed figures for 32 *Mycomya* species.

The first revisionary work on the Nearctic species was published by Johannsen (1910). Edwards (1913) incorrectly changed the spelling of *Mycomya* to the form *Mycomyia,* and was followed by several authors. In 1925a Edwards proposed a classification of the Mycetophilidae that has been accepted by most authors. In this system *Mycomya* belongs to the tribe Mycomyini together with *Neoempheria.* The papers dealing with *Mycomya* have mostly been faunal lists, catalogues or descriptions of species; biological records are few and very scattered. Keys and descriptions for all the Palaearctic Mycetophilidae were given by Landrock (1926—1927). Coher (1959) published a valuable synopsis of the Nearctic and Neotropical Mycomyini, and Väisänen (1982b) reviewed the published information on the taxonomy and distribution of the Palaearctic fauna.

2. Material and methods

The study material, which consists of approximately 20 000 adult specimens, comes from a number of institutions and private collections. These are referred to in the text by the following abbreviations:

AFZ — Department of Agricultural and Forest Zoology, University of Helsinki, Finland
AMNH — American Museum of Natural History, New York, USA
AMST — Zoological Museum, Amsterdam, Netherlands
ANSP — Academy of Natural Sciences, Philadelphia, USA
BERG — Museum of Zoology, University of Bergen, Norway
BMNH — British Museum (Natural History), London, UK
BONN — Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, FRG
BRNO — Moravské Museum, Brno, Czechoslovakia

CAS — California Academy of Sciences, San Francisco, USA
COPEN — Zoological Museum, Copenhagen, Denmark
CORN — Cornell University, Ithaca, New York, USA
CNC — Canadian National Collection, Ottawa, Canada
FIR — Museo Zoologico de "La Specola", Florence, Italy
FLHM — Forssan Luonnonhistoriallinen Museo, Forssa, Finland
FLOR — Florida State Collection of Arthropods, Gainesville, USA
ISU — Iowa State University, Ames, USA
LEN — Academy of Sciences, Leningrad, USSR
LOYO — Loyola University, New Orleans, USA
LUND — Zoological Museum, Lund, Sweden
MASS — University of Massachusetts, Amherst, USA
MANCH — University of Manchester, UK
MCZ — Museum of Comparative Zoology, Harvard University, Cambridge, USA
MICH — Michigan State University, East Lansing, USA
MINN — University of Minnesota, St. Paul, USA
MNB — Museum für Naturkunde der Humboldt-Universität, Berlin, GDR
MNHN — Museum National d'Histoire Naturelle, Paris, France
MOSC — A. N. Severtzov Institute, Academy of Sciences, Moscow, USSR
MZH — Zoological Museum, University of Helsinki, Finland
NMI — National Museum of Ireland, Dublin, Ireland
OREG — Oregon State University, Corvallis, USA
OXF — Hope Entomological Collections, University Museum, Oxford, UK
PU — Purdue University, West Lafayette, Indiana, USA
ROM — Royal Ontario Museum, Toronto, Canada
SAPP — Hokkaido University, Sapporo, Japan
SENCK — Natur-Museum Senckenberg, Frankfurt a. M., FRG
SNOW — Snow Entomological Museum, University of Kansas, Lawrence, USA
STAAT — Staatliches Museum für Naturkunde Stuttgart, Ludwigsburg, FRG
STRO — Kollektion Strobl, Naturhistorisches Museum, Admont, Austria
TENE — Universidad de la Laguna, Tenerife, Canary Islands, Spain
TMB — Hungarian Natural History Museum, Budapest, Hungary
USNM — U.S. National Museum of Natural History, Washington, D.C., USA
VUPP — Research Institute of Food Industry, Prague, Czechoslovakia
WARS — Academy of Sciences, Warsaw, Poland
WASH — James Entomological Collection, Washington State University, Pullman, USA
WIEN — Naturhistorisches Museum, Vienna, Austria
WISC — University of Wisconsin, Madison, USA
ZSM — Zoologische Sammlung des Bayerischen Staates, Munich, FRG

coll. Andersen — Bergen, Norway
coll. Andersson — Lund, Sweden
coll. Baez — Tenerife, Canary Islands, Spain
coll. Bechev — Vratsa, Bulgaria
coll. Chandler — Maidenhead, UK

All the Holarctic *Mycomya* specimens known to the author were included in this study. The few specimens collected from Mexico were also included, but the southern Himalayan material will be dealt with in another connection; preliminary studies have been made on material from Nepal (CNC) and Burma (at present in MZH). A remarkable part of the female specimens of the Holarctic material still remains unidentified, especially when males are not available from the same locality.

All the Holarctic *Neoempheria* species have been checked for possible wrongly classified *Mycomya* species.

The specimens were stored in alcohol or pinned or glued to a pin, only a few specimens were slide-mounted. For detailed study of the genitalia, the apex or the whole of the abdomen of the specimen was broken off and dropped into a solution of potassium hydroxide. After a few hours it was washed in water and placed in 70—80 % alcohol for a few minutes and then transferred to a drop of glycerine on a slide for microscopic study. Later the genitalia were permanently stored in glycerine in a microvial, and the pin bearing the rest of the specimen was then run through the stopper of the microvial or the microvial was put in the same alcohol vial as the rest of the specimen.

The descriptions of the species are mostly based on studies of type material. In a few cases, only other specimens could be used. In those cases in which the types were in such poor condition that I could not identify them, these were included in the section Unrecognized species together with those species dubiae for which the type material is not available and the descriptions are insufficient. This was a good opportunity for type studies since, for instance, the largely unknown material of Garrett and Zetterstedt was at my disposal. The only noteworthy material that could not be procedured, in spite of several efforts, is that described by Ostroverchova (1979).

The morphological terminology adopted here is a compromise between the various opinions on the homologies of the structures, e.g. thoracic sclerites, wing venation and genitalia (see Figs. 2—6). The present names largely follow the current works of Vockeroth (1980) and Gagné (1981), but in some details preference has been given

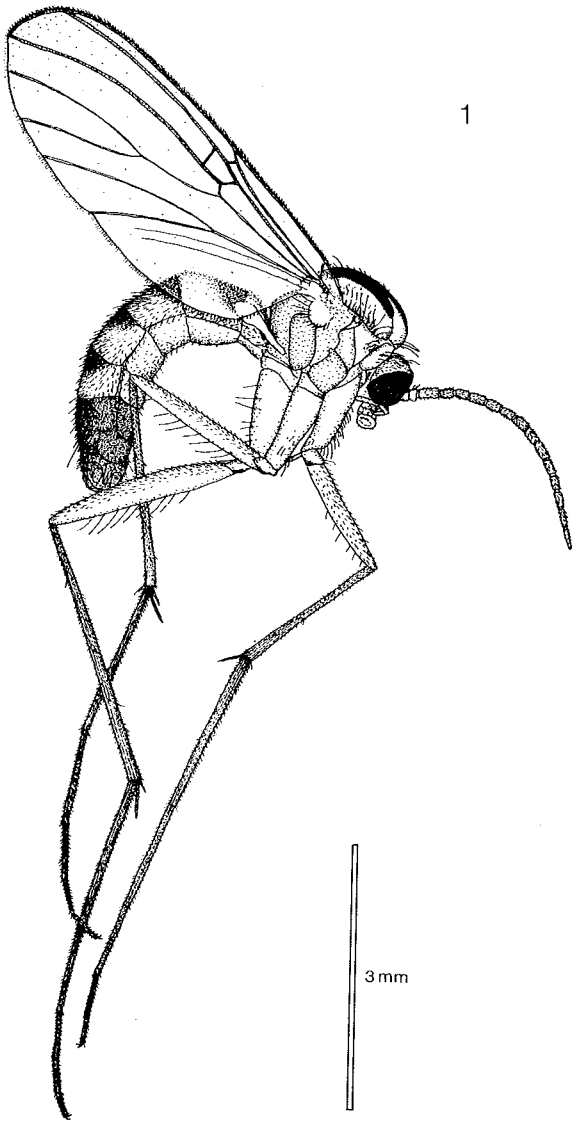


Fig. 1. General view of the adult in the genus *Mycomya (M. marginata)*.

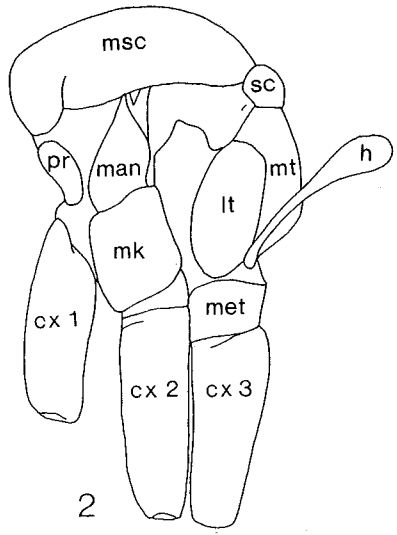


Fig. 2. Thorax and coxae. — pr, pronotum. — msc, mesoscutum. — man, mesanepisternum. — mk, mesokatepisternum. — sc, scutellum. — lt, laterotergite. — mt, mediotergite. — met, metepisternum. — h, halter. — cx1, cx2, cx3, coxae.

to the traditional terminology of Edwards (1925a), Shaw (1948) and Shaw & Shaw (1951) (see also Hutson et al. 1980). The aim has been to keep the terminology as simple as posssible, since it is still in a state of flux (Hutson et al. 1980) and the homologies of the structures (outside the present subfamily) are beyond the scope of this study.

The wing vein length ratios were calculated for the M and Cu forks as follows (usually from five specimens): firstly, the ratio of the petiole to the anterior branch (M1; Cu1) and secondly, the ratio of the petiole to the posterior branch (M2; Cu2) (see Fig. 3).

The main description of the species is based on male specimens and gives characters common to the two sexes or exhibited only by males. Characters present only in females are given in a separate section. Each description is preceded by a list of references to publications.

When a publication deals with two or more species under one name, (p.p.) and the name(s) of the other species are inserted in parenthesis after the reference. If a publication deals with specimens under a totally incorrect name, due for example to a misidentification, the name is preceded by (not) and the reference is followed by the correct name in parenthesis. When uncertainty exists, the reference is preceded by a questionmark. In more complicated cases special notes are given.

The phylogeny was analysed by Hennig's method of phylogenetic systematics (phylogenetics, cladistics; see e.g. Hennig 1966, Eldredge & Cracraft 1980, Wiley 1981, and for the Mycetophiloidea, Munroe 1974).

Acknowledgements. I express my sincere thanks to my teachers, colleagues and friends in the Zoological Museum and in the Department of Zoology, University of Helsinki, especially to Professor Walter Hackman, and to Dr. Antti Jansson, Professor Olli Järvinen, Dr. Bernhard Lindeberg, Professor Martin Meinander, Professor V. Ilmari Pajunen, Dr. Samuel Panelius, and Dr. Hans Silfverberg, and also to Professor Risto Tuomikoski, for their help and support. Dr. Kauri Mikkola is thanked for collecting additional material, e.g. from the Altai Mountains, and Dr. Tuomo Niemelä is thanked for checking the nomenclature of fungi. Mrs. Anna Damström kindly checked the English language.

I am most grateful to the following persons, who placed material and information at my disposal: T. Andersen (Bergen), H. Andersson (Lund), P. H. Arnaud, Jr. (San Francisco), U. Aspöck (Wien), M. Baez

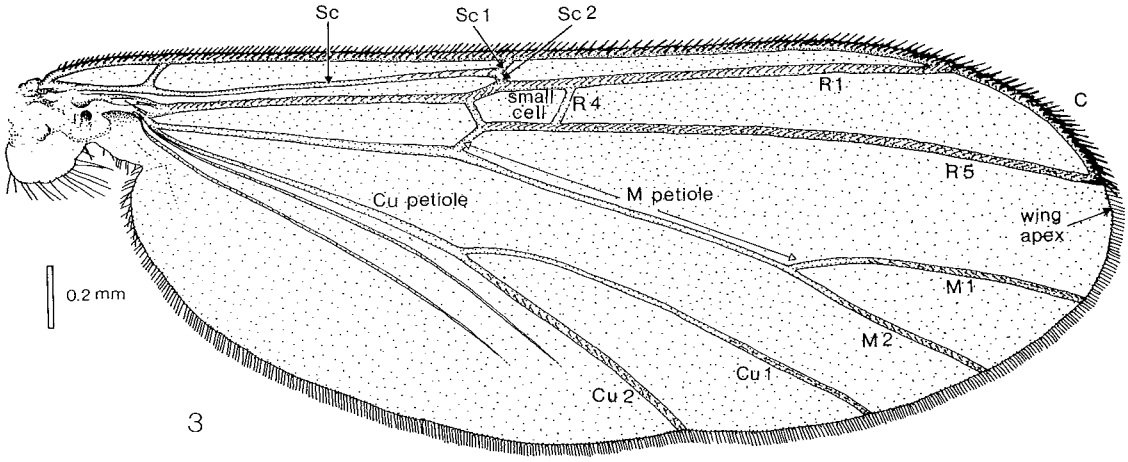


Fig. 3. *Mycomya obliqua,* wing. M ratios — M petiole : M1; M petiole : M2. Cu ratios — Cu petiole : Cu1; Cu petiole : Cu2.

(Tenerife), D. Bechev (Vratsa), T. Brander (Forssa), A. Brindle (Manchester), G. W. Byers (Lawrence), P. J. Chandler (Maidenhead), P. J. Clausen (St. Paul), P. S. Cranston (London), R. Danielsson (Lund), Á. Dely-Draskovits (Budapest), C. A. Dunn (Philadelphia), R. L. Fischer (East Lansing), R. J. Gagné (Washington, D. C.), M. W. R. de V. Graham (Oxford), L. Greve Jensen (Bergen), A. M. Hutson (London), K. T. Khalaf (New Orleans), M. Koponen (Helsinki, AFZ), S. Krauth (Madison), J. Landsman (Amherst), P. Laštovka (Prague), P. Lauterer (Brno), T. van Leeuwen (Amsterdam), R. E. Lewis (Ames), L. Lyneborg (Copenhagen), S. Mascherini (Florence), L. Matile (Paris), F. W. Mead (Gainesville), W. Mikolajczyk (Warsaw), G. Morge (Eberswalde; Admont), E. P. Nartshuk (Leningrad), J. P. O'Connor (Dublin), M. M. Pearce (Cambridge, MASS), L. L. Pechuman (New York, CORN), T. M. Peters (Amherst), K. A. Phillips (Corvallis), R. Rozkošný (Brno), W. Schacht (Munich), J. A. Schafrik (New York, CORN), H. Schmalfuss (Ludwigsburg), H. Schumann (Berlin), A. Z. Smith (Oxford), M. Suwa (Sapporo), M. K. Thayer (Cambridge, MASS), W. Tobias (Frankfurt a.M.), H. Ulrich (Bonn), J. R. Vockeroth (Ottawa), G. B. Wiggins (Toronto), P. Wygodzinsky (New York, AMNH), R. S. Zack (Pullman), A. Zaitsev (Moscow). I am indebted to R. J. Gagné, J. R. Vockeroth and L. Matile for valuable special information, and my cordial thanks are due to A. M. Hutson and P. S. Cranston for their kindness during my visit to the British Museum.

The financial support received from Emil Aaltosen Säätiö and Hämäläisten Ylioppilassäätiö is gratefully acknowledged.

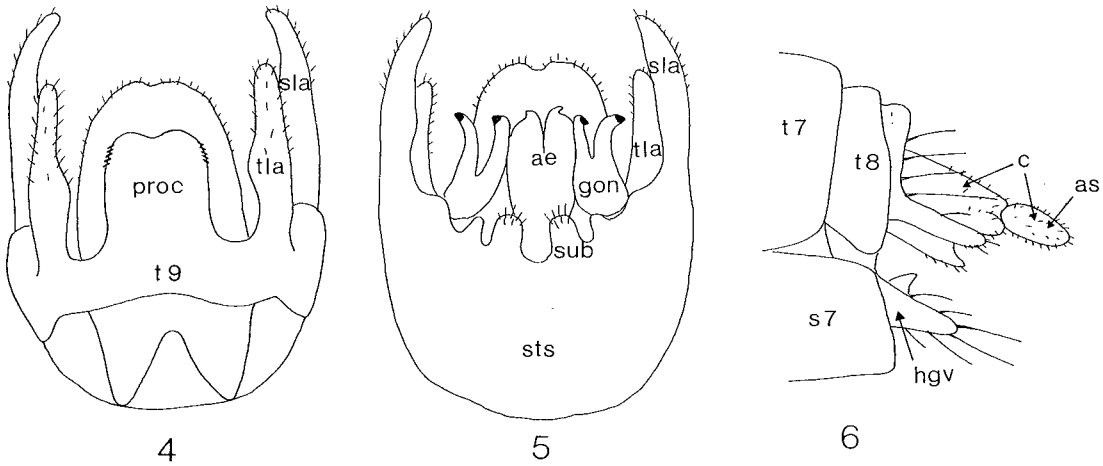
3. Phylogeny and characterization of the taxa

3.1. Higher classification of the Mycetophiloidea and the systematic position of the Mycomyinae

If the current definitions of the tribes and subfamilies of the fungus gnats are adopted, the Mycomyini is a tribe of the subfamily Sciophilinae of the Mycetophilidae. However, such a system is not in harmony with the general classification of the order Diptera (cf. Hackman & Väisänen 1982), conflicting most strikingly with the time criterion of classification (see Hennig 1966).

In the Upper Triassic fauna (about 200 million years before present) the fungus gnats were already represented by two families, Pleciofungivoridae and Palaeopleciidae, both of which are now extinct (Rohdendorf 1964, 1974). Fairly abundant material is available from the Middle Jurassic and by the Tertiary all the early groups had been replaced by currently recognized groups (see also Hutson et al. 1980, Gagné 1981).

Due to the great antiquity of fungus gnats, it seems reasonable to follow those authors (e.g. Hennig 1954, Tollet 1959, Rohdendorf 1961, 1964, 1974, 1977) who prefer to treat the mycetophilid subfamilies of Edwards as units of family rank. Tuomikoski (1966a, b) proposed a classification in which the family Mycetophilidae of Edwards (1925a) is considered to be a superfamily, the Mycetophiloidea, comprising the families Ditomyiidae, Diadocidiidae, Bolitophilidae, Sciaridae, Keroplatidae (including Keroplatinae, Macrocerinae and Lygistorrhininae) and



Figs. 4—6. Schematized structure of genitalia (*Mycomya* s. str.). — 4: male hypopygium, tergal view. — 5: male hypopygium, sternal view. — 6: female terminalia, lateral view. — proc, processus. — t9, tergite 9. — tla, tergal lateral appendage. — sla, sternal lateral appendage. — sts, sternal synsclerite. — gon, gonostylus. — ae, aedeagus. — sub, sternal submedian appendage. — t7, t8, tergites 7 and 8. — s7, sternite 7. — c, cercus. — as, apical segment of cercus. — hgv, hypogynal valve.

Mycetophilidae (including Sciophilinae, Mycetophilinae and Manotinae of older authors). In Tuomikoski's system the family Mycetophilidae is referable to the Mycetophilinae sensu Malloch (1917) and includes the subfamilies (tribes of Edwards) Sciophilinae, Mycomyinae, Gnoristinae, Leiinae, Manotinae and Mycetophilinae. Although the delimitation of some of these taxa (e.g. Gnoristinae) needs a revision, this system seems to provide the most natural basis for further study, also in the phylogenetic sense. In addition, the "tribes" Metanepsiini (Matile 1971) and Clastobasini (Ostroverchova 1970) belong to the Mycetophilidae. Whether they should be given the rank of subfamily or included in some of the above subfamilies (not in the Mycomyinae) is beyond the scope of the present study. The rank of subfamily is provisionally accorded to the Metanepsiini (see Table 1), and the Clastobasini is regarded as a tribe of the Leiinae (see e.g. Hutson et al. 1980:63).

The subfamily Mycomyinae sensu Plachter (1979b, c, 1981) includes all the sciophiline genera of Edwards except *Sciophila, Monoclona* and *Phthinia,* which belong to Plachter's Sciophilinae. However, such a delimitation appears to be much too wide and based mainly on symplesiomorphies.

The subfamily Mycomyinae in the present sense can be briefly characterized by the following apomorphic attributes (synapomorphies):

1. Veins of M and Cu fork separate to wing base.
2. Fine tibial setae in regular rows.
3. Middle ocellus absent.
4. Empodia absent.
5. Wing membrane without macrotrichia.
6. Immobile pupa with distinctly strengthened integument and pedothecae tightly bound to the body (pupa known only in *Mycomya* and *Neoempheria).*

The first-mentioned character serves to distinguish the Mycomyinae from the families Ditomyiidae, Diadocidiidae, Bolitophilidae and Keroplatidae, which have the wing veins M and Cu connected by a cross-vein or fused for a short distance. The reduction of this connection is considered to be a deviation from the basic plan of the Mycetophiloidea.

The Mycomyinae differ from all the other Sci-

Table 1. The families of the Mycetophiloidea and the subfamilies of the Mycetophilidae.

Bolitophilidae	Mycetophilidae
	Mycomyinae
	?Eudicraninae
Diadocidiidae	Sciophilinae
	Gnoristinae
	Metanepsiinae
	Leiinae
Ditomyiidae	Mycetophilinae
	Manotinae
Keroplatidae	Sciaridae

ophilinae tribes of Edwards, i.e. Sciophilinae, Leiinae (with exceptions in Clastobasini) and Gnoristinae of the present study, in having the fine tibial setae arranged in regular rows. This character clearly seems to be an apomorphy when compared with the irregular arrangement of setae in those other groups, but it occurs separately in some other mycetophiloid taxa, e.g. Clastobasini of Leiinae, Manotinae and Mycetophilinae, and in some Keroplatidae, as well.

In the Mycomyinae the middle ocellus is totally reduced, which differentiates them from the Manotinae and from the Sciophilinae, Gnoristinae and Leiinae. The Clastobasiini and Manotinae also have the empodia well developed.

The Sciaridae and Mycetophilinae can be easily distinguished from the Mycomyinae with the aid of several key characters, which in the Mycomyinae are either in the plesiomorphic state or cannot readily be recognized as apomorphies. In the Sciaridae these key characters include the holoptic eyes and short coxae, and in the Mycetophilinae the microtrichia arranged in more or less definite rows on the wings, short Sc, and the lateral ocelli touching the eye margin (in the Mycomyinae the ocelli are far from the eye margin). The Mycomyinae differ from both these groups in the structure of the pupa. Similar pupae are known only in *Ectrepesthoneura* of the Leiinae (see Plachter 1979c for details). The strengthening of the pupal integument is considered to be of remarkable adaptive significance, making the pupa resistant to changes in humidity and temperature, and compensating for the reduction of the definite cocoon proper. Thus, the structure of the pupa in the Mycomyinae is considered to be a derivative character, a deviation from the basic plan of the Mycetophiloidea and the Bibionomorpha in general. In addition, some other characters of the immature stages of the Mycomyinae may be autapomorphic, e.g. the presence of only small visceral fat-bodies in the larvae (see Plachter 1979b).

The characters discussed above seem to justify the conclusion that the Mycomyinae form a monophyletic entity. Their affinities with other mycetophiloid taxa are still largely unknown. The fact that in the Mycomyinae the microtrichia of the wings are irregularly arranged and the tibial setae in rows suggests an intermediate systematic position between the Mycetophilinae and the other Sciophilinae tribes of Edwards. Such a relationship is also suggested by the data on the structure of the thoracic sclerites and the male hypopygium (Shaw 1948, Shaw & Shaw 1951, see also Fisher 1938).

The suture between the mesanepisternum and mesokatepisternum often declines anteriorly in the Mycomyinae (at least in *Mycomya* and *Echinopodium)* and this character is considered to be apomorphic compared with the horizontal suture (deviating from the basic plan of the Mycetophiloidea). Such an anteriorly declining suture is present in most of the Mycetophilinae, except some specialized genera with marked dorsoventral compression of the thorax. Outside the Mycomyinae and the Mycetophilinae, a very similar suture can be found in the genus *Eudicrana,* in which the structure of the thoracic sclerites is also otherwise very similar, but which has traditionally been placed in the tribe Sciophilini of Edwards, due to the presence of macrotrichia on the wing membrane and the irregular arrangement of the fine tibial setae. These character states must be considered plesiomorphic compared with the corresponding attributes in these transformation series: absence of macrotrichia and tibial setae in regular rows. Thus, it seems that the tribe Sciophilini in the traditional sense, including *Eudicrana,* is based on symplesiomorphies and must be rejected, if the cladistic procedure is followed. In addition to the direction of the suture between the mesanepisternum and mesokatepisternum and the shape of the mesanepisternum, *Eudicrana* has another remarkable apomorphy: the middle ocellus is absent (present in the other Sciophilini of Edwards). However, the ocelli are contiguous with the eye margins, *Eudicrana* differing in this respect from the Mycomyinae, which have their two ocelli placed close together far from the eye margins. On the other hand, in the Mycetophilinae the location of the ocelli is similar to that in *Eudicrana,* although they often have a middle ocellus.

It seems that Mycomyinae + *Eudicrana* might be the sister group of the Mycetophilinae. However, the possibility cannot be excluded that *Eudicrana* is the sister group of the Mycomyinae + Mycetophilinae (the Mycomyinae thus being the sister group of the Mycetophilinae). In either of these cases the whole complex would be monophyletic. The above discussion also shows that the rank of subfamily should be accorded to *Eudicrana* Loew, 1869, which thus becomes the Eudicraninae (monotypic).

The similarities of the Mycomyinae to the Mycetophilinae and *Eudicrana* may also be due to convergence, so that any further uniting of these three taxa (i.e. in the nomenclature) does not seem justified at present.

There is conspicuous external similarity between the Mycomyinae and certain Sciophilinae and Gnoristinae. The in some cases practically identical wing venation is, however, largely due to plesiomorphy, and the characters of the thoracic trichiation are too general and vague to be used as a sign of affinity.

The Neotropical genus *Aphrastomyia* Coher & Lane, 1949 (not examined), which is now gener-

ally placed in the Leiini (or Tetragoneurini i.e. Leiinae of the present study; see e.g. Papavero 1978), shares with the Mycomyinae the following important apomorphies: two ocelli far removed from the eye margin, the regular arrangement of the fine tibial setae and the absence of macrotrichia on the wings. In addition, the suture between the mesanepisternum and mesokatepisternum declines distinctly anteriorly. This genus has been included in the Leiinae on the basis of the wing venation, the structure of the pleural sclerites and the general structure and shape of the male genitalia (see Coher & Lane 1949), but its systematic position is not fully settled.

Practical keys for distinguishing the Mycomyinae and other groups have been provided, e.g. by Landrock (1926—1927), Colless (1970) and Hutson et al. (1980). Keys for the immature stages are not available but the studies of Plachter (1979a, b, c, 1981) are useful in this respect.

3.2. Mycomyinae and the systematic relations within this subfamily

The present subfamily Mycomyinae corresponds to the tribe Mycomyini of Edwards (1925a), which currently comprises the following genera:

Mycomya Rondani, 1856
Neoempheria Osten-Sacken, 1878
Echinopodium Freeman, 1951
Viridivora Matile, 1972b
Parempheriella Matile, 1974 (= *Parempheria* Matile 1973a = *Parempherina* sensu Matile 1976b)
subg. *Parempheriella* s. str.
subg. *Parempherina* Matile, 1976b
Mycomyiella Matile, 1973b
Syndocosia Speiser, 1923
subg. *Syndocosia* s. str.
subg. *Syndocosiella* Väisänen, 1982c
Moriniola Matile, 1976a

The five last-mentioned genera are known only from the Afrotropical region (+ *Parempheriella defectiva* (Edwards) from Sumatra), and the genus *Echinopodium* only from Chile and Argentina. *Mycomya* and *Neoempheria* are the largest genera in the subfamily and have wider distributions: *Mycomya* is practically cosmopolitan, but *Neoempheria* is missing from the Neotropical Chilean subregion and the Australian New Zealand subregion.

Description of the subfamily Mycomyinae (adults):

Head moderately high in front of thorax (see Fig. 1). Palp with 4 segments. Anteclypeus pilose. Vertex and occiput setose. Antenna with 14 flagellomeres. Eyes with short setulae. Ocelli two, large, placed close together remote from eye margins, in *Syndocosia* s. str. ocelli entirely missing.

Pronotum setose. Mesanepisternum, mesokatepisternum and mesepimeron bare. Mesoscutum moderately arched (cf. Shaw 1948), usually with acrostichal, dorsocentral and sublateral setae in 5 longitudinal stripes, intervening areas bare. Strongest setae often somewhat truncate apically, i.e. ending in a couple of minute teeth. Laterotergite almost always bare. Mediotergite usually bare, in *Echinopodium* and some members of *Mycomya* with small setae. Metepisternum setose only in *Echinopodium*. Metanotum with one seta medial to base of halter.

Male middle coxa in *Echinopodium* and several *Mycomya* with long spur. Hind coxa with vertical row of some rather long setae and some shorter setae in front of this row. Fine tibial setae arranged in regular longitudinal rows. Strong tibial setae present except in *Viridivora*. Tibia 1 with 1 spur, tibiae 2 and 3 with 2 spurs. Empodia absent.

Wing without macrotrichia on membrane, microtrichia not arranged in definite rows. Sc usually long, reaching at least base of Rs, except in *Moriniola*. Sc2 present. R4 usually present (for exceptions, see below). R5 and M1 approximately parallel. M and Cu petioles long, of roughly the same length as M and Cu branches.

Abdomen with 7 segments visible, 8th segment reduced. Sternites not longitudinally divided by folding lines or sutures. Tergal portion of male hypopygium consisting of tergite 9 and tergite 10 ("cerci" of some authors). Sternite 9 fused with gonocoxites, forming sternal synsclerite.

Within the subfamily Mycomyinae the relations between the genera are not yet properly understood. The genus *Mycomya* in the current wider sense and the Chilean *Echinopodium* are here considered to form a monophyletic group on the

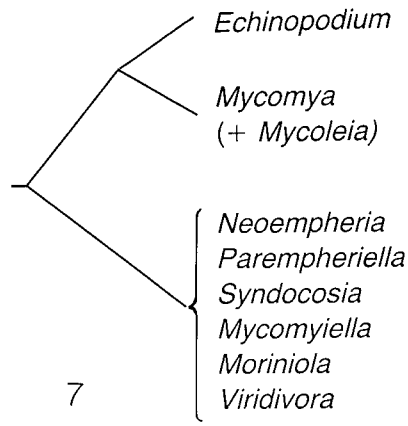
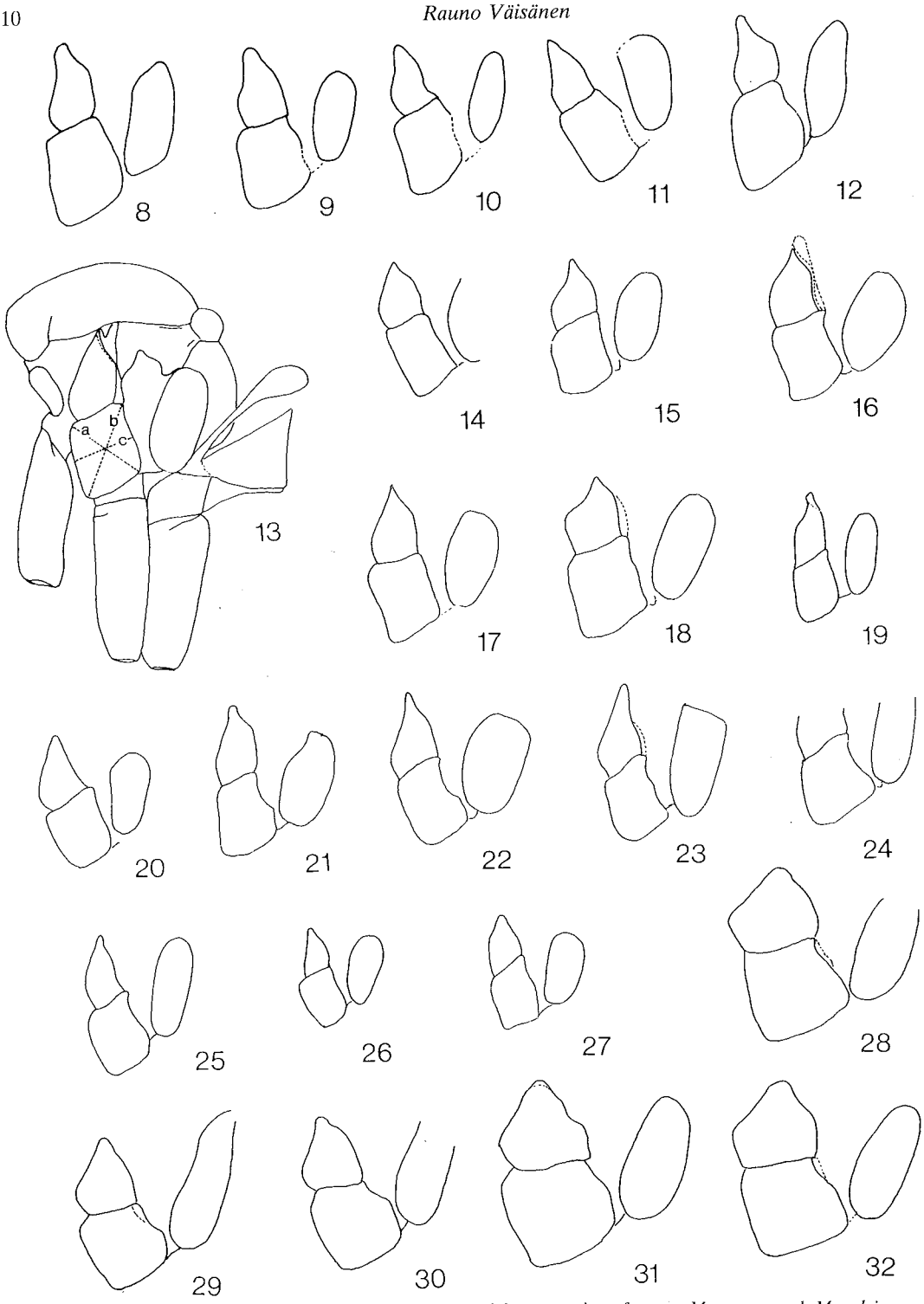


Fig. 7. Dendrogram showing the proposed position of *Mycomya* within the Mycomyinae (for argumentation, see the text).



Figs. 8—32. Mesanepisternum, mesokatepisternum and laterotergite of some *Mycomya* and *Mycoleia* species. — 8—12: *Mycomya calcarata* males. — 13: *M. tumida* male (for a, b and c, see the text). — 14: *M. digitifera* male. — 15: *M. vittiventris* female. — 16—17: *M. nigricornis* males. — 18: *M. nigricornis* female. — 19: *M. sigma* male. — 20: *M. terminata* female. — 21: *M. tenuis* male. — 22: *M. marginata* male. — 23: *M. cinerascens* male. — 24: *M. pulchella* male. — 25: *M. obliqua* male. — 26: *M. tantilla* male. — 27: *M. affinis* male. — 28, 31—32: *Mycoleia unicolor* females. — 29—30: *M. unicolor* males.

basis of the following inferred apomorphies (Fig. 7):

1. Mid-coxal spur of male originally present, although subsequently lost in some *Mycomya* species.
2. Scutellar setae specialized into one or two pairs of distinctly longer setae.
3. Abdominal sternite 8 of male reduced in size, never covering the sternal synsclerite, without strong setae.
4. Frons bare between ocelli and antennal bases.
5. Laterotergite bare.

The presence of the mid-coxal spur is a unique feature, an autapomorphic attribute known only in this group. However, the spur has been subsequently lost in some species. Spurs were already present in a specimen from Miocene shales (Johannsen 1912). Less specialized scutellar setae are known in *Moriniola* and *Syndocosia* s. str. The abdominal tergite 8 is comparatively large, partially covering the sternal synsclerite and bearing strong setae in *Mycomyiella* and *Parempheriella,* at least. The frons between the ocelli and antennal bases has some short setae in at least some species of *Neoempheria* and the laterotergite is setose in at least *Neoempheria ornata* Okada, 1938.

The rest of the Mycomyinae genera *(Neoempheria, Parempheriella, Syndocosia, Mycomyiella, Moriniola* and *Viridivora)* may be a monophyletic group sharing an apomorphic character: wing vein C ends distad to the apex of R5 due to shortening of R5, the length of C being unchanged, if not diminished, too. This change is probably connected with an alteration in the subradial fold, which is strengthened and sclerotized in *Neoempheria, Parempheriella* and *Syndocosia,* forming an accessory subradial vein and compensating for the enlargement of the membranous subradial field.

Both *Mycomya* and *Echinopodium* have the inferred plesiomorphic state of wing venation, with R5 ending in the apex of C at or very near the wing apex. All the other Mycomyinae genera have also lost the setae of the mediotergite and metepisternum. Within that branch the reduction of wing venation has been continued in *Parempheriella, Syndocosia* and *Moriniola* with the loss of R4. Furthermore, in *Moriniola* Sc has shortened, the basal portion of M1 is missing, Cu is unbranched and the whole posterior part of the wing is strongly reduced. Even more conspicuous autapomorphies are known in certain genera: In *Viridivora* the long tibial setae are entirely missing and the larva has specialized to feed on liverworts and mosses. In *Syndocosia* s. str. the ocelli are missing, and the wing usually has a special fold-like apical structure.

The other Holarctic genus, *Neoempheria,* also differs from *Mycomya* in having the wings usually distinctly marked, the antenna apically rounded, not pointed as in *Mycomya,* and the suture between the mesanepisternum and mesokatepisternum horizontal or slightly declining anteriorly (cf. Figs. 8—32). In addition, the ocellar prominence is always well developed in *Neoempheria,* the flagellomeres are usually shorter than in *Mycomya* (Figs. 33—45) and the body coloration is brighter and more contrasted than in most *Mycomya* species. The larva of *Neoempheria* differs from that of *Mycomya* in having 7 main teeth in the mandible instead of 6 (counted here as in Plachter 1979b), and the frontal sutures uniting before the hind margin of the head capsule; in *Mycomya* the frontal sutures reach the hind margin (Zaitsev 1979).

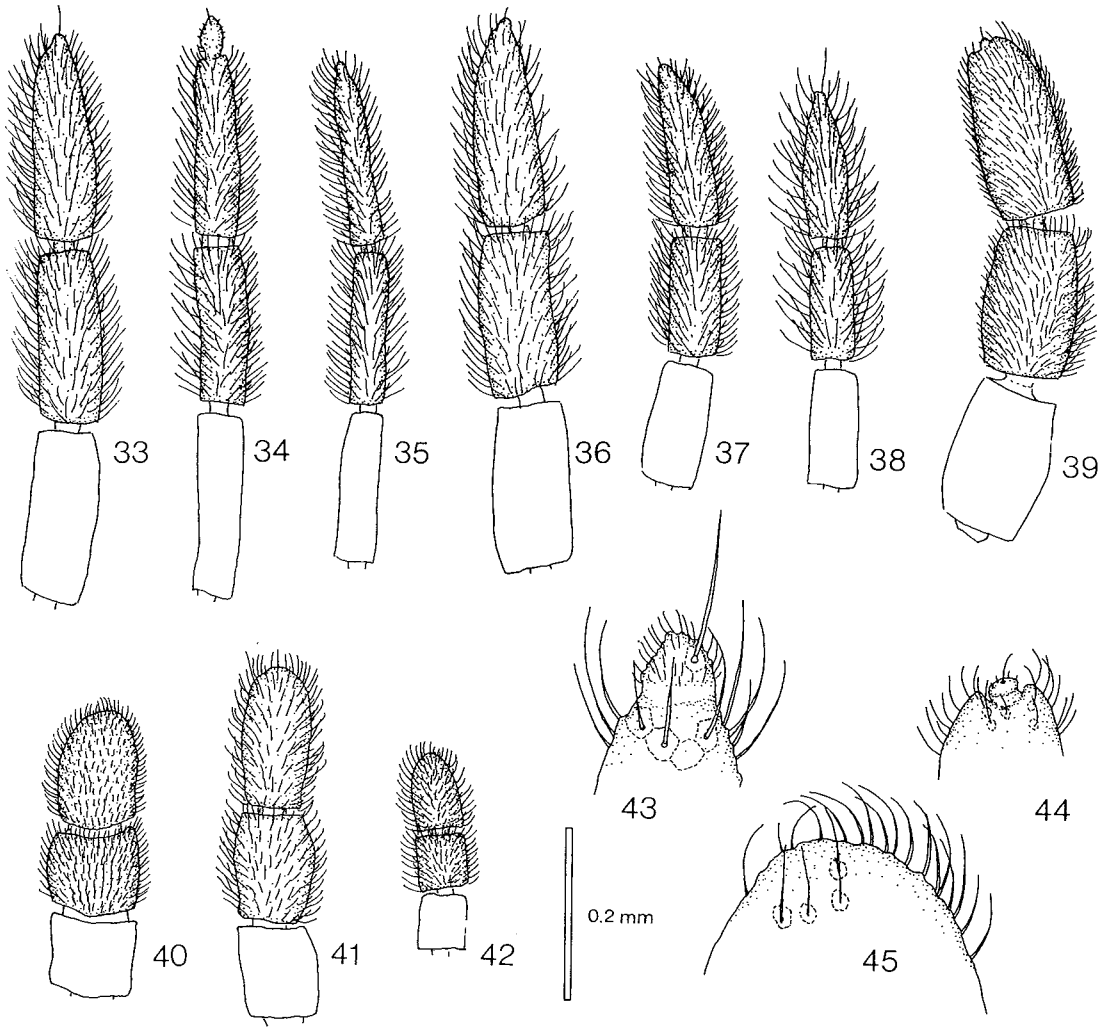
The genus *Mycomya* in the current sense is considered to be monophyletic on the basis of the following synapomorphies:

1. Eyes slightly but distinctly emarginate above antennal bases.
2. Metepisternum bare.

The dorsal emargination of the eye margin (fairly slight in *M. ultima* and *M. aluco)* is not known elsewhere in the Mycomyinae, thus distinguishing *Mycomya* from all the other genera, including *Echinopodium,* which has rounded, only very slightly emarginate eyes. The plesiomorphic state of the dorsal eye margin in Nematocera appears to be "eye margin entire", because this feature occurs in a wide variety of taxa throughout the Nematocera (see Munroe 1974:84). No definite reason was found to believe that the occurence of this inferred apomorphy in *Mycomya* species is due to convergence, so it was considered to be due to synapomorphy.

Both the metepisternum and the mediotergite always bear some setae in *Echinopodium* and this presumably plesiomorphic condition differentiates the genus from all the other Mycomyinae. The spur of tibia 1 is broadened, flattened and distinctly serrated in *Echinopodium,* serving as an easily recognizable autapomorphic feature in this genus, in addition to the unique structure of the male hypopygium and the specialization of the male mid-coxal spur. The suture between the mesanepisternum and mesokatepisternum declines distinctly anteriorly in *Echinopodium.*

The phylogenetic relations seem to be far from clear within the genus *Mycomya:* several groups are well characterized, but their affinities are more obscure, and many species can only be placed in groups of their own. The following proposal for the phylogeny of *Mycomya* must be regarded as largely a working hypothesis for further studies. Possible new material from other geographic regions, especially palaeontological data from amber, together with more detailed knowledge of the immature stages will no doubt solve some of these problems in the future.



Figs. 33—45. Apical flagellomeres. — 33: *Mycomya tumida*. — 34: *M. vittiventris*. — 35: *M. brunnea*. — 36: *M. marginata*. — 37: *M. pulchella*. — 38: *M. trilineata*. — 39: *Mycoleia unicolor*. — 40: *Neoempheria striata*. — 41: *N. tuomikoskii*. — 42: *N. pictipennis*. — 43: *Mycomya tumida*. — 44: *Mycoleia unicolor*. — 45: *Neoempheria striata*. Scale 0.2 mm for Figs. 33—42, Fig. 44 2 x and Figs. 43 and 45 4 x enlarged.

The assumed phylogeny of *Mycomya* is illustrated in Fig. 46 (the numbers of the apomorphies refer to the text below). For practical reasons it has not been considered necessary to point out apomorphies characterizing only one species group, especially those in the male hypopygium. Such attributes can be found in the descriptions of those species groups.

The genus *Mycomya* is here divided into two genera: monotypic *Mycoleia* n. gen. with *M. unicolor* (see further on p. 325) and *Mycomya*, comprising all the remaining species. In *Mycoleia* tergite 9 and the sternal synsclerite of the male hypopygium are in the ancestral condition, large and extensively setose. In *Mycomya* these structures of the hypopygium are shorter and their setosity is distinctly reduced (2). This differentiation of the genital structure is considered to be a synapomorphy for *Mycomya*. In addition to differing in the autapomorphies, e.g. in the details of the male hypopygium, *Mycoleia* is distinguished from *Mycomya* by the structure of the thorax and the antennal apex. The mesokatepisternum of *Mycoleia* is distinctly widened (1): a>b, a:b =ca. 1.05 (see Fig. 13 for the symbols). In *Mycomya* a<<b, a:b=ca. 0.85. The respective c:b ratios are ca. 0.85 and 0.60. In *Mycoleia* the suture between the mesanepisternum and mesokatepisternum is almost horizontal, in *Mycomya* it declines more or less distinctly anteriorly. Although the widening

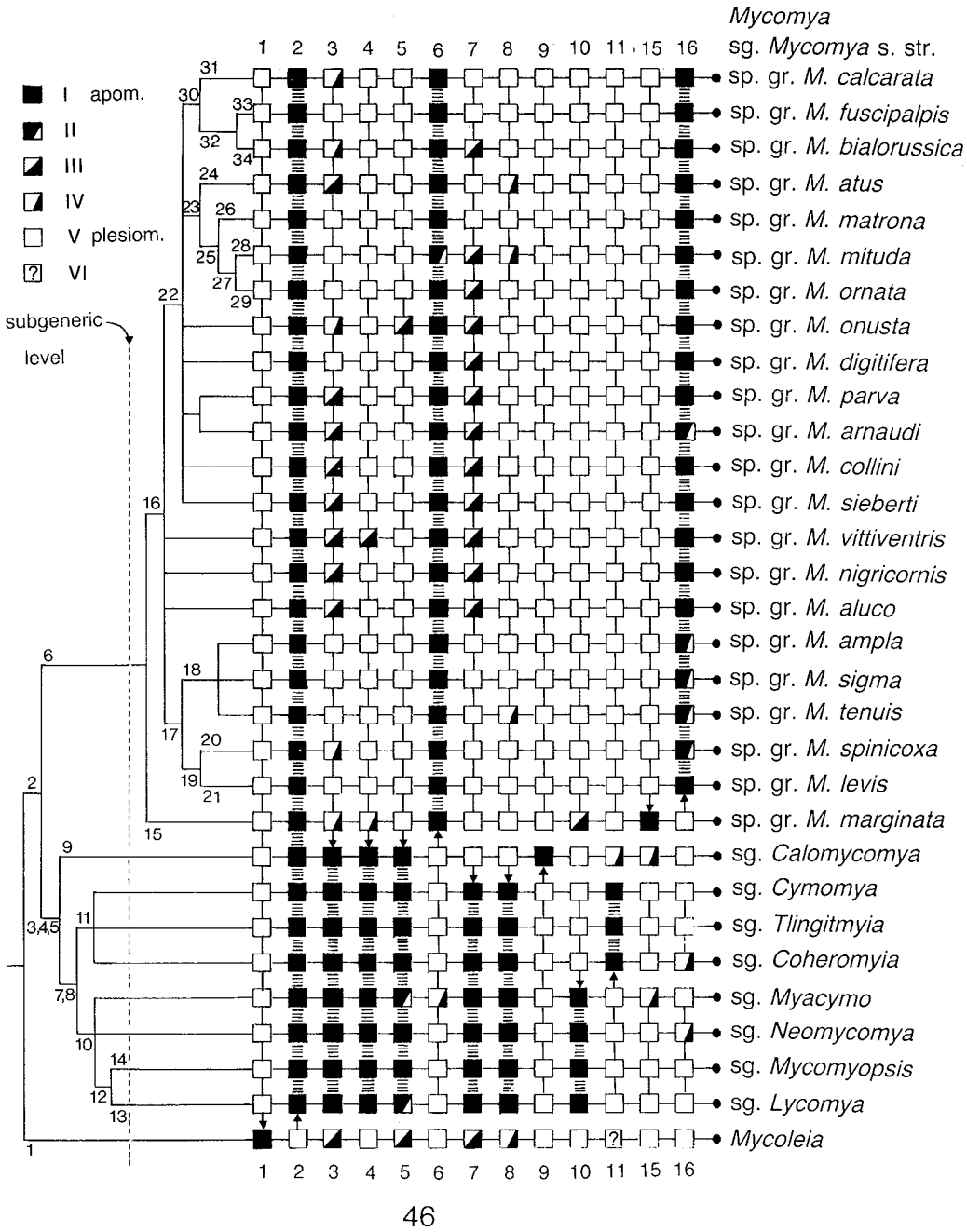


Fig. 46. Proposed phylogeny of *Mycomya* with the distribution of certain character states. — I, apomorphy. — II, subsequent loss of the apomorphic state. — III, parallelism. — IV, parallelism (partial). — V, plesiomorphy. — VI, uncertain state. The numbers (1—34) refer to the discussion in the text.

of the mesokatepisternum in *Mycoleia* clearly seems to be a derivation from the original condition, the structure of the thorax in *Mycomya* possibly contains derivated elements, too. The apex of the 14th flagellomere of *Mycomya* is pointed, that of *Mycoleia* slightly but distinctly rounded (1) (see Figs. 33—45). The status of these characters in the transformation series is not quite clear but the pointed antenna is considered to be the plesiomorphic condition.

The Holarctic *Mycomya* can be divided into two main branches, into the subgenus *Mycomya* s. str. and into eight widely divergent new subgenera. The subgenus *Mycomya* has the sternal synsclerite of the male hypopygium with submedian appendages (term used by Edwards) (6). These appendages bear or have originally borne some setae. In the other subgenera the sternal synsclerite is without distinct setose submedian appendages, and the presence of these appendages is considered to be an autapomorphy of the subgenus *Mycomya*. In the subgenus *Mycomya* the mediotergite bears or has originally borne some setae, i.e. this plesiomorphy is present in several species groups of this monophyletic group. Similarly, the basal part of tergite 9 of the male hypopygium is or has originally been setose. In the other branch the mediotergite and the basal part of tergite 9 of the male hypopygium are always bare (3, 4), the reduction of the setosity is considered to be a synapomorphy. This branch is also characterized by the coloration of the integument (5). Rather dull, diffuse, brown and yellow markings, with the abdominal tergites posteriorly more or less paler, are present in all the species of the subgenus *Mycomya* except *M. onusta* and *M. insignis*. In the other branch vivid yellow and dark brown coloration with posteriorly darker abdominal tergites is widely distributed but presumably subsequently lost in some species. The adaptive significance of the markings in *Mycomya* is not known, but a mimetic or warning function can be inferred in the cases of bright coloration (see Munroe 1974:90).

The subgenus *Calomycomya* is characterized by the unique structure of tergite 9 in the male hypopygium and the autapomorphic bare abdominal tergite 8 of the male (9). The male mid-coxal spur is present in *Calomycomya*, but missing from the rest of the new subgenera (7). The other subgenera of this branch have the sternal synsclerite of the male hypopygium with a sharp V-shaped medial emargination or the synsclerite is divided into two more or less distinctly separate lateral portions (8). The emargination and the division of the sternal portion of the hypopygium are considered to be apomorphies, deviating from the basic plan of the Mycetophiloidea, in which the apico-medial margin of the sternal part is entire. In addition, certain apomorphies which are seldom present in other groups occur commonly in these subgenera. These include the lengthened Cu petiole, the shortened veins R5 and C, the differentiated setae of the antennal pedicel and the reduction of the macrotrichiation of the wing veins.

The subgenera *Tlingitmyia, Coheromyia, Cymomya, Myacymo, Neomycomya, Mycomyopsis* and *Lycomya,* which have been separated on the basis of different autapomorphies in the male hypopygia (see Keys and Classification and descriptions), can be divided into two groups on the basis of two inferred apomorphies. *Tlingitmyia, Coheromyia* and *Cymomya* have the sternal synsclerite with wide enlarged lateral appendages (11), which are here considered to be a deviation from the basic plan of the Mycetophiloidea. The subgenera *Myacymo, Neomycomya, Mycomyopsis* and *Lycomya* have comparatively small sternal synsclerites without such appendages. Their tergite 9 of the male hypopygium has well-developed lateral appendages (10) which are missing in *Tlingitmyia, Coheromyia* and *Cymomya*.

The subgenera *Mycomyopsis* and *Lycomya* are considered to form a monophyletic entity, which is characterized by the following apomorphies: Sc not reaching C, ending in R1, Sc1 usually entirely missing; the gonostylus with strong apical-subapical teeth and a membraneous setose lateral lobe; the sternal synsclerite divided into two parts both usually with long submedian filaments; tergite 9 of the male hypopygium partially fused along its lateral parts with the sternal synsclerite (12). This fusion is a deviation from the basic plan of the Mycetophiloidea, in which tergite 9 is entire and free (see Munroe 1974:90), and thus it is an apomorphous condition. In *Mycomyopsis* tergite 9 bears two separate outer combs of spines (14), and in all the Holarctic species two inner combs. In *Lycomya* the cerci of the female terminalia are unsegmented and the hypogynal valvae bear no strong setae (13). Both these characters are undoubtedly derived ones. Tergite 9 of the male hypopygium bears one wide comb of spines.

The subgenus *Mycomya* can be divided into two main groups on the basis of certain apomorphies in the male hypopygia of these groups. The first group has a well-developed medial processus on tergite 9 (15). In this *M. marginata* species group the lateral appendages of tergite 9 are usually well developed, the setosity of tergite 9 is differentiated and concentrated on the appendages, and there are almost always two apical teeth in the male mid-coxal spur (for the few exceptions, see p. 138). The mid-coxal spur is well developed, strongly curved and with a rounded base.

In the group without the processus tergite 9 bears two submedial groups of dark, strongly

chitinized cones (16), although in some subgroups this autapomorphous characters has subsequently been lost. Within this group five subgroups can be distinguished but the sequence of their division is not known. These include three "aberrant" groups with only one species each, *M. vittiventris, M. aluco* and *M. nigricornis.* The first larger group is characterized by the following apomorphies: the petiole of the Cu fork is long, the scutellar setae are specialized through the partial or total reduction of the lateral pair, the coxae are comparatively thin, and the gonostyli are long, slender, usually without apical teeth (17). In addition, the pronotal setae are usually differentiated into two distinctly longer and several shorter ones, this condition is not known elsewhere in *Mycomya.* The other larger group is characterized by submedial strong curved spines, "sabres" on tergite 9 of the male hypopygium (22).

The group with the long Cu petiole can be further divided. In one group the dark cones of tergite 9 have been lost and the male mid-coxal spur is long, almost straight, only slightly curved apically if at all, usually ventrad, and with a long weak apex, with or without a minute apical tooth (18). On the basis of the hypopygial structure three species groups can be distinguished: the *M. sigma, M. ampla* and *M. tenuis* (including *M. ultima)* groups. The other group with a long Cu petiole has strong fore-coxal spines and the base of the male mid-coxal spur with a distinct cone-like appendage, not known in other *Mycomya* species (19). Here, in the species group *M. spinicoxa,* the apex of the mid-coxal spur has a unique long lobe, and the dark cones of tergite 9 are absent (20). The *M. levis* species group has the scapus of the male antenna with 1—3 strong spines anteriorly, such spines are not known elsewhere in *Mycomya* (21).

The group with the sabre-like spines includes six small species groups, which have lost the mid-coxal spur and usually also the setae of the mediotergite. Of these *M. arnaudi* has lost the dark cones, but its hypopygial structures suggest close relationship with e.g. *M. parva.* Two larger groups also have the sabre-like spines present. In both of these the apical portion of tergite 9 of the male hypopygium is well developed and, in fact, they may form a monophyletic entity. The first of these groups has the "ornata" patch of setae on the male fore coxa along the anteromedial surface (23). In the *M. atus* species group the setae of this patch are still comparatively long and poorly differentiated. The *M. atus* group has the following autapomorphies: the submedian appendages of the sternal synsclerite bear strong spines and the sabre-like spines of tergite 9 are apically rounded and dilated (24). In the other species groups of this branch the "ornata" patch is better developed and the setae are shorter (25). In the species group *M. matrona* tergite 9 is very large. In the two remaining species groups tergite 9 is reduced in size, and they have also lost the mid-coxal spur (27). The *M. matrona* group has several autapomorphies, e.g. the extremely long submedian appendages of the sternal synsclerite, with long, strong setae (26). In the species group *M. mituda* the gonostyli lack distinct apical teeth or spines and the sternal synsclerite bears lateral appendages (28). In this group the "ornata" patch is large, and its setae are short to long. In the species group *M. ornata* the patch is best developed, having only comparatively short subequal setae concentrated near the apex of the fore-coxa (29).

The second larger group with sabre-like spines lacks the "ornata" patch. It comprises three species groups having a very similar hypopygial structure (30), but differing in other respects. In the species group *M. calcarata* the gonostylus has two branches, both with apical teeth (31), and the mid-coxal spur is present. In the *M. fuscipalpis* and *M. bialorussica* species groups the gonostyli are long and slender with one short dark tooth and another much lengthened pale tooth (32). In *M. fuscipalpis* (33 refers to hypopygial autapomorphies) the mid-coxal spur is present, but in the *M. bialorussica* group it has been lost (34).

4. Zoogeography

4.1. General patterns

Although many *Mycomya* species are uncommon or rare, their general distributions can be safely inferred in most cases, because even small samples from different areas usually contain a good number of species (see further section 5.2.) and the fauna of several areas is now, in fact, comparatively well known in spite of the samples being relatively few (cf. Gagné 1981). This was seen when additional material arrived during a later phase of my work; even such large collections as that from the Iowa State University did not markedly change the picture of the distribu-

tions of species. The best studied areas are Europe and North America, and the most poorly known area is the eastern Palaearctic, especially China and Japan.

In the genus *Mycomya* 164 species are now known to occur in the Holarctic region (the unrecognized species omitted): 96 in the Palaearctic and 97 in the Nearctic. Of these 18 % (29 species) are considered to have a Holarctic distribution (i.e. known both from the Palaearctic and from the Nearctic). The Palaearctic and Nearctic thus share about 30 % of their faunas. The *Mycomya* species are also well represented in the faunas of the other biogeographic regions.

The local numbers of the species with Holarctic distributions are high in the north and seem to decrease with the latitude. This change is still not as steep as might be expected, since *Mycomya* species usually occur at higher elevations in the south. In the Palaearctic, the percentages of species with Holarctic ranges in the different areas are as follows: Italy — 33 % (7 spp.), Czechoslovakia — 38 % (13 spp.), Britain — 44 % (15 spp.), Finland — 40 % (28 spp., i.e. all the species with Holarctic ranges except *M. onusta*). The values for the northern Finnish provinces *Ob* and *Ks* are much higher, 52 % (23 spp.), and that for Finnish Lapland (provinces *Lkem, Le, Li*) is as high as 65 % (17 spp.) — see section 5.1. for details of the Fennoscandian fauna.

In Alaska the species with a Holarctic distribution also make up 65 % of the fauna (i.e. 13 spp.). Thus, it can be said that the northernmost regions of the Nearctic and Palaearctic share about two-thirds of their *Mycomya* fauna. In other areas of North America these values vary, usually being between 30—45 %, but the proportion is distinctly smaller, roughly about 20 %, in the southwestern part (southern Cascades and Sierra Nevada). The species group with the highest proportion of species with Holarctic ranges is the *M. marginata* group; about 50 % of its Finnish species are also known from North America. The species of the subgenera *Tlingitmyia* (1 sp.), *Coheromyia* (5 spp.), *Cymomya* (4 spp.), *Myacymo* (1 sp.) and *Lycomya* (3 spp.), and also those of the genera *Mycoleia* and *Neoempheria* are restricted to either the Nearctic or Palaearctic regions.

The circumpolar faunal element of *Mycomya* is typically boreal, although some species also occur in the treeless tundra of the arctic areas. Among these, *M. islandica* is very northern, but the most distinctly arctic species is the Nearctic *M. ultima*.

In the Palaearctic most of the boreal species also have more or less separate populations on the mountains of Central Europe. Some species are distinctly eastern and some western but detailed comparisons are not yet possible due to the poor knowledge of the eastern Palaearctic fauna. The European fauna is conspicuously homogene-

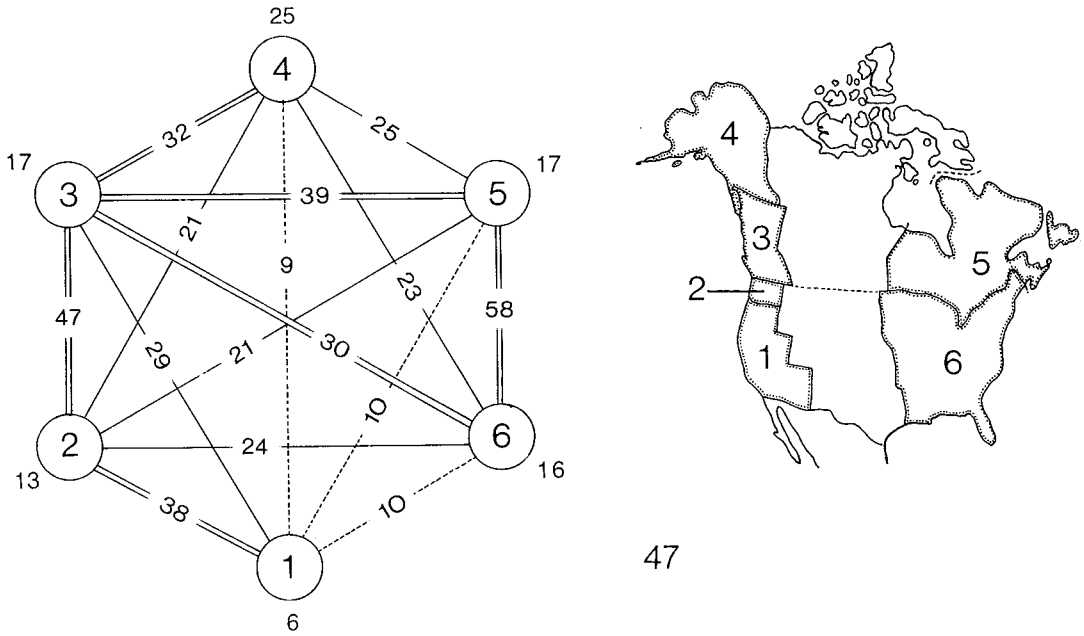


Fig. 47. Similarity indices of the species composition between the areal blocks 1—6 in North America. — 1, SW USA (N=24 species). — 2, Washington (N=27). — 3, British Columbia (N=51). — 4, Alaska and Yukon (N=24). — 5, E Canada (N=42). — 6, E USA (N=45). The outer numeral is the index between each block and Finland (N=70), given for comparison.

ous. Probably the only more local species are those not known outside the mountains of Central Europe: *M. tridens, M. fissa, M. hebrardi, M. fornicata* and *M. alpina* (the latter two are also known from the eastern USSR). No distinctly southern species seem to exist in Europe, but the island species *M. rivalis* and *M.* n. sp. (Canary Islands) and possibly *M. pygmalion* (Cyprus) may represent endemic species. In the north, the Holarctic *M. islandica* occurs on the northern Fennoscandian mountains and in Iceland. The highest number of species is known from Finland (70 spp.), partly due to the high collecting intensity. It is higher than any Nearctic value, including that of British Columbia (51 spp.).

The species composition of different areas of North America was studied by separating six blocks with relatively homogeneous and well-known faunas: — 1. southwestern USA: Oregon, California, Nevada, Arizona (with a total of 24 species, 6 of which are known only from this block). — 2. northwestern USA: Washington (27, 0). — 3. southwestern Canada: British Columbia (51, 5). — 4. northwestern Nearctic: Alaska, Yukon (24, 1). — 5. eastern Canada: Ontario, Quebec, Newfoundland, New Brunswick, Nova Scotia (42, 2). — 6. eastern USA: Minnesota, Iowa, Missouri, Arkansas, Louisiana and the states to the east (45, 6).

Other areas were omitted from this analysis because sufficient material was lacking. This is largely because these insects are typical forest species and almost missing from unforested or dry areas, such as the central USA. The omission concerns only a few species: *M. comesa* (Colorado), *M. oreades* (Montana, Colorado, Mexico), *M. ultima* (North West Territories), *M. kiamichii* (Oklahoma) and the three Mexican species.

Similarity indices (Jaccard's formula; given in percentages; see e.g. Southwood 1978:432) were calculated bilaterally for the species composition of all the North American blocks. The results are shown in Fig. 47.

Very close similarity existed between the faunas of eastern Canada and the eastern USA, between those of British Columbia and Washington, and between these eastern and western block pairs. These E-W relations are closer than those of the pairs with Alaska + Yukon, although they are also close. The southwestern USA is faunistically comparatively similar to Washington and British Columbia but differs drastically from the other blocks.

The material from Colorado, which was omitted from the above comparisons, contains some species with more or less northern distributions: *M. fasciata, M. simplex, M. nitida, M. trivittata* and *M. magnifica*. These species have apparently disjunct ranges at high altitudes in Colorado, although at least some of them also occur along the Rocky Mountains. Similarly separated populations of northern species are also known in, for instance, Lepidoptera (LaFontaine 1982).

4.2. Testing Gagné's model of the Holarctic distribution

Only a few genera of fungus gnats are well enough known to allow any comparisons with *Mycomya* (Laffoon 1957: *Mycetophila;* Laštovka 1972a: *Mycetophila;* Laštovka & Matile 1972: *Diadocidia;* Munroe 1974: *Symmerus* & *Australosymmerus;* Gagné 1975: *Phronia,* 1981: *Trichonta;* Chandler 1981: *Epicypta;* Zaitsev 1982: *Sciophila).* Most of the available studies are based on very limited material, or concern only small genera or species groups with few species. Valuable for the present analysis was Gagné's (1981) revision of *Trichonta,* which contains an interesting biogeographic discussion.

One of the cornerstones of Gagné's (1981) model of the distribution of the Holarctic Mycetophilidae was that the eastern Nearctic fauna (the Great Plains and the area to the east) is more similar to the European fauna than to the western Nearctic fauna (the Rocky Mountains and the area to the west); i.e. the eastern Nearctic fauna shares more *species* with the European fauna than with the western Nearctic fauna. This was argued on the basis of the number of species with Holarctic ranges which are common to Europe and the eastern Nearctic alone, and those common to Europe and the western Nearctic. In *Trichonta* these are 7 and 2, respectively, in *Phronia* 1 and 0, and in *Mycetophila* 4 and 1. In *Symmerus* a similar pattern was found at the subgeneric level: Europe and the eastern Nearctic have the subgenus *Symmerus* in common, although represented by different species. According to Gagné the congruence between the European and the eastern Nearctic fungus gnats suggests a connection between the two areas other than the Beringian one. He adds: "If Beringia had been a major pathway for gene exchange in these flies, why then should the eastern fauna resemble more closely the European fauna than does the fauna of western North America?" These aspects were taken into account when analysing the ranges of single *Mycomya* species.

On the basis of the present *Mycomya* material it seems possible to say that the eastern Nearctic fauna (i.e. species composition) does not, in fact, resemble the European fauna more closely than the fauna of western North America. It can be seen (e.g. Fig. 47) that the *southwestern* Nearctic *Mycomya* fauna differs distinctly from both the eastern Nearctic and the European (or Palaearctic) fauna, but the *northwestern* Nearctic fauna

clearly does not and it is more similar to the European fauna than is the eastern Nearctic fauna.

It seems that at species level the faunal similarities between Europe and the eastern Nearctic are due to the large amount of species with circumpolar distributions and that the gaps in these ranges are due only to lack of study and material. In *Mycomya* only two species, *M. denmax* and *M. levis*, are known from Europe and eastern North America but missing from western North America. Their distributions are probably still poorly known and it is here predicted that they may also be found in western North America, e.g. in Alaska.

In addition, another hypothesis can be opposed to Gagné's model. The faunal connections between Europe and eastern North America (in this case really disjunct) have possibly been caused by human activity, transport with large amounts of soil and other material across the northern Atlantic (cf. Lindroth 1957). This seems to offer an alternative explanation (although less probable than the Beringian connection) of such ranges as those of *M. denmax* and *M. levis*.

4.3. Vicariance patterns

New insight was needed in the analysis of the European — eastern Nearctic faunal connections. In this respect the currently so popular vicariance biogeography (e.g. Croizat et al. 1974, Rosen 1976, 1978, Nelson & Platnick 1981) together with phylogenetics seems to offer the most promising approach. As emphasized by Cracraft (1982), one cannot reconstruct the history of speciation of any designated group, if the analysis is restricted to just that group; one must have some notion of the general vicariance patterns for the geographic areas in question. The existence of a land connection between North America and Europe in the early Tertiary was first proposed by Kurtén (1966), and now on the basis of the available geological and biological — especially vertebrate — data such connections are generally accepted to have occurred (e.g. McKenna 1973, 1975, for details, see Matthews 1980). The Euramerican connection was considerably south of the North Pole and the climate was much more suitable for most organisms than the Bering land bridge, which was situated closer to the pole than it is now and was consequently much colder and darker (see Fig. 48). By about 50 millions years ago the climate of the North Atlantic had became so much colder that the main migration route for mammals shifted to Beringia. In plants some dispersal from Europe to North America was possible later as well, during most of the Tertiary. This might also be true for such winged insects as fungus gnats. However, I consider them very suitable

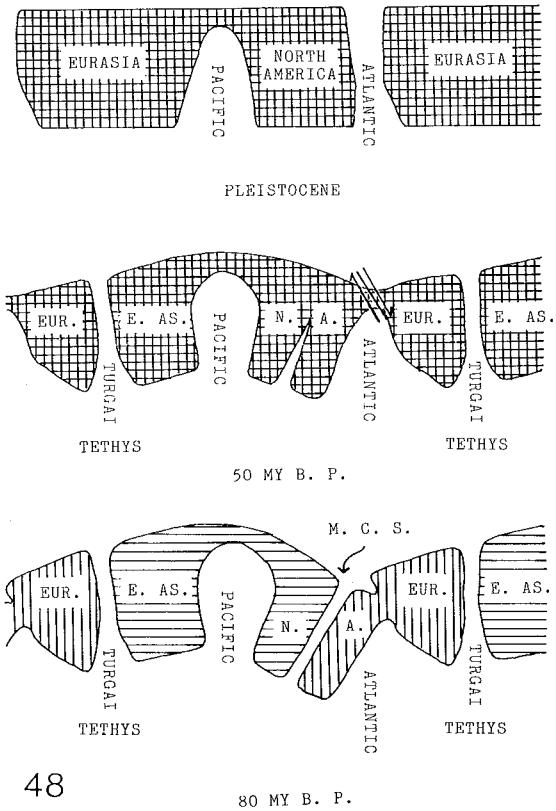


Fig. 48. Crude "palaeomercator" sketches of Eurasian and North American landmass distribution (minus India) at three times in the past, incorporating concepts of differential plate motion, "polar wander" and epicontinental sea redistribution. Beringia was formerly at a high palaeolatitude. The depicted ancient sinuosity of these landmasses is an artifact of shifted polar coordinates. M.C.S. = North American Mid-Continent Seaway. Lined areas indicate former endemism. Crosshatched area indicates surviving mixed fauna. (Slightly modified from McKenna 1973).

objects for historical biogeography precisely because they seem to be so closely bound to their biotopes, usually shady forests (see Biology) and are probably not very successful in jump or long-distance dispersal. In some exceptional cases, however, long-distance dispersal is the only model explaining the range of a species, e.g. the presence of the widely distributed *M. islandica* on Iceland.

The procedure adopted was to try to find very closely related species pairs — sister species in the phylogenetic sense. Usually these species had, in fact, first been considered to represent one and the same species, but more detailed study showed the existence of pairs. The ranges of the sister species were analysed as far as seemed possible

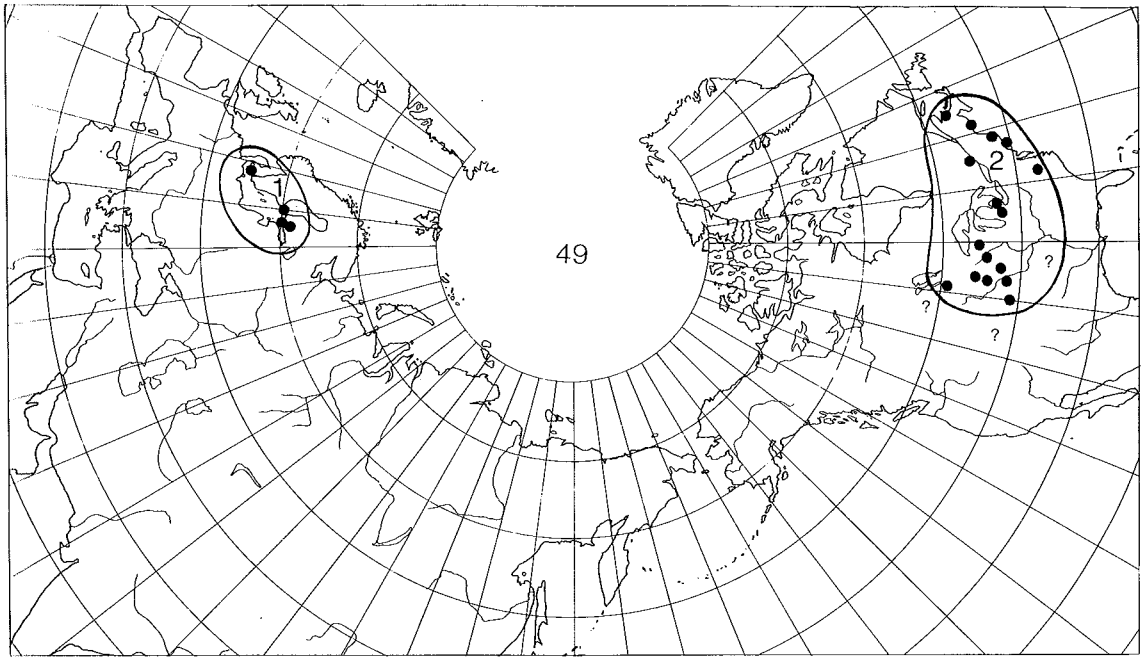


Fig. 49. Collection localities of *Mycomya branderi* (1) and *M. tantilla* (2).

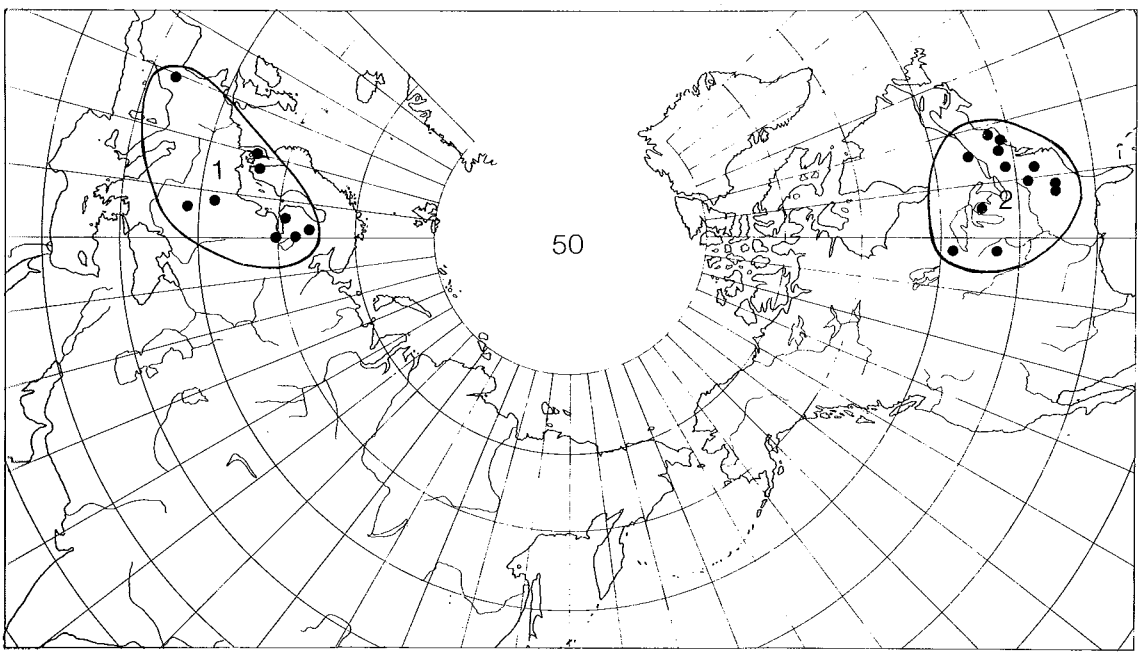


Fig. 50. Collection localities of *Mycomya paradentata* (1) and *M. dentata* (2).

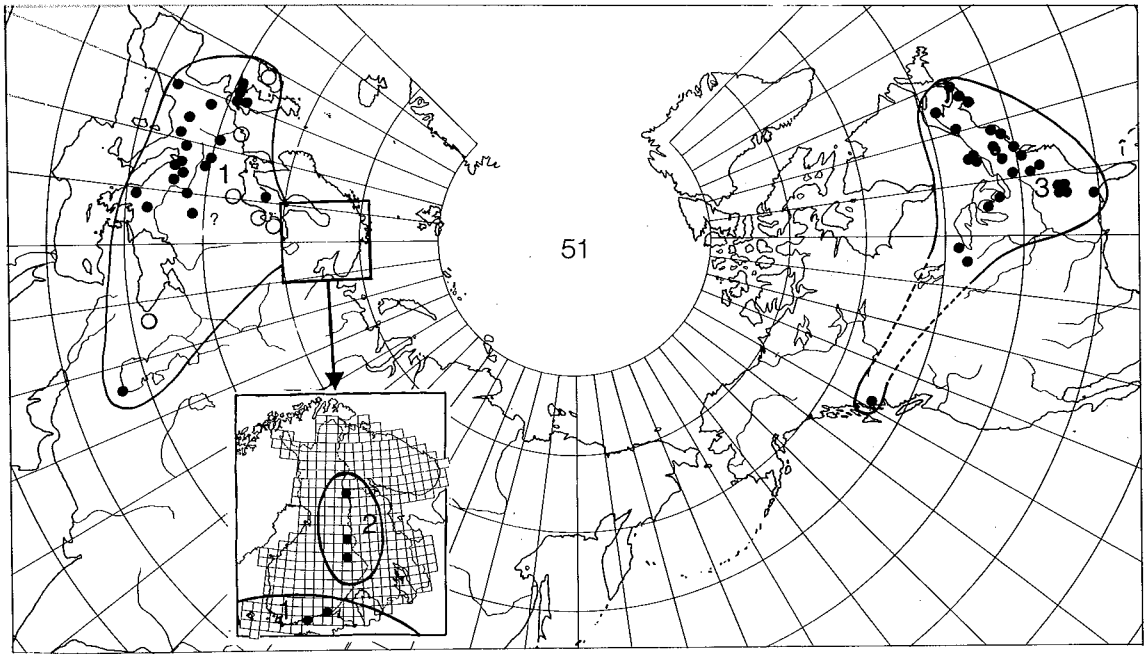


Fig. 51. Collection localities of *Mycomya flavicollis* (1), *M. festivalis* (2) and *M. pura* (3).

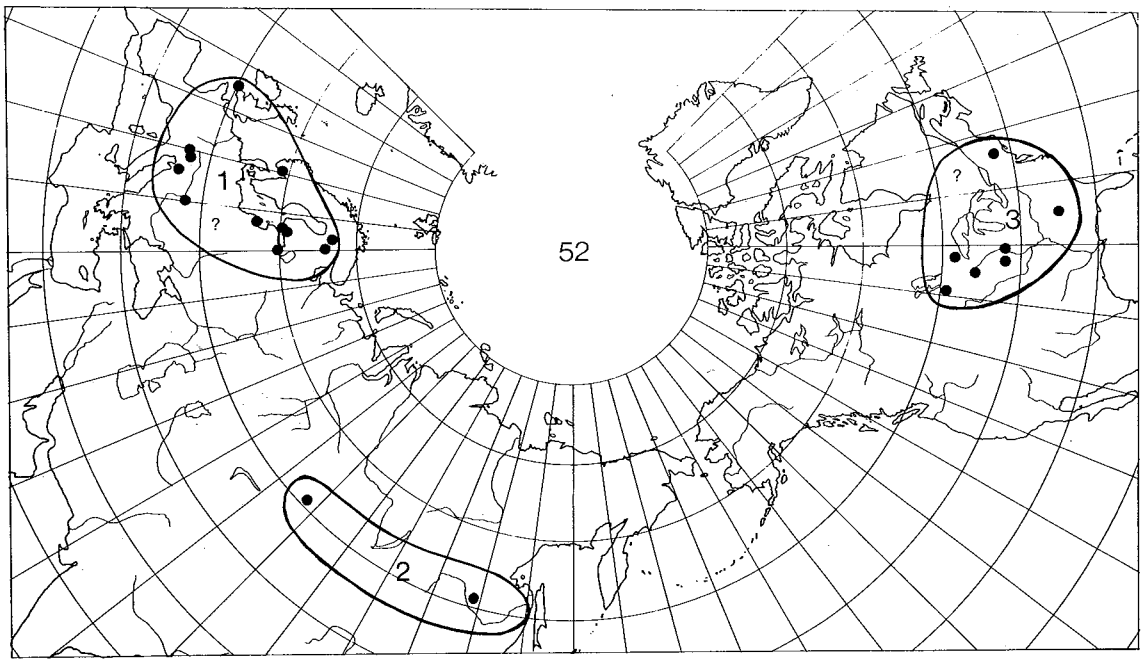


Fig. 52. Collection localities of *Mycomya pectinifera* (1), *M. amurensis* (2) and *M. praeda* (3).

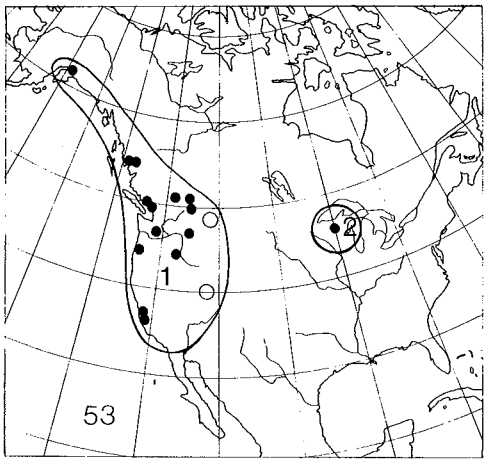


Fig. 53. Collection localities of *Mycomya echinata* (1) and *M. electa* (2).

and compared with the general pattern of vicariance.

Among the vicariant pairs of species, several contain an eastern Nearctic and a European member. Clear cases seem to be: *M. tantilla* — *M. branderi* (Fig. 49), *M. dentata* — *M. paradentata* (Fig. 50) and *M. rebellicosa* — *M. marginata*. The pair *M. pura* — *M. flavicollis* apparently also belongs here, although a few specimens of *M. pura* are also known from the northwestern Nearctic (Fig. 51). *M. nitida* has a wide distribution but its sister species *M. pini* is known only from the eastern Nearctic. In less certain cases (sister group relations less definite) the same pattern may exist in the background, e.g. *M. dichaeta* — *M. disa*, *M. safena* — *M. brunnea*. In *M. pulchella*, specimens from the eastern Nearctic differ slightly from the others and this may be due to incomplete development of genetic isolation mechanisms before secondary contact was possible between the European and eastern populations. Eastern Nearctic *M. praeda* also has its sister species in the Palaearctic, namely *M. amurensis* (Fig. 52). European *M. pectinifera* is the sister group of this pair.

A sympatric sister species pair, *M. esox* — *M. byersi*, is entirely eastern Nearctic.

Sister species pairs can also be found with one member in the eastern and the other in the western Nearctic, but the relations are not very close in all cases and the morphological differences are usually well developed, e.g. *M. electa* — *M. echinata* (Fig. 53; cf. LaFontaine 1982, Beaman 1977), *M. wirthi* — *M. muscovita*, *M. novagallica* — *M. imperatrix*. This also supports Gagné's opinion that the Pleistocene glaciation may not have been as great a factor in the creation of differences between the eastern (here particularly "block 6") and western faunas as it was in maintaining the status quo of the separate faunas.

No distinct pair of western Nearctic and European species was found, but such might be *M. mendax* — *M. karelica*. The cases of *M. monosta* — *M. mituda* and *M. frequens* — *M. penicillata* are still more uncertain.

Gagné's observations on the Mycetophilidae and Cecidomyiidae fossils support the assumption that species of fungus gnats may have remained essentially unchanged since the early Tertiary. This was one of the arguments for his model of the Holarctic distribution. Although I have not succeeded in finding reliable vicariance relations between the populations of a single *Mycomya* species in Europe and eastern North America (in the cases in which the species does not occur in western North America), the present data suggest that greater morphological differentiation has been rare in the European — eastern Nearctic species pairs since the Tertiary.

It is possible that the differences between the present study and Gagné's model are due to different rates of speciation in *Mycomya* and *Trichonta* (cf. also *Symmerus*). However, in general it can be said that "the different rates of speciation" in different groups are often mainly due to differences in the taxonomic treatment, especially as regards the categories of taxa.

4.4. Conclusions

1. Among the 164 *Mycomya* species of the Holarctic region, 29 species are considered to have Holarctic ranges, in contrast to the one previous record (which was incorrect, see *M. tenuis*).

2. The northernmost regions of the Nearctic and Palaearctic (e.g. Alaska and Finnish Lapland) have about two thirds of their *Mycomya* species in common.

3. In the Nearctic *Mycomya* fauna, the southwestern part differs distinctly from the northern and eastern parts, but the rest of the Nearctic, including the northwestern areas, has a comparatively homogeneous fauna.

4. In the species composition of the local *Mycomya* fauna the resemblance between Europe and the eastern Nearctic cannot be shown to be closer than that between Europe and the western Nearctic. Compared with the eastern North American fauna the northwestern is even more similar to the European fauna.

5. Vicariance relations between Europe and the eastern Nearctic at the level of the populations of a single *Mycomya* species are found only in cases in which the species occurs in northwestern North America as well.

6. Species known from both the eastern Nearctic and Europe are predicted to occur in north-

western North America, except in possible cases of anthropochory across the North Atlantic. Southwestern Nearctic species also known from Europe are predicted to occur in the eastern Nearctic as well (cf. Gagné 1981).

7. Vicariance relations between sister species support Gagné's model for the distribution of the Holarctic Mycetophilidae at this taxonomic level.

8. The main role of the Pleistocene glaciation may have been maintenance of the status quo between the eastern and western Nearctic faunas, not the creation of differences between these areas.

9. The rate of morphological differentiation of species appears to have been slow. Species that were possibly separated geographically from each other as far back as the Tertiary, several million years ago, are still very close and rather poorly differentiated.

10. The wide general distribution of the genus *Mycomya* and some of its subgenera indicate the great age of these flies, although in some exceptional cases long-distance dispersal is the only explanation of the distribution of a species.

5. Occurrence in eastern Fennoscandia

5.1. Distribution on a smaller scale

About 40 % of the eastern Fennoscandian *Mycomya* species are also known from North America. The total distribution of several species is still more or less incompletely known and in need of further study. However, in a limited area such as eastern Fennoscandia certain tendencies can be shown on the basis of the present material. In addition, the analysis of this material also gives a comparatively reliable standpoint for solving some problems posed by the Holarctic distribution patterns.

The known distribution of *Mycomya* species in eastern Fennoscandia is shown in Table 2, which also reflects the effectiveness of collecting in smaller areas. For the sake of simplicity and to reduce the effect of uneven collecting, the areal subunits have been united into three zones (see Fig. 54). The limits of these zones have been dictated by practical considerations and mainly coincide with the borders of the biogeographical provinces. Roughly speaking, zone I is the area in which the annual effective temperature sum is more than 1100 degrees and zone III is the area in which this sum is less than 700 (800) degrees (see e.g. Kalliola 1973:60).

On the whole it can be said that there is no distinct faunistic limit between zones I and II. Between zones II and III, however, there is a transition area where the fauna becomes poorer, the species number decreasing by about 50 %. About 43 % of the species occur through all the three zones (Table 3) and many of these widely distributed species are also the commonest, e.g. *M. bicolor, M. nitida, M. fasciata, M. ruficollis* and *M. shermani.*

All the species restricted to zone I are rare. A typical southern species seems to be *M. mar-*

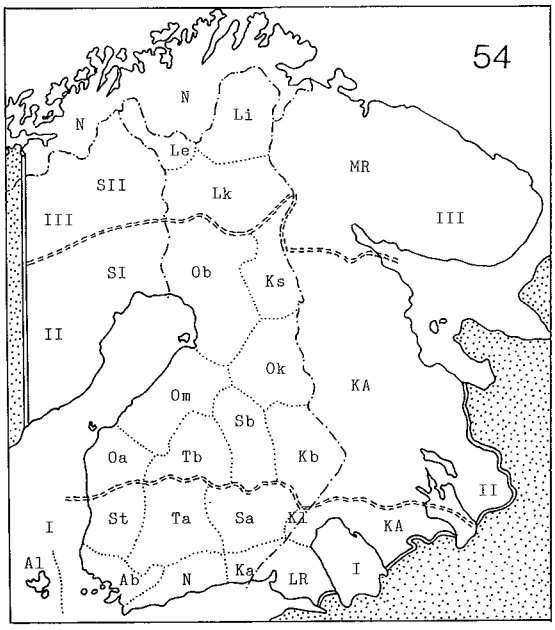


Fig. 54. The study area in eastern Fennoscandia. Abbreviations used: — zone I: *Al* Alandia, *Ab* Regio aboensis, *N* Nylandia, *Ka* Karelia australis, *St* Satakunta, *Ta* Tavastia australis, *Sa* Savonia australis, *Kl* Karelia ladogensis, LR Leningrad region, KA Karelian ASSR (southern part); — zone II: *Oa* Ostrobottnia australis, *Tb* Tavastia borealis, *Sb* Savonia borealis, *Kb* Karelia borealis, *Om* Ostrobottnia medialis, *Ok* Ostrobottnia kajanensis, *Ob* Ostrobottnia borealis, *Ks* Kuusamo, SI northern Sweden (southern part, including Messaure), KA Karelian ASSR (northern part); — zone III: *Lk* Lapponia kemensis, *Li* Lapponia inarensis, *Le* Lapponia enontekiensis, SII northern Sweden (northern part, including Abisko), N northern Norway, MR Murmansk region.

Table 2. Distribution of the *Mycomya* species in eastern Fennoscandia. For explanations of the abbreviations, see Fig. 54 (Hol. = Holarctic, Pal. = Palaearctic).

Mycomya	Al	Ab	N	Ka	St	Ta	Sa	Kl	Oa	Tb	Sb	Kb	Om	Ok	Ob	Ks	Lk	Li	Le	SI	SII	N	LR	KA	MR	Hol./Pal.
affinis	Al	Ab	N	Ka	-	Ta	Sa	-	-	-	-	-	-	-	Ob	Ks	-	-	-	SI	-	-	-	-	-	Hol.
annulata	-	Ab	N	Ka	-	Ta	-	-	Oa	-	-	Kb	Om	Ok	Ob	Ks	-	-	-	SI	-	-	-	-	MR	Pal.
avala	-	Ab	-	-	-	-	-	-	-	-	Sb	-	-	-	-	-	-	-	-	-	-	-	-	KA	-	Pal.
bialorussica	-	-	-	-	-	-	-	-	-	-	-	-	-	Ok	-	-	-	-	-	-	-	-	-	-	-	Pal.
bicolor	Al	Ab	N	Ka	-	Ta	Sa	Kl	Oa	Tb	-	Kb	-	Ok	Ob	Ks	Lk	Li	Le	SI	SII	N	-	KA	MR	Hol.
bisulca	-	Ab	N	-	-	-	Sa	-	-	-	-	-	-	-	-	Ks	-	-	-	SI	-	-	-	-	-	Pal.
branderi	Al	Ab	-	-	-	Ta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
britteni	-	Ab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
brunnea	-	Ab	N	-	-	Ta	-	-	-	-	-	Kb	Om	Ok	-	Ks	Lk	-	-	SI	SII	-	-	-	-	Pal.
cinerascens	Al	Ab	N	Ka	-	Ta	Sa	-	Oa	-	-	Kb	-	Ok	Ob	Ks	-	Li	-	SI	SII	-	-	-	-	Hol.
circumdata	-	Ab	N	-	-	Ta	-	-	-	-	-	-	Om	-	-	Ks	-	-	-	-	-	-	-	-	-	Pal.
collini	-	Ab	-	-	-	-	-	-	-	-	-	Kb	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
confusa	-	Ab	-	-	-	-	-	-	-	-	-	-	-	-	-	Ks	-	-	-	SI	-	-	LR	-	-	Pal.
danielae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ob	Ks	-	-	-	SI	-	-	-	-	-	Hol.
denmax	Al	Ab	N	-	-	-	Sa	-	-	-	-	Kb	-	Ok	-	Ks	Lk	-	-	SI	-	-	-	-	MR	Hol.
digitifera	-	Ab	-	-	-	-	-	-	-	-	-	Kb	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
disa	-	Ab	N	Ka	-	-	-	-	-	-	-	Kb	-	Ok	Ob	Ks	Lk	Li	-	SI	SII	N	-	-	MR	Pal.
dziedzickii	-	Ab	-	Ka	-	-	-	-	-	-	Sb	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
egregia	-	Ab	-	-	-	-	Sa	-	-	-	-	-	-	Ok	-	Ks	-	-	-	-	-	-	-	-	-	Pal.
fasciata	Al	Ab	N	Ka	-	Ta	Sa	-	-	-	Sb	Kb	-	Ok	Ob	Ks	Lk	Li	Le	SI	SII	N	LR	KA	MR	Hol.
fennica	-	Ab	N	-	-	-	-	-	-	-	-	-	-	Ok	-	-	-	-	-	-	-	-	-	-	-	Pal.
festivalis	-	-	-	-	-	-	-	-	-	-	-	Kb	-	Ok	-	Ks	-	-	-	-	-	-	-	-	-	Pal.
fimbriata	-	Ab	N	-	-	Ta	-	-	-	-	-	Kb	-	-	-	Ks	Lk	-	-	-	-	-	-	-	-	Hol.
flavicollis	-	-	N	Ka	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
forestaria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ks	-	-	-	SI	-	-	-	-	-	Pal.
fuscata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SII	-	-	-	MR	Hol.
hackmani	-	Ab	N	-	-	-	-	-	-	-	-	Kb	-	Ok	-	Ks	-	Li	-	SI	SII	N	-	-	MR	Pal.
heydeni	-	Ab	N	-	-	Ta	Sa	Kl	-	-	-	Kb	-	Ok	Ob	Ks	Lk	-	-	SI	-	-	-	-	-	Pal.
hians	-	Ab	-	-	-	-	-	-	-	-	-	-	-	Ok	-	-	Lk	-	-	-	-	-	-	-	-	Pal.
hiisi	-	Ab	-	-	-	-	Sa	-	-	-	-	-	-	Ok	-	-	-	-	-	-	-	-	-	-	-	Pal.
humida	-	-	-	-	-	-	-	-	-	-	-	-	-	Ok	-	Ks	-	-	-	SI	-	-	-	-	-	Hol.
insignis	-	Ab	-	-	-	-	-	-	-	-	-	-	Om	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
islandica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Li	-	-	SII	-	-	-	MR	Hol.
karelica	-	-	-	-	-	-	-	-	-	-	-	Kb	-	Ok	-	-	-	-	-	-	-	-	-	-	-	Pal.
kaurii	-	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hol.
kuusamoensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ks	-	-	-	-	-	-	-	-	-	Pal.
lambi	-	Ab	-	-	-	-	-	-	-	-	-	-	-	-	Ob	Ks	-	-	-	-	SII	-	-	-	MR	Hol.
leporina	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ob	-	-	-	-	-	-	-	-	-	-	Hol.
levis	-	Ab	N	Ka	-	Ta	Sa	-	-	-	-	Kb	-	Ok	Ob	Ks	Lk	Li	-	SI	-	-	-	-	MR	Hol.
maculata	-	Ab	N	Ka	St	-	Sa	-	-	Tb	-	-	-	-	Ob	Ks	Lk	-	-	SI	SII	-	LR	KA	MR	Hol.
marginata	Al	Ab	N	Ka	-	-	Sa	-	-	-	-	Kb	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
mituda	-	Ab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
neohyalinata	Al	Ab	N	Ka	-	Ta	Sa	-	-	-	-	Kb	Om	Ok	Ob	Ks	-	-	-	-	SII	-	-	-	MR	Hol.
neolittoralis	-	-	-	Ka	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hol.
nigricornis	-	Ab	N	Ka	-	-	-	-	Oa	-	-	-	-	-	-	-	Lk	Li	-	SI	-	-	-	-	MR	Hol.
nitida	Al	Ab	N	Ka	St	Ta	Sa	-	-	-	-	Kb	-	Ok	Ob	Ks	Lk	Li	Le	SI	SII	N	LR	KA	MR	Hol.
norna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SI	-	-	-	-	-	Pal.
occultans	-	-	N	-	-	-	-	-	-	-	-	Kb	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
ornata	-	Ab	N	-	-	Ta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
paradentata	-	Ab	N	-	-	-	-	-	-	-	-	Kb	-	Ok	-	-	-	-	-	-	-	-	-	-	-	Pal.
pectinifera	-	Ab	N	-	-	-	-	-	-	-	-	-	-	-	Ob	Ks	-	-	-	-	-	-	-	-	-	Pal.
penicillata	Al	Ab	-	-	-	-	-	-	-	-	Sb	-	-	-	Ob	-	-	Li	Le	SI	-	-	-	KA	MR	Pal.
permixta	-	Ab	N	Ka	-	Ta	Sa	-	-	-	-	-	Om	-	Ob	Ks	-	Li	-	-	-	-	LR	-	MR	Hol.
prominens	Al	Ab	N	-	-	-	Sa	-	-	-	-	Kb	?	Ok	-	-	-	-	-	-	-	-	-	-	MR	Pal.
pseudoapicalis	-	Ab	N	Ka	-	-	-	-	-	-	-	-	-	Ok	Ob	Ks	-	-	-	-	-	-	-	-	-	Pal.
pseudocurvata	-	Ab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Pal.
pulchella	-	-	N	Ka	-	-	Sa	-	-	-	-	Kb	Om	Ok	Ob	-	-	-	-	-	-	-	-	-	MR	Hol.
punctata	-	Ab	N	-	-	-	-	-	-	-	-	Kb	-	Ok	Ob	Ks	Lk	Li	-	-	-	N	-	-	-	Pal.
ruficollis	Al	Ab	N	Ka	-	Ta	-	Kl	-	-	-	Kb	-	Ok	Ob	Ks	Lk	-	-	SI	SII	-	-	KA	MR	Hol.
shermani	-	Ab	N	Ka	-	Ta	-	-	Oa	Tb	-	Kb	Om	Ok	Ob	Ks	Lk	Li	Le	SI	SII	N	-	-	MR	Hol.
siebecki	Al	-	-	-	-	-	-	-	-	-	-	-	-	-	Ob	Ks	-	-	-	-	-	-	-	-	-	Pal.
sigma	Al	Ab	N	-	St	Ta	Sa	-	Oa	-	-	Kb	-	Ok	Ob	Ks	-	Li	-	SI	-	-	-	-	MR	Hol.
spinicoxa	-	Ab	-	-	-	-	-	-	-	-	-	-	-	-	-	Ks	-	-	-	SI	-	-	-	-	-	Pal.
storai	-	-	-	-	-	?	-	-	-	-	-	-	Om	-	-	-	-	-	-	-	-	-	?	-	-	Pal.
subarctica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Ob	Ks	-	-	-	-	-	-	-	-	-	Hol.
tenuis	Al	Ab	N	-	St	-	-	Kl	-	-	-	Kb	-	Ok	Ob	Ks	-	Li	-	-	-	N	-	-	MR	Pal.
trilineata	-	Ab	N	Ka	-	Ta	Sa	-	-	-	-	Kb	Om	Ok	-	-	-	-	-	SI	-	-	LR	-	MR	Pal.
trivittata	-	Ab	N	Ka	-	Ta	Sa	Kl	-	-	-	Kb	-	Ok	Ob	Ks	Lk	-	Le	SI	SII	-	-	-	MR	Hol.
tumida	Al	Ab	N	-	-	-	-	-	-	-	-	Kb	-	-	-	Ks	-	Li	-	SI	SII	N	-	-	-	Pal.
vittiventris	-	Ab	-	Ka	-	Ta	Sa	-	-	-	-	Kb	Om	Ok	Ob	Ks	Lk	Li	Le	-	-	N	-	-	MR	Pal.
wankowiczii	Al	Ab	N	Ka	-	Ta	Sa	-	-	Tb	-	Kb	-	Ok	Ob	Ks	Lk	-	-	SI	-	-	-	Ka	-	Hol.
winnertzi	Al	Ab	N	Ka	St	Ta	Sa	-	-	-	Sb	Kb	-	Ok	Ob	Ks	-	-	-	-	-	-	-	-	-	Hol.

Table 3. The distribution patterns of species of *Mycomya* in three zones (see p. 00) in eastern Fennoscandia.

Distribution pattern (zones)	% of species in zone I	II	III	Total number of species	% of all species
I + II + III	52	50	94	31	43
I + II	35	34	—	21	29
I	13	—	—	8	11
II + III	—	—	—	0	0
II	—	16	—	10	14
III	—	—	6	2	3
I + III	—	—	—	0	0
Total number of species	60	62	33	72	100

ginata, which is common in southern Finland but missing from the northern areas. The northernmost specimen of this Palaearctic species comes from *Kb:* Kitee, Papinniemi, where the influence of Lake Ladoga makes the climate more southern.

Most of the species found only in zone II are also rare, but some of them have been caught in slightly higher numbers: *M. humida, M. subarctica* and *M. festivalis.* This area shares most of the fauna of the previous zone.

In zone III the *Mycomya* fauna is greatly impoverished. This may be due to the lack of suitable habitats, especially damp, shady spruce forests (cf. province *Ks),* and also to the direct impact of the more extreme climatic conditions. Two species, viz. *M. islandica* and *M. fuscata,* have been found only in this zone, and may belong to the true arctic faunal element.

Most of the western Palaearctic *Mycomya* species are known from eastern Fennoscandia, and this genus seems to be characteristically boreal although fairly many of its representatives also occur in the southern temperate zone. If the few alpine species are excluded, then the only European species not known from eastern Fennoscandia are *M. sieberti, M. rosalba, M. parva, M. matilei, M. livida* and *M. maura.* The percentage of European species missing from the northern areas is much lower than in, for example, *Neoempheria* (e.g. Väisänen 1982a, b). Several *Mycomya* species are known only from this area, but true endemics hardly exist here, although e.g. *M. islandica* and *M. fuscata* possibly have isolated Fennoscandian populations. Similarly, several species that are widely distributed in Fennoscandia have separate populations on the mountains of Central Europe.

5.2. Abundance and commonness

For comparison of the abundance and commonness of different species, the numbers of males in random net samples are shown in Tables 4 and 5. This material was mainly collected by Professors Walter Hackman and Risto Tuomikoski during the 1960s. On account of difficulties in the determination, females, which accounted for about one third of the total material, have been omitted from the tables. These also exclude material collected by more selective methods, e.g. in light and sugar bait traps, and selected sweep net material, although such catches were used to obtain additional information on the fauna.

The most abundant species in the random samples were *M. shermani* (15.4 % of all specimens), *M. permixta, M. nitida, M. annulata* and *M. ruficollis.* In zone I the most abundant species were *M. permixta, M. annulata* and *M. affinis* (in this order), in zone II *M. shermani, M. nitida* and *M. ruficollis,* and in zone III *M. nitida* and *M. fasciata.* The present data would suggest that early summer species are more abundantly represented in the north, and autumn species in the southern part of the study area, where mass occurrences have even been observed. However, at present the random samples obtained from zone III in autumn are relatively few and additional material may be needed. *M. nigricornis,* for instance, seems to be missing from the north judging from the random samples, although one very abundant (? non-random) collection is available from Inari Lapland.

The species occurring most commonly in the whole area (i.e. present in most samples) were *M. nitida, M. neohyalinata* and *M. trivittata.* The commonest in zone I were *M. tenuis, M. cinerascens, M. trivittata* and *M. neohyalinata,* in zone II *M. nitida, M. ruficollis, M. fasciata* and *M. disa,* and in zone III *M. nitida, M. fasciata* and *M. disa* (Table 5).

Species diversity, expressed by the Shannon index and calculated for *Mycomya* males only, was: zone I 2.80, zone II 2.74 and zone III 1.70. The different species were almost as evenly rep-

Table 4. Numbers of specimens and percentages of different eastern Fennoscandian *Mycomya* species (males) in random net samples from zones I, II and III.

	zone I		zone II		zone III		total	
Mycomya	N	%	N	%	N	%	N	%
affinis	169	8.2	20	1.2	-	-	189	4.7
annulata	343	16.6	13	0.8	-	-	356	8.9
avala	1	0.0	-	-	-	-	1	0.0
bialorussica	-	-	4	0.2	-	-	4	0.1
bicolor	31	1.5	9	0.5	10	3.5	50	1.3
bisulca	4	0.2	1	0.1	-	-	5	0.1
branderi	-	-	-	-	-	-	-	-
britteni	-	-	-	-	-	-	-	-
brunnea	14	0.7	27	1.6	-	-	41	1.0
cinerascens	63	3.0	7	0.4	1	0.4	71	1.8
circumdata	15	0.7	4	0.2	-	-	19	0.5
collini	1	0.0	1	0.1	-	-	2	0.1
confusa	2	0.1	7	0.4	-	-	9	0.2
danielae	-	-	3	0.2	-	-	3	0.1
denmax	6	0.3	4	0.2	-	-	10	0.3
digitifera	3	0.1	2	0.1	-	-	5	0.1
disa	30	1.4	42	2.5	21	7.4	93	2.3
dziedzickii	3	0.1	-	-	-	-	3	0.1
egregia	6	0.3	6	0.4	-	-	12	0.3
fasciata	13	0.6	42	2.5	57	20.1	112	2.8
fennica	-	-	-	-	-	-	-	-
festivalis	-	-	14	0.8	-	-	14	0.4
fimbriata	8	0.4	4	0.2	1	0.4	13	0.3
flavicollis	-	-	-	-	-	-	-	-
forestaria	-	-	2	0.1	-	-	2	0.1
fuscata	-	-	-	-	-	-	-	-
hackmani	4	0.2	84	5.0	17	6.0	105	2.6
heydeni	33	1.6	15	0.9	-	-	48	1.2
hians	4	0.2	2	0.1	-	-	6	0.2
hiisi	4	0.2	1	0.1	-	-	5	0.1
humida	-	-	12	0.7	-	-	12	0.3
insignis	-	-	-	-	-	-	-	-
islandica	-	-	-	-	2	0.7	2	0.1
karelica	-	-	4	0.2	-	-	4	0.1
kaurii	-	-	-	-	-	-	-	-
kuusamoensis	-	-	3	0.2	-	-	3	0.1
lambi	-	-	3	0.2	-	-	3	0.1
leporina	-	-	1	0.1	-	-	1	0.0
levis	21	1.0	8	0.5	2	0.7	31	0.8
maculata	4	0.2	12	0.7	1	0.4	17	0.4
marginata	55	2.7	1	0.1	-	-	56	1.4
mituda	-	-	-	-	-	-	-	-
neohyalinata	64	3.1	14	0.8	1	0.4	79	2.0
neolittoralis	-	-	-	-	-	-	-	-
nigricornis	14	0.7	-	-	-	-	14	0.4
nitida	62	3.0	285	17.0	140	49.3	359	9.0
norna	-	-	-	-	-	-	-	-
occultans	1	0.0	1	0.1	-	-	2	0.1
ornata	-	-	-	-	-	-	-	-
paradentata	27	1.3	6	0.4	-	-	33	0.8
pectinifera	1	0.0	50	3.0	-	-	51	1.3
penicillata	5	0.2	1	0.1	1	0.4	7	0.2
permixta	458	22.1	49	2.9	2	0.7	509	12.7
prominens	13	0.6	4	0.2	-	-	17	0.4
pseudoapicalis	5	0.2	9	0.5	-	-	14	0.4
pseudocurvata	1	0.0	-	-	-	-	1	0.0
pulchella	1	0.0	2	0.1	-	-	3	0.1
punctata	5	0.2	7	0.4	2	0.7	14	0.4
ruficollis	61	2.9	282	16.9	2	0.7	345	8.6
shermani	102	4.9	506	30.2	9	3.2	617	15.4
siebecki	-	-	2	0.1	-	-	2	0.1
sigma	20	1.0	23	1.4	3	1.1	46	1.2
spinicoxa	1	0.0	1	0.1	-	-	2	0.1
storai	-	-	-	-	-	-	-	-
subarctica	-	-	24	1.4	-	-	24	0.6
tenuis	89	4.3	19	1.1	2	0.7	110	2.8
trilineata	97	4.7	3	0.2	-	-	100	2.5
trivittata	69	3.3	56	3.3	-	-	125	3.1
tumida	12	0.5	2	0.1	10	3.5	24	0.6
vittiventris	11	0.5	80	4.8	-	-	91	2.3
wankowiczii	37	1.8	6	0.4	-	-	43	1.1
winnertzi	44	2.1	12	0.7	-	-	56	1.4
total	2071		1674		284		3995	

Table 5. Numbers of random samples containing *Mycomya* species (males) and their proportions of all the samples in the eastern Fennoscandian zones I, II and III.

	zone I		zone II		zone III		total	
Mycomya	N	%	N	%	N	%	N	%
affinis	34	15	4	6	-	-	38	12
annulata	31	14	7	11	-	-	38	12
avala	1	0	-	-	-	-	1	0
bialorussica	-	-	1	2	-	-	1	0
bicolor	27	12	5	8	6	21	38	12
bisulca	4	2	1	2	-	-	5	2
branderi	-	-	-	-	-	-	-	-
britteni	-	-	-	-	-	-	-	-
brunnea	13	6	13	21	-	-	26	8
cinerascens	42	19	6	10	1	3	49	16
circumdata	8	4	2	3	-	-	10	3
collini	1	0	1	2	-	-	2	1
confusa	2	1	3	5	-	-	5	2
danielae	-	-	3	5	-	-	3	1
denmax	6	3	4	7	-	-	10	3
digitifera	2	1	1	2	-	-	3	1
disa	19	9	17	27	13	45	49	16
dziedzickii	3	1	-	-	-	-	3	1
egregia	4	2	4	7	-	-	8	3
fasciata	11	5	18	29	15	52	44	14
fennica	-	-	-	-	-	-	-	-
festivalis	-	-	5	8	-	-	5	2
fimbriata	7	3	4	7	1	3	12	4
flavicollis	-	-	-	-	-	-	-	-
forestaria	-	-	2	3	-	-	2	1
fuscata	-	-	-	-	-	-	-	-
hackmani	2	1	14	23	8	28	26	8
heydeni	22	10	10	16	-	-	32	10
hians	4	2	2	3	-	-	6	2
hiisi	4	2	1	2	-	-	5	2
humida	-	-	2	3	-	-	2	1
insignis	-	-	-	-	-	-	-	-
islandica	-	-	-	-	1	3	1	0
karelica	-	-	2	3	-	-	2	1
kaurii	-	-	-	-	-	-	-	-
kuusamoensis	-	-	1	2	-	-	1	0
lambi	-	-	3	5	-	-	3	1
leporina	-	-	1	2	-	-	1	0
levis	17	8	5	8	2	7	24	8
maculata	4	2	5	8	1	3	10	3
marginata	35	16	1	2	-	-	36	11
mituda	-	-	-	-	-	-	-	-
neohyalinata	41	18	12	20	1	3	59	19
neolittoralis	-	-	-	-	-	-	-	-
nigricornis	5	2	-	-	-	-	5	2
nitida	29	13	21	34	19	66	69	22
norna	-	-	-	-	-	-	-	-
occultans	1	0	1	2	-	-	2	1
ornata	-	-	-	-	-	-	-	-
paradentata	7	3	4	7	-	-	11	4
pectinifera	1	0	2	3	-	-	3	1
penicillata	2	1	1	2	1	3	4	1
permixta	35	16	6	10	2	7	43	14
prominens	11	5	3	5	-	-	14	4
pseudoapicalis	4	2	6	10	-	-	10	3
pseudocurvata	1	0	-	-	-	-	1	0
pulchella	1	0	2	3	-	-	3	1
punctata	5	2	4	7	2	7	11	4
ruficollis	29	13	19	31	2	7	50	16
shermani	21	9	9	15	1	3	31	10
siebecki	-	-	2	3	-	-	2	1
sigma	16	7	13	21	2	7	31	10
spinicoxa	1	0	1	2	-	-	2	1
storai	-	-	-	-	-	-	-	-
subarctica	-	-	4	7	-	-	4	1
tenuis	53	24	10	16	2	7	65	21
trilineata	26	12	3	5	-	-	29	9
trivittata	41	18	15	24	-	-	56	18
tumida	7	3	2	3	7	24	16	5
vittiventris	7	3	6	10	-	-	13	4
wankowiczii	25	11	5	8	-	-	30	10
winnertzi	31	14	10	16	-	-	41	13
total	224		63		29		316	

resented in zones I and II. The small value for zone III is mainly due to the small number of species in that area. It must be emphasized that, although the greatest faunal difference is found between zones II and III, the dominant species in those zones are largely the same and the shift in the abundance relations between species along the south-north gradient is comparatively gradual.

There is at least an apparent similarity in the abundances of some species between Lapland (+ northern Norway) and the coastal areas of southern Finland. The samples include some typical

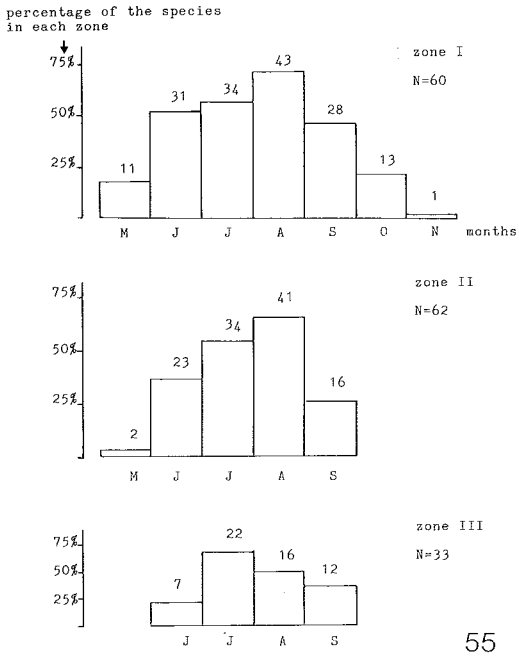


Fig. 55. Monthly numbers of *Mycomya* species in the eastern Fennoscandian zones I, II and III.

species: *M. fasciata, M. punctata, M. nitida,* and *M. tumida* (and in the non-random samples *M. nigricornis).* One explanation may be that in these areas early species begin their flight a little later than in other areas and for that reason are found more often. Collecting may have been less effective in early spring (but see *M. tenuis),* but there may be real similarity caused by the extreme natural conditions.

5.3. Phenology

In eastern Fennoscandia *Mycomya* species are found as adults from the beginning of May to November (Table 6, Fig. 55). The present material suggests that they do not overwinter at the adult stage in the study area. The results given by Plassmann (1978a) from pit-fall trapping in northern Sweden in winter seem to me misleading. It is probable that his winter material for this genus consists of some very late autumn specimens. However, it is well known that some other fungus gnats are really active in winter (e.g. Frey 1913, Väisänen 1981b). At least some *Mycomya* species overwinter at the larval stage. Larvae of *M. bicolor, M. occultans, M. "ornata", M. wankowiczii* and *M. winnertzi* have been found during winter in Central Europe (Eisfelder 1955, Plassmann 1969, 1971b).

Many *Mycomya* species are in flight throughout the summer period, e.g. *M. bicolor, M. neohyalinata, M. trivittata* and *M. winnertzi.* These species may have a series of overlapping generations during one summer. Plassmann (1969, 1971b) considers, for instance, that *M. cinerascens* and *M. neohyalinata* have two generations per year in Vogelsberg, Germany. It is, however, not possible to detect any gaps between such hypothetical generations in the present eastern Fennoscandian material. It is also possible that single individuals are very long-lived in nature, where they can hide in inactive condition in moist holes.

The only typical spring species in the eastern Fennoscandian fauna is *M. tenuis,* which begins its flight in southern Finland at the beginning of May (possibly sometimes even in late April). This species is comparatively abundant in May and early June, but only single specimens have been caught in July. At the beginning of June several other species are already on the wing, some of them occurring fairly regularly, e.g. *M. nitida, M. fasciata, M. tumida* and *M. marginata.* The most typical mid-summer species is *M. ruficollis.*

Several rare and scarce species occur only in late summer and autumn. In late summer the most abundant species are *M. annulata, M. permixta, M. affinis* and *M. shermani,* which sometimes occur in great quantity compared with the other *Mycomya* (and Mycetophiloidea) species. Although the number of species in southern Finland is greatest in August (Fig. 55), the highest numbers of specimens have been taken in September, due to these few dominant species. It is not known whether this peak is in any way connected with the large amount of mycetophiloid larvae in sporophores about a month before (cf. Russel-Smith 1979).

In the northern zones II and III the annual flight periods are shorter and more concentrated to the middle of summer. However, even there the early summer and late summer species can be distinguished from each other.

Table 6. Flight periods of *Mycomya* species in zones I, II and III in eastern Fennoscandia. Each month has been divided into three parts, represented by the dashes and dots in the table.

Mycomya	zone I M	J	J	A	S	O	N	zone II M	J	J	A	S	zone III J	J	A	S
affinis	-----•--••••••••-••---							----------••--•					----------			
annulata	---------••••••••----							----------••••-					----------?-			
avala	----------•---------							----------•----					-----?------			
bialorussica	----------							-------•-------					----------			
bicolor	---••••••-••--•-•----							------•••-•----					--••••••----			
bisulca	-------•-----•-------							-----•---------					----------			
branderi	--------•--•---------							----------					----------			
britteni	-----•----------							----------					----------			
brunnea	-----••••--•-•-------							-----•••••••---					---•-•------			
cinerascens	-----••••••••••••---							------•••-••--•					-------•----			
circumdata	----------•••••------							---------•••-?-					----------			
collini	----------•---------							------•---------					----------			
confusa	---------•?•---------							----------••---					----------			
danielae	----------							-----••----•---					----------			
denmax	-------•••••-••------							-----•-•--••--•					-----•------			
digitifera	----••----------							------•---------					----------			
disa	---••••••••----------							--•-•••••-••---					---•••------			
dziedzickii	-----•-•--•----------							-------•-------					----------			
egregia	-----•-----•--•------							--------•-••---					--•---------			
fasciata	--••••-•----------							----••••-------					--•••••-----			
fennica	---------••••---------							----------					----------			
festivalis	----------							-----••--------					----------			
fimbriata	----•-••••••---------							----•-••-•-----					----••------			
flavicollis	---------•----------							----------					----------			
forestaria	----------							------•-•------					----------			
fuscata	----------							----------					------•-••--			
hackmani	----•--•---•---------							---••••••-•----					--••••------			
heydeni	---•••----•••••------							----•••-•------•					-----•------			
hians	-----•••----------							---------••----					------•-----			
hiisi	---------•-•--•------							----------•----					----------			
humida	----------							----------•••-•					----------			
insignis	-------•----------							---------•-----					----------			
islandica	----------							----------					--•••-------			
karelica	----------							------••-------					----------			
kaurii	----------•----------							----------					----------			
kuusamoensis	----------							----------•----					----------			
lambi	----------							----------••---					-----•••--•-			
leporina	----------							----------•---					----------			
levis	--••-•-•••-••••------							-----••---------					---••-•-----			
maculata	--••-----••---•-------							---------•--•••					---•-••-•---			
marginata	-••••••-•-••••-•-----							-----•----------					----------			
mituda	----------							----------					----------			
neohyalinata	--•••••-••••••••••-•-							----•••••••••--					----•••-••--			
neolittoralis	----------•----------							----------					----------			
nigricornis	----------••-•••------							----------•--					------•-••••			
nitida	---••••-•----------							----•••••------					--••••------			
norna	----------							----------•					----------			
occultans	----------•-------							----------•----					----------			
ornata	---------•----------							----------					----------			
paradentata	----------•?•----•-----							----------•----					----------			
pectinifera	----------•-•---------							----------•---					----------			
penicillata	----------•-••-------							----------•---					-------••-•-			
permixta	-----•---••••••------							----------••-?-					-------•--•-			
prominens	-•-•--••••••-•-•-----							------•••------					----------•-			
pseudoapicalis	-----•••----------							------•••------					----------			
pseudocurvata	------•----------							----------					----------			
pulchella	-------•-••----------							-----•-•--••---					-----?---•--			
punctata	---•••-•----------							----•••---------					---••-------			
ruficollis	--•••••••----------							-----••••-•----					---•••••----			
shermani	-------••-••••••-•---							---------•-••••-					------•••••-			
siebecki	----•----------							----------•---					----------			
sigma	--•-•----•---•-------							----•••••-••---					---••------•-			
spinicoxa	----------•----------							----------•---					----------			
storai	---------?--?---------							----------•----					----------			
subarctica	----------							----------•••--					----------			
tenuis	•••••••••--•----------							-••-•••-•------					-••---------			
trilineata	--------••••••-------							----------••-•--					--------•---			
trivittata	--•-••••••••-••••----							-----••••-••--•					------•••••--			
tumida	--•••-•----------							---•••-•-------					---•••------			
vittiventris	-------•••-••--------							----------••---					------•••-•-			
wankowiczii	---••••••••?••••------							-----••••-•----					------•------			
winnertzi	---••••••••••••--•---							----•-•••-••--•					---••------			

6. Biology

6.1. General behaviour of adults

Fungus gnats form a considerable part of the dipterous fauna of many terrestrial habitats. In northern latitudes *Mycomya* species usually account for 5—20 % of all mycetophiloids. In autumn some species, such as *M. annulata* and *M. shermani,* may be very numerous. *Mycomya* species prefer moist dark places, like most other fungus gnats. They can be found in holes under stones, stumps and root systems of trees, along small rivulets, on walls of steep cliffs, in small caves and burrows of voles and other rodents (Hackman 1963a, b), under bushes and brackens and in other sheltered sites, but seldom in more open habitats (cf. Hutson et al. 1980). Dense, shady, old forests with abundant dead wood and a rich fungal flora seem to be of special importance for several *Mycomya* species (see also Väisänen 1982d), but some species are known to occur on tundra and above the tree-line on mountains.

Experience from the field gives the impression that fungus gnats can fly actively during most of the day but possibly in greatest number in the evening. Mass swarming, as seen in the Chironomidae, for instance, is not known in fungus gnats, although males sometimes form dancing swarms, e.g. in *Mycetophila* and *Phronia* (Hutson et al. 1980).

The weather greatly affects the behaviour of fungus gnats: on sunny, dry and windy days they usually hide in moist holes or under bushes, but on rainy, cloudy days they take wing and show no distinct biotope (e.g. forest type) preferences. The most important factor for their flying seems to be moisture.

In the present study the data originating from Plassmann (1979) were re-analysed (see Fig. 56). The material was caught with air-suction traps in northern Sweden, during two-hour periods. Plassmann gave the flying times separately for each species. To test, whether fungus gnats in general and *Mycomya* in particular are active during all these two-hour periods, the total numbers of males were counted for both Mycetophilidae (s. str.) and for *Mycomya.* The proportions in flight in the different periods demonstrate significant deviation from even daily distribution (for *Mycomya* $\chi^2 = 31.64^{***}$; and for all the Mycetophilidae $\chi^2 = 122.09^{***}$).

Mycomya individuals are frequently to be seen resting in fairly exposed situations on vegetation (Hutson et al. 1980). They rest with their wings divaricate, at an angle of about 45 degrees on each side of the body, somewhat as in the genus *Macrocera,* and with all their legs touching the surface (Edwards 1921b:23; see also Figs. 47:1 and 2 in Sandhall & Andersson 1979). The museum

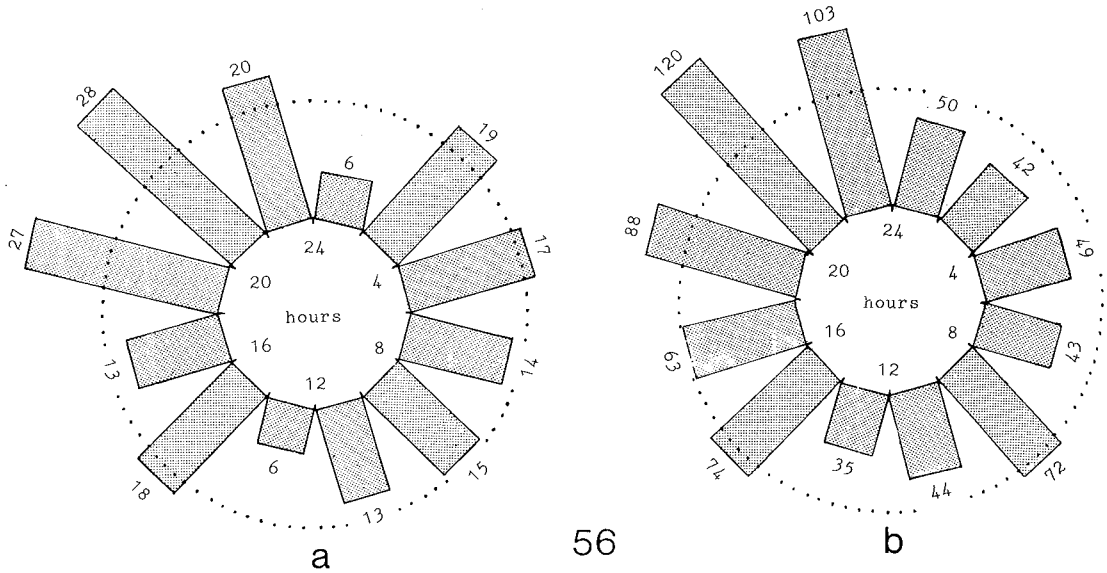


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Fig. 56. Daily periods of flight activity. A re-analysis of the data from Plassmann (1979). a. *Mycomya* (26 spp., 196 exx.), b. Mycetophilidae s. str. (203 spp., 783 exx.) — in both cases only males included. The outer numeral is the absolute number of specimens caught in the two-hour period. The broken line indicates the mean value (8.33 %).

Table 7. List of fungi and other habitats with which *Mycomya* species are associated. The systematic list of fungi follows Jülich (1981). The associated *Mycomya* species are listed on the right side of the table. The records are from Europe excepting those of Ostroverchova (1971, 1979: Siberia), Malloch (1917: Illinois) and Ackerman & Shenefelt (1974: Wisconsin). A new record of *M. onusta* from Florida is included. The source publications and the fungus synonyms used by the authors are given below.

HETEROBASIDIOMYCETES	
AURICULARIALES	
Auriculariaceae	
Auricularia mesenterica (S. F. Gray) Pers.	*Mycomya marginata*[1], *M. sigma*[2]
TREMELLALES	
Tremellaceae	
Sebacina sp.	*M. marginata*[2]
HOLOBASIDIOMYCETES	
CANTHARELLALES	
Clavariaceae	
Clavaria sp.	*M. hirticollis*[3]
Sparassidaceae	
Sparassis crispa (Fr.) Fr.	*M. marginata*[2]
GOMPHALES	
Ramariaceae	
Ramaria apiculata (Fr.) Donk	*M. hirticollis*[3], *M.* sp. (*M. ornata* group)[3]
POLYPORALES	
Piptoporaceae	
Piptoporus betulinus (Fr.) Karst.[a]	*M. hirticollis*[3]
Pleurotaceae	
Pleurotus sp.	*M. marginata*[2]
CORIOLALES	
Coriolaceae	
?*Antrodia sinuosa* (Fr.) Karst.[b]	*M. marginata*[1,4]
Lenzites betulina (Fr.) Fr.	*M. occultans*[5]
Trametes versicolor (Fr.) Pil.[c]	*M. marginata*[1,6,7], *M. tumida*[7]
FOMITOPSIDALES	
Daedaleaceae	
Daedalea quercina Fr.	*M. ornata*[8], *M. occultans*[9]
GANODERMATALES	
Ganotermataceae	
Ganoderma applanatum (S. F. Gray) Pat.[d]	*M. winnertzi*[10]
RUSSULALES	
Russulaceae	
Lactarius sp.	*M. neohyalinata*[11], "*M. inflata*"[12]
THELEPHORALES	
Thelephoraceae	
Thelephora anthocephala (Fr.) Fr.	*M. prominens*[2]
BOLETALES	
Boletaceae	
Boletus edulis Fr.	*M. maculata*[12]
Leccinum scabrum (Fr.) S. F. Gray	*M. tenuis*[13], *M. circumdata*[13], *M. trilineata*[13], *M. permixta*[13]
AGARICALES	
Agaricaceae	
"an agaric sp."	*M. prominens*[2]
Strophariaceae	
Naematoloma sublateritium (Fr.) Karst.[e]	*M. wankowiczii*[5]
HYMENOCHAETALES	
Coltriciaceae	
Inonotus radiatus (Fr.) Karst.	*M.* ? *occultans*
Phellinaceae	
Phellinus sp.	*M. winnertzi*[2]
STEREALES	
Stereaceae	
Stereum hirsutum (Fr.) S. F. Gray	*M. marginata*[1,4]
Stereum sp.	*M. cinerascens*[1], *M. wankowiczii*[2]
Chondrostereum purpureum (Fr.) Pouz.[f]	*M. marginata*[4]
MERULIALES	
Meruliaceae	
Merulius tremellosus Fr.	*M. marginata*[14]
Phlebiaceae	
Phlebia radiata Fr.[g]	*M. marginata*[1]
Plicaturaceae	
Plicaturopsis crispa (Fr.) Reid[h]	*M. occultans*[5]
PHALLALES	
Phallaceae	
Phallus impudicus Pers.	*M. wankowiczii*[15,2], *M.* sp.[16]
wood rotting fungi or rotting wood:	
"*Polyporus*"	*M. annulata*[12]
"under bark of *Fagus*"	*M. bicolor*[15]
"Holzpilzen"	*M. neohyalinata*[17]
"a fallen birch branch covered with *Poria*"	*M. insignis*[1]
"mycelium under rotten post"	*M. marginata*[6]
"fungus growing upon underside of a log lying upon ground"	*M. onusta*[18]
"under bark of *Pinus*"	*M. onusta*
"leather-like *Polyporus* species"	*M.* ? *ornata*[8]
"rotten stump of *Betula*"	*M.* ? *ornata*[15]
"purplish ? *Corticium*"	*M. prominens*[1]
"rotten beech wood"	*M. tenuis*[19]
"xylobiont larvae"	*M.* ? *tamerlani*[20]
"whitish fungus encrusting the bark of a fallen branch"	*M. wankowiczii*[1]
"Fallholz und Krustenpilzen"	*M. wankowiczii*[9]
"*Poria*"	*M. wankowiczii*[2]

[1] Edwards 1925a
[2] Hutson et al. 1980
[3] Ackerman & Shenefelt 1973
[4] Buxton 1960
[5] Eisfelder 1955
[6] Kidd & Brindle 1959
[7] Plachter 1979b
[8] Winnertz 1863
[9] Landrock 1940
[10] Bonnamour 1925
[11] Ostroverchova 1971
[12] Ostroverchova 1979
[13] Väisänen 1981d
[14] Parmenter 1953
[15] Plassmann 1969, 1971b
[16] Overgaard Nielsen 1963
[17] Sack 1907
[18] Malloch 1917
[19] Séguy 1940
[20] Zaitsev 1979

a = "*Polyporus betulinus* (Bull.) Fr."
b = "*Poria vaporaria*", "*P. versipora*"
c = ? "*Coriolus*" in Hutson et al.
d = "*Polyporus applanatus*"
e = ? "*Hypholoma*" in Hutson et al.
f = "*Stereum purpureum*"
g = "*Phlebia merismoides*"
h = "*Plicatura faginea*"

material of *Mycomya calcarata* suggests that this species regularly keeps its wings flat, overlapping on its back.

Most *Mycomya* specimens have been collected with conventional sweep nets. Many species have been attracted to light (see e.g. Khalaf 1971, Plassmann 1980a), and several have been caught with pitfall and air-suction traps (Plassmann 1978a, 1979). The use of Malaise traps, chiefly in North America, has produced several interesting species. Sugar-bait traps (originally for Lepidoptera) also attract *Mycomya* species.

Chandler (1974, 1976) has observed *M. flavicollis* visiting ivy *(Hedera)* flowers, and some species of *Mycomya* are known to pollinate native orchids in Australia (Colless 1970). The present material includes *M. calcarata* caught on flowers of *Brassica* (also on *Lomatium orogenoides,* possibly on the flowers) and *M. dichaeta* on *Vaccinium stamineum* blossoms. Some species are attracted by less fragrant odours: two *M. wankowiczii* males and two *Mycomya* sp. individuals have been found on sporophores of *Phallus impudicus* (Overgaard Nielsen 1963, Plassman 1969, 1971b).

6.2. Larval diet and associations with fungi

The present knowledge of fungi and the other habitats with which *Mycomya* species are associated is listed in Table 7. Very little is so far known about the ecology of the genus as a whole. *Mycomya* larvae have usually been found in rotten wood, under bark or on fungi. The records generally concern the traditional Aphyllophorales group of fungi, which includes wood-rotting fungi belonging to several families. In a number of large-scale experiments with soft macrofungi (Agaricales in the traditional sense) (see e.g. Hackman & Meinander 1979), only a few *Mycomya* specimens could be reared from such fungi. However, some *Mycomya* species may belong to a possibly overlooked later successional phase in large decaying "Agaricales" sporophores (Väisänen 1981d). The associations with the Phallales probably only concern adult nutrition, not necessarily larval nourishment in those sporophores. Some *Mycomya* species may also be associated with mycelia in the soil. Laštovka (1972b) has suggested that the larvae of this genus may be zoophagous. This may be partially true, although mycophagy has been clearly described at least once (Parmenter 1953: *M. marginata).*

Mycomya larvae spin slimy webs on the under surface of bark-growing fungi or under bark. The webs may be communal (e.g. Parmenter 1953). The larvae live in elongated slimy tubes, twice as long as the larvae themselves. The tubes are moored to the bark by means of fine lateral threads. The larvae glide backwards and forwards inside the tube and at times turn on themselves by sliding the head against the body. No definite cocoon is formed, the short stout pupa merely being slung up by a few threads (Edwards 1925a). The removal of these threads is fatal to the pupa. They probably conduct the moisture from the bark to the pupa and thus help to maintain it in an optimum condition of humidity (Madvar 1937). Parmenter (1953) mentions a light brown pupal case in which the larvae of *M. marginata* pupated under the cover of a dead leaf drawn over the host fungus. The whole life cycle from egg to adult in "Sciophilinae" lasts three to four weeks (Madvar 1937).

Almost nothing is known about the parasites of *Mycomya* and other Mycomyinae (for a review of the parasites and diseases of the Mycetophiloidea, see Hutson et al. 1980). According to Séguy (1940), the hymenopterous *"Protoctrypes brevipennis* Latr. (de Gaulle)" has been reared from *"M. ornata". "Chelonus sulcatus* Jur." has been reared from *Neoempheria striata* (Meigen, 1818) (Séguy 1940), *Proctotrupes divagator* Ol. from *N. lineola* (Meigen, 1818) (see Masner 1968), and *Symplecis matilei* Delobel, 1975 from Afrotropical *Neoempheria ombrophila* Matile, 1975 (Matile & Delobel 1975).

7. Classification and descriptions

7.1. Genus Mycomya Rondani

Mycomya Rondani, 1856: Dipt. Ital. Prodromus 1:194.

Type species: *Sciophila marginata* Meigen, 1818, by monotypy.

Sciophila Meigen, 1818: Syst. Beschr. Eur. Zweifl. Insekten 1:245, partim.

Sciophila: Winnertz 1863: Verh. Zool.-Bot. Ges. Wien 13:707.

Sciophila: Dziedzicki 1885: Pamietnik Fizyograficzny 5 (3):12.

Mycomya: Johannsen 1909: Genera Insectorum 93:45, partim.

Mycomya: Johannsen 1910: Maine Agric. Exper. Stat. Bull. 180:165.

Mycomyia: Edwards 1913: Trans. Entomol. Soc. London 1913:335, emend. injust.

Mycomyia: Coher 1959: Entomol. Amer. 38:65.

?*Cnephaeophila* Philippi, 1865: Verh. Zool.-Bot. Ges. Wien 15:618. Type species: *Cnephaeophila fenestralis* Philippi, 1865, by monotypy.

The above list includes only the revisionary works on *Mycomya* and those of special nomenclatorial importance. More complete references are given for each species.

The genus *Cnephaeophila* Philippi, 1865, with one Chilean species, *C. fenestralis* Philippi, 1865, was suggested to be synonymous with *Mycomya* (s. lat., including *Neoempheria)* by Johannsen (1909). Later this view was accepted, without further comments, by Freeman (1951:3) and by Coher (1959). However, I consider this synonymization dubious, and although there is a specimen labelled *C. fenestralis* (by Edwards, but with a question-mark) in the British Museum, I prefer not to take this name into account when naming the subgenera of *Mycomya*. Probably no certain material of Philippi's genus exists. According to the very insufficient original description, *Cnephaeophila* differs from *Mycomya ("Sciophila")* in the length of the antennae and the lack of strong tibial setae.

The status of the fossil genus *Sciobia* Loew, 1850 (cf. Johannsen 1909) is uncertain and it is omitted here.

There are no previous attempts at a subgeneric division of *Mycomya*. Johannsen first (1909) treated *Neoempheria* as another subgenus of *Mycomya*, but later (1910) changed his mind, considering them to be separate genera. Coher (e.g. 1959) recognized several species groups within *Mycomya* and at least some of them correspond to those of the present paper.

The genus has a world-wide distribution. The biology of *Mycomya* is largely unknown (see section 6).

Description

Mouthparts short to moderately long (cf. *Echinopodium)*. Anteclypeus setiferous or bare. Postclypeus bare. Apex of antenna pointed, with subapical seta. Eyes slightly but distinctly emarginate above antennae, elongate-ovate. Ocellar prominence seldom well developed. Ocellar setae seldom reaching far beyond ocelli.

Pronotum with several setae, some of which are more or less distinctly longer than others. Scutellum with 2 or 4 long setae. Suture between mesanepisternum and mesokatepisternum more or less distinctly declining anteriorly. Mesokatepisternum not very wide (see Figs. 8—32). Mediotergite bare or with some small setae. Setae of thorax usually dark.

Males of some groups with long spur on coxa 1. Tibial spurs generally 1-2-2. Males of some groups with specialized setae on coxa 1.

Wing hyaline, usually without any markings. C not distinctly produced beyond apex of R5. R5 and C usually reaching wing apex, seldom very slightly shorter. Sc long, usually reaching level of small cell. R4 present. Subradial accessory vein absent.

Structures of hypopygium exceptionally variable even for the Mycetophiloidea. Species groups characterized by relatively constant basic hypopygial structures. Separate descriptions are given below for these species groups, whose systematic relations have been discussed above.

The general appearance of a *Mycomya* adult is shown in Fig. 1.

Immature stages

Ovum. The eggs of *Mycomya* species are pale, oblong, barrel-shaped and nearly symmetrical in cross-section. The surface is characterized by longitudinal ridges. The egg shells have not been studied in detail but they resemble those described by Plachter (1981) for other Mycomyinae in his wider sense (e.g. *Boletina, Ectrepesthoneura)*. According to him, the Mycomyinae egg shells can be characterized as follows: plastron present; chorion complex, consisting of more than one layer.

Larva. *Mycomya* larvae are long and slender, with a thin soft integument (Fig. 57). They have been described in more detail by Malloch (1917), Madvar (1937), Zaitsev (1979) and Plachter (1979b). They have only small visceral fat bodies. Their mandible is well developed and much wider than in the other Mycomyinae of Plachter. It bears 6 main teeth along the inner border, whereas the other Mycomyinae of

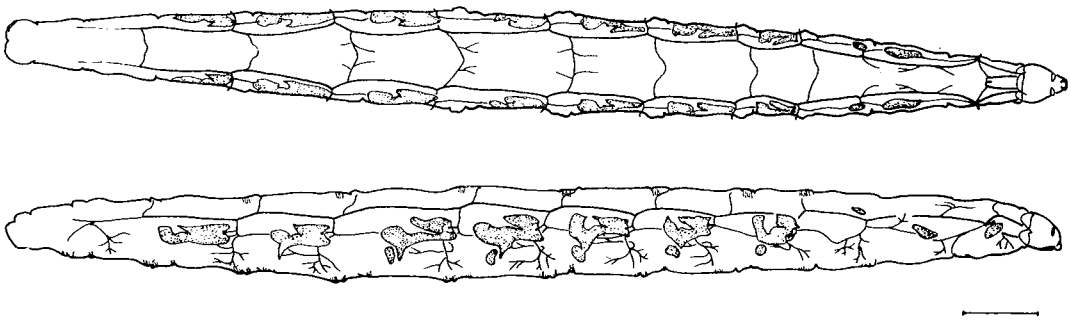

Fig. 57. *Mycomya marginata* larva (after Plachter 1979b).

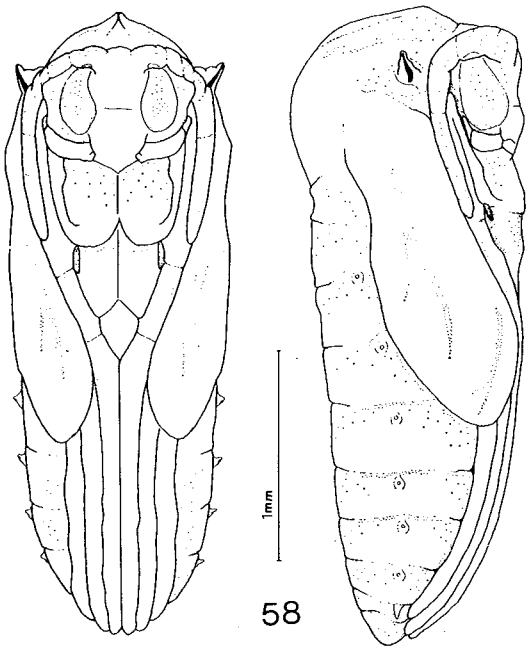

Fig. 58. *Mycomya occultans* pupa (after Plachter 1979c).

Plachter have 5 teeth. *Neoempheria* larvae have an additional 7th smaller main tooth (Zaitsev 1979). The maxilla of *Mycomya* larvae is broad (for details, see Plachter 1979b:343). The intestinal structures are mainly of the unspecialized mycetophiloid type, except for the enlarged valvula cardiaca.

The larval webs have been studied by Plachter (1979a).

Pupa. The pupae of *Mycomya* are comparatively thick and short (see Fig. 58). They have been described by Malloch (1917) and morely recently by Plachter (1979c). The integument of the pupa is immobile and the pedothecae seem to be tightly attached to the body. The pedothecae are subequal in length. The pterotheca is very long.

Fossils

Fossil species of *Mycomya* and *Neoempheria* have been described from several geological epochs, the greater part from Oligocene amber (see Johannsen 1909, Coccerell 1914, Coher 1959). The whole fossil material of the Mycetophiloidea is in need of a revision (e.g. Larsson 1978). Although I have not seen the fossil specimens, I have the impression that many of them are correctly placed in *Mycomya* (cf. Gagné 1981). The species described by Johannsen (1912) from the Miocene material seem to be of special interest, having the male midcoxal spur.

Keys

The keys do not strictly follow the phylogenetic ideas proposed above; they are practical keys for identifying the Holarctic species. The external characters are usually very variable and the only truly diagnostic characters lie in the male hypopygium. Useful keys for local faunas of *Mycomya* have been provided by Freeman (1951: Patagonia), Shaw & Fisher (1952: Connecticut) and Hutson et al. (1980: Britain). The key to the Palaearctic species given by Landrock (1926—1927) cannot be used.

Key to the subgenera (males; females p. 40)

1. Coxa 2 with a spur 2
— Coxa 2 without a spur 3
2. (1) Abdominal tergited yellow with dark posterior margins: abdominal tergite 8 bare; tergite 9 with a fork-like medial structure and a specialized inner structure including a pair of strong dark spurs (e.g. Figs. 846, 881); ocellar prominence usually distinctly darker than posterior parts of head . . . . . subg. *Calomycomya* (p. 256)
— Abdominal tergites entirely dark or light, or dark with paler posterior margins; abdominal tergite 8 with setae; tergite 9 without such structures; ocellar prominence not distinctly darker than posterior parts of head . . . . . subg. *Mycomya* (p.p.) (p. 42)
3. (1) Mediotergite with small setae or bare; coxa 1 with or without a dense patch of short, seldom longer, setae on anteromedial surface; tergite 9 usually with 2 groups of dark cones, often with lateral sabre-like spines (e.g. Figs. 213, 298, 314); sternal synsclerite not medially deeply emarginate, with setose lobe-like submedian appendages (e.g. Figs. 295, 320, 327) . . . . . subg. *Mycomya* (p.p.) (p. 42)
— Mediotergite bare; coxa 1 without specialized setae; tergite 9 without such cones or spines; sternal synsclerite medially deeply emarginate or divided into two parts, without such appendages 4
4. (3) Sternal synsclerite with long wide lateral appendages; tergite 9 without lateral appendages 5
— Sternal synsclerite without large lateral appendages; tergite 9 with lateral appendages . 7
5. (4) Tergite 9 without a comb, with groups of strong submedial and lateral spines; sternal lateral appendages with strong spines (e.g. Figs. 924—926) . . . . . subg. *Coheromyia* (p. 282)
— Tergite 9 with an apicomedial comb of setae, without groups of strong spines; sternal lateral appendages without strong spines . . . 6
6. (5) Setae of the comb short, spine-like (e.g. Fig. 892) . . . . . subg. *Cymomya* (p. 271)
— Setae of the comb very long and strong (Fig. 911) . subg. *Tlingitmyia: M. lutealis* (p. 281)
7. (4) Apical part of tergite 9 with at least one comb of short spines 8
— Tergite 9 without combs 9
8. (7) Tergite 9 with a wide apical comb (e.g. Fig. 1071) . . . . . subg. *Lycomya* (p. 321)
— Tergite 9 with two submedial apical combs (e.g. Fig. 977) . . subg. *Mycomyopsis* (p. 295)
9. (7) Tergite 9 with large submedial lobes, lateral appendages small (Fig. 955) . subg. *Neomycomya: M. fimbriata* (p. 292)
— Tergite 9 with relatively small submedial lobes, lateral appendages long, well developed, with specialized setae (Fig. 946) . . . . subg. *Myacymo: M. midea* (p. 290)

Key to the species of subgenus *Mycomya* (males)

1. Coxa 2 with a spur 2
— Coxa 2 without a spur 93
2. (1) Tergite 9 with a distinct medial processus (e.g. Figs. 505, 603) and usually with distinct lateral appendages; tergite 9 without dark cones; mid-coxal spur curved distinctly ventrad; mediotergite almost always bare 3
— Tergite 9 without a medial processus and without well-developed lateral appendages; tergite 9 often with 2 groups of dark cones; mid-coxal spur variable; mediotergite with or without small setae 73
3. (2) Tergite 9 without distinct lateral appendages (Fig. 455); wing apex and small cell distinctly infuscate; mid-coxal spur with one apical tooth; Sc ending in R1 . . . . . *M. storai* (p. 140)
— Tergite 9 with distinct lateral appendages; wing usually without markings; mid-coxal spur almost always with 2 apical teeth; Sc ending in C, R1 or free 4
4. (3) Coxa 1 with one strong seta or spine or a dense brush of strong setae 5
— Coxa 1 without such specialized strong setae or spines, but sometimes with a more or less distinct comb 8
5. (4) Coxa 1 with a long strong seta on medial surface near middle of coxa; tergal lateral appendages small (Figs. 618—619) . . . . . *M. simplex* (p. 190)
— Coxa 1 without such a seta; tergal lateral appendages long 6
6. (5) Coxa 1 with a very strong comparatively short dark spine near apex on anteriomedial surface; hypopygium as in Figs. 652—656 . . . . . *M. montalba* (p. 202)
— Coxa 1 with a dense brush of strong setae near apex on anteromedial surface; hypopygium different 7
7. (6) Scutellum with 4 long setae; processus and tergal lateral appendages short (Figs. 778—779) . . . . . *M. livida* (p. 239)
— Scutellum with 2 long setae; processus and tergal lateral appendages long (Figs. 650—651) . . . . . *M. siebecki* (p. 201)
8. (4) Mid-coxal spur short, about half the length of coxa 2; hypopygium as in Figs. 826—827 . . . . . *M. annulata* (p. 252)
— Mid-coxal spur long, more than half and usually more than the total length of coxa 2; hypopygium different 9
9. (8) Sternal synsclerite with 2 strong dark subapical spines on both submedian appendages and 2 very strong dark spines on lateral appendages (Figs. 658, 660) (Canary Islands) . . . . . *M. rivalis* (p. 202)
— Sternal synsclerite without such spines . 10
10. (9) Sternal submedian appendages entirely fused, forming a large medial lobe; processus long, slender; tergal lateral appendages short, very dark, with long setae 11
— Sternal submedian appendages not fused, usually not very large; processus variable; tergal lateral appendages only seldom dark, variable in shape and setosity . . . 12
11. (10) Gonostyli with 2 branches, one with 1 and the other with 2 apical teeth; sternal medial lobe apically slightly pointed, very large, longer than sternal lateral appendages (Figs. 645, 649) . . . . . *M. canoak* (p. 200)
— Gonostyli unbranched, proximally enlarged, with many small spines; sternal medial lobe rounded, smaller, shorter than sternal lateral appendages (Figs. 641, 643) . . . . . *M. stares* (p. 198)
12. (10) Gonostyli long curved with an apical tooth, without a toothed branch, sometimes a small basal lobe present; processus large, with dark lateroapical spines 13
— Gonostyli with 2 branches with apical-subapical teeth; processus variable . . 15
13. (12) Processus deeply bilobed (Figs. 683—684) . . . . . *M. dziedzickii* (p. 210)
— Processus not bilobed 14
14. (13) Tergal lateral appendages with strong setae; sternal lateral appendages with comparatively long setae; gonostyli with a small basal lobe (Figs. 694—696) . . . . . *M. wankowiczii* (p. 214)
— Tergal lateral appendages with short thin setae; sternal lateral appendages with some short setae; gonostyli without a basal lobe (Figs. 687—688, 690) . . . . . *M. maculata* (p. 212)
15. (12) Tergal lateral appendages very dark, blackish, shining, distinctly darker than other parts of hypopygium (Figs. 632—634); processus long and slender; small cell on wing usually distinctly infuscate . . . . . *M. hirticollis* (p. 196)
— Tergal lateral appendages different, not darker than other parts of hypopygium; processus variable; wing usually without markings 16
16. (15) Processus divided into 2 entirely separate long narrow cones; tergal lateral appendages bending towards each other, with many long setae, partially hiding processus (Figs. 623—624) . . . . . *M. danielae* (p. 193)
— Processus different; tergal lateral appendages different 17
17. (16) Abdominal tergite 8 with large lateral lobes, both bearing 20 or more long setae (e.g. Fig. 776) 18
— Abdominal tergite 8 with smaller lateral lobes with fewer setae 20
18. (17) Sternal synsclerite very large, its lateral appendages extensively setose, comparatively wide, long, distinctly longer than gonostyli (Figs. 772—773, 777) . . . . . *M. punctata* (p. 238)
— Sternal synsclerite smaller, its lateral appendages with some setae, comparatively narrow and short, about as long as or shorter than gonostyli 19
19. (18) Hypopygium as in Figs. 762—763 (Palaearctic) . . . . . *M. marginata* (p. 232)
— Hypopygium as in Figs. 769—771 (Nearctic) . . . . . *M. rebellicosa* (p. 236)
20. (17) Sternal submedian appendages wide, very large; processus apically bilobed (Figs. 551—553); basitarsus 1 distinctly longer than tibia . . . . . *M. wirthi* (p. 165)

553); basitarsus 1 distinctly longer than tibia . . . . . *M. wirthi* (p. 165)

— Sternal submedian appendages small, sometimes comparatively long but not wide; processus variable; basitarsus 1 longer to shorter than tibia 1 21

21. (20) Processus deeply emarginate or bilobed 22

— Processus entire or apically very slightly emarginate 25

22. (21) Sternal synsclerite without lateral appendages (Figs. 547—550) . . . . . *M. muscovita* (p. 164)

— Sternal synsclerite with long lateral appendages 23

23. (22) Processus long, about twice as long as wide, with deep narrow emargination; tergal lateral appendages long (Figs. 750—752); scutellum with 2 long setae . . . . . *M. bisulca* (p. 227)

— Processus short, about as long as wide; tergal lateral appendages short; scutellum with 4 long setae 24

24. (23) Processus with a wide U-shaped emargination; sternal lateral appendages about twice as long as gonostyli (Figs. 721—724) . . . . . *M. comesa* (p. 222)

— Processus with a very narrow emargination; sternal lateral appendages about as long as gonostyli (Figs. 674—677) . . . . . *M. fissa* (p. 207)

25. (21) Tergal lateral appendages very long, setose, projecting tergally; processus long and slender (Figs. 628—631); scutellum with 2 long setae . . . . . *M. leporina* (p. 194)

— Tergal lateral appendages and processus not as above; scutellum with 2 or 4 long setae 26

26. (25) Processus long, slender, about 4 times as long as wide, in front of processus two groups of setae on prominences (Fig. 796) . . . . . *M. occultans* (p. 243)

— Processus variable in shape, without such groups of setae, base of processus usually bare 27

27. (26) Processus long, slender, at least 4 times as long as wide (e.g. Figs. 802, 810) and basitarsus 1 distinctly shorter than tibia 1 (ratio usually about 0.80) 28

— Processus variable and basitarsus 1 shorter to longer than tibia 1, when shorter then processus wide and short 32

28. (27) Sternal lateral appendages long, slender, apically bare, pointed; tergal lateral appendages not very wide, apically pointed 29

— Sternal lateral appendages not very long, apically setose, more or less rounded; tergal lateral appendages wide, apically more or less rounded 31

29. (28) Gonostyli with a small basal lobe on medial side (Figs. 810—811); wing length 3.7—4.3 mm; diameter of hypopygium about 0.4 mm; darker species . . *M. festivalis* (p. 249)

— Gonostyli without a basal lobe; smaller and light species 30

30. (29) Abdominal tergite 6 usually distinctly lighter than other tergites; wing length 2.6—3.5 mm; diameter of hypopygium about 0.2 mm; hypopygium as in Figs. 820—822 (Nearctic) . . . . . *M. pura* (p. 251)

— Abdominal tergite 6 not lighter than other tergites; wing length 3.2—4.0 mm; diameter of hypopygium about 0.3 mm; hypopygium as in Figs. 815—817 (Palaearctic) . . . . . *M. flavicollis* (p. 249)

31. (28) Scutellum with 2 long setae; Sc ending in R1; processus slightly longer than tergal lateral appendages (Figs. 802—804) light-coloured, very small species, wing length 3.0—3.1 mm . . . . . *M. pini* (p. 244)

— Scutellum with 4 long setae; Sc ending in C; processus about as long as or slightly shorter than tergal lateral appendages (Figs. 805—807); comparatively dark small species, wing length 3.4—4.5 mm . . . . . *M. nitida* (p. 245)

32. (27) Processus long slender, about 3 times or more as long as wide; tergal lateral appendages about as long as or longer than processus 33

— Processus shorter, about twice or less as long as wide; tergal lateral appendages variable 36

33. (32) Processus long basally very thin with a small apical part wider; medial surface of tergal lateral appendages covered with small spine-like setae (Figs. 753—755); coxa 1 with a comb of setae on medial surface . . . . . *M. bicolor* (p. 228)

— Apex of processus not distinctly wider than basal part; tergal lateral appendages without spine-like setae; coxa 1 without a comb 34

34. (33) Sternal lateral appendages long and slender (Figs. 792—794) . . . . . *M. pseudocurvata* (p. 242)

— Sternal lateral appendages short or missing 35

35. (34) Scutellum with 2 long setae; sternal lateral appendages missing; tergal lateral appendages with wide very setose apex (Figs. 786—788) . . . . . *M. humida* (p. 240)

— Scutellum with 4 long setae; sternal lateral appendages indistinct, short, extensively setose; tergal lateral appendages apically tapered, without long setae (Figs. 664—665) . . . . . *M. tridens* (p. 204)

36. (32) Sternal synsclerite with distinct well-developed lateral appendages 37

— Sternal synsclerite with no or very indistinct short lateral appendages 45

37. (36) Sternal submedian appendages with strong spines; sternal lateral appendages comparatively short (Figs. 781—784) . . . . . *M. lividella* (p. 239)

— Sternal submedian appendages without spines; sternal lateral appendages very long 38

38. (37) Tergal lateral appendages with a distinct brush of long strong spines apically (Figs. 758—760) . . . . . *M. scopula* (p. 231)

— Tergal lateral appendages without such a brush 39

39. (38) Tergal lateral appendages densely covered with short spines 40
— Tergal lateral appendages not densely covered with short spines 41
40. (39) Processus distinctly enlarged basally, pear-shaped (Fig. 725); tergal lateral appendages subapically comparatively wide, tapering sharply towards pointed apex, spines distributed as in Fig. 727 . . . . . *M. pyriformis* (p. 222)
— Processus not markedly enlarged basally (Figs. 733—735); tergal lateral appendages not so wide, tapering slightly towards relatively rounded apex, spines distributed as in Fig. 730 . . . . . *M. winnertzi* (p. 223)
41. (39) Processus bare except for lateroapical rows of spine-like setae 42
— Processus extensively setose 43
42. (41) Gonostyli with 2 long branches, both with one apical tooth (Figs. 666—667) . . . . . *M. tamerlani* (p. 205)
— Gonostyli with 1 long branch with 1 apical tooth and 1 short wide branch with 2 teeth (Figs. 680—682) . . . *M. norna* (p. 209)
43. (41) Tergal lateral appendages apically pointed, distinctly shorter than processus, with a row of comparatively strong and short setae on medial side (Figs. 715–719) . . . . . *M. accrescens* (p. 220)
— Tergal lateral appendages apically rounded, almost as long as processus, with many setae more diffusely distributed (e.g. Figs. 702, 705) 44
44. (43) Tergal lateral appendages comparatively slender, relatively sparsely setose, Fig. 702 (Palaearctic) . . . . *M. britteni* (p. 217)
— Tergal lateral appendages comparatively wide and extensively setose, Figs. 705—710 (Nearctic) . . . . *M. marginalis* (p. 218)
45. (36) Coxa 1 with a distinct but relatively sparse comb of long strong setae; processus large, apically tapered; tergal lateral appendages small, short with several long setae (Figs. 611—612) . . . . . *M. fasciata* (p. 186)
— Coxa 1 without such a comb; processus different; tergal lateral appendages different 46
46. (45) Tergal lateral appendages with many very long strong setae hiding processus (Figs. 499—503) . . . . . *M. electa* (p. 153)
— Tergal lateral appendages without such long setae 47
47. (46) Base of processus with a dark area and 2 groups of setae; processus wide (Figs. 513—517) . . . . . *M. polleni* (p. 157)
— Base of processus different, bare; processus variable in shape 48
48. (47) Scutellum with 4 long setae 49
— Scutellum with 2 long setae 58
49. (48) Tergal lateral appendages long slender, basal half bare or with a few setae . . 50
— Tergal lateral appendages wide, short or long with basal half with many setae . 52
50. (49) Processus triangular, tapering gradually, apically rounded; tergal lateral appendages apically comparatively wide, slightly rounded (Figs. 606—607) . . *M. arcuata* (p. 186)
— Processus basally wide, relatively sharply tapered, apically blunt; tergal lateral appendages apically slender 51
51. (50) Tergal lateral appendages about as long as processus; tergite 9 with a distinct dark inner structure (Figs. 561—562) *M. rosalba* (p. 167)
— Tergal lateral appendages longer than processus; tergite 9 without such a structure (Figs. 603—604) . . . . . *M. ruficollis* (p.p.) (p. 182)
52. (49) Processus comparatively short, basally much wider than apically, apex blunt or medially slightly emarginate 53
— Processus comparatively long, basally not much wider than apically, apex slightly pointed 54
53. (52) Apical part of processus about as long as wide, apex blunt; lateral branch of gonostylus distinctly weaker than medial branch (Figs. 536—540) . . *M. difficilis* (p. 162)
— Apical part of processus hardly as long as wide, apex medially emarginate; lateral branch of gonostylus not distinctly weaker than medial branch (Figs. 544—546) (Cyprus) . . . . . *M. pygmalion* (p. 163)
54. (52) Processus slender, apically triangular (Figs. 470—472) . . . . *M. triacantha* (p. 143)
— Processus wide, apically not triangular 55
55. (54) Processus light-coloured, comparatively long, basally slightly narrower than subapically; tergal lateral appendages long slender apically tapered; setae of tergal lateral appendages thin (Figs. 479—481) . . . . . *M. neohyalinata* (p. 145)
— Processus usually dark, comparatively wide, basally not narrower than subapically; tergal lateral appendages comparatively wide, without such thin setae 56
56. (55) Processus extremely wide, apically pointed (Figs. 485—486) . *M. forestaria* (p. 148)
— Processus comparatively wide, apically rather blunt 57
57. (56) Tergal lateral appendages longer than processus; processus basally wider than apically; tergal lateral appendages basally wide (Figs. 474—477) . . . . . *M. woodi* (p. 145)
— Tergal lateral appendages hardly longer than processus; processus hardly wider basally than apically; tergal lateral appendages basally comparatively slender (Figs. 461—466) . . . . . *M. kaurii* (p.p.) (p. 141)
58. (48) Processus basally narrower than subapically, at least twice as long as lateral appendages 59
— Processus not distinctly narrower basally than subapically, usually wide basally and tapering apically, less than twice as long as lateral appendages 60
59. (58) Processus very dark, with long apical-subapical setae; tergal lateral appendages very small (Figs. 511—512) . . . . . *M. egregia* (p. 155)
— Processus not very dark, apical setae shorter; tergal lateral appendages longer, bending in front of processus (Figs. 505—507) . . . . . *M. heydeni* (p. 153)

60. (58) Processus basally hidden by abundant setae of tergal lateral appendages; processus long and wide (Figs. 491—493) . . . . . *M. echinata* (p. 150)
— Processus variable in shape not basally hidden by such setae 61
61. (60) Processus long wide, basally not wider, apically slightly pointed 62
— Processus usually shorter, not so prominent, basally wider, usually blunt apically . 63
62. (61) Processus not very dark, subapical part of processus widest (Figs. 487—490) . . . . . *M. autumnalis* (p. 149)
— Processus very dark, subapical part of processus not distinctly wider than basal part (Figs. 461—466) . *M. kaurii* (p.p.) (p. 141)
63. (61) Tergal lateral appendages long and slender 64
— Tergal lateral appendages short or/and wide 66
64. (63) Processus basally wide tapering abruptly towards blunt apex; tergite 9 without conspicuous dark inner structure (Figs. 603—604) . . . . . *M. ruficollis* (p.p.) (p. 182)
— Processus different tapering smoothly towards apex; tergite 9 with conspicuous dark inner structure 65
65. (64) Tergal lateral appendages very thin; processus with some lateroapical spine-like setae (Fig. 564—566) . *M. abegena* (p. 167)
— Tergal lateral appendages wider; processus with some very small apical-subapical setulae (Figs. 554—557) . . . *M. hians* (p. 165)
66. (63) Processus comparatively long, not very wide basally; tergal lateral appendages large, basally very wide (Figs. 527—531) . . . . . *M. bryanti* (p. 160)
— Processus wide basally; tergal lateral appendages comparatively small 67
67. (66) Processus wide, with blunt wide apex 68
— Processus not very wide, more or less triangular, apically distinctly tapered . . 70
68. (67) Apex of processus very wide, slightly emarginate (Figs. 532—535) . . . . . *M. hebrardi* (p. 160)
— Apex of processus different, not so wide 69
69. (68) Tergal lateral appendages with long setae (Fig. 569) . . . *M. fornicata* (p. 168)
— Tergal lateral appendages with short thin setae (Fig. 522) . *M. aneura* (p. 159)
70. (67) Tergal lateral appendages large, basally wide, apically rounded (Figs. 598—600) . . . . . *M. shermani* (p. 179)
— Tergal lateral appendages comparatively small, basally narrow, apically not distinctly rounded 71
71. (70) Tergal lateral appendages with strong spine-like setae on medial side, without long apical setae (Figs. 589—593); Sc seldom reaching C . . . . . *M. trivittata* (p. 176)
— Tergal lateral appendages without such spines, with long apical setae; Sc usually ending in C 72
72. (71) Processus comparatively long; tergal lateral appendages triangular, short (Figs. 585—587); Sc bare or almost bare . . . . . *M. alpina* (p. 176)
— Processus comparatively short; tergal lateral appendages triangular apically lengthened (Figs. 578—581); Sc usually with macrotrichia . . . . . *M. cinerascens* (p. 170)
73. (2) Coxa 1 with a dense patch of short or long, thin setae on anteromedial surface . 74
— Coxa 1 without such a patch . . . 75
74. (73) Mediotergite bare; wing hyaline; Sc ending in C; sternal submedian appendages with strong spines (Figs. 87—91) . . . . . *M. atus* (p. 50)
— Mediotergite with small setae; wing infuscate; Sc ending in R1; sternal submedian appendages without strong spines (Figs. 92—94) . . . . . *M. matrona* (p. 53)
75. (73) Cu fork proximal to M fork; tergite 9 with sabre-like spines and dark cones . 76
— Cu fork distal to M fork; tergite 9 without sabre-like spines and usually without dark cones 77
76. (75) Gonostyli with 2 long branches with teeth (Figs. 66—75) . . *M. calcarata* (p. 44)
— Gonostyli unbranched with 1 short and 1 very long curved tooth (Fig. 78) . . . . . *M. fuscipalpis* (p. 46)
77. (75) Coxa 1 with strong spines anteromedially; mid-coxal spur with distinct cone-like basal appendage 78
— Coxa 1 without spines; mid-coxal spur without basal appendage 79
78. (77) Coxa 1 with 3 strong spines (Fig. 444); mid-coxal spur with 1 apical tooth (Fig. 445); antennal scape with 2—3 anterior spines (Fig. 442) . . . . . *M. levis* (p. 136)
— Coxa 1 with many strong spines anteriomedially (Fig. 435); mid-coxal spur with apical lobe (Fig. 436); antennal scape without spines . . . . . *M. spinicoxa* (p. 134)
79. (77) Tergite 9 not medially emarginate, without very long setae on lateral appendages 80
— Tergite 9 medially emarginate, with small lateral appendages each bearing 2 very long setae 82
80. (79) Sternal submedian appendages with abundant long setosity (Figs. 346—349) . . . . . *M. sigma* (p. 110)
— Sternal submedian appendages with less abundant setosity 81
81. (80) Tergal lateral appendages long very slender, without strong setae; sternal synsclerite with long slender appendages (Figs. 339—344) . . . . . *M. ampla* (p. 110)
— Tergal lateral appendages different, with a subapical lobe bearing 2 strong spine-like setae; sternal synsclerite with short wide appendages (Figs. 353—359) . . . . . *M. ultima* (p. 113)
82. (79) Sternal submedian appendages short with a laterally projecting cone-like apical structure (Fig. 362—369) . . . *M. tenuis* (p. 115)
— Sternal submedian appendage short to long, projecting more or less medially . 83

83. (82) Sternal submedian appendages with a very long slender almost straight apical part 84
— Sternal submedian appendages more or less medially curved without such a straight apex 90
84. (83) Gonostyli with several large apical-subapical lobes 85
— Gonostyli with 2 large apical lobes . 87
85. (84) Gonostyli comparatively short, with characteristic rounded subapical lobe; sternal submedian appendages long (Figs. 388—394) . . . . . *M. terminata* (p. 125)
— Gonostyli comparatively long, without such a rounded lobe; sternal submedian appendages very long 86
86. (85) Apex of gonostylus strongly curved, hook-like, not very wide (Figs. 403—406) . . . . . *M. saga* (p. 128)
— Apex of gonostylus wide, with several wide lobes (Figs. 397—402) . . . . . *M. islandica* (p. 126)
87. (84) Aedeagus with very long curved hook-like apical parts 88
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Key to the species of the subgenus *Calomycomya* (males)

1. Sternal synsclerite with apically wide lobe-like lateral appendages bearing wide flattened setae apicomedially; tergal medial fork usually with large membraneous lateral lobes 2

— Sternal synsclerite without such appendages, without wide, flattened setae; tergal medial fork without large membraneous lateral lobes . 6

2. (1) Flattened setae of sternal lateral appendage short, slightly curved, not widest subapically (Figs. 854—860, 862—867) . . . . . *M. pulchella* (p. 261)

— Flattened setae of sternal lateral appendage long, wide, subapically widest, hardly curved . 3

3. (2) Gonostyli short, comparatively wide, with apical hook, without a dark apical tooth (Figs. 886—891) . . . . . *M. wuorentausi* (p. 271)

— Gonostyli long, slender, with a dark apical tooth 4

4. (3) Tergal medial fork wide, H-shaped (Figs. 881—885) . . . . . *M. insulana* (p. 271)

— Tergal medial fork not wide, X-shaped . 5

5. (4) Flattened setae of sternal lateral appendage very wide; lateral lobes of tergal fork very wide (Figs. 874—880) . . . . . *M. altaica* (p. 268)

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6. (1) Sternal lateral appendages with 2 slender long apical branches (Figs. 838—843) . . . . . *M. tolteca* (p. 259)

— Sternal lateral appendages unbranched . 7

7. (6) Sternal lateral appendages apically tapered; gonostyli with dark teeth (Figs. 846—852) . . . . . *M. amica* (p. 259)

— Sternal lateral appendages with a dilated apical part; gonostyli without dark teeth (Figs. 830—837) . . . . . *M. yunga* (p. 256)

Key to the species of the subgenus *Cymomya* (males)

1. Sternal lateral appendages very long, much longer than gonostyli and sternal submedial filaments (Figs. 898—900) . *M. macateei* (p. 275)

— Sternal lateral appendages shorter, about as long as gonostyli and sternal submedial filaments 2

2. (1) Apex of aedeagus hooked in lateral profile (Figs. 909—910) . . . . . *M. austrobliqua* (p. 280)

— Apex of aedeagus rounded in lateral profile (Figs. 895, 906) 3

3. (2) Sternal lateral appendages comparatively long, apically slightly pointed (Fig. 894) (Palaearctic) . . . . . *M. circumdata* (p. 273)

— Sternal lateral appendages shorter, apically rounded or blunt (Fig. 905) (Nearctic) . . . . . *M. obliqua* (p. 277)

Key to the species of the subgenus *Coheromyia* (males)

1. Sternal lateral appendages with a wide apical lobe and with distinctly narrower basal part 2

— Sternal lateral appendages apically more or less tapered, without distinctly narrower basal part 4

2. (1) Aedeagus distinctly hooked apically, its filaments about as long as its medial part; sternal lateral appendages as in Fig. 927 . . . . . *M. nigricauda* (p. 286)

— Aedeagus with only a small apical hook, its filaments longer than its medial part; sternal lateral appendages different 3

3. (2) Sternal lateral appendages with long comparatively wide apex (Fig. 916) (Palaearctic) . . . . . *M. branderi* (p. 283)

— Sternal lateral appendages with shorter and wider apex (Fig. 921) (Nearctic) . *M. tantilla* (p. 285)

4. (1) Sternal lateral appendages apically comparatively wide blunt; aedeagal filaments relatively wide, about as long as medial part of aedeagus (Fig. 934) . . . . . *M. oreades* (p. 289)

— Sternal lateral appendages apically distinctly tapered narrow; aedeagal filaments thin, longer than medial part of aedeagus (Fig. 942) . . . . . *M. kiamichii* (p. 289)

Key to the species of the subgenus *Mycomyopsis* (males)

1. Tergal lateral appendages with a long slender apical part 2

— Tergal lateral appendages without a long slender apical part 5

2. (1) Tergal lateral appendages with a short wide setose basal part and a long thin basally widely bare apical part (Figs. 1037, 1044) . 3

— Difference between basal and apical parts of tergal lateral appendages less marked, apical part stronger (Figs. 1053, 1059—1060) . 4

3. (2) Sternal submedial filaments long, curved (Figs. 1042—1048) . . . . . *M. byersi* (p. 315)

— Sternal submedian filaments short, straight (Figs. 1035—1039) . . . *M. esox* (p. 314)

4. (2) Gonostyli with a long strongly sclerotized subapical spur (Figs. 1051—1054) . . . . . *M. sublittoralis* (p. 317)

— Gonostyli without a spur (Figs. 1057—1063) . . . . . *M. neolittoralis* (p. 319)

5. (1) Tergal lateral appendages with a distinct, relatively long and dense comb-like brush of setae subapically on medial side 6

— Tergal lateral appendages without such a comb 8

6. (5) Gonostyli with 2 widely separate groups of dark teeth; sternal submedial filaments short, straight (Figs. 1030—1034) . . . . . *M. neodentata* (p. 313)

— Gonostyli with 1 apical-subapical group of dark teeth; sternal submedian filaments long curved 7

7. (6) Gonostyli with 3 dark teeth; tergite 9 with short pointed appendages laterally to apical submedial combs (Figs. 1025—1027) (Nearctic) . . . . . *M. dentata* (p. 312)

— Gonostyli with 2 dark teeth; tergite 9 without such appendages (Figs. 1019—1022) (Palaearctic) . . . . . *M. paradentata* (p. 311)

8. (5) Tergal lateral appendages long slender, with wide apex bearing several laterally curved flattened apicomedial setae (Figs. 1015—1018); wing veins M and Cu bare . . . . . *M. fennica* (p. 310)

— Tergal lateral appendages different, without such a wide apex; M and Cu bare or with macrotrichia 9

9. (8) Tergal lateral appendages comparatively slender with straight flattened apical setae (Figs. 1003—1006); M and Cu bare . . . . . *M. confusa* (p. 307)

— Tergal lateral appendages without such setae; M and Cu bare or with macrotrichia . 10

10. (9) Tergal lateral appendages comparatively long slender with laterally curved flattened apical setae (Figs. 1008—1011); M and Cu with macrotrichia . . . . . *M. trilineata* (p. 307)

— Tergal lateral appendages wider, without such setae; M and Cu bare or with macrotrichia 11

11. (10) Sternal submedial filaments missing (Figs. 997—1000); M and Cu bare . . . . . *M. affinis* (p. 304)

— Sternal submedial filaments long, curved; M and Cu with macrotrichia 12

12. (11) Base of tergal apical submedial comb laterally narrow; tergal lateral appendages comparatively slender, with a sparse comb of very strong flattened curved setae along the whole medial side (Figs. 985—991, 994—996) . . . . . *M. permixta* (p. 301)

— Base of tergal apical submedial comb wide, laterally wider than the comb; tergal lateral appendages without such setae along the whole medial side 13

13. (12) Tergal lateral appendages not very wide, with several flattened curved setae along medial side on middle and apical part (Figs. 977—982) . . . . . *M. maura* (p. 300)

— Tergal lateral appendages very wide, with some flattened medially curved setae along medial side near apex 14

14. (13) Tergal lateral appendages apically rounded (Figs. 962—964) (Palaearctic) . . . . . *M. penicillata* (p. 295)

— Tergal lateral appendages apically tapered slightly pointed (Figs. 968—973) (Nearctic) . . . . . *M. frequens* (p. 297)

Key to the species of the subgenus *Lycomya* (males)

1. Sternal submedial filaments comparatively short, only slightly longer than sternal synsclerite (Figs. 1064—1069) . . . . . *M. pectinifera* (p. 321)

— Sternal submedial filaments much longer than sternal synsclerite 2

2. (1) Sternal submedial filaments long, tergally curved (Figs. 1071—1074) (Palaearctic) . . . . . *M. amurensis* (p. 322)

— Sternal submedial filaments almost straight, very long (Figs. 1075—1080) (Nearctic) . . . . . *M. praeda* (p. 323)

Key to the subgenera (females) (Note that the female of the subgenus *Tlingitmyia* is unknown)

1. Cerci without distinct segmentation (e.g. Fig. 1081); hypogynal valves apically rounded without strong setae; wing veins M and Cu bare or with only a few macrotrichia . . . . . subg. *Lycomya* (p. 321)

— Cerci with a distinct apical segment; hypogynal valves variable in shape, setose; wing veins M and Cu seldom without macrotrichia . 2

2. (1) Mediotergite with small setae . . . . . subg. *Mycomya* (p.p.) (p. 42)

— Mediotergite bare 3

3. (2) Posterior part of head usually distinctly lighter than dark ocellar prominence; strongest setae on thorax usually distinctly truncate apically; hypogynal valves wide triangular apically tapered and slightly pointed, extensively setose, setae relatively short (e.g. Fig. 861); abdominal tergites yellow with dark posterior margins . . . . . subg. *Calomycomya* (p. 256)

— Posterior part of head not distinctly lighter than ocellar prominence; setae of thorax not so distinctly truncate apically; hypogynal valves different; colour pattern of abdomen variable . 4

4. (3) Basitarsus 1 as long as or longer than tibia 1 . . . . . subg. *Mycomya* (p.p.) (p. 42)

— Basitarsus 1 shorter than tibia 1 . . . 5

5. (4) Cu fork distal to M fork; apical segment of cercus long; scutellum with 4 long setae; small species 6

— Cu fork proximal to distal to M fork; apical segment of cercus short to oval; scutellum with 2 or 4 long setae; small to large species . 7

6. (5) Abdominal tergite yellow with dark posterior margins; apical segment of cercus very long; hypogynal valves very setose and wide, apically blunt (Figs. 960—961) . subg. *Neomycomya: M. fimbriata* (p. 292)

— Abdominal tergites without distinct colour pattern; apical segment of cercus comparatively long; hypogynal valves with many setae, apically

slightly tapered and rounded (Figs. 952—954) . . . . subg. *Myacymo: M. midea* (p. 290)

7. (5) Hypogynal valves very wide, apically blunt, extensively setose, their setae comparatively long (e.g. Figs. 922—923); apical segment of cercus comparatively short; abdominal tergites usually yellow with dark posterior margins . . . . . subg. *Coheromyia* (p. 282)

— Hypogynal valves different; apical segment of cercus oval; colour pattern of abdomen variable, if tergites yellow with dark posterior margins, hypogynal valves with only a few setae 8

8. (7) Abdominal tergites yellow with dark posterior margins; hypogynal valves apically rounded, with a few comparatively long apical-subapical setae 9

— Abdominal colour pattern variable, when tergites yellow with dark posterior margins, hypogynal valves not apically rounded . . . 10

9. (8) Sc ending in C, R1 or free; M petiole long to moderately long; Cu petiole long to moderately long; apex of hypogynal valve distinctly round (e.g. Fig. 897) . . . . . subg. *Cymomya* (p. 271)

— Sc ending in C; M petiole short; Cu petiole short to moderately long; apex of hypogynal valve not so round . . . . . subg. *Mycomya* (p.p.) (p. 42)

10. (8) Hypogynal valves apically tapered and pointed (e.g. Figs. 975—976); Cu fork distal to M fork; 1st flagellomere of antenna usually about 4 times as long as wide; scutellum with 4 long setae; Sc ending in R1; macrotrichia of veins M and Cu often reduced; abdominal tergites sometimes yellow with dark posterior margins . . . . . subg. *Mycomyopsis* (p. 295)

— Hypogynal valves different, variable in shape; Cu fork proximal to distal to M fork; 1st flagellomere usually much shorter; scutellum with 2 or 4 long setae; Sc ending in C, R1 or free; macrotrichia present on M and Cu; abdominal tergites entirely dark or light, or dark with paler posterior margins . . . . . subg. *Mycomya* (p. p.) (p. 42)

Key to species groups and species of the subgenus *Mycomya*

Remarks: According to Coher (1959), the female fungus gnats of the Mycomyinae cannot be correlated with the males, because differentiating anatomical characters are often lacking, whether the females are closely related or not (cf. also Hutson et al. 1980). In addition to the above key to the subgenera, it is hoped that the following key to species groups and some more characteristic species of the subgenus *Mycomya* will be useful in identification, although the females of several species (and species groups) are still unknown.

1. Abdominal tergites yellow with dark posterior margins 2

— Abdominal tergites entirely dark or light, or dark with paler posterior margins . . 3

2. (1) Mesoscutum yellow with 3 dark longitudinal stripes; larger species, wing length 6.1—6.3 mm (western Palaearctic) . . . . . *M. insignis* (p. 92)

— Mesoscutum yellow with 2 wide dark sublateral-lateral stripes, middle stripe more or less reduced; smaller species, wing length 4.0—5.5 mm (Nearctic, Kirghizia) . *M. onusta* (p. 94)

3. (1) Wing membrane slightly but entirely infuscate 4

— Wing hyaline, sometimes with slight markings 5

4. (3) Sc without macrotrichia; Sc ending in R1; very large dark brown species, wing length 9.1 mm (eastern Nearctic) . . *M. matrona* (p. 53)

— Sc with macrotrichia; Sc ending in C or free; large black-blackish brown species, wing length 4.3—6.0 mm (western Nearctic) . . . . . *M. calcarata* (p. 44)

5. (3) Wing with relatively distinct markings . 6

— Wing without markings 9

6. (5) Wing apex and small cell infuscate, comparatively large species, wing length 5.0—7.2 mm 7

— Wing apex not infuscate, small cell distinctly infuscate; smaller species, wing length 3.5—5.9 mm 8

7. (6) Sc ending in C (Palaearctic) . . . . . *M. marginata* (p. p.) (p. 232)

— Sc ending in R1 (western Palaearctic) . . . . . *M. (?) storai* (p. 140)

8. (6) Scutellum with 2 long setae (Nearctic) . . . . . *M. hirticollis* (p. 196)

— Scutellum with 4 long setae (Palaearctic) . . . . . *M. occultans* (p. p.) (p. 243)

9. (5) Thorax yellowish without distinct markings, lighter than abdomen; abdominal tergites brown with yellow posterior margins; hypogynal valves with a few comparatively short strong subapical-apical setae (Figs. 85—86); large species, wing length 5.4—7.5 mm (Nearctic) . . . . . *M. sphagnicola* (p. 49)

— Colour pattern different; hypogynal valves different; small to large species 10

10. (9) Mediotergite with some small setae . 11

— Mediotergite bare 16

11. (10) Scutellum with 2 long setae and Cu fork proximal to M fork and basitarsus 1 much longer than tibia 1 (Holarctic) . . . . . *H. shermani* (p. p.) (p. 179)

— Characters not combined in above way; scutellum with 2 or 4 long setae; Cu fork proximal to distal to M fork: basitarsus 1 shorter to longer than tibia 1 12

12. (11) Cu fork distinctly distal to M fork; small cell usually long; pronotum with 2 longer setae; scutellum with 2—4 long setae; hypogynal valves with some comparatively short setae; colour pattern usually diffuse 13

— Cu fork proximal to distal to M fork; small cell short to long; pronotum with 3 or more longer setae; scutellum with 4 long setae; colour pattern diffuse to distinct; hypogynal valves relatively wide, more or less triangular apically tapered and pointed with several long setae . . . . . sp. gr. *M. ornata* (p. 56)

13. (12) Sc ending free or Sc 1 missing, seldom reach-

ing C; small cell 2—2.5 times as long as wide; basitarsus 1 longer than tibia 1 (Holarctic) . . . . . *M. levis* (p. 136)

— Sc usually ending in C; small cell usually longer; basitarsus 1 usually about as long as tibia 1 14

14. (13) Hypogynal valves comparatively narrow, apically tapered and pointed (Figs. 360—361) (northern Nearctic) . *M. ultima* (p. 113)

— Hypogynal valves comparatively wide, apically more or less rounded (e.g. Fig. 385) . 15

15. (14) Usually only 1 short seta on mediotergite (Holarctic) . . . . . *M. sigma* (p. 110)

— Usually 2—3 small setae on mediotergite . . . . . sp. gr. *M. tenuis* (p. 113)

16. (10) Hypogynal valves very wide, apically round, with many small setae; Sc bare, seldom with 1—3 macrotrichia 17

— Hypogynal valves not very wide or rounded; Sc seldom without macrotrichia . . . 18

17. (16) Scutellum with 4 long setae; blackish brown species (Holarctic) . *M. nigricornis* (p. 105)

— Scutellum with 2 long setae; thorax pale yellow with dark ventral parts and mesoscutal stripes, abdomen uniformly light brownish (Palaearctic) . . . . . *M. vittiventris* (p. 102)

18. (16) Abdominal tergites brownish with yellow posterior margins, tergite 6 distinctly lighter than other tergites (eastern Nearctic) . . . . . *M. pura* (p. p.) (p. 251)

— Abdominal tergite 6 not lighter than other tergites 19

19. (18) Hypogynal valves apically rounded, with a few comparatively short setae (Fig. 302); Sc ending in C, bearing macrotrichia; scutellum with 4 long setae; basitarsus 1 shorter than tibia 1 (Palaearctic) . . . . . *M. parva* (p. 97)

— Hypogynal valves different, apically more or less tapered and usually pointed, with few to many long setae; Sc ending in C, R1 or free, with or without macrotrichia; scutellum with 2 or 4 setae; basitarsus 1 shorter to longer than tibia 1 . . sp. gr. *M. marginata* (p. p.) (p. 138)

Remarks: In the subgenus *Mycomya* certain additional characters and character combinations are useful in further identification: the shape and setosity of the hypogynal valve (all species), the position of the M and Cu forks, the body coloration (e.g. in *M. fasciata, M. simplex, M. nitida, M. marginata, M. ruficollis),* the length of basitarsus 1 (bt1 much longer than t1 in: *M. cinerascens, M. shermani, M. alpina, M. fornicata, M. hians;* bt1 distinctly shorter than tibia 1 in: *M. annulata, M. flavicollis, M. pura, M. festivalis, M. nitida),* the number of scutellar setae, Sc ending in C, R1 or free (Sc broken in: *M. annulata, M. ruficollis, M. shermani, M. trivittata, M. neohyalinata),* the presence or absence of macrotrichia on Sc (Sc bare in: *M. fuscata, M. subarctica; M. shermani, M. alpina, M. fornicata, M. difficilis).*

In the subgenera *Coheromyia* and *Mycomyopsis* the most useful external diagnostic characters are: the presence or absence and the distribution of macrotrichia on the wing veins M and Cu, the colour pattern (e.g. in *M. frequens)* and the wing length.

In some cases the distribution of the species can be successfully used in the identification, e.g. in *M. rivalis* and *M.* n. sp. of the Canary Islands.

The chief difficulties in the identification of females besides the lack of suitable external diagnostic characters, are that the females of several species are still unknown, and that the occurrence of females together with certain males is very often misleading. Samples of *Mycomya* specimens usually include many species (often closely related): e.g. in the large random sample material from eastern Fennoscandia all the samples containing three or more male specimens represented more than one species.

7.2. Subgenus Mycomya

Mediotergite bare or with some small setae. Coxa 1 with or without specialized setae or spines. Coxa 2 often with a long curved spur. Coloration usually dull, diffuse, brown and yellowish. Abdominal tergite 8 setose. Tergite 9 usually with a submedial pair of dark cones or a medial processus. Basal part of tergite 9 setose or bare. Tergite 9 with or without setiferous lateral appendages. Sternal synsclerite with well-developed and almost always setose submedian appendages, sometimes also setose lateral appendages. Sternal synsclerite medially entire, usually not medially emarginate.

Distribution: Holarctic. In addition, the following species from other zoogeographic regions can be tentatively placed in this subgenus: *M. curvilinea* Brunetti, 1912 (India), *M. incerta* (Brunetti, 1912) (India), *M. indefinita* Brunetti, 1912 (India), *M. indica* Brunetti, 1912 (India) (see Brunetti 1912, 1917, Edwards 1924c), *Mycomya* spp. (Nepal, Burma), *M. lightfooti* Edwards, 1925b (South Africa), *M. kiboensis* Lindner, 1958 (Tanzania), *M. alluaudi* Edwards, 1914 (Kenya), *M. chilensis* (Blanchard, 1852) (Chile), *M. simillima* Freeman, 1951 (Chile), *M. subfusca* Freeman, 1951 (Chile), *M. ochracea* Freeman, 1951 (Chile), *M. bifida* Freeman, 1951 (Chile), *M. lamellata* Freeman, 1951 (Chile), and possibly some other Chilean species described by Freeman (1951).

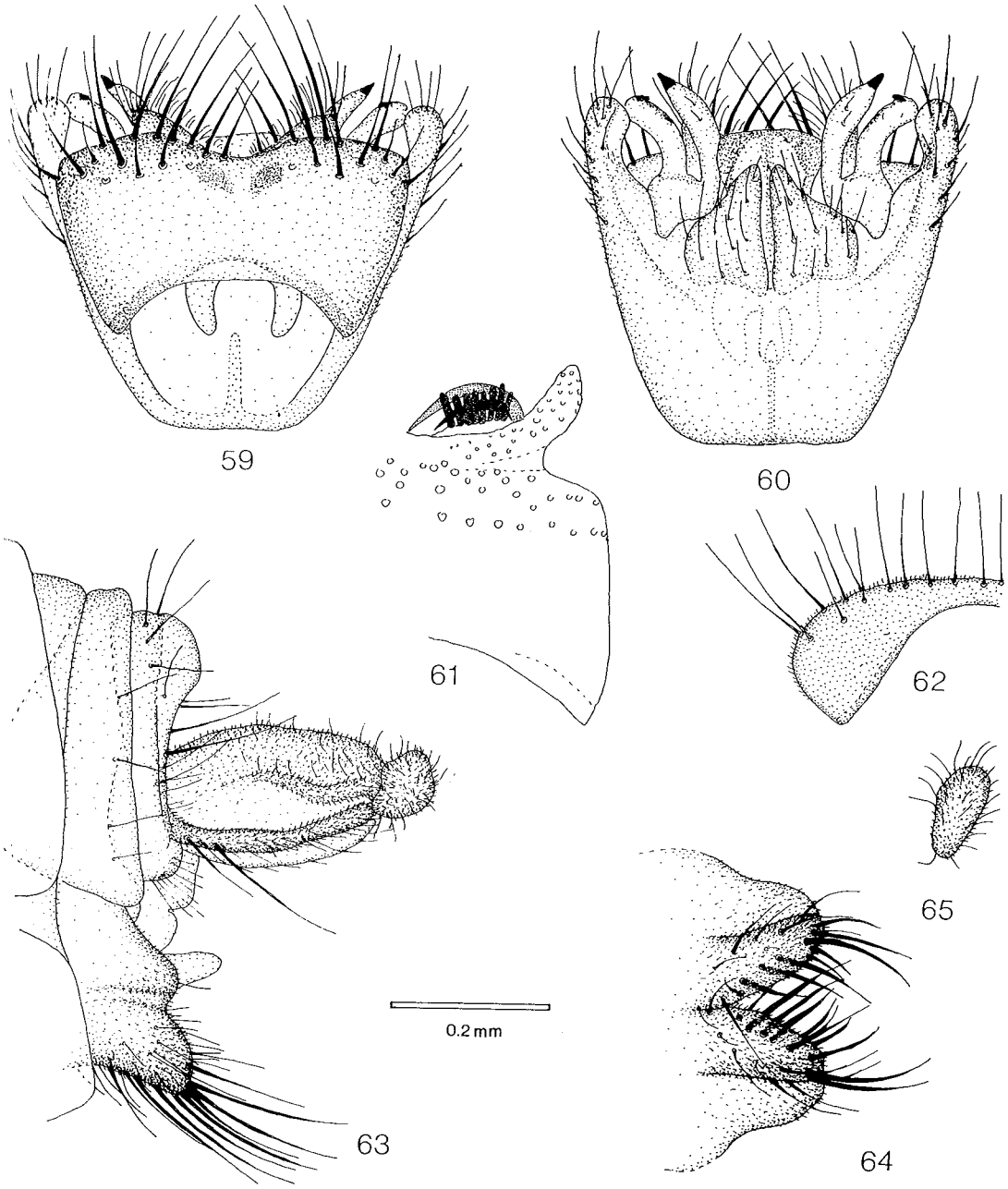
In the Holarctic region 22 species groups are recognized in this subgenus.

Species group M. calcarata

Head. Anteclypeus short, triangular, with several long setulae. Antenna about 1.5 times as long as head and thorax together, in females about as long as these. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite with 0—4 setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxa 1 without special setae. Coxa 2 with relatively short, slightly curved spur. Coxa 2 about 3 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.



Figs. 59—65. *Mycomya calcarata.* — 59: male hypopygium, tergal view. — 60: hypopygium, sternal view. — 61: tergite 9. — 62: tergite 8. — 63: female terminalia, lateral view. — 64: hypogynal valves, sternal view. — 65: apical segment of cercus, sternal view. Scale 0.2 mm.

Wing. C ending in apex of R5 at wing apex. Sc ending in C, seldom broken apically. Cu fork proximal to M fork. M petiole of medium length. Cu petiole short to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Dark.

Tergite 8 comparatively wide, arcuate, medially slightly narrower, with many setae along posterior margin. Sternite 8 triangular, apically rounded, without setae.

Hypopygium. Tergite 9 large with two groups of dark cones and sabre-like spines, without lateral appendages. Sternal synsclerite with lateral appendages. Gonostylus with two branches.

Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, very setose, some setae very strong.

One Nearctic species is recognized in this species group.

Mycomya calcarata (Coquillett, 1905)

Figs. 59—75, key p. 36, 41.

Sciophila calcarata Coquillett, 1905. Coquillett 1905:19.

Mycomya calcarata: Johannsen 1909:46, 1910:173; Laffoon in Stone et al. 1965:220; Cole 1969:121.

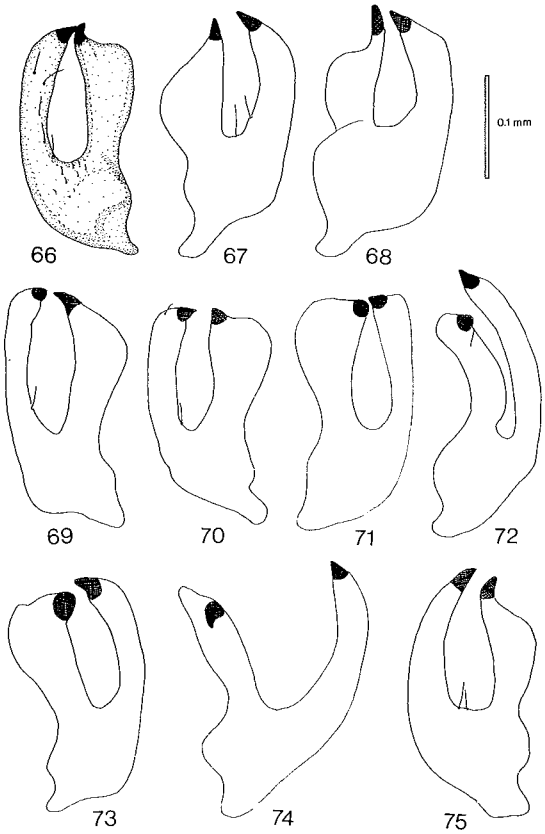
Mycomyia calcarata: Coher 1959:120.

Type locality: California, the vicinity of Stanford University (USA).

Type: Lectotype (studied) designed by Coher (1959): San Mateo Co. Cal. Baker. *Sciophila calcarata* Coq. Type No. 7668 U.S.N.M. (m USNM).

Remarks: The type is apparently the lectotype, although it is not labelled as such (see Coher 1959), but only as the type.

Material examined: Canada: B. C., Cranbrook, 13.V., C. Garrett (3 m hypop. slides No. 5419, 5417, 5418 USNM). — USA: Wash., Pullman, 10.IV. 1904, A. L. Melander (9 mm 2 ff USNM); same locality, 21.IV. 1969, Malaise trap, R. W. Dawson (10 mm 13 ff WASH); same locality, 28.IV. 1961, M. T. James (1 m WASH); same data, 20.IV. 1952 (5 mm 3 ff WASH); same data, 10.IV. 1952 (5 mm 2 ff WASH); same locality, 16.IV. 1926, J. F. Clarke (1 m WASH); same locality, 22.IV. ?1939 (1 m 1 f WASH); same locality, V. 1920, R. M. Paulson (1 f WASH); same locality, virgin Palouse strip, 10.IV. 1954, J. A. Quist (3 mm WASH); Wash., Pullman, WSU Campus-bee area, 3.V. 1971, W. J. Turner (1 m 2 ff WASH); Wn., Seattle, V. 1919, A. Spuler (3 mm WASH); Wash., Wawawai, 30.IV. 1966, A. Jafri (1 m WASH); Ida., Latah Co., 6 mi. N. Moscow, 19.IV. 1971, W. J. Turner (3 mm WASH); Idaho, Latah Co., 3 mi. S. Helmer, Meadow Crk., 2800 ft., *Lomatium orogenoides*, 17.V. 1975, W. J. Turner (4 mm WASH); Calif., Salt Cr., Shasta Lake, 7.IV. 1959, M. T. James (1 m WASH); Calif., Alameda Co., Kilkare Road, 1.4 mi. north of Sunol, 10.II. 1972, T. W. Davies (1 m CAS); California, Santa Clara County, Stanford University, 13.III. 1956, P. H. Arnaud, Jr. (2 mm CAS); Cal., San Mateo Co., Baker (lectotype USNM); California, Solano County, Vacaville, at flr. *Brassica*, 13.III. 1969, P. H. Arnaud, Jr. (1 m CAS); Cal., Sacto Co., Citrus Hts., 26.I. 1967, 27.I. 1967, 8.II. 1968, 9.II. 1968, 11.II. 1968, G. J. & A. D. Keuter (7 mm CAS); Cal., Palo Alto, 9.II. 1895, R. W. Doane (1 m CAS); L. S. Jr. U. Lot 403, R. W. Doane (1 m CAS); Calif., Marin Co., Alpine Lk., Lily Pond, 1500′, 11.I. 1971, Mal. tr., D. D. Munroe (1 m CNC); Calif., Santa Clara Co., Silver Creek Hills, 15.I. 1961, B. Sturgess (1 m OREG); Cal., Birds Landing, 25.I. 1927, W. B. C. Cartwright (1 m 1 f USNM); Cal., Riverside, 2.II. 1935, A. L. Melander (1 m USNM).



Figs. 66—75. *Mycomya calcarata,* male hypopygium, variation in the shape of gonostyli. Scale 0.1 mm.

Description:

Head. Dark blackish-greyish brown to black. Antenna brown, seldom with scape, pedicel and base of 1st flagellomere light brownish. 1st flagellomere 3.5—4 times, 2nd about 2.5 times as long as wide.

Thorax. Dark blackish brown to black. Pronotum with 4—6 longer setae. Mesoscutum with indistinct dark longitudinal stripes, middle stripe with narrow paler medial band. Scutellum with 4 long and sometimes 2 shorter setae. Mediotergite with 0—4 setae.

Legs. Coxae brownish, femora, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with spur, which is short, about 1/3 of coxal length, slightly curved and has 2 apical teeth. Leg ratios: bt1:t1 = 0.76—0.94, bt2:t2 = 0.63—0.76, bt3:t3 = 0.54—0.66.

Wing. Wing length 4.3—6.9 mm, wing very wide. Wing membrane infuscate. Sc ending in C proximally-distally to middle of small cell, seldom Sc1 apically broken, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 0—12 macrotrichia. Small cell 1.5—3.5, usually about 2.5, times as long as wide. Cu fork proximal to M fork. M ratios: 0.47—0.73, 0.58—0.84. Cu ratios: 0.46—0.64, 0.73—1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu 1: +; Cu2: +. Halter yellowish, knob slightly darker.

Abdomen. Black.

Hypopygium. Figs. 59—62, 66—75, dark brown. Tergite 9 very large, with 2 sabre-like spines and 8—9 dark cones on both sides. Sternal lateral appendage wide, not very long, with many setae. Sternal submedian appendage wide, with setae. Gonostylus with 2 branches, both with 1 tooth. Aedeagus long, wide.

Female. Wing length 4.3—6.0 mm. Coloration as in male. Leg ratios: bt1:t1 = 0.76—0.85, bt2:t2 = 0.59—0.60, bt3:t3 = 0.54—0.60. Terminalia as in Figs. 63—65, yellowish to brownish.

Remarks: The specimens collected in January-March (in California) are distinctly smaller than those collected in April-May (mainly in other areas). Wing length in males: January-March: 4.3—5.3 mm, mean 4.80 mm, SD 0.37, N = 21; April-May: 5.0—6.9 mm, mean 6.07 mm, SD 0.40, N = 44. Wing length in females: January-March: 4.3—4.5 mm, mean 4.37 mm, SD 0.12, N = 4; April-May: 4.9—6.0 mm, mean 5.45 mm, SD 0.33, N = 24. There may be two more or less separate generations in this species. The differences in size might be due to different nutrition or/and different humidity conditions.

Wing abnormalities: Sc1 ending far distad of apex of Sc1. In one specimen an additional vein from M petiole to M2.

As far as can be judged from the dried museum specimens, it seem that *M. calcarata* specimens keep their wings flat, overlapping on their back when resting, not like other members of *Mycomya*, which keep their wings flat but divergent at an angle of about 45° on each side of the body (see also Edwards 1921b:23).

The body of dried museum specimens sometimes has a faint bluish green shade and the wings a bluish green shine. This may be due to the method of conservation.

Distribution: Western Nearctic. Canada: British Columbia. USA: Washington, Idaho, California.

Biology: One male has been caught on flowers of *Brassica* (Brassicaceae) and four specimens on *Lomatium orogenoides* (Apiaceae). *M. calcarata* has also been caught with the Malaise trap.

Species group M. fuscipalpis

Head. Anteclypeus short, triangular, with some long setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite with 1—4 setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining fairly distinctly anteriorly.

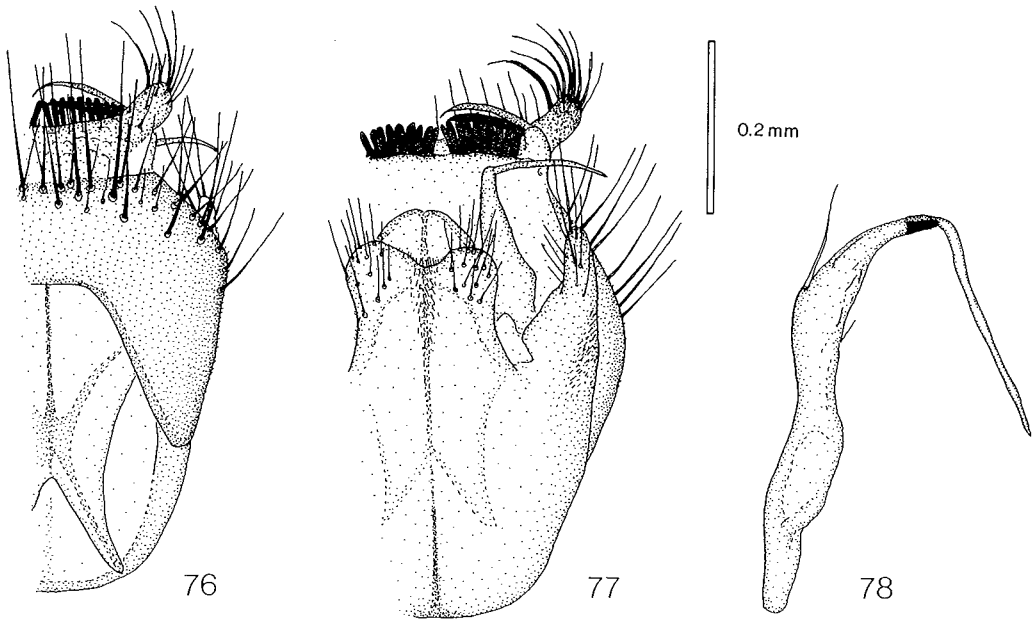
Legs. Coxa 1 without special setae. Coxa 2 with relatively short slightly curved spur. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork proximal to M fork. M and Cu petioles of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with or without light posterior margins.

Tergite 8 comparatively wide, arcuate, medially narrower, with many setae along posterior margin. Sternite 8 triangular, apically rounded, without setae.

Hypopygium. Tergite 9 with 2 groups of dark cones



Figs. 76—78. *Mycomya fuscipalpis*. — 76: male hypopygium, tergal view. — 77: hypopygium, sternal view. — 78: gonostylus. Scale 0.2 mm for Figs. 76—77, Fig. 78 2 x enlarged.

and sabre-like spines, without lateral appendages. Sternal synsclerite with lateral appendages. Gonostylus unbranced, with one short and one very long curved tooth.

One Nearctic species is recognized in this species group.

Mycomya fuscipalpis Van Duzee, 1928
Figs. 76—78, key p. 36.

Mycomya fuscipalpis Van Duzee, 1928. Van Duzee 1928:40; Laffoon in Stone et al. 1965:220; Cole 1969:121; Arnaud 1979:82.
Mycomyia fuscipalpis: Coher 1959:125.
Mycomyia intermedia Fisher, 1937 (New synon.). Fisher 1937:396; Coher 1959:123.
Mycomya intermedia: Laffoon in Stone et al. 1965:220; Cole 1969:121.

Type locality: California, Marin County, Mill Valley (USA).
Types: — *Mycomya fuscipalpis* Van Duzee: Holotype (studied): Mill Valley Marin Co Cal. 3-6-26. *Mycomya fuscipalpi* Holotype. Van Duzee. (m CAS). — *Mycomya intermedia* Fisher: Holotype (studied): Fair Oaks, Cal. 10 May, 1918. Holotype Cornell U. N. 1412. Holotype *Mycomyia intermedia* Fisher hypopygium in vial alc. (m CORN). Type locality: California, Fair Oakes (USA).
Material examined: USA: Ore., Josephine Co., O'Brien, 5.VI. 1965, F. Schmid (1 m CNC); Calif., Redding, 5.IV. 1966 (1 m WASH); Cal., Napa Co., N. side Howell Mt., 2 mi. NNE. Angwin, 1300 ft., 28.III. 1975, H. B. Leech (1 m CAS); Calif., Fair Oakes, 10.V. 1918 (*M. intermedia* holotype CORN); Cal., Marin Co., Mill Valley, 6.III. 1926, M. C. Van Duzee (*M. fuscipalpis* holotype CAS); Calif., Marin Co., Alpine Lk., Lily Pond, 1500′, 10—18.III. 1971, Mal. tr. D. D. Munroe (1 m CNC); Cal., Riverside, 10.III. 1946, A. L. Melander (1 m USNM).

Description:
Head. Palp, other mouthparts and face brownish to brown, posterior parts of head dark brown. Antenna brownish to brown, scape, pedicel and base of 1st flagellomere slightly yellowish. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.
Thorax. Pronotum brownish to brown, with 6—7 longer setae. Mesoscutum brownish to brown, with indistinct dark brown longitudinal stripes. Mesanepisternum brown. Mesokatepisternum brown, ventral part dark. Scutellum brown, with 4 long setae. Laterotergite brown, ventral part dark. Mediotergite brown, with 1—4 setae.
Legs. Coxae yellowish to brownish, femora yellowish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with brownish spur, which is short, 1/3—1/2 of coxal length, slightly curved and has 2 apical teeth. Spur relatively wide basally. Leg ratios: bt1:t1 = 0.72—0.89, bt2:t2 = 0.65—0.72, bt3:t3 = 0.54—0.59.
Wing. Wing length 4.5—5.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 6—12 macrotrichia. Small cell 2—3 times as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.51—0.67, 0.64—0.77. Cu ratios: 0.58—0.66, 0.85—1.10. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +: Cu2: +. Halter yellowish.
Abdomen. Entirely dark brown or tergites 1—5 brown with yellowish posterior margins. Sternites brown.
Hypopygium. Figs. 76—78, yellowish to brown, apical part of tergite 9 light. Tergite 9 with 2 sabre-like spines and 7—10 dark cones on both sides. Lateral sabre-like spine distinctly darker than medial one. Sternal lateral appendage comparatively short, wide, setose. Sternal submedian appendages fused, long and wide, with setae. Gonostylus long slender with 1 short dark tooth and 1 very long light spur-like curved tooth. Aedeagus long comparatively wide.
Female. Unknown.

Distribution: Western Nearctic. USA: Oregon, California. Only the holotypes were previously known.
Biology: Unknown.

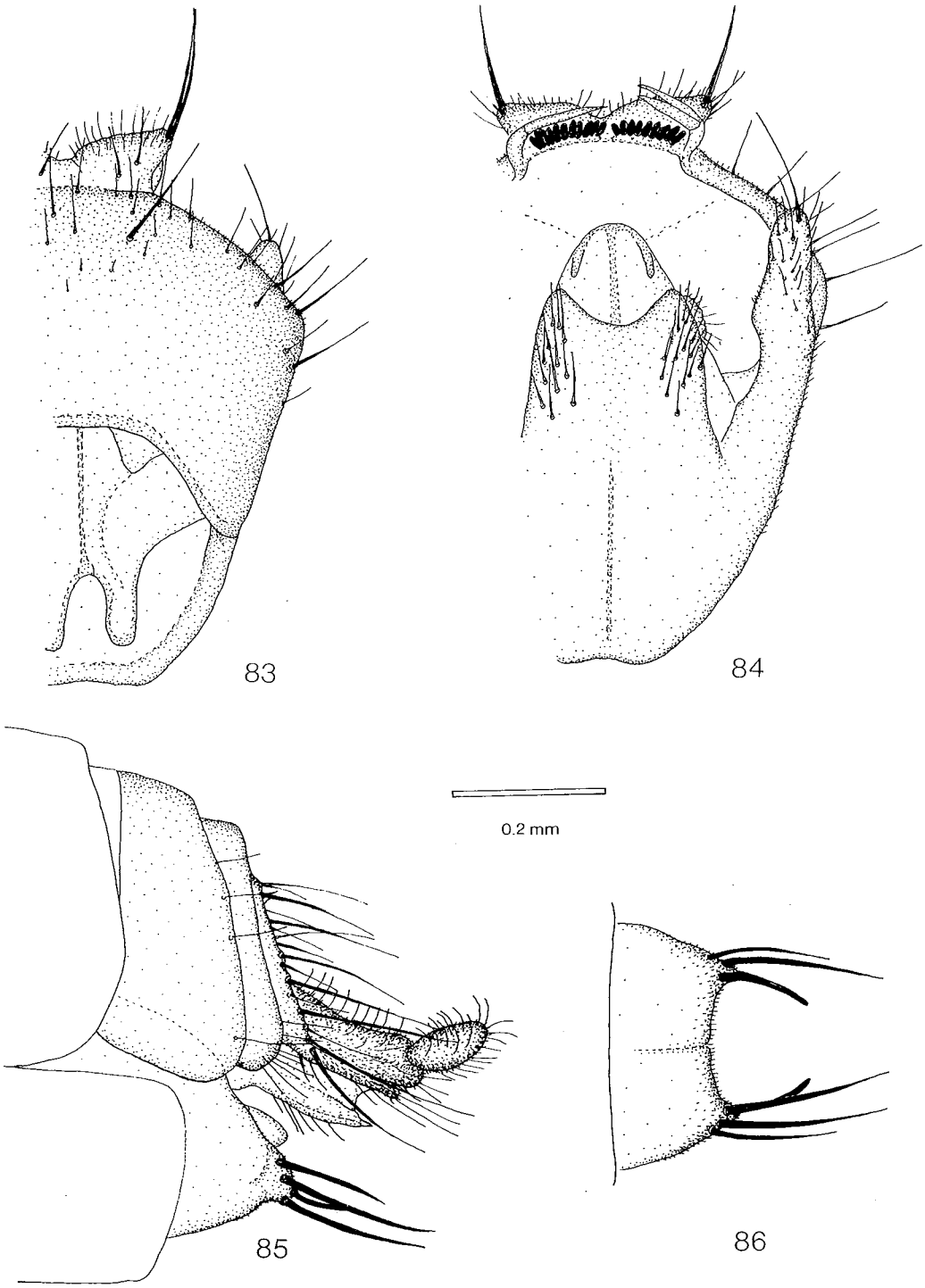
Species group M. bialorussica

Head. Anteclypeus comparatively long, apically rounded, with several setulae. Antenna about 1.5 times or less as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.
Thorax. Scutellum with 4, occasionally 6, longer setae. Mediotergite with 0—4 setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.
Legs. Coxae without special setae or other structures. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.
Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork proximal to M fork. M. petiole short to medium. Cu petiole short to medium. Macrotrichiation of veins M and Cu not reduced.
Abdomen. Tergites dark with lighter posterior margins.
Tergite 8 wide, arcuate, medially narrower, with many setae along whole posterior margin. Sternite 8 triangular, with about 5 setae.
Hypopygium. Tergite 9 with 2 groups of dark cones and sabre-like spines, without lateral appendages. Gonostylus unbranched, with one short and one very long curved tooth.
Female terminalia. Apical segment of cercus oval. Hypogynal valve with a few strong, comparatively short setae.

One Palaearctic and one Nearctic species are recognized in this species group.

Mycomya bialorussica Landrock, 1925
Figs. 79—82, key p. 38.

Mycomyia bialorussica Landrock, 1925 (as new name for *Sciophila nitida* Dziedzicki, preocc. Zetterstedt, 1852). Landrock 1925b:180, 1926—1927:43.
Mycomya bialorussica: Väisänen in Hackman 1980:31; Väisänen 1982b:38.



Figs. 83—86. *Mycomya sphagnicola*. — 83: male hypopygium, tergal view. — 84: hypopygium, sternal view. — 85: female terminalia, lateral view. — 86: hypogynal valves, sternal view. Scale 0.2 mm.

Mycomya sphagnicola Shaw, 1941
Figs. 83—86, key p. 38, 41.

Mycomyia sphagnicola Shaw, 1941. Shaw 1941:171; Coher 1959:112.
Mycomya sphagnicola: Laffoon in Stone et al. 1965:221; Cole 1969:121.

Type locality: North Carolina, Andrews Bald (USA).
Type: Holotype (studied): Andrewsbald, N. C. VI-11-1940, Col. C. P. Alex. *Mycomyia sphagnicola* Shaw Type. (in MASS).
Material examined: Canada: B. C., Procter, 8.VII., C. Garrett (1 m hypop. slide No. 25—72 "*Mycomyia angua*" USNM); B. C., Squamish, Diamond Head Trail, 1300 ft., 25.VIII. 1953, W. R. M. Mason (1 m CNC); B. C., McQueen L., 10 mi. N. Kamloops, 2.VII. 1973, H. J. Teskey (1 m CNC); Ont., 6 mi. W. Richmond, 23.VI. 1971, 24.VI. 1971, 26.VI. 1971, 30.VI. 1971, J. E. H. Martin (3 mm 1 f CNC); Ont., Midland, 30.VII. 1956, J. G. Chillcott (1 f CNC); Que., Old Chelsea, 15.VI. 1964, J. R. Vockeroth (1 m CNC); same locality, Summit King Mt., 1150′, 26.V. 1964, J. R. Vockeroth (2 mm CNC); same data, 22.VI. 1961 (1 f CNC); N. B., Kouchibouguac N. P., 14.VII. 1977, J. F. McAlpine (1 m CNC); same locality, 2.VII. 1977, J. R. Vockeroth (1 f CNC). — USA: Wash., Mt. Rainier Nat'l Park, 10.VIII. 1941, L. J. Lipovsky (1 f WASH); Washington, Spokane Co., Mt. Spokane S. P., Bald Knob Cmpgr., 4800—5200 ft., 21—22.VII. 1975, W. J. Turner (1 f WASH); Wash., Skagit Co., Mineral Park, 1.VI. 1965, F. Schmid (1 f CNC); Ore., Lane Co., Indigo Springs, 10.VI. 1965, F. Schmid (1 f CNC); Id., Moscow Mt., 9.VII. 1920, A. L. Melander (1 f USNM); Minn., Itasca St. Park, 14.VI. 1954, light trap (1 m MINN); Mich., Ontonogan Co., 18.VI. 1960, R. & K. Dreisbach (1 f MICH); Mich., Gogebic Co., 15.VI. 1960, R. & K. Dreisbach (1 m MICH); O., Columbus, 28.V. 1925, R. H. Painter (1 m 1 f PU); Me., Eastport, VII. 1916 (1 m CORN); N. H., Loew Coll. (2 mm MCZ); New Hampshire, White Mountains, Pinkham Notch, 22.VI. 1977, R. J. Gagné (1 m USNM); N. H., Bretton Woods, 25.VI. 1913 (1 m PU); same locality, 24.VI. 1913 (1 f PU); N. H., Jaffrey, 14.VI. (1 f MCZ); N. Y., Whiteface Mt., 4000′, 19.VII. 1962, J. R. Vockeroth (1 m CNC); N. Y., Tompkins Co., Danby, 18.VI. 1963, W. W. Wirth (1 m USNM); N. Y., Maplecrest, Catskill Mts., 30.VI. 1926, F. M. Schott (1 f MCZ); Virginia, Giles Co., Wind Rock, 4 mi. N. Mt. Lake Biol. Sta., 4100′, 16.VI. 1975, G. W. Byers (1 f SNOW); N. C., Andrews Bald, 11.VI. 1939, C. P. Alexander (holotype MASS); N. C., Highlands, 21.V. 1957, W. R. M. Mason (1 m CNC); Tenn., Sevier Co., Gr. Smoky Mts., Mt. Collins, north slope, 5900′, 35°35.5′N, 83°28.3′W, 25.VI. 1958, J. Laffoon (5 mm 2 ff ISU).

Description:
Head. Palp and other mouthparts yellowish to brownish, face brownish, posterior parts of head brownish to brown. Antenna brownish, 2—5 basal segments yellow. 1st flagellomere twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 8—10 longer setae. Mesoscutum shining yellow to yellowish, usually without distinct markings, sometimes posterior parts brownish, anterolateral corners yellow, sometimes mesoscutum with 3 indistinct brownish longitudinal stripes. Mesanepisternum and mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellowish, with 0—1 small seta.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.75—0.86, bt2:t2 = 0.70—0.74, bt3:t3 = 0.54—0.56.

Wing. Wing length 4.6—5.8 mm. Wing hyaline. Sc ending in C near or proximally to middle of small cell, Sc2 ending in R1 proximally - distally to middle of small cell. Apical part of Sc bearing 11—17 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.34—0.54, 0.39—0.61. Cu ratios: 0.50—0.64, 0.72—0.87. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Shining, darker than thorax. Tergites 1—5 brownish to dark brown, with or without yellowish posterior margins, 6—7 brown. Sternites lighter than tergites.

Hypopygium. Figs. 83—84, large, yellowish. Tergite 9 with 2 apicolateral setae and 2, seldom 1, sabre-like spines and about 10 dark cones on both sides. Sternal lateral appendage long, setose. Sternal submedian appendages fused, long, wide, with setae. Gonostylus long, slender, with 1 short dark tooth and 1 very long spur-like tooth. Aedeagus long, large.

Female. Wing length 5.4—7.5 mm. Thorax yellow. Abdomen dull-coloured, greyish-brownish, with posterior thirds of tergites paler. Mediotergite with 0—4 setae. Leg ratios: bt1:t1 = 0.80—0.86, bt2:t2 = 0.69—0.71, bt3:t3 = 0.57—0.61. Terminalia as in Figs. 85—86, yellow.

Distribution: Nearctic. Canada: British Columbia, Ontario, Quebec, New Brunswick. USA: Washington, Oregon, Idaho, Minnesota, Michigan, Ohio, Maine, New Hampshire, New York, Virginia, North Carolina, Tennessee. Coher (1959) also reports *M. sphagnicola* from Newfoundland: Codroy Valley.
Biology: Unknown.

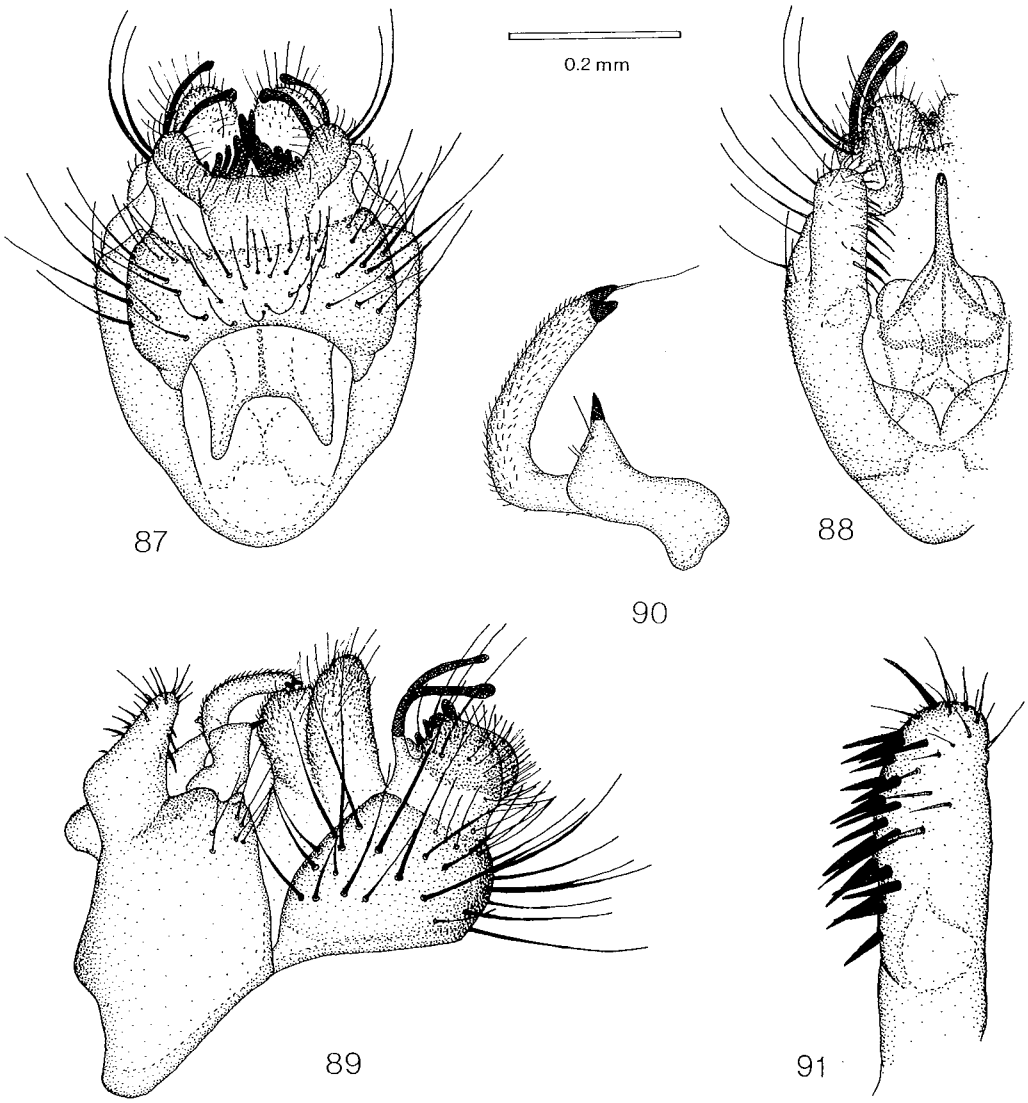
Species group M. atus

Head. Anteclypeus short, apically rounded, with a few comparatively long setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxa 1 with comparatively dense patch of long thin setae anteromedially near apex. Coxa 2 with comparatively short, apically curved spur. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork slightly proximal - slightly distal to M fork. M petiole short. Cu petiole of medium length. Macrotrichiation of veins M and Cu not reduced.



Figs. 87—91. *Mycomya atus*. — 87: male hypopygium, tergal view. — 88: hypopygium, sternal view. — 89: hypopygium, lateral view. — 90: gonostylus. — 91: sternal submedian appendage. Scale 0.2 mm for Figs. 87—89, Figs. 90—91 2 x enlarged.

Abdomen. Tergites dark with light posterior margins.

Tergite 8 comparatively wide, arcuate, medially only slightly narrower, with 1—2 setae along posterior margin of both lateral lobes. Sternite 8 triangular, apically rounded, with 2 small setae.

Hypopygium. Tergite 9 with 2 groups of dark cones and lateral spines, without lateral appendages. Sternal synsclerite without lateral appendages.

One Nearctic species is recognized in this species group.

Mycomya atus Garrett, 1924

Figs. 87—91, key p. 36.

Mycomya atus Garrett, 1924. Garrett 1924:159.

Mycomyia ata: Coher 1959:124.

Mycomya ata: Laffoon in Stone et al. 1965:220; Cole 1969:121.

Remarks: Since *atus* is not an adjective Coher's emendation *ata* is unjustified and must be replaced by the original form.

Type localities: Originally: British Columbia, Vancouver, Savary Island (Canada). By present designation: British Columbia, Savary Island (Canada).

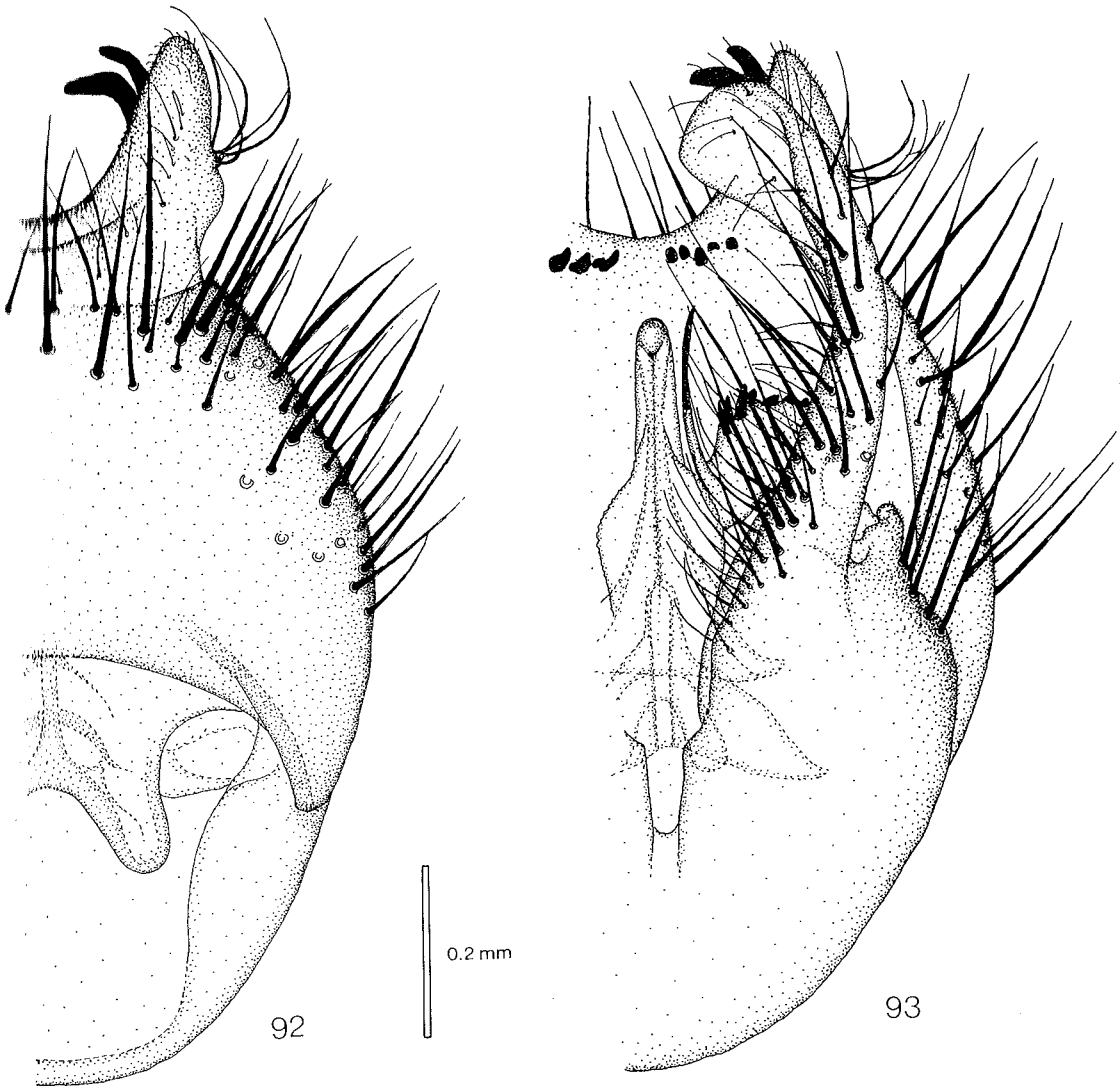
Type: Lectotype (studied) by present designation: Savary Id. B. d. 17. 339. Hypo slide. 5270. *My atus.* Holotype *Mycomya atus* ♂ C Garrett C. B. D. Garrett. 1 hypop. slide: *Mycomyia atus* C Garrett Canada B. C. Savary Isle Vancouver 8.IV. Holotype hypo ♂ 52.70. (in CNC).

Material examined: Canada: B. C., Vancouver, Savary Isle, 8.IV., C. Garrett (lectotype CNC); same data, 9.IV. (1 m hypop. slide No. 52.68 paralectotype UNNM); B. C., Van 30.III. 1916, C. Garrett (1 m paralectotype No. 52.74 CNC); B. C., Vancouver, Point Grey, 10.XI. 1972, 16.XI. 1972, 21.XI. 1972, 22.XI. 1972, J. R. Vockeroth (4 mm CNC); B. C. Capilano, 300 m. N. Vancouver, 28.II. 1973, J. R. Vockeroth (1 m CNC).

Description:

Head. Palp yellowish, other mouthparts and face yellowish to brownish, posterior parts of head brown. Antenna brown, scape, pedicel and base of 1st flagellomere yellowish. 1st flagellomere about 2.5 times, 2nd less than twice as long as wide.

Thorax. Pronotum yellow to brownish, with 4–7 longer setae. Mesoscutum yellow to brownish, with 3 dark brown longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum brownish. Mesokatepisternum brownish to brown. Scutellum yellow to brownish, with 4 long setae. Laterotergite brownish to brown. Mediotergite brownish to brown, bare.



Figs. 92—93. *Mycomya matrona.* — 92: male hypopygium, tergal view. — 93: hypopygium, sternal view. Scale 0.2 mm.

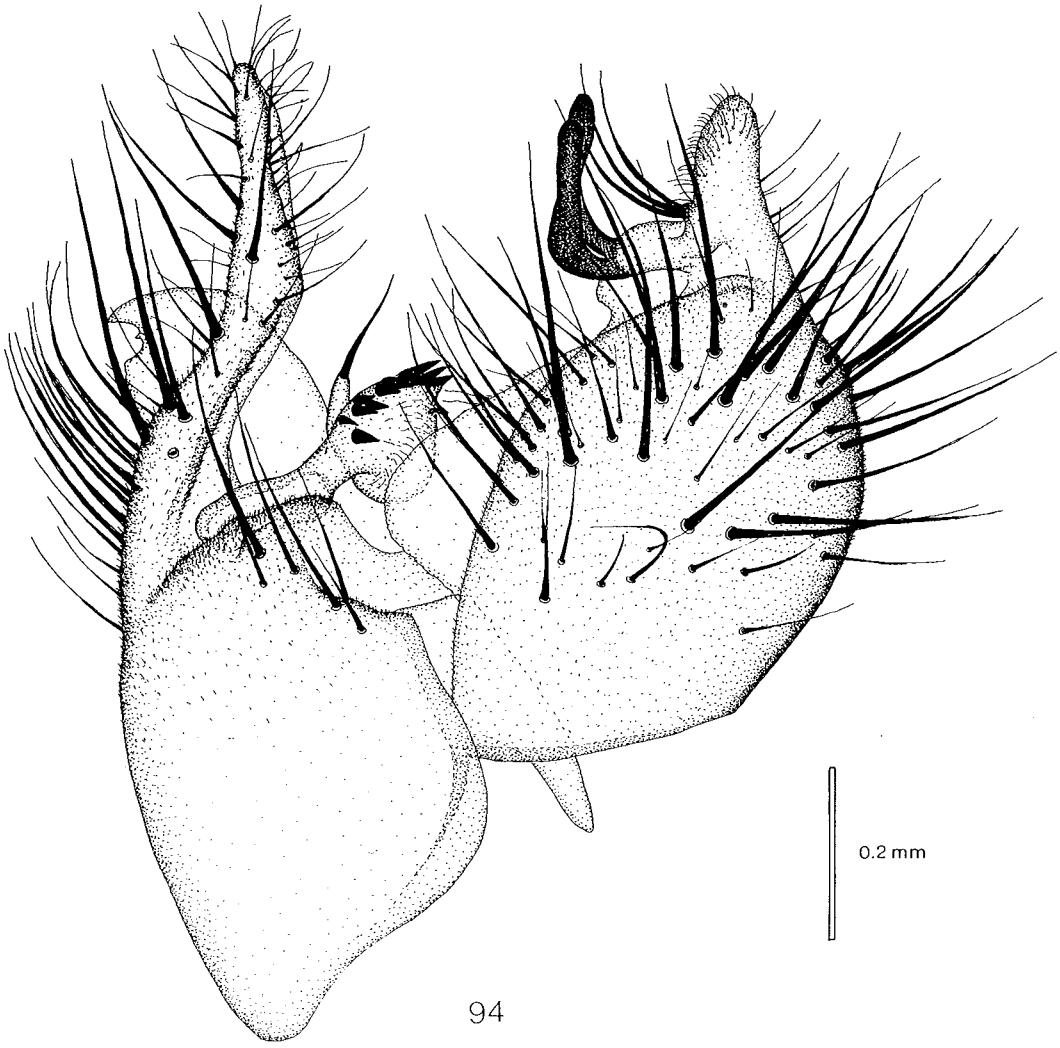


Fig. 94. *Mycomya matrona*, male hypopygium, lateral view. Scale 0.2 mm.

Legs. Coxae yellow to yellowish, coxa 3 with brownish spot on outer surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with sparse brush of long setae near apex on anteromedial surface. Coxa 2 with spur, which is about half as long as coxa, subapically curved and has 2 apical teeth. Leg ratios: bt1:t1 = 0.79—0.96, bt2:t2 = 0.66—0.70, bt3:t3 = 0.48—0.65.

Wing. Wing length 5.7—7.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near or proximally to middle of small cell. Apical part of Sc bearing 0—9 macrotrichia, usually bare. Small cell 2.5—3.5 times as long as wide. Cu fork slightly proximal - slightly distal to M fork, usually slightly proximal. M ratios: 0.37—0.46, 0.49—0.53. Cu ratios: 0.60—0.75, 0.88—1.11. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow posterior margins, 6—7 brown. Sternites 1—5 yellow to yellowish, 6—7 brown.

Hypopygium. Figs. 87—91, tergite 9 brown, sternal synsclerite yellow. Tergite 9 with 2 apically club-shaped lateral spines and 6 dark cones on both sides. Sternal synsclerite deeply bilobed, with some setae on both sides, without lateral appendages. Sternal submedian appendage short, broad, with many strong spines on medial side. Gonostylus with 2 branches, medial branch long curved pubescent with 2 apical lobes and 1 long seta, lateral branch short with 1 apical tooth. Aedeagus long, apically tapered.

Female. Unknown.

Distribution: Western Nearctic. Canada: British Columbia.

Biology: Unknown.

Species group M. matrona

Head. Anteclypeus short, apically rounded, with a few short setulae. Antenna about twice as long as head and thorax together, in female about 1.5 times as long as thorax. Pedicel with some short dorsal setae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite with 2 small setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining anteriorly.

Legs. Coxa 1 with dense patch of comparatively short thin setae covering apical half of medial surface. Coxa 2 with short, curved spur. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in R1. Cu fork distinctly proximal to M fork. M petiole short. Cu petiole of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Colour pattern diffuse, dark.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with 5—6 setae along posterior margin of both lateral lobes. Sternite 8 broad, triangular, apically comparatively narrow, with 1 long and 1 short apical-subapical seta.

Hypopygium. Tergite 9 large with 2 groups of dark cones and sabre-like spines.

Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, apically tapered, widely setose.

One Nearctic species is recognized in this species group.

Remarks: The details of the male hypopygium, especially the gonostylus, resemble those of some *Echinopodium* species (cf. Freeman 1951, Duret 1974, 1975, 1976).

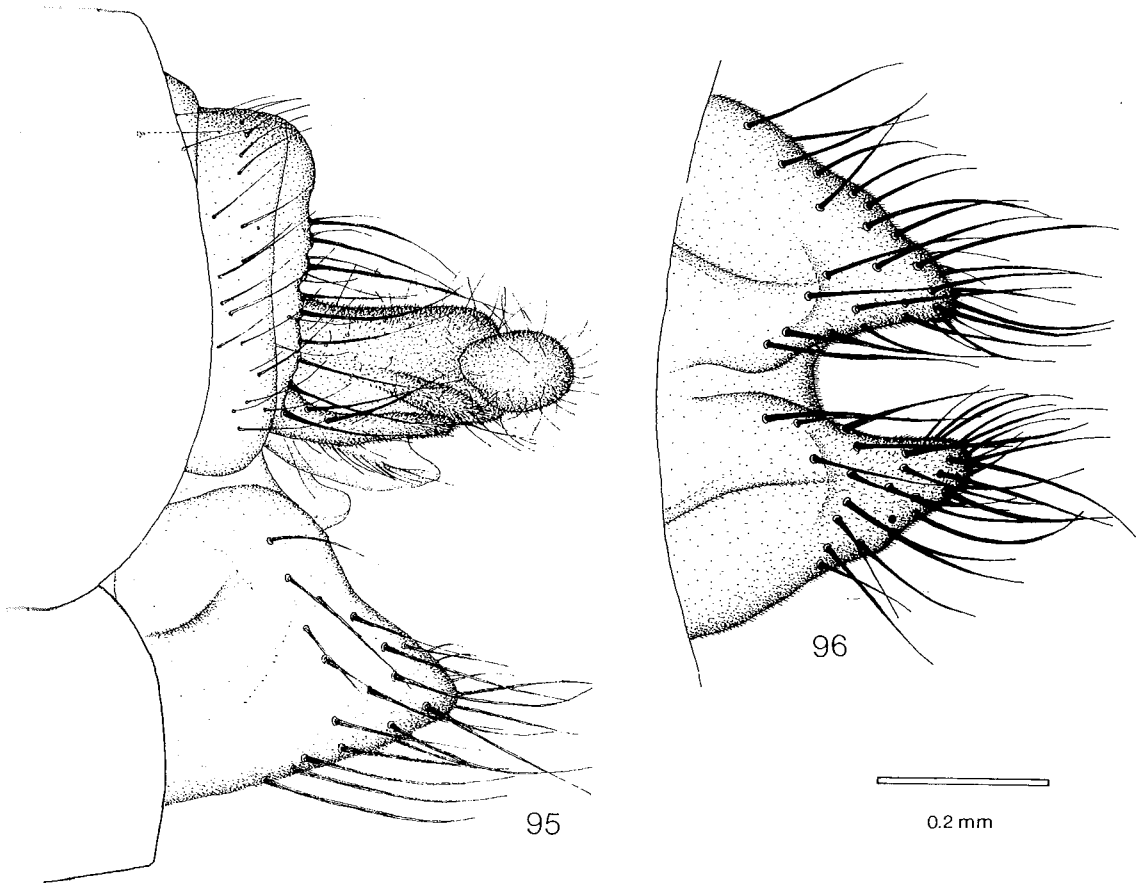
Mycomya matrona n. sp.

Figs. 92—96, key p. 36, 41.

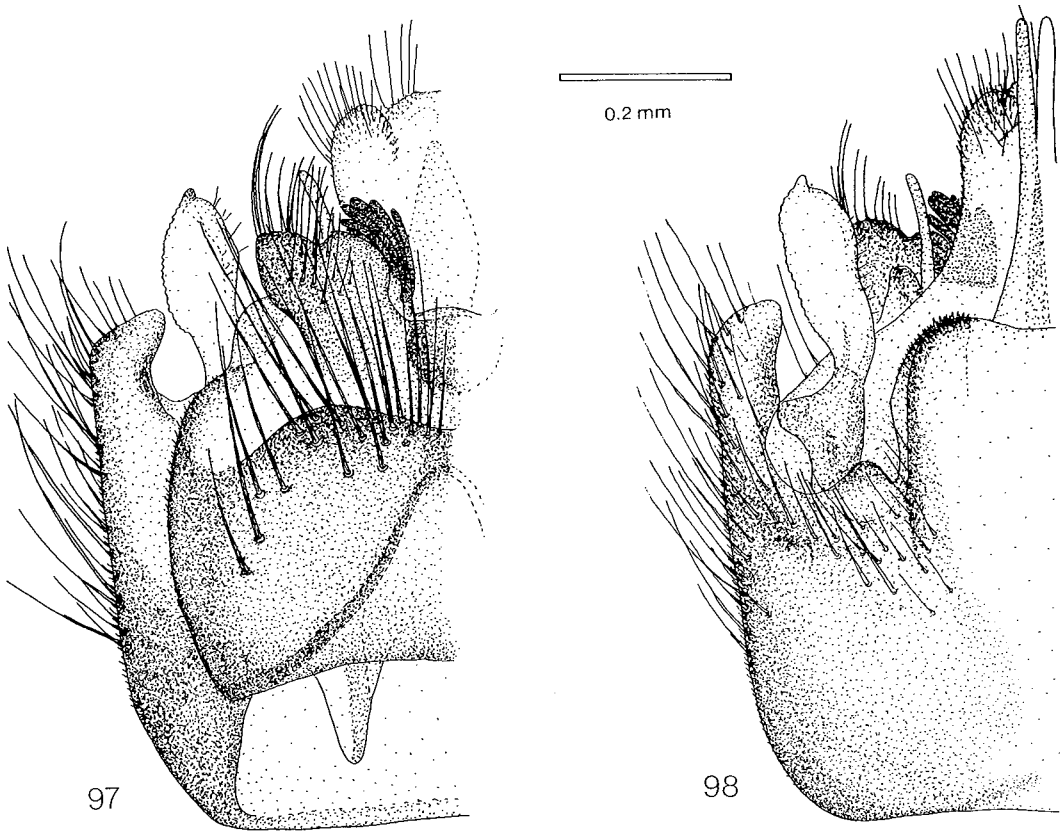
Type locality: Quebec, Old Chelsea (Canada).

Type: Holotype (studied): Old Chelsea, Que., 1.X. 1963, J. R. Vockeroth (m CNC).

Material examined: Canada: Holotype (CNC); Que.,



Figs. 95—96. *Mycomya matrona*. — 95: female terminalia, lateral view. — 96: hypogynal valves, sternal view. Scale 0.2 mm.



Figs. 97—98. *Mycomya mituda.* — 97: male hypopygium, tergal view. — 98: hypopygium, sternal view. Scale 0.2 mm.

Old Chelsea, Summit of King Mt., 1150′, 16.X. 1969, J. F. McAlpine (1 f allotype CNC).

Description:

Head. Palp and other mouthparts brownish, face brownish to brown, posterior parts of head dark brown. Antenna brownish, basal segments only slightly paler. 1st flagellomere 2.5—3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow to yellowish, with many long setae. Mesoscutum yellow to yellowish, with anterior margin brownish and 3 brown longitudinal stripes, the middle stripe medially with narrow yellow band. Mesanepisternum light brownish. Mesokatepisternum brownish. Scutellum yellow, with 4 long setae. Laterotergite brownish. Mediotergite yellowish to light brownish, lateral and posterior parts brownish, with 2 small setae.

Legs. Coxae yellowish, with brownish spots on proximal parts of coxae 2 and 3, femora yellowish, tibiae and tarsi brownish. Coxa 1 with dense patch of comparatively short thin setae covering apical half of anteromedial surface. Coxa 2 with spur, which is slightly longer than half of coxa, curved and with 1 apical tooth. Leg ratios: bt1:t1 = 0.88, bt2:t2 = 0.76, bt3:t3 = 0.67.

Wing. Wing length 7.2 mm. Wing distinctly infuscate, greyish brownish. Sc ending in R1 distinctly distally to middle of small cell, Sc1 short or missing. Sc bearing no macrotrichia. Small cell about 2.5 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.43, 0.51. Cu ratios: 0.63, 0.95. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter yellowish.

Abdomen. Tergites 1—5 brown, with indistinct, narrow, yellowish posterior margins, 6—7 brown. Sternites slightly paler than tergites.

Hypopygium. Figs. 92—94, yellowish, very large. Tergite 9 very large, with 3 apicolateral setae, 2 very broad spines and 4—5 dark cones on both sides. Sternal synsclerite with about 7 setae on both sides. Sternal submedian appendage very long, with strong setae, tapered. Gonostylus comparatively broad, with 11 teeth and spur with 1 long spine. Aedeagus long, apically hook-like.

Female. Wing length 9.1 mm. Pronotum light brownish. Mesoscutum as in male but anterior margin yellowish. Mesanepisternum light brownish. Mesokatepisternum yellowish, ventral half light brownish. Scutellum yellow. Laterotergite yellowish, ventral part light brownish. Mediotergite yellowish to light brownish. Abdomen entirely greyish brown without distinct markings. Leg ratios: bt1:t1 = 0.93, bt2:t2 = 0.75, bt3:t3 = 0.61. M ratios: 0.44, 0.54. Cu ratios: 0.53, 0.54. Terminalia as in Figs. 95—96, yellowish, very large.

Remarks: An exceptionally large species.

Distribution: Eastern Nearctic. Canada: Quebec.
Biology: Unknown.

Species group M. mituda

Head. Anteclypeus comparatively long, triangular, apically rounded, with several comparatively long setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4, occasionally 6, long setae. Mediotergite with 2 setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxa 1 with dense patch of very short setae almost covering medial surface, only proximal third bare, caudal edge of this patch with vertical row of longer thin setae. Coxa 2 without spur. Coxa 2 about 3,5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae relatively weak, longest about 1.5 times as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C or apically broken not quite reaching C. Cu fork proximal to M fork. M and Cu petioles short. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with light posterior margins.

Tergite 8 comparatively narrow, medially narrower, arcuate, with 7—8 setae along posterior margin of both lateral lobes. Sternite 8 long, wide, apically rounded with some small setae.

Hypopygium. Tergite 9 with 2 groups of dark cones, without lateral appendages. Sternal synsclerite with lateral appendages.

One Palaearctic and one Nearctic species are recognized in this species group.

Mycomya mituda Väisänen, 1980
Figs. 97—98, key p. 37.

Mycomya mituda Väisänen, 1980. Väisänen 1980b:63; Hackman 1980:163; Väisänen 1982b:40.
(p. p.) *Sciophila tumida:* Lundström 1909:11.

Type locality: "Kuustö" (Kaarina, Kuusisto) (Finland).
Type: Holotype (studied): Kuustö. Lundström. *S. tumida.* Holotypus *Mycomya mituda* Väisänen ♂. Mus. Zool. H:fors Spec. typ. No. 14328. (m MZH).
Material examined: Finland: Holotype (MZH).

Description:
Head. Palp and other mouthparts and face yellow, posterior parts brown. Antenna brownish, 3 basal segments yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 7—8 longer setae. Mesoscutum yellow, with 3 indistinct brownish longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellow, with 4 long and 2 slightly shorter setae. Laterotergite brownish, ventral part darker. Mediotergite brownish, with 2 setae.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae almost covering anteromedial surface, only proximal third bare. Caudal edge of this patch with vertical row of longer thin setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.87, bt2:t2 = 0.81, bt3:t3 = 0.64.

Wing. Wing length 6.5 mm. Wing hyaline. Sc ending in C slightly proximally to middle of small cell or in R1, when Sc1 broken not quite reaching C, Sc2 ending in R1 before middle of small cell. Apical part of Sc bearing 8—11 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to M fork. M ratios: 0.46, 0.55. Cu ratios: 0.51, 0.75. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellowish posterior margins, 6—7 brown. Sternites paler than tergites.

Hypopygium. Figs. 97—98, large, brown. Tergite 9 broad, without distinct sabre-like spines, with about 6 dark cones on both sides. Sternal synsclerite with many setae laterally. Sternal lateral appendage comparatively short, setose. Sternal submedian appendages fused, broad, with small setae. Gonostylus long, comparatively broad, without distinct teeth. Aedeagus long, apically tapered.

Female. Unknown.

Distribution: Known only from the holotype from southern Finland.
Biology: Unknown.

Mycomya monosta n. sp.
Figs. 99—103, key p. 37.

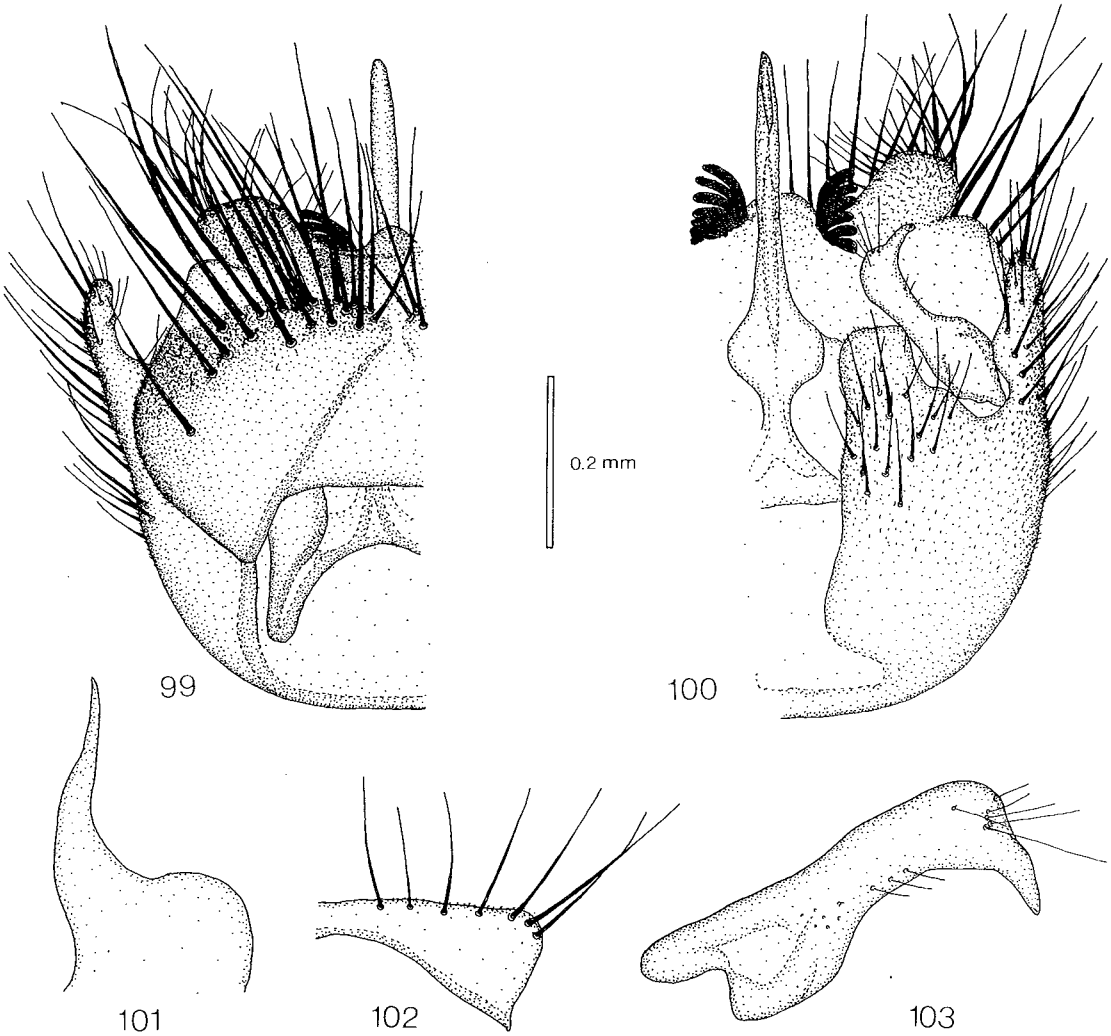
Type locality: California, Mono County (USA).
Type: Holotype (studied): Cal. Mono Co., Alt. 7200 ft Leavitt Meadow, 13-VIII-1963, flight trap, H. B. Leech (m CAS).
Material examined: USA: Holotype (CAS).

Description:
Head. Palp and other mouthparts yellowish, face brownish, posterior parts brown. Antenna brownish, scape and pedicel yellow. 1st flagellomere almost 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with about 7 longer setae. Mesoscutum yellow, slightly shining, with 3 brown indistinct longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum yellow, ventral part brownish. Mesokatepisternum yellow, with ventral part brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow, with ventral part brownish. Mediotergite yellow, lateral and posterior parts brownish, with 2 small setae.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae almost covering anteromedial surface, only proximal third bare. Caudal edge of this patch with vertical row of longer thin setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.86, bt2:t2 = 0.73, bt3:t3 = 0.58.

Wing. Wing length 5.5 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 9—16 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to M fork. M ratios: 0.45, 0.54. Cu



Figs. 99—103. *Mycomya monosta.* — 99: male hypopygium, tergal view. — 100: hypopygium, sternal view. — 101: aedeagus, lateral view. — 102: tergite 8. — 103: gonostylus. Scale 0.2 mm for Figs. 99—102, Fig. 103 2 x enlarged.

ratios: 0.51, 0.71. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow posterior and lateral margins, 6—7 brown. Sternites 1—5 yellow, 6—7 darker.

Hypopygium. Figs. 99—103, large, brownish.

Female. Unknown.

Distribution: Western Nearctic. USA: California.

Biology: Unknown. The holotype collected with flight trap.

Species group M. ornata

Head. Anteclypeus long, apically tapered, with some scattered setulae, usually comparatively dark. Antenna almost twice as long as head and thorax together, in females slightly shorter. Pedicel with some short dorsal setae. Ocellar setae about 2.5 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4, occasionally 6, long setae. Mediotergite with 1—7, usually 2—3, setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxa 1 with dense patch of very short thin setae covering apical half-third of anteromedial surface (e.g. Fig. 104). Coxa 2 without spur. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 usually almost as long as tibia 1, sometimes more distinctly shorter than it. Tibial setae weak to moderately strong, longest 1—2 times as long as tibial diameter.

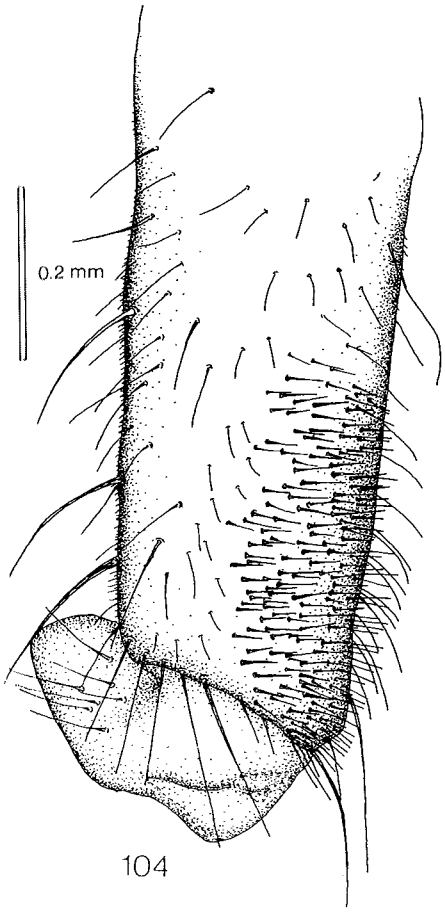


Fig. 104. *Mycomya tumida,* male coxa 1. Scale 0.2 mm.

Wing. C ending in apex of R5 at wing apex. Sc ending in C, R1 or free. Cu fork slightly proximal — slightly distal to M fork. M petiole of medium length, seldom short or long. Cu petiole long to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with light posterior margins or colour pattern diffuse.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with 0—7 setae along posterior margin of both lateral lobes. Sternite 8 triangular, apically rounded, with 0—10 apical-subapical setae.

Hypopygium. Tergite 9 with 2 groups of dark cones and sabre-like spines. Sternal synsclerite without lateral appendages.

Female terminalia. Apical segment of cercus oval to long-oval. Hypogynal valve wide, apically tapered, triangular, often extensively setose.

Ten Palaearctic, four Holarctic and eight Nearctic species are recognized in this species group.

Remarks: The "ornata" patch on coxa 1 is not known to occur in species of other zoogeographic regions.

Mycomya tumida (Winnertz, 1863)
Figs. 104—111, key p. 37.

Sciophila tumida Winnertz, 1863. Winnertz 1863:727; Schiner 1864:444; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; van der Wulp 1877:168; Dziedzicki 1885: Tab. VI: Figs. 28—29; Czwalina 1893:2; Thalhammer 1899:116; Kertész 1902:64, 1903:35; Strobl 1909:241; Kröber 1910:9; Dziedzicki 1915:9.

(p. p.) *Sciophila tumida:* Lundström 1909:11 (p. p. = *M. mituda* Väisänen).

Mycomya tumida: Landrock 1913:34; Hutson in Kloet & Hincks 1976:24; Matile 1977:633; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:41.

Mycomyia tumida: Edwards 1941:27; Coe in Kloet & Hincks 1945:345; Hackman 1963a:54; Plassmann 1971c:255, 1977b:9, 1979:375; Plachter 1979a:185, 1979b: 282; Plassmann 1980a:178, 1980b:20.

Mycomya ornata: Edwards 1928a:160.

(p. p.) *Sciophila incisurata* ?: Lundström 1907:9 (p. p. = *M. mituda* Väisänen).

(p. p.) *Mycomyia ornata:* Edwards 1925a:552 (Syn. *M. tumida)* (p. p. = *M. fuscata* (Winnertz), *M. prominens* (Lundström), ?*M. lambi* Edwards).

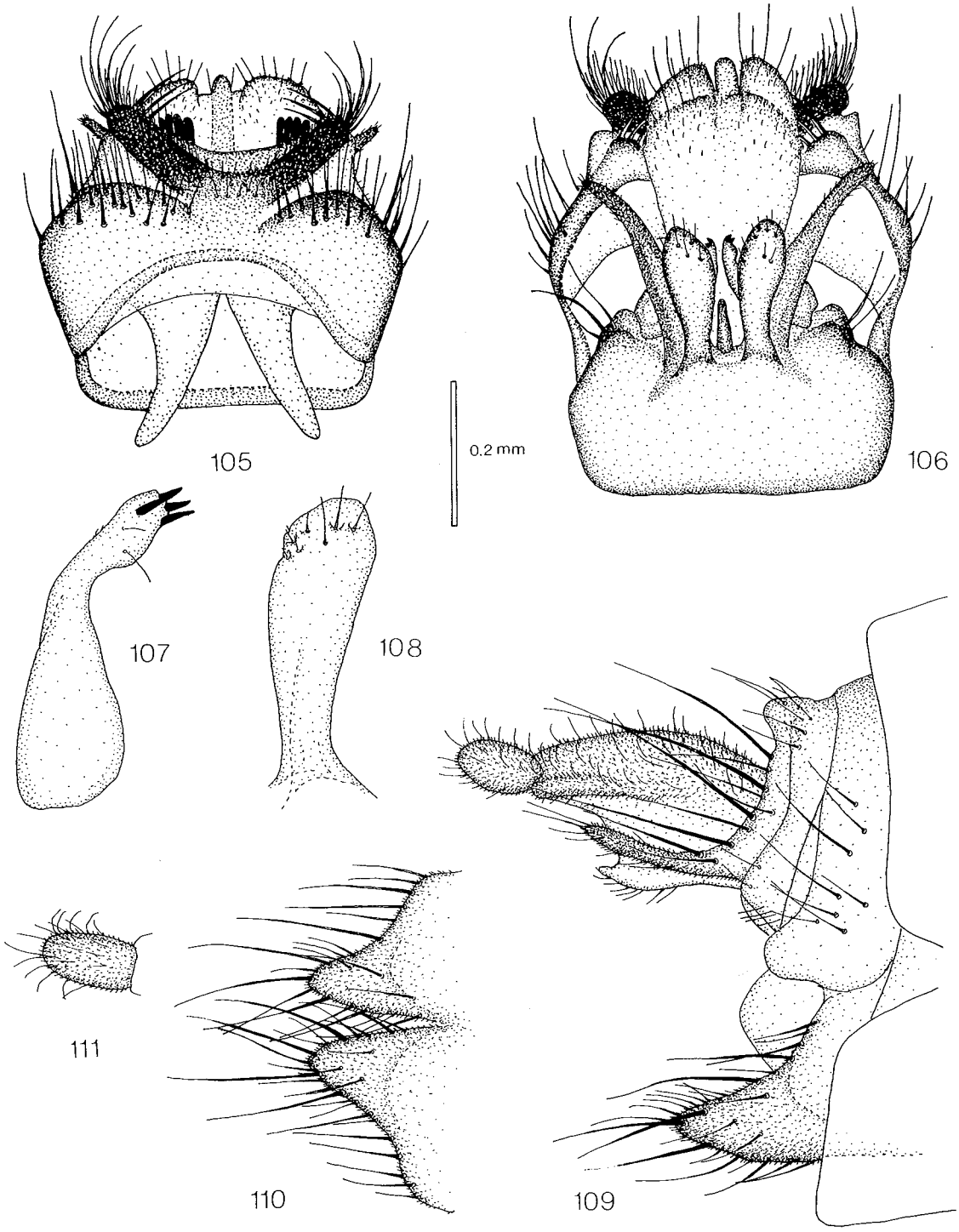
(p. p.) *Mycomyia ornata:* Landrock 1926—1927:50 (p. p. = *M. ornata* (Meigen), *M. lambi* Edwards, *M. prominens* (Lundström)).

(? p. p.) *Mycomyia ornata:* Lackschewitz 1937:11 (? p. p. = *Mycomya* sp.).

Type locality: Not stated (? Federal Republic of Germany).

Type: Holotype: not located, apparently destroyed, m.

Material examined: France: Corsica, Corte, R. Restonica, 10—25.IV. 1928, F. W. Edwards (1 m "*M. ornata*" BMNH); Corsica, Tavignano Forest, 10—25.IV. 1928, Edwards (2 mm BMNH); Corsica, Valdoniello Forest, 10—25.IV. 1928, F. W. Edwards (1 m "*M. ornata*" BMNH); Beville-le-Comte (Eure-&-Loir), IV. 1924, J. Surcouf (1 m MNHN); Fontainebleau (Seine-et-Marne), 13.IV. 1913 (1 ? f MNHN); St. Ferme (Gironde), 3.II. 1970, ex larvae, P. Bourricaud (1 m 2 ff MNHN); Moret (S. & M.), Bois de Roussigny, III. 1923 M. Royer (1 m + pupa, 2 ff + pupae MNHN); Marans (M.-et-L.), 21.III. 1923 (1 m MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (4 mm 3 ff ISU). — Netherlands: Amsterdam, 28.III. 1920, de Meijere (1 ?f AMST); Amsterdam, im. II. 1913, de M. (1 ?f + pupa AMST). — FRG: S-Deutchland, E-Reutlingen, St. Johann, Albrand, Fichtenwald, 27.V. 1978, Schmalfuss (1 m STAAT); Franken, Muggendorf, 28.III. 1977, H. Plachter (1 m ZSM). — Hungary: Czibles, Ujhelyi (1 m MZH). — Czechoslivakia: Vihorlat, Sninský Kameň, 25.VI. 1966, P. Laštovka (1 m VUPP). — Poland: Bialowieza Park Narod., kw. 340, grond niski, 2.VI. 1964, W. Mikolajczyk (1 m No. 1895 WARS). — UK: Avon., Corge, 20.V. 1909, J. J. F. X. King (1 m BMNH); Yorks., Ingleborough, 13.V. 1921, F. W. Edwards (1 m BMNH); HA., Ridley Wd., 15.IV. 1949, C. N. Colyer (1 m BMNH); HA., New Forest, 12.V. 1951, C. N. Colyer (1 m BMNH); Herts, Hitch Wood, 22.IX. 1917, F. W. Edwards (1 m BMNH); Perthshire, Killin distr., Glen Lochay, 500—1500 ft., 3—18.VI. 1932, F. W. Edwards (1 m BMNH); N. Devon, Clovelly, 8.V. 1936, F. W. Edwards (2 mm



Figs. 105—111. *Mycomya tumida.* — 105: male hypopygium, tergal view. — 106: hypopygium, sternal view. — 107: gonostylus. — 108: sternal submedian appendage. — 109: female terminalia, lateral view. — 110: hypogynal valves, sternal view. — 111: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 105—106 and 109—111, Figs. 107—108 2 x enlarged.

BMNH); Herts., Knebworth, 13.V. 1923, F. W. Edwards (1 m BMNH); N. Forest, 24.IV. 1903, F. C. Adams (1 m BMNH); same data, 24.IV. 1902 (1 ?f BMNH); Cro., 2.IV. 1921, F. J. (2 mm BMNH); H. H., Aldbury, 30.?IV. 1966, C. N. Colyer (1 m BMNH); ? Bornrtiz, Eldrich Hill, 6.IV. 1912, D. Sharp (1 m BMNH); Perthshire, Loch Rannoch, VI. 1931, F. W. Edwards (1 m BMNH); Scotland, Argyll, Hells Glen, 25.IV. 1973, J. P. Dear (1 ?m without abd. BMNH). — Denmark: Silkeborg, 2. VIII. 1944, P. Nielsen (1 m COPEN); Silkeborg d., Serup skov, 25.V. 1937, P. Nielsen (1 m COPEN); Silkeborg d., 1.VII. 1939 (1 ?f COPEN); Rudstrup Skov, 6.V. 1934, P. Nielsen (1 m COPEN). — Norway: HOy., Fjell, Sotra, Ongelvedt, 31.X. 1976, T. Andersen (1 m coll. Andersen); HOy., Askö y, Ask, 15.V. 1982, T. Andersen (1 m coll. Andersen); HOy., Bergen, Åsane, Eidsvåg, 31.X. 1976, T. Andersen (1 ?f coll. Andersen); HOi., Ullensvang, Hovland, 21—30.X. 1977, T. Andersen (4 mm 1 f coll. Andersen); HOi., Ulvik, Finse, dalen under n. Kongsnut, 23.VIII. 1969, feltkurs (1 ? f BERG); Leirbotn, Lakselv, 23.VII. 1965, R. Tuomikoski (1 m MZH); Repparfjord, Skaidi, 21.VII. 1965, R. Tuomikoski (1 MZH); Skaidi, 7.VII. 1964, R. Tuomikoski (3 mm MZH); Kvalsund, 7.VII. 1964, R. Tuomikoski (1 m MZH); Sappen, 9.VII. 1964, R. Tuomikoski (2 mm MZH). — Sweden: Sk., Hällestad, 27.VI. 1947, K. Ander (2 mm LUND); Sk., Rövarekulan, 12.VII. 1969, H. Andersson (1 ?f coll. Andersson); Hall., Enslöv, Årnilt, 13.V. 1972, H. Andersson (9 mm 4 ff coll. Andersson); Nb., Pajala sn., Utmocken, fäll, 15.VII. 1951, Ander, Ardö (1 m LUND); Messaure, 1—10.VI. 1969, 24.VI. 1969, W. Tobias (2 mm No. 10130 + K130, 10150 + K150 "*M. tumida*" SENCK); Abisko, 1975, W. Tobias (1 m No. 5056 SENCK). — Finland: *Al:* Geta, Dånö, 30.V. 1965, K. Mikkola (1 m MHZ); Hammarland, Skarpnåtö, 28.V. 1965, K. Mikkola (2 mm MZH); Geta, Bolstaholm, 1.VI. 1965, 6.VI. 1965, K. Mikkola (4 mm MZH); Mariehamn, R. Frey (1 m MZH); *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (5 mm MZH, 2 mm WIEN); Bromarv, Framnäs, 12.VI. 1966, K. Mikkola (2 mm MZH); Sammatti, J. Sahlb. (1 ?m MZH); *N:* Espoo, Bodom, 24.V. 1963, R. Tuomikoski & W. Hackman (2 mm MZH); Esbo, Kolmperä, 25.V. 1964, W. Hackman (1 m MZH); Tammisaari, Gullö, sugar bait trap, 15.VI. 1967, K. Mikkola (1 m MZH); *Kb:* Pielisjärvi, Koli, 14.VI. 1964, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, R. Tuomikoski (1 m MZH); *Li:* Utsjoki, 18.VII. 1965, R. Tuomikoski (1 m MZH); Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (1 m MZH). — USSR: Kur., Paplaken, 20.V. 1932, L. (1 m "*ornata*" MNB).

Description:

Head. Palp and other mouthparts yellow, face yellowish brown, posterior parts of head dark brown. Antenna brown, basal segments lighter, yellowish. 1st flagellomere about 3 times, 2nd almost twice as long as wide.

Thorax. Pronotum yellowish, with 6 longer setae. Mesoscutum brown, with 3 indistinct or distinct blackish brown longitudinal stripes, anterolateral corners lighter, brownish. Mesanepisternum brown. Mesokatepisternum brown. Scutellum brown, with 4 long setae. Laterotergite brown. Mediotergite brown, with 2—3 small setae.

Legs. Coxae yellow, coxa 2 sometimes with brownish spot on lateral surface, coxa 3 with brownish spot on lateral surface or entirely light brownish to brownish, femora yellow, tibiae and tarsi brownish. Coxa 1 with comparatively large dense patch of very short thin setae covering apical half of anteromedial surface (Fig. 104). Coxa 2 without spur. Leg ratios: bt1:t1 = 0.89—1.00, bt2:t2 = 0.75—0.81, bt3:t3 = 0.53—0.65.

Wing. Wing length 4.9—7.4 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 4—14 macrotrichia. Small cell 2—2.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.53—0.61, 0.64—0.75. Cu ratios: 0.58—0.80, 0.84—1.17. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown, posterior margins and sometimes also lateral parts yellow, 6—7 brown, sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 105—108, brownish to brown. Tergite 9 with 3 sabre-like spines and 4 dark cones on both sides. Sternal synsclerite with 2—4 setae on both sides. Sternal submedian appendage long, basally tapered, comparatively wide, with some small setae. Paramere long, strong, only slightly bent laterally, almost straight, with abundant, dense pubescence. Gonostylus with 3—4 apical teeth.

Female. Wing length 5.2—7.7 mm. Pronotum yellow. Mesoscutum yellow with 3 brown longitudinal stripes or without distinct markings. Mesanepisternum brownish to brown. Mesokatepisternum brownish, ventral half brown. Scutellum yellow. Laterotergite brownish, ventral part brown. Mediotergite brownish, lateral and posterior parts brown. Abdomen brown with posterior margins of segments widely yellow. Leg ratios: bt1:t1 = 0.87—1.00, bt2:t2 = 0.72—0.75, bt3:t3 = 0.60—0.66. Terminalia as in Figs. 109—111, yellow.

Larva. Described by Plachter (1979b:282). Length at least 10 mm. Width 1.3 mm.

Pupa (♀). Length 6.3—8.0 mm, light brownish.

Distribution: Western Palaearctic. France, Corse, Switzerland, ? Netherlands, Federal Republic of Germany, Hungary, Czechoslovakia, Poland, United Kingdom, Denmark, Norway, Sweden, Finland. USSR: Latvian SSR. Also reported from Austria (Schiner 1864, Strobl 1909).

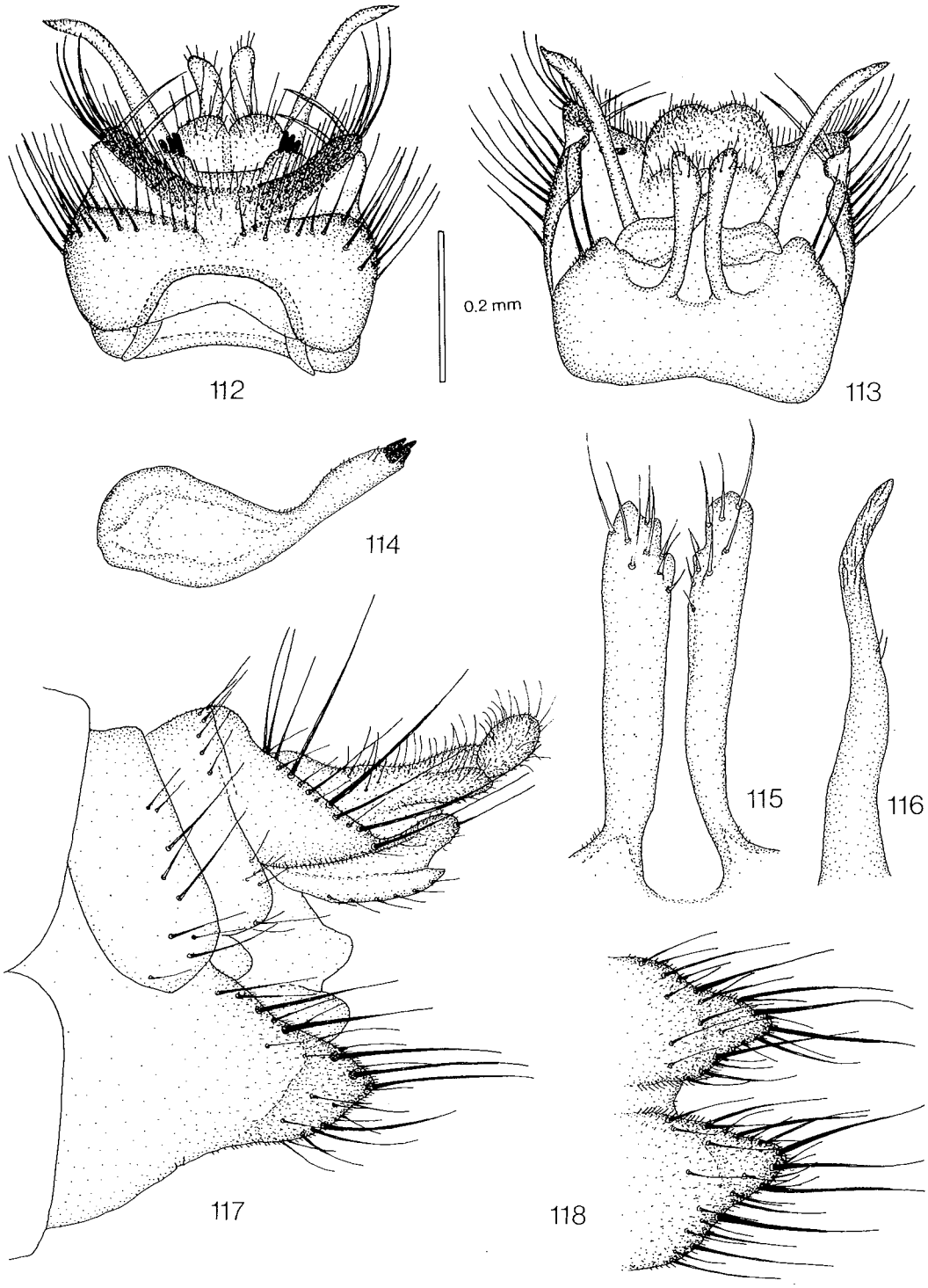
Biology: One Finnish specimen caught with sugar bait trap. Also collected with air-suction and ligth traps in northern Sweden (Plassmann 1979:375, 1980a:178). Some specimens have been reared from larvae found in winter. *M. tumida* larvae have been found partly together with those of *M. marginata* on the lower surface of *Trametes versicolor* (Fr.) Pil. (Plachter 1979b). The larval web has been described by Plachter (1979a:185).

Mycomya prominens (Lundström, 1913)

Figs. 112—118, key p. 37.

Sciophila prominens Lundström, 1913. Lundström 1913a:306.

Mycomyia prominens: Edwards 1941:28; Coe in Kloet & Hincks 1945:345; Kidd in Kidd & Brindle 1959:72; Coe 1962:98; Kidd 1971:4; Mikolajczyk 1971:371.



Figs. 112—118. *Mycomya prominens.* — 112: male hypopygium, tergal view. — 113: hypopygium, sternal view. — 114: gonostylus. — 115: sternal submedian appendages. — 116: paramere, lateral view. — 117: female terminalia, lateral view. — 118: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 112—113 and 117—118, Figs. 114—116 2 x enlarged.

Mycomya prominens: Hutson in Kloet & Hincks 1976:24; Chandler 1976:98; Matile 1977:633; Cole & Chandler 1979:51; Väisänen in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1982b:40.

(?) *Mycomyia prominens:* Plassmann 1977b:9, 1980b:19.

(p. p.) *Mycomyia ornata:* Edwards 1925a:552 (p. p. = *M. tumida* (Winnertz), *M. fuscata* (Winnertz), ? *M. lambi* Edwards).

(p. p.) *Mycomyia ornata:* Landrock 1926—1927:50 (syn. ?*M. prominens* (Lundström)) (p. p. = *M. tumida* (Winnertz), *M. lambi* Edwards, *M. ornata* (Meigen)).

Type locality: "Hungaria: Plitvica" (Yugoslavia).

Type: Holotype (not located, apparently destroyed, originally in Mus. Hung.): ♂, Plitvica, 12.VI. 1912, Kertész.

Material examined: France: Col du Porte, (Isère), alt. 1300 m, 26.VI. 1970, L. Matile (1 m MNHN); Ruiseau d'Azet, (66), alt. 1150 m, 4.VIII. 1972, A. Thomas (1 m MNHN). — Italy: Aosta, Bertolaz, (Villeneuve), alt. 800 m, 1.VII. 1973, L. Matile & F. Lavy (1 m MNHN). — Greece: Olymp, Fotina, Flussbett mit Platanen, 30.IV. 1979, Schmalfuss (1 m STAAT). — Bulgaria: Nr. Jakoruda, rank veg. by stream, 9.VI. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH). — Yugoslavia: Montenegro, Kolasin, 5—9. VI. 1958, wet gorge in old forest, R. L. Coe (1 m BMNH); Slovenia, Bohinj, Bukowska Dolina, to 1400 m, 1.VIII. 1973, A. E. Stubbs (1 f BMNH). — Hungary: Zemplénihg., Ördög-v., erdó, 26.VI. 1960, Mihályi (1 m TMB); same data, Zsirkó (2 ?ff TMB); Vérteskozma, Fanien-v., 11.IV. 1961, Mihályi (1 m TMB); Bükk-hg., Lustavölgy, 22.IX. 1963, S. Tóth (1 ?f TMB); Kószegi-hg., Velemi, erdó, 11.VII. 1960, Mihályi (1 m TMB). — Roumania: Retezatului Mts., nr. Hobita Cabana, mature pine forests, c. 4000', 29.VI. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH). — ?Austria: 30.VI. 1873, Kowarz (1 m LEN). — Austria: Tirol, nr. Gries, wooded slopes and river bank, 4.VII. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH). — FRG: ? Birgsau/Allgäu (1 m No. 8933 ZSM). — Switzerland: (Schaffhausen), Wunderklingen, 450 m, Rèsineux, 6.VI. 1976, L. Matile (1 m MNHN). — Czechoslovakia: Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (2 mm VUPP); Boh., Horské Kvilda, 24.VII. 1961, 26.VII. 1961, Laštovka (6 mm VUPP); Boh. bor., Potštejn pr. Hradec, 26.VII. 1967, 9.VII. 1968, Laštovka (2 mm VUPP); Vihorlat, Sninský Kamen, 25.VI. 1966, P. Laštovka (1 m VUPP); Krkonoše, Černy Dôl., 1000 m/m, 9.VIII. 1966, P. Laštovka (1 m VUPP); Slov., Remetské Hamre, 2.VI. 1963, Laštovka (1 m VUPP). — Poland: Postotov distr. Lesko, 16.VI. 1960, W. Mikolajczyk (1 m WARS). — UK: Warwickshire, Edge Hill, ex rotten wood, IV. 1970, R. E. Evans (1 m BMNH); Warwickshire, Oversby Wood, from agaric sp., 20.IX. 1969, R. E. Evans (2 ?ff BMNH); Warwickshire, Knaverhill Wood, from *Thelephora anthocephala,* 30.IX. 1969, R. E. Evans (1 m BMNH); Herts., Radwell, larva on purplish *Corticum* ?, IX. 1918, F. W. Edwards (1 m BMNH); same locality, IX. 1918, F. W. Edwards (1 ?f BMNH); Herts, Knebworth, 3.V. 1923, F. W. Edwards (1 m BMNH); Lincolns., W. Ashby, 14.VI. 1972, A. Stubbs (1 m BNMH); Lancashire, Freshfield, 19.IX. 1970, A. M. Hutson (1 m BMNH); N. W. Yorks, Buckden, 28.VI.—4.VII. 1930 (1 m BMNH); Cumberland, Lodore, 21.VI. 1889, G. H. Verrall (1 ?f BMNH); Bettws y Coed, Carnarvon, 16.VI. 1887, G. H. Verrall (1 ?f BMNH); Cro, VIII. 1907, F. J. (1 m BMNH); Gailes, 24.IX. 1910, J. J. F. X. King (1 ?f BMNH); Logie, 28.IX. 1913, F. J. (1 m BMNH); Perthshire, Loch Rannoch, 22.VI. 1931, W. H. T. Tams (1 m BMNH). — Sweden: Sk., Kullaberg, Ransviksbäcken, 16.VII. 1967, H. Andersson (1 m coll. Andersson); Kullaberg, 3.VIII. 1969, H. Andersson (1 m coll. Andersson); Hall., Enslöv, Årnilt, 31.VIII. 1966, H. Andersson (1 m coll. Andersson). — Finland: *Al:* Saltvik, Kvarnbo, 22.VII. 1942, R. Frey (1 m MZH); *Ab:* Turku, 6712:234, 18.IX. 1981, M. Koponen (1 m 1 f AFZ); Vihti, Vihtijärvi, 4.VII. 1962, 17.VIII. 1962, 22.VIII. 1962, 8.VI. 1963, 8.VIII. 1963, 15.VIII. 1963, 6.X. 1963, 5.VI. 1964, R. Tuomikoski (9 mm MZH); *N:* Espoo, Bodom, 17.V. 1963, R. Tuomikoski (1 m MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (1 m MZH); Helsinki, Ruskeasuo, 15.VII. 1981, R. Väisänen (1 m MZH); Esbo, Westend, 18.VII. 1962, W. Hackman (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, K. Mikkola (2 mm MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (1 m MZH); *?Om:* 15.VIII. 1933, R. Storå (1 m MZH); *Ok:* Sotkamo, Aarreniemi, 16—21.VII. 1965, 22—28.VII. 1965, A. V. V. Mikkola (3 mm MZH). — USSR: Leningrad. o., Luzhsk., Tolmachevo, 9.VII. 1938, Stackelberg (1 m LEN); same data, 15.VIII. 1936 (1 m hypop. prep. but associated with ex. belonging to *M. annulata* LEN); Len. obl., Toksovo, 8.X. 1946, Stackelberg (1 m LEN); Arkhan. g., Murman, Aleksandrovsk, 16.IX. 1928, 17.IX. 1928, Cheburova (2 mm LEN).

Description:

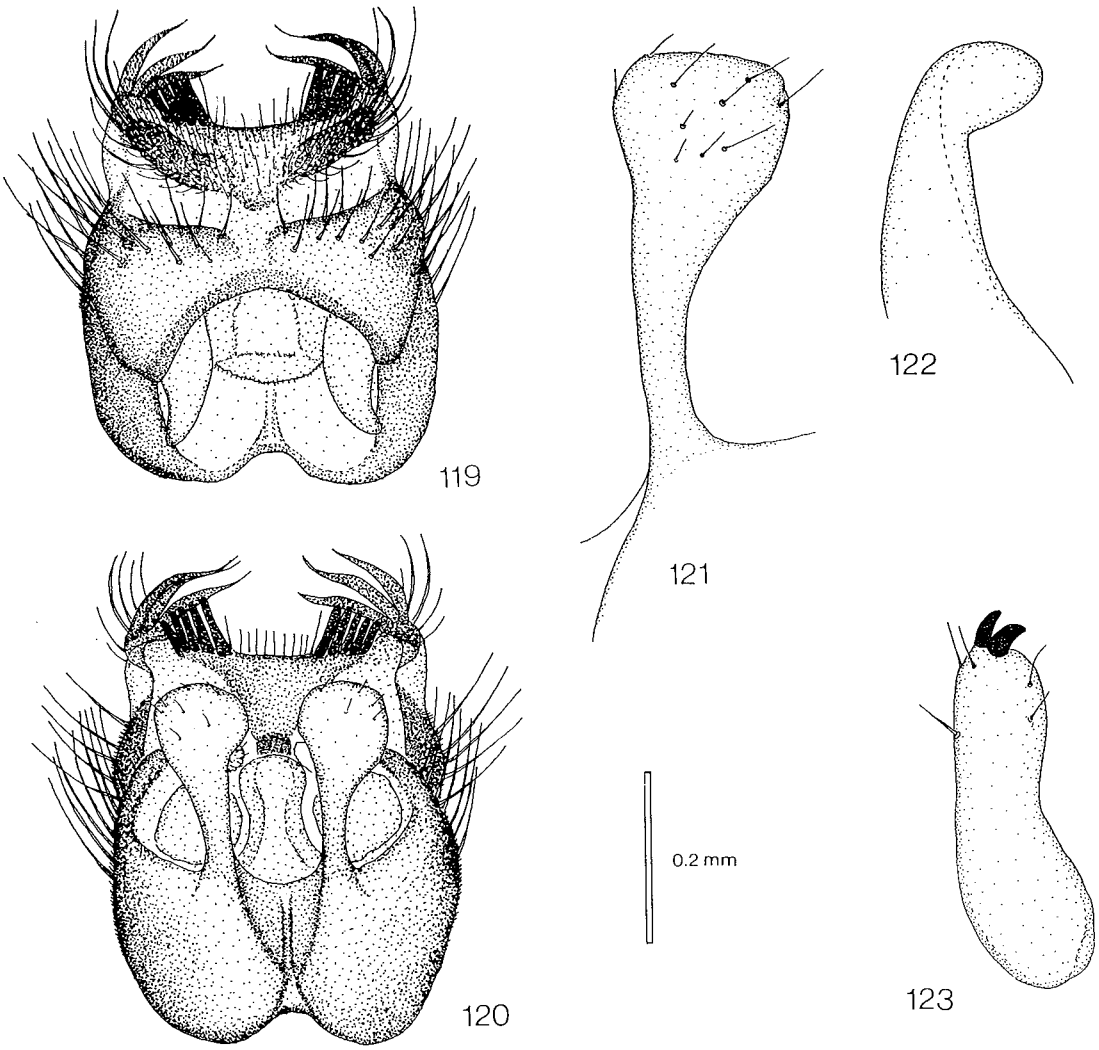
Head. Palp, other mouthparts and face yellow, posterior parts brownish, ocellar prominence brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3.5 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellow, with 3 distinct dark brown longitudinal stripes, middle stripe with narrow medial band yellow. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half brown. Scutellum yellow, with 4 long setae. Laterotergite yellowish, ventral part brown. Mediotergite yellowish, lateral and posterior parts brown, with 2—3 small setae. Sometimes thorax dark brownish with less distinct brown markings.

Legs. Coxae yellow, coxa 3 sometimes with brown spot on outer surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 1.00—1.09, bt2:t2 = 0.76—0.85, bt3:t3 = 0.60—0.65.

Wing. Wing length 4.4—6.0 mm. Wing hyaline. Sc ending in C near middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 1—10 macrotrichia. Small cell about twice as long as wide. Cu fork slightly proximal - slightly distal to M fork. M ratios: 0.52—0.65, 0.66—0.81. Cu ratios: 0.73—0.78, 1.00—1.16. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with broad yellow lateral and posterior margins, 6—7 brown. Sternites 1—5



Figs. 119—123. *Mycomya fuscata*. — 119: male hypopygium, tergal view. — 120: hypopygium, sternal view. — 121: sternal submedian appendage. — 122: apex of paramere. — 123: gonostylus. Scale 0.2 mm for Figs. 119—120, Figs. 121—123 2 x enlarged.

yellow, 6—7 yellowish to brownish. Seldom abdomen entirely brown.

Hypopygium. Figs. 112—116, yellow, tergally brownish. Tergite 9 with 2 sabre-like spines and 3—5, usually 4, cones on both sides. Sternal synsclerite with 2—3 setae on both sides. Sternal submedian appendage long, slender, with some small setae. Paramere long slender almost straight, subapically bending laterally, almost bare. Gonostylus with 3 apical teeth.

Female. Wing length 5.5—7.3 mm. Thorax yellow, with 3 brownish mesoscutal stripes. Abdominal tergites brownish, posterior margins broadly yellow. Leg ratios: bt1:t1 = 1.04—1.10, bt2:t2 = 0.75—0.80, bt3:t3 = 0.63—0.66. Terminalia as in Figs. 117—118, yellow.

Distribution: Western Palaearctic. France, Italy, Bulgaria, Greece, Yugoslavia, Hungary, Roumania, Austria, Switzerland, ?Federal Republic of Germany, Czechoslovakia, Poland, United Kingdom, Sweden, Finland. USSR: Leningrad region, Murmansk region. Also reported from Federal Republic of Germany (Plassmann 1977b, 1980b) and Ireland (Chandler 1976: only females).

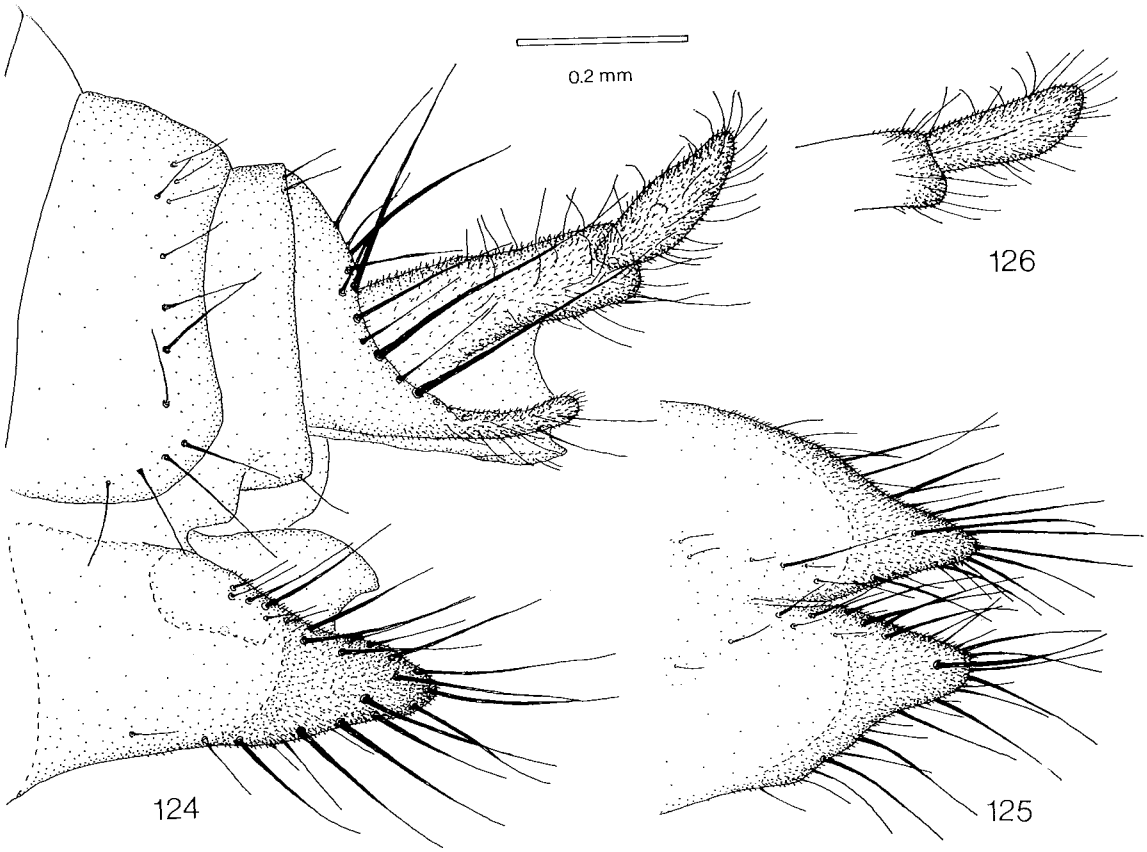
Biology: English specimens reared from rotten wood, agaric sp., *Thelephora anthocephala* (Fr.) Fr., and from "purplish ?*Corticium*". The collecting biotopes given are a wet gorge in old forest, river-bed between *Platanus* trees, and coniferous and mixed forests; one specimen was found in a deep wet hollow in a shady stone wall.

Mycomya fuscata (Winnertz, 1863)
Figs. 119—126, key p. 37, 42.

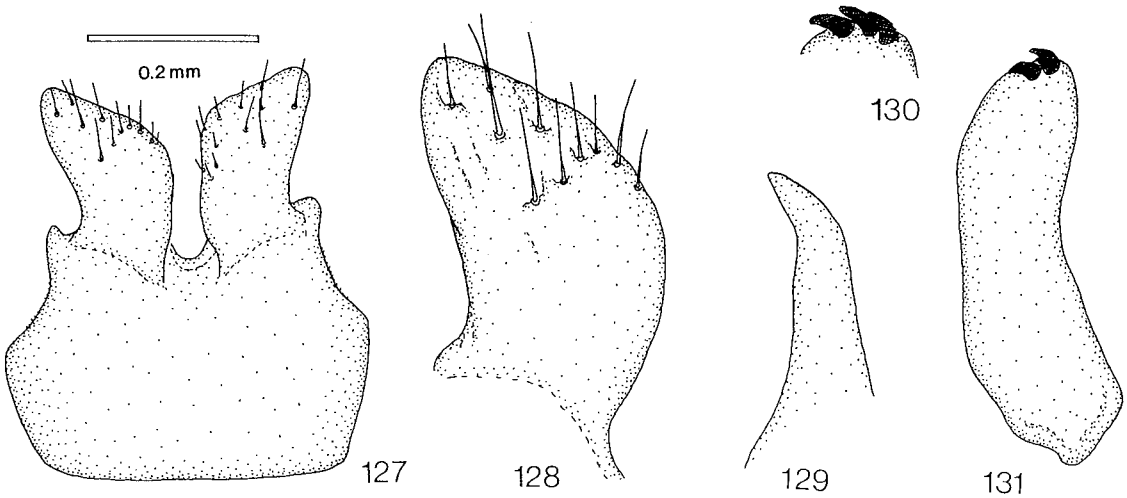
Sciophila fuscata Winnertz, 1863. Winnertz 1863:723; van der Wulp 1877:165; Kertész 1902:60, 1903:32.
(?) *Sciophila fuscata:* Strobl 1909:241.
Mycomyia fuscata: Landrock 1926—1927:46; Edwards 1941:28; Coe in Kloet & Hincks 1945:345.
Mycomya fuscata: Kidd & Ackland 1969:22; Hutson in Kloet & Hincks 1976:24; Hutson et al. 1980:43; Väisänen 1982b: 39.
(?) *Mycomya fuscata:* Kröber 1956:131.
(p. p.) *Mycomyia ornata:* Edwards 1925a:552 (p. p. = *M. tumida* (Winnertz), *M. prominens* (Lundström), ? *M. lambi* Edwards, not *M. ornata* (Meigen)).

Type locality: Not stated (? Netherlands).
Type: Holotype (not located, apparently destroyed): ♂, "In der Sammlung des Herrn van der Wulp in Haag".
Remarks: Edwards (1941) re-examined the British material of this species group, and I have followed his generally accepted proposal regarding the identity of *M. fuscata* (Winnertz), because the type is not available.
Material examined: Italy: Aosta, Valsavaranche, P. N. G. P., Ponte del Gran Clapey, alt. 1730 m, 20.IX. 1974, L. Matile (1 m MNHN). — UK: Aviemore, 23.VIII. 1903, J. J. F. X. King (2 mm BMNH); Logie, Elgin, 18—29.VIII. 1903, F. Jenkinson (1 m BMNH); Dingwall, 26.VIII. 1909, J. J. F. X. King (1 m BMNH); Nethy Brg., 30.VIII. 1906, J. J. F. X. King (1 m 1 f BMNH). — Sweden: Lpld., Abisko, Nilssontjåkko, 800 m, 4.VIII. 1960, W. R. M. Mason (1 m CNC); same data, but 1100 m (1 m CNC). — USSR: Porchnikha Murman, oz. Lyagushaché, 6.IX. 1928, Rezvoj & Gorbunov (1 m LEN); Porchnikha Murman, oz. b Kutu guby, 31. VIII. 1928, Rezvoj (1 m LEN). — Canada: Y. T., Firth River, 6.VIII. 1956, E. F. Cashman (2 mm CNC); NWT., Wharton L., 63°52′N, 99°45′W, 18.VIII. 1966, J. G. Scott (1 m 2 ff CNC); N. W. T., Aklavik, 25.VIII. 1931, O. Bryant (1 m CAS); same data, 18.VII. 1932 (1 m USNM); B. C., Ketchum L., 58°22′, 131°45′, 3600′, 26.VII. 1960, W. W. Moss (1 m CNC); same locality and date, 3600′, dry sedge grass and moss bogs, R. Pilfrey (1 m CNC); Man., Fort Churchill, 21.VIII. 1952, J. G. Chillcott (1 m CNC); Man., Warkworth Cr., Nr. Churchill, 22.VIII. 1952, J. G. Chillcott (1 m CNC).

Description:
Head. Palp and other mouthparts yellow to brown, face brown, posterior parts dark brown. Antenna brown,



Figs. 124—126. *Mycomya fuscata.* — 124: female terminalia, lateral view. — 125: hypogynal valves, sternal view. — 126: apical segment of cercus, sternal view. Scale 0.2 mm.



Figs. 127—131. *Mycomya thula.* — 127: sternal synsclerite of male hypopygium. — 128: sternal submedian appendage. —129: apex of paramere. — 130: apex of gonostylus. — 131: gonostylus. Scale 0.2 mm for Fig. 127, Figs. 128—131 2 x enlarged.

basal segments light brownish. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum brown, with 8—10 longer setae. Mesoscutum brown, with indistinct almost black longitudinal stripes. Mesanepisternum brown. Mesokatepisternum brown. Scutellum brownish to brown, with 4 long setae. Laterotergite brown. Mediotergite brown, with 2—5 setae.

Legs. Coxa 1 light brownish, coxae 2 and 3 brownish, femora yellow, tibiae and tarsi brownish to brown. Coxa 1 with dense patch of small setae covering almost apical half of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.89—1.00, bt2:t2 = 0.71—0.84, bt3:t3 =0.53—0.67.

Wing. Wing length 4.8—6.0 mm. Wing hyaline. Sc ending in C distally to or rarely near middle of small cell, Sc2 ending in R1 distally to or rarely near middle of small cell. Sc bearing no macrotrichia. Small cell 1.5—3 times as long as wide. Cu fork proximal to M fork. M ratios: 0.53—0.74, 0.63—0.93. Cu ratios: 0.55—0.74, 0.81—1.17. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown or tergites 1—5 with posterior quarters light brownish.

Hypopygium. Figs. 119—123, brown. Tergite 9 with 3—4 wide sabre-like spines and 4—6, usually 5, cones on both sides. Sternal synsclerite with many lateral setae. Sternal submedian appendage long apically wide, rounded, basally tapered, with a few small setae. Paramere long curved, with rounded flattened apex. Gonostylus with 2 long curved apical teeth. Aedeagus comparatively long.

Female. Wing length 5.2—6.0 mm. Pronotum yellow with brown dorsal spot. Mesoscutum yellow, with indistinct fused dark brown stripes. Mesanepisternum brownish, ventral part brown. Scutellum with 4—5 long setae. Laterotergite brownish, ventral part brown. Mediotergite brownish, lateral and posterior parts brown, with 2—7 setae. Coxae yellow. Abdomen longer than wing, brown with posterior thirds of tergites yellowish. Leg ratios: bt1:t1 = 0.88, bt2:t2 = ?, bt3:t3 = 0.63. Terminalia as in Figs. 124—126, brownish.

Distribution: Holarctic. Europe: Italy (the Alps), ? Netherlands, United Kingdom (Scotland), northern Sweden. USSR: Murmansk region. Canada: Yukon Territory, North West Territories, British Columbia, Manitoba. Also reported from Austria (Strobl 1909) and Federal Republic of Germany (Kröber 1956).

Biology: Unknown. The collecting biotope given for one specimen is dry sedge grass and moss bogs.

Mycomya thula n. sp.

Figs. 127—131, key p. 38.

Type locality: Alaska, Unakleet (USA).

Type: Holotype (studied): Unakleet, Alaska, 15.VII. 1961, B. S. Heming (m CNC).

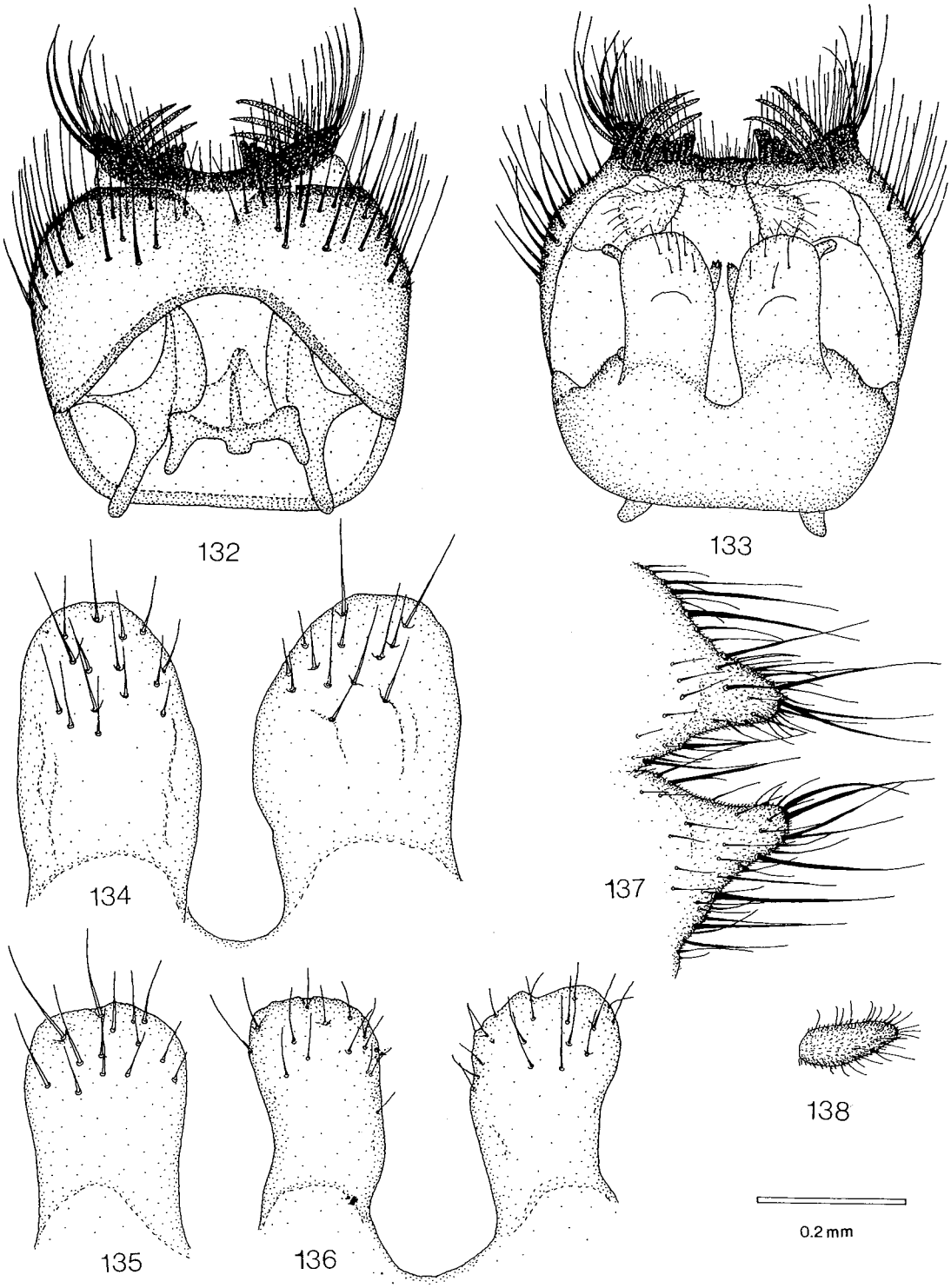
Material examined: Alaska: Holotype (CNC).

Description:

Head. Palp and other mouthparts and face yellow, posterior parts brown. Antenna brownish, basal segments yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 6 longer setae. Mesoscutum yellow, with 3 dark brown longitudinal stripes. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow to yellowish, ventral part brownish. Mediotergite yellow to yellowish, lateral and posterior parts brownish, with 2 small setae.

Legs. Coxae yellow, coxa 3 slightly yellowish, without spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical



Figs. 132—138. *Mycomya ornata.* — 132: male hypopygium, tergal view. — 133: hypopygium, sternal view. — 134: sternal submedian appendages. — 135—136: sternal submedian appendages of aberrant specimens (135: Amur; 136: Dudinka). — 137: hypogynal valves of female terminalia, sternal view. — 138: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 132—133 and 137—138, Figs. 134—136 2 x enlarged.

third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 1.04, bt2:t2 = 0.75, bt3:t3 = 0.60.

Wing. Wing length 5.9 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 10—16 macrotrichia. Small cell about twice as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.61, 0.74. Cu ratios: 0.73, 1.17. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with brown anteriomedial spots and partially fused smaller lateral spots, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 127—131, yellow. Tergite 9 with 4 sabre-like spines and 5—6 dark cones on both sides. Sternal synsclerite without lateral setae. Sternal submedian appendage very long and large, apically pointed, yellow, with some small setae. Paramere broad, short, almost straight. Gonostylus with 2—3 apical teeth.

Female. Unknown.

Distribution: Nearctic. Alaska.
Biology: Unknown.

Mycomya ornata (Meigen, 1818)

Figs. 132—140, key p. 38.

Sciophila ornata Meigen, 1818. Meigen 1818:250; Dziedzicki 1885: Tab. VI: Figs. 26—27; Kertész 1902:63, 1903:34; Dziedzicki 1915:9.

(?) *Sciophila ornata:* von Roser 1834:263; Walker 1848:91; Zetterstedt 1852:4114; Osten-Sacken 1858:143; Winnertz 1863:725; Schiner 1864:444; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; van der Wulp 1877:11; Strobl 1880:45; Czwalina 1893:2; Strobl 1895: 143; Thalhammer 1899:115; Strobl 1900b:98, 1901:12; Sack 1907:11; Strobl 1909:241; Stackelberg 1922:6; Morge 1974:171.

(p. p.) *Sciophila ornata:* Lundström 1907:9 (p. p. = *M. denmax* Väisänen).

(p. p.) *Sciophila ornata:* Lundström 1909:9 (p. p. = *M. lambi* Edwards).

Mycomyia ornata: Edwards 1924a:14, 1941:27; Coe in Kloet & Hincks 1945:345.

Mycomya ornata: Hutson in Kloet & Hincks 1976:24; Väisänen in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1982b:40.

(?) *Mycomya ornata:* Landrock 1913:33; Matile 1977:633.

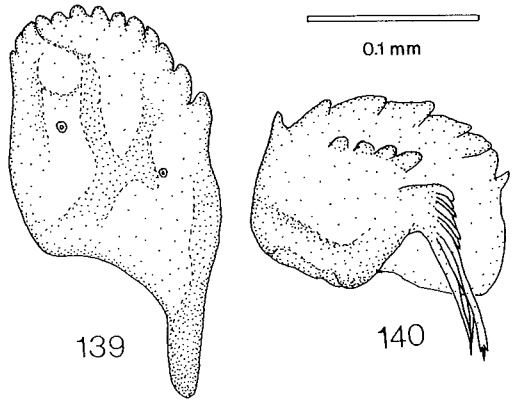
(?) *Mycomyia ornata:* Wahlgren 1921:67; Lackschewitz 1937:11; Karl 1939:53; Landrock 1940:34; Séguy 1940:76; Krogerus 1960:64; Sasakawa 1961:88; Ostroverchova & Stackelberg 1969:274; Plassmann 1969:25, 1970b:388, 1971b:61, 1977b:9; Ostroverchova & Zaitseva 1979:75; Ostroverchova 1979:72; Plassmann 1980a:178, 1980b:19.

(p. p.) *Mycomyia ornata:* Landrock 1926—1927:50 (Syn. ?*M. prominens* (Lundström)) (p. p. = *M. tumida* (Winnertz), *M. lambi* Edwards, *M. prominens* (Lundström)).

(p. p.) *Mycomyia ornata:* Frey & Storå 1941:46 (p. p. = *M. lambi* Edwards).

(p. p.) *Mycomyia ornata:* Kidd in Kidd & Brindle 1959:72 (partly deleted in Kidd 1971:4).

(? not) *Mycomyia ornata:* Lackschewitz 1937:11 (p. p. = *M. tumida* (Winnertz)).



Figs. 139—140. *Mycomya* (?) *ornata.* — 139: maxilla of larva. — 140: mandible. Scale 0.1 mm.

(? not) *Mycomyia ornata:* Plassmann 1979:375 (p. p. = *M. denmax* Väisänen).

(not) *Mycomyia ornata:* Edwards 1924b:162 (Syn. *Sciophila nigricornis* Zetterstedt) (= *M. lambi* Edwards).

(not) *Mycomyia ornata:* Edwards 1925a:552 (Syn. *M. tumida* (Winnertz)) (= *M. tumida* (Winnertz), *M. prominens* (Lundström), *M. fuscata* (Winnertz), ? *M. lambi* Edwards).

(not) *Mycomyia ornata:* Edwards 1928a:160 (= *M. tumida* (Winnertz)).

(not) *Mycomya ornata:* Fisher 1937:392, deleted by Laffoon in Stone et al. 1965:221 ("Not Nearctic"); Ackerman & Shenefelt 1973:188 (= North American *Mycomya* sp./spp.).

Type locality: Not stated (? Federal Republic of Germany).

Type: Holotype (studied, in poor condition, without abdomen): *ornata.* Meigen. (m MNHN).

Remarks: Most records of *Sciophila ornata* or *Mycomyia ornata* concern the species group *M. ornata* collectively and should most probably be referred to other species of this group; true *M. ornata* seems to be rare. Edwards (1924b, 1925a) synonymized *Sciophila nigricornis* Zetterstedt (see p. 000) and *Sciophila tumida* Winnertz with *M. ornata,* and Landrock (1926—1927) increased the synonym list with *S. prominens* Lundström, with a question-mark. In his re-examination of the British specimens of this group, Edwards (1941) correctly divided them into five species *(M. ornata, M. tumida, M. lambi, M. fuscata, M. prominens)* and accepted Dziedzicki's (1885) opinion of the identity of *M. ornata,* as is also done here.

Material examined: ?FRG: Coll. Meigen (holotype MNHN). — ?GDR: S.-Harz, Ulfeld, Duda (1 m MNB). — Czechoslovakia: Zbuch pr. Plzeň, 21.VIII. 1962, I. Zuska (1 m VUPP). — Poland: Tatra Mts., Zakopane, 2300 ft., 28.VI. 1932, D. Aubertin & E. Trewavas (1 m BMNH). — UK: Crowborough, 8.IX. 1915, F. J. (1 m BMNH); Aviemore, 24.VIII. 1903, J. J. F. X. King (2 mm BMNH); Logie, IX. 1916, F. J. (1 m BMNH); Nethy Brg., 30.VIII. 1906, J. J. F. X. King (1 ?f BMNH); Newtonmore, IX. 1905, F. J. (1 m BMNH); Glasgow, 24.VIII. 1921, J. J. F. X. King (1

?f BMNH). — Norway: Jaeren Orre, 15.VIII. 1953, T. Nielsen (Ardö) (1 m 1 f LUND). — Finland: *Ab:* Kuusto (Kaarina, Kuusisto), Lundström (1 m MZH); *N:* Esbo (Espoo), Westend, 23.VII. 1965, W. Hackman (1 m MZH); *Ta:* Hattula, A. Wegelius (3 mm MZH). — USSR: Dudinka, Y. Wuorentaus (1 m MZH); Amur. obl., Klimoutsy, 40 km W Cvobodnogo, dubovo-listvennichi les koshen., 7.VII. 1958, 19.VII. 1958, Zonov'ev (2 mm LEN).

Remarks: A female may also belong to this species: Kuril Isls., Kunashir, 2.VII. 1977, A. Zaitsev (1 ?f + pupa + head capsule of larva, lot 471 MOSC).

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd about 1.5 times as long as wide.

Thorax. Pronotum yellow, with 6—8 longer setae. Mesoscutum shining yellow to yellowish, posteriorly darker, with 3 distinct comparatively wide blackish brown longitudinal stripes. Mesanepisternum yellow or ventral part yellowish to brownish. Mesokatepisternum yellow, ventral half dark brown. Scutellum yellow, with 4, occasionally 6, long setae. Laterotergite yellow, ventral part brown. Mediotergite yellow, lateral and posterior parts brown, with 1—3 small setae.

Legs. Coxae yellow, coxa 3 sometimes yellowish, occasionally with brown spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of small thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.93—1.00, bt2:t2 = 0.73—0.83, bt3:t3 = 0.61—0.73.

Wing. Wing length 4.9—5.5 mm. Wing hyaline. Sc ending in C distally to middle of small cell, sometimes almost reaching apex of R4, Sc2 ending in R1 slightly proximally to or near middle of small cell. Apical part of Sc bearing 2–22 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork below M fork or slightly distal to it. M ratios: 0.50—0.67, 0.56—0.80. Cu ratios: 0.61—0.75, 0.88—1.14. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow posterior and lateral margins, 6—7 brown, markings distinct. Sternites yellowish, 6—7 brownish with yellow posterior margins.

Hypopygium. Figs. 132—136, yellow, tergite 9 partially brown. Tergite 9 with 3—5, usually 4, sabre-like spines and 4—6 dark cones on both sides. Sternal synsclerite without lateral setae. Sternal submedian appendage very wide, yellow, with some small setae. Paramere short, strong, almost straight. Gonostylus with 2—3 apical teeth.

Female. Wing length 5.0—7.5 mm. Thorax as in male but paler. Abdominal tergites yellow, with brown anteromedial spots, which are sometimes divided more or less clearly into three parts. Leg ratio bt1:t1 = 0.93. Terminalia as in Figs. 137—138, yellow.

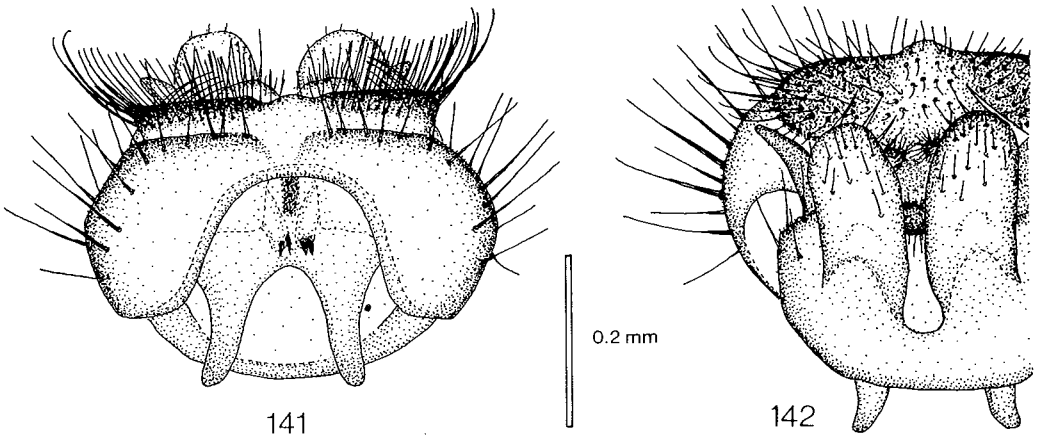
(?) Larva. Mandible and maxilla as in Figs. 139—140.

(?) Pupa. Length about 5 mm, light brownish.

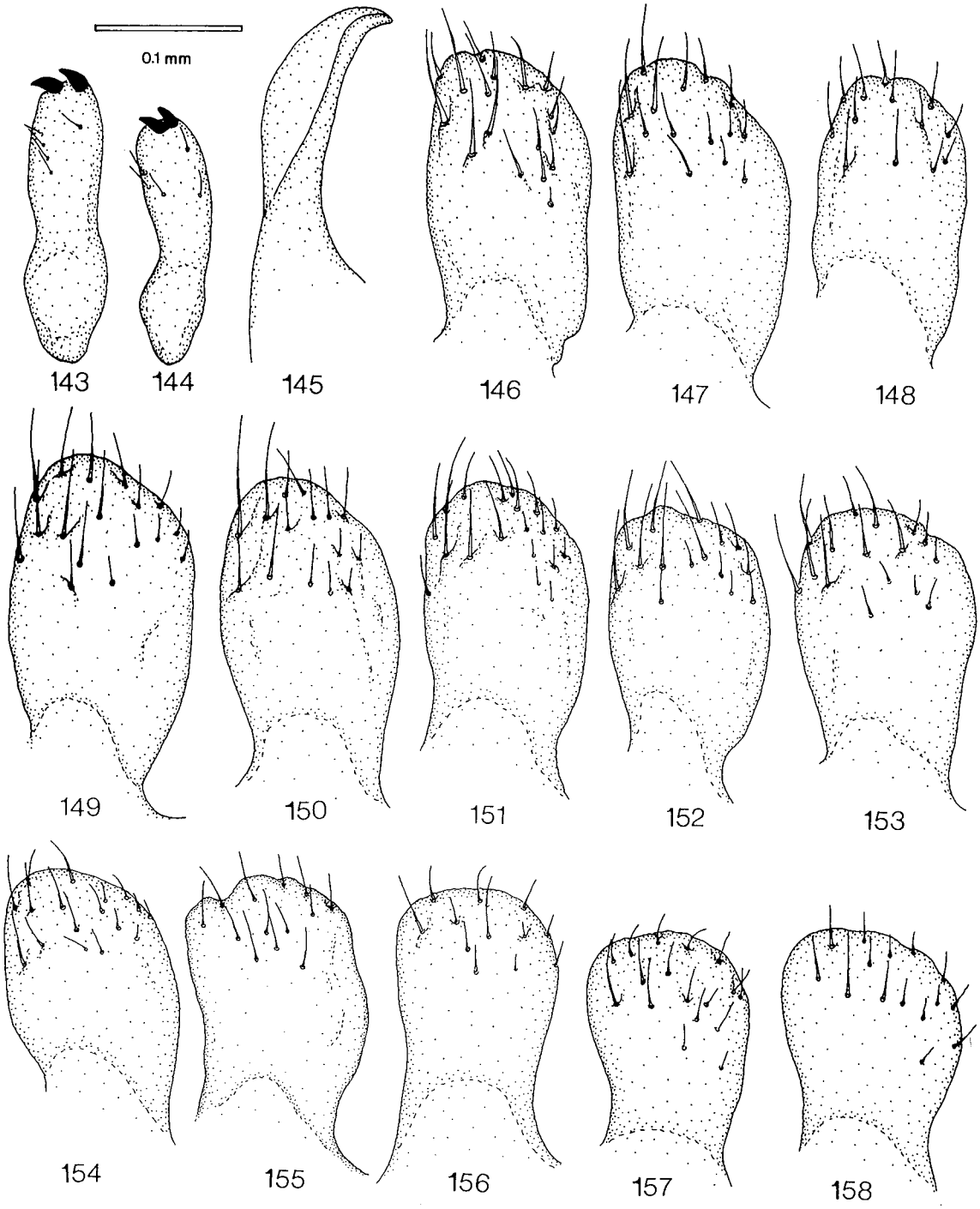
Remarks: The Russian specimens differ slightly in the details of the hypopygium from the European specimens, but their coloration is similar and the sternal synsclerite laterally bare. The larva and the pupa belong to an uncertain female from the Kuril Islands.

Distribution: Palaearctic. ?Federal Republic of Germany, ?GDR, Czechoslovakia, Poland, United Kingdom, Norway, Finland. USSR: East Siberia (Yenisei), Far East (Amur), ?Kuril Islands. Also reported (? incorrectly) from Austria (Schiner 1864, Strobl 1880, 1895, 1901), Spain (Strobl 1900b), Japan (Sasakawa 1961), Hungary (Thalhammer 1899), Germany (Sack 1907, Karl 1939, Landrock 1940, Plassmann 1969, 1970b, 1971b, 1977b, 1980b), France (Séguy 1940, Matile 1977), Sweden (Zetterstedt 1852, Wahlgren 1921), and from USSR: Estonian SSR (Lackschewitz 1937), Kola peninsula and Arkhangelsk (Ostroverchova & Stackelberg 1969), Lithuanian SSR (Czwalina 1893), West and East Siberia (Ostroverchova 1979). The North American record (Ackerman & Shenefelt 1973) seems most unreliable.

Biology: Unknown. In the literature some notes are given for *"M. ornata"*, i.e. the species group *M. ornata:*



Figs. 141—142. *Mycomya lambi.* — 141: male hypopygium, tergal view. — 142: hypopygium, sternal view. Scale 0.2 mm.



Figs. 143—158. *Mycomya lambi.* — 143—144: gonostyli. — 145: paramere. — 146—158: sternal submedian appendages (146: British Columbia, Ketchum Lake; 147: B. C., Revelstoke; 148: B. C., Ketchum Lake; 149: Scotland, Tayside; 150: ?Austria; 151: Finland; 152: Sweden, Abisko; 153: B. C., Pete Lake; 154: B. C., Procter; 155: Federal Republic of Germany; 156—157: holotype; 158: Scotland, Morris More). Scale 0.1 mm.

Plassmann (1979b, 1980a) reports that specimens have been caught with light and air-suction traps in northern Sweden. He has reared a specimen from a larva found in a spruce *(Picea)* stump (Plassmann 1969, 1971b). The North American specimen reared by Ackerman & Shenefelt (1973) originated from *Ramaria apiculata* (Fr.) Donk. According to Plassmann (1969, 1971b), the larva is the overwintering stage.

Mycomya lambi Edwards, 1941

Figs. 141—158, key p. 38.

Mycomyia lambi Edwards, 1941. Edwards 1941:29; Coe in Kloet & Hincks 1945:345; Vest Pedersen 1971:50.

Mycomya lambi: Kidd & Ackland 1969:22, 1970:11; Hutson in Kloet & Hincks 1976:24; Väisänen in Huckman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:39.

Mycomyia ornata: Edwards 1924b:162 (Syn. *Sciophila nigricornis* Zetterstedt).

(p. p.) *Sciophila nigricornis:* Zetterstedt 1852:4125, 4362; Kertész 1902:62, 1903:34 (p. p. = *M. nigricornis* (Zetterstedt)).

(p. p.) *Sciophila ornata:* Lundström 1909:9 (p. p. = *M. ornata* (Meigen)).

(p. p.) *Mycomyia nigricornis:* Wahlgren 1921:168 (p. p. = *M. nigricornis* (Zetterstedt)).

(p. p.) *Mycomyia ornata:* Landrock 1926—1927:50 (p. p. = *M. tumida* (Winnertz), *M. ornata* (Meigen), *M. prominens* (Lundström)).

(p. p.) *Mycomyia ornata:* Plassmann 1979:375 (? p. p. = *M. denmax* Väisänen, *Mycomya* sp.).

(? p. p.) *Mycomyia ornata:* Edwards 1925a:552 (p. p. = *M. tumida* (Winnertz), *M. prominens* (Lundström), *M. fuscata* (Winnertz)).

Type locality: Inverness, Nethy Bridge (Scotland).

Type: Holotype (studied): Nethy Bridge. 6. 1906. C. G. Lamb. 1913-9. ?*S. fuscata* Winn. ?*ornata.*, nec Mg. *Sc. tumida* Winn. Hyp. abnorm. Type *Mycomya lambi* Edws. (m BMNH).

Remarks: See also *M. nigricornis* (Zetterstedt) (p. 000).

Material examined: Andorra: Port de Siguer, c. 7000 ft., IX. 1935, F. W. Edwards (1 m BMNH). — ?Austria: Coll. Strobl, *Sc.* n. sp. (1 m STROBL). — FRG: (25) Glockner, Hochtor, 2500 m, XIII, 11.VIII.—1.XI. 1975 (1 m STAAT). — UK: Nethy Bridge, VI. 1906, C. G. Lamb (holotype BMNH); Scotland, Morrick More, Ross, 15.VI. 1976, on *Juncus,* A. E. S. & A. G. I. (1 m coll. Chandler); Ardentinny, 13.VI. 1903, J. J. F. X. King (2 mm BMNH); Scotland, Tayside, Rannoch, 30.IX. 1966, G. Hosier (1 m 1 f BMNH). — Sweden: Mulfiellet *(Sciophila nigricornis* Zetterstedt paralectotype: 1 m No. 200 LUND); Lpld., Abisko, N. Issontjåkko, 1100 m, 4.VIII. 1960, W. R. M. Mason (1 m CNC); Lpld., Riksgränsen, 8—900 m, 29.VII. 1960, W. R. M. Mason (1 m CNC); ? Torshamn, 4.VI. 1926 (1 m MZH). — Finland: *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (1 m prep. MZH); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Kol's., Khib. gory, bas. ozer Vyd-yavr, 15.VIII. 1937, Fridolin (1 m LEN); Myrman., Podpahta (u Gavrilova), 12.IX. 1928, P. Rezvoj (1 m LEN). — Canada: B. C., Ketchum L., 58°22′, 131°45′, 3600′, 26.VIII. 1960, W. W. Moss (2 mm CNC); same data, dry edge grass and moss bogs, R. Pilfrey (1 m CNC); B. C., Revelstoke, 2.VII. 1973, H. J. Teskey (1 m CNC); B. C., Pete Lake, 57°56′, 131°56′, 4000′, 17.VIII. 1960, W. W. Moss (1 m CNC); B. C., Marysville, Kimberly, 26.VIII., C. Garrett (1 m hypop. slide No. 25—71 "*Mycomyia* accrostoma" CNC); B. C., Procter, 26.VIII., C. Garrett (1 hypop. slide No. 4732 "*M.* accrostoma" CNC); Alta., Waterfowl Lake, 14 mi. NW of Banff, 11.X. 1953, O. Peck (1 m CNC); Alta., Banff Natl. Pk., Bow Pass, 7000—7500′, 17.VII. 1955, R. Coyles (1 ?f CNC); Alta., BNP, Johnson's Canyon, 6.VIII. 1962, Malaise trap, W. R. M. Mason (1 m CNC). — USA: Wash., Asot. Co., Fields' spr. State Prk., 31.VII. 1971 (1 m 2 ?ff WASH); Or., Mt. Hood, Hood Rapids, 29.VII. 1921, A. L. Melander (2 mm USNM).

Description:

Head. Palp and other mouthparts yellowish, face brown, posterior parts of head brown. Antenna brownish, basal segments slightly paler. 1st flagellomere 2.5—3 times, 2nd twice as long as wide.

Thorax. Pronotum light brownish, with about 6 longer setae. Mesoscutum brownish to blackish brown, with 3 indistinct dark longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum entirely brown or brownish with dark brown ventral part. Scutellum yellowish to brownish, with 4 long setae. Laterotergite entirely brown or brownish with dark brown ventral part. Mediotergite entirely brown or brownish with dark brown lateral and posterior parts, with 2 small setae.

Legs. Coxae yellow to yellowish, coxa 3 with brown lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.88—1.00, bt2:t2 = 0.68—0.73, bt3:t3 = 0.56—0.71.

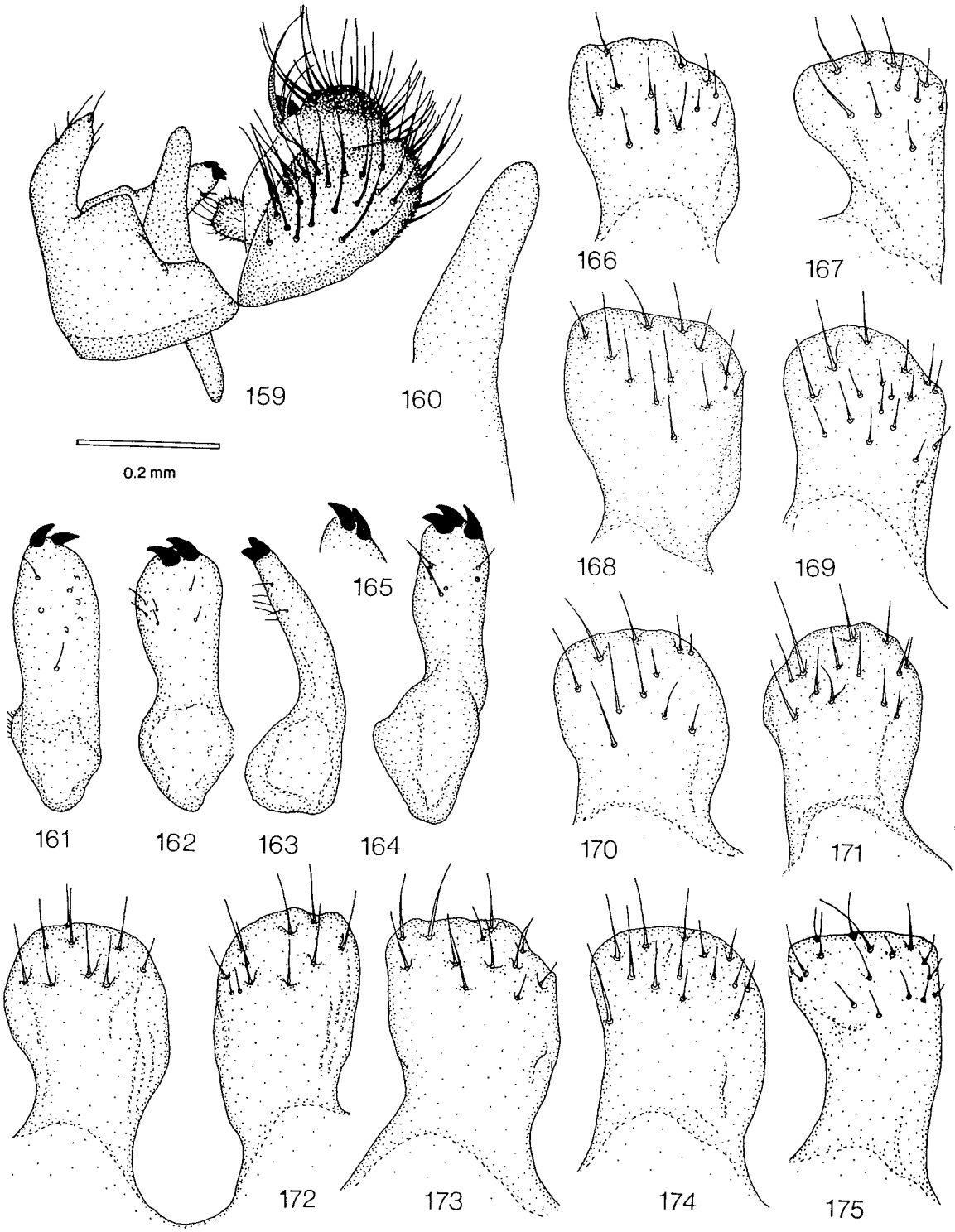
Wing. Wing length 4.9—6.2 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near or distally to middle of small cell. Apical part of Sc bearing 2—18 macrotrichia. Small cell 2—3 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.50—0.69, 0.61—0.83. Cu ratios: 0.64—0.78, 0.90—1.14. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown to blackish brown or tergites 1—5 brown with indistinct, very narrow yellowish posterior margins, 6—7 brown. Sternites lighter than tergites.

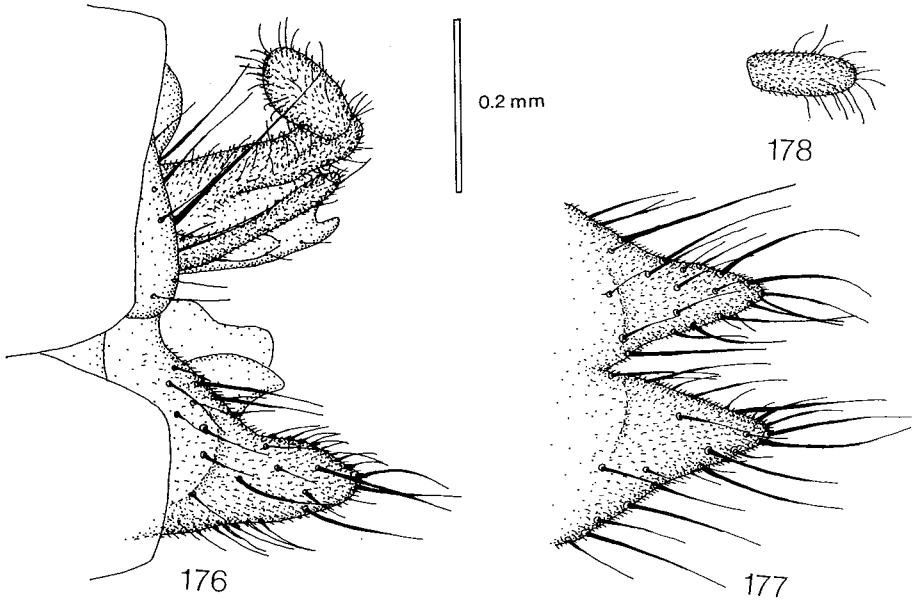
Hypopygium. Figs. 141—158, brownish. Tergite 9 with 3—5 sabre-like spines and 4—6 dark cones on both sides. Sternal synsclerite with 1—7 setae on both sides. Sternal submedian appendage large. Paramere short, strong, bare. Gonostylus with 2 apical teeth.

Female. Wing length about 6.3 mm. Abdomen brown with narrow yellow posterior margins. Terminalia yellowish.

Remarks: Most British specimens (exception: Scotland, Tayside) and the German specimen have comparatively short, apically blunt sternal submedian appendages, and only 1—2 setae on both sides of the sternal



Figs. 159—175. *Mycomya dura.* — 159: male hypopygium, lateral view. — 160: apex of paramere. — 161—165: gonostyli. — 166—175: sternal submedian appendages (166: North West Territories, Dubawnt Lake; 167: Alaska, Summit Lake; 168: Manitoba, Fort Churchill; 169: N. W. T., Chesterfield; 170: Quebec, Payne Bay; 171: N. W. T., Wharton Lake; 172: Yukon Territory, Shingle Point; 173: Y. T., Herchel Island; 174: Y. T., Demster Hwy.; 175: Alaska, King Salmon.). Scale 0.2 mm for Fig. 159, Figs. 160—175 2 x enlarged.



Figs. 176—178. *Mycomya* (?) *dura*. — 176: female terminalia, lateral view. — 177: hypogynal valves, sternal view. — 178: apical segment of cercus, sternal view. Scale 0.2 mm.

synsclerite. The other specimens have long, more or less pointed sternal submedian appendages, and 2—7 setae on both sides of the sternal synsclerite. Thus, although the British specimens resemble Nearctic *M. dura* Garrett, the Nearctic specimens of *M. lambi* can be relatively easily distinguished from that species, since they possess the latter type of male hypopygium.

Distribution: Holarctic. Andorra, ?Austria, Federal Republic of Germany, United Kingdom (Scotland), Sweden, Finland. USSR: Kola peninsula (Murmansk region). Canada: British Columbia, Alberta. USA: Washington, Oregon. Vest Pedersen (1971) reported this species from the Faeroes.

Biology: A specimen has been caught with a Malaise trap. The collecting biotopes given are the dry edge of grass and moss bogs and *Juncus*. According to Vest Pedersen (1971), on the Faeroes this species occurs from June 14 to August 27 in meadows and in "Bøen".

Mycomya dura Garrett, 1924

Figs. 159—178, key p. 38.

Mycomya durus Garrett, 1924. Garrett 1924:162.

Mycomyia dura: Coher 1959:124.

Mycomya dura: Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomya armata Garrett, 1924 (New synon.). Garrett 1924:163; Laffoon in Stone et al. 1965:220; Cole 1969:121.

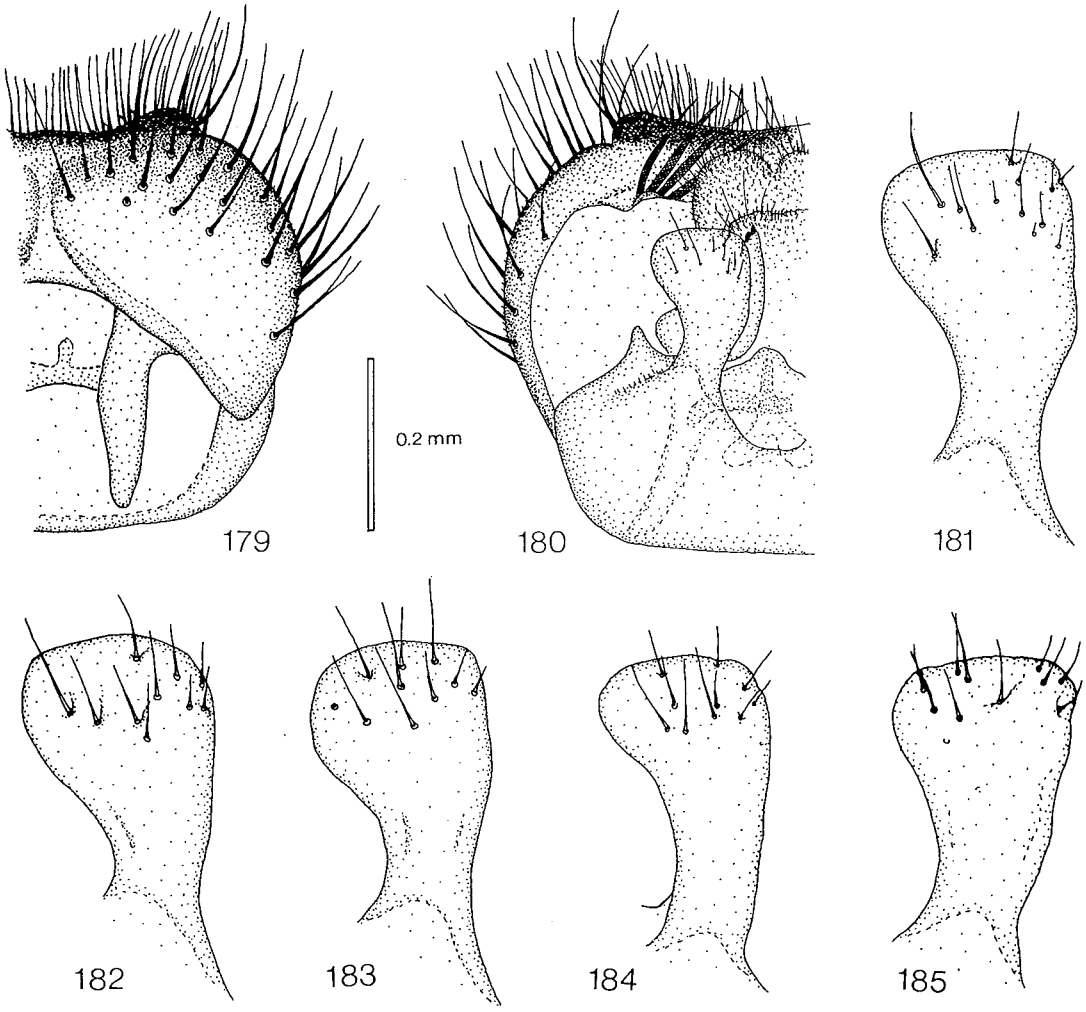
Mycomyia armata: Coher 1959:124.

Remarks: The correct spelling is *Mycomya dura* since *Mycomya* is feminine and *dura* is an adjective (meaning hard).

Type locality: British Columbia, Vancouver (Canada).

Types: — *Mycomya dura* Garrett: Holotype (studied): Vancouver. BC 10.XI. 14[?17]. R. S. Sherman N°25 B. 5269. Hyposlide. *My durus.* Holotype *Mycomya durus* C Garrett C. B. D. Garrett. + hypop. slide: *Mycomyia durus* C Garrett Canada. B. C. Vancouver 10.XI. Holotype hypo ♂ 52—69. (m CNC). — *Mycomya armata* Garrett: Holotype (studied): Caulfields 5.5. 17 B. C. 1120. 5278 hy. wing. Holotype *Mycomya armata* C Garrett C. B. D. Garrett. + hypop. slide [re-mounted, in poor condition]: *Mycomyia armata* C Garrett Canada. B. C. Caulfields 5. V. hypo ♂. 52—78. (m CNC). Type locality: British Columbia, Caulfields (Canada).

Material examined: Alaska: Summit L., Isabella Pass, mi. 199, 3.VIII. 1951, W. R. M. Mason (1 m CNC); Alaska, Naknek R., King Salmon, 23.VIII. 1952, W. R. Mason (1 m CNC); same locality, 4.VIII. 1952, W. R. Mason (1 ?f CNC). — Canada: Y. T., Hershel Is., 24—28.VII. 1971, D. M. Wood (5 mm CNC); Y. T., Firth River, 3.VIII. 1956, R. E. Leech (1 m CNC); same locality, 6.VIII. 1956, 16.VIII. 1956, E. F. Cashman (3 mm CNC); Y. T., Mi. 87, Demster Hwy., 4—8.VIII. 1973, G. & D. M. Wood (6 mm CNC); Y. T., Shingle Pt., Mackenzie River 1929 Trip lot 60, 29.VIII. 1929, O. Bryant (1 m CAS); N. W. T., Wharton L., 63°52′N, 99°45′W, 18.VIII. 1966, J. G. Chillcott (1 m 1?f CNC); NWT., Nicholson L., N end, 62°45′N, 102°40′W, 26—27.VII. 1966, J. G. Chillcott (1 m CNC); NWT., Grant L., 63°41′N, 100°33′W, 8—10.VIII. 1966, J. G. Chillcott (1 m CNC); NWT., Dubawnt L., 63°18′N, 101°37′W, 2.VIII. 1966, J. G. Chillcott (1 m CNC); N. W. T., Chesterfield, 10.VIII. 1950, J. G. Chillcott (1 m CNC); B. C., Vancouver, 10.XI. 1914, R. S. Sherman (*M. dura* Garrett holotype CNC); B. C., Caulfields, 5.V. 1917, C. Garrett (*M. armata* Garrett holotype CNC); Man., Fort Churchill, 11.VIII. 1952, J.



Figs. 179—185. *Mycomya imperatrix.* — 179: male hypopygium, tergal view. — 180: hypopygium, sternal view. — 181—185: sternal submedian appendages. Scale 0.2 mm for Figs. 179—180, Figs. 181—185 2 x enlarged.

G. Chillcott (2 mm CNC); Q., Payne Bay P., 6.VIII. 1954, R. McCondochie (1 m CNC); same locality, 10.VIII. 1958, W. R. M. Mason (1 m CNC); same locality, 3.VIII. 1958, 19.VIII. 1958, E. E. MacDougall (2 mm CNC); Que., Indian House L., 10.VIII. 1954, R. Coyles (1 ?f CNC).

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellowish to brownish, posterior parts of head brown. Antenna brownish, basal segments yellowish. 1st flagellomere about 2.5 times, 2nd about twice as long as wide.

Thorax. Pronotum yellow to brownish, with 5—7 longer setae. Mesoscutum brownish to brown with or without indistinct dark brown longitudinal stripes, anterolateral corners sometimes yellowish. Mesanepisternum and mesokatepisternum brown. Scutellum yellowish, with 4 longer setae. Laterotergite and mediotergite brown. Mediotergite with 2—3 small setae.

Legs. Coxae yellow to yellowish, coxa 3 often brownish on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.88—1.00, bt2:t2 = 0.70—0.78, bt3:t3 = 0.65—0.71.

Wing. Wing length 4.4—6.3 mm (type 6.3 mm). Wing hyaline. Sc ending in C distally to middle of small cell, Sc1 sometimes apically weak, occasionally missing, Sc2 ending in R1 near or distally to middle of small cell. Apical part of Sc bearing 8—18 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork below or proximal to M fork. M ratios: 0.50—0.63, 0.57—0.74. Cu ratios: 0.71—0.77, 0.96—1.12. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown.

Hypopygium. Figs. 159—175, brownish. Tergite 9 with 4, seldom 3, sabre-like spines and 4—6 dark cones on both sides. Sternal synsclerite with 0—2 setae on both sides, usually bare. Sternal submedian appendage wide, comparatively short, with blunt apex, basally tapered. Paramere short, broad, bare. Gonostylus with 2, sometimes 3, apical teeth.

(?) Female. Wing length 4.7—5.2 mm. Coloration as in male. Terminalia as in Figs. 176—178, yellowish.

Remarks: See *M. lambi* Edwards (p. 69).

Distribution: Nearctic. Alaska. Canada: Yukon Territory, North West Territories, British Columbia, Manitoba, Quebec.

Biology: Unknown.

Mycomya imperatrix n. sp.
Figs. 179—185, key p. 38.

Type locality: Oregon, Josephine County, O'Brien (USA).

Type: Holotype (studied): U. S. A., Ore. Josephine Co. O'Brien 5-VI-1965 F. Schmid (m CNC).

Material examined: Canada: B. C., Terrace, 220', 31.V. 1960, B. Heming (1 m CNC). — USA: Wn., Walla Walla, Mill Creek, 2—6.VII. 1922, A. L. Melander (1 m USNM); Wash., Pullman, Lyle Grove, 3.VI. 1969, H. S. Telford (1 m 1f WASH); Wash., Pullman, 7.V. 1969, Malaise trap, R. W. Dawson (1 ?f WASH); Wn., Seaview, 29.VI. 1925, A. Spuler (1 m WASH); Ore., Josephine Co., O'Brien, 5.VI. 1965, F. Schmid (holotype & 1 m CNC); Cal., Marin Co., Alpine Lk., Lily Pond, 1500', 17.V. 1969, Malaise trap (1 m CNC); same data V—VI. 1970, D. D. Munroe (1 ?f CNC).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts brown. Antenna light brownish, basal segments yellow. 1st flagellomere segment about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, with 3 more or less fused, wide, brown longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow to yellowish, ventral part brownish. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow to yellowish, ventral part brownish. Mediotergite yellow to yellowish, lateral and posterior parts brownish, with 2—3 setae.

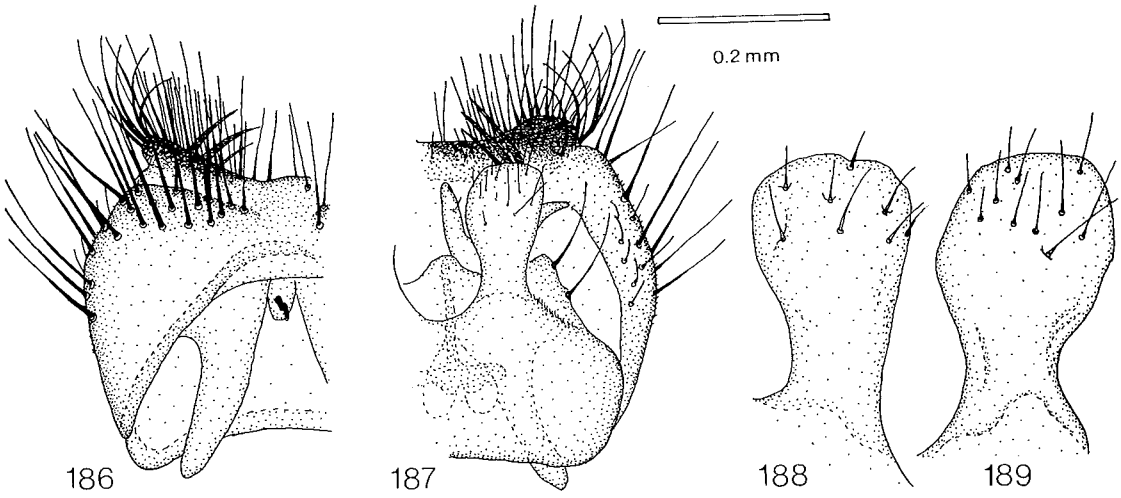
Legs. Coxae yellow, coxa 3 with indistinct brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of small thin setae covering apical third or a little more of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.93—1.00, bt2:t2 = 0.71—0.80, bt3:t3 = 0.57—0.60.

Wing. Wing length 4.7—6.0 mm. Wing hyaline. Sc ending in C or sometimes in R1, proximally — distally to middle of small cell, Sc1 sometimes apically weak or broken, seldom entirely missing, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 3—16 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.52—0.72, 0.63—0.96. Cu ratios: 0.79—0.93, 0.97—1.42. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow wide to narrow posterior and lateral margins, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish with yellow posterior margins.

Hypopygium. Figs. 179—185, comparatively large, sternal synsclerite yellow, tergite 9 brown. Tergite 9 with 4—5, occasionally 3, sabre-like spines and 4—6 dark cones on both sides. Sternal synsclerite without setae on sides. Sternal submedian appendage wide, basally narrow, with some small setae. Paramere short broad. Gonostylus with 2 apical teeth.

Female. Wing length 5.5 mm. Thorax slightly lighter than in male, mesoscutal stripes indistinct. Abdomen



Figs. 186—189. *Mycomya novagallica*. — 186: male hypopygium, tergal view. — 187: hypopygium, sternal view. — 188—189: sternal submedian appendages. Scale 0.2 mm for Figs. 186—187, Figs. 188—189 2 x enlarged.

lighter than in male, posterior margins of segments yellow. Leg ratios: bt1:t1 = 0.95, bt2:t2 = 0.77, bt3:t3 = 0.62. Terminalia yellow.

Remarks: Both the general shape of the male hypopygium in *M. imperatrix* and the body coloration resemble those of *M. ornata* (Meigen), but the details of the hypopygium are very similar to those of *M. novagallica* n. sp.

Distribution: Western Nearctic. Canada: British Columbia. USA: Washington, Oregon, California.

Biology: Unknown. Some specimens have been collected with a Malaise trap.

Mycomya novagallica n. sp.
Figs. 186—189, key p. 38.

Type locality: Quebec, Beechgrove (Canada).

Type: Holotype (studied): Beechgrove Que. 2.X. 1964 45°39′, 76°8′J. R. Vockeroth (m CNC).

Material examined: Canada: Que., Beechgrove, 45°39′, 76°8′, 2.X. 1964, J. R. Vockeroth (holotype CNC); Que., Gatineau Co., Masham Twp., 7—14.IX. 1974, D. M. Wood (1 m CNC); Que., Duncan Lake, Nr. Rupert, 28.VII. 1970, J. F. McAlpine (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts light brownish to brownish. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow to yellowish, with 3 light brownish to brownish more or less fused indistinct longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half light brownish to brownish. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow, ventral part light brownish to brownish. Mediotergite yellow, lateral and posterior parts light brownish to brownish, with 1 small seta.

Legs. Coxae yellow, coxa 3 only slightly yellowish, without distinct spots, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 =0.93—0.95, bt2:t2 = 0.77—0.80, bt3:t3 = 0.61—0.67.

Wing. Wing length 4.9—5.3 mm. Wing hyaline. Sc ending in C proximally — distally to middle of small cell, or Sc1 apically weak, Sc2 ending in R1 proximally to or near middle of small cell. Apical part of Sc bearing 8—10 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.56—0.77, 0.73—0.92. Cu ratios: 0.83—0.88, 1.22—1.36. Macrotrichia: M petiole: 0; M1: +; M2: + ; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites light brown, with broad yellow posterior and lateral margins, 6—7 brown with slightly yellowish posterior margins. Sternites 1–6 yellow, 7 yellow to slightly brownish.

Hypopygium. Figs. 186—189, yellow, comparatively small. Tergite 9 with 2—3 sabre-like spines and 4—5 dark cones on both sides. Sternal synsclerite with 1—2 setae on both sides. Sternal submedian appendage wide, basally narrow, with some small setae. Paramere short, broad. Gonostylus with 2 apical teeth.

Female. Unknown.

Remarks: Several details of the male hypopygium of *M. novagallica* resemble those of *M. imperatrix* n. sp., but the general shape of the hypopygium is quite different.

Distribution: Eastern Nearctic. Canada: Quebec.

Biology: Unknown.

Mycomya n. sp. Chandler
Figs. 190—198, key p. 38, 42.

Material examined: Canary Islands: Tenerife, Bco. Badajoz, 27.III. 1975, M. Baez (1 m coll. Baez); Tenerife, Bco. Gambuesa, 14.III. 1976, M. Baez (1 f coll. Baez).

Remarks: The female was sent me by Dr. M. Baez together with a female of *M. rivalis* Santos Abreu, and was supposed to belong to that species, too. Study of the specimen immediately revealed that it belonged to the species group *M. ornata*, although superficially similar to *M. rivalis*, the only other *Mycomya* species known from the Canary Islands. Since Dr. P. J. Chandler had kindly shown me his figures of *M.* "canariornata" during his visit to Finland, the female was sent to him and the species will be named by him. The male specimen was sent me by Dr. Chandler, and he has informed me of the existence of another male from: Tenerife, La Esperanza, 29.XII. 1978 (coll. Baez).

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 3.5 times, 2nd 2.5 times as long as wide.

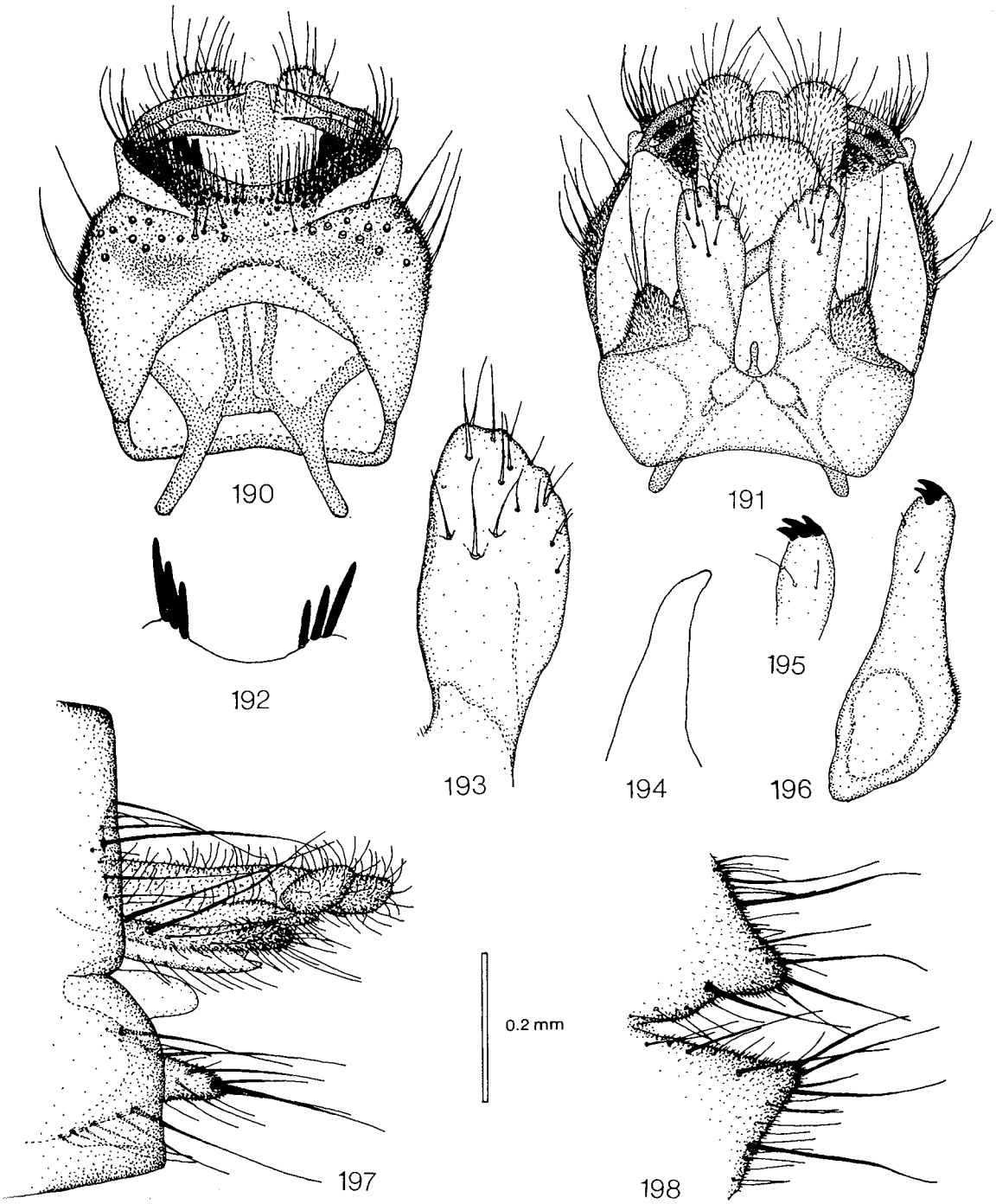
Thorax. Pronotum yellow, with brownish spots, with 5 longer setae. Mesoscutum yellow, posteriorly darker, brownish, with 3 brown longitudinal stripes, middle stripe with narrow medial yellow line. Mesanepisternum light brownish. Mesokatepisternum light brownish, ventral part brown. Scutellum brownish with yellow margins, with 4 long setae. Laterotergite light brownish, ventral part brownish to brown. Mediotergite brown, with 3 small setae.

Legs. Coxae yellow, with brown spots on outer surfaces of coxae 2 and 3, femora yellowish, tibiae and tarsi brownish. Coxa 1 with dense patch of short thin setae covering almost apical half of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.89, bt2:t2 = 0.76, bt3:t3 = 0.64.

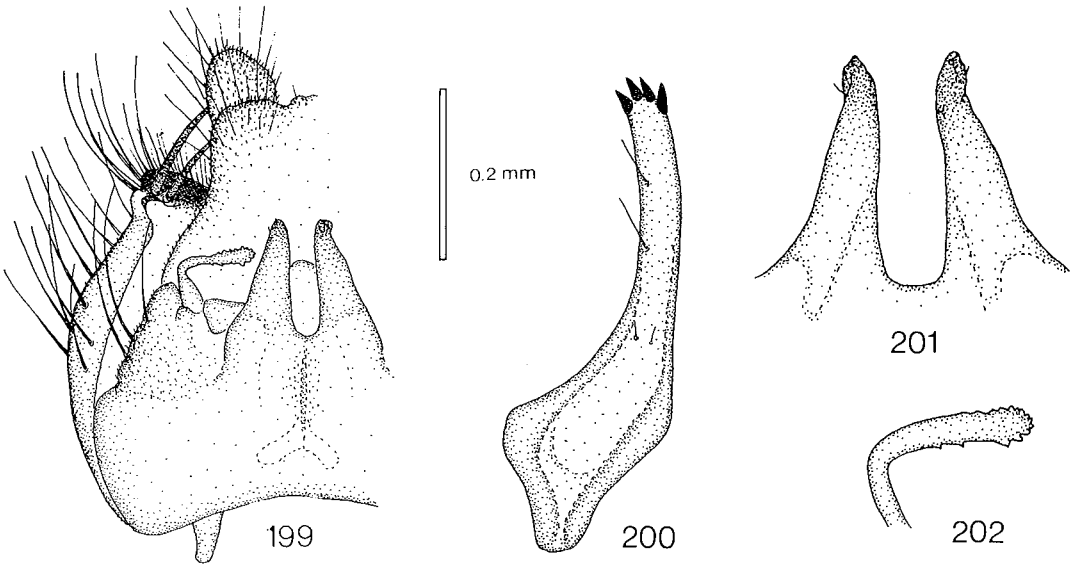
Wing. Wing length 4.7 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 7—10 macrotrichia. Small cell about twice as long as wide. Cu fork slightly distal to M fork. M ratios: 0.57, 0.67. Cu ratios: 0.83, 0.91. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites brown with posterior quarters yellow. Sternites brownish with posterior margins yellow.

Hypopygium. Figs. 190—196, sternal synsclerite yellowish, tergite 9 brownish. Tergite 9 with 2 wide sabre-like spines and 3 dark cones on both sides. Sternal



Figs. 190—198. *Mycomya* n. sp. (Canary Islands). — 190: male hypopygium, tergal view. — 191: hypopygium, sternal view. — 192: cones of tergite 9. — 193: sternal submedian appendage. — 194: apex of paramere. — 195—196: gonostyli. — 197: female terminalia, lateral view. — 198: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 190—192 and 197—198, Figs. 193—196 2 x enlarged.



Figs. 199—202. *Mycomya magnifica.* — 199: male hypopygium, sternal view. — 200: gonostylus. — 201: sternal submedian appendages. — 202: apex of paramere. Scale 0.2 mm for Fig. 199, Figs. 200—202 2 x enlarged.

synsclerite with 3—4 setae on both sides. Sternal submedian appendage yellowish, long, wide. Paramere almost straight, strong, short. Gonostylus with 2—3 teeth.

Female. Wing length 5.3 mm. Palp and other mouthparts yellow, face yellowish, posterior parts of head light brownish. Pronotum yellow, with brownish spots. Mesoscutum yellow, with very distinct dark brown longitudinal stripes. Mediotergite yellow, lateral and posterior parts brownish. Coxae yellow, coxa 2 and 3 with brown spots on outer surface. Abdominal tergites brown with posterior 1/3—1/4 yellow, markings very distinct. Sternites slightly lighter. Leg ratios: bt1:t1 = 1.00, bt2:t2 = ?, bt3:t3 = 0.63. Terminalia as in Figs. 197—198, yellowish.

Distribution: Canary Islands: known only from Tenerife.

Biology: Unknown.

Mycomya magnifica n. sp.
Figs. 199—202, key p. 37.

Type locality: Quebec, Old Chelsea (Canada).

Type: Holotype (studied): Old Chelsea, Que. 1.X. 1963 J. R. Vockeroth (m CNC).

Material examined: Canada: Que., Old Chelsea, 1.X. 1963, 8.VI. 1964, J. R. Vockeroth (holotype & 1 m CNC); Que., Hull, 3.VIII. 1965, Malaise trap (1 m CNC); N. S., Cape Breton I., Port Hastings, 29.VIII. 1937 (1 m labelled "Holotype Cornell U. No. 1471 *Mycomyia magnifica* Fisher Jan. 1942" CORN). — USA: Wis., Washburn Co., T39N R12W B32, 26.VI. 1952, 22.VIII. 1953, R. H. Jones (2 mm WISC); Mich., Gogebic Co., 15.VI. 1960, R. & K. Dreisbach (1 m MICH); N. C., Highlands, 3800′, 25.VI. 1957, J. R. Vockeroth (1 m CNC); Colo., Estes Park, 7500′, 20.VII. 1961, C. H. Mann (1 m CNC).

Remarks: Fisher never described her *"Mycomyia magnifica"*.

Description:

Head. Palp, other mouthparts and face yellow, posterior parts brownish. Antenna brownish, basal segments yellow. 1st flagellomere 2—2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow to yellowish, with 3 brown longitudinal stripes, middle stripe sometimes with narrow yellow median band. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part sometimes light brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part sometimes light brownish. Mediotergite yellowish, with 2—4 setae.

Legs. Coxae yellow, coxa 3 sometimes with brown spot on outer surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering almost apical half of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.98—1.07, bt2:t2 = 0.75—0.85, bt3:t3 = 0.60—0.70.

Wing. Wing length 4.8—6.1 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 6—15 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.50—0.70, 0.61—0.83. Cu ratios: 0.80—0.97, 1.27—1.46. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely light brownish or tergites 1—5 brownish to brown with yellow to yellowish posterior and lateral margins, 6—7 brownish to brown. Sternites 1—6 yellow, 7 light brownish.

Hypopygium. Figs. 199—202, yellowish. Tergite 9 with 2 broad sabre-like spines and 5—6 dark cones on both sides. Sternal synsclerite with 2—3 setae on both sides. Sternal submedian appendage long, apically tapered. Paramere long, bending medially, apically wider. Gonostylus apically long, narrow, with 4 apical teeth.

Female. Unknown.

Distribution: Nearctic. Canada: Quebec, Nova Scotia. USA: Wisconsin, Michigan, North Carolina, Colorado.

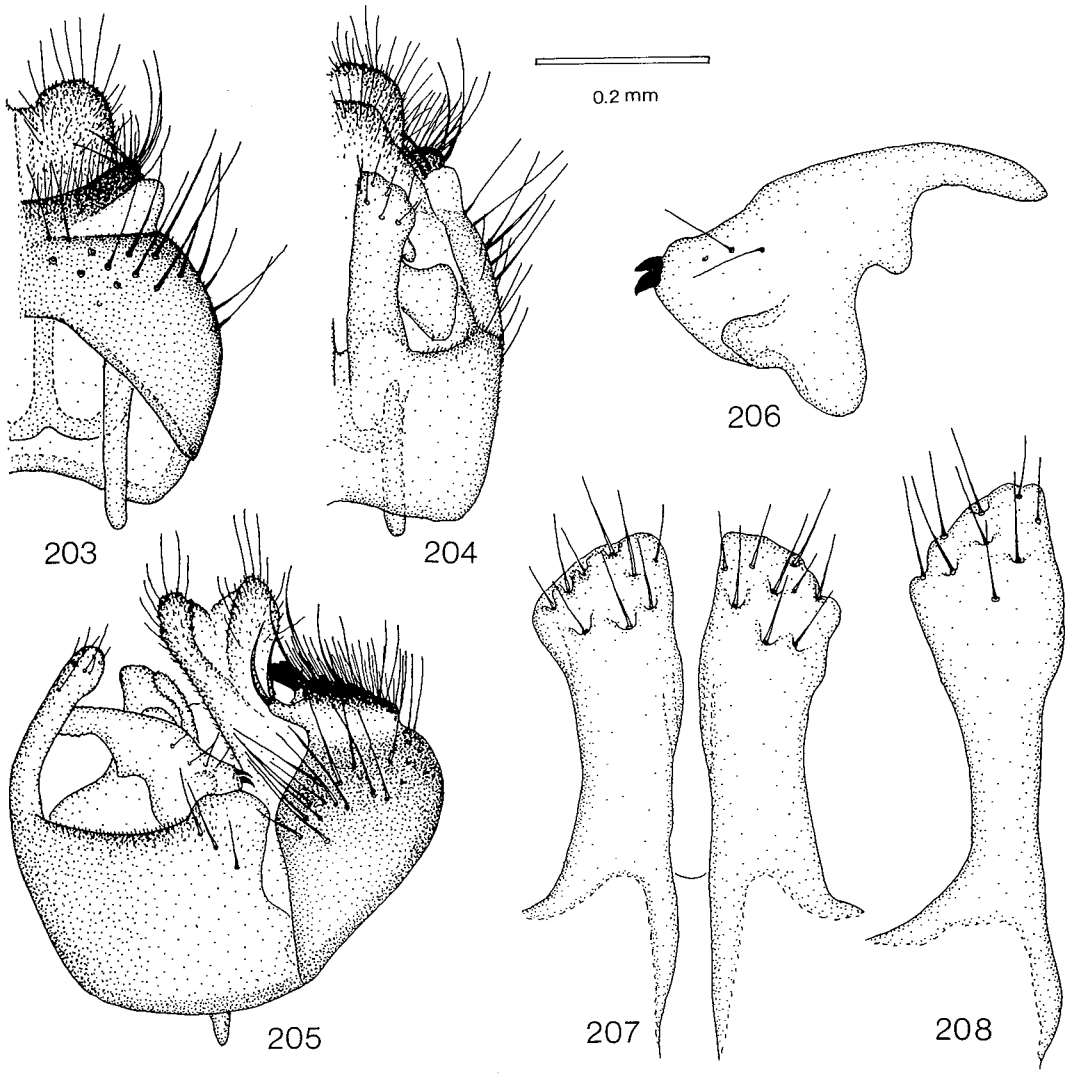
Biology: Unknown. One specimen collected with a Malaise trap.

Mycomya shewelli n. sp.
Figs. 203—208, key p. 37.

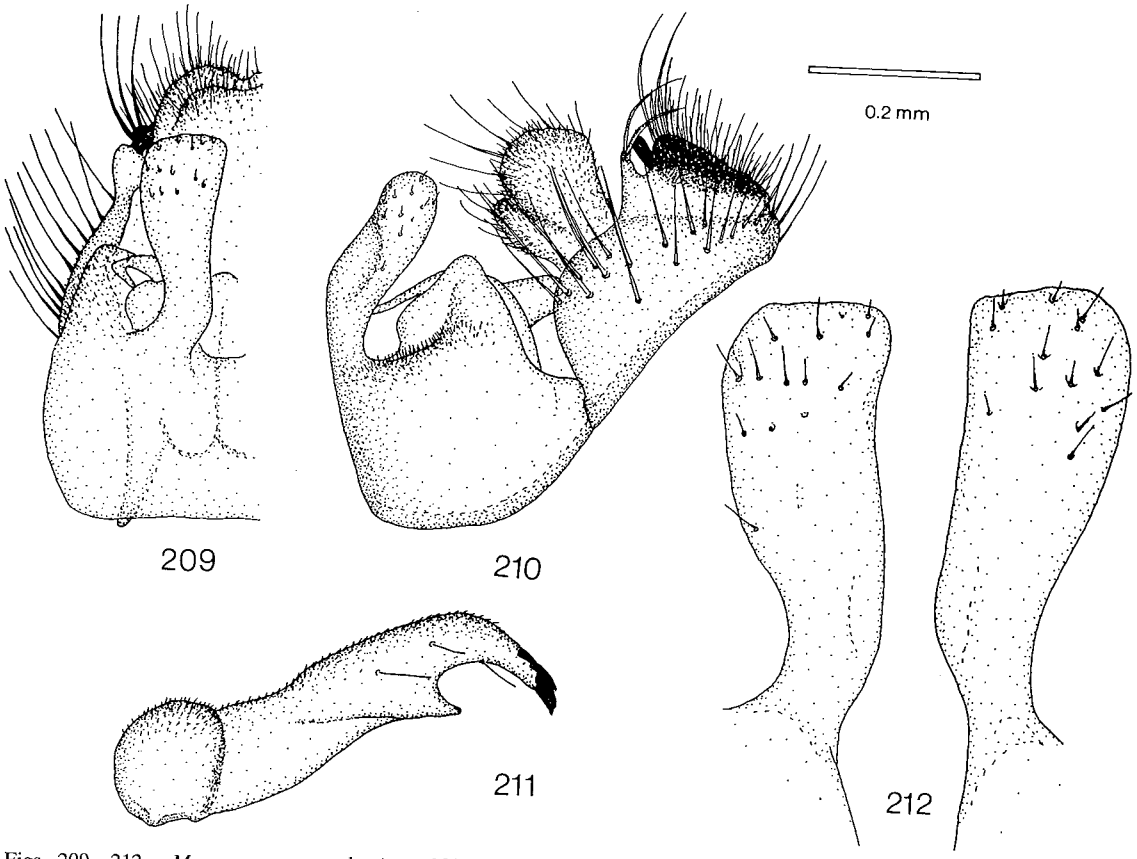
Type locality: North West Territories, Hyndman Lake (Canada).

Type: Holotype (studied): Hyndman L., N.W.T. 68°15′N. 131°03′W. 1.VIII. 1969 G. E. Shewell (m CNC).

Material examined: Canada: N. W. T., Hyndman L. 68°15′N, 131°03′W, 1. VIII. 1969, G. E. Shewell (holotype CNC); Man., Fort Churchill, 1.VIII. 1952, J.



Figs. 203—208. *Mycomya shewelli.* — 203: male hypopygium, tergal view. — 204: hypopygium, sternal view. —205: hypopygium, lateral view. — 206: gonostylus. — 207—208: sternal submedian appendages. Scale 0.2 mm for Figs. 203—205, Figs. 206—208 2 x enlarged.



Figs. 209—212. *Mycomya ostensackeni.* — 209: male hypopygium, sternal view. — 210: hypopygium, lateral view. — 211: gonostylus. — 212: sternal submedian appendages. Scale 0.2 mm for Figs. 209—210, Figs. 211—212 2 x enlarged.

G. Chillcott (2 mm CNC); same data, 5.VIII. 1952 (1 m CNC); same data, 17.VIII. 1952 (1 m 2 ff CNC). — USA: Mich., Roscommon Co., 22.VI. 1958, R. & K. Dreisbach (1 m MICH).

Remarks: In addition, a female from Ontario, Ottawa, Mer Bleue, 25.VI. 1964, J. R. Vockeroth (CNC), may belong to this species.

Description:

Head. Palp and other mouthparts yellowish, face brownish, posterior parts brown. Antenna brownish to brown. 1st flagellomere about 2.5, 2nd less than twice as long as wide.

Thorax. Pronotum yellowish to light brownish, with 4—6 longer setae. Mesoscutum entirely brownish to brown, with 3 dark brown to blackish longitudinal stripes, middle stripe sometimes with narrow yellow medial band. Mesanepisternum brownish to brown. Mesokatepisternum brownish, ventral half brown. Scutellum yellow to brownish, with 4 long setae. Laterotergite brownish, ventral part brown. Mediotergite brown, with 2 setae.

Legs. Coxae yellow, coxa 3 with brownish spot on outer surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with patch of very short thin setae covering apical third of inner surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.88—1.00, bt2:t2 = 0.70—0.80, bt3:t3 = 0.58—0.65.

Wing. Wing length 4.4—5.8 mm. Sc ending in R1 proximally to middle of small cell, Sc1 sometimes broken, usually entirely missing. Apical part of Sc bearing 9—16 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.42—0.53, 0.50—0.64. Cu ratios: 0.75—1.00, 1.00—1.37. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown, or sometimes yellow with very wide brown dorsomedial stripe or brown anteromedial spots.

Hypopygium. Figs. 203—208, brownish to yellowish. Tergite 9 with 2 broad sabre-like spines and 4 dark cones on both sides. Sternal synsclerite with 3 setae on both sides. Sternal submedian appendage long, narrow, with some small setae. Gonostylus with very long lobe projecting sternally, and with 2 apical teeth.

(?) Female. Wing length 4.9—5.0 mm. Thorax distinctly lighter than in male. Pronotum yellow. Mesoscutum yellowish to yellow, with 3 brown longitudinal stripes. Mesanepisternum brown. Mesokatepisternum

yellow, ventral half brown. Scutellum yellow. Laterotergite yellow, with ventral part brown. Mediotergite yellow, with lateral and posterior parts brown. Abdomen yellowish to light brownish with 3 rows of tergal spots. Leg ratios: bt1:t1 = 0.86—0.88, bt2:t2 = 0.73—0.80, bt3:t3 = 0.62—0.63. Terminalia yellow.

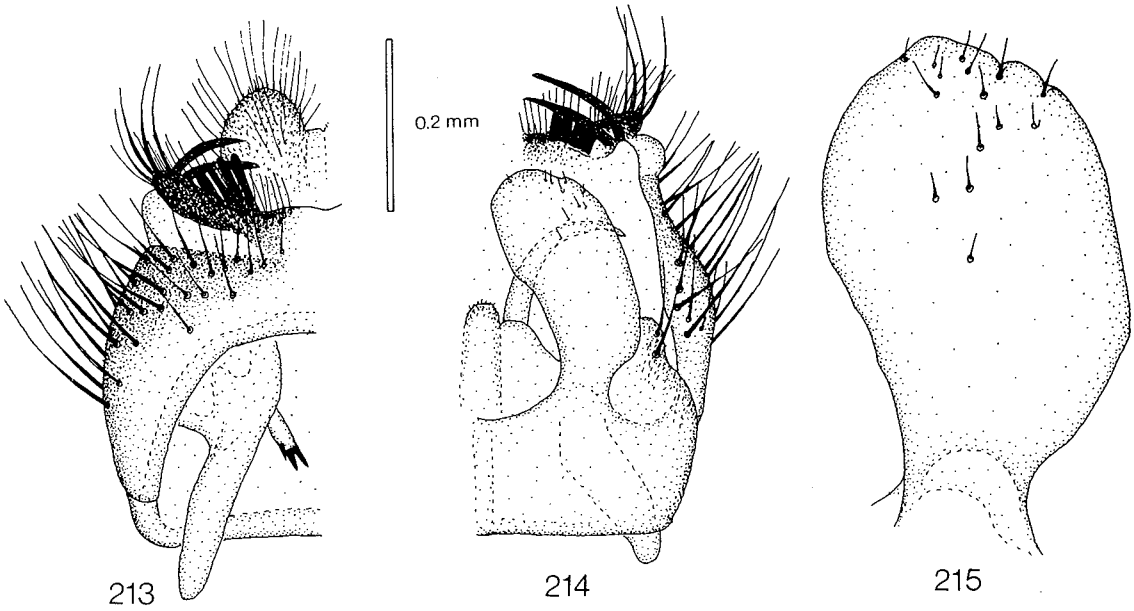
Distribution: Nearctic. Canada: North West Territories, Manitoba. USA: Michigan.
Biology: Unknown.

Mycomya ostensackeni n. sp.
Figs. 209—212, key p. 38.

Type locality: Manitoba, Ninette (Canada).
Type: Holotype (studied): Ninette, Manitoba 5-VII-1958 J. G. Chillcott. Moist ash woods (m CNC).
Material examined: Alaska: Matanuska, 17.VIII. 1945, Rotary trap, J. C. Chamberlin (1 m USNM). — Canada: Manitoba, Ninette, moist ash woods, 5.VIII. 1958, J. G. Chillcott (holotype CNC); Ont., Marmora, 5.IX., in Malaise trap, J. F. McAlpine (1 m CNC); Que., Duncan Lake, Nr. Rupert, 1.VIII. 1970, J. F. McAlpine (1 m CNC); Que., Knowlton Ldg., 19.VII. 1968, J. R. Vockeroth (1 m CNC); Que., Lac Phillipe, 45°37'N, 76°W, 7.VII. 1968, J. R. Vockeroth (1 m CNC); Canada, Bélanger, Osten Sacken Coll. 131 (1 m MCZ). — USA: Minn., Itasca St. Pk, 1 mi. E. of Biol. Sta., 22.VII. 1963, D. L. Deonier (1 m ISU).

Description:
Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd less than twice as long as wide.
Thorax. Pronotum yellow, with about 5 longer setae. Mesoscutum yellow, slightly shining, with brown to dark brown longitudinal stripes, middle stripe with indistinct yellowish medial band. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish. Scutellum yellow, with 4 long setae. Laterotergite yellow to yellowish. Mediotergite yellow to light brownish, with 2—3 setae.
Legs. Coxae yellow, coxa 3 with light brownish to brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 1.00—1.08, bt2:t2 = 0.74—0.78, bt3:t3 = 0.57—0.63.
Wing. Wing length 4.6—5.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near or proximally to middle of small cell. Apical part of Sc bearing 6—12 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.51—0.74, 0.67—0.89. Cu ratios: 0.66—0.92, 0.70—1.40. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Tergites 1—5 brown with wide yellow posterior and lateral margins, or yellow with anterior dorsomedial brown spots, 6—7 brown. Sternites 1—5 yellow or anteriorly light brownish, 6—7 brownish to brown.
Hypopygium. Figs. 209—212, yellow. Tergite 9 with 2, seldom 3, sabre-like spines and 4—7 dark cones on both sides. Sternal synsclerite without long setae on sides. Sternal submedian appendages long, comparatively wide, proximally narrow, with some small setulae. Paramere bending sternally. Gonostylus with pointed lobe and 3—4 apical teeth.
Female. Unknown.

Distribution: Nearctic. Alaska. Canada: Manitoba, Ontario, Quebec. USA: Minnesota.
Biology: Specimens have been caught with rotary and Malaise traps. The collecting biotope given for the holotype is moist ash woods.



Figs. 213—215. *Mycomya matilei*. — 213: male hypopygium, tergal view. — 214: hypopygium, sternal view. — 215: sternal submedian appendage. Scale 0.2 mm for Figs. 213—214, Fig. 215 2 x enlarged.

Mycomya matilei n. sp.
Figs. 213—215, key p. 38.

Type locality: Chaos de Monpellier, Le Vieux (France).

Type: Holotype (studied): Chaos de Monpellier Le Vieux, (12), 15-IX-1977 L. Matile rec. (m MNHN).

Material examined: France: Gorges du Tarn, (48), Lesvignes, alt. 400 m, 14.IX. 1977, L. Matile (1 m MZH); Chaos de Monpellier, Le Vieux, (12), 15.IX. 1977, L. Matile (holotype MNHN); Forêt Domaniale de Roquet Escut (34) (L'Esclandorgue), alt. 750 m, 18.IX. 1977, L. Matile (1 m MNHN).

Description:

Head. Palp and mouthparts yellow, face brownish, posterior parts dark brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2—2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with about 5 longer setae. Mesoscutum shining yellow, posteriorly yellowish to brownish, with 3 wide dark brown longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half light brownish. Scutellum yellow, with 4 long setae. Laterotergite entirely yellow or ventral part light brownish. Mediotergite yellow, lateral and posterior parts light brownish to brownish, with 2 small setae.

Legs. Coxae yellow, coxa 3 with or without light brownish to brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering almost apical half of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 1.04—1.05, bt2:t2 = 0.68—0.74, bt3:t3 = 0.57—0.62.

Wing. Wing length 5.3—5.8 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly distally to middle of small cell. Apical part of Sc bearing 9—16 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.53—0.55, 0.67—0.68. Cu ratios: 0.71—0.84, 1.07—1.21. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with wide yellow posterior margins, about 1/3—1/2 of tergites, 6—7 brown. Sternites 1—5 yellow, anteriorly light brownish, 6—7 brown.

Hypopygium. Figs. 213—215, tergite 9 brownish to brown, sternal synsclerite yellow. Tergite 9 with 2 wide sabre-like spines and 5 dark cones on both sides. Sternal synsclerite with 2—3 setae on both sides. Sternal submedian appendage very large, but proximally very narrow, with small setae. Paramere long curved. Gonostylus with 3 apical teeth.

Female. Unknown.

Distribution: Western Palaearctic. France.
Biology: Unknown.

Mycomya mendax Johannsen, 1910
Figs. 216—229, key p. 38.

Mycomya mendax Johannsen, 1910. Johannsen 1910:182; Hoyt 1952:75, 76, 81, 84, 86, figs. 60B, 61B; Laffoon in Stone et al. 1965:221; Cole 1969:121.

Mycomyia mendax: Coher 1959:120.

Type locality: By present designation: Idaho, Juliaetta (USA). Originally also California, Marin Co., Muir Woods and British Columbia, Selkirk Mountains (in addition, var. a. from Idaho, Moscow and California, Marin Co., Muir Woods, and var. b. from California, Sierra Morena Mountains).

Type: Lectotype (studied) by present designation: Juliaetta. Idaho. O A Johannsen Lot 269 Sub Cornell U. ♂ Holotype *Mycomya mendax* Johannsen. Holotype Cornell U. No. 1978. (m CORN). The original description by Johannsen is based on this specimen.

Material examined: Canada: B. C., Kimberly, St. Mary's Lake, 2 VIII., C. Garrett (1 hypop. slide No. 2558 "*Mycomyia* abluda" USNM); B. C., Michel, 20.IX., C. Garrett (1 hypop. slide No. 2588 "*M.* abluda" USNM); B. C., Selkirk Mts., J. C. Bradley (paralectotype: 1 m O. A. Johannsen lot 272 CORN). — USA: Washington, 9 mi. NW Conconully, Salmon Mdws., 4500 ft., 5—7.VIII. 1975, Malaise with dry ice, W. J. Turner (1 m WASH); Idaho, Juliaetta (Aldrich) (lectotype, paralectotype: 1 f (taken in copula with lectotype) (CORN); Ida., Moscow Mts., 17—18.VI. 1969, 23—30.VI. 1969, 3—11. VII. 1969, 10—16.VII. 1969, Malaise trap, H. S. Telford (4 mm 2 ?ff WASH); Ore., Grant Co., Dixie Pass Forest Camp, 11.VII. 1953, Roth & Beer (1 ?f OREG).

Remarks: The following two specimens are females, in comparatively poor condition, and probably do not belong to this species: Calif., Marin Co., Muir Woods, J. C. Bradley (1 f "*M. mendax* var. a." O A Johannsen Lot 279 CORN); Cal., Sierra Morena Mts., 3.IV. 1906, (J. C. Bradley) (1 f "*M. mendax* var. b." O A Johannsen Lot 270 CORN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts brown. Antenna brownish, 3 basal segments yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

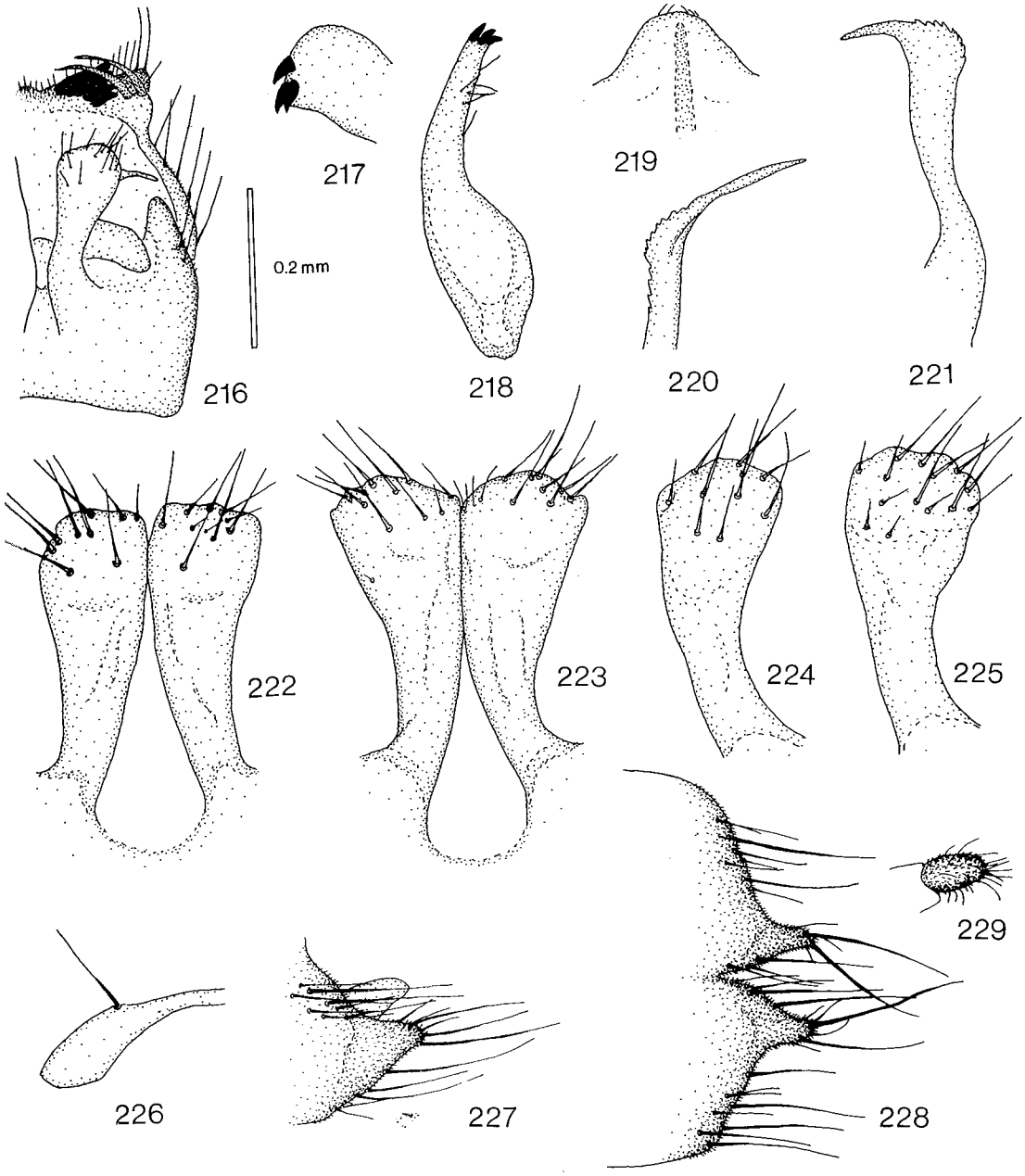
Thorax. Pronotum yellow, with 6—7 longer setae. Mesoscutum yellow, with 3 brown separate or fused longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow. Mediotergite light brownish, with 2 setae.

Legs. Coxae yellow, coxa 3 sometimes yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.94—1.00, bt2:t2 = 0.70—0.76, bt3:t3 = 0.56—0.67.

Wing. Wing length 4.0—5.4 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 7—19 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork below or slightly proximal to M fork. M ratios: 0.53—0.69, 0.64—0.80. Cu ratios: 0.72—0.80, 1.00—1.30. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow posterior and lateral margins, 6—7 brown. Sternites paler than tergites.

Hypopygium. Figs. 216—226, yellowish. Tergite 9 with 2 sabre-like spines and 4—5 dark cones on both sides.

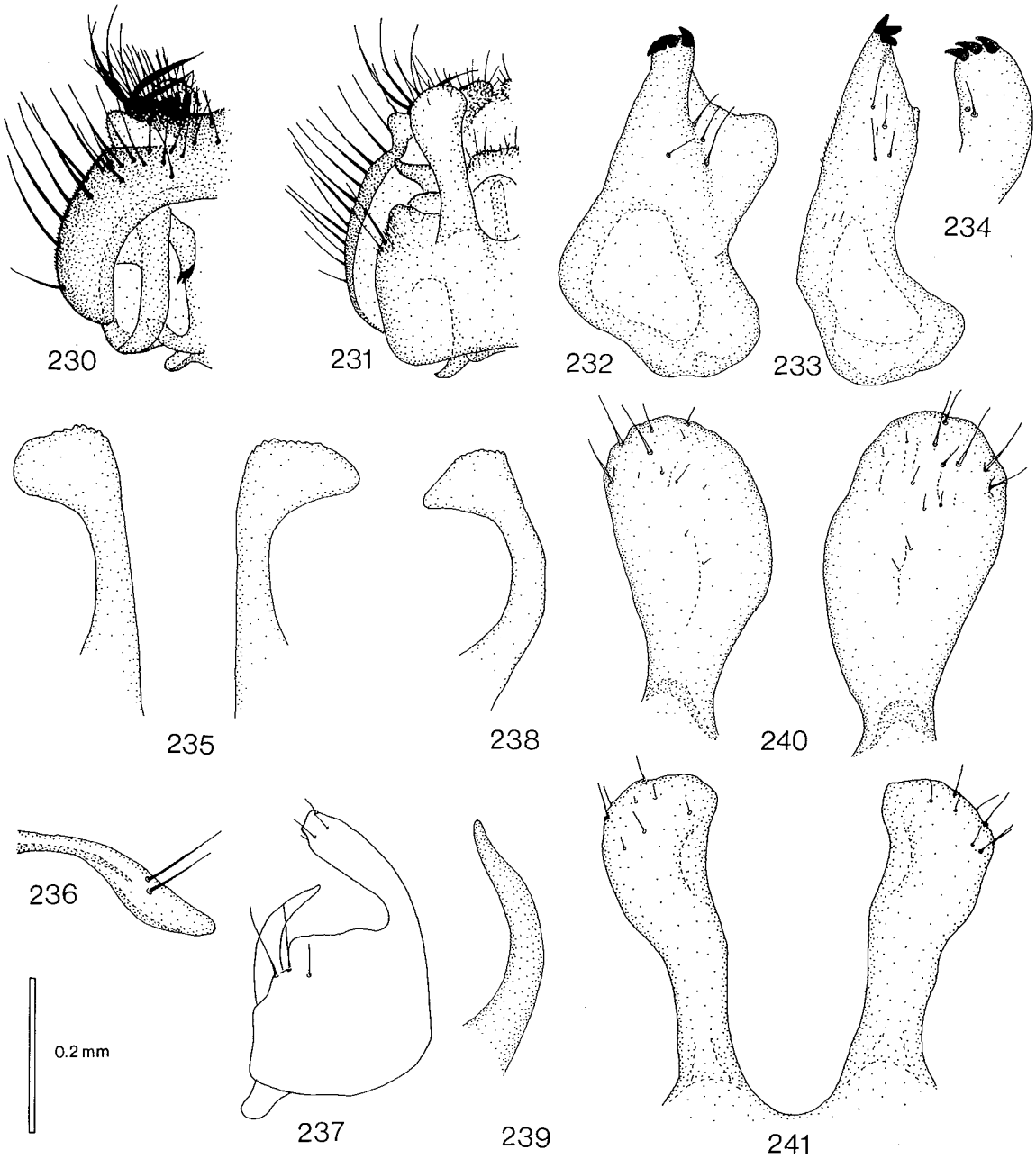


Figs. 216—229. *Mycomya mendax*. — 216: male hypopygium, sternal view. — 217: apex of gonostylus. — 218: gonostylus. — 219: aedeagus. — 220—221: parameres. — 222—225: sternal submedian appendages. — 226: tergite 8. — 227: hypogynal valve of female terminalia, lateral view. — 228: hypogynal valves, sternal view. — 229: apical segment of cercus, sternal view. Scale 0.2 mm for Figs 216 and 226—229, Figs. 217—225 2 x enlarged.

Sternal synsclerite with 2—3 setae on both sides. Sternal submedian appendage long, narrow, bending slightly towards each other, apex blunt, with some small setae. Paramere long, curved. Gonostylus with 3, occasionally 2, teeth.

Female. Wing length 5.1—?6.3 mm. Thorax yellow to yellowish with 3 indistinct light brownish stripes on mesoscutum. Abdominal tergites brown with very wide yellow posterior and lateral margins. Leg ratios: bt1:t1 = 0.93—0.97, bt2:t2 = 0.75, bt3:t3 = 0.63. Terminalia as in Figs. 227—228, yellow.

Remarks. For the morphology of head, see Hoyt (1952).



Figs. 230—241. *Mycomya karelica.* — 230: male hypopygium, tergal view. —231: hypopygium, sternal view. — 232—234: gonostyli. — 235: parameres, sternal view. — 236: tergite 8. — 237: sternal synsclerite, lateral view. — 238—239: parameres, lateral view (238: typical; 239: aberrant). — 240—241: sternal submedian appendages (240: typical; 241: aberrant). Scale 0.2 mm for Figs. 230—231 and 236—237, Figs. 232—235 and 238—241 2 x enlarged.

Distribution: Western Nearctic. Canada: British Columbia. USA: Washington, Idaho, ? Oregon (female).

Biology: Some specimens have been collected with a Malaise trap.

Mycomya karelica Väisänen, 1979
Figs. 230—241, key p. 38.

Mycomya karelica Väisänen, 1979. Väisänen 1979b:114, in Hackman 1980:31; Väisänen 1982b:39.

Type locality: Pielisjärvi, Koli (Finland).

Type: Holotype (studied): Pielisjärvi, Koli 5.7. 1965, R. Tuomikoski. Holotypus *Mycomya karelica* Väisänen ♂. Mus. Zool. H:fors Spec. typ. No 14334. (m MZH).

Material examined: Poland: Bialowieza Park Narod., kw. 283, grond niski, 6.VI. 1964, W. Mikołajczyk (2 mm WARS). — Finland: *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (holotype, 2 mm paratypes MZH); *Ok:* Sotkamo, Aarreniemi, 14—15.VII. 1965, A. V. V. Mikkola (1 m MZH); same locality, 17.VII. 1967, Mihályi (1 m TMB).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts brownish to brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd about twice as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, slightly shining, posteriorly darker, with 3 fused wide brown longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellow to light brownish, with 4 long setae. Laterotergite yellow with light brownish ventral half. Mediotergite brownish, with 2—3 setae.

Legs. Coxae yellow, coxa 3 sometimes with indistinct light brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.95—1.09, bt2:t2 = 0.74—0.78, bt3:t3 = 0.57—0.61.

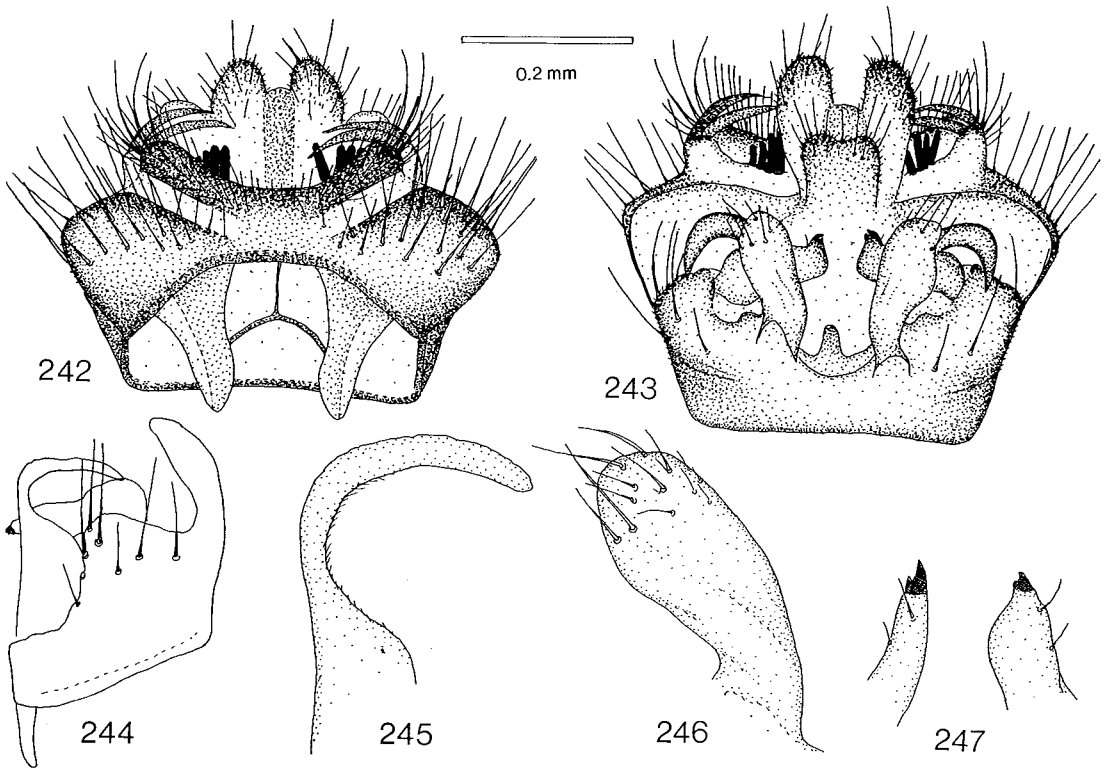
Wing. Wing length 4.1—5.1 mm, holotype 4.1 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 slightly proximally to or near middle of small cell. Apical part of Sc bearing 7—11 macrotrichia. Small cell 2—3 times as long as wide. Cu fork below M fork. M ratios: 0.55—0.71, 0.72—1.04. Cu ratios: 0.67—0.91, 0.80—1.25. Macrotrichia: M petiole: 0—1; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown, with yellow posterior thirds, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

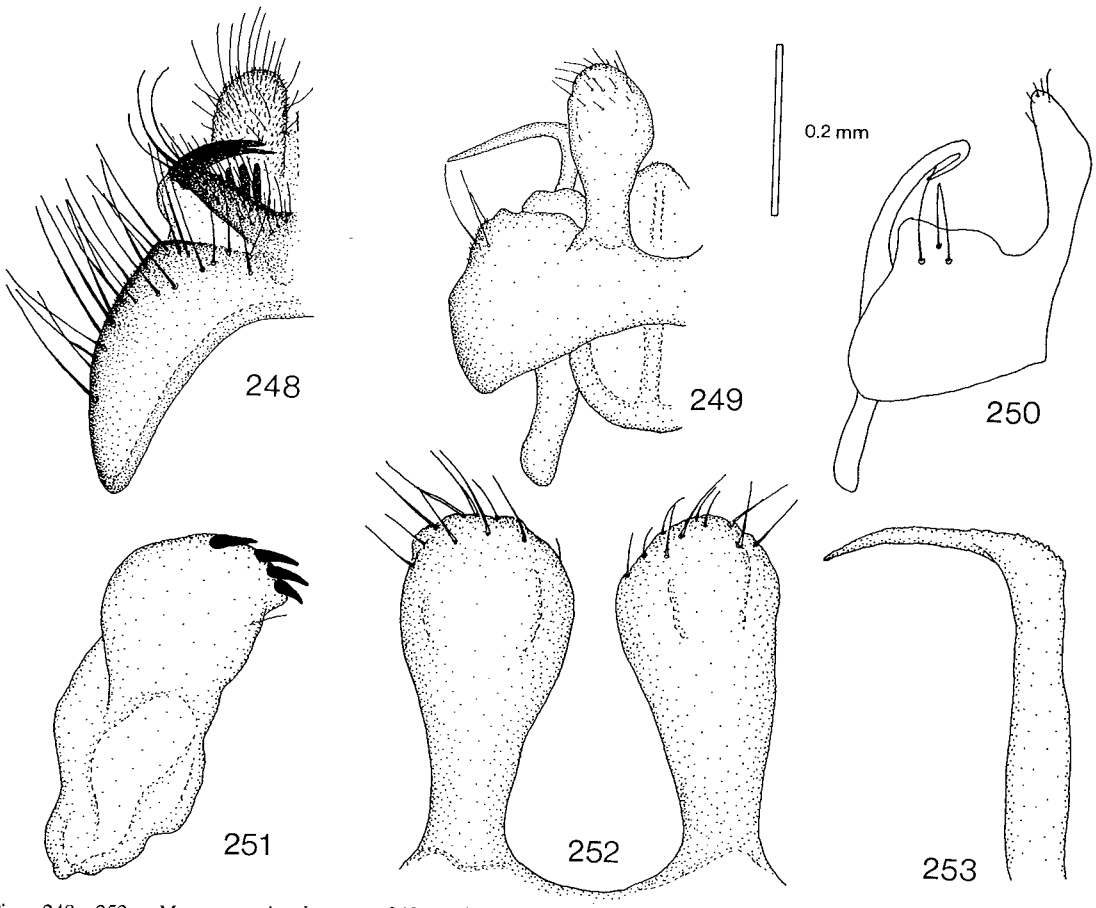
Hypopygium. Figs. 230—241, sternal synsclerite yellow, tergite 9 brownish. Tergite 9 with 2 sabre-like spines and 4—5 dark cones on both sides. Sternal synsclerite with 2—4 lateral setae on both sides. Sternal submedian appendage comparatively long, wide or narrow, basally tapered. Paramere long with widened apex, or short and broad. Gonostylus with 3 apical teeth.

Female. Unknown.

Remarks: This species has two types of male hypopygium. Type 1 (typical): Sternal submedian appendage comparatively long and wide, and paramere long, apically wide. Type 2: Sternal submedian appendage



Figs. 242—247. *Mycomya kuusamoensis.* — 242: male hypopygium, tergal view. — 243: hypopygium, sternal view. — 244: sternal synsclerite, lateral view. — 245: paramere, lateral view. — 246: sternal submedian appendage. — 247: apex of gonostylus. Scale 0.2 mm for Figs. 242—244, Figs. 245—247 2 x enlarged.



Figs. 248—253. *Mycomya simulans.* — 248: male hypopygium, tergite 9, tergal view — 249: sternal synsclerite, sternal view. — 250: sternal synsclerite, lateral view. — 251: gonostylus. — 252: sternal submedian appendages. — 253: paramere. Scale 0.2 mm for Figs. 248—250, Figs. 251—253 2 x enlarged.

comparatively long, narrow, basally tapered, and paramere short and broad. Type 1 occurred in all the Finnish specimens except those from Sotkamo, and in one of the two Polish specimens (No. 1850). In spite of these hypopygial differences between the specimens I consider them conspecific.

Mycomya karelica is closely related to the Nearctic *M. mendax* Johannsen.

Distribution: Western Palaearctic. Poland, Finland.
Biology: Unknown.

Mycomya kuusamoensis Väisänen, 1979
Figs. 242—247, key p. 38.

Mycomya kuusamoensis Väisänen, 1979. Väisänen 1979b:114, in Hackman 1980:31; Väisänen 1982b:39.

Type locality: Kuusamo, Iivaara (Finland).

Type: Holotype (studied): Kuusamo, Iivaara, 20.8. 1964, R. Tuomikoski & K. Mikkola. Holotypus *Mycomya kuusamoensis* Väisänen ♂. Mus. Zool. H:fors Spec. typ. No. 14330 (m MZH).

Material examined: Finland: *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (holotype, 2 mm paratypes MZH).

Description:

Head. Palp and other mouthparts yellowish, face brown, posterior parts dark brown. Antenna brown, basal segments yellowish. 1st flagellomere 3.5 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellowish to brownish, with about 5 longer setae. Mesoscutum brown, with 3 blackish brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish, ventral half brown. Scutellum brownish, with 4 long setae. Laterotergite brownish, ventral part brown. Mediotergite brownish, lateral and posterior parts brown, with 2 small setae.

Legs. Coxae yellow, coxa 2 slightly brownish, coxa 3 with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 1.03, bt2:t2 = 0.81, bt3:t3 = 0.67.

Wing. Wing length 4.8—5.1 mm. Wing hyaline. Sc ending in C distally to middle of small cell or Sc1 api-

cally broken, Sc2 ending in R1 slightly distally to middle of small cell. Apical part of Sc bearing no macrotrichia. Small cell about 3.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.56, 0.74. Cu ratios: 0.69, 0.86. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Brownish to brown, without distinct markings.

Hypopygium. Figs. 242—247, brownish. Tergite 9 with 2 wide sabre-like spines and 4 dark cones on both sides. Sternal synsclerite with some setae on both sides. Sternal submedian appendage proximally tapered, wide, with some small setae. Paramere long, curved. Gonostylus, with 3 teeth very close to each other.

Female. Unknown.

Remarks: *M. kuusamoensis* is very closely related to *M. denmax* Väisänen and *M. simulans* n. sp. Features differentiating it from these species are the shape of the sternal submedian appendages and the absence of macrotrichia from the subcosta.

Distribution: Western Palaearctic. Finland: Kuusamo.
Biology: Unknown.

Mycomya simulans n. sp.
Figs. 248—253, key p. 38.

Type locality: Irkutsk oblasti, Listvyanka (East Siberia of USSR).

Type: Holotype (studied): Listvyanka, Irkut. obl., berez. les Gorodkov 15.VII. 962 [In Russian]. *M. ornata* det. A. Zaitzev 79. (m LEN).

Material examined: USSR: Holotype (LEN).

Description:

Head. Palp and other mouthparts yellowish, face brownish, posterior parts brown. Antenna brown, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with about 5 longer setae. Mesoscutum brown, with 3 indistinct brown fused longitudinal stripes, anterolateral corners yellow. Mesanepisternum light brownish. Mesokatepisternum yellowish, ventral half brown. Scutellum brownish, with 4 long setae. Laterotergite brown. Mediotergite brown, with 2 setae.

Legs. Coxae yellow, coxa 3 with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.77, bt3:t3 = 0.65.

Wing. Wing length 5.4 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 16 macrotrichia. Small cell about twice as long as wide. Cu fork slightly distal to M fork. M ratios: 0.69, 0.86. Cu ratios: 0.92, 1.35. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior and lateral margins yellowish, markings not very distinct, 6—7 brown. Sternites paler than tergites.

Hypopygium. Figs. 248—253, brown. Tergite 9 with 2 wide sabre-like spines and 4 dark cones on both sides. Sternal synsclerite with 2—3 setae on both sides. Sternal submedian appendage apically very wide, rounded, proximally tapered. Paramere long, slender, bending sternally. Gonostylus broad, with 3—4 apical teeth.

Female. Unknown.

Distribution: Eastern Palaearctic. USSR: East Siberia.
Biology: Unknown.

Mycomya denmax Väisänen, 1979
Figs. 254—261, key p. 38.

Mycomya denmax Väisänen, 1979. Väisänen 1979b:114, in Hackman 1980:31; Väisänen 1982b:38.

Sciophila apicalis Dziedz. (nec Winn.): Lundström 1909:9, 1912a:9.

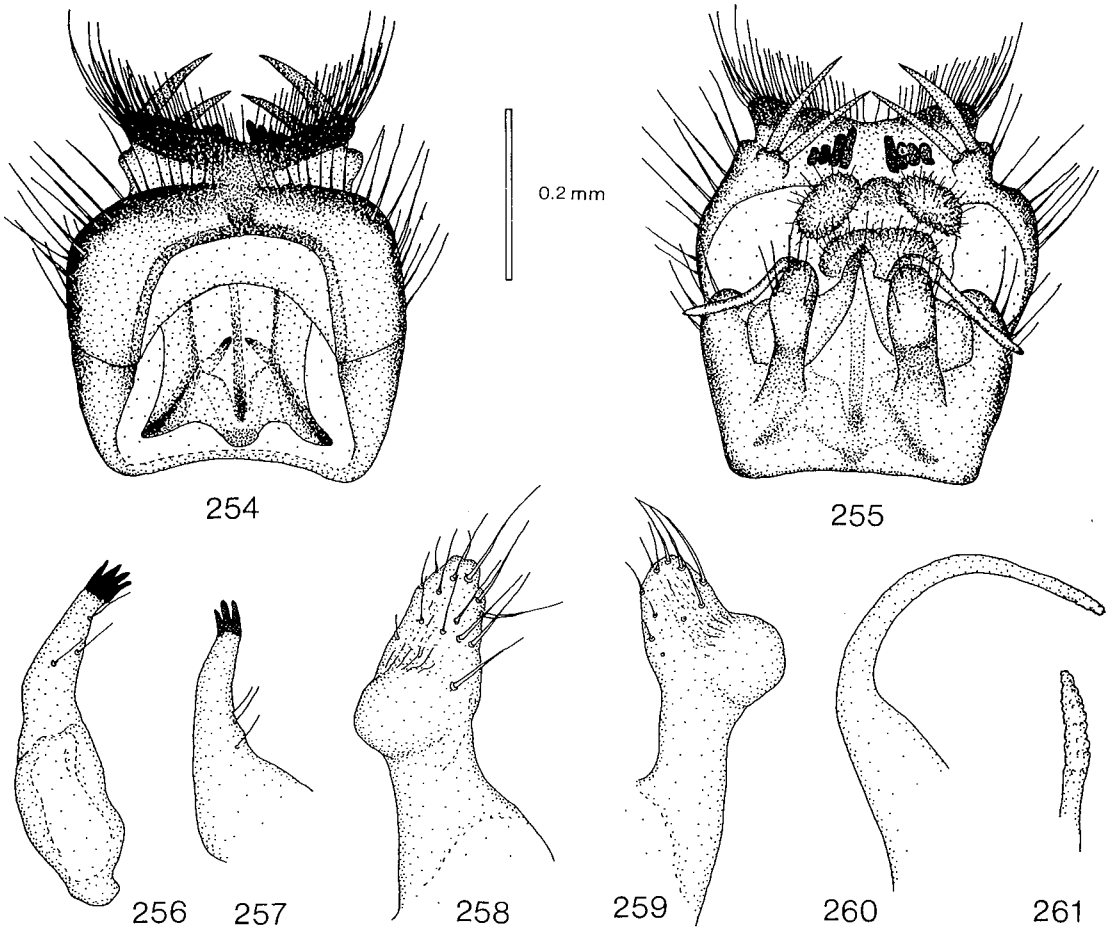
(p. p.) *Sciophila ornata:* Lundström 1907:9 (p. p. = *M. ornata* (Meigen)).

(? p. p.) *Mycomyia ornata:* Plassmann 1979:375 (p. p. = *M. lambi* Edwards, ? *Mycomya* sp.).

Type locality: Bromarv, Framnäs (Finland).

Type: Holotype (studied): Bromarv, Framnäs 24.VII. 1966 K. Mikkola. Holotypus *Mycomya denmax* Väisänen ♂. Mus. Zool. H:fors Spec. typ. No. 14329. (m MZH).

Material examined: France: Corse, Forêt de Pineta, Zipitoli, 19.VI. 1972, L. Matile (1 m MNHN). — Bulgaria: H. B. voda, 26.VI. 1982, D. Bechev (1 m coll. Bechev). — Czechoslovakia: Boh., Horské Kvilda, 26.VII. 1961, Laštovka (1 m VUPP); Křkonose, Černy Dôl., 1000 m/m, 9.VIII. 1966, P. Laštovka (1 m VUPP). — Sweden: Messaure, 22.IX. 1969, W. Tobias (1 m No. 10356 *"M. ornata"* SENCK); Messaure, Kaltisjokk, 1969, W. Tobias (3 mm No. 4574, 4535, 4574 *"M. ornata"* SENCK); Messaure, 25.IX. 1969, W. Tobias (1 m No. 10269 + K269 *"M. tumida"* SENCK). — Finland: *Al:* Sund, oak hill, 11.VII. 1942, R. Frey (1 m MZH); *Ab:* Vihti, Vihtijärvi, 24.VIII. 1962, 15.VIII. 1963, R. Tuomikoski (2 mm paratypes MZH); Bromarv, Framnäs, 24.VII. 1966, K. Mikkola (holotype MZH); Karislojo (Karjalohja), Suurniemi, 28—29.VIII. 1909, R. Forsius (1 m MZH); *N:* Tammisaari, Gullö, 16—28.IX. 1967, K. Mikkola (1 m paratype MZH); Helsinki, Botanical Garden, 2.VIII. 1942, R. Frey (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, K. Mikkola (1 m paratype MZH); same data, 16.IX. 1965 (1 m paratype); *Kb:* Ilomantsi, 20.VII. 1865, F. W. Wolstedt (1 m MZH); *Ok:* Kuhmo, 29.VI. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); *LkW:* Pallastunturi, NL 68°, 28.VII. 1967, Mihályi (1 m TMB). — USSR: Leningr., Luzhsk., Tolmachevo, 5.VII. 1935, 11.VIII. 1936, 20.VI. 1938, Stackelberg (4 mm LEN); Kol's., Khib. gory bas. ozer Vyd-yavr, 30.VII. 1937, Fridolin (1 m LEN); Tuva Aut. Rep., Ishtii-Hem, 14.VIII. 1973, Krivosheina (1 m lot 138 MOSC); Buryatiya, Naushki, 24.VIII. 1962, Gorodkov (1 ?m LEN). — USA: N. H., Mt. Washington, 4000 ft., Aug. 16 (1 m PU); same locality, 3200′, auto road, 14.VIII. 1958, J. R. Vockeroth (1 m CNC).



Figs. 254—261. *Mycomya denmax.* — 254: male hypopygium, tergal view. — 255: hypopygium, sternal view. — 256—257: gonostyli. — 258—259: sternal submedian appendages. — 260: paramere. — 261: apex of paramere. Scale 0.2 mm for Figs. 254—255, Figs. 256—261 2 x enlarged.

Description:

Head. Palp and other mouthparts yellow, face yellow to light brownish, posterior parts brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow to light brownish, with 5—6 longer setae. Mesoscutum yellow to light brownish, with 3 more or less distinct brown longitudinal stripes, middle stripe sometimes with narrow, yellow medial line. Mesanepisternum yellowish, seldom brown. Mesokatepisternum yellow to yellowish, ventral half brownish to brown, sometimes entirely brown. Scutellum yellow to light brown, with 4 long setae. Laterotergite yellow to light brownish, ventral part brown. Mediotergite yellowish to brownish, lateral and posterior parts brown, with 2—3 setae. Usually markings very distinct, more seldom thorax brownish to brown with indistinct markings.

Legs. Coxae yellow, coxa 3 with or without brown spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.91—1.07, bt2:t2 = 0.72—0.82, bt3:t3 = 0.60—0.63.

Wing. Wing lengt 4.3—6.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 2—21 macrotrichia. Small cell 2—2.5 times as long as wide. Cu fork slightly proximal — distal to M fork. M ratios: 0.54—0.70, 0.68—0.96. Cu ratios: 0.78—0.90, 1.03—1.35. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, usually with posterior and lateral margins broadly and distinctly yellow, 6—7 brown. Sternites 1—5 yellow to light brownish, 6—7 brown.

Hypopygium. Figs. 254—261, sternal synsclerite yellowish, tergite 9 brown. Tergite 9 with 2 wide sabre-like spines and 4—5 dark cones on both sides. Sternal synsclerite with 2—5 setae on both sides. Sternal submedian

appendages comparatively long, with rounded and thickened middle protuberance, and with some small setae. Paramere long, strongly curved sternally. Gonostylus with 3—4 teeth.

Female. Unknown.

Pupa. Length 5.2 mm, light brownish.

Remarks: The most useful diagnostic character for identifying this species is the middle protuberance of the sternal submedian appendage of the male hypopygium. *M. denmax* is very closely related to *M. kuusamoensis* Väisänen and *M. simulans* n. sp.

Distribution: Holarctic. Corse, Bulgaria, Czechoslovakia, Finland. USSR: Leningrad region, Kola peninsula, Tuva Autonomic Republic, Buryatia. USA: New Hampshire.

Biology: Unknown. In his date book R. Frey mentions oak hill as the collecting biotope for his specimen from Sund.

Mycomya pseudoapicalis Landrock, 1925

Figs. 262—268, key p. 38.

Mycomyia pseudoapicalis Landrock ("new name" for *Sciophila apicalis:* Dziedzicki). Landrock 1925b:181, 1926—1927:50.

Mycomya pseudoapicalis: Väisänen 1979b:114, in Hackman 1980:31; Väisänen 1982b:40.

(?) *Mycomyia pseudoapicalis:* Plassmann 1969:26; Ostroverchova & Stackelberg 1969:274; Ostroverchova 1971:94; Plassmann 1971b:61, 1972b:93.

(not) *Mycomyia pseudoapicalis:* Frey & Storå 1941:46 (= *M. denmax* Väisänen).

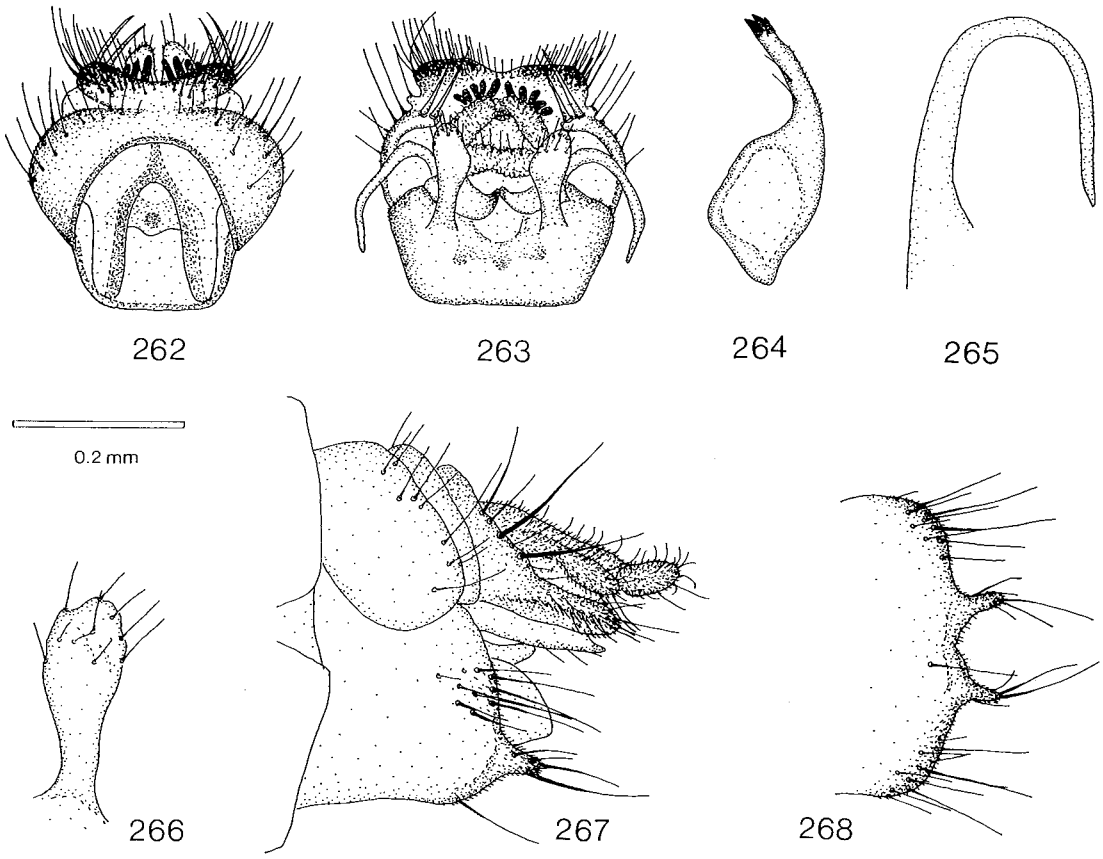
Sciophila apicalis: Dziedzicki 1885 (not Winnertz 1863): Tab. VI: Figs. 22—25.

(not) *Sciophila apicalis* Dziedz. (nec. Winn.): Lundström 1909:9, 1912a:9 (= *M. denmax* Väisänen).

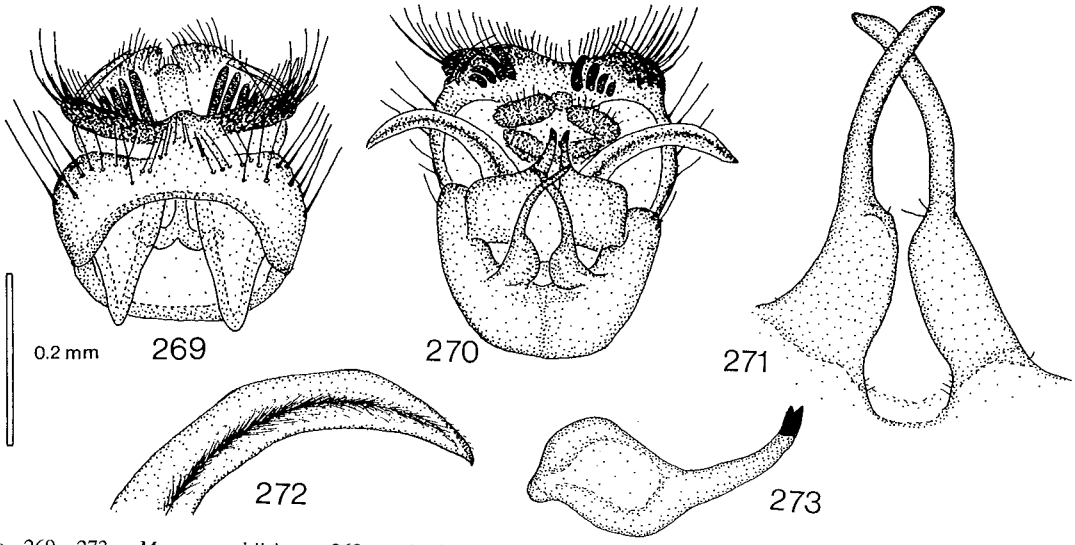
Type locality: Not stated (Eastern Europe).

Type: Holotype (studied): *Sciophila apicalis* Winn. Coll. Dziedzicki. (m MZH). Since Landrock's (1925) article refers to Dziedzicki's (1885) figures, and the present specimen comes from Dziedcicki's collection, is labelled *Sciophila apicalis* Winn., and agrees fully with Dziedzicki's figures, I consider it to be the holotype.

Material examined: Czechoslovakia: Mor., Jeseniky Mts., nr. Jesenik, Rejviz, 19.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH). — Eastern Europe: Holotype (MZH); Coll. Dziedzicki (1 m "*S. apicalis*"



Figs. 262—268. *Mycomya pseudoapicalis.* — 262: male hypopygium, tergal view. — 263: hypopygium, sternal view. — 264: gonostylus. — 265: paramere. — 266: sternal submedian appendage. — 267: female terminalia, lateral view. — 268: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 262—263 and 267—268, Figs. 264—266 2 x enlarged.



Figs. 269—273. *Mycomya hiisi.* — 269: male hypopygium, tergal view. — 270: hypopygium, sternal view. — 271: sternal submedian appendages. — 272: apex of paramere. — 273: gonostylus. Scale 0.2 mm for Figs. 269—270, Figs. 271—273 2 x enlarged.

WIEN). — Finland: *Ab:* Vihti, Vihtijärvi, 6.VII. 1962, 7.VII. 1962, R. Tuomikoski (2 mm MZH); *N:* Helsinki, Nordsjö (Vuosaari), 26.VI. 1963, R. Tuomikoski (1 m MZH); Esbo (Espoo), Westend, 8.VII. 1962, W. Hackman (2 mm MZH); *Ka:* Vehkalahti, 13.VII. 1971, L. Tiensuu (1 m 1 f MZH); Virolahti, Leppämäki, 3.VII. 1971, L. Tiensuu (4 mm MZH); *Ok:* Sotkamo, Aarreniemi, 7.VII. 1965, R. Tuomikoski (1 m MZH); same locality, 11—14.VII. 1965, 22—28.VII. 1965, A. V. V. Mikkola (2 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (3 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (2 mm MZH); Kuusamo, Liikanen 21.VII. 1967, R. Tuomikoski (1 m MZH). — USSR: Leningrad. o., Luzhsk., Tolmachevo, 17.VI. 1937, 9.VIII. 1937, 20.VI. 1938, 1.VII. 1938, Stackelberg (11 mm LEN); Leningrad. obl., Tatchina, 1.VII. 1940, Stackelberg (3 mm LEN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts brownish. Antenna yellowish, basal segments yellow. 1st flagellomere 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow with 3 longer setae. Mesoscutum yellow, with 3 brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, with 2—4 setae.

Legs. Coxae yellow, femora yellow, tibiae and tarsi slightly darker. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.83—0.89, bt2:t2 = 0.66—0.72, bt3:t3 = 0.58—0.63.

Wing. Wing length 3.7—4.4 mm. Wing hyaline. Sc usually ending in C near middle of small cell, sometimes Sc1 weak or broken, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell, usually slightly distally. Apical part of Sc bearing 8—17 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly distal to M fork. M ratios: 0.60—1.00, 0.75—1.22. Cu ratios: 0.83—0.90, 1.29—1.39. Macrotrichia: M petiole: 0—+; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellowish, 6—7 slightly darker, light brownish. Sternites 1—5 yellow, 6—7 yellowish.

Hypopygium. Figs. 262—266, small, yellow. Tergite 9 with 2 narrow sabre-like spines and 4—6 dark cones on both sides. Sternal synsclerite without lateral setae. Sternal submedian appendage narrow apically wider, with some small setae. Paramere very long and strongly curved sternally. Gonostylus with 3 teeth.

Female. Wing length 3.8 mm. Coloration as in male. Leg ratios: bt1:t1 = 0.89, bt2:t2 = 0.71, bt3:t3 = 0.53. Terminalia as in Figs. 267—268, yellow.

Distribution: Western Palaearctic. Czechoslovakia, Finland. USSR: Leningrad region. The holotype probably comes either from Poland or the Byelorussian SSR. Apparently the Russian record by Ostroverchova & Stackelberg (1969) and Plassmann's (1969, 1971b) record from Czechoslovakia refer to the type. Plassmann (1969, 1972b) reported this species from the Federal Republic of Germany. Ostroverchova (1971) mentioned the species from East Siberia (zapovednik "Stolbi"), but this record was not included in her later papers (e.g. 1979) and seems very uncertain.

Biology: Unknown.

Mycomya hiisi Väisänen, 1979
Figs. 269—273, key p. 37.

Mycomya hiisi Väisänen, 1979. Väisänen 1979b:113, in Hackman 1980:31; Väisänen 1982b:39.

Type locality: Tenhola, Skogby (Finland).

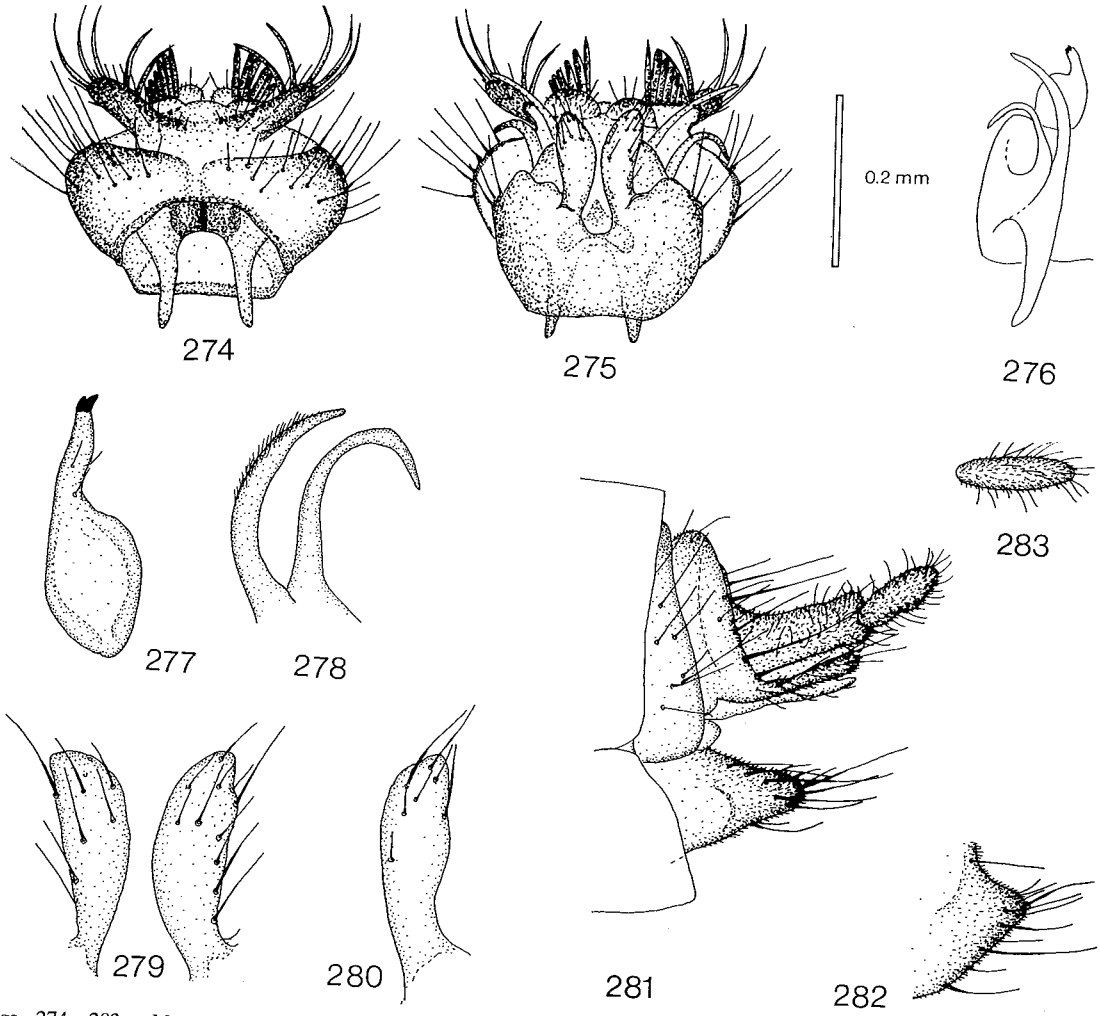
Type: Holotype (studied): Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola. Holotypus *Mycomya hiisi* Väisänen ♂. Mus. Zool. H:fors Spec. typ. No. 14333. (in MZH).

Material examined: Hungary: Tátralomnic, patak mellett, 900 m, 4.VIII. 1963, Mihályi (1 m TMB). — Czechoslovakia: Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (1 m VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (1 m VUPP). — Finland: *Ab:* Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (holotype MZH); Vihti, Vihtijärvi, 3.VIII. 1963, 27.VIII. 1963, R. Tuomikoski (paratypes: 2 mm MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, K. Mikkola (1 m paratype MZH); *Ok:* Sotkamo, 13.VIII. 1962, A. V. V. Mikkola (1 m paratype MZH).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with about 5—6 longer setae. Mesoscutum yellow, posteriorly brownish, with 3 anteriorly distinct, posteriorly more or less fused longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half brownish. Scutellum yellow, with 4



Figs. 274—283. *Mycomya subarctica.* — 274: male hypopygium, tergal view. — 275: hypopygium, sternal view. — 276: sternal synsclerite, tergal view. — 277: gonostylus. — 278: paramere. — 279—280: sternal submedian appendages. — 281: female terminalia, lateral view. — 282: hypogynal valve, sternal view. — 283: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 274—276 and 281—283, Figs. 277—280 2 x enlarged.

long setae. Laterotergite yellow, ventral part brownish. Mediotergite yellowish, lateral and posterior parts brownish, with 2 small setae.

Legs. Coxae yellow, coxa 3 sometimes with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with dense patch of very short thin setae covering apical quarter of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.88—1.00, bt2:t2 = 0.68—0.80, bt3:t3 = 0.56—0.58.

Wing. Wing length 4.2—4.9 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 5—13 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.50—0.68, 0.64—0.85. Cu ratios: 0.75—0.85, 1.08—1.22. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown, with yellow posterior margins, 6—7 brownish to brown. Sternites 1—6 yellow, 7 yellowish.

Hypopygium. Figs. 269—273, yellowish. Tergite 9 with 2 comparatively narrow sabre-like spines and 4 dark cones on both sides. Sternal synsclerite with 2 setae on both sides. Sternal submedian appendage with long medial spur at apex. Paramere long strong, curved laterally. Gonostylus with 2 apical teeth.

Female. Unknown.

Remarks: The characteristic shape of the sternal submedian appendage of the male hypopygium makes this species easily recognizable.

Distribution: Western Palaearctic. Hungary, Czechoslovakia, Finland.

Biology: Unknown.

Mycomya subarctica Väisänen, 1979

Figs. 274—283, key p. 37, 42.

Mycomya subarctica Väisänen, 1979. Väisänen 1979b:113, in Hackman 1980:31, Väisänen 1982b:41.

Type locality: Rovaniemi, Pisavaara (Finland).

Type: Holotype (studied): Finland: PP: Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski. Holotypus *Mycomya subarctica* Väisänen ♂ (m MZH).

Material examined: Finland: *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (holotype, paratypes: 2 mm MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (6 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (paratypes: 9 mm MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (paratypes: 6 mm MZH); Kuusamo, Oulanka Biol. Station, 10.IX. 1980, A. Albrecht (1 ♂f MZH). — USSR: Vyritsa Leningr., 3.IX. 1946, 4.IX. 1946, Stackelberg (2 mm LEN). — Canada: N. W. T., Moscox L., 64°45′N, 108°10′W, 6.VIII. 1953, J. G. Chillcott (1 m CNC); NWT., Dubawnt L., 63°18′N, 101°37′W, 2.VIII. 1966, J. G. Chillcott (2 mm CNC); NWT., Wharton L., 63°52′N, 99°45′W, 18.VIII. 1966, J. G. Chillcott (2 mm CNC); B. C., Mt. Thornhill, nr. Terrace, elev. 2000′, ex wet hollow along trail, 26.VII. 1960, B. Heming (1 m CNC); same locality, second growth hemlock forest, 1500—2000′, 8.VIII. 1960, B. Heming (1 m CNC); B. C., 32 mi. sw Terrace, 50′, *Heracleum lanatum,* 4.VI. 1960, R. Pilfrey (1 m CNC); B. C., Mission City, 19.VI. 1953, G. J. Spencer (1 m CNC); B. C., Kimberly, St. Mary's Lake, 29.VII., C. Garrett (1 m hypop. slide No. 25—64 "*Mycomyia* accipita" USNM); Man., Deer R., Mile 473, Hudson Bay Ry., 3.VIII. 1952, J. G. Chillcot (1 m CNC); Lab., Hebron, 12.VIII. 1954, E. Sterns (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts dark brown. Antenna brownish to brown, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5—3 times, 2nd about twice as long as wide.

Thorax. Pronotum brownish, with 4—5 longer setae. Mesoscutum brownish, with 3 dark brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish, ventral half brown. Scutellum light brownish with 4 long setae. Laterotergite brownish, ventral part brown. Mediotergite brownish, lateral and posterior parts brown, with 2—3 setae.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish, comparatively dark, joints of tibial and tarsal segments distinctly marked by pale bare areas. Coxa 1 with dense patch of very short thin setae covering apical third of anteromedial surface. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.75—0.94, bt2:t2 = 0.68—0.77, bt3:t3 = 0.57—0.79.

Wing. Wing length 3.8—4.8 mm. Wing hyaline. Sc ending in R1 proximally — distally to middle of small cell, Sc1 apically broken or entirely missing. Apical part of Sc bearing 0—8 macrotrichia, usually 1—2. Small cell 1.5—2.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.64—0.72, 0.78—0.88. Cu ratios: 0.86—1.00, 1.20—1.50. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown.

Hypopygium. Figs. 274—280, brownish, small. Tergite 9 with 2, seldom 3, sabre-like spines and 6—7 dark cones on both sides, medial cones apically pointed. Sternal synsclerite with about 3 setae on both sides. Sternal submedian appendage basally narrow, apically wider, bending towards each other, with some small setae. Paramere with 2 long slender branches, lateral branches strongly curved laterally, medial slightly curved. Gonostylus with 2 apical teeth.

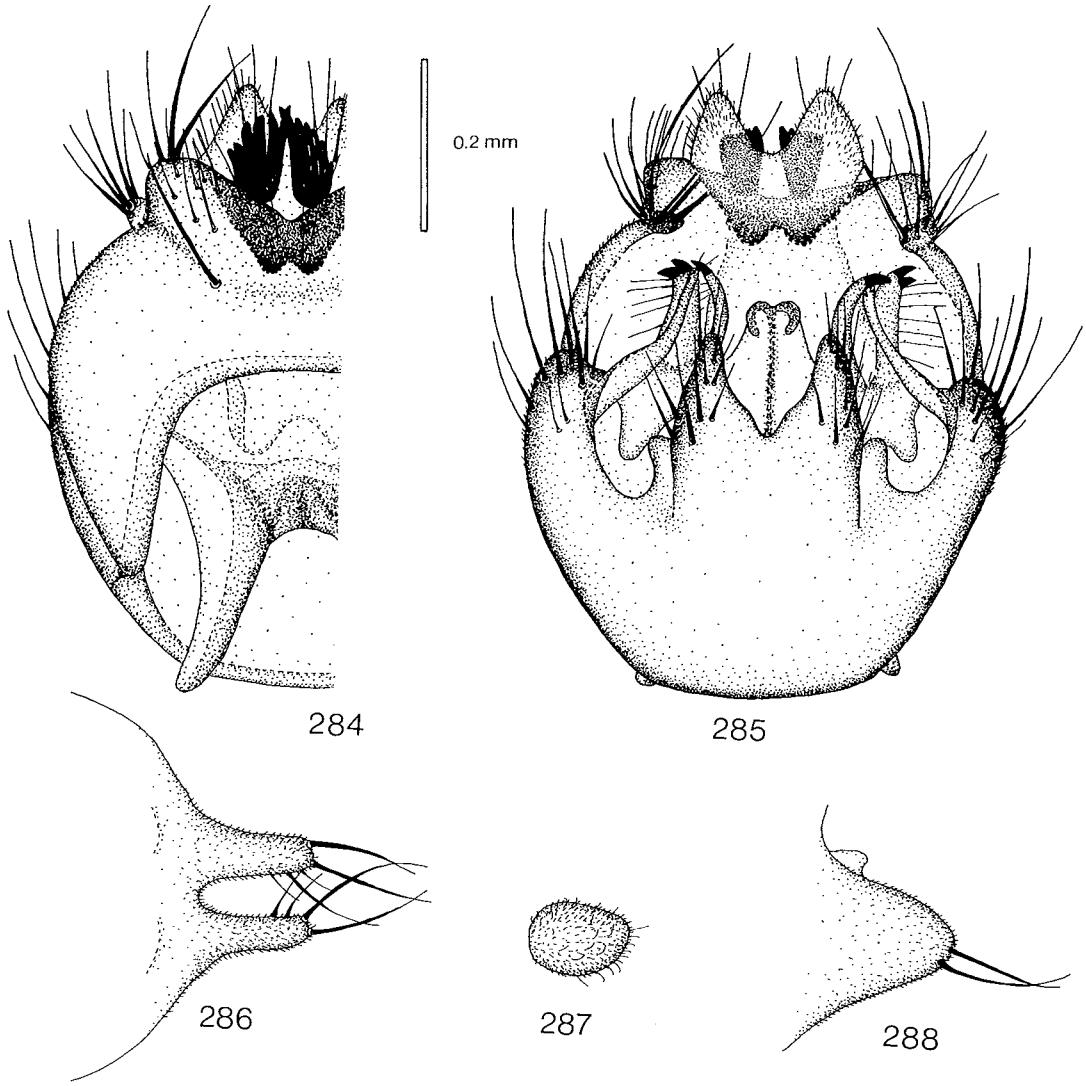
Female. Wing length 4.6 mm. Coloration as in male. Mediotergite with 5 setae. Leg ratios: bt1:t1 = 0.90, bt2:t2 = 0.75, bt3:t3 = 0.67. Terminalia as in Figs. 281—283, yellowish.

Remarks: The first basitarsi seem to be relatively shorter in the American specimens. The wing length is slightly greater in the European (mean of males 4.37 mm, SD 0.25, N = 23) than in the American specimens (mean 4.11 mm, SD 0.26, N = 10).

Aberrant wing venations: Sc1 apically broken and "two veins Sc2". Sc first curving to R1 but then curving more distad and ending free.

Distribution: Holarctic. Northern Finland. USSR: Leningrad region. Canada: North West Territories, British Columbia, Manitoba, Labrador.

Biology: The collecting biotopes given are a second growth hemlock forest, a wet hollow along a trail, and



Figs. 284—288. *Mycomya insignis.* — 284: male hypopygium, tergal view. — 285: hypopygium, sternal view. — 286: hypogynal valves of female terminalia, sternal view. — 287: apical segment of cercus, sternal view. — 288: hypogynal valve, lateral view. Scale 0.2 mm.

among *Heracleum lanatum.* Finnish specimens have been caught in boreal spruce forests.

Species group M. onusta

Head. Anteclypeus triangular with relatively many long setulae. Antenna slightly longer than head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

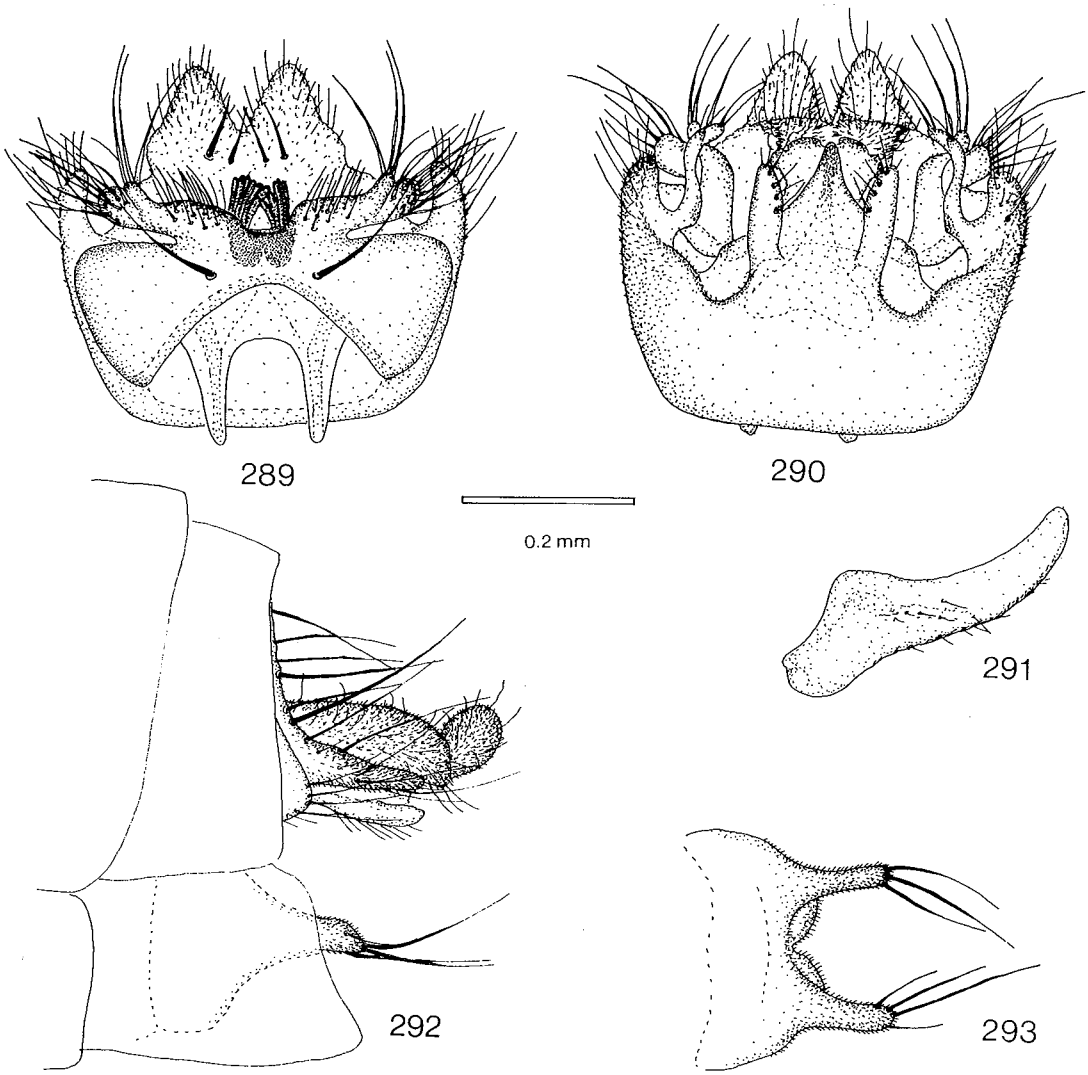
Thorax. Scutellum with 4, occasionally 6, long setae. Mediotergite with 0—1 seta. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae moderately strong, longest 1.5—2 times as long as tibial diameter.

Wing. C ending in apex of R5 or slightly distally to it, not quite reaching apex of wing. Sc ending in C. Cu fork proximal to M fork. M petiole short. Cu petiole short to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites yellow with dark posterior margins.

Tergite 8 comparatively wide, arcuate, medially much narrower, with many setae along whole posterior margin. Sternite 8 triangular, apically rounded, with *(M. insignis)* or without *(M. onusta)* some small subapical setae.



Figs. 289—293. *Mycomya onusta.* — 289: male hypopygium, tergal view. — 290: hypopygium, sternal view. — 291: gonostylus. — 292: female terminalia, lateral view. — 293: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 289—290 and 292—293, Fig. 291 2 x enlarged.

Hypopygium. Tergite 9 with 2 groups of dark cones, basal part bare. Tergite 10 with strong spines. Sternal lateral appendages present.

Female terminalia. Apical segment of cercus oval. Hypogynal valve more or less rounded apically, with some strong short setae.

One Palaearctic and one Holarctic species are recognized in this species group.

Mycomya insignis (Winnertz, 1863) n. comb.
Figs. 284—288, key p. 38, 41.

Empheria insignis Winnertz, 1863. Winnertz 1863:741.

Neoempheria insignis: Kertész 1902:65, 1903:36; Sack 1907:11; Landrock 1926—1927:54, 1940:38; Séguy 1940:82; Plassmann 1970a:91, 1970b:388, 1972d:240; Väisänen 1982b:42.

Sciophila wrzesniowskii Dziedzicki, 1885 (New synon.). Dziedzicki 1885:12; Kertész 1902:65, 1903:35.

Mycomyia wrzesniowskii: Edwards 1925a:551; Landrock 1926—1927:53; Lackschewitz 1937:11; Landrock 1940:31; Séguy 1940:80; Coe in Kloet & Hincks 1945:345; Kröber 1956:132.

Mycomya wrzesniowskii: Hutson in Kloet & Hincks 1976:24; Matile 1977:634; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:42.

Type locality: Originally not stated. Plassmann 1970a: Frankfurt a. M. (Federal Republic of Germany).

Types: — *Empheria insignis* Winnertz: Lectotype (studied) designated by Plassmann 1970: D 545. Coll. v. Heyden. 97. *Em. insignis* Wnz. Frankf. Heyd. *Neoempheria insignis* Winnertz. ♂ Lectotypus rev. Plassmann Juli 1969. (m SENCK). — *Sciophila wrzesniowskii* Dziedzicki: Holotype (m, not located, apparently destroyed). Type locality: "Zaczernie" (Byelorussian SSR).

Material examined: Yugoslavia: Slovenia, Bohinj, Rioccv Laz, 530 m, 27.VII.—6.VIII. 1973, A. E. Stubbs (1 m BMNH). — FRG: Frankfurt a. M., v. Heyden (*Empheria insignis* holotype SENCK). — UK: New Forest, VII. 1905, D. Sharp (1 f BMNH); Arran, Sannox, 26—28.V. 1919, F. W. Edwards (1 f + pupa BMNH). — Sweden: Sk., Hälsingborg, 8.IX. 1945, O. Ringdahl (1 m LUND); same data, 21.VIII. 1921, 9.IX. 1945, O. Ringdahl (2 ff LUND). — Finland: *Ab:* Nystad (Uusikaupunki), Gotthem, 17.VII. 1923, W. Hellen (1 m MZH); *Om:* (Pietarsaari) Varvet, 9.VIII. 1957, R. Storå (1 m MZH).

Description:

Head. Palp yellowish, other mouthparts light brownish, face brownish, posterior parts of head brownish. Antenna brownish, 3 basal segments yellow. 1st flagellomere almost twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, shining, laterally slightly brownish, with 3 dark brown longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral half brown to dark brown. Scutellum yellow, with 4 long setae. Laterotergite yellow to brownish, ventral part brown to dark brown. Mediotergite yellow, posterior part brown to dark brown, bare.

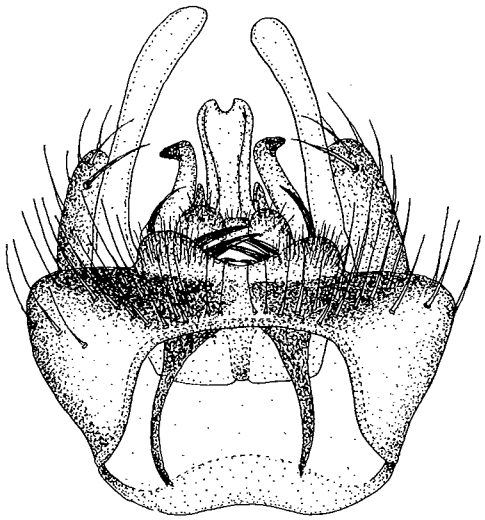
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.76—0.77, bt2:t2: = 0.66—0.67, bt3:t3 = 0.51—0.57.

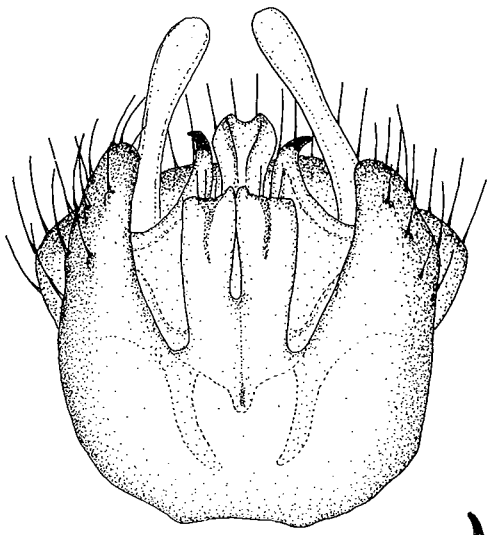
Wing. Wing length 4.5—5.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, seldom Sc1 apically broken, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 16—30 macrotrichia. Small cell about twice as long as wide. Cu fork distinctly proximal to M fork. M ratios 0.34—0.47, 0.40—0.57. Cu ratios: 0.58—0.71, 0.88—1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

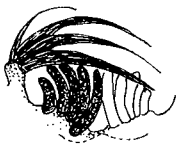
Abdomen. Slightly shining, tergites 1—5 yellow with brown posterior halves, brown area extending anteriorly along dorsomedial line, 6—7 dark brown. Sternites 1—5 yellow, with darker posterior margins, 6—7 brown.

Hypopygium. Figs. 284—285, yellowish. At least 1 strong seta in front of apical part of tergite 9. Tergite 9 with 2 straight lateroapical setae, some spines and 6—7 dark cones very near each other on both sides. Tergite 10 with about 3 strong spines on both sides on tergal side. Sternal lateral appendage long, slender, bare. Sternal submedian appendage large, partially fused, with long setae. Gonostylus with 2 branches, medial branch with 1 apical tooth, lateral branch with 2 teeth. Aedeagus comparatively large, long.

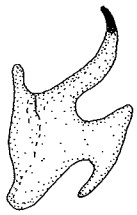
Female. Wing length 6.1—6.3 mm. Abdomen and







0.2 mm



Figs. 294—297. *Mycomya digitifera.* — 294: male hypopygium, tergal view. — 295: hypopygium, sternal view. — 296: cones and sabre-like spines of tergite 9. — 297: gonostylus. Scale 0.2 mm.

thorax as in male. Leg ratios: bt1:t1 = 0.80—0.83, bt2:t2 = 0.63—0.65, bt3:t3 = 0.50—0.54. Terminalia as in Figs. 286—288, yellow.

Larva. Iron magenta (vermilion) coloured (Edwards 1925a).

Pupa. Length about 6 mm, light brownish.

Distribution: Western Palaearctic. Yugoslavia, Federal Republic of Germany, United Kingdom, Sweden, Finland. USSR: Byelorussian SSR. Also reported from Latvian SSR (Lackschewitz 1937) and France (Séguy 1940, Matile 1977).

Biology: Larva has been found on *Poria* under a fallen birch branch (Edwards 1925a).

Mycomya onusta (Loew, 1869)
Figs. 289—293, key p. 38, 41.

Sciophila onusta Loew, 1869. Loew 1869:138; Osten-Sacken 1878:19; Kertész 1902:63; Aldrich 1905:140.

Mycomya onusta: Johannsen 1909:49, 1910:184; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:221.

Mycomyia onusta: Coher 1959:126.

Sciophila brevivitta Coquillett, 1905 (New synon.). Coquillett 1905:67.

Mycomya brevivittata: Johannsen 1909:46, 1910:143; Malloch 1917:257; Shaw & Fisher 1952:190; Cole 1969:121 (misspelling of the specific name).

Mycomyia brevivittata: Fisher 1937:391.

Mycomyia brevivitta: Coher 1959:113.

Mycomya brevivitta: Laffoon in Stone et al. 1965:220.

Mycomyia turitella Fisher, 1937 (New synon.). Fisher 1937:395; Coher 1959:122.

Mycomya turitella: Laffoon in Stone et al. 1965:221.

Type locality: District Columbia (Washington, D.C., USA).

Types: — *Sciophila onusta* Loew: Holotype (studied): Loew Coll. Type 1223. *onusta* m. (f, in poor condition MCZ). — *Sciophila brevivitta* Coquillett: Holotype (studied): Kaslo 12.6. BC. R P Currie, Collector. *Sciophila brevivitta* Coq. Type No 8380 U.S.N.M. (m USNM). Type locality: British Columbia, Kaslo (Canada). — *Mycomya turitella* Fisher: Holotype (studied): Monticello Fla III-8-1919. W. A. Hoffman Collector. Holotype *Mycomyia turitella* Fisher hypopygium in vial alc. Holotype Cornell U. No. 1408. (m CORN). Type locality: Florida, Monticello (USA).

Material examined: Canada: B. C., Cranbrook, 12.VII., 1.VIII., C. Garrett (2 m hypop. slides No. 50—36, 25—56 USNM); B. C., Kaslo, 30.V., H. G. Dyar (1 m USNM); same locality, 12.VI., 20.VI., R. P. Currie (*Sciophila brevivitta* holotype, 1 m USNM); Regina, T. N. Willing (1 ex. USNM); Ontario, St. Lawrence Is. National Park, McDonald Island, 21.VII. 1976, Malaise trap, W. Reid (1 m CNC); Ontario, St. Lawrence Is. National Park, Thwartway Island, 17.VII. 1976, sweeping, A. Carter (1 m CNC); Ont., Lanark Co., N. Burgess Twp., 12.VII. 1970, D. M. Wood (1 m CNC); Que., Mt. St. Hilaire, 950—1350′, 19.VI. 1964, J. R. Vockeroth (1 m CNC); Que., Mt. Ste. Marie Low, 1800′, 20.IX. 1965, J. R. Vockeroth (1 m CNC); Que., Lac Phillipe, 45°37′N, 76°W, 4.VII. 1966, D. D. Munroe (1 m CNC); Que., Knowlton Ldg., 19.VII. 1968, J. R. Vockeroth (1 f CNC); Que., Old Chelsea, 22.VII. 1956, 20.IX. 1961, J. R. Vockeroth (1 m 1 f CNC); same locality, Summit King Mt., 1150′, 7.VII. 1965, Malaise trap, J. R. Vockeroth (1 m CNC). — USA: Wash., Ferry Co., Ten Mile Cmpgr., 9 mi. S. Republic, 7.VII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); Mo., Atherton, 11.V. 1922, VI., VII., VIII., C. F. Adams (8 mm 5 ff 2 exx. PU); Minnesota, Lake Co., Baswood Lake, Q-S WRC Sec. 9, Twp. 64N, Rge. 10W, 23.VIII. 1953 (1 m MINN); Minn., Itasca Park, 8.VII. 1939, light trap, C. E. Mickel (1 f MINN); same locality, 24.VII. 1952 (1 m AMNH); Iowa, Boone Co., Ledges State Park, 20.VI. 1949, 2.VII. 1963, J. L. Laffoon (1 f 1 m ISU); Iowa, Boone, 13.VI. 1940, A. L. Melander (1 m USNM); Iowa, Ames, 9.VIII. 1923 (1 m hypop. No. 5425 USNM); Wis., Price Co., 19.VIII. 1897, W. M. Wheeler (1 ex. AMNH); Wis., Washburn Co., T39N, R12W, B32, 28.VIII. 1953, R. H. Jones (1 m WISC); Wis., Dane Co., 27.VI. 1915, W. S. Marshall (1 f WISC); Chicago, 9.V. 1896, W. M. Wheeler (1 ex. AMNH); Belchertown, Sept. 18 (1 m slide MASS); New York, Ithaca, vic. Sixmile Creek, 9.VIII. 1961, R. J. Gagné (1 m ISU); N. Y., Ithaca, 2.VII. 1897 (1 ex. lot 276 CORN); same locality (2 exx. Lot 253, 277 CORN); Pa., Laurelton, 4.VIII., N. Banks (2 ff MCZ); Whiteface Mt., 21.VIII. 1941, A. L. Melander (1 m USNM); N. J., Wenonah, 10.VII. 1910 (1 f USNM); N. J., Forest Hill, VII. (1 f CORN); District Columbia, Osten-Sacken (*Sciophila onusta* Loew holotype MCZ); Md., Bowie, 7.VI. 1945, DDT Expt. (1 m USNM); Md., Plummers I., 3.VIII. 1912, J. R. Malloch (1 f USNM); Va., Patrick Co., Rocky Knob Cmpgrnd, Blue Ridge Parkway, milepost 167, elev. 3042 feet, 2.VIII. 1965, J. & L. Donahue (1 m MICH); N. C., Smokemont, 2.VII. 1941, A. L. Melander (1 m USNM); Tenn., Sevier Co., Great Smoky Mts., Fighting Creek, 35°40.7′N, 83°33.3′W, 1600′, 7.VII. 1958, J. L. Laffoon (1 f ISU); Fla., Monticello, 8.III. 1919, W. A. Hoffman (*M. turitella* holotype CORN); Fla., Alachua Co., under bark of *Pinus*, 13.II. 1954, H. V. Weems, Jr. (1 m FLOR). — An aberrant specimen: USSR: Tuva Aut. Rep., Ishtii-Hem, 10.VII. 1974, N. Krivosheina (1 m lot 319 MOSC).

Description:

Head. Palp and other mouthparts light brownish, face yellow, posterior parts of head light brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere almost twice, 2nd less than 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—6 longer setae. Mesoscutum yellow, shining, sometimes with short indistinct brownish medial stripe, medial stripe with narrow yellow medial line, and with very broad, occasionally narrow, brown lateral stripes, sometimes posterior part of mesoscutum brownish to brown except medially, anterolateral corners of mesoscutum widely yellow. Mesanepisternum yellow. Mesokatepisternum entirely yellow or ventral half brownish to dark brown. Scutellum yellow to yellowish, with 4 long and sometimes 2 shorter setae. Laterotergite entirely yellow, or ventral part brownish to dark brown. Mediotergite yellow, lateral and posterior parts brown. Mediotergite usually bare, sometimes with 1 thin seta. Colour pattern of thorax highly variable in details, but basic pattern with 2 stripes on mesoscutum usually distinct.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.71—0.88, bt2:t2 = 0.58—0.68, bt3:t3 = 0.50—0.64.

Wing. Wing length 3.5—4.9 mm. Wing hyaline. Sc ending in C distally to middle of small cell, sometimes near apex of R4, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 4—24 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.31—0.45, 0.36—0.56. Cu ratios: 0.55—0.82, 0.77—1.00. Macrotrichia: M petiole: 0—2; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow with posterior 1/3—1/2 brown, 6—7 dark brown. Sternites lighter than tergites. Seldom tergites with posterior brown area extending anteriorly along dorsomedial line.

Hypopygium. Figs. 289—291, yellow. 1 strong seta on both sides in front of apical part of tergite 9. Tergite 9 with 3 long spines and 6—7 dark cones near each other on both sides. Tergite 10 with 2—3 strong spines on both sides on tergal side. Sternal lateral appendage almost bare, long, curved. Sternal submedian appendage comparatively short. Gonostylus without distinct apical teeth. Aedeagus large, apically tapered.

Female. Wing length 4.0—5.5 mm. Mouthparts brownish. Thorax as in male. Abdomen yellow with posterior thirds of tergites 1—5 dark brown, 6—7 with posterior brown margin wider, anterior margin of tergite 7 also brown. Leg ratios: bt1:t1 = 0.77—0.80, bt2:t2 = 0.58—0.66, bt3:t3 = 0.52—0.53. Terminalia as in Figs. 292—293, yellow.

Larva. Described by Malloch (1917:257, Fig. 17: mandible; Fig. 4: head).

Pupa. Described by Malloch (1917:257, Fig. 18). Length 4—5 mm, brown, slightly shining, enclosed in a silken web.

Remarks: A separate description follows for the aberrant specimen from Tuva, USSR.

Head. Palp and other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, scape and pedicel yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with about 7 longer setae. Mesoscutum yellowish, posteriorly and posterolaterally brownish, with 3 brown stripes, middle stripe short, anteriorly divided by narrow yellow medial line. Mesanepisternum yellowish. Mesokatepisternum yellowish to light brownish. Scutellum yellowish with 4 long setae. Laterotergite yellowish to light brownish. Mediotergite yellowish to light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.59, bt2:t2 = 0.57, bt3:t3 = 0.49.

Wing. Wing length 3.7 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 19 macrotrichia. Small cell almost twice as long as wide. Cu fork proximal to M fork. M ratios: 0.48, 0.58. Cu ratios: 0.71, 1.00. Macrotrichia: M petiole: 0—1; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with posterior thirds brown, 6—7 brown. Sternites yellow.

Hypopygium. Extremely similar to that of the American *M. onusta* specimens.

Distribution: Holarctic. Canada: British Columbia, Ontario, Quebec. USA: Washington, Minnesota, Iowa, Wisconsin, Illinois, Massachusetts, New York, Pennsylvania, New Jersey, Maryland, Washington, D.C., Virginia, North Carolina, Tennessee, Florida. One specimen from Tuva Autonomic Republic, USSR. Also reported from New Hampshire, Vermont and Michigan (Coher 1959).

Biology: Some specimens have been caught with Malaise and light traps. One specimen (? larva) has been found under bark of *Pinus*. Also reared from a fungus growing on the underside of a log lying upon the ground (Malloch 1917).

Species group M. digitifera

Head. Anteclypeus comparatively long, apically rounded, with many comparatively long setulae. Antenna slightly longer than head and thorax together. Pedicel with some short dorsal setulae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite with 1—3 setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing ending in apex of R5 at wing apex. Sc ending in C or R1. Cu fork slightly proximal to M fork. M petiole short to medium. Cu petiole of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with lighter posterior margins.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with 1—3 setae on posterior margin of both lateral lobes. Sternite 8 long, apically blunt, bare.

Hypopygium. Tergite 9 with 2 groups of dark cones and specialized setae and spines, without lateral appendages. Sternal synsclerite with long lateral appendages.

One Palaearctic species is recognized in this species group.

Mycomya digitifera Edwards, 1925

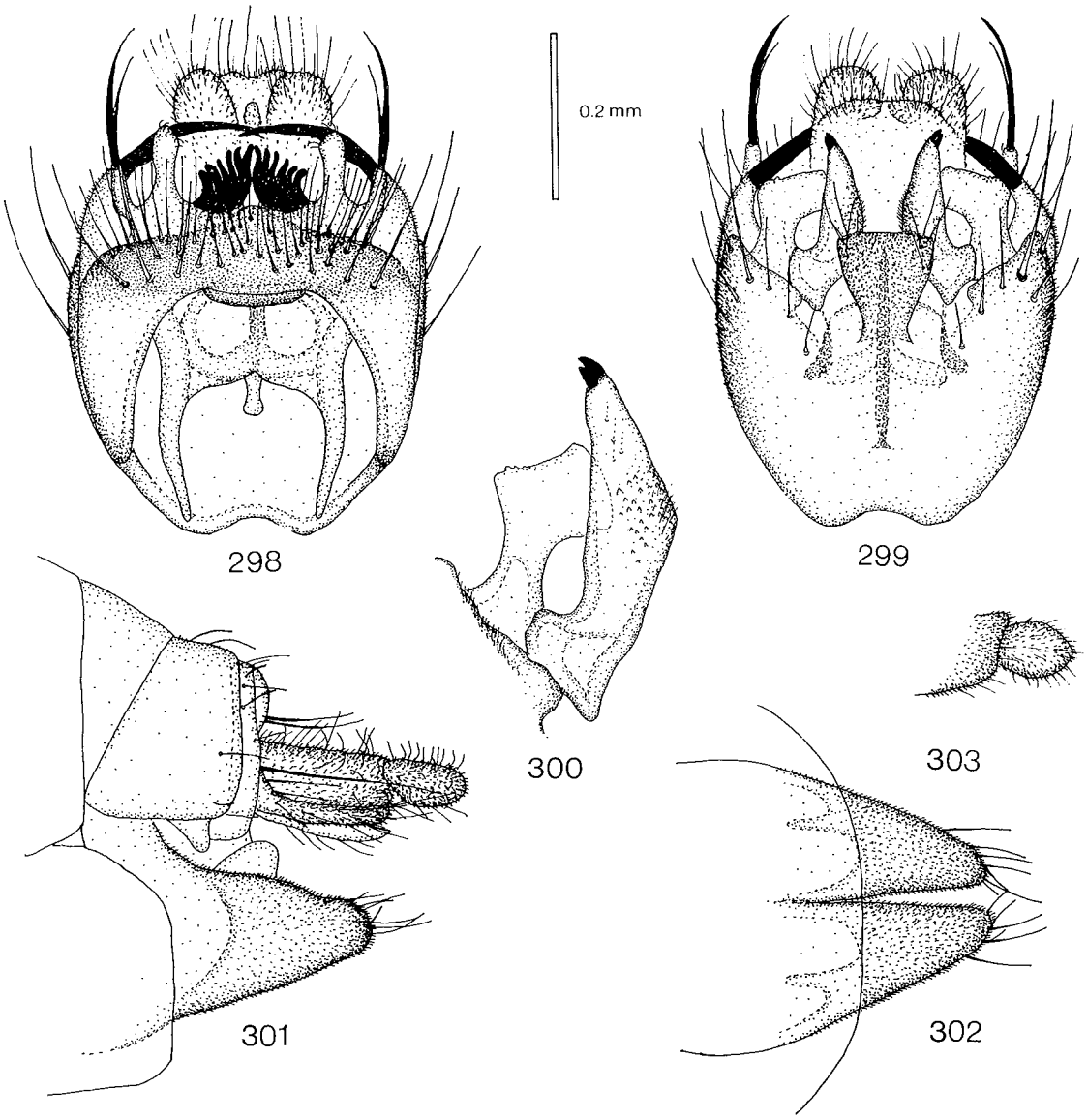
Figs. 294—297, key p. 38.

Mycomyia digitifera Edwards, 1925. Edwards 1925a:552; Landrock 1926—1927:44; Edwards 1941:30; Coe in Kloet & Hincks 1945:345.

Mycomya digitifera: Hutson in Kloet & Hincks 1976:24; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:38.

Type locality: Oxford, Bagley (UK).

Type: Holotype (studied): Bagley, Oxford. 27. v. 1916 A. H. Hamm 1919.320. Type H. T. *Mycomyia digitifera* Edw. (m BMNH).



Figs. 298—303. *Mycomya parva*. — 298: male hypopygium, tergal view. — 299: hypopygium, sternal view. — 300: gonostylus and apex of paramere. — 301: female terminalia, lateral view. — 302: hypogynal valve, sternal view. — 303: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 298—299 and 301—303, Fig. 300 2 x enlarged.

Material examined: Bulgaria: H. B. voda, 26.VI. 1982, D. Bechev (1 m coll. Bechev). — Poland: Bialowieza, 27.V. 1957, Kaszab (1 m TMB). — UK: Oxford, Bagley, 27.V. 1916, A. H. Hamm (holotype BMNH); Nairn, Morayshire, 21.VI. 1905, J. W. Yerbury (1 m BMNH). — Finland: *Ab:* Vihti, Vihtijärvi, 17.VI. 1962, R. Tuomikoski (2 mm MZH); same data, 24.VI. 1962 (1 m MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (2 mm MZH).

Description:

Head. Palp and other mouthparts brownish, face brown, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow with brown spots and 4—5 longer setae. Mesoscutum dark brown, slightly shining, with indistinct dark brown to black longitudinal stripes. Mesanepisternum and mesokatepisternum brown. Scutel-

lum brown with 4 long setae. Laterotergite and mediotergite brown. Mediotergite with 1—3 setae.

Legs. Coxae and femora yellow to yellowish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.60—0.67, bt2:t2 = 0.60—0.71, bt3:t3 = 0.59—0.63.

Wing. Wing length 4.1—5.1 mm. Wing hyaline. Sc ending in C proximally to or near middle of small cell or Sc1 apically weak, broken or entirely missing, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 7—21 macrotrichia. Small cell 2.5—3 times as long as wide. Cu fork proximal to M fork. M ratios: 0.45—0.51, 0.55—0.62. Cu ratios: 0.57—0.62, 0.77—0.88. Macrotrichia: M petiole: 0; M1: 1; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 dark brown, with yellow posterior thirds, 6—7 dark brown. Sternites brownish to brown.

Hypopygium. Figs. 294—297, brownish. Tergite 9 with 1 lateroapical seta, 3+1 sabre-like spines and 5—6 dark cones on both sides. Sternal lateral appendage indistinct, wide, short, setose. Sternal submedian appendages comparatively long, partially fused, apically blunt with some small setae. Gonostylus with lobes and 1 apical tooth. Aedeagus long.

Female. Unknown.

Distribution: Western Palaearctic. Bulgaria, Poland, United Kingdom, Finland.

Biology: Unknown.

Species group M. parva

Head. Anteclypeus comparatively short, apically rounded, with few relatively long setulae. Antenna slightly longer than head and thorax together, in females slightly shorter. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining rather distinctly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork below M fork. M petiole short to medium. Cu petiole of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with indistinctly paler posterior margins.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with many setae along posterior margin. Sternite 8 wide, triangular, apically rounded, bare.

Hypopygium. Tergite 9 with 2 groups of dark cones and additional specialized structures. Sternal synsclerite without distinct lateral appendages.

Female terminalia. Apical segment of cercus oval. Hypogynal valve with some subapical-apical setae.

One Palaearctic species is recognized in this species group.

Mycomya parva (Dziedzicki, 1885)

Figs. 298—303, key p. 39, 42.

Sciophila parva Dziedzicki, 1885. Dziedzicki 1885:13; Kertész 1902:63, 1903:34.

Mycomya parva: Landrock 1913:39; Hutson in Kloet & Hincks 1976:24; Chandler 1976:98; Matile 1977:633; Hutson et al. 1980:44; Väisänen 1982b:40.

Mycomyia parva: Edwards 1925a:552; Landrock 1926—1927:50, 1940:77; Séguy 1940:77; Kröber 1956:132; Mikolajczyk 1971:371.

Type locality: Wisniak (Byelorussian SSR).

Type: Holotype (not located, apparently destroyed): m.

Material examined: France: Beaumontel, (Eure), 20.V. 1973, J. J. Menier (1 m 1 f MNHN); Seine-et-Oise, Maisons-Laffitte, 20.V. 1919, J. de Gaulle (1 m 1 f MNHN); Forêt d'Othe, (Yonne), 6.VI. 1970, L. Matile & J. J. Menier (1 m MNHN); Marne, Forêt d'Argonne, Forêt com. de Chaude fontaine, 26.VII. 1971, L. Matile (1 m MNHN). — Roumania: Olténie, Forêt de Măgura, 15.X. 1968, L. Matile (1 m MNHN, 1 m MZH). — Poland: Bieszczady, Wetlina, 19.VI. 1960, W. Mikolajczyk (1 m WARS). — UK: New Forest, Denny Wood, VI. 1939, F. W. Edwards (1 m BMNH); W. Suffolk, Shadwell Park, 15.VIII. 1970, Burns, Hammond, Hutson & Huxley (1 m BMNH); Oxon, Aston Rowant, NNR, beechwood, 24.VI. 1972, P. J. Chandler (1 m coll. Chandler). — Sweden: Sk., Kullaberg, örtrik lövlandskog, 5—9.VI. 1963, H. Andersson (1 m coll. Andersson).

Description:

Head. Palp and other mouthparts yellowish to light brownish, face brown, posterior parts of head dark brown. Antenna brown, scape, pedicel and base of 1st flagellomere yellowish. 1st flagellomere twice, 2nd almost twice as long as wide.

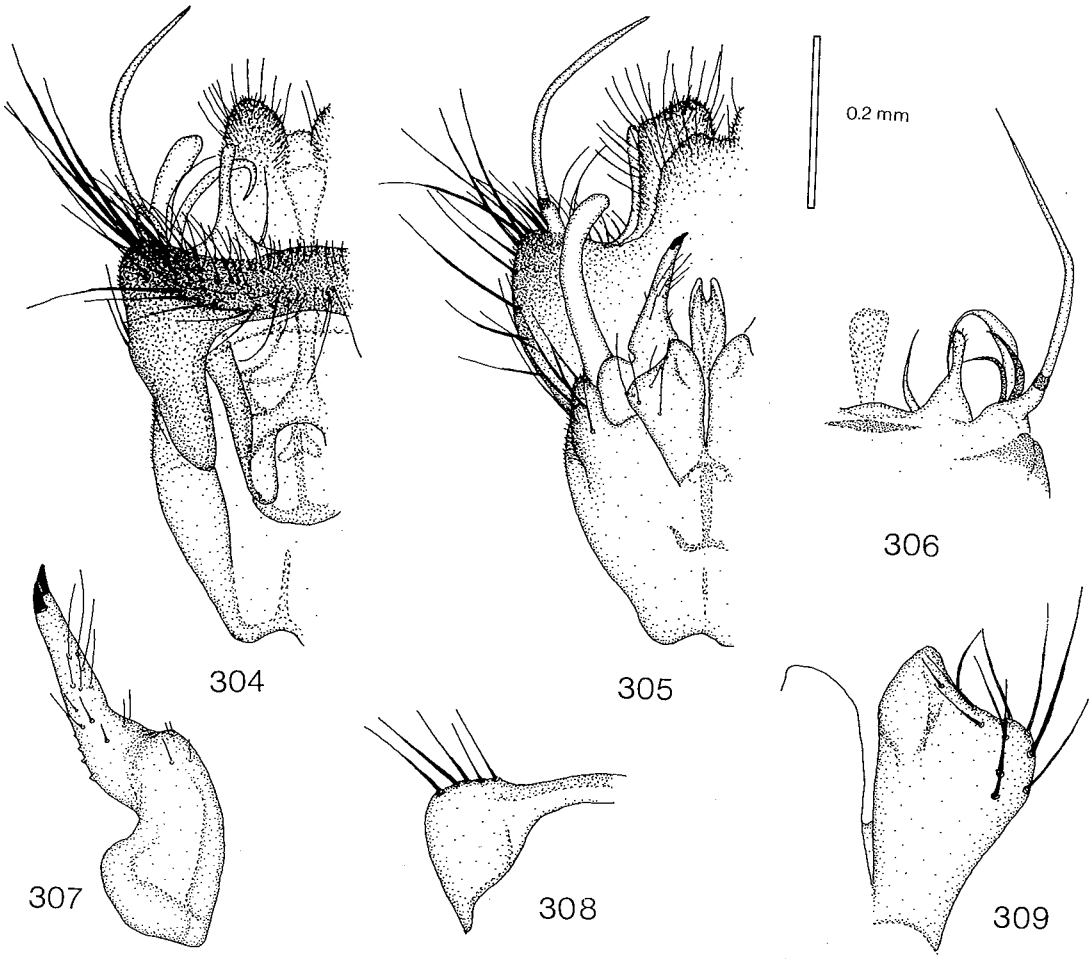
Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum brown, with 3 wide fused longitudinal stripes, anterolateral corners yellow to yellowish. Mesanepisternum yellow to brown. Mesokatepisternum entirely brown or yellow with brown ventral half. Scutellum yellow with 4, occasionally 3, long setae. Laterotergite entirely brown or yellow with brown ventral part. Mediotergite brownish, lateral and posterior parts brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.69—0.76, bt2:t2 = 0.66—0.69, bt3:t3 = 0.60—0.67.

Wing. Wing length 3.8—4.6 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 14—19 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork below M fork. M ratios: 0.40—0.63, 0.46—0.75. Cu ratios: 0.68—0.78, 1.05—1.24. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 0—1; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish or tergites 1—5 brown, with indistinct light brownish posterior margins, 6—7 dark brown. Sternites light brownish, posterior margins paler.

Hypopygium. Figs. 298—300, brownish. Tergite 9 with 2 curved sabre-like lateroapical spines, submedian ap-



Figs. 304—309. *Mycomya arnaudi.* — 304: male hypopygium, tergal view. — 305: hypopygium, sternal view. — 306: apical structures of tergite 9. — 307: gonostylus. — 308: tergite 8. — 309: sternal submedian appendage. Scale 0.2 mm for Figs. 304—305 and 308, Figs. 306—307 and 309 2 x enlarged.

pendage bearing small setae, 1 very strong sabre-like spine and 6 dark cones very near each other on both sides. Sternal synsclerite with many long setae. Sternal lateral appendage short, indistinct. Sternal submedian appendages fused, comparatively long, with some short setae. Paramere broad. Gonostylus long slender, with 2 apical teeth. Aedeagus long, wide, apically rounded.

Female. Wing length 4.5 mm. Mesoscutum light brownish with yellow anterolateral corners. Abdominal tergites light brownish to brownish, with yellow posterior margins. Sternites similar to tergites. Leg ratios: bt1:t1 = 0.70, bt2:t2 = 0.66, bt3:t3 = 0.67. Terminalia as in Figs. 301—303, yellow.

Distribution: Western Palaearctic. France, Roumania, Poland, United Kingdom, Sweden. USSR: Byelorussian SSR. Also reported from Czechoslovakia (Landrock 1913), Federal Republic of Germany (Kröber 1956) and Ireland (Chandler 1976).

Biology: Specimens have been caught in beechwoods and deciduous forest with many herbaceous plant species.

Species group M. arnaudi

Head. Anteclypeus triangular, apically rounded, with some setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining rather distinctly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 4 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork below M fork. M petiole short to medium. Cu petiole of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Brown with diffuse pattern.

Tergite 8 wide, arcuate, medially much narrower, with about 5 setae along posterior margin on both lateral lobes. Sternite 8 triangular, apically rounded, with 5 setae.

Hypopygium. Tergite 9 with specialized spines and setae, without lateral appendages. Sternal synsclerite without lateral appendages.

One Nearctic species is recognized in this species group.

Mycomya arnaudi n. sp.
Figs. 304—309, key p. 39.

Type locality: Oregon, Lane County, Salt Creek Falls Campground, 33 km SE Oakridge (USA).

Type: Holotype (studied): U.S.A.: Oregon: Lane County, Salt Creek Falls Campground, 33 km. SE. Oakridge. 29-VII-1974, 1219 m Paul H. Arnaud, Jr. Calif. Acad. Sci. Coll. (m CAS).

Material examined: USA: Holotype (CAS).

Description:

Head. Palp and other mouthparts yellowish, face brownish, posterior parts of head dark brown. Antenna brownish, basal segments yellowish. 1st flagellomere about 2.5 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum brownish, with 3 brownish indistinct partially fused longitudinal stripes, anterolateral corners yellow to yellowish. Mesanepisternum brownish. Mesokatepisternum brownish to brown. Scutellum brownish with 4 long setae. Laterotergite and mediotergite brownish to brown. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.74, bt2:t2 = 0.65, bt3:t3 = 0.64.

Wing. Wing length 4.7 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell, Sc2 ending in R1 distinctly proximally to middle of small cell. Apical part of Sc bearing 11 macrotrichia. Small cell about 2.5 times as long as wide. Cu fork below M fork. M ratios: 0.49, 0.62. Cu ratios: 0.71, 1.04. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: + ; Cu1: +; Cu2: +. Halter pale yellowish.

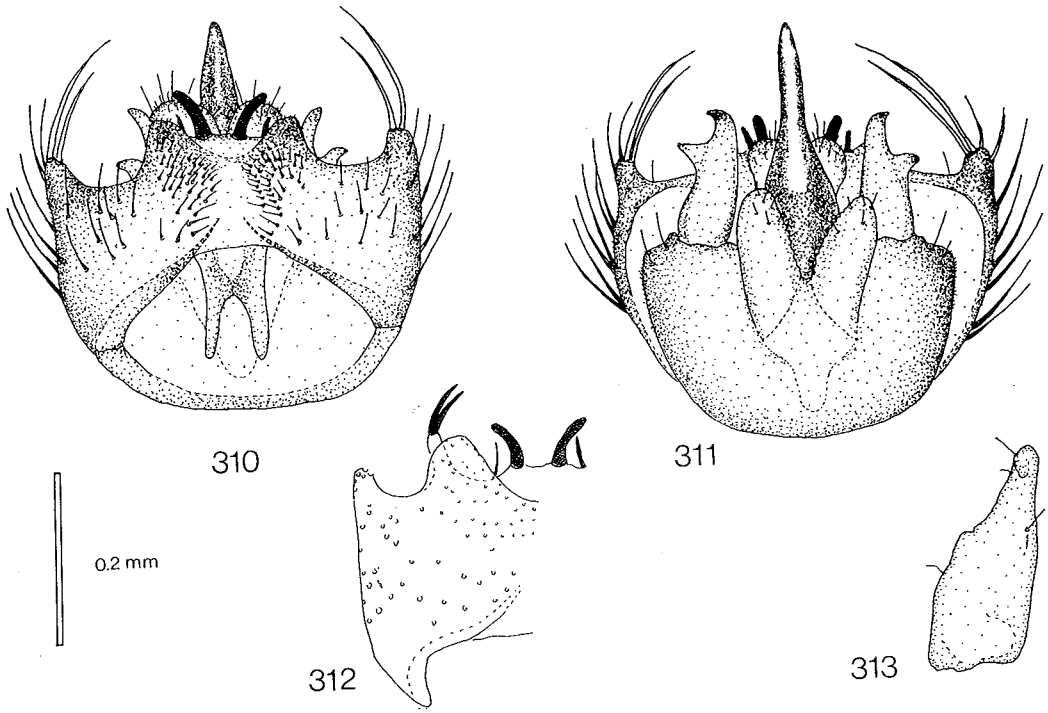
Abdomen. Brown, without distinct markings.

Hypopygium. Figs. 304—309, yellowish, tergite brownish. Tergite 9 with small lateral appendage, 1+2+1 sabre-like spines and strong spine on both sides. Sternal synsclerite with some long setae, without distinct lateral appendages. Sternal submedian appendage long, wide, with some long setae. Paramere long, slightly curved, slender. Gonostylus long slender, slightly curved, with 2 apical teeth. Aedeagus long.

Female. Unknown.

Distribution: Western Nearctic. Known only from the holotype from Oregon.

Biology: Unknown.



Figs. 310—313. *Mycomya collini.* — 310: male hypopygium, tergal view. — 311: hypopygium, sternal view. — 312: tergite 9. — 313: gonostylus. Scale 0.2 mm for Figs. 310—312, Fig. 313 2 x enlarged.

Species group M. collini

Head. Anteclypeus dark, comparatively short, apically rounded, with a few small setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setulae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 2 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining distinctly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5, not quite reaching wing apex. Sc ending in C. Cu fork slightly distal to M fork. M and Cu petioles of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Colour pattern diffuse brownish.

Tergite 8 narrow, arcuate, with 0—2 short setae along posterior margins of both lateral parts. Sternite 8 triangular, apically rounded, with many comparatively long setae.

Hypopygium. Tergite 9 with specialized setae, spines and cones. Sternal synsclerite without lateral appendages.

One Palaearctic species is recognized in this species group.

Mycomya collini Edwards, 1941
Figs. 310—313, key p. 38.

Mycomyia collini Edwards, 1941. Edwards 1941:30; Coe in Kloet & Hincks 1945:345; Plassmann 1977b:8, 1978c:48.

Mycomya collini: Hutson in Kloet & Hincks 1976:24; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:38.

Type locality: Berks, Wormsley (UK).

Type: Holotype (studied): Holotype ♂ O. U. M. Holotype ♂ *Mycomya collini* Edw. (m OXF).

Material examined: UK: Berks, Wormsley, 16.V. 1928, J. E. Collin (holotype OXF). — Finland: *Ab:* Vihti, Vihtijärvi, 27.VIII. 1963, R. Tuomikoski (1 m MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (1 m MZH).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 2 longer and 3 slightly shorter setae. Mesoscutum yellow, with 3 indistinct light brownish partially fused longitudinal stripes, middle stripe with narrow yellow medial line, anterolateral corners of mesoscutum yellow. Mesanepisternum and mesokatepisternum yellowish. Scutellum yellowish, with 2 long setae. Laterotergite yellowish. Mediotergite yellowish to brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi light brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.81—0.88, bt2:t2 = 0.66—0.68, bt3:t3 = 0.54—0.60.

Wing. Wing length 3.3—4.1 mm. Wing hyaline. Sc ending in C distally to middle of small cell, sometimes Sc1 apically weak, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 8—20 macrotrichia. Small cell about 3 times as long as wide. Cu fork slightly distal to M fork. M ratios: 0.65—0.82, 0.80—1.00. Cu ratios: 0.74—0.80, 1.15—1.29. Macrotrichia: M petiole: 0—2; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites light brownish. Sternites yellow to yellowish.

Hypopygium. Figs. 310—313, yellow. Tergal lateral appendage short, with 2 apical setae bending slightly medially. Tergite 9 with 2 dark spines, 1 long, broad and 1 thin cone on both sides. Sternal synsclerite with 0—2 setae on both sides, without lateral appendages. Sternal submedian appendages short, wide, partially fused, with a few short setae. Gonostylus broad, with indistinct lateral lobe and light apical tooth. Aedeagus prominent, long, in lateral view very wide, knife-like.

Female. Unknown.

Distribution: Western Palaearctic. United Kingdom, Finland. Also reported from Federal Republic of Germany: Allgäu (Plassmann 1977b, 1978c).

Biology: Unknown.

Species group M. sieberti

Head. Anteclypeus comparatively long, apically rounded, with several scattered small setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining distinctly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

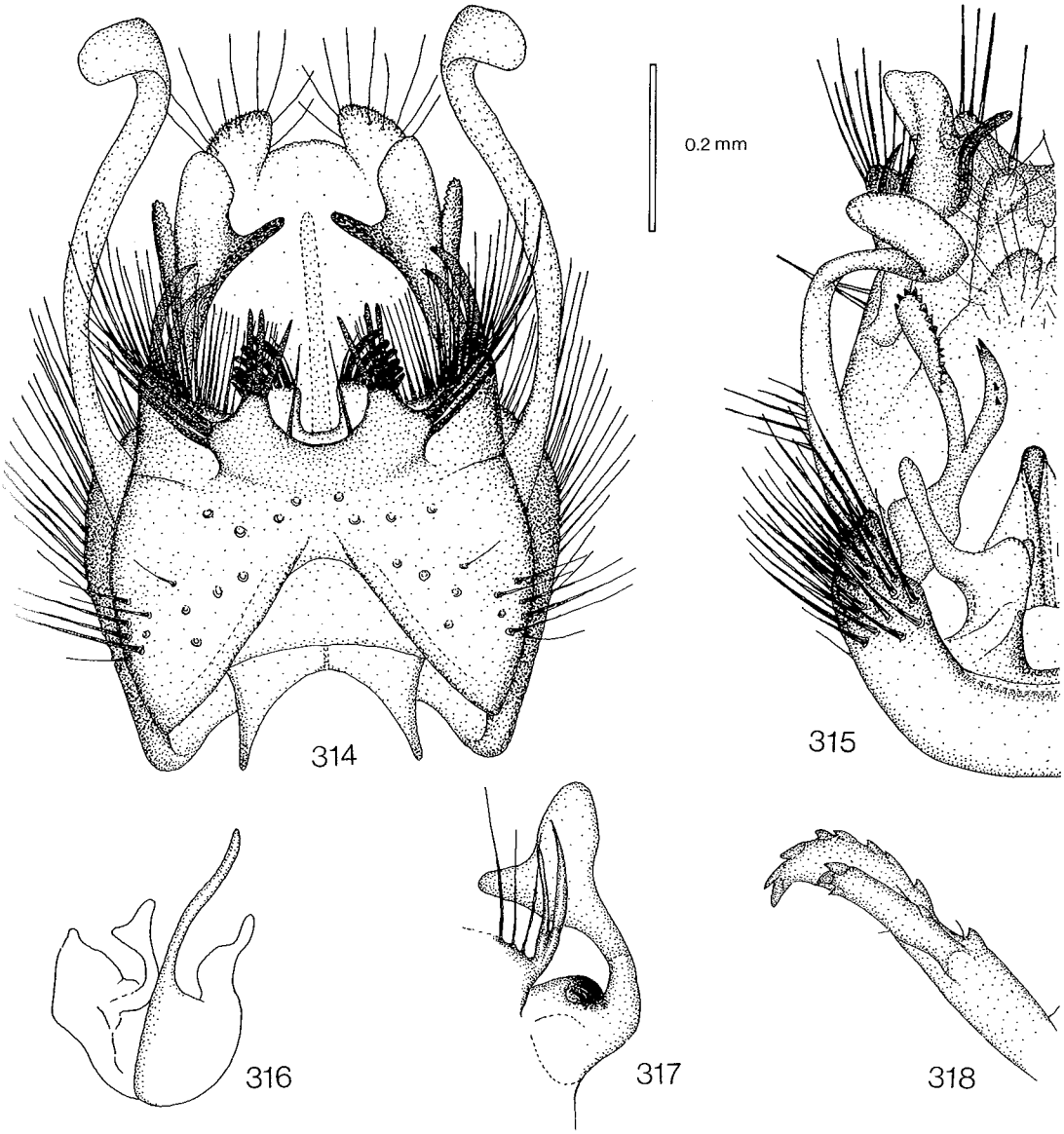
Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork below M fork. M petiole short to medium. Cu petiole long to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with lighter posterior margins.

Tergite 8 comparatively narrow, arcuate, medially hardly narrower, with several setae along posterior margin. Sternite 8 long, wide, apically blunt, with many (about 20) long apical setae.

Hypopygium. Tergite 9 with specialized setae, cones and spines. Sternal synsclerite very setose.

One Palaearctic species is recognized in this species group.



Figs. 314—318. *Mycomya sieberti.* — 314: male hypopygium, tergal view. — 315: hypopygium, sternal view. — 316: schematized structure of hypopygium, lateral view. — 317: apical structures of tergite 9. — 318: apex of gonostylus. Scale 0.2 mm for Figs. 314—315, Figs. 317—318 2 x enlarged.

Mycomya sieberti Landrock, 1930
Figs. 314—318, key p. 38.

Mycomyia sieberti Landrock, 1930. Landrock 1930:255; Lackschewitz 1937:12; Landrock 1940:34; Ostroverchova & Stackelberg 1969:273.
Mycomya sieberti: Väisänen 1982b:41.

Type locality: Not stated (? Lithuanian SSR).
Type: Holotype (not located, apparently destroyed): m.

Material examined: USSR: Leningrad. obl., Elizabetiko, Chernoe oz., 19.VII. 1940, Stackelberg (1 m LEN); Amur Fl., Nikolajewsk, 28.VIII. 1917, Y. Wuorentaus (1 m MZH); Kuril Isls., Kunashir, 19.IX. 1976, A. Zaitzev (1 m MOSC).

Description:
Head. Palp and other mouthparts yellowish, face yellowish to brownish, posterior parts of head brown. Antenna brownish, 3 basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum shining dark brown, laterally yellowish, its wide dark brown longitudinal stripes fused, anterolateral corners widely yellow. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral part brownish. Scutellum yellow, with 4, occasionally 3, longer setae. Laterotergite yellow to yellowish, ventral part brownish. Mediotergite yellowish, lateral and posterior parts brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.90—0.93, bt2:t2 = 0.75—0.81, bt3:t3 = 0.60—0.70.

Wing. Wing length 5.2 mm. Wing hyaline. Sc ending in C near or distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Sc without macrotrichia. Small cell about twice as long as wide. Cu fork below M fork. M ratios: 0.45—0.53, 0.55—0.61. Cu ratios: 0.86—0.87, 1.32—1.36. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 anteriomedially brown, lateral and posterior margins widely yellowish to brownish, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 314—318, brown. Tergite 9 with 3 lateroapical setae, 3+1 submedial cones, 2 broad sabre-like spines, 6 dark cones on both sides. Sternal synsclerite with many long setae, without lateral appendages. Sternal submedian appendage long bare. Paramere very long, slender, apically slightly rounded. Gonostylus with 2 branches, lateral branch longer than medial one with many marginal teeth, medial branch with 4 teeth. Aedeagus comparatively long, slender, apically hooked.

Female. Unknown.

Distribution: Palaearctic. USSR: ? Lithuanian SSR, Leningrad region, Far East (Amur, Kuril Islands). Also reported from Latvian SSR (Lackschewitz 1937).

Biology: Unknown.

Species group M. vittiventris

Head. Anteclypeus triangular, dark, with many small setulae. Antenna about 1.5 times as long as head and thorax together, in females only slightly longer than these. Pedicel with some short dorsal setae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 2 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining distinctly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae moderately strong, longest about twice as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork slightly distal to or below M fork. M petiole short. Cu petiole long to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Colour pattern diffuse brownish.

Tergite 8 comparatively wide, arcuate, medially hardly narrower with about 3 setae along posterior margin on both lateral parts. Sternite 8 wide, with 5—10 setae.

Hypopygium. Tergite 9 with highly specialized combs, spines and setae, lateral appendages well developed, basal part of tergite bare. Sternal synsclerite with distinct lobe-like submedian appendages.

Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, apically rounded, widely setose, setae short.

One Palaearctic species is recognized in this species group.

Mycomya vittiventris (Zetterstedt, 1852)

Figs. 319—325, key p. 38, 42.

Sciophila vittiventris Zetterstedt, 1852. Zetterstedt 1852:4111; Siebke 1877:245; Strobl 1895:143; Kertész 1902:65, 1903:35; Strobl 1909:241; Morge 1974:171.

Mycomyia vittiventris: Wahlgren 1921:167; Edwards 1924b:162 (Syn. *Sciophila melanogaster* Zetterstedt, *S. elegans* Lundström); Landrock 1926—1927:52; Lackschewitz 1937:11; Edwards 1941:29; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Krogerus 1960:64; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:27, 1970b:388, 1971b:62; Ostroverchova 1971:94.

Mycomya vittiventris: Kidd & Ackland 1969:22; Hutson in Kloet & Hincks 1976:24; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:41.

Sciophila melanogaster Zetterstedt, 1852. Zetterstedt 1852:4112; Edwards 1924b:162 (as syn. for *M. vittiventris).*

Mycomyia melanogaster: Wahlgren 1921:168.

Sciophila melanogastra: Kertész 1902:62, 1903:34 (error).

Sciophila taurica Strobl, 1898 (New synon.). Strobl 1898a:283; Morge 1974:171.

Mycomyia taurica: Landrock 1926—1927:51.

Mycomya taurica: Väisänen 1982b:41.

Sciophila elegans Lundström, 1912. Lundström 1912a:11; Lundström & Frey 1913:3; Edwards 1924b:162 (as syn. for *M. vittiventris).*

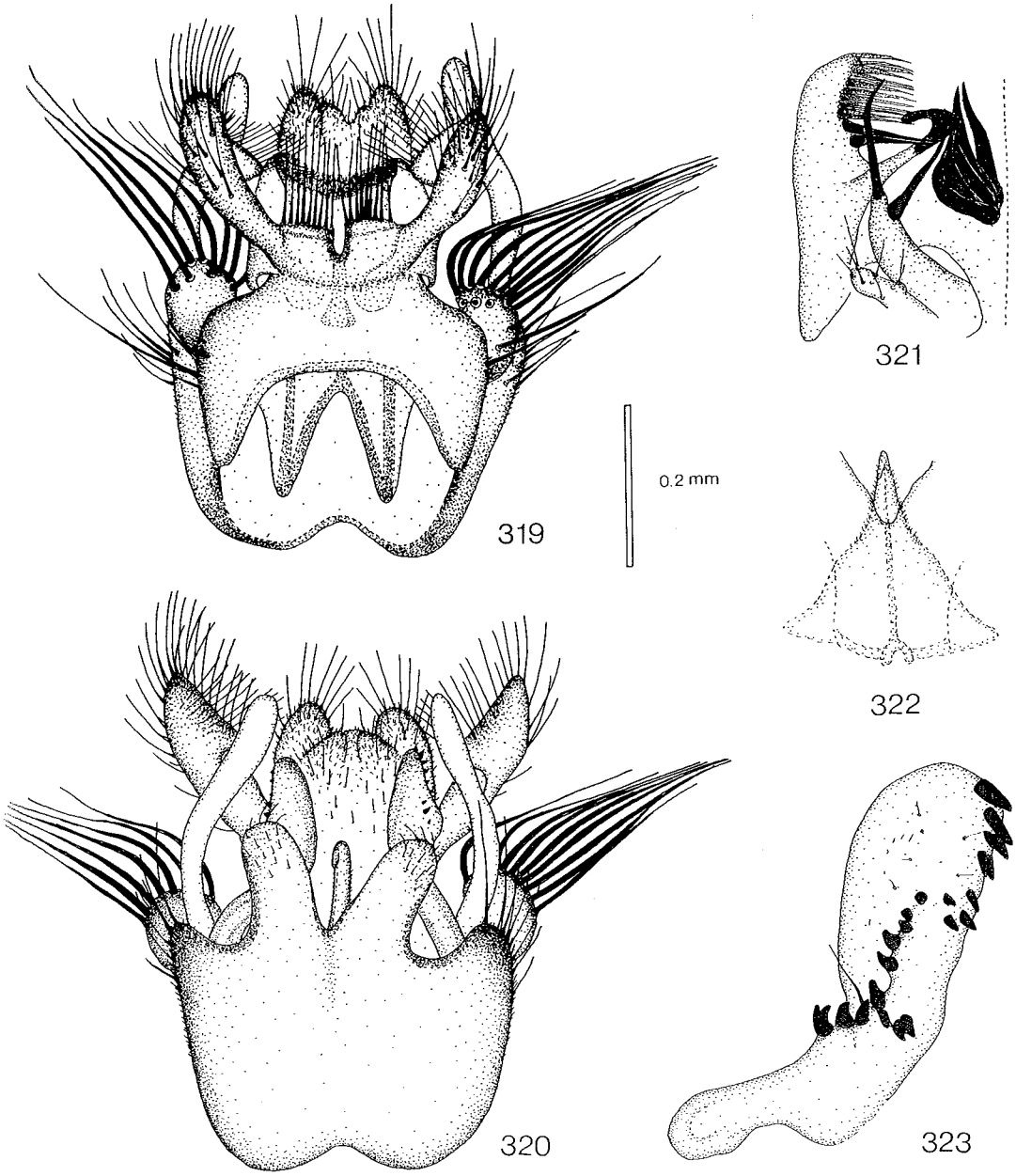
(not) *Sciophila elegans* Ruthe, 1831 (see Zaitsev 1982).

Mycomyia elegans: Ostroverchova 1979:66.

Type locality: "Helsingia ad diversorium Ytter-Hogdal" (Sweden).

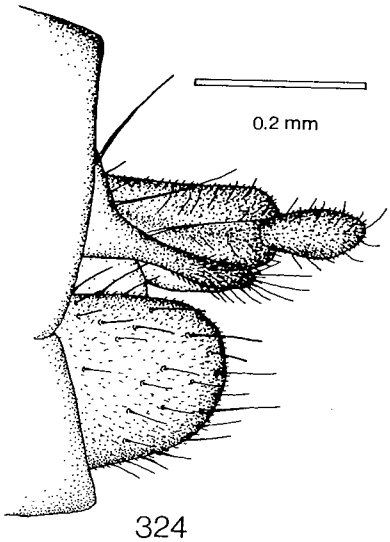
Types: — *Sciophila vittiventris* Zetterstedt: Holotype (studied): 212. *Sc. vittiventris* Zett. ♀. Y. Hogdal. Y. Hogdal, in Helsingland 18/8 40. (f LUND). — *Sciophila melanogaster* Zetterstedt: Holotype (not located, apparently destroyed): f. Type locality: "Jemtlandia ad diversorium Åsarne" (Sweden). — *Sciophila taurica* Strobl: Lectotype (studied) designated by G. Morge (1974): *Sciophila taurica* Hohentauern af (?) 27 897 ♂♀. *Sciophila taurica* Strobl Typen. Exemplar rev. G. Morge 1959. 3125. *Sc. taurica* 27/8 97 Styriae Strobl (m STROBL). Type localities: Originally: "Wirtsgraben bei Hohentauern"; "Grünerlen am Bösenstein" (Austria). Morge 1974: Winzgraben (Austria). — *Sciophila elegans* Lundström: Lectotype (studied) by present designation: Mus. Zool. H:fors Spec. typ. No 4274. *Sciophila elegans* Lun. *S. elegans* Lundstr. 5480. Kittilä. R. Frey. Lectotypus. (m MZH). Type localities: Originally: Kittilä; Muonio (Finland). By present designation: Muonio.

Material examined: Italy: Aosta, Valgrisanche, Route



Figs. 319—323. *Mycomya vittiventris*. — 319: male hypopygium, tergal view. — 320: hypopygium, sternal view. — 321: apical (inner) structures of tergite 9. — 322: aedeagus. — 323: gonostylus. Scale 0.2 mm for Figs. 319—320 and 322, Figs. 321 and 323 2 x enlarged.

du Lac, alt. 1800 m, 12.IX. 1974, L. Matile (1 f MNHN); Aosta, Vallée de Gressoney, 5,5 km en amont de Gaby, alt. 1450 m, 11.IX. 1978, L. Matile (2 ff MNHN); Aosta, Vallée de St. Barthelemy, alt. 1450 m, 7.IX. 1978, L. Matile (1 m MNHN). — Austria: Styriae, Hohentauern (1 m *Sciophila taurica* lectotype STROBL); Coll. Strobl (5 ff 1 m STROBL); Styria (1 f MZH); Salisbury, Gastein, 12.VIII. 1867, Mik (1 m WIEN). — Hungary: M. Tátra, Bélai, Mészkó Alpok, 1300—1600 m, 7.VIII. 1963, Mihályi (1 m TMB); Tatra, Smreczynski-tó, 1250 m, 28.VIII. 1957, Soós (4 ff TMB); Tatralomnic, fenyves, 850—1150 m, 1.VIII. 1963, Mihályi (2 mm TMB); Tátralomnic, patak mellett, 900 m, Mihályi (9 mm 9 ff 1 ex. TMB); same data, 300 m (2 mm TMB); same data 1150—1730 m (1 m TMB). — Bulgaria: Kom, 25.VIII. 1981, D. Bechev (1 f 2 exx.



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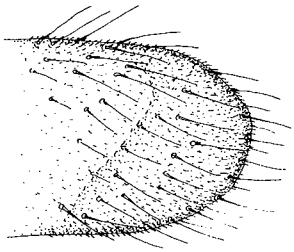

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Figs. 324—325. *Mycomya vittiventris*. — 324: female terminalia, lateral view. — 325: hypogynal valve, sternal view. Scale 0.2 mm.

coll. Bechev). — Czechoslovakia: Krkonoše, 1000 m/m, Černy Dôl., 9.VIII. 1966, P. Laštovka (1 m VUPP); Bohemia, Buchers (Pohoří na Šumavě), 25.VIII. 1883, Mik (1 m WIEN). — ? FRG: Wölfelsgrund (1 m TMB). — Poland: Glatzer Geb., Reinerz, 600 m, VIII. 29, Riedel (1 m BMNH); Riesengeb. (1 m MNB). — UK: Nethy Brg., 21.VIII. 1906, J. J. F. X. King (1 m BMNH). — Norway: TEy., Porsgrunn, Skjelsvik, Ostvedmyra, 16.VI. 1982, G. E. Ellefsen (3 mm coll. Andersen); same data 10.VIII. 1982 (1 m coll. Andersen); HOi., Eidfjord, Sysenvatn, 1070 moh, tett vierkratt, 11.VIII. 1969, K. E. Jørstad et al. (1 m BERG); N. Norge, Pålus, 4.VIII. 1914, B. Poppius (1 m MZH). — Sweden: Hall., Enslöv, Årnilt, 4.VII. 1968, H. Andersson (2 mm coll. Andersson); Hall., Enslöv, Årnilt, Lunnaberg, 24.VI. 1967, H. A. (1 m coll. Andersson); Y. Hogdal, 18.VIII. 1840 (*Sciophila vittiventris* holotype LUND); Nb., Råneå, Högsön, blandskog, 30.VIII. 1965, H. Andersson (4 mm 4 ff 5 exx. coll. Andersson); Staloluokta, 67°19'N, 16°41'W, 28.VIII. 1961, British Schools Exploring Soc. (2 mm BMNH). — Finland: *Ab:* Vihti, Vihtijärvi, 12—14. VII. 1960, 26.VII. 1962, 22.VIII. 1962, 12.VII. 1963, 23.VII. 1963, 5.VIII. 1963, R. Tuomikoski (10 mm MZH); *Ka:* Vehkalahti, 28.VII. 1971, L. Tiensuu (3 ff MZH); Virolahti, 1.VIII. 1971, L. Tiensuu (6 ff MZH); *Ta:* Lammi, Lamminjärvi, 6.IX. 1977, R. Väisänen (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, K. Mikkola (1 m MZH); *Kb:* Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (2 mm MZH); *Om:* Raahe, Wuorentaus (1 f MZH); Raahe, Pitkäkari, IX. 1908, Wuorentaus (2 mm 2 ff MZH); *Ok:* Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (6 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (12 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (4 mm MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (45 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (11 mm 8 ff MZH); Muonio, 7.VIII. 1911, R. Frey (*Sciophila elegans* 2 mm paralectotypes MZH); Kittilä, 4.VIII. 1911, R. Frey (*Sciophila elegans* lectotype, 1 m paralectotype MZH); *Le:* Kilpisjärvi, 16.VIII. 1970, L. Tiensuu (1 m 1 f MZH); *Li:* Inari, Törmänen, 18.VIII. 1960, R. Tuomikoski (2 ff MZH). — USSR: Leningrad, Yukki, 12.VII. 1928, 20.VII. 1933, Stackelberg (2 mm LEN); Kol'sk, Khibin. g., bass. ozer Vud'yavr, 5.VIII. 1933, Fridolin (1 m LEN); Arkhang. g., Murm. zh. d., st. Khibiny, 14.VIII. 1928, Cheburova (1 m LEN); Kol'sk., Murmansk, 12.VIII. 1923, Fridolin (1 m LEN); Arkhang. g., Aleksandrovsk, 31.VIII. 1923, 24.VIII. 1923, 26.VIII. 1923, Fridolin (6 mm 4 ff LEN); same locality, 17.IX. 1928, Cheburova (1 m LEN); Aleksandrovsk i Ekater. o., 17.IX. 1923, Fridolin (1 f LEN); Kanin, B. Poppius (1 m MZH).

Description:

Head. Palp and other mouthparts yellow, face brownish to brown, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with very distinct blackish brown longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum pale yellow. Mesokatepisternum pale yellow, ventral half blackish brown. Scutellum yellow, with 2 long setae. Laterotergite pale yellow, ventral part blackish brown. Mediotergite pale yellow, posterior parts blackish brown, bare. Colour pattern very distinct.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.84—0.92, bt2:t2 = 0.73—0.83, bt3:t3 = 0.60—0.69.

Wing. Wing length 4.5—5.6 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell, seldom Sc1 weak or apically broken, Sc2 ending in R1 usually distinctly proximally to middle of small cell. Apical part of Sc without macrotrichia, very seldom with 1—3 macrotrichia. Small cell 2.5—3.5 times as long as wide. Cu fork slightly distal to or below M fork. M ratios: 0.38—0.47, 0.44—0.56. Cu ratios: 0.62—0.95, 1.00—1.40. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Light brownish, without markings.

Hypopygium. Figs. 319—323, yellow to yellowish. Tergal submedian appendage long, with many setae. Tergal lateral appendage rounded, with many very strong setae. Tergite 9 with short appendages, 1+2+row of spines

and about 5 sabre-like apically pointed, curved cones very close to each other on both sides. Sternal synsclerite with several lateral setae. Sternal submedian appendage wide, apically rounded, with small setae. Paramere wide, long, slightly curved, apically rounded. Gonostylus long and wide, with about 23 teeth. Aedeagus comparatively long.

Female. Wing length 5.0—6.1 mm. Colour pattern similar to that of male, very distinct. Leg ratios: bt1:t1 = 0.79—0.94, bt2:t2 = 0.73—0.74, bt3:t3 = 0.65—0.71. Terminalia as in Figs. 324—325, yellowish.

Remarks: Wing aberration: An additional cross-vein parallel to Sc2, but proximal to it.

Distribution: Palaearctic. Italy, Austria, Hungary, Bulgaria, Czechoslovakia, ? Federal Republic of Germany, Poland, United Kingdom, Norway, Sweden, Finland. USSR: Leningrad region, Murmansk region, Kanin peninsula. Also reported from Latvian SSR (Lackschewitz 1937) and East Siberia (Ostroverchova 1971).

Biology: Some specimens have been collected from alder woods, mixed and coniferous forests and bogs.

Species group M. nigricornis

Head. Anteclypeus short, apically rounded, with some relatively long setulae on apical part. Antenna slightly longer than head and thorax together, in females slightly shorter. Pedicel with some short dorsal setae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork proximal to M fork. M petiole short to medium. Cu petiole of medium length. Macrotrichiation of M and Cu not reduced.

Abdomen. Dark, seldom posterior margins of tergites slightly paler.

Tergite 8 wide, arcuate, medially narrower, with about 7 setae along posterior margin of both lateral lobes. Sternite 8 wide, triangular, apically rounded, with 2 small subapical setae.

Hypopygium. Tergite 9 a large arcuate band with specialized apical structures. Sternal synsclerite smaller, without lateral appendages.

Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, apically rounded, with some relatively short setae, dorsoapical seta strongest.

One Holarctic species is recognized in this species group.

Mycomya nigricornis (Zetterstedt, 1852)
Figs. 326—332, key p. 39, 42.

(p. p.) *Sciophila nigricornis* Zetterstedt, 1852. Zetterstedt 1852:4125, 4362; Kertész 1902:62, 1903:34 (p. p. = *M. lambi* Edwards).

Sciophila nigricornis: Lundström 1907:9, 1909:11, 1912a:9.

(?) *Sciophila nigricornis:* Osten-Sacken 1858:143; Winnertz 1863:728; Schiner 1864:444; Nowicki 1873:16; van der Wulp 1877:168; Stackelberg 1922:6.

(not) *Sciophila nigricornis:* Edwards 1924b:162 (as syn. for *M. ornata* (Meigen)) (= *M. lambi* Edwards).

(p. p.) *Mycomyia nigricornis:* Wahlgren 1921:168 (p. p. = *M. lambi* Edwards).

Mycomyia melanoceras Edwards, 1924 (as "new name" for *Sciophila nigricornis:* Lundström) (New synon.). Edwards 1924b:162, 1925a:549; Landrock 1926—1927:49; Séguy 1940:76; Coe in Kloet & Hincks 1945:345; Ostroverchova & Stackelberg 1969:273; Ostroverchova 1979:71.

Mycomyia melanoceros: Edwards 1925a:552; Lackschewitz 1937:11; Frey & Storå 1941:46 (error).

Mycomya melanoceras: Kidd & Ackland 1969:273; Hutson in Kloet & Hincks 1976:24; Väisänen in Hackman 1980:31; Väisänen 1982b:40.

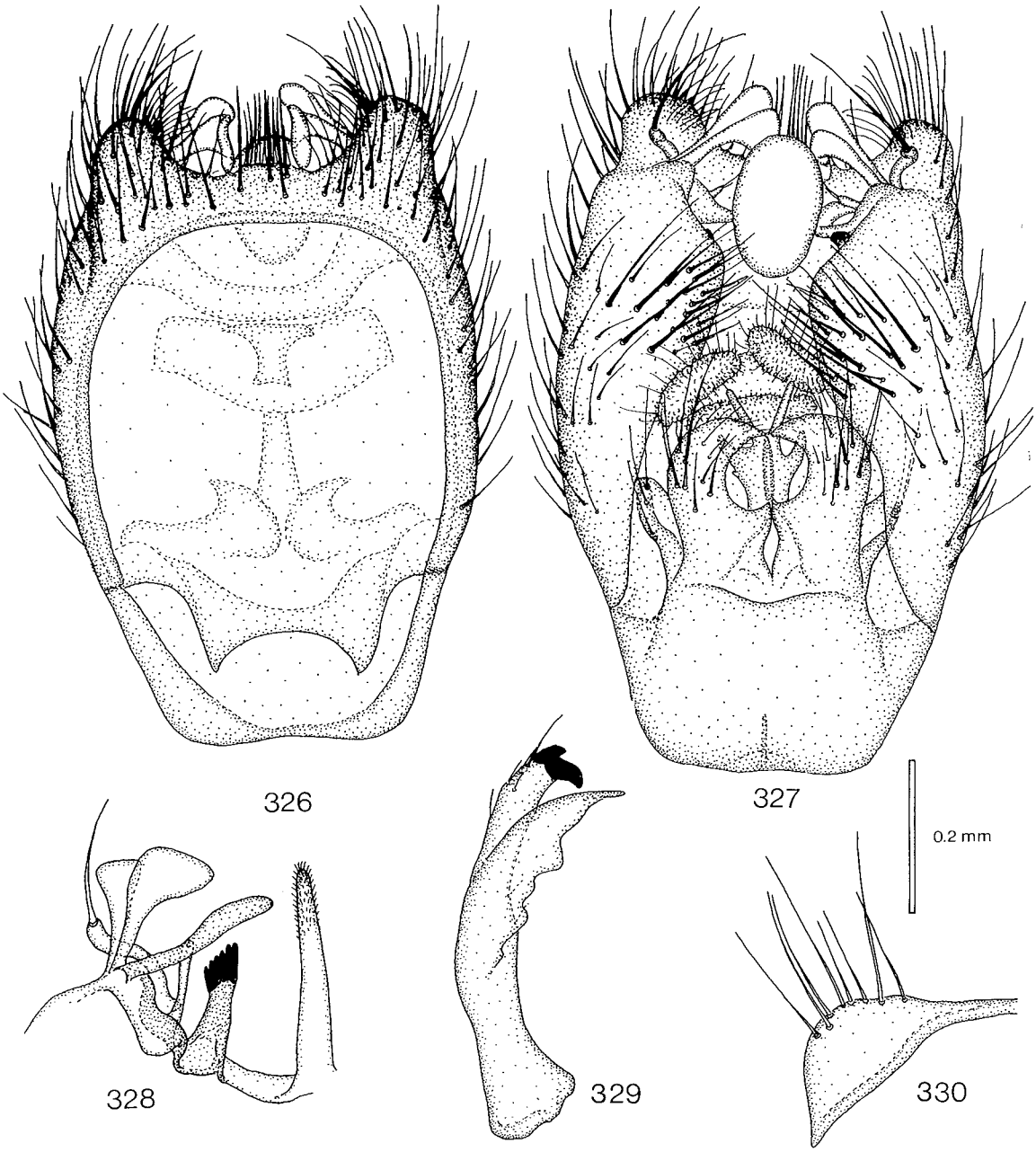
Mycomya melanoceros: Hutson et al. 1980:44 (error).

Type localities: Originally: "Helsingia ad diversoria Löfvik et Kårböle"; Jemtlandia ad Faxelfven et Mulfjellet" (Sweden). By present designation: "Helsingia, Kårböle" (Sweden).

Types: — *Sciophila nigricornis* Zetterstedt: Lectotype (studied) by present designation: *Sc. nigricornis* Zett. ♂. Kårböle. Kårböle, Helsingland. 19—20/8 40. 202. Lectotypus *Sciophila nigricornis* Zetterstedt ♂ (m LUND). — The description of *Mycomya melanoceras* Edwards was based on Lundström's figures (Finnish specimens; studied).

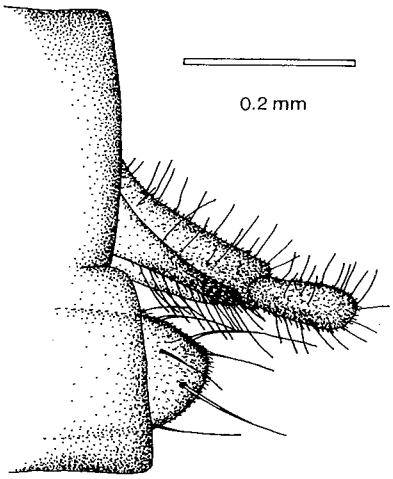
Remarks: Of the three *Sciophila nigricornis* syntypes in Zetterstedt's collection, two belonged to this species and one to *M. lambi* Edwards.

Material examined: Austria: Coll. Winthem (1 f WIEN). — Netherlands: Hilversum, X., de M. (1 f AMST). — UK: Logie, IX. 1904, IX. 1905, 28.VIII.—26.IX. 1909, 4.IX. 1909, IX. 1909, 7.IX. 1910, IX. 1910, F. Jenkinson (7 mm 5 ff BMNH); Perth, Aberfoyle, 6.IX. 1905, A. E. G. Carter (1 m BMNH); Perth, Rosemount, Blairgowrie, 24.IX. 1910, A. E. G. Carter (1 m BMNH). — Denmark: Hollúm, 21.IX. 30, coll. P. Nielsen (1 f COPEN): coll. Staeger (1 m COPEN). — Norway: HOy., Os, Lundatrae, IX—X. 1975, 20—27.VIII. 1976, T. Andersen (4 mm 3 ff coll. Andersen); HOy., Fjell, Sotra, Vindenes, 25.X. 1977, 15.VIII. 1978, 31.VIII. 1978, 5.IX. 1978, 10.IX. 1979, 15.IX. 1978, T. Andersen (24 mm 8 ff coll. Andersen); Finmark, Seiland Is., VII. 1934, FitzGerald (1 m BMNH). — Sweden: Helsingland, Löfvik, 23.VIII. 1840 (1 *Sciophila nigricornis* paralectotype LUND); Helsingland, Kårböle, 19—20.VIII. 1840 (*S. nigricornis* lectotype LUND); Nb., Råneå, Bergviken, tallhed, 2.IX. 1965, H. Andersson (1 m coll. Andersson); same data, Vitmyr (1 f coll. Andersson). — Finland: *Ab:* Halikko, 6703:274, 18.IX. 1981, M. Koponen (1 m 1 f AFZ); same locality, 25.VIII. 1981, O. Siitonen (1 m MZH); Vihti, Vihtijärvi, 27.IX. 1965, R. Tuomikoski (2 mm MZH); Vihti, 6716:366, 19.IX. 1976, M. Koponen (1 m AFZ); Tenhola, Skogby, 15.X. 1965, K. Mikkola (4 mm MZH); Karuna, Bergroth (1 m MZH); *N:* Hanko, Uddskatan, 14—20.IX. 1980, light trap, K. Mikkola (1 m MZH); Tvärminne, Zool. Station, 24.VIII. 1963, light



Figs. 326—330. *Mycomya nigricornis*. — 326: male hypopygium, tergal view. — 327: hypopygium, sternal view. — 328: apical structures of tergite 9. — 329: gonostylus. — 330: tergite 8. Scale 0.2 mm for Figs. 326—327 and 330, Figs. 328—329 2 x enlarged.

trap, K. Mikkola (1 m MZH); Tvärminne, by, 24.VIII. 1963, light trap, K. Mikkola (2 mm MZH); Inkoo, Fagervik, IX. 1980, light trap, J. Jalava, J. Järkkä, L. Löfgren (1 m 1 f MZH); Helsinge, 1905, R. Frey (1 m MZH); Pyhtää, Kiviniemi, 15.VIII. 1981, R. Väisänen (1 m MZH); *Ka:* Vehkalahti, 15.VIII. 1971, 11.IX. 1971, 21.IX. 1971, 13.IX. 1972, L. Tiensuu (14 mm 1 f MZH); *Ta:* Messuby, VIII. 1907, R. Frey (1 m MZH); *Lk:* Muonio, Palmen (1 m MZH); same locality, 1.VIII. 1911, R. Frey (2 mm MZH); Kittilä, 5.VIII. 1911, R. Frey (1 m MZH); *Li:* Inari, Paskalouttuma, 5—8.VIII. 1961, K. Ahola & E. Pätiälä (107 mm 19 ff 3 exx.



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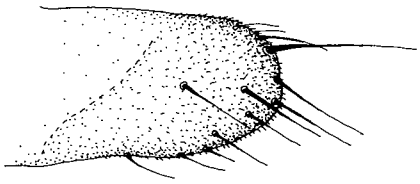

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Figs. 331—332. *Mycomya nigricornis.* — 331: female terminalia, lateral view. — 332: hypogynal valve, sternal view. Scale 0.2 mm.

MZH). — USSR: Leningrad o., Luzhsk., Tolmachevo, 2.VIII. 1935, 2.IX. 1937, 5.IX. 1937, 6.IX. 1937, Stackelberg (6 mm LEN); Leningradsk., Luzhsk., Godzhitsa, 18.VIII. 1934, 19.VIII. 1934, Stackelberg (2 mm LEN); Kol'sk., Khib. gory, bass. ozer Vud-Yavr, 4.IX. 1930, 24.VIII. 1932, 7.VIII. 1933, 19.IX. 1934, 29.IX. 1934, Fridolin (5 mm LEN); Arkhang. g., Aleksandrovsk, 31.VIII. 1923, Fridolin (2 mm LEN); m. M. Ural i oz. Vorcha-ty, Obdor, 28.VIII. 1925, 29.VIII. 1925, 31.VIII. 1925, 2.IX. 1925, Makar'in (3 mm 6 ff LEN); Irkutsk, 8.VII. 1912, Karnakova (1 m LEN); Amur. obl., Klimoutsi, 40 km W Svobodnogo, 8.IX. 1958, 25.IX. 1958, Zinov'ev (15 mm 1 f LEN). — Alaska: Unakleet, 8.VIII. 1961, B. S. Heming (1 m CNC); Naknek R., King Salmon, 11.VIII. 1952, 23.VIII. 1952, W. R. Mason (2 mm CNC); Girdwood, Mile Post 90, Seward Highway, 25.VIII. 1957, E. L. Keller (1 m CAS).

Description:

Head. Palp and other mouthparts yellowish, face brownish to brown, posterior parts of head dark brown to black. Antenna brown. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum brown, with 3 longer setae. Mesoscutum brown to black, with 3 indistinct dark longitudinal stripes. Mesanepisternum brown to black. Mesokatepisternum brown to black. Scutellum brown with 4 long setae. Laterotergite and mediotergite brown to black. Mediotergite bare.

Legs. Coxae yellowish to brownish, femora yellowish, tibiae and tarsi brownish, joints of tarsal and tibial segments distinctly marked by bare pale areas. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 =0.64—0.73, bt2:t2 = 0.63—0.73, bt3:t3 = 0.54—0.64.

Wing. Wing length 4.1—5.5 mm. Wing hyaline. Sc ending in C near or proximally to middle of small cell, Sc2 ending in R1 distinctly proximally to middle of small cell. Sc without macrotrichia. Small cell 2.5—3.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.44—0.59, 0.53—0.71. Cu ratios: 0.69—0.83, 1.00—1.31. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 0—+; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Often entirely black, sometimes posterior margins of tergites 1—5 narrowly yellowish.

Hypopygium. Figs. 326—330, tergite 9 brownish, sternal synsclerite yellowish. Tergite 9 large, with strong setae on sternal part and 6 dark cones on both sides. Sternal synsclerite relatively small. Sternal submedian appendage curved with some setae, comparatively large. Gonostylus with lateral lobe and 2 apical teeth. Aedeagus with specialized apical lobes.

Female. Wing length 4.9—6.1 mm. Thorax dark with anterolateral corners of mesoscutum yellow. Abdomen blackish brown to black, tergites 6—7 very dark. Leg ratios: bt1:t1 = 0.63—0.68, bt2:t2 = 0.68—0.72, bt3:t3 = 0.55—0.61. Terminalia as in Figs. 331—332, yellowish to brownish.

Remarks: Populations of different areas seem to differ fairly distinctly in their wing length, but the material is insufficient for any general conclusions.

Distribution: Holarctic. Austria, Netherlands, United Kingdom (Scotland), Denmark, Norway, Sweden, Finland. USSR: Leningrad region, Murmansk region, Ural Mountains, Irkutsk region, Amur River. Alaska. Also reported from Latvian SSR (Lackschewitz 1937) and Tomsk, West Siberia (Ostroverchova 1979).

Biology: Some specimens have been collected with light traps. The collecting biotopes given are deciduous and coniferous forests and a bog; also caught on the fells in Lapland.

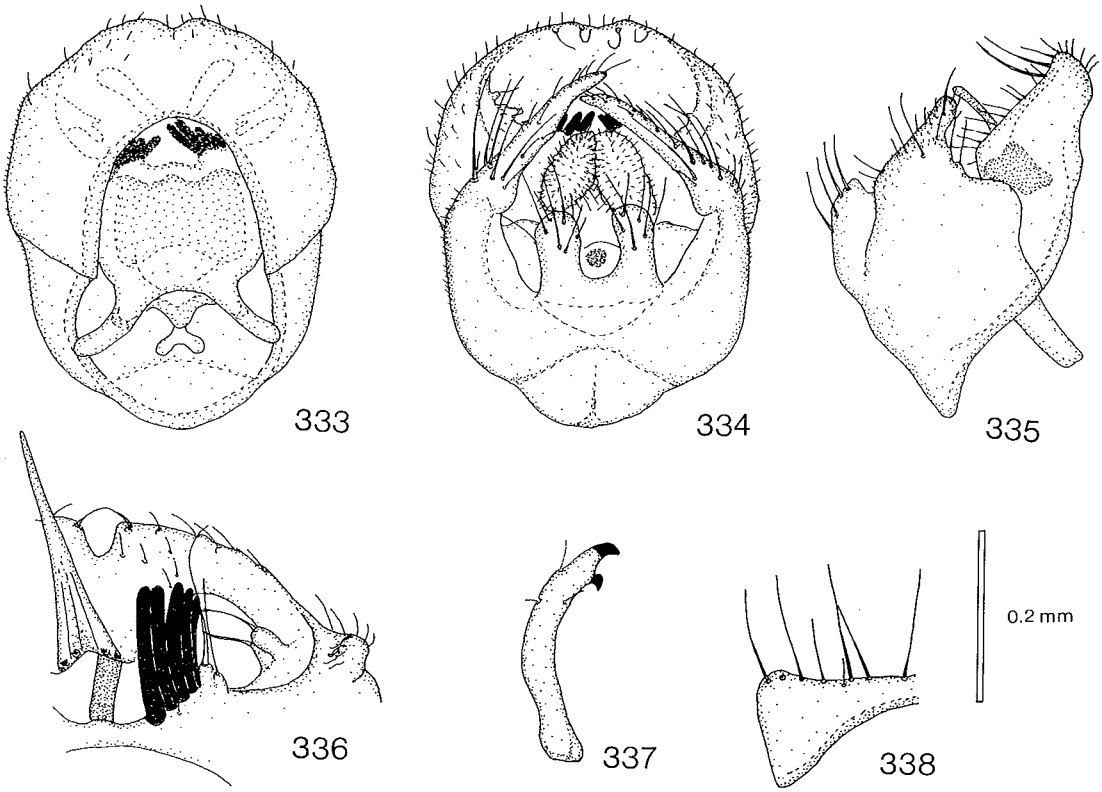
Species group M. aluco

Head. Anteclypeus triangular, comparatively short, with some scattered relatively long setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about 3.5 times as long as ocellus. Eye relatively slightly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5, not quite reaching wing apex. Sc ending in C. Cu fork distinctly proximal to M fork. M petiole very short. Cu petiole short to



Figs. 333—338. *Mycomya aluco*. — 333: male hypopygium, tergal view. — 334: hypopygium, sternal view. — 335: hypopygium, lateral view. — 336: apical structures of tergite 9. — 337: gonostylus. — 338: tergite 8. Scale 0.2 mm for Figs. 333—335 and 338, Figs. 336—337 2 x enlarged.

medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites dark with lighter posterior margins.

Tergite 8 comparatively wide, arcuate, medially narrower, with many (about 16) setae along posterior margin. Sternite 8 wide, triangular, apically rounded, without setae.

Hypopygium. Tergite 9 a relatively wide arcuate band with two groups of dark cones. Sternal synsclerite with long lateral appendages.

One Nearctic species is recognized in this species group.

Mycomya aluco n. sp.
Figs. 333—338, key p. 39.

Type locality: British Columbia, Squamish, Diamond Head Trail (Canada).

Type: Holotype (studied): Squamish, B. C. Diamond Head Trail 3200 ft. Aug. 1—2 G. J. Spencer 1953. (m CNC).

Material examined: Canada: B. C., Kimberly, St. Mary's Lake, 29.VIII., C. Garrett (1 m hypop. slide No. 25.49 USNM); B. C., Squamish, Diamond Head Trail, 3200 ft., 1—2.VIII. 1953, G. J. Spencer (holotype CNC). — USA: Wash., Chelan Co., Skinney Crk., 11 mi. N. Leavenworth, 18.VII. 1972, Malaise trap, dry ice, W. J. Turner & W. B. Garnett (1 m WASH).

Description:

Head. Palp and other mouthparts and face yellow, posterior parts of head dark brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow, posterior and lateral parts yellowish, without distinct markings or with 3 brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow to yellowish. Scutellum yellow, with 4 long setae. Laterotergite and mediotergite yellow to yellowish. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.79—0.80, bt2:t2 = 0.67—0.70, bt3:t3 = 0.56.

Wing. Wing length 4.7—4.8 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical

part of Sc bearing 5—6 macrotrichia. Small cell about twice as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.32—0.34, 0.39. Cu ratios: 0.55, 0.72—0.77. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior thirds yellow, 6 brown with posterior quarter yellow, 7 brown. Sternites 1—5 yellow, 6—7 brown with posterior thirds yellow.

Hypopygium. Figs. 333—338, pale yellow, membraneous. Tergite 9 with indistinct small sabre-like spines and 5 dark cones on both sides. Sternal lateral appendages long and slender, with long setae. Sternal submedian appendage comparatively short, with some setae. Gonostylus slender, with 1 subapical and 1 apical tooth. Aedeagus short.

Female. Unknown.

Distribution: Western Nearctic. Canada: British Columbia. USA: Washington.

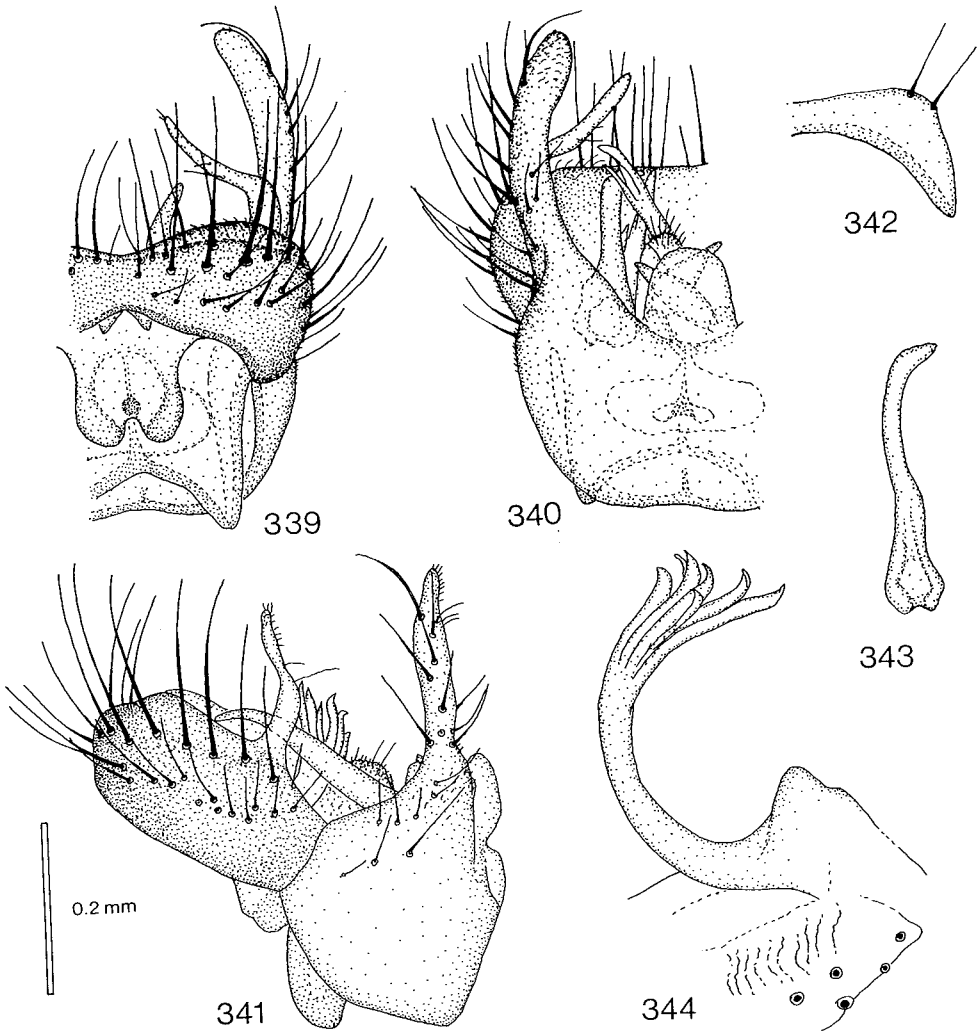
Biology: Unknown. One specimen caught with Malaise trap.

Species group M. ampla

Externally very similar to species group *M. tenuis,* differing mainly in the structure of the male hypopygium.

Hypopygium. Tergite 9 comparatively wide, extensively setose, with specialized appendages. Sternal synsclerite with long appendages.

One Nearctic species is recognized in this species group.



Figs. 339—344. *Mycomya ampla.* — 339: male hypopygium, tergal view. — 340: hypopygium, sternal view. — 341: hypopygium, lateral view. — 342: tergite 8. — 343: gonostylus. — 344: medial appendage of tergite 9. Scale 0.2 mm for Figs. 339—343, Fig. 344 2 x enlarged.

Mycomya ampla Garrett, 1924
Figs. 339—344, key p. 36.

Mycomya ampla Garrett, 1924. Garrett 1924:64; Laffoon in Stone et al. 1965:219; Cole 1969:120.
Mycomyia ampla: Coher 1959:123.

Type locality: Alberta, Banff, Hot Springs (Canada).
Type: Holotype (studied): Hotsprings rd Banff Alta N. B. S. July 07/08. *My ampla.* 4955 hypo. Holotype *Mycomya ampla* ♂ C Garrett C. B, D. Garrett + hypop. slide: *Mycomyia ampla* C Garrett Canada Alta Banff. Hot Springs 17.VII. 08 hypo ♂ 4955 (m CNC).
Material examined: Canada: Alberta, Banff, Hot Springs, 17.VIII. 1908, C. B. D. Garrett (holotype CNC); B. C., Fernie, 9.VII., C. Garrett (1 m CNC).
Description:
Head. Palp and other mouthparts yellow, face light brownish, posterior parts brown. Antenna brownish, basal segments yellowish. 1st flagellomere twice, 2nd 1.5 times as long as wide.
Thorax. Pronotum yellowish, with about 5 longer setae. Mesoscutum brownish to brown, without distinct markings. Mesanepisternum brownish to brown. Mesokatepisternum brownish to brown. Scutellum brownish, with 4 long setae. Laterotergite brownish to brown. Mediotergite brown, with 2 setae.
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long, only apically slightly curved spur. Leg ratios: bt1:t1 = 0.79—0.86.
Wing. Wing length 4.4—4.5 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally to or near middle of small cell. Apical part of Sc bearing 8—12 macrotrichia. Small cell about 3 times as long as wide. Cu fork distal to M fork. M ratios: 0.51—0.65, 0.61—0.80. Cu ratios: 0.73—0.79, 1.08—1.13. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Light brownish to brown, tergites with or without yellow posterior margins.
Hypopygium. Figs. 339—344, yellow. Tergite 9 with long slender lateral appendages and long curved medial appendages apically bearing broad flattened and curved setae. Sternal lateral appendages setose, long. Gonostylus long, slender.
Female. Unknown.

Distribution: Western Nearctic. Canada: Alberta, British Columbia.
Biology: Unknown.

Species group M. sigma

Externally very similar to species group *M. tenuis,* differing mainly in the structure of the male hypopygium.
Hypopygium. Tergite 9 wide, medially slightly pointed, widely setose. Sternal synsclerite with long setose submedian appendages, without lateral appendages.
Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, apically rounded, with some small subapical setae.

One Holarctic species is recognized in this species group.

Mycomya sigma Johannsen, 1910
Figs. 345—352, key p. 36, 42.

Mycomya sigma Johannsen, 1910. Johannsen 1910:180; Shaw & Fisher 1952:190: Laffoon in Stone et al. 1965:221; Cole 1969:121.
Mycomyia sigma: Fisher 1937:392; Coher 1959:116.
Sciophila trivittata Dziedzicki, 1885 (preocc. Zetterstedt, 1838) (New synon.). Dziedzicki 1885:18; Kertész 1902:64, 1903:35; Lundström 1909:7.
Mycomya trivittata: Landrock 1913:40.
Mycomyia duplicata Edwards, 1925 (a replacement name for *Sciophila trivittata* Dziedzicki) (New synon.). Edwards 1925a:550; Landrock 1926—1927:44; Lackschewitz 1937:10; Landrock 1940:33; Séguy 1940:73; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kidd in Kidd & Brindle 1959:72; Skidmore 1969:104; Plassmann 1970b:388, 1978a:148; Ostroverchova 1979:66; Ostroverchova & Zaitseva 1979:73.
Mycomya duplicata: Hutson in Kloet & Hincks 1976:24; Matile 1977:633; Cole & Chandler 1979:51; Väisänen in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1982b:41.
Mycomyia noctivaga Plassmann, 1972 (New synon.). Plassmann 1972a:91, 1973:84, 1974b:351, 1977b:9, 1979:374, 1980b:19.
Mycomya noctivaga: Väisänen 1982b:40.

Type locality: North Carolina, Black Mountains (USA).

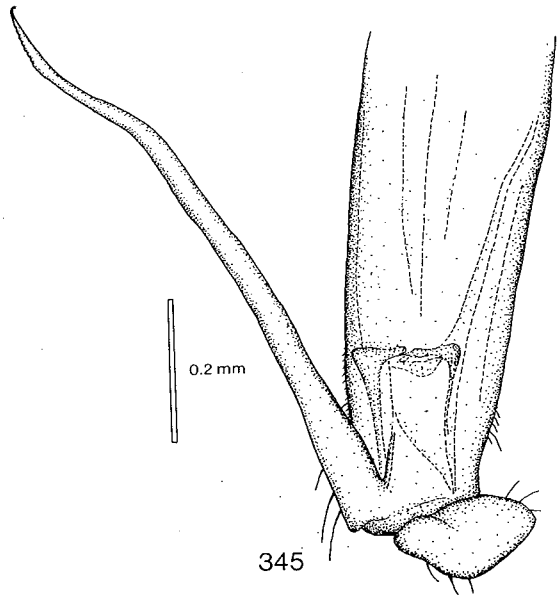
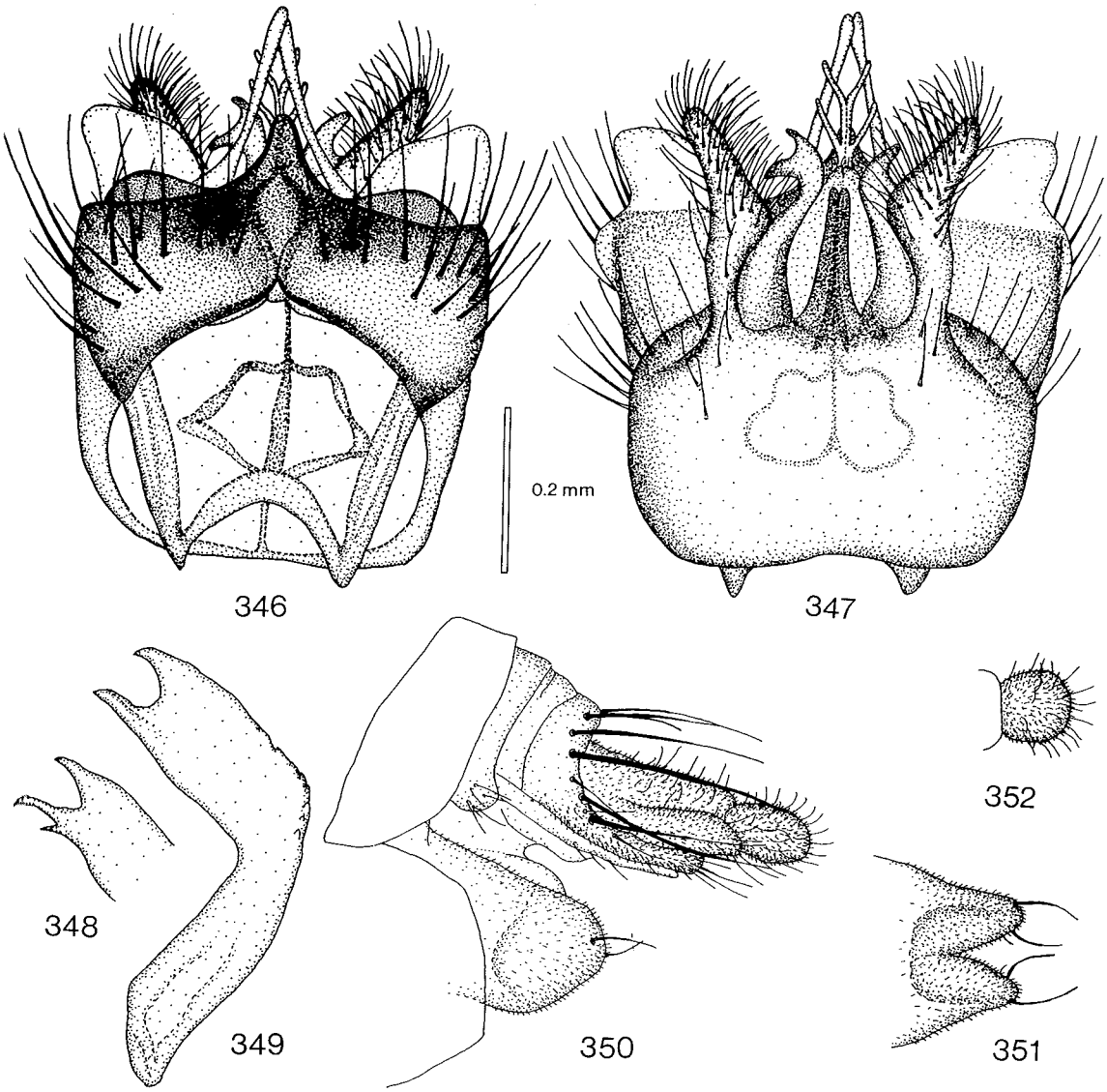


Fig. 345. *Mycomya sigma,* male coxa 2, medial view. Scale 0.2 mm.



Figs. 346—352. *Mycomya sigma.* — 346: male hypopygium, tergal view. — 347: hypopygium, sternal view. — 348—349: gonostyli. — 350: female terminalia, lateral view. — 351: hypogynal valves, sternal view. — 352: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 346— 347 and 350—352, Figs. 348—349 2 x enlarged.

Types: — *Mycomya sigma* Johannsen: Holotype (not located, apparently destroyed): m. — *Sciophila trivittata* Dziedzicki: Syntypes (not located, apparently lost). Type-localities: Ciechocinek; Bochnia (Poland). *Mycomyia duplicata* Edwards is a junior objective synonym for *Sciophila trivittata* Dziedzicki. — *Mycomyia noctivaga* Plassmann: Holotype (studied): 1868. Senckenberg-Mus. 1868 Frankfurt-M. *Mycomyia noctivaga* Plassm. 1 ♂ Holotypus SMF D 565 Hoherodskopf/Vogelsb. Präp. 492 Plassmann 12.IX. 1969 + hypop. prep.: 492 Holotypus *Mycomyia noctivaga* Plassm. Coll. Plassmann SMF 1868 (m SENCK). Type locality: Hoherodskopf, Vogelsberg (Federal Republic of Germany).

Remarks: The present specimens agree well with the description and Fig. 138 given by Johannsen (1910) for *M. sigma.* I have also seen specimens determined as *M. sigma* by E. G. Fisher (Diamond Lake) and C. Garrett.

Material examined: Italy: Aosta, Valpelline, près Oyace, alt. 1100 m, 26.VI. 1973, L. Matile (1 m, MNHN); Aosta, Vallée de Rhêmes, alt. 1900—2000 m, 8.IX. 1978, L. Matile (1 m 1 f MNHN). — France: Corse, Forêt de Valdo-Niello, alt. 1200 m, 1.VI. 1972,

L. Matile (1 m MNHN); Forêt de L'Aigoual (48), alt. 1400 m, 15.IX. 1977, L. Matile (1 m 1 f MNHN); Basses Alpes, Pessière à 3 km des Agneliers par le Col d'Allos, 1900 m, 6.VII. 1972, Hebrard (1 m MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (1 m ISU). — FRG: Hoherodskopf, Vogelsberg, 12.IX. 1969, ("Lichtfalle"), E. Plassmann *(Mycomyia noctivaga* Plassmann holotype SENCK); S-Deutschland, E Reutlingen, St. Johann, Albrand, Mischwald, 19.VI. 1978, Schmalfuss (1 m STAAT); same data, Buchenwald, 27.V. 1978 (1 m STAAT). — Hungary: Tátralomnic, patak mellett, 900 m, 4.VIII. 1963, Mihályi (1 m TMB). — Czechoslovakia: Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (2 mm VUPP); Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (1 m VUPP). — Poland: Bialowieza Park Narod., kw. 399, Grad wysoki, Przyneta owocowa dzien 13°C, 2.XI. 1962, W. Mikolajczyk (1 m WARS). — UK: Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (2 mm BNMH); Essex, Cooper fall, 2.X. ?1918, C. N. Colyer (1 m BMNH); Banchory, 21.VIII. 1916, J. J. F. X. King (1 m BMNH); Sussex, Crowborough, 28.IX. 1922, F. Jenkinson, (1 m BMNH); N. Wales, Caernarvon, Befws-y- Coed, pine forest, 24.IX. 1966, R. I. Vane-Wright (1 m BMNH). — Denmark: V. Hógild, 28.IX. 1930, P. Nielsen (1 m COPEN); Silkeborg, 19.X. 1918, P. Nielsen (1 m COPEN); Velling skov, 12.X. 1930, P. Nielsen (1 m 1 f COPEN). — Norway: Laerdal, 24—27.VII. 1923, F. W. Edwards (2 mm BMNH); HOy., Os, Lundatrae, 31.X. 1976, T. Andersen (1 m coll. Andersen); HOi., Ullensvang, Hovland, 21—30.X. 1977, T. Andersen (2 mm 2 ?ff coll. Andersen). — Sweden: Nb., Pajala sn, Utmockan, 15.VII. 1951, Ander, Ardö (1 m LUND). — Finland: *Al:* Lemland, Vessingboda, 9.VI. 1962, R. Tuomikoski (1 m MZH); *Ab:* Vihti, Vihtijärvi, 4.VII. 1962, 7.VII. 1962, 18.VII. 1962, 1.VI. 1963, 8.VI. 1963, 18.VII. 1963, 8.VIII. 1963, 5.VI. 1964, 10.VIII. 1964, 8.VI. 1965, R. Tuomikoski (12 mm MZH); Bromarv, Framnäs, 12.VI. 1966, K. Mikkola (3 mm MZH); Karuna, Bergroth (1 m MZH); *N:* Helsinki, 18.VI. 1962, O. Ranin (1 m MZH); Espoo, Bodom, 24.V. 1963, R. Tuomikoski & W. Hackman (1 m MZH); *St:* Kokemäki, 1953, R. Tuomikoski (1 m MZH); *Ta:* Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, K. Mikkola (1 m MZH); *Oa:* Vasa (Vaasa), R. Frey (1 m MZH); *Kb:* Kesälahti, 24.VI. 1963, 27.VI. 1963, W. Hackman (2 mm MZH); same locality, Jänissaari, 27.VI. 1963, W. Hackman (1 m MZH); Pielisjärvi, Koli, 15.VI. 1964, R. Tuomikoski (3 mm MZH); Tohmajärvi, Piilovaara, 13.VI. 1964, R. Tuomikoski (1 m MZH); *Ok:* Sotkamo, Aarreniemi, 19.VI. 1964, R. Tuomikoski (1 m MZH); same locality, 19—21.VII. 1965, A. V. V. Mikkola (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (2 mm MZH); same locality, 19—24.VII. 1967, R. Tuomikoski (3 mm MZH); Kuusamo, Iivaara, 23.VI. 1964, R. Tuomikoski (3 mm MZH); same locality, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (2 mm MZH); Kuusamo, Kuusinkijoki, 25.VI. 1964, R. Tuomikoski (3 mm MZH); *Li:* Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (1 m MZH); Utsjoki, Poodusvaara, 5.VII. 1949, R. Frey (1 m MZH). — USSR: Estonia, St. Peedu, yuzhkh., 20.VIII. 1951, Stackelberg (1 m LEN); Leningrad., Yukki, 18.IX. 1934, Rohdendorf (1 m LEN); Leningrad. obl., Tatchina, 9.VIII. 1940, Stackelberg (1 m LEN); Leningr. obl., Toksovo, 8.X. 1946, Stackelberg (1 m LEN); Khibin. g. Kol'sk., bass. oz. Vud'yavr, 15.IX. 1930, Fridolin (1 m LEN); Nuorttijärvi, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (2 mm MZH). — Alaska: Alas., Matanuska, 29.IX. 1945, Rotary trap, J. C. Chamberl (1 m USNM). — Canada: B. C., Kleanza Creek, 14 mi. E. Terrace, 17.VI. 1960, swept from old lumber pile, J. G. Chillcott (1 m CNC); B. C., Squamish, Diamond Head Trail, 3200 ft., 6.VIII. 1953, 21.VIII. 1953, W. R. M. Mason (2 mm CNC); B. C., Horseshoe Bay, 0—300′, 30.V. 1961, J. R. Vockeroth (2 mm CNC); B. C., Kimberly, St. Marys Lake, 4.IX. (Coll. Garrett, "*M. sigma* Johan.") (1 m hypop. slide 51.53 USNM); Alta., Laggan, 10.VIII. 1928, O. Bryant (1 m CAS); Que., Old Chelsea, King Mt., 16.VI. 1961, J. G. Chilcott (1 m CNC); same locality, Summit King Mt., 1150′, 30.VIII. 1961, J. R. Vockeroth (1 m CNC); Que., Mt. Orford, 1200′, 5.VI. 1963, J. R. Vockeroth (1 m CNC). — USA: Wash., Chelan Co., Cougar Inn, 12—16.VII., light trap (1 m WASH); Wash., Pullman, 21.IV. 1969, Malaise trap, R. W. Dawson (1 m WASH); Wash., Mt. Rainier Nat'l Park, 10.VIII. 1941, L. J. Lipovsky (3 mm WASH); Wn., Diamond Lake, 15.VI. 1924, A. L. Melander *(M. sigma* Joh. det. E. G. Fisher 1940) (1 m USNM); Wash., Mt. Walker Hwy. 101, 20.VII. 1968, B. V. Peterson (1 m CNC); California, El Dorado Co., Lake Tahoe, 13.VI. 1959, Byers & party (1 m SNOW); Idaho, Moscow Mt., 6.VII. 1912 (1 m PU); N. H., Mt. Washington, 4800′, auto road, 14.VIII. 1958, J. R. Vockeroth (1 m CNC); N. Y., Essex Co., Kesne Valley, 1200′, 20.VII. 1962, J. R. Vockeroth (1 m CNC); N. Y., Wild F. I. Pres., Sloterville, 11.IV. 1934, E. G. F. ("*M. sigma* Johan.") (1 m hypop. slide 4847 USNM); N. Carolina, Mitchell Co., Roan Mtn., 6200′, 13.VIII. 1957, J. G. Chillcott (1 m CNC); N. C., Gr. Sm. Mt. Nat. Park, Clingman's Dome, 6.VIII. 1957, light trap, C. J. Durden (1 m CNC); N. C., Macon Co., Highlands, 3850′, 35°3.2′N, 83°11.3′W, 27.VI. 1958, J. L. Laffoon (1 m ISU); No. Car., Macon Co., Clear Creek, 1 mile so. Highlands, 3000′, 35°1.5′N, 83°11.5′W, 2.VII. 1958, J. L. Laffoon (1 m ISU).

Description:

Head. Palp, other mouthparts and face yellowish, posterior parts brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 3—3.5 times, 2nd about twice as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum light brownish, with indistinct light brownish to brownish longitudinal stripes, anterolateral corners yellowish. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral part brownish. Scutellum yellowish with 2—4 long setae. Laterotergite yellowish, ventral part brownish. Mediotergite brownish, usually with 1 seta, very seldom 2—3 setae. Sometimes thorax entirely brown.

Legs. Coxae yellow to yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight or slightly outwards bent spur with or without minute apical tooth (Fig. 345). Leg ratios: bt1:t1 = 0.86—1.03, bt2:t2 = 0.69—0.79, bt3:t3 = 0.56—0.60.

Wing. Wing length 3.2—5.2 mm. Wing hyaline. Sc ending in C slightly proximally — distally to middle of small cell, Sc2 ending in R1 distinctly proximally to mid-

dle of small cell. Apical part of Sc bearing 4—15 macrotrichia. Small cell 2.5—4 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.54—0.77, 0.70—1.00. Cu ratios: 0.93—1.00, 1.31—1.65. Macrotrichia: M petiole 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites entirely brownish or 1—5 brownish with narrow indistinct yellowish posterior margins, 6—7 brownish. Sternites 1—5 like tergites but paler.

Hypopygium. Figs. 346—349, tergite 9 brown, sternal synsclerite yellowish. Tergal sublateral appendage long and slender. Sternal submedian appendage very long, broad, very setose. Gonostylus dark, long, with 2 apical lobes.

Female. Wing length 5.5—5.7 mm. Coloration as in male. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.76, bt3:t3 = 0.63. Terminalia as in Figs. 350—352, yellowish to brownish.

Remarks: The European specimens are very slightly larger (wing length in males: mean 4.35 mm, SD 0.41, N=21) than the American ones (mean 4.25 mm, SD 0.37, N=21).

Aberrant wing venation with "two Sc2" in one specimen (Matanuska).

Distribution: Holarctic. Europe: Italy, France, Corse, Switzerland, Federal Republic of Germany, Hungary, Czechoslovakia, Poland, United Kingdom, Denmark, Norway, Sweden, Finland. USSR: Estonian SSR, Leningrad region, Murmansk region. Alaska. Canada: British Columbia, Alberta, Quebec. USA: Washington, California, Idaho, New Hampshire, New York, North Carolina. In addition, this species has been reported from the Latvian SSR (Lackschewitz 1937), East Siberia (Ostroverchova 1979, Ostroverchova & Zaitseva 1979), and in North America from Wyoming and Massachusetts (Coher 1959).

Biology: According to Hutson et al. (1980), this species has been reared from *Auricularia*. Adults have been caught by sweeping, and with light, pit-fall, Malaise and rotary traps. The collecting biotopes given are mixed forest, beech forest, pine forest, and an old lumber pile. The Finnish specimens have been caught in boreal forests, bogs and on fells in Lapland.

Species group M. tenuis

Head. Anteclypeus comparatively short, triangular, apically rounded, with scattered relatively long setulae. Antenna almost 1.5 times as long as head and thorax together, in females and in *M. ultima* only slightly longer than head and thorax together. Pedicel with some short dorsal setae. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base, in *M. ultima* eye more rounded, only slightly emarginate above antennal base.

Thorax. Pronotum characteristically with 2 longer setae. Scutellum with 4 long setae, lateral pair distinctly shorter and often entirely missing. Mediotergite with 1—3, usually 2, setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining distinctly anteriorly.

Legs. Coxa 1 without special setae or other structures. Coxa 2 with long, almost straight spur, with or without minute apical tooth. Coxae relatively thin, coxa 2 usually about 4 times as long as wide. Basitarsus 1 usually about as long as tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C, seldom apically broken, not quite reaching C. Small cell characteristically long, about 3 times as long as wide, sometimes longer. Cu fork distinctly distal to M fork. M petiole of medium length, seldom short. Cu petiole long to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Posterior margins of dark tergites lighter or colour pattern diffuse.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with some setae along posterior margin of both lateral lobes. Sternite 8 triangular, apically rounded, without setae.

Hypopygium. Tergite 9 medially slightly emarginated, with setose lateral lobes and small lateral appendages bearing 2 very long dark setae, in *M. ultima* 2 strong spine-like setae. Sternal synsclerite without long setae and appendages, medially slightly emarginate. Sternal submedian appendages variable, with only a few setae. Gonostylus long unbranched, often with apical lobes. Aedeagus with apical branches.

Female terminalia. Apical segment of cercus oval. Hypogynal valve apically relatively wide and rounded, with some setae, in *M. ultima* narrower, apically tapered.

One Holarctic, six Palaearctic and six Nearctic species are recognized in this species group.

Mycomya ultima n. sp.

Figs. 353—361, key p. 36, 42.

Mycomya sp.: Oliver 1963:178.

Type locality: North West Territories, Ellesmere Island, Eureka (Canada).

Type: Holotype (studied): Eureka, N. W. T. Ellesmere I. 3.VIII. 1963 J. R. Vockeroth (m CNC).

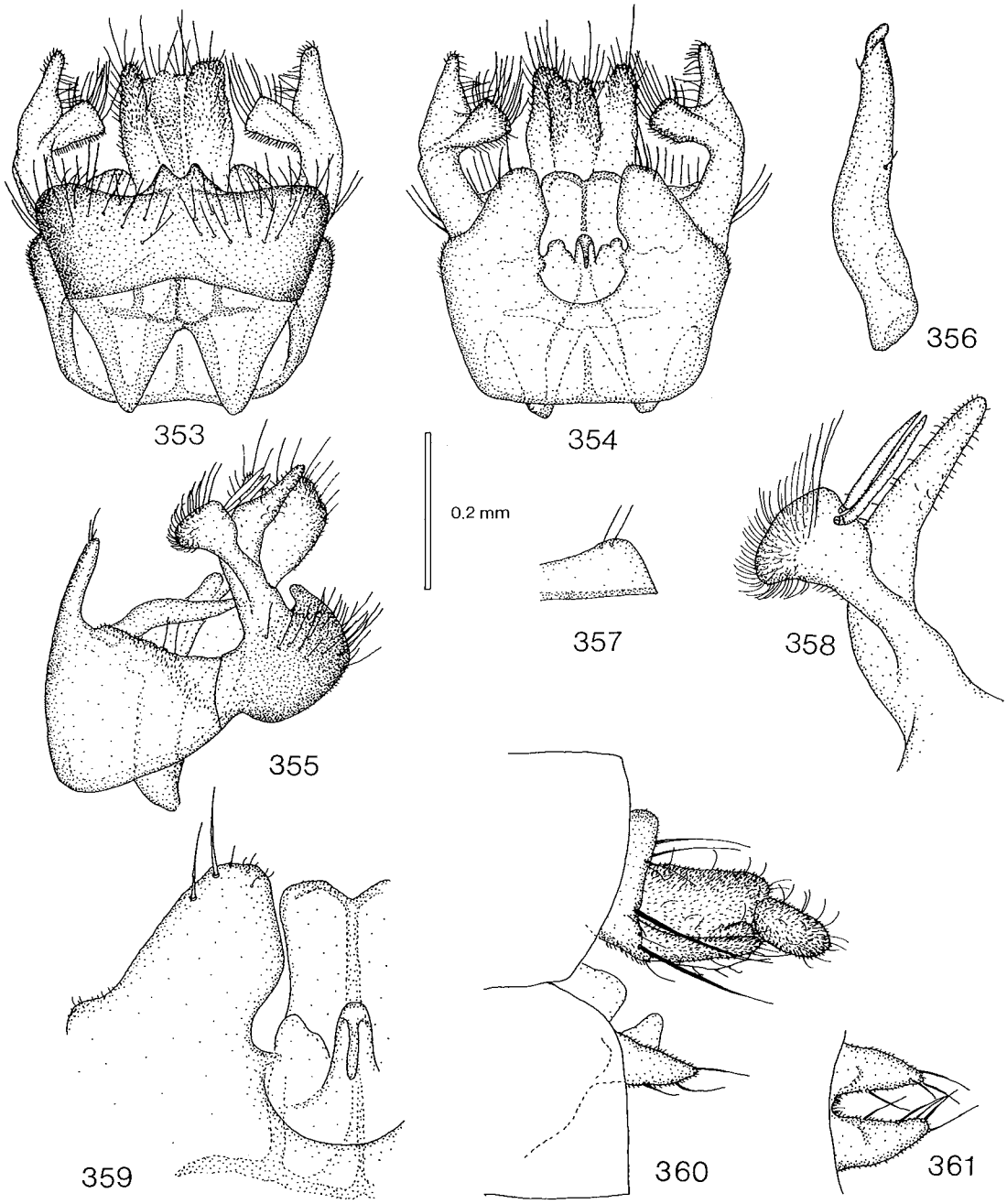
Material examined: Canada: Ellesmere I., Hazen Camp, 10.VIII. 1961, 13.VIII. 1961, 14.VIII. 1961, D. R. Oliver (4 mm 2 ff CNC); same locality, 81°49'N, 71°18'W, 20.VII. 1962, 21.VII. 1962, 24.VII. 1962, 25.VII. 1962, 27.VII. 1962, 30.VII. 1962, 31.VII. 1962, 2.VIII. 1962, 3.VIII. 1962, 6.VIII. 1962, R. B. Madge (17 mm 7 ff CNC); N. W. T., Ellesmere I., Eureka, 3.VIII. 1963, J. R. Vockeroth (holotype & 4 mm CNC); N. W. T., Bathurst Inl., Ekalulia Island, 12.VIII. 1966, G. E. Shewell (1 m CNC); N. W. T., Bathurst Inl., Baychimo Harb., 25.VII. 1966, 16.VIII. 1966, G. E. Shewell & T. S. Gravity (3 mm CNC); N. W. T., Baffin Is., Head of Clyde Inlet, 7.VIII. 1958, G. E. Shewell (1 m CNC).

Description:

Head. Almost entirely brown. 1st flagellomere about 2.5 times, 2nd about 1.5 times as long as wide.

Thorax. Dark brown. Pronotum with 2 longer setae. Scutellum with 2 long, and 2 shorter lateral, setae, also 2 short medial setae. Mediotergite with 1 seta.

Legs. Coxae brownish, femora yellow, tibiae and tarsi darker. Coxa 1 without special setae. Coxa 2 with long



Figs. 353—361. *Mycomya ultima.* — 353: male hypopygium, tergal view. — 354: hypopygium, sternal view. — 355: hypopygium, lateral view. — 356: gonostylus. — 357: tergite 8. — 358: lateral appendage of tergite 9. — 359: sternal submedian appendage and aedeagus. — 360: female terminalia, lateral view. — 361: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 353—355, 357 and 360—361, Figs. 356 and 358—359 2 x enlarged.

almost straight spur with 1 small apical tooth. Leg ratios: bt1:t1 = 0.89—0.93, bt2:t2 = 0.70—0.73, bt3:t3 = ca. 0.56.

Wing. Wing length 3.5—4.3 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, seldom Sc1 apically broken, Sc2 ending in R1 distinctly proximally to middle of small cell. Apical part of Sc bearing 16—22 macrotrichia. Small cell 2.5—3.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.79—0.85, 0.94—1.06. Cu ratios: 0.87, 1.25—1.40. Mac-

rotrichia: M petiole: 0; M1: +; M2:+; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Dark brown.

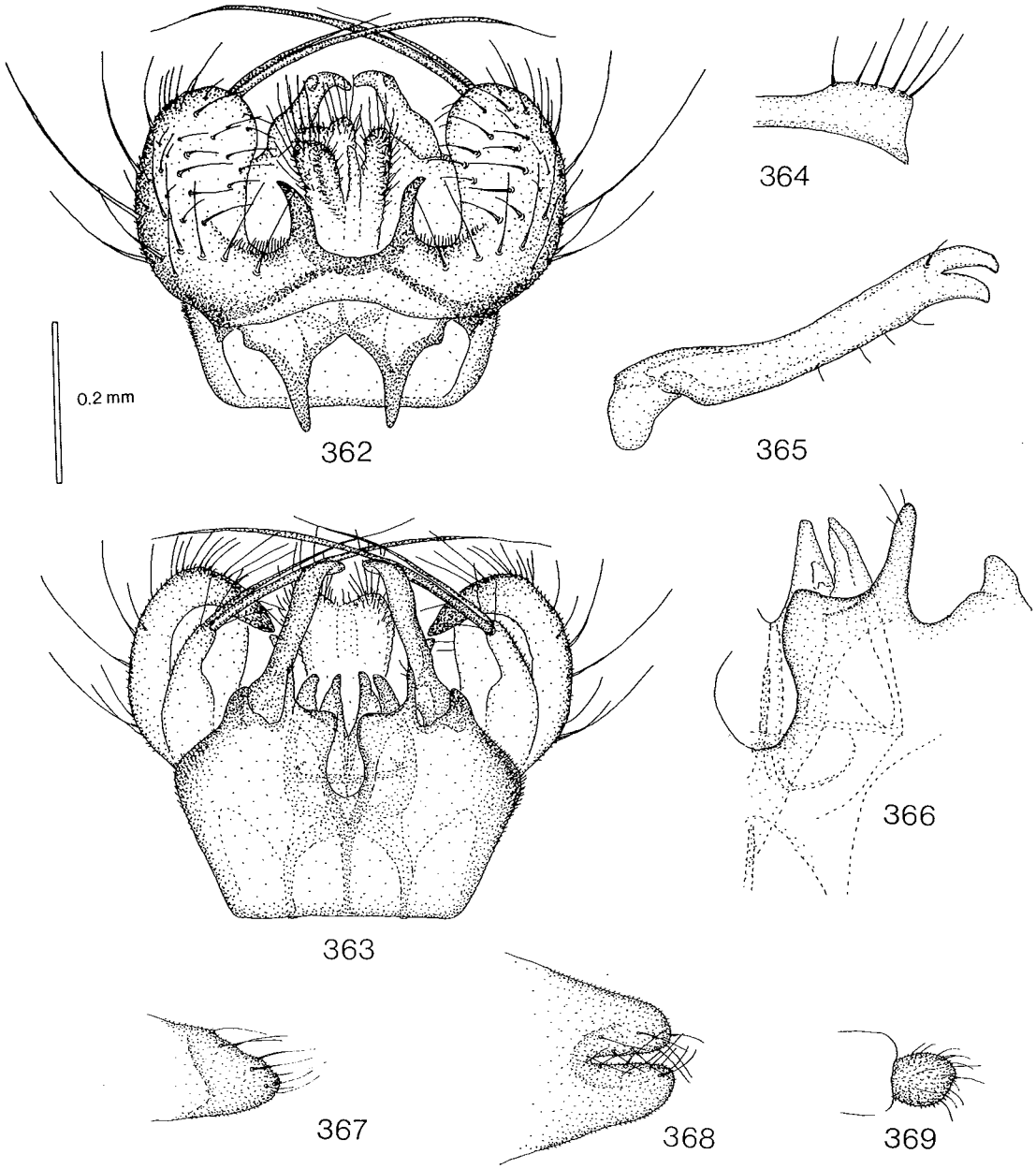
Hypopygium. Figs. 353—359, dark brown. Sternal submedian appendage broad, short. Gonostylus comparatively long.

Female. Wing length 3.6—4.5 mm. Leg ratios: bt1:t1 = 0.81—0.85, bt2:t2 = 0.65—0.67, bt3:t3 = ca. 0.55. Terminalia as in Figs. 360—361, yellowish.

Distribution: Northern Nearctic. Arctic species.
Biology: Unknown.

Mycomya tenuis (Walker, 1856)
Figs. 362—369, key p. 36.

Sciophila tenuis Walker, 1856. Walker 1856:37; Theobald 1892:138; Kertész 1902:64, 1903:35.



Figs. 362—369. *Mycomya tenuis*. — 362: male hypopygium, tergal view. — 363: hypopygium, sternal view. — 364: tergite 8. — 365: gonostylus. — 366: sternal submedian appendage and apex of aedeagus. — 367: hypogynal valve of female terminalia, lateral view. — 368: hypogynal valves, sternal view. — 369: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 362—364 and 367—369, Figs. 365—366 2 x enlarged.

Mycomyia tenuis: Edwards 1913:355 (Synon. *Sciophila apicalis* Winnertz, *Sciophila radoszkowskii* Dziedzicki), 1921a:61, 1925a:550; Landrock 1925a:34, 1925b:181, 1926—1927:52; Edwards 1928a:160; Schmitz 1929:22; Lackschewitz 1937:10; Barendrecht 1938:38; Landrock 1940:32; Séguy 1940:78; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kröber 1956:132; Kidd in Kidd & Brindle 1959:72; Kidd 1964:3; Matile 1967:125; Mikolajczyk 1967:22; Ostroverchova & Stackelberg 1969:273; Plassmann 1970b:388; Mikolajczyk 1971:372; Chandler 1974:15; Plassmann 1977b:9, 1980b:19.

Mycomya tenuis: Dampf 1924:11; Hutson in Kloet & Hincks 1976:24; Chandler 1976:98; Matile 1977:633; Cole & Chandler 1979:51; Väisänen in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1981d:199, 1982b:41.

(not) *Mycomyia tenuis:* Edwards 1935a:468; Henriksen 1939:65 (= *M. islandica* n. sp.).

(not) *Mycomya tenuis:* Laffoon in Stone et al. 1965:221 (= *M. islandica* n. sp.).

Sciophila apicalis Winnertz, 1863. Winnertz 1863:759; Schiner 1864:445; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; van der Wulp 1877:170; Strobl 1880:45; Kowarz 1895:4; Strobl 1895:143; Strobl 1898b:597 (= 1900a:652), 1900b:98, 1901:12; Kertész 1902:57, 1903:31; Lundström 1907:8, 1909:10 (see remarks); Morge 1974:171.

(p. p.) *Sciophila apicalis:* Lundström 1914:11 (p. p. = *M. hackmani* n. sp., *M. islandica* n. sp.).

(not) *Sciophila apicalis:* Lundström 1912a:9 (= *M. hackmani* n. sp., *M. disa* n. sp.).

(not) *Sciophila* ? *apicalis:* Henriksen & Lundbeck 1917:565 (= *M. islandica* n. sp.).

(not) *Sciophila apicalis:* Dziedzicki 1885: Tab. VI: Figs. 22—25 (= *M. pseudoapicalis* Landrock).

(not) *Sciophila apicalis* Dziedz. (nec Winn.): Lundström 1909:9; 1912a:9 (= *M. denmax* Väisänen).

Sciophila radoszkowskii Dziedzicki, 1885. Dziedzicki 1885:17; Kertész 1902:64, 1903:35.

Remarks: Some of the old records may concern other species of the *M. tenuis* group, but as *M. tenuis* is perhaps the commonest of the group in Central Europe it seems probable that at least most records are correct.

Lundström (1909:10) noticed that the male hypopygium given by Dziedzicki (1885: Tab. VII: Figs. 19—20) for *Sciophila radoszkowskii* Dziedzicki agreed well with those of the specimens described by Winnertz (1863) as *Sciophila apicalis,* and thus Lundström suggested that the names on the tables might have been changed in Dziedzicki's paper. This "synonymization" of *S. radoszkowskii* with *S. apicalis* was followed by Edwards (1913), who also synonymized both these names with Walker's *Sciophila tenuis.*

Type locality: England.

Types: — *Sciophila tenuis* Walker: Holotype (studied): *Sciophila* Type *tenuis* Wlk. *tenuis.* 56 50. ♂, without hypopygium (m, BMNH). — *Sciophila apicalis* Winnertz: Lectotype (studied) by present designation: ♂. Lectotypus *Sciophila apicalis* Winnertz. Rhénanie, Crefeld, J. Winnertz. Cotype. Museum Paris, Coll. Laboulbéne 1899. *Mycomyia tenuis* Wlk. E. Seguy vid. *Sciophila apicalis* m J. Winnertz det. (m MNHN, another male specimen with the same data remains paralectotype). Type locality: (Originally not stated) Crefeld (Krefeld, Federal Republic of Germany). — *Sciophila radoszkowskii* Dziedzicki: Holotype (not located, apparently lost): m. Type locality: "Zaczernie" (Byelorussian SSR).

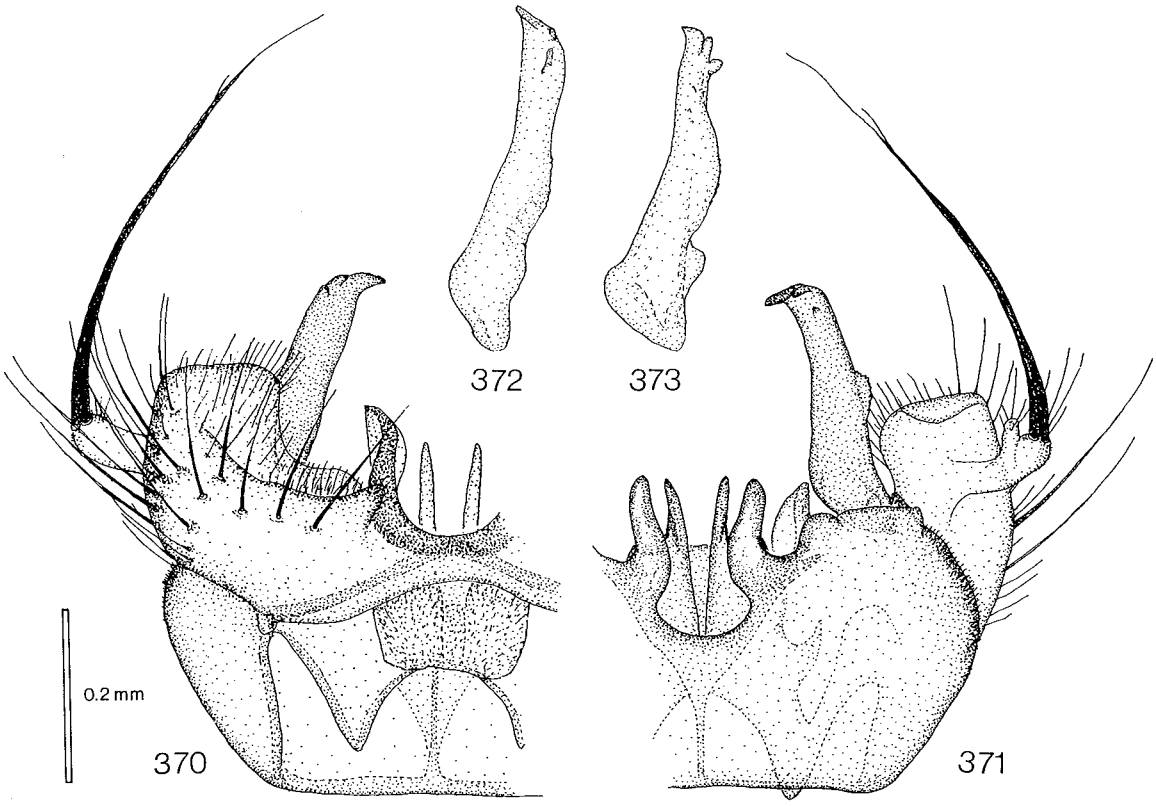
Remarks: The specimen labelled as the type of *Sciophila radoszkowskii* Dziedzicki does not agree with Dziedzicki's description or figures, but belongs to *M. brunnea* Dziedzicki (see *M. brunnea).*

Material examined: Spain: Gerona, Sant Joan les Fonts, dry stream, 19.X. 1978, P. J. Chandler (1 m coll. Chandler). — Italy: Aosta, Piano di Sylvenoire (Cogne), alt. 1550 m, forêt d'epigea, 27.VI. 1973, D. & L. Matile (2 ?ff MNHN); same locality, 1600—1700 m, 14.VII. 1975, D. & L. Matile (1 ?f MNHN); same locality, 1600 m, 24.VII. 1975, L. Matile (1 ?f MNHN); Aosta, Villeneuve Bertolaz, alt. 800 m, 5—10.IX. 1978, 11—15.IX. 1978, Piège de Malaise, L. Matile (2 mm 1 f MNHN); same locality, 4.IX. 1978, L. Matile (2 mm 5 ff MNHN); Aosta, Vallée de St Barthelemy, alt. 1450 m, 7.IX. 1978, L. Matile (2 mm 2 ff MNHN). — France: Corsica, 10—25.IV. 1928, F. W. Edwards (1 m BNMN); Corse, Forêt d'Aitone, alt. 1000—1200 m, 30.V. 1972, L. Matile (1 ?f MNHN); Forêt de Valbonne (30), 21.IX. 1977, L. Matile (5 ?ff MNHN); Seine & Marne, Nemours, 23.III. 1913, J. Surcouf (1 ?m MNHN); Fontaineblau (Seine-et-Marne), 1909, G. A. Poujade (1 ?f MNHN); Forêt Domaniale de Roquet Escut (34) (L'Esclandorgue), alt. 750 m, 18.IX. 1977, L. Matile (1 m 1 f MNHN); Ruisseau de Cornus (12), 18.IX. 1977, L. Matile (1 m MNHN); Rives du Tarn, Le Rozier, alt. 400 m, 9.IX. 1977, L. Matile (1 m MNHN); Chaos de Monpellier, Le Vieux (12), 15.IX. 1977, L. Matile (1 m MNHN); La Celle Dunoise, Creuse, 25.IV. 1918, Alluaud (1 ?f MNHN). — Yugoslavia: Slovenia, Bohinj, Dom Savica, 600 m, 30.VII. 1973, A. E. Stubbs (1 m BMNH). — Bulgaria: Kom, 800, 23.V. 1982, D. Bechev (1 m coll. Bechev). — Netherlands: Baarn, 3.X. 1909, de M. (1 m AMST); Valkenburg, 26.VII. 1923, de Meijere (1 m AMST); Hilversum, VI. 1892, de M. (1 ?m AMST); same locality, 8.IV. 1894, de M. (1 ?f AMST); without data (1 ?m 1 ?f AMST). — Austria: Steiermark, Admont, Strobl (1 ?m MNHN); Austr. inf., Neuwaldegg, 5.V. 1883, Mik (2 mm WIEN); Austr inf., Brühl, 14.V. 1883, Mik (1 f WIEN); Austr. sup., Hammern, 25.VIII. 1879, Mik (1 m WIEN); same data, 1.IX. 1874 (1 ?f WIEN); Salisburg, Böckstein, 25.VII. 1879, Mik (1 m WIEN); without data (1 m WIEN). — FRG: Crefeld, J. Winnertz *(Sciophila apicalis* Winnertz lectotype and m paralectotype MNHN); "Germania" (det. Schiner) (2 mm WIEN). — Hungary: Vérteskozma, Fánien-v., 11.IV. 1961, Mihályi (4 mm 1 f TMB); same data, Zsirko (3 mm TMB); Budapest, Farkasvölgy, 17.X. 1957, Mihályi (1 m TMB); Budapest, Csúcshegy, 31.X. 1965, Mihályi (1 m TMB); Budapest, Irhásárok, 17.X. 1957, Mihályi (2 ff TMB); Börzsöny hg., Szénpatak, 30.V. 1964, Horvatovich (2 ff TMB); Sátor-hg., István-kút, 8—14.VIII. 1957, Mihályi (1 m TMB); Budajenó, 19.IV. 1964, Horvatovich (1 m 1 f TMB); Pécs, Mecsek-hg., 26.IV. 1956, Z. Sebess (1 f TMB); Zempléni-hg., Ördög-v., erdó, 24.VI. 1960, Zsirkó (1 m TMB); Bükk-hg., erdó, Tardi-patak völgye, 12.IV. 1959, 17.VIII. 1960, 27.VIII. 1960, 4.IX. 1960, 8.IX. 1960, S. Tóth (15 mm 7 ff TMB); Bükk-hg., Hór-völgy, erdó, 27.IV. 1958, S. Tóth (1 f TMB); Bükk-hg., Csanyik völgy, 30.V. 1961, S. Tóth (1 m TMB); Vicze, Ujhelyi (1 m MZH); Kováczpatak, Ujhelyi (2 mm MZH). — Roumania: Olténie, Forêt de Măgura, 15.X. 1968,

L. Matile (3 mm 1 f MNHN); Olténie, Vallée Calului, 15.X. 1968, L. Matile (3 mm MNHN); Olténie, Vallée du Motru-sec, 19.X. 1968, L. Matile (1 m 1 f MNHN); Olténie, Vallée du Motru, 17.X. 1968, L. Matile (1 f MNHN). — Czechoslovakia: Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (3 mm 1 f VUPP); Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (1 m VUPP); Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (1 m VUPP); Boh. c., Komořany, 4.IV. 1959, 25.IX. 1959, 3.VI. 1960, 31.IV. 1961, Laštovka (3 mm 1 f VUPP); Boh. centr., Vrané u Vlt., 12.V. 1969, P. Laštovka (3 mm 1 f VUPP); Slov. or., Snin. Kameň, Vihorlat, 25.VI. 1966, P. Laštovka (3 mm VUPP). — Poland: Bialowieza Park Narod., kw. 283, Grąd niski, 29.IV. 1963, W. Mikolajczyk (1 m WARS). — UK: Cornwall, Downderry, 8.IX. 1912, Yerbury (1 m 1 f BMNH); (England) *(Sciophila tenuis* holotype BMNH); Sussex, Wakehurst Place, 15.V. 1976, A. E. Stubbs (1 m coll. Chandler); Glos., Overley Wd., 15.V. 1974, A. E. Stubbs (1 m coll. Chandler); Lancs., Turton Tower, by shaded stream, 17.VI. 1971, P. J. Chandler (1 m coll. Chandler); Teedsdale, Durham, 22.VI. 1924 (1 m BMNH); Herts, Letchworth, V. 1924, F. W. Edwards (1 m BMNH); N. Yorks., Urra, 21.VI. 1972, A. Stubbs (1 m BMNH); Suffolk, Walberswick, by cottage, 29.IV. 1973, A. M. Hutson (1 m BMNH); Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (2 mm 1 f BMNH); Herts, Hexton, 10.IV. 1925, F. W. Edwards (1 m 1 f BMNH); Herts, Hitchin, 21.IV. 1916, F. W. Edwards (1 m BMNH); Hants, Beaulieu River, 22.V. 1936, F. W. Edwards (1 m BMNH); New Forest, ? Sloden, VI. 1939, F. W. Edwards (1 m BMNH); New Forest, 20.V. 1909, F. C. Adams (1 f BMNH); same locality, 27.IX.—7.X. 1903, D. Sharp (1 f BMNH); New Forest, Brockenhurst, 23.V. 1969, A. M. Hutson (1 m BMNH); Cambridge, Univ. Library, 15.III. 1903, F. Jenkinson (1 m BMNH); Sussex, Crowborough, 23.IV. 1903, F. Jenkinson (1 m BMNH); Cornwall, Sheviock, 9.IX. 1912, 13.IX. 1912, Yerbury (2 mm BMNH); Cornwall, Lelant, 29.VIII. 1912, Yerbury (1 f BMNH); Middlesex, Harrow Weald, common, 16.X. 1915, F. W. Edwards (1 f BMNH); Clifton Coll. (1 m BMNH); Wales, Merioneth, Coed y Dolybebin, 12.VII. 1976, oakwood, P. J. Chandler (1 m coll. Chandler); Wales, Brecon, Llangynidr, 8.X. 1971, river bank, P. J. Chandler (1 m coll. Chandler); Wales, Brecon, Coed y Persen, 9.X. 1977, P. J. Chandler (1 m coll. Chandler); Wales, Merionethsh., Coed-y-Brenin, 1050′, 18.IX. 1968, R. I. Vane-Wright (1 m BMNH); Llangammarch Wells, Brecknock, 28.VII. 1913, Yerbury (1 m BMNH); Scillies, Tresco, 6.X. 1970, A. M. Hutson (1 m BMNH); Aberdeenshire, Balmoral Forest, 24.VI.—13.VII. 1951, R. L. Coe (2 mm BMNH); Arran, 23.V. 1919, F. W. Edwards (1 m BMNH); Logie, Elgin, 24.VIII. 1903, F. Jenkinson (1 m BMNH); Arran, Catacol, 29—30.V. 1919, F. W. Edwards (1 m BMNH); Arran, Sannox, 26—28.V. 1919, F. W. Edwards (1 m BMNH); Ayrshire, Largs, 2.X. 1905, F. Jenkinson (1 f BMNH); Inverness, Nethy Bridge, 5.VIII. 1911, Yerbury (1 m BMNH); Scotland, Sutherland, Torboll Wds., 14.VI. 1976, P. J. Chandler (1 m coll. Chandler); Argyll, Kintaline Mill, marsh/woods, 8.VII. 1974, P. J. Chandler (1 m coll. Chandler). — Denmark: Silkeborg d., 27.V.1934, P. Nielsen (1 m COPEN); same locality, Giessö ? Savv., 10.V. 1947, P. Nielsen (1 m COPEN); Rostrup, Bolhed, 8.IX. 1934 (1 m COPEN). — Norway: HOy., Fjell, Sotra, Vindenes, 15.VIII. 1978, 5.IX. 1978, 15.IX. 1978, T. Andersen (5 mm coll. Andersen); HOy., Fjell, Sotra, Eidsvåg, 28.VIII.—10.IX. 1975, T. Andersen (1 m 1 f coll. Andersen); SFi., Aurland, Nedre ende Vassbygdvatnet, G. Hansteen (1 f coll. Andersen); Narvik, 21.VI. 1951, J. R. Vockeroth (1 m CNC). — Sweden: Sk., Hälsingborg, Sept. —20, O. Ringdahl (1 m 1 f LUND). — Finland: *Al:* Lemland, Flaka, 6.VI. 1962, 13.VI. 1962, R. Tuomikoski (4 mm MZH); Lemland, Vessingboda, 9.VI. 1962, R. Tuomikoski (2 mm MZH); Saltvik, Kvarnbo, 26.VII. 1942, R. Frey (1 m MZH); *Ab:* Vihti, Vihtijärvi, 19—20.VI. 1959, 11.V. 1962, 12.V. 1962, 13.V. 1962, 19.V. 1962, 20.V. 1962, 3.VI. 1962, 17.VI. 1962, 24.VI. 1962, 22.VIII. 1962, 12.V. 1963, 19.V. 1963, 8.VI. 1963, 13.VII. 1962, 24.V. 1964, 23.V. 1965, R. Tuomikoski (31 mm 3 ff MZH); *N:* Esbo (Espoo), 30.VI. 1962, 7.VII. 1962, 24.V. 1964, W. Hackman (4 mm MZH); Esbo, Kolmperä, 19.V. 1963, 21.V. 1963, 6.VI. 1963, 7.VI. 1963, 9.VI. 1963, 18.VI. 1963, 13.VI. 1965, W. Hackman (8 mm MZH); Espoo, Bodom, 15.V. 1962, 24.V. 1963, R. Tuomikoski & W. Hackman (7 mm MZH); same locality, 17.V. 1963, R. Tuomikoski (2 mm MZH); Esbo, Westend, 9.V. 1962, W. Hackman & R. Tuomikoski (1 m MZH); same locality, 8.VII. 1962, W. Hackman (1 m MZH); Esbo, Småholmen, 8.VI. 1962, 12.VI. 1962, 17.VI. 1962, 1.VII. 1962, 17.VII. 1962, 27.VII. 1962, 31.VII. 1962, W. Hackman (7 mm MZH); Helsinki, Nordsjö (Vuosaari), 9.V. 1962, 20.V. 1962, W. Hackman (8 mm MZH); same locality, 26.VI. 1963, R. Tuomikoski (1 m MZH); Helsinki, Maunula, 5.VI. 1962, O. Ranin (2 mm MZH); Helsinki, Villinki, 7.VI. 1962, O. Ranin (3 mm MZH); Helsinki, 17.V. 1863, J. A. Palmén (1 m MZH); Sibbo (Sipoo), Kitö, 1942, G. Stenius (1 m MZH); Pyhtää, Kiviniemi, 21—29.VII. 1978, light trap, R. Väisänen (1 m MZH); Sjundeå (Siuntio), 26.V. 1963, W. Hackman (2 mm MZH); Tvärminne, 22.V. 1935, R. Storå (1 m MZH); same locality, 3—4.VII. 1964, K. Mikkola (1 m MZH); Snappertuna, 10.VI. 1962, O. Ranin (1 m MZH); *St:* Kokemäki, 1953, R. Tuomikoski (1 m MZH); *Ta:* Lammi, Biological Station, ex *Leccinum scabrum,* 1980—81, I. Hanski (2 ff MZH); *Kl:* Uukuniemi, 25.VI. 1963, W. Hackman (2 mm MZH); *Kb:* Tohmajärvi, Hyypiänvaara, 30.V. 1964, R. Tuomikoski (1 m MZH); Pielisjärvi, Koli, 18.V. 1964, 17.VI. 1964, R. Tuomikoski (3 mm MZH); *Ok:* Sotkamo, Aarreniemi, 19.VI. 1964, 22.VI. 1964, R. Tuomikoski (4 mm MZH); same locality, 22—28.VII. 1965, A. V. V. Mikkola (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, R. Tuomikoski (3 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, R. Tuomikoski (2 mm MZH); Kuusamo, Liikasenvaara, 6.VII. 1965, K. Mikkola (4 mm MZH); *Li:* Utsjoki, Kevo, 16.VI. 1962, W. Hackman (1 m MZH). — USSR: Transcarpathien, Rafaelevo, 10.IX. 1977, Krylova (1 m MOSC); Kur., Legen, 31.V. 1931, L. (Lackschewitz, *"brunnea"),* (1 m MNB); Estonia, st. Peedu, yuzhkh., 1.VII. 1951, Stackelberg (1 m LEN); Leningrad. o., Luzhsk., Tolmachevo, 18.V. 1935, 24.VIII. 1936, 7.VIII. 1937, 19.VIII. 1937, 30.IV. 1938, 1.VI. 1941,. Stackelberg (7 mm LEN); Kusomen, 17.VI. 1913, R. Frey (1 m MZH).

Description:

Head. Palp and other mouthparts yellow, face yel-



Figs. 370—373. *Mycomya hackmani.* — 370: male hypopygium, tergal view. — 371: hypopygium, sternal view. — 372—373: gonostyli. Scale 0.2 mm.

lowish to brownish, posterior parts brownish to brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow to brownish, with 2 longer setae. Mesoscutum entirely brown or yellowish, medially brownish or with 3 brownish to brown more or less fused longitudinal stripes, medial stripe often with pale narrow median band. Mesanepisternum yellowish to brown. Mesokatepisternum entirely brown or yellowish with ventral part brownish. Scutellum yellowish to brownish, with 4, seldom 2—3, long setae. Laterotergite yellowish with ventral part brownish to entirely brown. Mediotergite yellowish with lateral and caudal parts brownish to entirely brown, with 1—3, usually 2, setae. Coloration of thorax varies from yellowish with light brownish markings to entirely dark blackish brown.

Legs. Coxae yellow to yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long, straight or slightly outwards bent spur, with or without minute apical tooth. Leg ratios: bt1:t1 = 0.97—1.00, bt2:t2 = 0.70—0.76, bt3:t3 = 0.52—0.56.

Wing. Wing length 3.3—4.8 mm, holotype 4.7 mm. Wing hyaline. Sc ending in C proximally to or near middle of small cell, Sc2 ending in R1 distinctly proximally to or near middle of small cell. Apical part of Sc bearing 2—20 macrotrichia, usually about 10. Small cell 3—3.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.54—0.66, 0.65—0.84. Cu ratios: 0.88—0.91, 1.15—1.26. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 light brownish to brown, with or without yellow to light brownish posterior margins, 6—7 brown. Sternites slightly paler than tergites.

Hypopygium. Figs. 362—366, yellowish to brownish. Sternal submedian appendage short, projecting laterally. Gonostylus long, slender, with 2 comparatively small apical lobes, occasionally with additional lobe.

Female. Wing length 3.6—5.6 mm. Similar to male. Leg ratios: bt1:t1 = 0.97—1.06, bt2:t2 = 0.73—0.75, bt3:t3 = 0.57—0.60. Terminalia as in Figs. 367—369, yellowish.

Remarks: The Finnish specimens are usually light and comparatively small, and the British specimens dark and large.

Distribution: Western Palaearctic. Spain, Italy, Corse, France, Yugoslavia, Netherlands, Federal Republic of Germany, Austria, Hungary, Roumania, Czechoslovakia, Poland, United Kingdom, Denmark, Norway, Sweden, Finland. USSR: Ukrainian SSR, Byelorussian

SSR, Latvian SSR, Estonian SSR, Leningrad region, Murmansk region. Chandler (1976) reported *M. tenuis* (2 females) from Ireland.

Biology: Two females have been reared from *Leccinum scabrum* (Fr.) S. F. Gray (Boletaceae) (Väisänen 1981d). Adults have been caught by sweeping, and with light and Malaise traps in dry mixed woodland and a wood-yard (Chandler 1974), moorland (Dampf 1924), coniferous forests, an oakwood, "marsh/woods" and by a shaded stream.

Mycomya hackmani n. sp.

Figs. 370—373, key p. 37.

(p. p.) *Sciophila apicalis:* Lundström 1912a:9 (p. p. = *M. disa* n. sp.).

(p. p.) *Sciophila apicalis:* Lundström 1914:11 (p. p. = *M. tenuis* (Walker), *M. islandica* n. sp.).

(p. p.) *Mycomyia brunnea:* Plassmann 1973:84, 1976a:77, 1977b:8, 1978c:48, 1979:373, 1980a:177 (p. p. = *M. tenuis* (Walker), *M. brunnea* (Dziedzicki), *M. disa* n. sp.).

Type locality: Kesälahti, Jänissaari (Finland).

Type: Holotype (studied): *Kb:* Kesälahti Jänissaari W. Hackman 27. 6. 63 (m MZH).

Material examined: Austria: Tirol, Igls, 1200 m, 1.VII. 1953, J. R. Vockeroth (1 m CNC); Tyrol, Obergurgl, 1950 m, 22.VII. 1953, J. R. Vockeroth (1 m CNC); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 29—30.VII. 1972, Malaise trap, A. C. & B. Pont (1 m BMNH). — Czechoslovakia: Boh., Horské Kvilda, 26.VII. 1961, Laštovka (2 mm VUPP). — Denmark: Rudstrup Skov, 22.VI. 1947, P. Nielsen (1 m COPEN). — Sweden: Nb., Pajala, Utmockan, fäll, 15.VII. 1951, Ander, Ardö (1 m LUND); Lpl., Abisko, 25.VI. 1951, 13.VII. 1951, J. R. Vockeroth (2 mm CNC); Messaure, Kaltisjokk, 1969 (1 m No. 4791 SENCK). — Norway: Kvalsund, 7.VII. 1964, R. Tuomikoski (1 m MZH); Tana, Nedre Storfoss, 4.VII. 1964, R. Tuomikoski (1 m MZH); Börselv, Silfarfossen, 5.VII. 1964, 20.VII. 1965, R. Tuomikoski (4 mm MZH); Sappen, 9.VII. 1964, R. Tuomikoski (1 m MZH). — Finland: *Ab:* Vihti, Vihtijärvi, 12.VII. 1963, R. Tuomikoski (1 m MZH); Karislojo (Karjalohja), J. Sahlb. (1 m MZH); *N:* Esbo (Espoo), Kolmperä, 13.VI. 1964, W. Hackman (3 mm MZH); *Kb:* Pielisjärvi, Koli, 14.VI. 1964, 15.VI. 1964, 17.VI. 1964, 5.VII. 1964, R. Tuomikoski (44 mm 2 ?ff MZH); Kesälahti, Jänissaari, 27.VI. 1963, W. Hackman (holotype MZH); *Ok:* Sotkamo, Aarreniemi, 9.VII. 1965, A. V. V. Mikkola (1 m MZH); Kuhmo, 1.VII. 1965, R. Tuomikoski (4 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, 13.VII. 1965, R. Tuomikoski (7 mm MZH); *Ks:* Kuusamo, Kiutakön-gäs, 24.VI. 1964, 10.VII. 1965, 19—24.VII. 1967, R. Tuomikoski (3 mm MZH); Kuusamo, Iivaara, 23.VI. 1964, R. Tuomikoski (12 mm 1 ?f MZH); Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, 9.VII. 1965, R. Tuomikoski (7mm MZH); Kuusamo, kk., 22.VI. 1964, R. Tuomikoski (1 m MZH); *LkW:* Kittilä, Pallastunturi, 29.VII. 1967, R. Tuomikoski (1 m MZH); Muonio, 26.VI. 1911, R. Frey (1 m MZH);*Li:* Utsjoki, 18.VII. 1965, R. Tuomikoski (1 m MZH); Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (5 mm MZH). — USSR: Kol's., Khib. gory, bas. ozer Vud-Yavr, 27.VI. 1935, Fridolin (1 m LEN); Kantalaks, 28.VI. 1913, R. Frey (1 m MZH); Bjäloguba, 1.VII. 1913, R. Frey (1 m MZH); Nuorttijoki, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (2 mm MZH).

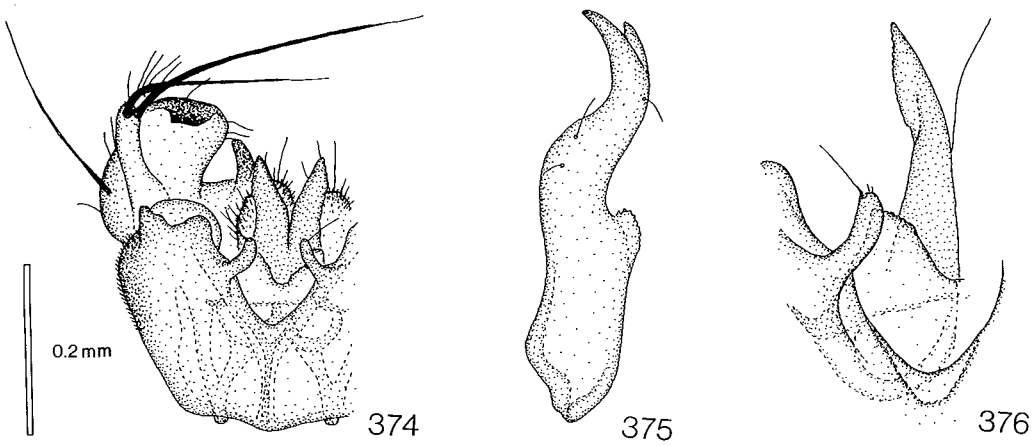
Description:

Head. Palp and other mouthparts yellow to yellowish, face brown, posterior parts dark brown. Antenna brown, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum brown, with indistinct brown to black longitudinal stripes, antero-lateral corners yellow. Mesanepisternum brown. Mesokatepisternum brown. Scutellum brown, with 4, occasionally 3, long setae. Laterotergite brown. Mediotergite brown, with 2, very seldom 1, setae.

Legs. Coxae yellow to yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight spur. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.74—0.82, bt3:t3 = 0.58—0.62.

Wing. Wing length 3.7—5.2 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical



Figs. 374—376. *Mycomya kurildisa.* — 374: male hypopygium, sternal view. — 375: gonostylus. — 376: sternal submedian appendage and apex of aedeagus. Scale 0.2 mm for Fig. 374, Figs. 375—376 2 x enlarged.

part of Sc bearing 2—14 macrotrichia. Small cell 3—3.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.54—0.64, 0.66—0.78. Cu ratios: 0.75—1.10, 1.11—1.52. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown or tergites 1—5 brown, with posterior and lateral margins yellow, 6—7 brown. Sternites lighter than tergites.

Hypopygium. Figs. 370—373, yellowish to brownish. Sternal submedian appendages short, strong, broad, bare, projecting medially towards each other. Gonostylus long, with a few small apical lobes.

Female. Unknown.

Remarks: Some uncertain females are available from the same localities as the males, but they may belong to other species of the *M. tenuis* group.

Distribution: Western Palaearctic. Czechoslovakia, Denmark, northern Norway, northern Sweden, Finland. USSR: Kola peninsula (Murmansk region).

Biology: Collected in boreal forests and on fells in Lapland, often together with *M. disa* n. sp.

Mycomya kurildisa n. sp.

Figs. 374—376, key p. 37.

Type locality: Kuril Islands, Kunashir (USSR).

Type: Holotype (studied): XIII. USSR 1-VII-77 Kuril Isls. Kunashir leg. A. Zaitzev. *Mycomya brunnea* Dzied. det. A. Zaitzev '78. (m MOSC).

Material examined: USSR: Holotype (MOSC).

Description:

Head. Palp and other mouthparts and face light brownish, posterior parts brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum brownish, with 3 brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum brownish, with 4 long setae. Laterotergite brownish. Mediotergite brownish, with 2 setae.

Legs. Coxae and femora yellow, tibiae and tarsi darker. Coxa 1 without special bristles. Coxa 2 with long almost straight spur with very minute apical tooth. Leg ratios: bt1:t1 = 0.97, bt2:t2 = 0.75, bt3:t3 = ?.

Wing. Wing length 4.3 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 4—6 macrotrichia. Small cell about 3 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.62, 0.80. Cu ratios: 1.04, 1.53. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior thirds yellowish, 6—7 brown. Sternites 1—5 yellow, with anterior thirds brownish, 6—7 brown.

Hypopygium. Figs. 374—376, yellowish. Sternal submedian appendage comparatively short, curved. Gonostylus comparatively narrow, with 2 apical lobes and short proximal lobe.

Female. Unknown.

Distribution: Eastern Palaearctic. Kuril Islands, Kunashir (Far East of USSR).

Biology: Unknown.

Mycomya disa n. sp.

Figs. 377—380, key p. 37.

(p. p.) *Sciophila apicalis:* Lundström 1912a:9 (p. p. = *M. hackmani* n. sp.).

(p. p.) *Mycomyia brunnea:* Plassmann 1973:84, 1976a:77, 1977b:8, 1978c:48, 1979:373, 1980a:177 (p. p. = *M. tenuis* (Walker), *M. brunnea* (Dziedzicki), *M. hackmani* n. sp.).

Type locality: Vihti, Vihtijärvi (Finland).

Type: Holotype (studied): Vihtijärvi Tuomikoski 3/6 1962 (m MZH).

Material examined: Norway: Börselv, Silfarfossen, 5.VII. 1964, 20.VII. 1965, R. Tuomikoski (3 mm MZH); Repparfjord, Skaidi, 21.VII. 1965, R. Tuomikoski (1 m MZH); Mattiselva, 8.VII. 1964, R. Tuomikoski (1 m MZH); Leirbotn, Lakselv, 23.VII. 1965, R. Tuomikoski (1 m MZH); Sappen, 9.VII. 1964, R. Tuomikoski (1 m MZH). — Sweden: Messaure, 7.VII. 1969, W. Tobias (1 m No. 4598 SENCK); Messaure, Kaltisjokk, 1969 (1 m No. 4643 SENCK); Lpl., Abisko, 6.VII. 1951, J. R. Vockeroth (1 m CNC). — Finland: *Ab:* Vihti, Vihtijärvi, 3.VI. 1962, 7.VII. 1962, 20.VII. 1962, 5.VIII. 1962, 1.VI. 1963, 9.VI. 1963, 15.VI. 1963, 16.VI. 1963, 23.VI. 1963, 29.VI. 1963, 12.VII. 1963, 18.VII. 1963, 5.VIII. 1963, 15.VIII. 1963, 30.VII. 1964, 10.VIII. 1964,

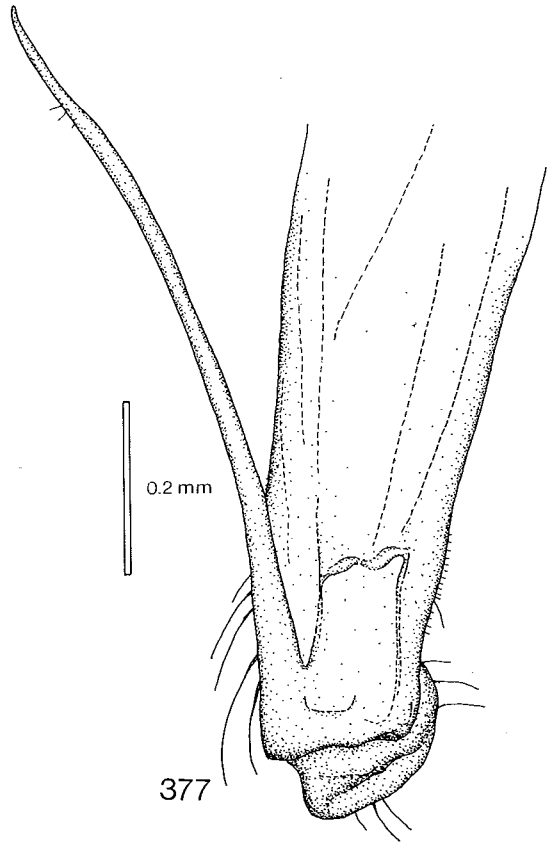
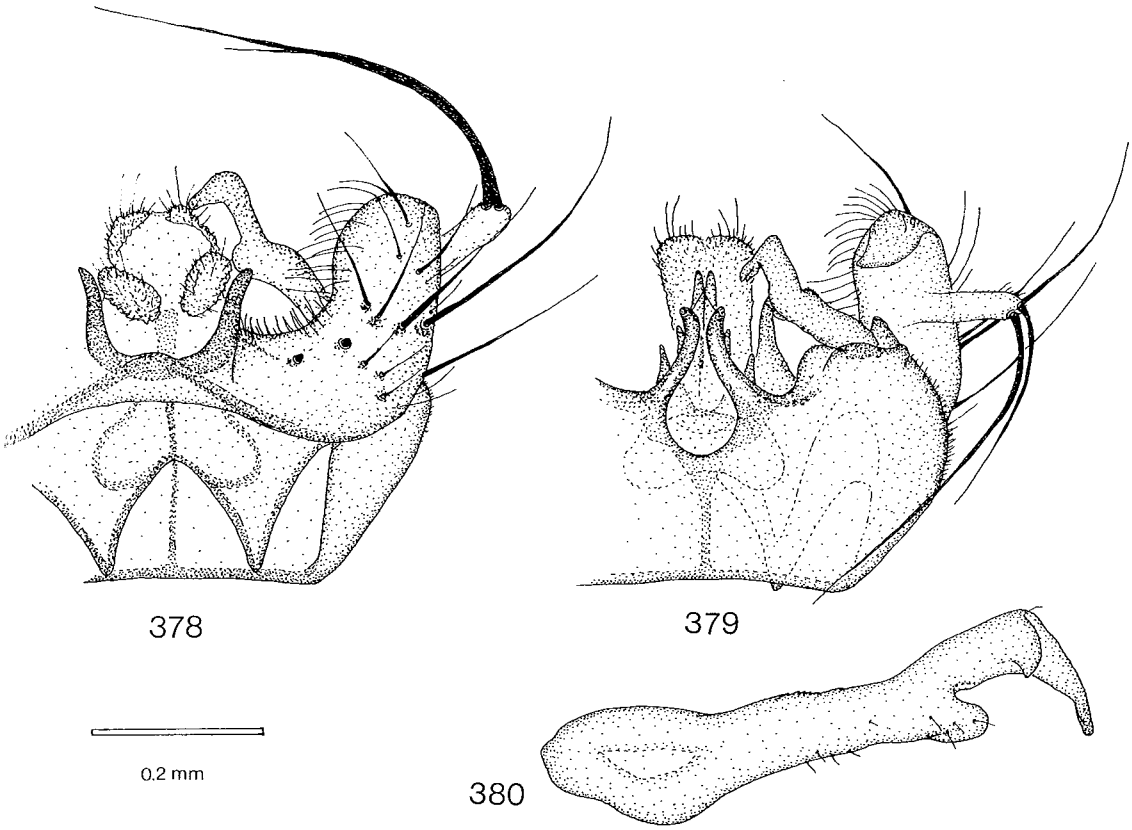


Fig. 377. *Mycomya disa,* male coxa 2, lateral view. Scale 0.2 mm.



Figs. 378—380. *Mycomya disa.* — 378: male hypopygium, tergal view. — 379: hypopygium, sternal view. — 380: gonostylus. Scale 0.2 mm for Figs. 378—379, Fig. 380 2 x enlarged.

R. Tuomikoski (holotype & 24 mm MZH); *N:* Esbo (Espoo), Westend, 27.VI. 1962, W. Hackman (1 m MZH); Espoo, Bodom, 14.VI. 1963, R. Tuomikoski (2 mm MZH); Helsinki, Nordsjö (Vuosaari), 26.VI. 1963, R. Tuomikoski (2 mm MZH); *Ka:* Vehkalahti, 4. VIII. 1971, L. Tiensuu (1 m MZH); Virolahti, 3.VII. 1971, L. Tiensuu (1 m MZH); *Kb:* Pielisjärvi, Koli, 14.VI. 1964, 5.VII. 1964, 15—16.VIII. 1964, R. Tuomikoski (10 mm MZH); Tohmajärvi, Hiidenvaara, 29.V. 1964, R. Tuomikoski (1 m MZH); *Ok:* Sotkamo, Aarreniemi, 15.VIII. 1964, 9.VII. 1965, 16—21.VII. 1965, 29—30.VII. 1965, A. V. V. Mikkola (5 mm MZH); Kuhmo, 1.VII. 1965, R. Tuomikoski (3 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, 13.VII. 1965, R. Tuomikoski (10 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); same locality, 10.VII. 1965, R. Tuomikoski (1 m MZH); Kuusamo, Iivaara, 23.VI. 1964, R. Tuomikoski (4 mm MZH); same locality, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Rukavaara, 9.VII. 1965, R. Tuomikoski (3 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, R. Tuomikoski (2 mm MZH); *LkW:* Kittilä, Pallastunturi, 12.VII. 1964, R. Tuomikoski (3 mm MZH); Muonio, 6.VII. 1911, R. Frey (1 m MZH); *Li:* Inari, Laanila, 12.VII. 1964, 16.VII. 1965, R. Tuomikoski (5 mm MZH); Ivalo, 7.VII. 1965, R. Tuomikoski (1 m MZH); Utsjoki, 18.VII. 1965, R. Tuomikoski (2 mm MZH); Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (2 mm MZH). — USSR: Estonia, st. Peedu, yuzhkh., 17.VIII. 1951, Stackelberg (1 m LEN), Leningr., Luzhsk., Tolmachevo, 8.VIII. 1936, Stackelberg (1 m LEN); Nuorttijoki, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (1 m MZH).

Description:

Head. Palp and other mouthparts yellow, face brown, posterior parts brown. Antenna brown, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere more than twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum with indistinct, fused brownish longitudinal stripes, anterolateral corners yellow. Mesanepisternum light brownish. Mesokatepisternum light brownish. Scutellum light brownish, with 4 long setae. Laterotergite light brownish. Mediotergite light brownish, with 2 setae.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long, almost straight spur without apical tooth (Fig. 377). Leg ratios: bt1:t1 = 0.97—1.03, bt2:t2 = 0.72—0.78, bt3:t3 = 0.59—0.64.

Wing. Wing length 3.7—4.7 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical

part of Sc bearing 3—14 macrotrichia. Small cell about 3 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.53—0.79, 0.65—0.96. Cu ratios: 0.87—1.00, 1.24—1.43. Macrotrichia: M petiole: 0; M1: + ; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish, with yellow posterior and lateral margins, 6—7 brownish. Sternites paler than tergites.

Hypopygium. Figs. 378—380, yellowish. Sternal submedian appendage curved, comparatively short. Gonostylus apically wide.

Female. Unknown.

Remarks: Very similar to *M. dichaeta* Fisher, the most remarkable differences being in the shape of the gonostyli and sternal submedian appendages.

Distribution: Western Palaearctic. Northern Norway northern Sweden, Finland. USSR: Estonian SSR, Leningrad region, Kola peninsula (Murmansk region).

Biology: Collected in boreal forests and on fells in Lapland, often together with *M. hackmani* n. sp., from which it can be distinguished by the shape of the sternal submedian appendages and the styli of the male hypopygium.

Mycomya dichaeta Fisher, 1937

Figs. 381—387, key p. 37.

Mycomyia dichaeta Fisher, 1937. Fisher 1937:394; Coher 1959:118.

Mycomya dichaeta: Shaw & Fisher 1952:189; Laffoon in Stone et al. 1965:220; Khalaf 1971:17.

Type locality: New York, Moravia, Fillmore Glen (USA).

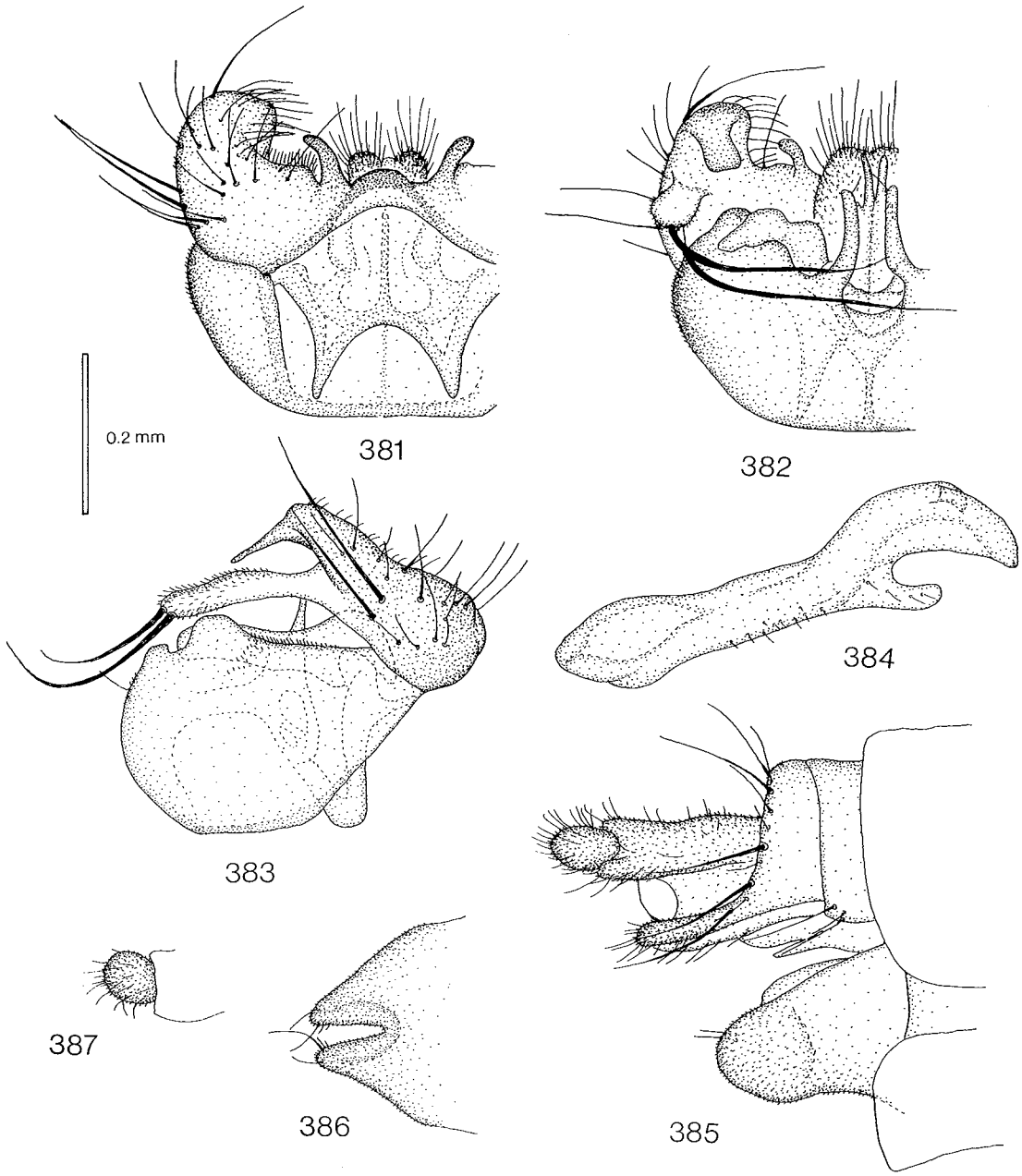
Type: Holotype (studied): Holotype Cornell U. N. 1415 *Mycomyia dichaeta* Fisher Fillmore Glen Moravia N. Y. June 28 1935. Holotype Cornell U. No. 1415. (m CORN).

Material examined: Alaska: Cold Bay, 163°W, on tundra, 26.VII. 1952, W. R. Mason (2 mm CNC); Naknek, on tundra, 12 VII. 1952, W. R. Mason (1 m CNC); Naknek, King Salmon, 3.VII. 1952, W. R. Mason (1 m CNC). — Canada: B. C., Penticton, Apex Mt., 5800′, 5.VIII. 1967, J. R. Vockeroth (1 m CNC); B. C., Pentiction, 1.VIII. 1967, J. R. Vockeroth (2 ?ff CNC) Ont., Ottawa, 20.IV. 1955, J. R. Vockeroth (1 m CNC); Ont., Rockport, 12.V. 1959, J. R. Vockeroth (3 mm CNC); Ont., Osgoode, 16.V. 1951, J. F. McAlpine (1 ?f CNC); Ont., S. March, 6.V. 1959, J. R. Vockeroth (7 mm 1 ?f CNC); Que., Old Chelsea, 30.V. 1952, J. F. McAlpine (1 m CNC); same locality, 13.VI. 1961, J. R. Vockeroth (1 ?f CNC); same locality, 17.V. 1964, J. R. Vockeroth (1 m CNC); Que., Abbotsford, 30.V. 1968, D. M. Wood (1 m CNC); Q., Ste. Flore P., Lac Mondor, 6.V. 1951, E. G. Munroe (2 mm CNC); Que., Knowlton, Bolton Pass, 800′, 5.VI. 1963, J. G. Chillcott (1 ?f CNC). — USA: Iowa, Boone Co., Ledges State Park, 25.VI. 1949, 6.V. 1950, 3.IX. 1950, 18.IX. 1951, 4.V. 1952, 30.VII. 1955, 27.VI. 1956, 2.V. 1957, 23.VI. 1961, 1.X. 1961, 12.X. 1961, J. L. Laffoon (5 mm 9ff ISU); Wis., Washburn Co., T39N R12W B32, 9.IX. 1951, 27.VIII. 1952, 31.VIII. 1952, 10.IX. 1952, 10.V. 1953, 30.VIII. 1953, 1.IX. 1953, light trap, R. H. Jones (7 mm 3 ff WISC); Mich., E. Lansing, 10.IX. 1941, C. Sabrosky (1 m USNM); Me., Mt. Katahdin, Hunt Trail, -16- 2400′, 1—6.VII. 1968, D. M. Wood (1 m 1 f CNC); New Hampshire, White Mountains, Pinkham Notch, 22.VI. 1977, R. J. Gagné (2 mm USNM); Connecticut, sw. corner Sleeping Giant St. Pk. (near Hamden), 30.VII. 1961, J. L. Laffoon (1 m ISU); N. Y., Hamilton Co., 43°20.6′N, 74°37.2′W, 6.VIII. 1961, R. J. Gagné (2 mm ISU); N. Y., Cattaraugus Co., Stoddard Hollow, 1900′, 42°4′N, 78°45.5′W, 10.VIII. 1961, R. J. Gagné (1 ?f ISU); same data, J. L. Laffoon (1 ?f ISU); New York, Ithaca, Coy Glen, 9.VIII. 1961, J. L. Laffoon (1 m ISU); N. Y., Ithaca, Lick Brook, 10.X. 1935, E. G. F. (1 m "metatype" slide USNM); N. Y., Moravia, Fillmore Glen, 28.VI. 1935 (holotype CORN); N. Y., Tuxedo, VIII. 1928, F. W. Edwards (1 m BMNH); N. Y., Essex Co., Keene Valley, 1200′, 20.VII. 1962, J. R. Vockeroth (1 m CNC); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, J. L. Laffoon (1 m 3 ff ISU); PA., Tioga Co., Colton Point State Park, 27.VIII. 1956, J. L. Laffoon (2 mm 1 f ISU); Md., Glen Echo, 22.VIII. 1922, W. L. M. McAtee (1 m USNM); Washington, D. C., VIII. 1928, F. W. Edwards (1 m BMNH); Virginia, Madison Co., along Hogcamp Branch, 2800′, 38°31.2′N, 78°25.5′W, 22.VII. 1961, J. L. Laffoon (1 m ISU); Va., Alleghany Co., Sweet Chalybeate, ex *Vaccinium stamineum* blossoms, 18.V. 1965, J. G. Chillcott (1 m CNC); Va., Falls Church, Holmes Run, 30.VIII. 1960, 19.X. 1960, light trap, W. W. Wirth (2 mm USNM); North Carolina, Burke Co., No. 2, Linville Falls, 14.VI. 1958, G. W. Byers (1 m SNOW); No. Car., Swain Co., Great Smoky Mts., Collins Creek, 2500′, 35°34.0′N, 83°20.5′W, 7.VII. 1958, J. Laffoon (1 m ISU); No. Car., Macon Co., Clear Creek, 1 mile so. Highlands, 3000′, 35°1.5′N, 83°11.5′W, 1.VII. 1958, J. Laffoon (3 mm 1 f ISU); N. C., Macon Co., Highlands, 35°3.2′N, 83°11.3′W, 16.VI. 1958, 23.VI. 1958, 27.VI. 1958, 15.VII. 1958, 17.VII. 1958, J. L. Laffoon (4 mm 4 ?ff ISU); N. C., Macon Co., Wayah Gap, 3500′, 16.VIII. 1957, J. G. Chillcott (1 m CNC); same locality, 4100′, 28.VII. 1957, J. G. Chillcott (1 m CNC); N. C., Highlands, Wilson's Gap, 3100′, 12.V. 1957, J. R. Vockeroth (1 m CNC); N. C., Highlands, 3800′, 6.V. 1957, 7.V. 1957, 15.V. 1957, 16.V. 1957, 21.VI. 1957, 24.VI. 1957, 8.VII. 1957, J. R. Vockeroth (9 mm 1 ?f CNC); N. C., Gr. Smoky Mt. Nat. Pk., Clingman's Dome, 6300′, 6642′, 18.VI. 1957, J. R. Vockeroth (1 ?f CNC); Tenn., Gr. Sm. Mt. Nat. Park, Indian Gap, 5100′, 24.VII. 1957, J. G. Chillcott (1 m CNC); same locality, 5200′, 3.VII. 1957, G. D. Hines (1 ?f CNC); Tennessee, Sevier Co., Great Smoky Mts., near Indian Gap, 5000′, 35°36.6′N, 83°27.1′W, 7.VII. 1958, J. Laffoon (1 m 2 ff ISU); Miss., Pass Christian, 4.IV. 1966, 8.IV. 1966, 11.IV. 1966, 15.IV. 1966 (5 mm LOYO); Miss., Bay St. Louis, 11.IV. 1966 (1 m LOYO); Miss., Biloxi, 11.IV. 1966 (1 m LOYO); Miss., De Lisle, 4.V. 1966 (1 m LOYO); Miss., Kiln, 15.IV. 1966 (3 mm LOYO); Longtown, 20.IV. 1966 (1 m LOYO).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts brown. Antenna brownish to brown, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

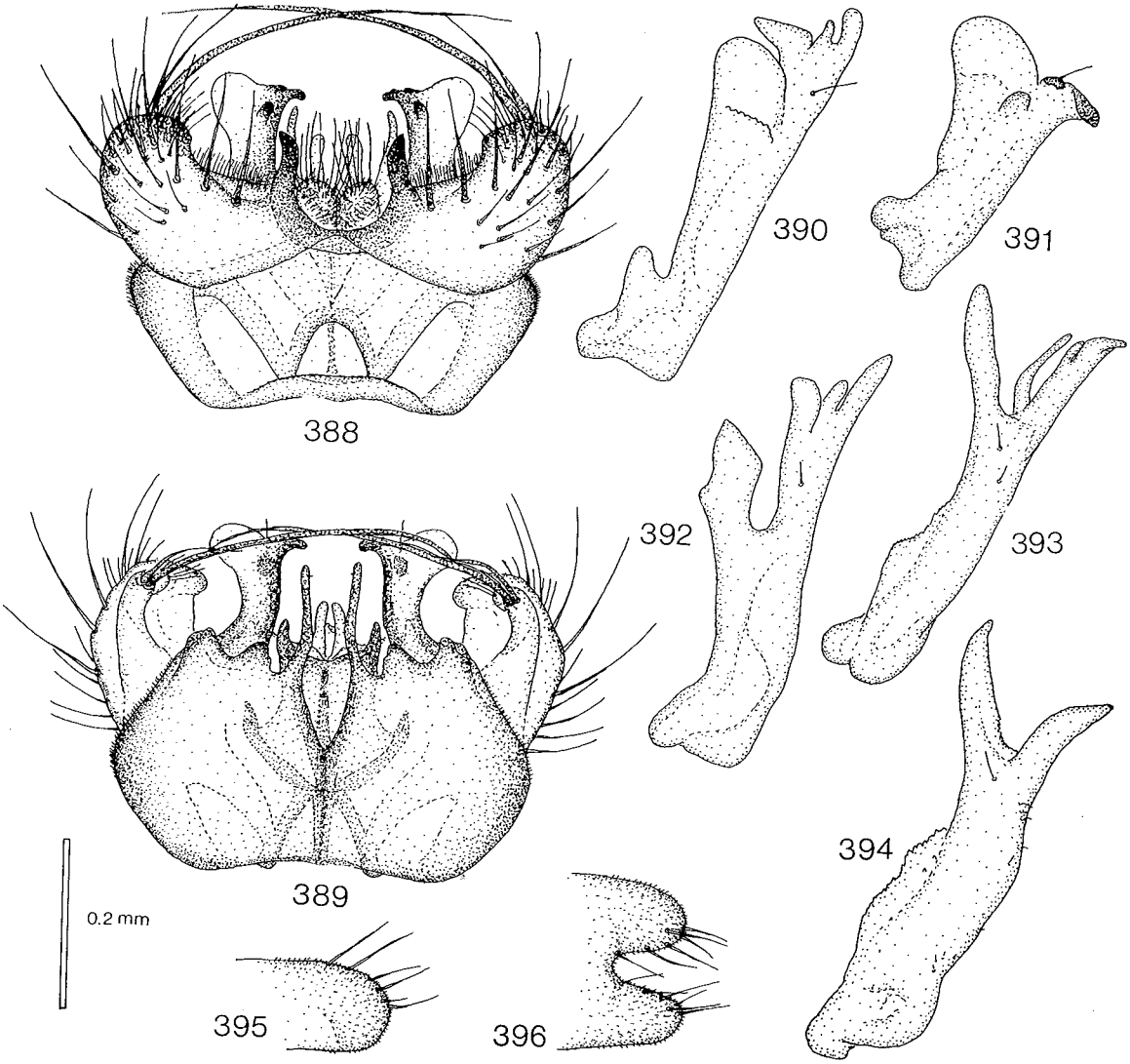
Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum yellowish to brownish, with 3 indistinct light brownish to brownish longitudinal stripes. Mesanepisternum yellowish. Mesokatepisternum yellowish. Scutellum yellowish, with 2—4 long setae, lateral setae much shorter than medials. Laterotergite yellowish. Mediotergite yellowish, with 2, seldom 1, setae.



Figs. 381—387. *Mycomya dichaeta.* — 381: male hypopygium, tergal view. — 382: hypopygium, sternal view. — 383: hypopygium, lateral view. — 384: gonostylus. — 385: female terminalia, lateral view. — 386: hypogynal valves, sternal view. — 387: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 381—383 and 385—387, Fig. 384 2 x enlarged.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight or slightly outwards bent spur without apical tooth. Leg ratios: bt1:t1 = 1.00—1.13, bt2:t2 = 0.73—0.80, bt3:t3 = 0.57—0.63.

Wing. Wing length 3.1—4.5 mm. Wing hyaline. Sc ending in C proximally — slightly distally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 0—9 macrotrichia. Small cell about 3 times as long as wide. Cu fork dis-



Figs. 388—396. *Mycomya terminata.* — 388: male hypopygium, tergal view. — 389: hypopygium, sternal view. — 390—394: gonostyli. — 395: hypogynal valve of female terminalia, lateral view. — 396: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 388—389 and 395—396, Figs. 390—394 2 x enlarged.

tinctly distal to M fork. M ratios: 0.59—0.65, 0.73—0.81. Cu ratios: 0.88—1.00, 1.32—1.39. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Brownish without distinct markings or tergites 1—5 brownish to brown, with posterior margins broadly yellowish, 6—7 brownish. Sternites 1—5 yellow to yellowish, 6—7 brownish.

Hypopygium. Figs. 381—384, yellowish. Sternal submedian appendage curved, comparatively long, occasionally shorter. Gonostylus apically very wide.

Female. Wing length 3.6—4.7 mm. Abdomen brownish, each segment with posterior third yellowish. Leg ratios: bt1:t1 = 0.97—1.07, bt2:t2 = 0.72—0.79, bt3:t3 =0.59—0.64. Terminalia as in Figs. 385—387, yellowish.

Distribution: Nearctic, common in eastern part. Alaska. Canada: British Columbia, Ontario, Quebec. USA: Iowa, Wisconsin, Michigan, Maine, New Hampshire, Connecticut, New York, Pennsylvania, Maryland, Washington, D. C., Virginia, North Carolina, Tennessee, Mississippi. Coher (1959) also reports this species from Massachusetts and Delaware.

Biology: Some specimens have been collected with a light trap. One was found on *Vaccinium stamineum* blossoms. The Alaskan specimens were collected on tundra, many others on mountains.

Mycomya terminata Garrett, 1924
Figs. 388—396, key p. 37.

Mycomya terminata Garrett, 1924. Garrett 1924:60; Laffoon in Stone et al. 1965:221; Cole 1969:121.
(?) *Mycomyia terminata:* Coher 1959:118.
Mycomya caulfieldi Garrett, 1924 (New synon.). Garrett 1924:62; Laffoon in Stone et al. 1965:220; Cole 1969:121.
Mycomyia caulfieldi: Coher 1959:123.
Mycomyia fulvitibia Van Duzee, 1928 (New synon.). Van Duzee 1928:38; Coher 1959:118 (syn. *M. longispina* Van Duzee).
Mycomya fulvitibia: Laffoon in Stone et al. 1965:220; Cole 1969:121; Arnaud 1979:82.
Mycomyia longispina Van Duzee, 1928 (New synon.). Van Duzee 1928:41.
Mycomya longispina: Arnaud 1979:83.

Type locality: By present designation: British Columbia, Vancouver (Canada). Originally: B. C., Vancouver and Savary Island.

Types: — *Mycomya terminata* Garrett: Lectotype (studied) by present designation: Holotype *Mycomya terminata* ♂ C Garrett C. B. D. Garrett, Vancouver 14. 3. 15 B. C. 5275 hypo Brit. Mus. 1937—263. + ♂ hypopygium on slide: *Mycomyia terminata* C Garrett Canada. B. C. Vancouver 14.III. 15 Holotype hypo ♂ one clasp c raised. 5275. (m BMNH). — *Mycomya caulfieldi* Garrett: Holotype (studied), almost entirely destroyed: Holotype Caulfields 5.5. 17 (m BMNH). Type locality: British Columbia, Caulfields (Canada). — *Mycomyia fulvitibia* Van Duzee: Holotype (studied): Mill Valley, Marin Co. Cal. 3-13-26. *Mycomya fulvitibia* Holotype. Van Duzee. California Academy of Sciences Type No. 2491 (m CAS). Type locality: California, Marin Co., Mill Valley (USA). — *Mycomyia longispina* Van Duzee: Holotype (studied): Mill Valley, Marin Co. Cal. 3-13-26. *Mycomyia longispina* Holotype Van Duzee. = *Neoempheria fulvitibia* Van Duzee 1927 Det. Coher 1953. California Academy of Sciences Type No. 2494 (m CAS). Type locality: California, Marin Co., Mill Valley (USA).

Material examined: Canada: B. C., Vancouver, 14.III. 1915, (R. S. Sherman) *(M. terminata* lectotype BMNH); B. C., Vancouver Point Grey, 21.VIII. 1972, 22.IX. 1972, 22.II. 1973, 23.II. 1973, 19.III. 1973, 28.III. 1973, 3.IV. 1973, 1.V. 1973, 10.V. 1973, J. R. Vockeroth (7 mm 5 ff CNC); B. C., Capilano, 300 m.N. Vancouver, 19.X. 1972, J. R. Vockeroth (1 m CNC); B. C., Hope, 90 m., 14.III. 1973, J. R. Vockeroth (1 m 1 f CNC); B. C., Kleanza Cr., 14 mi. E. Terrace, 17.VI. 1960, C. H. Mann (1 m CNC); B. C., Kitsumkalum Lake, 20 m. N. Terrace, 31.V. 1960, C. H. Mann (1 f CNC); B. C., Mt. Thornhill, nr. Terrace, ex wet hollow along trail, elev. 2500′, 14.VII. 1960, J. G. Chillcott (2 mm CNC); same locality, elev. 2000′, 26.VII. 1960, B. Heming (1 m 1 f CNC); B. C., 10 mi. W. of Terrace, ex wet hollow along trail, 9.VI. 1960, J. G. Chillcott (1 m 1 f CNC); B. C., Marble Cr., 10 mi. W. Terrace, 11.VI. 1960, C. H. Mann (1 f CNC); B. C., Squamish, Diamond Head Trail, 3200 ft., 23.VIII. 1953, W. R. M. Mason (1 m CNC); B. C., Lisadele L., 58°41′, 133°04′, *Cassiope* along stream bank, 4000′, 10.VIII. 1960, W. W. Moss (1 ?f CNC); B. C., Kamloops, Lloyds Cr., Paul Lake road, 20.VII. 1969, ROM field party, UVL (1 m ROM); B. C., Van., 27.IV. 1917, 28.IV. 1917, (R. S. Sherman) *(M. terminata* paralectotypes: 2 mm CNC); same locality, 6.V. 1917 (1 f *"M. terminata* paratype" CNC); B. C., Marysville, Kimberly, 14.VII., C. Garrett (1 m + slide 4748, *"M. terminata* paratype" CNC); B. C., Savary Id., 7.IV. 1917, (R. S. Sherman) *(M. terminata* paralectotype: m MASS); B. C., Cranbrook, 30.IX., C. Garrett (1 f *"M. terminata* metatype" CORN); same data, 27.IX. (1 m BMNH); B. C., Vancouver, 8.V. (1 m hypop. slide *"M. terminata* var. a. paratype" USNM); B. C., Savary Id., 11.IV. 1917 (R. S. Sherman) *(M. terminata* paralectotype: f "allotype" BMNH); same locality, 7.IV. 1917 *(M. terminata* paralectotypes: 2 ff "paratypes" BMNH); same data 8.IV. 1917, 10.IV. 1917 *(M. terminata* paralectotypes: 2 mm "paratypes" BMNH); B. C., Vancouver, 8.V. 1921 (1 m *"M. terminata* paratype" BMNH); B. C., Procter, 17.VI., 9.IX., 23.IX., C. Garrett (4 mm BMNH); B. C., Kimberley, St. Mary's Lake, 10.VI., 10.VII., 24.VII. 29.VIII., C. Garrett (4 mm BMNH); B. C., Caulfields, 5.V. 1917, (R. S. Sherman) *(M. caulfieldi* holotype — totally destroyed, allotype f BMNH); B. C., Vancouver, Savary Isle, 10.IV. 1917 (1 m hypop. slide 5265 *"M. terminata* var. *caulfieldi* paratype" BMNH); 12.V. (coll. Garrett) (2 mm USNM); without data (coll. Garrett) (4 ff USNM). — USA: Wash., Pullman, 8.X. 1900 (1 m WASH); same locality, Malaise trap, 21.IV. 1969, 7.V. 1969, 8.V. 1969, 5.VI. 1969, R. W. Dawson (7 ?ff WASH); Wash., Vancouver, 26.V. 1976, Malaise trap (1 m 1 f WASH); Wash., Asotin Co., Fields' Spr. State Prk, 31.VII. 1971 (1 m 2 ff WASH); Wash., Chelan Co., Eight mi. Cmpg., 8 mi. S.W. Leavenworth, 18.VII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); Wash., Chelan Co., YMCA Light trap, 24.VI. 1961, L. J. Ogden (1 ?f WASH); Wash., Skagit Co., Rockport St. Park, 7 mi. E. Concrete, 2.VIII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); Washington, San Juan County, Orcas Island, Moran State Park, Cascade Falls Trail, 6.VII. 1974, P. H. Arnaud, Jr. (1 m CAS); Washington, Clallam County, Olympic National Park, Lake Crescent, waterfalls west of Storm King Visitor Center, 30.VI. 1974, P. H. Arnaud, Jr. (1 ?f CAS); Mt. Rainier, 10.VIII. 1941, L. Lipovsky (1 m WASH); Ida., Moscow Mts., 15—17.VI. 1969, Malaise trap, H. S. Telford (1 m WASH); Ida., Latah Co., 6 mi. N. Moscow, 19.IV. 1971, W. J. Turner (1 m WASH); Ida., Moscow Mts., 22—29.VII. 1969, Malaise trap, R. D. Akree (1 ?f WASH); Oregon, Wallowa Co., Wallowa Lk. SP, 6 mi. S. Enterprise, 3500—4000′, 28—30.VIII. 1973, W. J. Turner (1 m WASH); Oregon, Jackson County, Whiskey Creek Campground, on Highway 62.15 km. E. Union Creek, ca. 1460 m, 27.VII. 1974, P. H. Arnaud, Jr. (1 m 2 ff CAS); Or., Forest Grove, 8.V. 1938, Mech. trap (1 ?f OREG); Ore., Corvallis Watershed, 12.V. 1953, V. Roth (1 m OREG); Oregon, Marion County, Silver Falls State Park, 23.VI. 1974, P. H. Arnaud, Jr. (2 mm CAS); Cal., Marin Co., Mill Valley, 13.III. 1926 *(M. fulvitibia* holotype, *M. longispina* holotype CAS); Cal., E. Barton Flat, 10.X. 1945, A. L. Melander (1 m 1 f USNM): Cal., EFkSTAAnaR, 19.IX. 1945, A. L. Melander (2 mm 1 f USNM); Cal., Up Sta Ana Riv, 27.VII. 1953, A. L. Melander (1 m USNM); Calif., Mono Co., Topaz L., VII. 1948, R. Coleman (1 m USNM); Cal., Berkeley, Strawberry Cr., 5.VI. 1948, light trap, W. W.

Wirth (1 m USNM); Calif., Alameda Co., Strawberry Cnyn, II. 1949, light trap, W. W. Wirth (1 m USNM); Cal., Garbo, 26.IV. 1938, J. Ellsworth (1 m 1 f AMNH); California, Del Norte Co., 22 mi. NE Crescent City, 22.VI. 1959, G. W. Byers (1 m SNOW); Calif., Redding, 4.IV. 1966, B. A. Freeman (2 mm WASH); same data, 4—7.IV. 1966, Malaise trap (1 m WASH); Cal., Yosemite, alt. 3800—4000 ft., 2.XI. 1938, N. P. Hariman (1 m CAS); Cal., Palo Alto, 22.VII. 1895, R. W. Deane collection (1 m CAS); Calif., Santa Cruz Co., Big Basin Redwoods St. Park, 1.IX. 1953, P. H. Arnaud, Jr. (5 mm CAS); California, San Mateo County, Corte de Madera Creek, 12.V. 1974, P. H. Arnaud, Jr. (4 mm 5 ff CAS); California, San Mateo Co., Corte de Madera Cr. vic. Portola, 18.VII. 1959, P. H. Arnaud, Jr. (1 m CAS); Calif., Shasta Co., Hat Creek R. S., elev. 3000′, d 1 m 7 y 1947, H. P. Chandler (4 mm CAS); California, Yosemite Park, Mariposa Grove, 24.VI. 1937, T. G. Aitken (1 m CAS); Cal., Mono Co., alt. 7200 ft., Leawitt Meadow, 13.VIII. 1963, flight trap, H. B. Leech (5 mm 6 ff CAS); Cal., Mono Co., White Mts., 3 mi. No. of Inyo Co., near Naval Research Sta., N. Fork of Crooked Creek, alt. 10.150 ft., 20.VIII. 1963, flight trap, H. B. Leech (1 ?f CAS); Calif., Madera Co., Meadow near locked gate, road to Mark Mine, Se. slope of Green Mt., 7600 ft., 20.VIII. 1971, H. Leech (1 ?f CAS); Cal., Marin Co., Alpine L., 1500′, 10.IV. 1968, D. D. Munroe (12 mm 1 f CNC); same locality, Lily Pond, 1500′, 18.II. 1969, 8.III. 1969, 22.III. 1969, 7.IV. 1969, 10.V. 1969, 17.V. 1969, 11.IV. 1970, IV—V. 1970, 10.V.—9.VI. 1970, V—VI. 1970, 18.VII. 1970, 4—10.V. 1971, 17—25.V. 1971, Malaise trap, D. D. Munroe (32 mm 20 ff CNC); Cal., Hopland, 3.IV. 1968, D. D. Munroe (1 f CNC); Colo., South St. Vrain Cr., 6 mi. S. W. Raymond, 8700′, 11.VIII. 1961, J. G. Chillcott (1 m CNC); Colo., Mt. Evans, Doolidle Ranch, 9800′, 30.VII. 1961, C. H. Mann (1 ?f CNC); Colo., Mt. Evans, Echo L., 10.600′, 23.VII. 1961, C. H. Mann (1 ?f CNC). — Mexico: Baja Calif., Norte, Arr., Santo Domingo, 5.7 mi. E. Hamilton Ranch, dam site, 22.IV. 1963, H. B. Leech & P. H. Arnaud, Jr. (1 m 2 ff CAS).

Remarks: *M. terminata* was originally described from 8 males (and probably 5 females) collected in March and April. Thus the "paratype" collected in May does not belong to the syntype series.

M. caulfieldi was described only from the holotype and the allotype and thus no real paratypes exist.

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellowish to brownish, posterior parts brown. Antenna brownish, scape, pedicel, usually base and sometimes whole of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum entirely light brownish to brown without markings, or yellow with indistinct light brownish to brownish longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellowish to brown. Mesokatepisternum yellow to brown. Scutellum yellowish to brownish, with 4, occasionally 2, long setae. Laterotergite brown. Mediotergite brownish to brown, with 2 setae.

Legs. Coxae yellow, coxae 2 and 3 sometimes brownish, femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight or slightly ventrad bent spur. Leg ratios: bt1:t1 = 1.00—1.05, bt2:t2 = 0.71—0.78, bt3:t3 = 0.57—0.60.

Wing. Wing length 3.3—5.8 mm. Wing hyaline. Sc ending in C near middle of small cell, Sc1 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 8—13 macrotrichia. Small cell 2.5—3 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.58—0.63, 0.72—0.78. Cu ratios: 0.91—0.93, 1.24—1.38. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely light brownish to brown or tergites 1—5 brown with posterior and lateral margins yellow, 6—7 brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 388—394, yellowish to brownish. Sternal submedian appendage long, straight, slender. Gonostylus with characteristic thin rounded subapical lobe. Aedeagus with curved apical hooks.

Female. Wing length 3.7—6.0 mm. Tergites 1—5 brown with narrow posterior margins yellowish, 6—7 brown. Leg ratios: bt1:t1 = 0.97—1.03, bt2:t2 = 0.70—0.78, bt3:t3 = 0.56—0.60. Terminalia as in Figs. 395—396, yellowish.

Distribution: Western Nearctic. Canada: British Columbia. USA: Washington, Idaho, Oregon, California, Colorado. Mexico: Baja California.

Biology: Specimens have been collected by sweeping and with Malaise, mechanical, light and flight traps. The collecting biotopes given are a wet hollow along a trail, *Cassiope* along a stream bank, a meadow and a dam site.

Mycomya islandica n. sp.

Figs. 397—402, key p. 37.

(p. p.) *Sciophila apicalis:* Lundström 1914:11 (p. p. = *M. tenuis* (Walker), *M. hackmani* n. sp.).

Sciophila ? *apicalis:* Henriksen & Lundbeck 1917:565.

Mycomyia tenuis: Edwards 1935:468; Henriksen 1939:65.

Mycomyia brunnea: Nielsen et al. 1954:26.

Mycomya tenuis: Laffoon in Stone et al. 1965:221.

(?) *Mycomyia* sp.: Tuomikoski 1967:44.

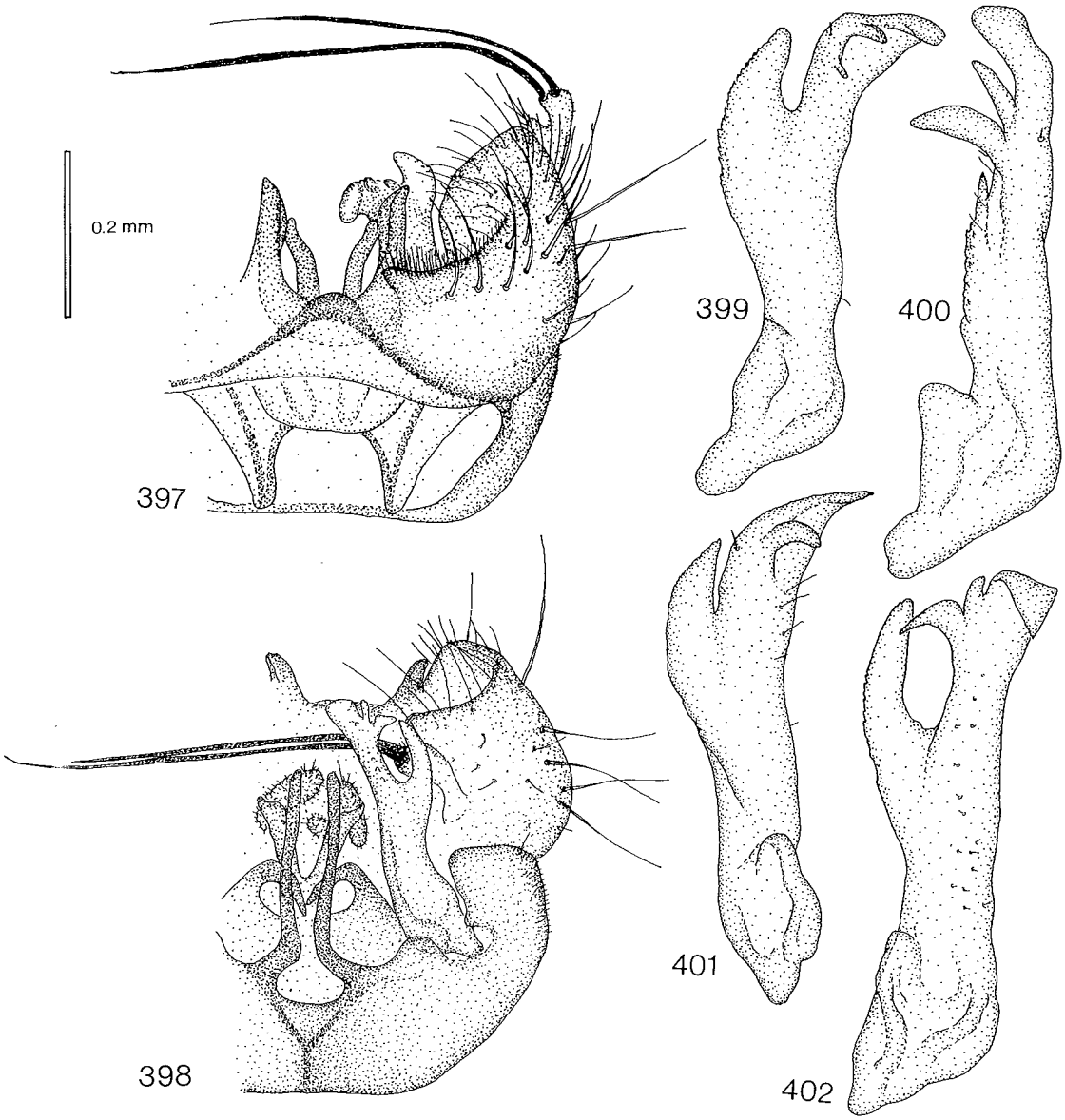
Type locality: Utsjoki, Ailigas (Finland).

Type: Holotype (studied): Utsjoki, Ailigas 14. 7. 1965 K. Mikkola (m MZH).

Material examined: Iceland: N. W. Iceland, Drangajökull, Base Camp Area, 26.VII. 1947, J. L. Cloudsley-Thompson (1 m BNMN). — Sweden: Lpl., Abisko, 25.VI. 1951, J. R. Vockeroth (1 m CNC). — Finland: *Li:* Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (holotype & 1 m MZH). — USSR: Bjäloguba, (along Lutarmajok, coniferous forest zone), 1.VII. 1913, R. Frey (1 m MZH). — Svalbard: Longyarbyen, 8.VII. 1965, J. Kaisila (1 ?f MZH). — Canada: Y. T., Ogilvie Mts., North Pass, 4100′, 12.VI. 1962, R. E. Leech (1 m CNC); Man., Fort Churchill, 21.VIII. 1952, J. G. Chillcott (1 m CNC). — Greenland: E. Greenland, Lake Fjord, 66.17.N, 34.59.W, 28.VI. 1933, F. S. Chapman (1 m BMNH).

Description:

Head. Palp, other mouthparts and face yellowish to brownish, posterior parts of head brown. Antenna brow-



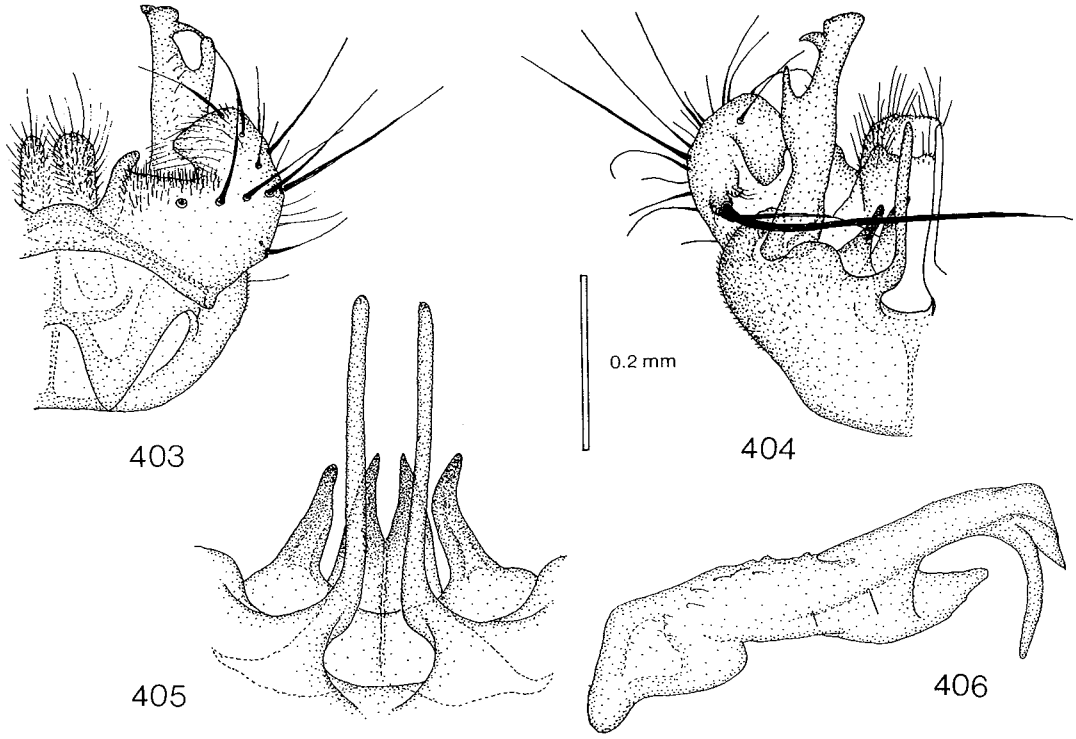
Figs. 397—402. *Mycomya islandica.* — 397: male hypopygium, tergal view. — 398: hypopygium, sternal view. — 399—402: gonostyli. Scale 0.2 mm for Figs. 397—398, Figs. 399—402 2 x enlarged.

nish, scape, pedicel and base of 1st flagellomere yellow to yellowish. 1st flagellomere about 2.5 times, 2nd about 1.5 times as long as wide.

Thorax. Pronotum yellowish, with 2 longer setae. Mesoscutum brownish, with 3 brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum brownish, with 2—4 long setae. Laterotergite brownish. Mediotergite brownish, with 2 setae.

Legs. Coxae yellow to yellowish, coxa 3 sometimes with brownish spot on lateral surface, femora yellow to yellowish, tibiae and tarsi brownish. Coxa without special setae. Coxa 2 with long, almost straight spur. Leg ratios: bt1:t1 = 1.00—1.03, bt2:t2 = 0.71—0.77, bt3:t3 = 0.57—0.61.

Wing. Wing length 4.0—4.8 mm. Wing hyaline. Sc ending in C near or slightly distally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 8—16 macrotrichia. Small cell 3—3.5 times as long as wide. Cu fork distal to M fork. M ratios: 0.45—0.67, 0.57—0.76. Cu ratios: 0.85—1.00, 1.21—1.36. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.



Figs. 403—406. *Mycomya saga.* — 403: male hypopygium, tergal view. — 404: hypopygium, sternal view.— 405: sternal submedian appendages and aedeagus. — 406: gonostylus. Scale 0.2 mm for Figs. 403—404, Figs. 405–406 2 x enlarged.

Abdomen. Brownish to brown, posterior margins of tergites 1—5 sometimes yellowish.

Hypopygium. Figs. 397—402, yellowish to brownish, gonostyli dark, resembling that of *M. saga* n. sp. Sternal submedian appendage very long, almost straight, comparatively dark. Gonostylus comparatively broad apically, with several lobes. Aedeagus with long apical lobes curved laterally and with very strongly curved lateral appendages.

Female. Unknown.

Remarks: The uncertain female specimen from Svalbard was examined several years ago, but cannot be located at present and is thus not described here.

Distribution: Northern Holarctic. Iceland, northern Sweden, northern Finland. Murmansk region of USSR. ? Svalbard. Canada: Yukon Territory and Manitoba. Eastern Greenland.

Biology: The specimen from Bjäloguba is from coniferous forest, the Finnish and Swedish specimens were caught on the fells in Lapland.

Mycomya saga n. sp.
Figs. 403—406, key p. 37.

Type locality: Oregon, Lane County, Limberlost Campground (USA).

Type: Holotype (studied): U. S. A.: Oregon: Lane County, Limberlost Campground, 6 km. E McKenzie Bridge, Lost Creek, 550 m. 25-VII-1974 Paul H. Arnaud, Jr. Calif. Acad. Sci. Coll. (m CAS).

Material examined: Canada: N. W. T., Moscox L., 64°45′N, 108°10′W, 10.VII. 1953, J. G. Chillcott (1 m CNC); B. C., Alaska Hwy., Summit L., Mi 392, 5000′, 6.VII. 1959, E. E. MacDougall (1 m CNC); B. C., Mt. Thornhill, nr. Terrace, elev. 1500′, ex wet hollow along trail, 26.VII. 1960, B. Heming (4 mm CNC); B. C., Kimberly, St. Mary's Lake, 14.VI., C. Garrett ("*Mycomyia terminata* triangulis" 1 m hypop. slide No. 4827 CNC); same locality., 28.VII., C. B. D. Garrett (1 m BMNH); same data 2.VIII. (1 ?f BMNH). — USA: Oregon, Lane County, Limberlost Campground, 6 km. E. McKenzie Bridge, Lost Creek, 550 m, 25.VII. 1974, P. H. Arnaud, Jr. (holotype CAS); Colo., Rocky Mt. N. P., Roaring River, 9400′, 40°25.6′N, 105°38.4′W, 11.VII. 1959, J. Laffoon (1 m ISU).

Description:

Head. Palp, other mouthparts and face yellowish to brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellowish. 1st flagellomere about 2.5 times, 2nd twice as long as wide.

Thorax. Pronotum yellowish, with 2 longer setae. Mesoscutum brownish, with 3 brown more or less fused longitudinal stripes. Mesanepisternum brownish.

Mesokatepisternum brownish. Scutellum brownish, with 4 long setae. Laterotergite brownish. Mediotergite brownish, with 1—2 setae.

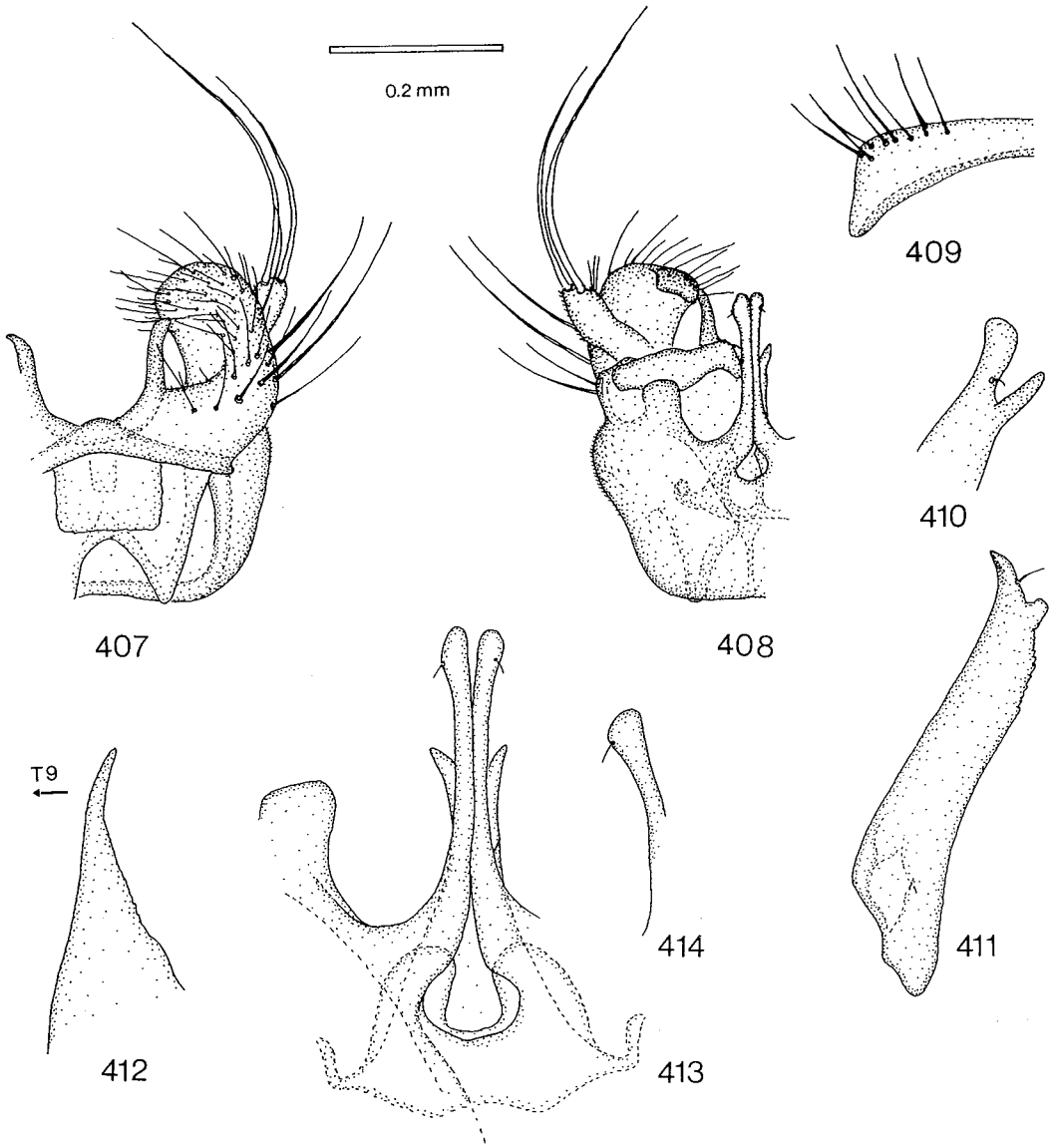
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight spur. Leg ratios: bt1:t1 = 0.94—1.03, bt2:t2 = 0.70—0.73, bt3:t3 = 0.56—0.60.

Wing. Wing length 3.5—5.1 mm. Wing hyaline. Sc ending in C near middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 2—12 macrotrichia. Small cell 2.5—3.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.54—0.66, 0.67—0.77. Cu ratios: 0.86—0.96, 1.20—1.47. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Brownish to brown, posterior margins of tergites 1—5 indistinctly paler.

Hypopygium. Figs. 403—406, yellowish, gonostyli brown. Sternal submedian appendage long almost straight. Gonostylus with pointed lobes, its apical part comparatively narrow, curved, pointed. Aedeagus comparatively short, with 2 apical lobes, lateral appendages comparatively short, slightly curved.

Female. Unknown.



Figs. 407—414. *Mycomya cranbrooki.* — 407: male hypopygium, tergal view. — 408: hypopygium, sternal view. — 409: tergite 8. — 410—411: gonostyli. — 412: apex of aedeagus, lateral view. — 413: sternal submedian appendages and apex of aedeagus. — 414: apex of sternal submedian appendage, lateral view. Scale 0.2 mm for Figs. 407—409, Figs. 410—414 2 x enlarged.

Remarks: The most useful diagnostic character of this species is the hook-like strongly curved gonostylus (cf. *M. islandica* n. sp.).

Distribution: Western Nearctic. Canada: North West Territories, British Columbia. USA: Oregon, Colorado.
Biology: Unknown. One specimen collected in a wet hollow along a trail.

Mycomya cranbrooki Garrett, 1924
Figs. 407—414, key p. 37.

Mycomya cranbrooki Garrett, 1924. Garrett 1924:61; Laffoon in Stone et al. 1965:220; Cole 1969:121.
Mycomyia cranbrooki: Coher 1959:123.

Type locality: British Columbia, Cranbrook (Canada).
Type: Holotype (studied): Cranbrook B. C. 27. IV. 22, C. Garrett Collector, 5279 hypo, Holotype *Mycomya* ♂ *terminata* var. *cranbrooki* C Garrett, C. B. D. Garrett + hypop. slide: *Mycomyia terminata* var. *cranbrooki* C Garrett Canada. B. C. Cranbrook 27.IV. 17, Holotype hypo ♂ 5279 (m CNC).
Remarks: The data of the holotype in the original description was "May 27".
Material examined: Canada: B. C., Cranbrook, 27.IV. 1922 (?), C. Garrett (holotype CNC); same locality, 7.V. C. Garrett (1 m "Paratype *Mycomyia cranbrooki* var. of *terminalis*" MASS); B. C., Procter, 17.VI., C. Garrett (1 m BMNH). — USA: Wash., Pullman, 21.IV. 1969, Malaise trap, R. W. Dawson (1 m WASH); Calif., Alameda Co., Strawberry Cnyn, II. 1949, light trap, W. W. Wirth (1 m USNM); Cal., Mono Co., alt. 7200′, Leavitt meadow, 13.VIII. 1963, flight trap, H. B. Leech (2 mm CAS); California, Tuolumne County, Lyons Reservoir, 3.VI. 1963, P. H. Arnaud, Jr. (2 ? ff CAS); California, Tuolumne County, Basin Creek Campground, 1.VI. 1963, P. H. Arnaud, Jr. (1 m 1 ?f CAS); Las Vegas, HS, 15.VIII., NM, H. S. Barber (1 m USNM); Ar., Flaggstaff, 5.VII. H. S. Barber (1 m USNM): Arizona, Graham Co., Graham Mts., Hospital Flat, 9050 ft., 19.VIII. 1952, H. B. Leech & J. W. Green (1 m CAS); Ariz. Navajo Co., Pine forest, 4 mi. SW. of Forestdale, 23—24.VIII. 1952 H. B. Leech & J. W. Green (1 m CAS).
Remarks: *M. cranbrooki* was originally described only on the basis of the holotype. Thus, the label "paratype" is not correct.

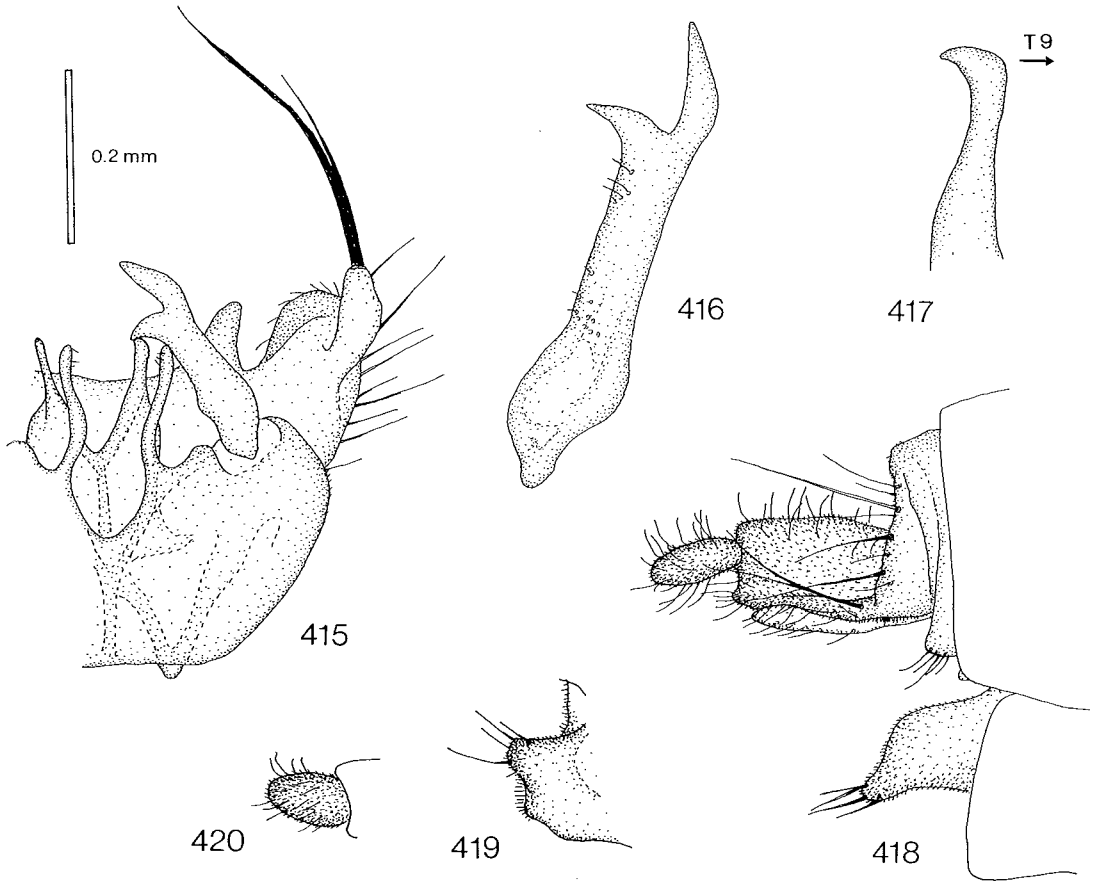
Description:
Head. Palp and other mouthparts yellow, face light brownish, posterior parts brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere almost 3 times, 2nd twice as long as wide.
Thorax. Pronotum yellow to brownish, with 2 longer setae. Mesoscutum entirely light brownish or with 3 fused brownish longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish. Scutellum yellowish, with 2—4 long setae. Laterotergite yellow to yellowish. Mediotergite light brownish, with 2—3 setae. Thorax occasionally darker, brownish to brown, without distinct markings.
Legs. Coxae yellow to yellowish, occasionally brownish, femora yellow, tibiae and tarsi darker. Coxa 1 without special setae. Coxa 2 with long, almost straight spur. Leg ratios: bt1:t1 = 0.95—1.08, bt2:t2 = 0.75—0.82, bt3:t3 = 0.60—0.65.
Wing. Wing length 3.3—4.6 mm. Wing hyaline. Sc ending in C proximally to or near middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 2—14 macrotrichia. Small cell 3.5—4.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.56—0.70, 0.64—0.81. Cu ratios: 0.83—1.00, 1.19—1.43. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Tergites 1—5 light brownish to brown, with posterior margins yellow, markings usually distinct, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish to brown.
Hypopygium. Figs. 407—414, yellowish, comparatively small. Sternal submedian appendage long, slender, almost straight. Gonostylus with small apical lobes.
(?) Female. Wing length about 3.6 mm. Leg ratios: bt1:t1 = 0.93, bt2:t2 = 0.73, bt3:t3 = 0.57. Terminalia yellowish.

Distribution: Western Nearctic. Canada: British Columbia. USA: Washington, California, Nevada, Arizona.
Biology: Also collected with light and flight traps. The collecting biotopes given are pine forest and meadow.

Mycomya brunnea (Dziedzicki, 1885)
Figs. 415—420, key p. 37.

Sciophila brunnea Dziedzicki, 1885. Dziedzicki 1885:17; Kertész 1902:58, 1903:31.
Mycomyia brunnea: Landrock 1926—1927:43; Lackschewitz 1937:10; Karl 1939:53; Landrock 1940:33.
Mycomya brunnea: Väisänen in Hackman 1980:31; Väisänen 1982b:38.
(?) *Mycomyia brunnea:* Kröber 1956:131; Ostroverchova & Stackelberg 1969:273; Ostroverchova & Izotov 1974:82; Ostroverchova 1977:20, 1979:63; Ostroverchova & Zaitseva 1979:73.
(p. p.) *Mycomyia brunnea:* Plassmann 1973:84, 1976a:77, 1977b:8, 1978c:48, 1979:373, 1980a:177 (p. p. = *M. tenuis* (Walker), *M. hackmani* n. sp., *M. disa* n. sp.).
(not) *Mycomyia brunnea:* Nielsen et al. 1954:26 (= *M. islandica* n. sp.).

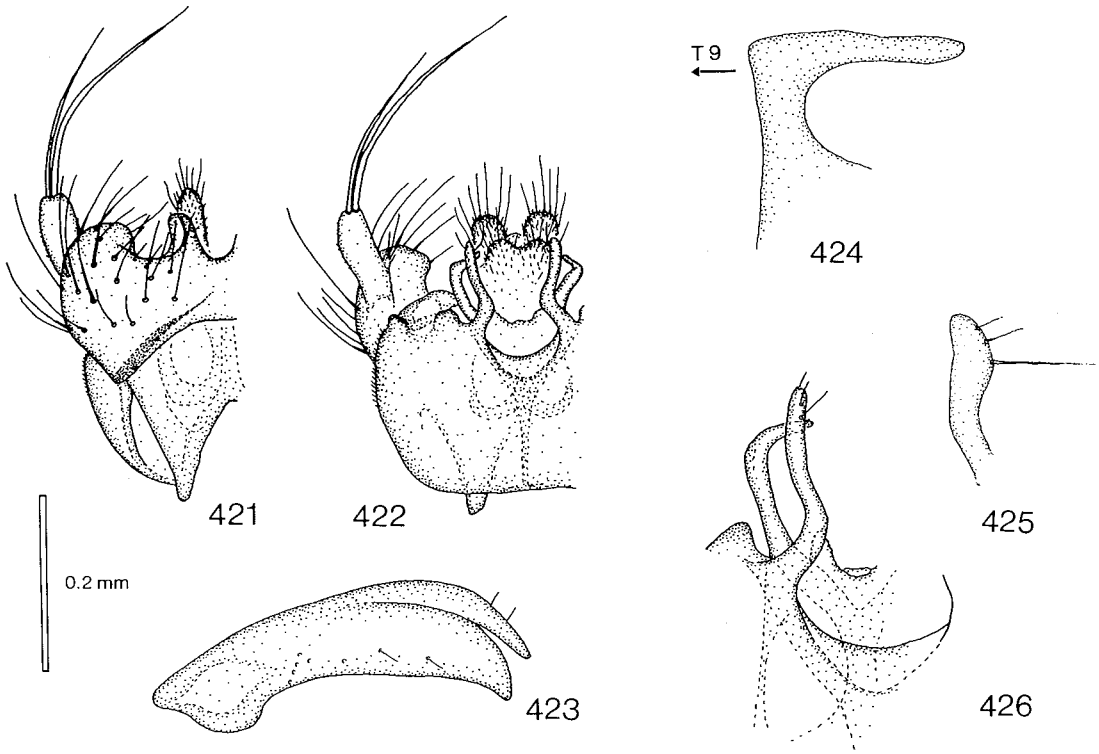
Type locality: Warsaw (Poland).
Type: Holotype: not located, apparently destroyed, m.
Material examined: Italy: Aosta, Eau Rousse (Valsavaranche), alt. 1600 m, 4.IX. 1978, L. Matile (1 m MNHN, 1 m MZH). — Austria: Austr. sup., Hammern, 13.IX. 1872, Mik (5 mm WIEN); Tirol, Obergurgl, 1950 m, 25.VII. 1953, J. R. Vockeroth (1 m CNC). — Roumania: Retezatului Mts., nr. Hobita Cabana, c. 4000′, mature pine forests, 29.VI. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH). — Czechoslovakia: Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (1 m 1 ?f VUPP); Boh., Horské Kvilda, 27.VII. 1961, Laštovka (1 m VUPP); same data, 26.VII. 1961 (2 ?ff VUPP). — "Germania": 1869, Schiner (1 m WIEN). — Sweden: Sk., Bökeberg, 20.X. 1968, H. Andersson (2 mm coll. Andersson); Messaure, Kaltisjokk, 1969 (2 mm No. 4643 & 4791 SENCK); Kaltisjokk, loc. 20, 10—14.VII. 1969 (1 m No. 9606 STAAT); Muonio, Muoniovaara, 8.VII. 1911, R. Frey (1 m



Figs. 415—420. *Mycomya brunnea.* — 415: male hypopygium, sternal view. — 416: gonostylus. — 417: apex of aedeagus, lateral view. — 418: (?) female terminalia, lateral view. — 419: hypogynal valve, sternal view. — 420: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 415 and 418—420, Figs. 416—417 2 x enlarged.

MZH); Lpl., Abisko, 30.VII. 1951, J. R. Vockeroth (1 m CNC). — Finland: *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (2 mm MZH); Karislojo (Karjalohja), 27.VI. 1908, R. Frey (1 m MZH); Tenhola, Skogby bruk, 26.VIII. 1965, R. Tuomikoski (1 m MZH); Vihti, Vihtijärvi, 7.VII. 1962, 23.VI. 1963, 30.VII. 1964, R. Tuomikoski (3 mm MZH); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (1 m MZH); *N:* Esbo (Espoo), Westend, 17.VII. 1962, 15.IX. 1962, W. Hackman (2 mm MZH); Esbo, Kolmperä, 21.VI. 1964, W. Hackman (1 m MZH); Esbo, Småholm, 24.VI. 1962, 17.VII. 1962, W. Hackman (3 mm MZH); Esbo, 7.VII. 1962, W. Hackman (1 m MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (1 m MZH); *Ta:* Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (1 m MZH); *Kb:* Tohmajärvi, Hyypiänvaara, 14.VIII. 1964, R. Tuomikoski (1 m MZH); Kitee, Papinniemi, 26.VI. 1963, W. Hackman (1 m MZH); Kesälahti, 27.VI. 1963, W. Hackman (2 mm MZH); Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (4 mm MZH); same locality, 15.VII. 1967, R. Tuomikoski (1 m MZH); *Om:* Pietarsaari, Varvet, 7.VIII. 1956, R. Storå (1 m MZH); *Ok:* Säräisniemi (Vaala), Wuorentaus (1 m MZH); Sotkamo, Aarreniemi, 15.VIII. 1964, A. V. V. Mikkola (2 mm MZH); same locality, 29—30.VII. 1965, A. V. V. Mikkola (1 m MZH); same locality, 2.VII. 1966, K. Keynäs (4 mm MZH); same locality, 17.VII. 1967, Mihályi (1 m TMB); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, R. Tuomikoski (1 m MZH); same locality, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (3 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, R. Tuomikoski (1 m MZH); same locality, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (6 mm MZH); *LkW:* Muonio, R. Frey (1 m WIEN). — USSR: Leningrad obl., 16—18.IX. 1936, Stackelberg (1 m LEN); Leningrad obl., Toksovo, 8.X. 1946, Stackelberg (3 mm LEN): Leningr., Luzhsk., Tolmachevo, 24.VIII. 1936, Stackelberg (2 mm LEN); Biala-Rus, 6, 80, *Sciophila Radoszkowski* n. sp. ♂ Mus. Zool. H:fors Spec. typ. No. 4769 *Mycomyia Radoskowskii* Dziedzicki (1 m MZH).

Remarks: The specimen labelled as the type of *Sciophila radoszkowskii* does not agree with Dziedzicki's Figs. 19—20 (Table VII) of that species (= *M. tenuis* Walker)), but belongs to his other closely related species: *M. brunnea.* It does not belong to the original



Figs. 421—426. *Mycomya safena.* — 421: male hypopygium, tergal view. — 422: hypopygium, sternal view. — 423: gonostylus. — 424: apex of aedeagus, lateral view. — 425: apex of sternal submedian appendage, lateral view. — 426: sternal submedian appendage and apex of aedeagus, sternal view. Scale 0.2 mm for Figs. 421—422, Figs. 423—426 2 x enlarged.

type material of either of these species, because it was collected in Byelorussia, and *M. brunnea* was originally known only from Warsaw. The specimen has apparently been labelled incorrectly afterwards (perhaps by Dziedzicki himself).

Description:

Head. Palp and other mouthparts yellow, face brown, posterior parts brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2—2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum yellowish, with 3 indistinct brownish longitudinal stripes. Mesanepisternum light brownish. Mesokatepisternum light brownish. Scutellum light brownish, with 2 long setae, occasionally 1 additional shorter seta. Laterotergite light brownish. Mediotergite light brownish, with 2—3 setae.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight spur, with or without small apical tooth. Leg ratios: bt1:t1 = 1.02—1.07, bt2:t2 = 0.70—0.80, bt3:t3 = 0.55—0.57.

Wing. Wing length 3.4—5.0 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, seldom Sc1 apically weak or broken, not quite reaching C, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 2—12 macrotrichia. Small cell about 3 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.55—0.69, 0.76—1.10. Cu ratios: 0.86—1.00, 1.25—1.36. Macrotrichia: M petiole: 0—1; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish, with posterior and lateral margins yellow, markings usually indistinct, sometimes missing, 6—7 brownish. Sternites 1—5 yellowish, 6—7 brownish.

Hypopygium. Figs. 415—417, yellowish. Sternal submedian appendages long, slender, almost straight, parallel to each other. Gonostylus long, with 2 apical lobes. Aedeagus somewhat variable, with 2 apical branches, with or without small teeth.

(?) Female. Wing length about 4.7 mm. Abdomen brown, posterior margins of tergites yellowish. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.73, bt3:t3 = 0.59. Terminalia as in Figs. 418—420, yellowish.

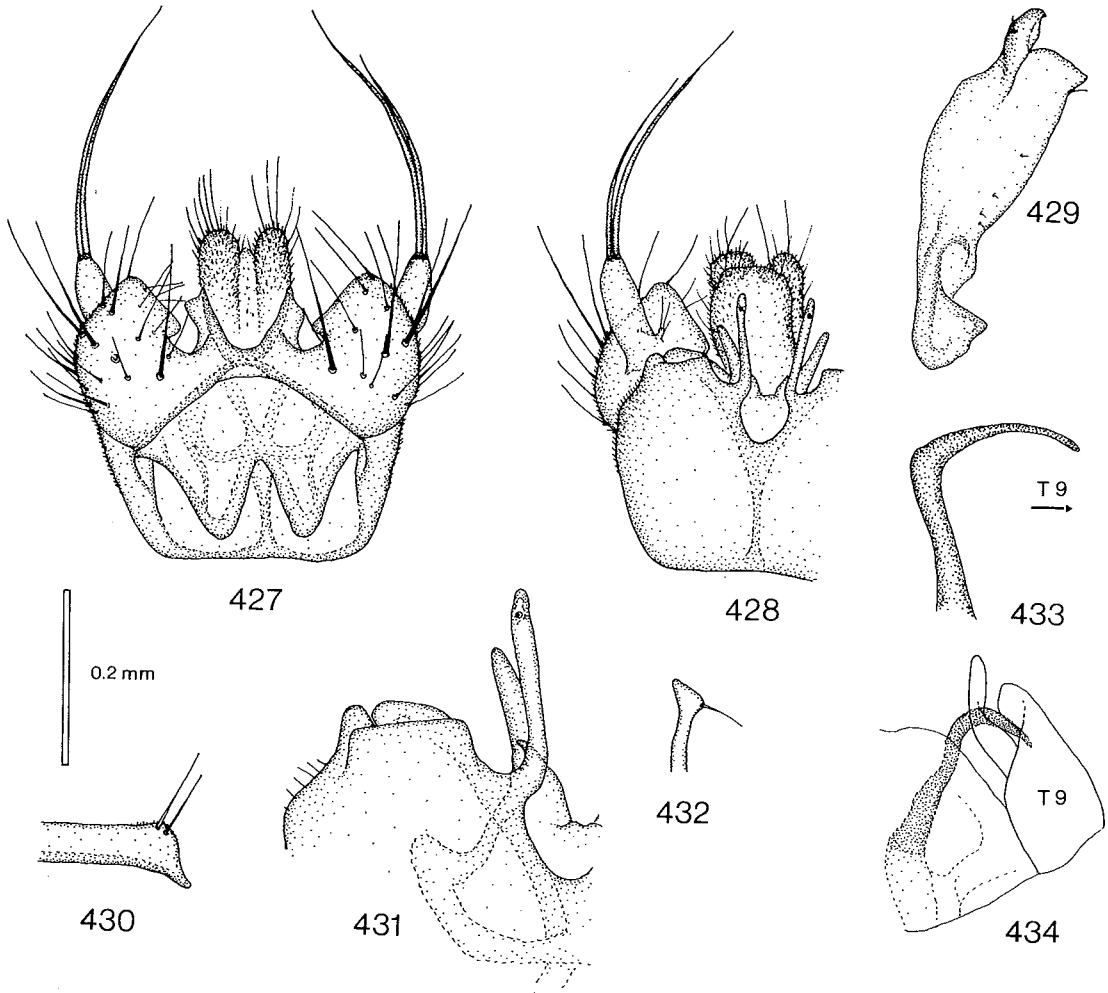
Distribution: Palaearctic. Italy, Austria, Roumania, Czechoslovakia, Germany, Sweden, Finland. USSR: Byelorussian SSR, Leningrad region. Lackschewitz reports this species from the Latvian and Estonian SSRs. Uncertain records are available from the Federal Republic of Germany (Kröber 1956, Plassmann 1973, 1977b, 1978c) and from eastern parts of the USSR (e.g. Ostroverchova 1979).

Biology: The Finnish specimens have been caught in

boreal forest and bogs. Plassmann (1979, 1980a) reports that "*M. brunnea*" has been collected with light and air-suction traps in northern Sweden.

Mycomya safena n. sp.
Figs. 421—426, key p. 37.

Type locality: New York, Ithaca, Coy Glen (USA).
Type: Holotype (studied): Coy Glen, Ithaca, New York August 9, 1961 Dick L. Deonier (m ISU).
Material examined: Canada: N. W. T., Aklavik, Mackenzie River 1929 Trip, 9.IX. 1929, O. Bryant (1 m CAS); N. W. T., Hay River, 9.IX. 1932, O. Bryant (1 m CAS) Man., Fort Churchill, 21.VIII. 1952, J. G. Chillcott (1 m CNC); Manitoba, Gillam, 10.VIII. 1937, D. G. Denning (1 m MINN); Ontario, Ottawa, Mer Bleue, 12.X. 1960, J. R. Vockeroth (1 m CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 17.VI. 1966, 9.VII. 1966, 11.VII. 1966, Malaise trap, D. D. Munroe (3 mm CNC); Ont., Ottawa, 5.XI. 1956, J. R. Vockeroth (1 m CNC); Ont., Stirling, 14.X. 1956, J. R. Vockeroth (1 m CNC); Que., Old Chelsea, 3.X. 1956, 16.X. 1956, J. R. Vockeroth (4 mm 2 ff + several ?ff from the same locality CNC); Que., Indian House, 4.VIII. 1954, R. Coyles (1 m CNC); Que., Gatineau Co., Masham Twp., 21.VII. 1974, D. M. Wood (1 m CNC); N. B., Kouchibouguac N. P., 28.VI. 1977, J. R. Vockeroth (2 mm CNC). — USA: Minnesota, Itasca St. Pk., 13.VI. 1954, light trap, K. J. Kraft (1 m MINN); Wis., Washburn Co., T39N R12W B32, 6.IX. 1951, 9.IX. 1951, 11.IX. 1951, 11.VI. 1952, 24.VI. 1952, 6.VIII. 1952, 8.VIII. 1952, 9.VIII. 1952, 24.VIII. 1952, 28.VIII. 1952, 29.VIII. 1952, 30.VIII. 1952, 2.IX. 1952, 11.IX. 1952, 3.VI. 1953, 5.VI. 1953, 18.VIII. 1953, 30.VIII. 1953, light trap, R. H. Jones (18 mm 4 ?ff WISC); N. Y., Essex Co., Keene Valley, 1200′, 20.VII. 1962,



Figs. 427—434. *Mycomya zaitsevi*. — 427: male hypopygium, tergal view. — 428: hypopygium, sternal view. — 429: gonostylus. — 430: tergite 8. — 431: sternal submedian appendage and apex of aedeagus, sternal view. — 432: apex of sternal submedian appendage, lateral view. — 433: apex of aedeagus, lateral view. — 434: schematic lateral view of aedeagus and tergite 9. Scale 0.2 mm for Figs. 427—428, 430 and 434, Figs. 429 and 431—433 2 x enlarged.

J. R. Vockeroth (1 m CNC); New York, Ithaca, Coy Glen, 9.VIII. 1961, D. L. Deonier (holotype ISU).

Description:
Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brownish. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2—2.5 times, 2nd 1.5 times as long as wide.
Thorax. Pronotum yellow to yellowish, with 2 longer setae. Mesoscutum yellow to brownish, with 3 brownish to brown distinct or indistinct longitudinal stripes, middle stripe sometimes with narrow yellow median band. Mesanepisternum yellow to brownish. Mesokatepisternum yellow to brownish, ventral half yellowish to brownish. Scutellum yellow to brownish, with 2, sometimes 4, long setae. Laterotergite yellow to brownish. Mediotergite yellow with light brownish posterior part or entirely brownish, with 2 small setae.
Legs. Coxae yellow to yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long almost straight spur with or without minute apical tooth. Leg ratios: bt1:t1 = 0.97—1.00, bt2:t2 = 0.68—0.77, bt3:t3 = 0.58—0.66.
Wing. Wing length 3.4—4.6 mm. Wing hyaline. Sc ending in C proximally — distally to middle of small cell, Sc2 ending in R1 proximally to or near middle of small cell. Apical part of Sc bearing 2—13 macrotrichia. Small cell 3—4 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.65—0.72, 0.76—0.90. Cu ratios: 1.00—1.10, 1.56—1.73. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Entirely light brownish or tergites 1—5 light brownish to brownish with lateral and posterior margins yellow, 6—7 brownish. Sternites 1—5 yellow, 6—7 light brownish.
Hypopygium. As in Figs. 421—426, yellow.
(?) Female. Wing length 4.5—5.0 mm. Leg ratios: bt1:t1 = 0.97—1.00, bt2:t2 = 0.71—0.76, bt3:t3 = 0.53—0.60. Terminalia yellowish.

Distribution: Eastern Nearctic. Canada: North West Territories, Manitoba, Ontario, Quebec, New Brunswick. USA: Minnesota, Wisconsin, New York.
Biology: Several specimens have been collected with light traps.

Mycomya zaitsevi n. sp.
Figs. 427—434, key p. 37.

Type locality: Kuril Islands, Kunashir (USSR).
Type: Holotype (studied): XX, USSR 20.VII. 77, Kuril Isls. Kunashir, Leg A. Zaitzev. *Mycomya brunnea* Dziedz. det. A. Zaitzev '78 (m MOSC).
Material examined: USSR: Holotype (MOSC).

Description:
Head. Palp and other mouthparts yellow to light brownish, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3.5 times, 2nd about 2.5 times as long as wide.
Thorax. Entirely brownish, with indistinct brown mesoscutal stripes. Pronotum with 2 longer setae. Scutellum with 2 long setae. Mediotergite with 2 setae.
Legs. Coxae yellow, coxa 3 slightly brownish, femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long, almost straight spur with very minute apical tooth. Leg ratios: bt1:t1 = 1.06, bt2:t2 = 0.74, bt3:t3 = 0.54.
Wing. Wing length 3.5 mm. Wing hyaline. Sc ending in R1 distinctly proximally to middle of small cell, Sc1 apically broken, not quite reaching C. Apical part of Sc bearing 0—3 macrotrichia. Small cell about 3.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.63, 0.79. Cu ratios: 1.05, 1.53. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Entirely brownish to brown.
Hypopygium: Figs. 427—434, yellow.
Female. Unknown.
Remarks: This species is closely allied with *M. brunnea* (Dziedzicki), *M. cranbrooki* Garrett, and *M. safena* n. sp., and the best diagnostic characters in this group can be found in the shape and structure of the aedeagus and the gonostyli.

Distribution: Eastern Palaearctic. Kuril Islands, Kunashir (USSR).
Biology: Unknown.

Species group M. spinicoxa

Externally very similar to the species group *M. levis*, but scape of antenna without spines, mid-coxal spur with apical lobes, and coxa 1 with many long strong setae apically-subapically on anteromedial surface.
Hypopygium. Tergite 9 without dark cones.

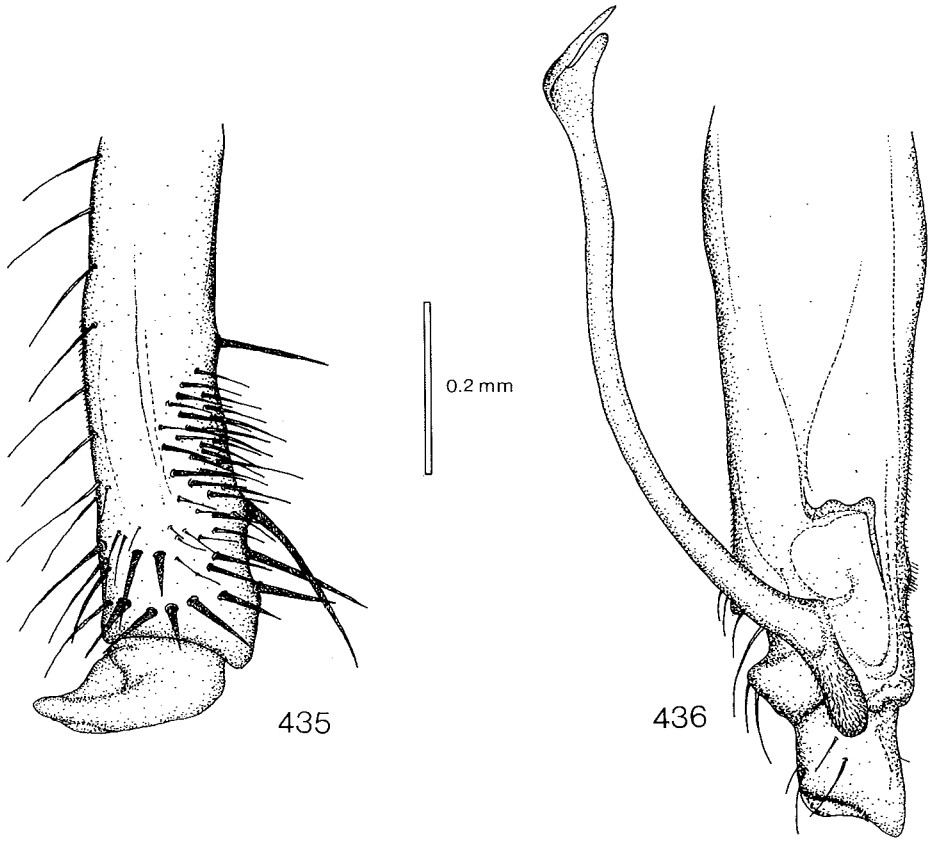
One Palaearctic species is recognized in this species group.

Mycomya spinicoxa Väisänen, 1979
Figs. 435—441, key p. 36.

Mycomya spinicoxa Väisänen, 1979. Väisänen 1979:109, in Hackman 1980:31; Väisänen 1982b:41.
Mycomyia levis: Plassmann 1979:374, 1980a:178.

Type locality: Kuusamo, Juuma, Jäkälävuoma (Finland).
Type: Holotype (studied): Kuusamo, Juuma, Jäkälävuoma 21.VIII. 1964 R. Tuomikoski & K. Mikkola. Holotypus *Mycomya spinicoxa* Väisänen. Mus. Zool. H:fors Spec. typ. No 14338 (m MZH).
Material examined: Sweden: Messaure, Kaltisjokk, 1969, W. Tobias (1 m No. 4748 SENCK). — Finland: *Ab:* Vihti, Vihtijärvi, 27.VIII. 1963, R. Tuomikoski (paratype: 1 m MZH); *Ks:* Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (holotype MZH); Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (paratype: 1 m MZH). — USSR: Leningrad. o., Luzhsk., Tolmachevo, 20.VIII. 1937, Stackelberg (1 m LEN).

Description:
Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brownish, basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.



Figs. 435—436. *Mycomya spinicoxa.* — 435: male coxa 1 with strong spines. — 436: mid-coxal spur and coxa 2. Scale 0.2 mm.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum brownish, with indistinct longitudinal stripes. Mesanepisternum yellow to brownish. Mesokatepisternum yellow to brownish. Scutellum yellowish with 2 long setae. Laterotergite yellowish to brownish. Mediotergite brownish, with 0—2 small setae.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with many strong spines on inner surface (Fig. 435). Coxa 2 with long curved spur with cone-like basal appendage, and with special lobes at apex (Fig. 436). Leg ratios: bt1:t1 = 1.11—1.20, bt2:t2 = 0.78—0.84, bt3:t3 = 0.58—0.67.

Wing. Wing length 4.2—4.8 mm. Wing hyaline. Sc ending in R1 distally to middle of small cell, Sc1 apically broken or entirely missing. Apical part of Sc bearing 2—6 macrotrichia. Small cell about twice as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.71—0.88, 0.94—1.05. Cu ratios: 1.21—1.28, 2.06—2.67. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites brownish. Sternites yellowish.

Hypopygium. Figs. 437—441, yellowish. Tergite 9 without dark cones. Sternal submedian appendage long, slender, curved medially. Paramere long curved. Gonostylus long slender with 2 apical teeth. Aedeagus long, slender, apically hooked, with lateral filaments.

Female. Unknown.

Distribution: Western Palaearctic. Sweden, Finland. USSR: Leningrad region.

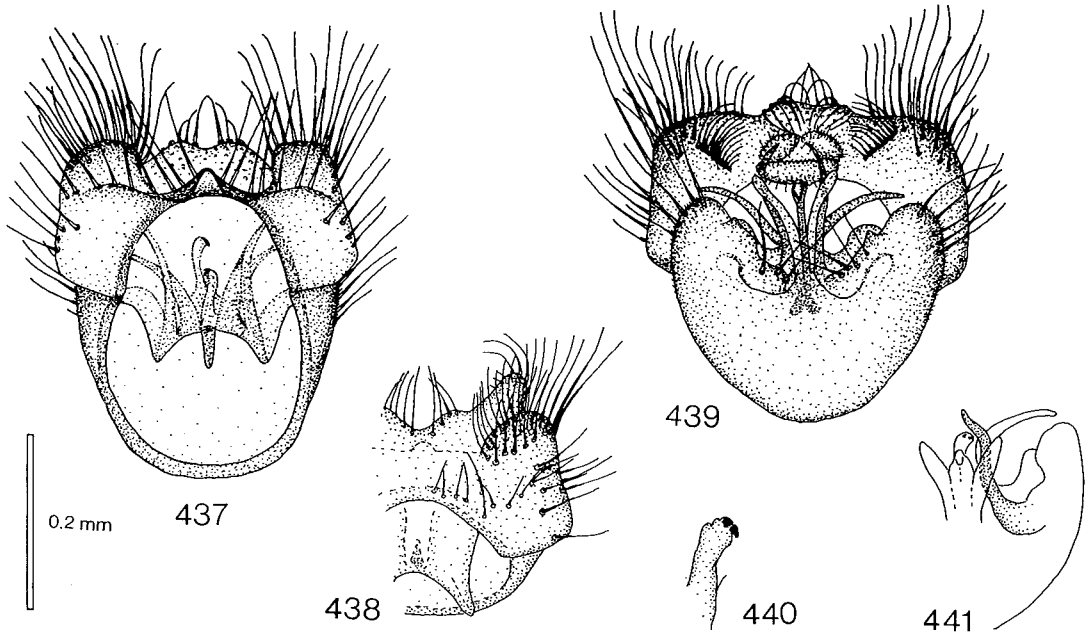
Biology: Plassmann (1979:374, 1980a:178) has reported that this species *("M. levis* (Dziedzicki)" — one specimen of his material seen from Messaure) was collected with light and air-suction traps.

Species group M. levis

Head. Anteclypeus comparatively long, apically rounded, with some scattered fairly long setulae. Antenna about twice as long as head and thorax together, in females slightly shorter. Scape with strong anterior spines. Pedicel with some short dorsal setae. Ocellar setae about 3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum usually with 2 long setae, sometimes also 2 shorter lateral setae. Mediotergite with 1—3 setae. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining distinctly anteriorly.

Legs. Coxa 1 with 3 long strong dark spines on anteromedial surface. Coxa 2 with long curved spur with indistinct apical tooth and basal cone-like processus projecting downwards. Coxae relatively thin, coxa 2 about



Figs. 437—441. *Mycomya spinicoxa.* — 437—438: male hypopygium, tergal views. — 439: hypopygium, sternal view. — 440: apex of gonostylus. — 441: schematic illustration of sternal structures. Scale 0.2 mm for Figs. 437—439 and 441, Fig. 440 2 x enlarged.

4 times as long as wide. Basitarsus 1 longer than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc usually ending free, sometimes in C or R1. Cu fork distinctly distal to M fork. M petiole of medium length. Cu petiole very long. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Colour pattern diffuse brown.

Tergite 8 narrow arcuate, medially slightly narrower, with 1—4 setae along posterior margin of both lateral lobes. Sternite 8 triangular, apically rounded, bare.

Hypopygium. Tergite 9 with 2 groups of dark cones. Sternal synsclerite with lateral appendages.

Female terminalia. Apical segment of cercus oval. Hypogynal valve apically slightly tapered, with some setae.

One Holarctic species is recognized in this species group.

Mycomya levis (Dziedzicki, 1885)

Figs. 442—454, key p. 36, 42.

Sciophila levis Dziedzicki, 1885. Dziedzicki 1885:17; Kertész 1902:61, 1903:33.

Mycomyia levis: Landrock 1926—1927:47.

Mycomya levis: Väisänen in Hackman 1980:31; Väisänen 1982b:40.

(not) *Mycomyia levis:* Plassmann 1979:374, 1980a:178 (= *M. spinicoxa* Väisänen).

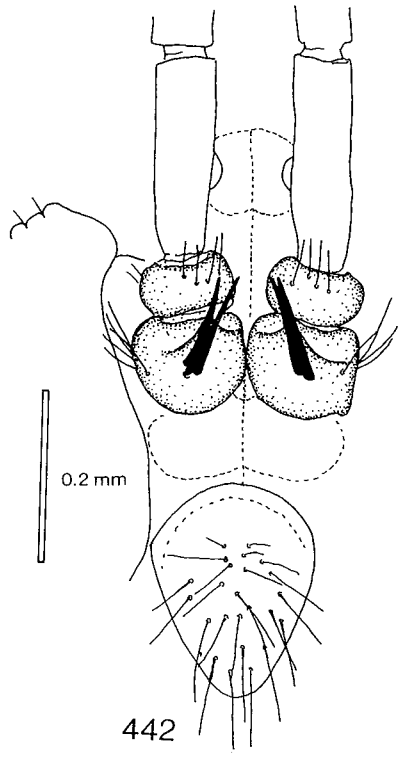


Fig. 442. *Mycomya levis,* male scape and pedicel of antennae. Scale 0.2 mm.

Mycomyia flabellata Lackschewitz, 1937 (New synon.). Lackschewitz 1937:10; Landrock 1940:36; Plassmann 1974b:351, 1977b:9, 1978a:148, 1979:374; Ostroverchova 1979:66; Ostroverchova & Zaitseva 1979:73; Plassmann 1980a:178, 1980b:18.

Mycomya flabellata: Väisänen 1982b:39.

(?) *Sciophila pseudocinerascens* Strobl, 1901. Strobl 1901:11; Kertész 1903:34.

(p. p.) *Sciophila pseudocinerascens* form. *abruptinervis:* Strobl 1909:241 (p. p. = *M. trivittata* (Zetterstedt)).

(?) *Mycomyia pseudocinerascens:* Landrock 1926—1927:51.

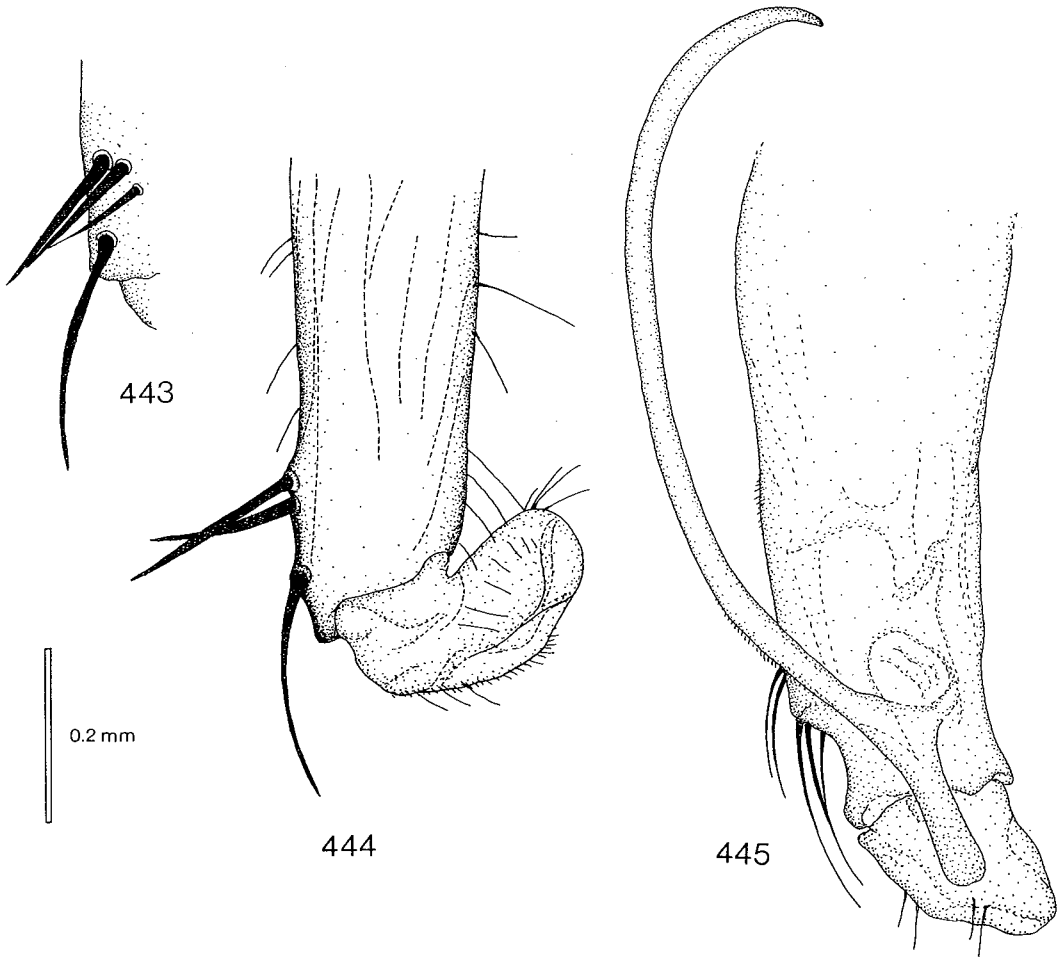
(?) *Mycomya pseudocinerascens:* Väisänen 1982b:40.

Type locality: Galicia (Poland).

Types: — *Sciophila levis* Dziedzicki: Holotype (not located, apparently destroyed) m, originally in coll. Grzegorzek. — *Sciophila pseudocinerascens* Strobl: Holotype (not located, apparently destroyed) m. Type locality: Kärnten, Napoleonswiese (Austria). — *Mycomyia flabellata* Lackschewitz: Holotype (studied): Kur. Kalwen 25. 9. 31 L. 4 *flabellata* Typus (m MNB). Type locality: Kalvene (Latvian SSR).

Remarks: I have seen a specimen of *Sciophila pseudocinerascens* Strobl var. *abruptinervis* Strobl, which belongs to *M. levis*. The specimen was on the same pin as a male of *M. trivittata* (Zetterstedt) and var. *abruptinervis* is considered to belong to that species. Since *M. levis* occasionally has Sc1 reaching C, I consider it probable that *M. pseudocinerascens* is a junior synonym of *M. levis*.

Material examined: Austria: Steierm., Admont, Strobl ("*Sciophila pseudocinerascens* var. *abruptinervis* Strobl" m STRO); Austr. sup., Hammern, 13.IX. 1872, Mik (1 m WIEN). — FRG: Allgäu, Birgsau, 19—23.IX. 1973, H. Mendl (1 m No. 8932 ZSM). — Poland: Puszcza Bialowieska Park Narod. kw. 283 grond niski, 9.VIII. 1965, W. Mikolajczyk (1 m WARS). — Sweden: Messaure, 7.VII. 1969, W. Tobias (1 m No. 10211 + K211 SENCK). — Finland: *Ab:* Vihti, Vihtijärvi, 23.VI. 1963, 12.VII. 1963, 27.VIII. 1963, 15.IX. 1963, 5.VI. 1964, 30.VII. 1964, R. Tuomikoski (7 mm MZH); *N:*



Figs. 443—445. *Mycomya levis*. — 443: strong spines of male coxa 1. — 444: coxa 1 with strong spines. — 445: mid-coxal spur and coxa 2. Scale 0.2 mm.

Helsinki, Nordsjö (Vuosaari), 2.IX. 1963, R. Tuomikoski (3 mm MZH); Esbo (Espoo), Kolmperä, 12.VII. 1963, 19.VII. 1963, 29.IX. 1963, 22.VII. 1964, 18.IX. 1965, W. Hackman (6 mm MZH); Esbo, Westend, 15.IX. 1962, W. Hackman (1 m MZH); Sjundeå (Siuntio), 26.V. 1963, W. Hackman (1 m 1 f MZH); *Ka:* Vehkalahti, 24.VIII. 1971, L. Tiensuu (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, 16.IX. 1965, K. Mikkola (2 mm MZH); *Ta:* Janakkala, Rastila, 19.VI. 1965, R. Tuomikoski (1 m MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (1 m MZH); *Ok:* Kuhmo, 29.VI. 1965, 1.VII. 1965, R. Tuomikoski (3 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, R. Tuomikoski (2 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, R. Tuomikoski (2 mm MZH); *Lk:* Pelkosenniemi, Pitkänjängän kuusikko, 6.VII. 1967, K. Keynäs (1 m MZH); *Li:* Inari, Laanila, 16.VII. 1965, R. Tuomikoski (1 m MZH). — USSR: Leningrad. o., Lutzhsk., Tolmachevo, 11.VIII. 1937, 2.IX. 1937, 26.V. 1938, 14.VIII. 1940, Stackelberg (5 mm LEN); Khibin. g. Kol' sk, bass. oz. Vud'yavr, 3.VIII. 1936, Fridolin (1 m LEN); Kur., Kalwen, 25.IX. 1931, L. *(Mycomyia flabellata* Lackschewitz holotype MNB); Far East, Primorye Terr., Lazo Sokolchi, 12.VIII. 1970, 8.VIII. 1978, A. Zaitzev (2 mm Lot 435 & 412 MOSC). — USA: New York, Hamilton Co., along Shanty Brook, 1700′, 43°17.2′N, 74°33.4′W, 5.VIII. 1961, J. L. Laffoon (1 m ISU).

Description:

Head. Palp and other mouthparts yellow, face yellowish to light brownish, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. Scape with 2—3 strong anterior spines (Fig. 442). 1st flagellomere 3—3.5 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with 2 longer setae. Mesoscutum yellowish, with 3 brown longitudinal stripes, middle stripe with narrow yellow medial line. Mesoscutum sometimes brown with yellow anterolateral corners. Mesanepisternum yellowish to light brownish. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellowish, with 2—4 long setae. Laterotergite yellow to yellowish, ventral part brownish. Mediotergite yellowish, lateral and posterior parts light brownish to brownish, with 1—3 small setae. Thorax sometimes entirely yellowish without markings.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with 1 strong apical spine and 2 strong slightly shorter subapical spines (Figs. 443—444). Coxa 2 with long curved spur with basal cone-like appendage and 1 apical tooth (Fig. 445). Leg ratios: bt1:t1 = 1.02—1.15, bt2:t2 = 0.76—0.84, bt3:t3 = 0.58—0.67.

Wing. Wing length 4.2—5.5 mm. Wing hyaline. Sc occasionally ending in C, Sc1 usually apically broken, occasionally entirely missing, Sc2 ending in R1 near or distally to middle of small cell. Apical part of Sc bearing 1—12 macrotrichia. Small cell 2—2.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.69—0.83, 0.85—1.14. Cu ratios: 1.03—1.18, 1.52—1.75. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites brownish, 6—7 slightly darker than others. Sternites light brownish.

Hypopygium. Figs. 446—452, yellow to yellowish. Tergite 9 with indistinct lateral appendages and pair of submedial groups of cones. Sternal lateral appendage long, slender, curved, bare. Sternal submedian appendage comparatively short, with many setae. Paramere short, curved laterally. Gonostylus long, slender, with 2—3 apical teeth. Aedeagus long, slender.

Female. Wing length 4.7 mm. Thorax and abdomen yellowish. Leg ratios: bt1:t1 = 1.11, bt2:t2 = 0.79, bt3:t3 = 0.67. No antennal or coxal spines. Terminalia as in Figs. 453—454, yellow.

Distribution: Holarctic. Europe: Austria, Federal Republic of Germany, Poland, Sweden, Finland. USSR: Latvian SSR, Leningrad region, Kola peninsula, Far East of USSR. Also reported from West and East Siberia (as *M. flabellata,* Ostroverchova 1979, Ostroverchova & Zaitseva 1979). North America: New York.

Biology: Plassmann (1978a:148, 1979:374, 1980a:178) reported that this species was collected with pit-fall, airsuction and light traps in northern Sweden.

Species group M. marginata

Head. Anteclypeus short, apically rounded, with many setulae, in some species only a few setulae *(M. annulata, M. flavicollis, M. pura, M. festivalis, M. hirticollis).* Antenna 1.5—2 times as long as head and thorax together, in females slightly shorter than in males. Pedicel with some short to comparatively long dorsal setae. Ocellar setae 2–3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 2 or 4, occasionally 6, long setae. Mediotergite almost always bare, very seldom with 1—2 small setae in *M. shermani, M. humida, M. forestaria* and *M. canoak.* Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum declining distinctly anteriorly.

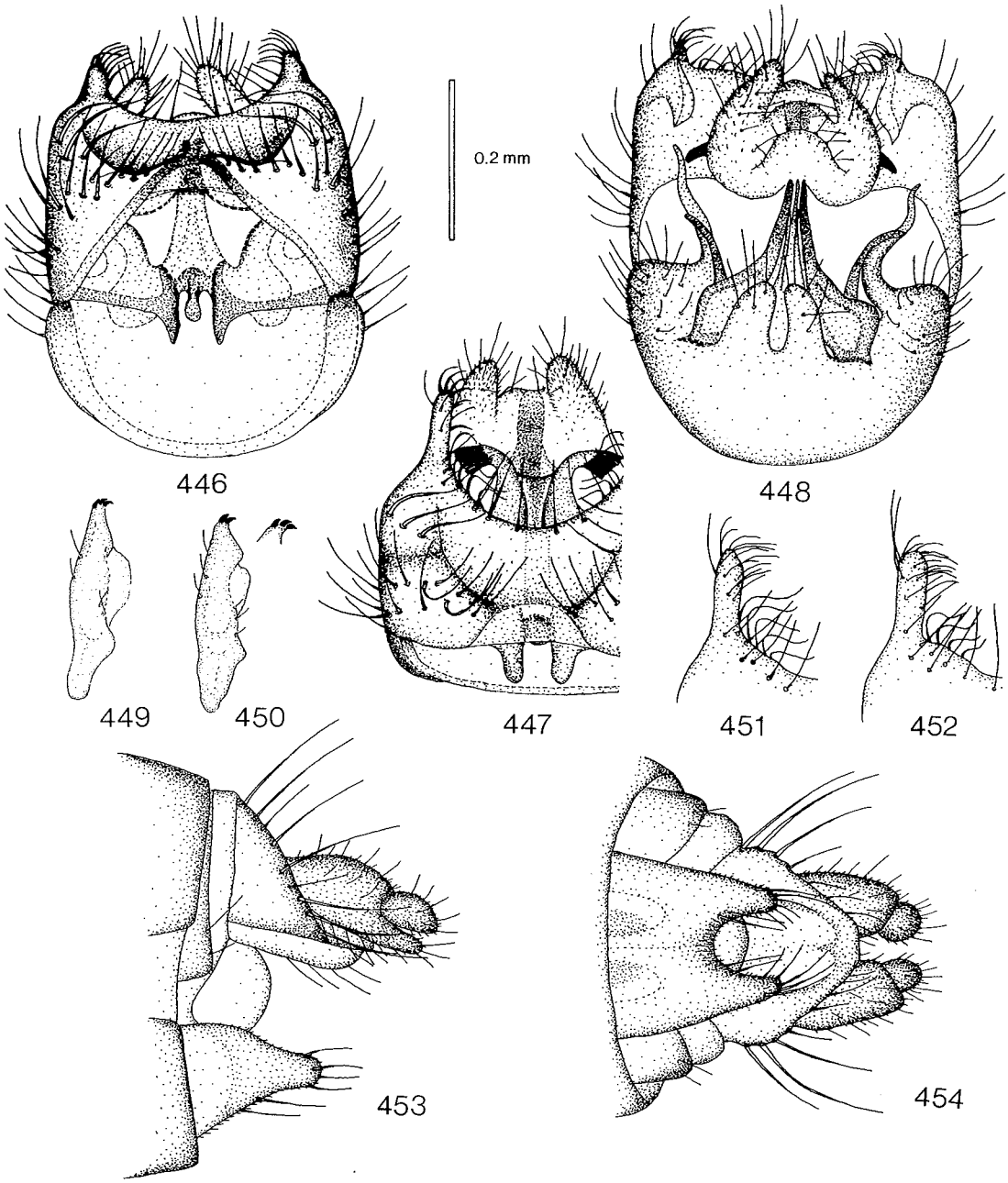
Legs. Coxa 1 without special setae, or with several long thin setae sparsely distributed along anteromedial surface, or with very strong subapical spine or brush of strong setae, or with strong seta near middle of anteromedial surface, or with more or less distinct comb of spines or setae. Coxa 2 with long curved spur with rounded base and 2 apical teeth, in *M. annulata* spur short, in *M. stares* spur with 3 teeth and in *M. storai* and *M. hirticollis* with 1 tooth. Coxa 2 3—3.5 times as long as wide. Basitarsus 1 longer, as long as, or shorter than tibia 1. Tibial setae relatively weak to moderately strong, longest 1.5—2 times as long as tibial diameter, seldom only about as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in R1, C or free. Cu fork usually proximal to, in some species below, M fork. M and Cu petioles usually of medium length, sometimes short or long. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites diffusely dark, or light, or dark with light posterior margins.

Tergite 8 fairly or very wide, arcuate, medially narrow, with 1—15, in *M. marginata, M. punctata* and *M. rebellicosa* more than 20, setae along posterior margin of both lateral lobes. Sternite 8 triangular, apically rounded, without setae.

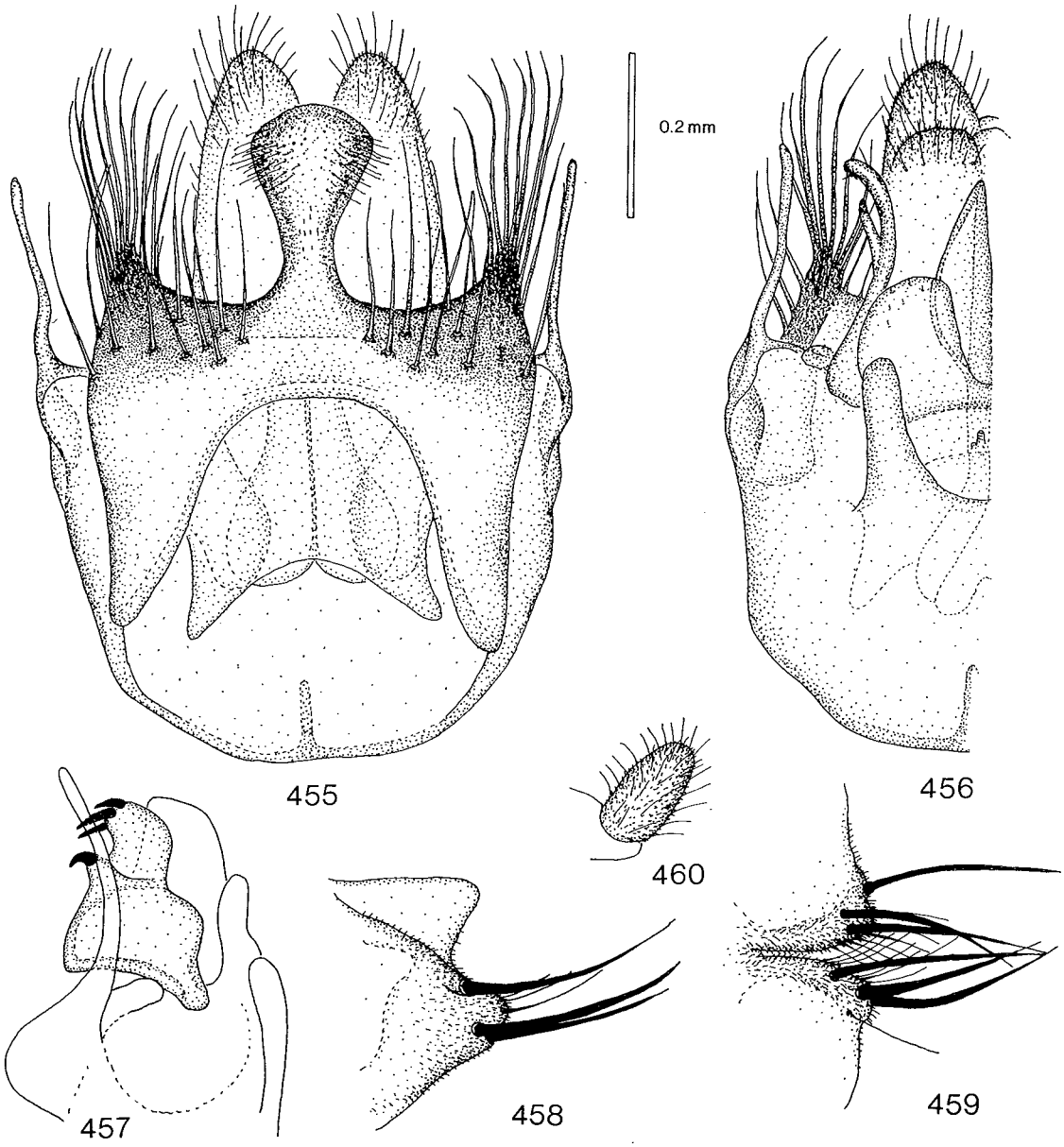
Hypopygium. Tergite 9 with prominent medial processus. Tergal lateral appendages distinct, except in *M. storai.* Sternal synsclerite with or without lateral appendages, submedian appendages present. Gonostylus usually with 2 branches, seldom unbranched. Aedeagus comparatively long, apically slightly bilobed.



Figs. 446—454. *Mycomya levis*. — 446—447: male hypopygium, tergal views. — 448: hypopygium, sternal view. — 449—450: gonostyli (449: Finland, Kuhmo; 450: New York). — 451—452: lateral appendages of tergite 9 (451: Finland; 452: N. Y.). — 453: female terminalia, lateral view. — 454: terminalia, sternal view. Scale 0.2 mm.

Female terminalia. Apical segment of cercus oval. Hypogynal valve more or less tapered apically, with few to many setae.

Fifteen Holarctic, 27 Palaearctic and 27 Nearctic species are recognized in this species group.



Figs. 455—460. *Mycomya storai.* — 455: male hypopygium, tergal view. — 456: hypopygium, sternal view. — 457: gonostylus. — 458—460: (?) female terminalia. — 458: hypogynal valve, lateral view. — 459: hypogynal valves, sternal view. — 460: apical segment of cercus, sternal view. Scale 0.2 mm.

Mycomya storai Väisänen, 1979
Figs. 455—460, key p. 33, 41.

Mycomya storai Väisänen, 1979. Väisänen 1979b:109, in Hackman 1980:31; Väisänen 1982b:41.

(?) *Sciophila notata* Zetterstedt, 1860. Zetterstedt 1860:6557; Kertész 1902:62, 1903:34; Edwards 1924a:162.

(? not) *Sciophila notata:* Palm 1869:402 (? = *M. marginata* (Meigen)).

(?) *Mycomyia notata:* Wahlgren 1921:166; Landrock 1926—1927:49.

(?) *Mycomya notata:* Väisänen 1982b:40.

(?) *Sciophila decorosa* Winnertz, 1863. Winnertz 1863:714; Nowicki 1873:16; Strobl 1895:143, Kertész 1902:58, 1903:32; Strobl 1909:241; Morge 1974:171.

(?) *Mycomyia decorosa:* Landrock 1926—1927:44; Lackschewitz 1937:9.
(?) *Mycomyia decorosa:* Väisänen 1982b:38.

Type locality: Pietarsaari (Finland).
Types; — *Mycomya storai* Väisänen: Holotype (studied): (Pietarsaari, Varvet, 18.VIII. 1956) Storå. Holotypus *Mycomya storai* Väisänen ♂. Mus. Zool., H:fors Spec. typ. No 14336 (m MZH). — *Sciophila notata* Zetterstedt: Holotype (studied): 199. F 1/8. *Sc. notata* Zett. n. sp. ♀. Fogelsang. (f LUND). Type locality: "Scania: in convalle Fogelsång" (Sweden). — *Sciophila decorosa* Winnertz: Holotype (not located, apparently destroyed) f. Type locality: Not stated (? Federal Republic of Germany).
Remarks: It is not certain that the *M. notata* female is conspecific with the *M. storai* male, but this seems probable. The identity of *Sciophila decorosa* Winnertz remains uncertain; it might be a synonym for *M. marginata* (Meigen).
Material examined: Roumania: Siebenbürgen (1 m MNB). — ? GDR: Coll. H. Loew, VII. 1857 (1 ?f MNB). — Sweden: Fogelsång *(Sciophila notata* holotype LUND). — Finland: *Ta:* Lammi, Lamminjärvi, 6.IX. 1977, R. Väisänen (1 ?f MZH); *Om:* Pietarsaari, Varvet, 18.VIII. 1956, R. Storå *(M. storai* holotype MZH). — USSR: Kivikoski, Saima-Kanal, 1.VIII. 1902, Adelung (1 ?f MZH).

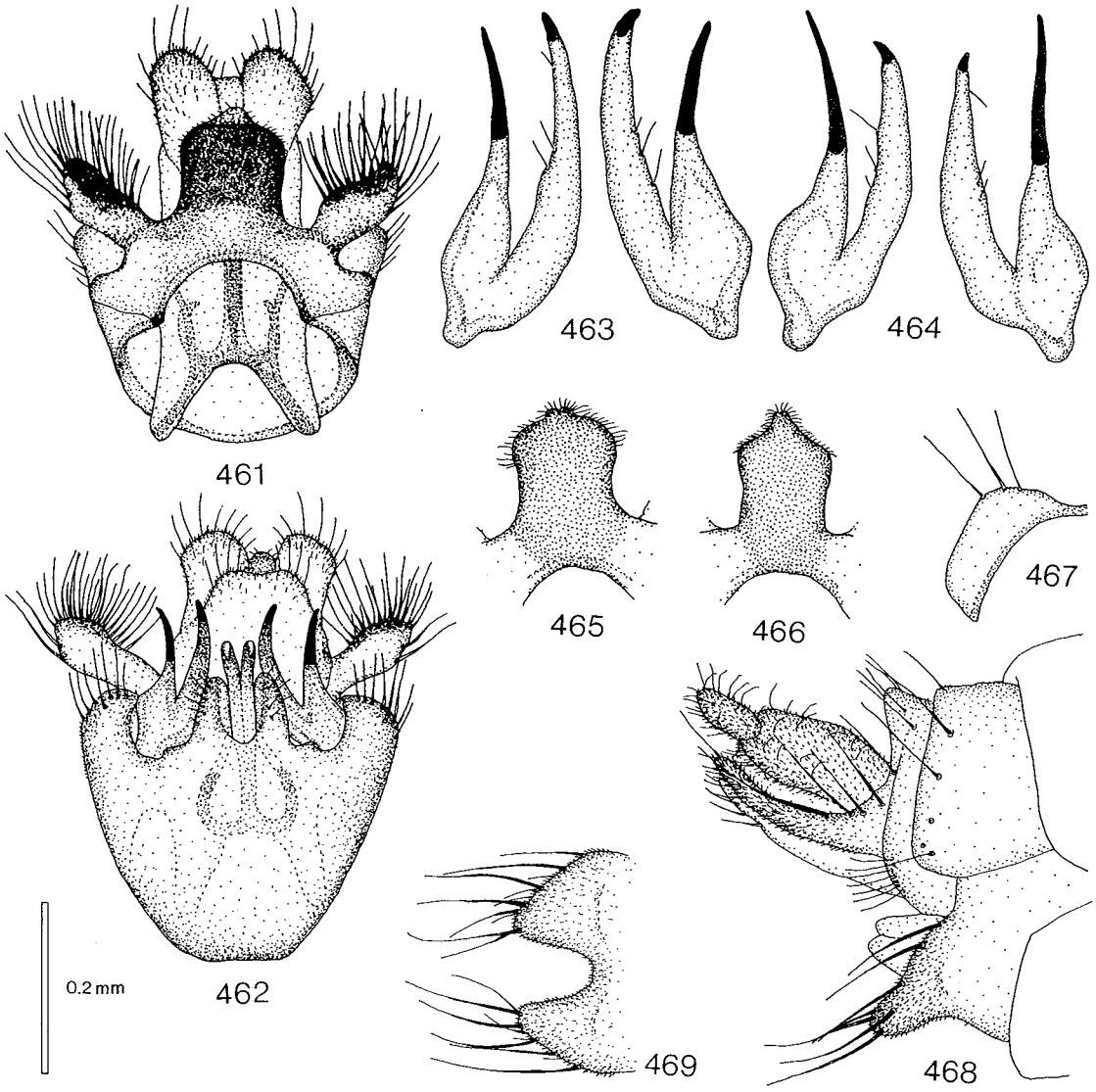
Description:
Head. Palp, mouthparts and face yellow, posterior parts of head brownish. Antenna light brownish, basal segments yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.
Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, with 3 brown longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum yellow. Mesokatepisternum yellow, with ventral half brownish. Scutellum light brownish with yellow margins, with 4 long setae. Laterotergite and mediotergite light brownish. Mediotergite bare.
Legs. Coxae yellow, coxa 3 with brown spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with brush of longer setae near apex on anteromedial surface. Coxa 2 with comparatively long, curved spur with 1 apical tooth. Spur about 2/3 of coxal length. Leg ratios: bt1:t1 = 0.86—0.97, bt2:t2 = 0.69—0.77, bt3:t3 = 0.58.
Wing. Wing length 4.7—4.9 mm. Wing apex, small cell and areas of wing adjacent to it distinctly infuscate. Sc ending in R1 near middle of small cell or distally to it near apex of R4, Sc1 missing. Apical part of Sc bearing 3—10 macrotrichia. Small cell about as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.59—0.67, 0.71—0.80. Cu ratios: 0.63, 0.96—1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +Cu2: +. Halter pale yellowish.
Abdomen. Tergites 1–5 brown, with posterior thirds yellow, or yellow with anteromedial brown spots, 6—7 brown, posterior margins slightly paler. Sternites 1—5 yellow, 6—7 brownish.
Hypopygium. Figs. 455—457, yellow, with base of tergite 9 brown. Processus long, comparatively wide, basally tapered. Tergal lateral appendage indistinct, short. Tergite 9 with many long, apically curved setae. Sternal lateral appendage long, very slender, bare. Sternal submedian appendage comparatively long narrow bare. Gonostylus with 2 branches, lateral branch shorter than medial one, with 1 apical tooth, medial branch with 3 long apical teeth. Aedeagus with broad lobes, comparatively long, wide, apically bilobed.
(?) Female. Wing length 6.6—6.8 mm. Palp and other mouthparts brownish, face yellow, posterior parts of head brownish. Antenna brownish, 3 basal segments yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide. Pronotum yellow, with 5 longer setae. Mesoscutum yellow, with 3 very distinct brown stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow. Mesokatepisternum yellow, with ventral part slightly brownish. Scutellum yellow, with 4—5 long setae. Laterotergite yellow. Mediotergite yellow, lateral and caudal parts slightly brownish, bare. Coxae yellow. Leg ratios: bt1:t1 = 1.00—1.01, bt2:t2 = 0.77—0.79, bt3:t3 = 0.62—0.64. Wing markings as in male. Sc ending in R1 distally to middle of small cell near or distally to apex of R4, Sc1 missing. Apical part of Sc bearing 13—15 macrotrichia. Small cell about as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.55—0.56, 0.70—0.78. Cu ratios: 0.59—0.75, 0.84—0.89. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish. Abdominal tergites brown with posterior halves yellow, brown area extending posteromedially. Sternites yellowish. Terminalia as in Figs. 458—460, yellow.

Distribution: Western Palaearctic. Roumania (Siebenburgen), ? Federal Republic of Germany, ? GDR, ? Sweden, Finland. ? USSR: Leningrad region. *Sciophila decorosa* has been reported from Austria (Strobl 1895, 1909), Poland (Nowicki 1873) and the Latvian SSR (Lackschewitz 1937).
Biology: Unknown.

Mycomya kaurii Väisänen, 1979
Figs. 461—469, key p. 35, 36.

Mycomya kaurii Väisänen, 1979. Väisänen 1979b:111, in Hackman 1980:31; Väisänen 1982b:39.

Type locality: Kirkkonummi, Värans (Finland).
Type: Holotype (studied): U: Kirkkonummi, Väransin suo, 13—14. 8. 1963, V, K. Mikkola. Holotypus *Mycomya kaurii* Väisänen ♂. Mus Zool. H:fors Spec. typ. No 14331 (m MZH).
Material examined: Finland: *N:* Kirkkonummi, Värans, bog, 13—14.VIII. 1963, at light, K. Mikkola (holotype, 1 m paratype MZH). — USSR: Aleksandrovsk, 70 v. ot Irkutska, 4.VII. 1912, Dubovskaya (1 m LEN). — Canada: Ont., Stirling, 14.X. 1956, J. R. Vockeroth (1 m CNC); Que., Old Chelsea, 16.X. 1956, J. R. Vockeroth (2 mm CNC); same data, 11.VI. 1959 (1 m CNC); same data, 18.VII. 1961 (1 f CNC); same data, 9.VIII. 1961 (3 mm 1 f CNC); same data, 10.X. 1961 (1 m CNC); same data, 1.X. 1963 (2 mm CNC); same locality, 25.VI. 1963, J. G. Chillcott (2 mm CNC); same locality, Summit King Mt., 1150′, 16.VI. 1961, 15.VI. 1964, J. R. Vockeroth (2 mm CNC). — USA: Iowa, Boone County, Ledges State Park, 18.IX. 1951, J. Laffoon (5 mm ISU); same data, 12.VI. 1952 (3 mm ISU); same data, 23.VI. 1953, 29.IX. 1960, 23.VI. 1961 (3 mm ISU); same data, 12.X. 1961 (1 m 1 f ISU);



Figs. 461—469. *Mycomya kaurii.* — 461: male hypopygium, tergal view. — 462: hypopygium, sternal view. — 463—464: gonostyli (463: Finland; 464: New York). — 465—466: processi (465: Finland; 466: N. Y.). — 467: tergite 8. — 468: female terminalia, lateral view. — 469: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 461—462 and 465—469, Figs. 463—464 2 x enlarged.

N. H., Glen House, 3.VII. 1914 (1 m PU); Mass., ?Baskfish, 12.IX. 1928, Alexander (1 m 1 ?f PU); Belchertown, 25.IX. (1 m hypop. slide No. 48 MASS); N. Y., East Aurora, 20.IX. 1914, M. C. Van Duzee (1 m CAS); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, R. J. Gagné (1 m ISU).

Description:

Head. Palp and other mouthparts yellow, face yellowish to brownish, posterior parts of head brown to dark brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5—3 times, 2nd almost twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow with 3 brown longitudinal stripes or light brownish without distinct markings. Mesanepisternum yellow. Mesokatepisternum entirely yellow or ventral half brown. Scutellum yellow, with 4, occasionally 2—3, long setae. Laterotergite entirely yellow or ventral part brown. Mediotergite yellow to brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical

teeth. Leg ratios: bt1:t1 = 1.08—1.26, bt2:t2 = 0.74—0.84, bt3:t3 = 0.57—0.69.

Wing. Wing length 3.7—5.3 mm. Wing hyaline. Sc occasionally ending in C proximally to middle of small cell, Sc1 usually apically broken or entirely missing, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 4—17 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.56—0.69, 0.73—0.87. Cu ratios: 0.58—0.84, 0.88—1.24. Macrotrichia: M petiole: 0—4; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with narrow yellow posterior margins or yellow with large brown anteromedial spots, 6—7 brown. Sternites 1—5 yellow or like tergites but lighter, 6 yellow to brownish, 7 brown.

Hypopygium. Figs. 461—467, yellowish to brownish. Processus long broad dark. Tergal lateral appendage broad. Sternal synsclerite with several setae on both sides, no lateral appendages. Sternal submedian appendage short with some small setae. Gonostylus with 2 branches both with apical tooth. Aedeagus long, slender, apically bilobed.

Female. Wing length 4.4—4.9 mm. Abdominal tergites brownish with posterior margins yellow. Leg ratios: bt1:t1 = 1.08—1.20, bt2:t2 = 0.76, bt3:t3 = 0.62. Terminalia as in Figs. 468—469, yellow.

Remarks: Finnish specimens much darker than American ones, small differences can also be seen in the male hypopygium (see Figs. 463—466).

Distribution: Holarctic. Finland. USSR: West Siberia. Canada: Ontario, Quebec. USA: Iowa, New Hampshire, Massachusetts, New York, Pennsylvania.

Biology: The Finnish specimens have been collected at a light by the same bog as the holotype of *M. fennica* Väisänen.

Mycomya triacantha Shaw, 1941

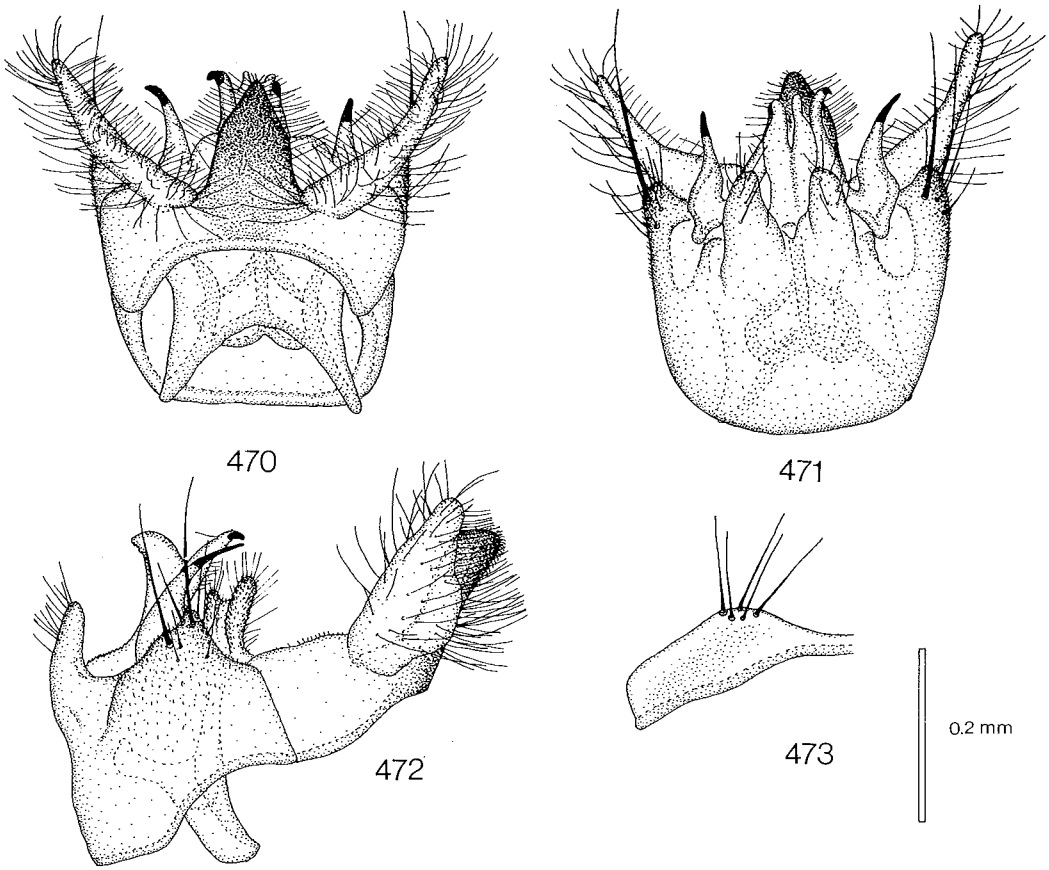
Figs. 470—473, key p. 35.

Mycomyia triacantha Shaw, 1941. Shaw 1941:172; Coher 1959:115.

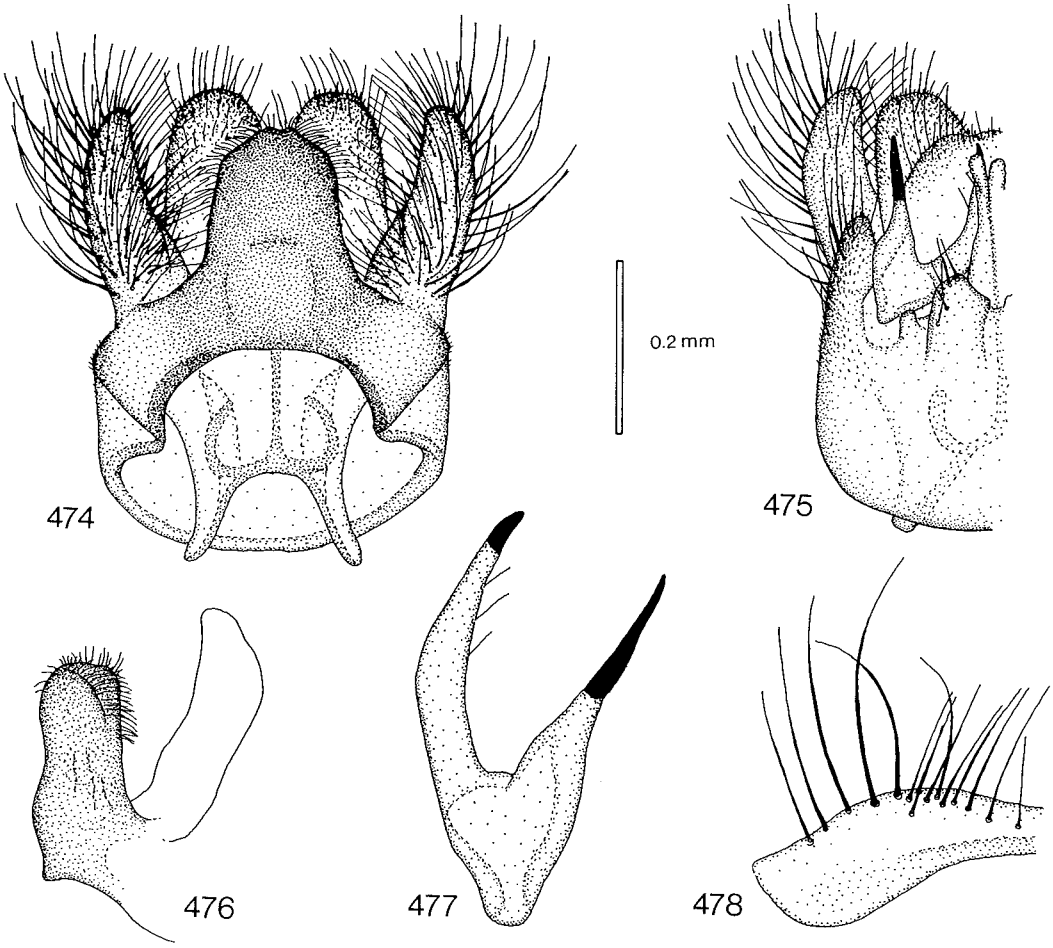
Mycomya triacantha: Laffoon in Stone et al. 1965:221.

Type locality: Great Smokies (USA).

Type: Holotype (studied): Smoky Mts., Tenn. Alt. 5500 ft. VI-10-1939 C. P. Alexander. *Mycomyia triacantha* Shaw type (m MASS).



Figs. 470—473. *Mycomya triacantha.* — 470: male hypopygium, tergal view. — 471: hypopygium, sternal view. — 472: hypopygium, lateral view. — 473: tergite 8. Scale 0.2 mm.



Figs. 474—478. *Mycomya woodi.* — 474: male hypopygium, tergal view. — 475: hypopygium, sternal view. — 476: processus, lateral view. — 477: gonostylus. — 478: tergite 8. Scale 0.2 mm for Figs. 474—476 and 478, Fig. 477 2 x enlarged.

Remarks: The type locality is in Tennessee, not in North Carolina (cf. Coher 1959).

Material examined: Canada: B. C., Kimberly, St. Mary's Lake, 14.VI., C. Garrett (1 m hypop. slide No. 2561 "*Mycomyia* alpicola" USNM); Alta., Kananaskis, For. Exp. Sta. Seebe, 18.VII. 1968, H. J. Teskey (1 m CNC); Que., Old Chelsea, 20.IX. 1961, J. R. Vockeroth (1 m CNC); same locality, Summit King Mt., 1150′, 8.VII. 1964, J. R. Vockeroth (1 m CNC); Que., Mt. St. Hilaire, 950—1350′, 19.VI. 1964, J. R. Vockeroth (1 m CNC); N. B., Kouchibouguac N. P., 5.VII. 1977, J. R. Vockeroth (1 m CNC). — USA: Mich., Gogebic Co., 15.VI. 1960, R. & K. Dreisbach (1 m MICH); N. H., Glen House, 14.VI. 1916 (1 m PU); N. H., Gorham, 15.VII. 1957, J. R. Vockeroth (1 m CNC); Vt., Manchester, 4.VI. 1910 (1 m PU); Mass., Leyden, 27.VI. 1948, F. R. Shaw (1 m hypop. slide MASS); N. C., Macon Co., Highlands, 35°3.2′N, 83°11.3′W, 3850′, 17.VI. 1958, J. L. Laffoon (1 m ISU); N. C., Gr. Smoky Mt. Nat. Pk., Clingman's Dome, 6300′, 6642′, 18.VI. 1957, J. R. Vockeroth (1 m CNC); Tenn., Sevier Co., Gr. Smoky Mts., Mt. Collins, north slope, 35°35.5′N, 83°28.3′W, 5900′, 25.VI. 1958, J. Laffoon (2 mm ISU); Tenn., Smoky Mts., alt. 5500 ft., 10.VI. 1939, C. P. Alexander (holotype MASS).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellowish, with indistinct, fused, light brownish longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow to yellowish, ventral part light brownish. Scutellum yellowish, with 4 long setae. Laterotergite yellow to yellowish, ventral part light brownish. Mediotergite yellowish, bare.

Legs. Coxae yellow, coxa 3 with small indistinct brownish spot on lateral surface, femora yellow, tibiae and

tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.11—1.25, bt2:t2 = 0.78—0.88, bt3:t3 = 0.48—0.67.

Wing. Wing length 4.1—5.2 mm. Wing hyaline. Sc ending in R1 slightly proximally — slightly distally to middle of small cell, Sc1 apically broken or entirely missing. Apical part of Sc bearing 5—17 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.49—0.66, 0.61—0.84. Cu ratios: 0.67—0.78, 1.00—1.19. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with narrow posterior margins yellowish, 6—7 brown. Sternites 1—5 yellow to yellowish, 6—7 brown.

Hypopygium. Figs. 470—473, yellow, processus dark. Processus comparatively long, apically tapered. Tergal lateral appendage long, triangular, with many setae. Sternal synsclerite with some setae on both sides, lateral appendage indistinct, short. Sternal submedian appendage comparatively wide and short, with some small setae. Gonostylus with 2 branches, about equally long, both with apical tooth, lateral tooth much longer. Aedeagus long, slender, apically bilobed.

Female. Unknown.

Distribution: Nearctic. Canada: British Columbia, Alberta, Quebec, New Brunswick. USA: Michigan, New Hampshire, Vermont, Massachusetts, North Carolina, Tennessee.

Biology: Unknown.

Mycomya woodi n. sp.
Figs. 474—478, key p. 35.

Type locality: Maine, Mount Katahdin (USA).

Type: Holotype (studied): Mt. Katahdin, ME. 4.VII. 1968 D. M. Wood Abol. (m CNC).

Material examined: USA: Holotype (CNC). In addition, 1 f with the same data possibly belongs to this species (CNC).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5 times, 2nd almost twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum light brownish, posteriorly darker, without distinct markings, stripes slightly paler than other parts of mesoscutum. Mesanepisternum yellow. Mesokatepisternum yellow to yellowish. Scutellum yellow, with 4 long setae. Laterotergite yellow to yellowish. Mediotergite yellowish, bare.

Legs. Coxae yellow, coxa 3 laterally light brownish, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.79, bt3:t3 = 0.68.

Wing. Wing length 5.2 mm. Wing hyaline. Sc ending in R1 slightly proximally to or near middle of small cell, Sc1 apically broken. Apical part of Sc bearing 19—23 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.56, 0.69. Cu ratios: 0.60, 0.82. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2 +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with narrow laterally wider yellow posterior margins, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 474—478, yellowish. Processus very wide, dark. Tergal lateral appendage very broad with many setae. Sternal lateral appendage short, setose. Sternal submedian appendage short, wide, with some small setae. Gonostylus with 2 branches, both with 1 apical tooth, tooth of lateral branch much longer than that of medial branch. Aedeagus long, slender, apically bilobed.

(?) Female. Wing length 5.7 mm. Head as in male. Pronotum yellow. Mesoscutum yellow, with 3 brown longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part brownish. Scutellum yellow. Laterotergite and mediotergite yellow, with ventral parts brownish. Coxa 3 yellow with brown spot on lateral surface. Abdominal tergites brown, with narrow posterior margins yellow. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.75, bt3:t3 = 0.63. Sc ending in C distally to middle of small cell, with 18—19 macrotrichia. Terminalia yellow. Hypogynal valve apically tapered, with 3 strong apical setae.

Distribution: Eastern Nearctic. USA: Maine.

Biology: Unknown.

Mycomya neohyalinata n. sp.
Figs. 479—484, key p. 35, 42.

Sciophila hyalinata: Zetterstedt 1838:859; Staeger 1840:271; Zetterstedt 1852:4115; Walker 1856:37; Winnertz 1863:713; Schiner 1864:443; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Siebke 1877:246; Dziedzicki 1885: Tab. VIII: Figs. 17—18; Bezzi 1892:70; Czwalina 1893:2; Kowarz 1894:4; Strobl 1895:142, 1897:283; Kertész 1902:60, 1903:33; Sack 1907:11; Lundström 1907:8, 1909:10; Strobl 1909:241; Dziedzicki 1915:8; Morge 1974:171.

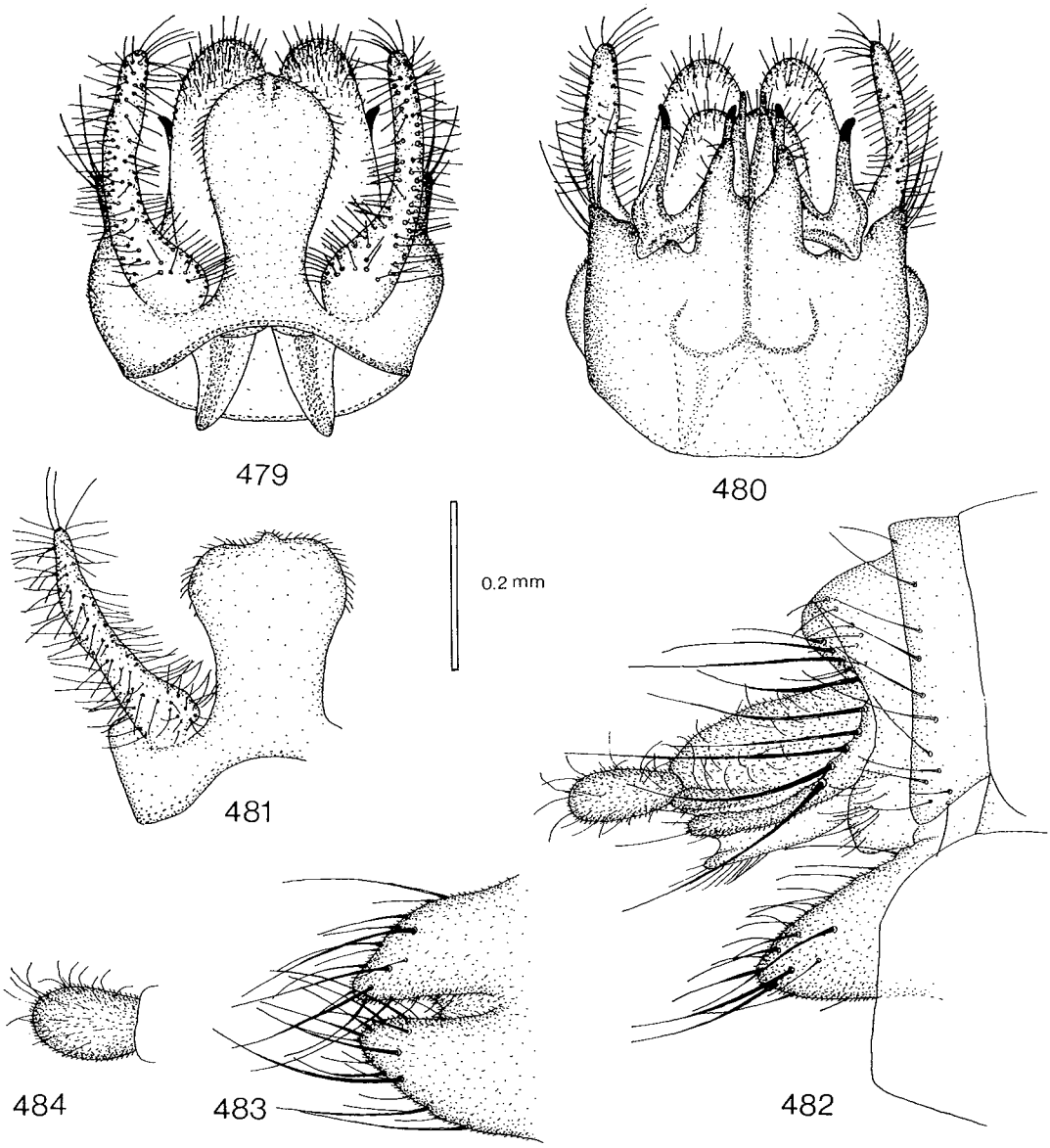
Mycomya hyalinata: Landrock 1913:23; Hutson in Kloet & Hincks 1976:24; Chandler 1976:97; Matile 1977:633; Väisänen 1979a:47, in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1982b:39.

Mycomyia hyalinata: Edwards 1921a:61, 1924a:14 (see remarks), 1925a:550; Landrock 1925a:33, 1926—1927:47; Riedel 1930:74; Lackschewitz 1937:9; Karl 1939:53; Landrock 1940:30; Séguy 1940:74; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kidd in Kidd & Brindle 1959:72; Krogerus 1960:107; Ostroverchova & Stackelberg 1969:272; Plassmann 1969:25, 1970b:388, 1971b:61; Mikolajczyk 1971:371; Ostroverchova 1971:94; Plassmann 1977b:9, 1979:374; Ostroverchova & Zaitseva 1979:74; Ostroverchova 1979:68; Plassmann 1980a:18, 1980b:178.

(?) *Mycomyia ?hyalinata* var.: Edwards 1935b:1.

(not) *Sciophila hyalinata* Meigen, 1830 (= *M. cinerascens* (Macquart)).

Remarks: I can see no possibility to conserve the name *M. hyalinata,* which is commonly used for this species, since the type is the female of *M. cinerascens,* as noted already by Edwards (1924a). Edwards considered it permissible to continue using the names *cineras-*



Figs. 479—484. *Mycomya neohyalinata.* — 479: male hypopygium, tergal view. — 480: hypopygium, sternal view. — 481: tergite 9. — 482: female terminalia, lateral view. — 483: hypogynal valves, sternal view. — 484: apical segment of cercus, sternal view. Scale 0.2 mm.

cens and *hyalinata* in the sense of Dziedzicki's (1885) figures, because the type was female in spite of the label "♂". Such discrepancies are not uncommon in old material, and I see no reason to claim that the specimen is not the type of *S. hyalinata.* Thus, a new name is needed for this species, which has never been described, since no available synonyms exist for *M. hyalinata:* authors, not Meigen.

Type locality: Pyhtää, Kiviniemi (Finland).

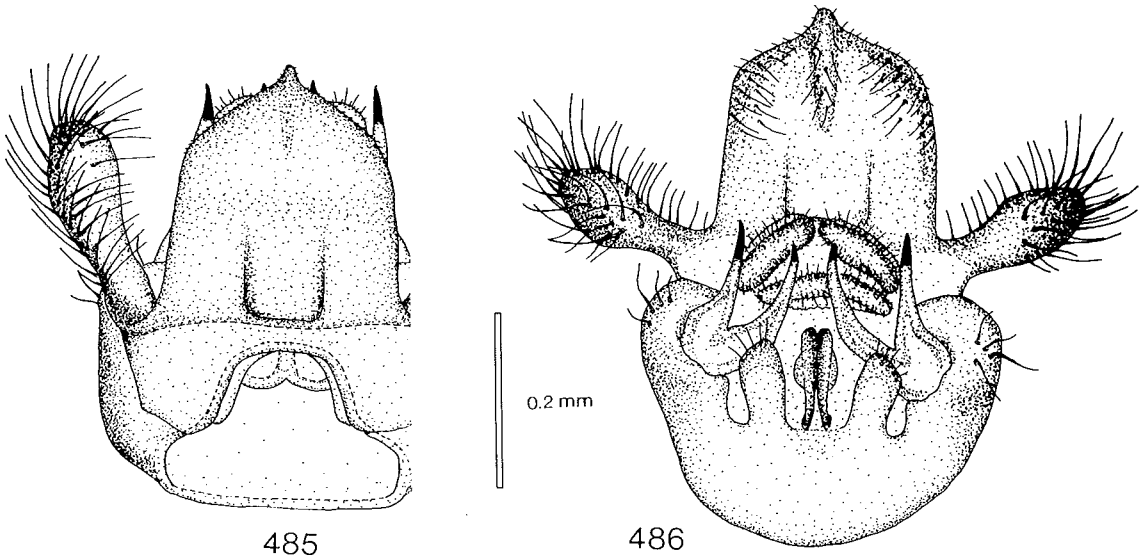
Type: Holotype (studied): Finland 670:48 U: Pyhtää, Kiviniemi 11. 9. 1977 R. Väisänen leg. (m MZH).

Material examined: Italy: Aosta, Vertosan, Jovançan, 1900—2000 m, 22.VII. 1975, L. Matile (1 MNHN); Aosta, Eau Rousse (Valsavaranche), alt. 1600 m, 4.IX. 1978, L. Matile (2 mm MNHN); Aosta, Comba di Vertosan, alt. 1804 m, 1.VII. 1973, L. Matile & F. Lavy (1 m MNHN); Aosta, Vallée de l'Urtier-Cret, alt. 2000 m, 26.VI. 1973, L. Matile (1 m MNHN); Aosta, Vallée de Cogne, P. N. G. P., alt. 1650 m, 24.VI. 1973, D. & L. Matile (1 m MNHN); Creton, Vallée de Rhêmes (Aosta), alt. 1200 m, 7.VI. 1971, L. Matile (1 m MNHN); Aosta, Valnontey, 1600—1750 m, 10.VII. 1975, 11.VII. 1975, D. & L. Matile (4 mm MNHN);

same locality, 1600 m, 14.VI. 1976, L. Matile (1 m MNHN); same locality, 1980 m, 24.VII. 1975, L. Matile (1 m MNHN); same locality, Chemin de Buttier, 1550—1600 m, 12.VII. 1975, D. & L. Matile (1 m MNHN). — Federal Republic of Germany: Birgsau/Allgäu, 19—23.IX. 1973, H. Mendl (3 mm No. 8925 ZSM); Breitenau b. Dachau, 27.IV. 1916, C. F. Adams (1 m PU). — Austria: Austr. sup., Hammern, 12.IX. 1872, 13.IX. 1872, 14.IX. 1872, Mik (6 mm 10 ff WIEN); same locality, 29.IX. 1872, 1.IX. 1874, 2.IX. 1874, 10.IX. 1874 (5 mm WIEN); Coll. Winthem (1 m WIEN); Salzburg, Attelsee, Burgau, 30.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 26.VII. 1972, 28.VII. 1972, Malaise trap, A. C. & B. Pont (2 mm BMNH); Austria (1 f WIEN). — Hungary: Zempléni-hg., Ördögv., erdó, 26.VI. 1960, Zsirkó (1 m TMB); Zabljak, Mont., 1400—1500 m, 28.VI. 1958, Mihályi (1 m TMB). — Bulgaria: Berkovitsa, 29.VIII. 1982, D. Bechev (1 m coll. Bechev). — Czechoslovakia: Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (6 mm 1 ?f VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (2 mm VUPP); Krkonoše, Černy Dôl, 1000 m/m, 9.VIII. 1966, P. Laštovka (1 m VUPP); Boh. c., Komořany, 19.IX. 1960, Laštovka (1 m VUPP); Mor., nr. Olomouc, Jivova, 17.VI. 1973, S. J. Chambers & A. M. Hutson (2 mm BMNH); Mor., Jeseniky Mts., Filipovice, 19.VI. 1973, S. J. Chambers & A. M. Hutson (1 f BMNH); Mor., Jeseniky Mts., nr. Rymanov, Skritek Bog, 21.VI. 1973, S. J. Chambers & A. M. Hutson (1 f BMNH). — Poland: Bialowieza Park Narod., kw. 283, grond niski, 6.VI. 1964, W. Mikolajczyk (1 m WARS). — UK: Cro., X. 1908, F. J. (1 m BMNH); Somerset, Shapwick, 7.IX. 1930, F. W. Edwards (1 m BMNH); N. Lancs., Holker Moss, 11—13.VII. 1923, F. W. Edwards (1 m 2 ?ff BMNH); Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (1 m BMNH); Berks., Windsor Forest, 10.V. 1939, F. W. Edwards (2 mm 1 f BMNH); N. W. Yorks., Austwick, 17.IX. 1936, F. W. Edwards (1 m BMNH); same locality, 18.IX. 1920, C. A. ?Chapman (1 m BMNH); N. Forest, 24.X. 1902, F. C. Adams (1 m BMNH); Banchory, 21.VIII. 1916, J. J. F. X. King (1 m BMNH); Nethy Brg., 5.VIII. 1906, J. J. F. X. King (1 ?f BMNH); Arran, Brodick, 22—25.V. 1919, F. W. Edwards (1 m BMNH); Inverness, Aviemore, 1.VI. 1913, Yerbury (1 m BMNH). — Norway: Bv., Uvdal, Øvre Hein, 1115 moh, dvergbjørk-kratt, 19.VIII. 1969, K. E. Jørstad et al. (1 m BERG); HOy., Os, Lundatrae, IX—X. 1975, T. Andersen (2 mm coll. Andersen); HOi., Bergen, Åsane, Eidsvåg, 31.X. 1976, T. Andersen (1 m coll. Andersen); HOi., Odda, Teigen, 21—30.X. 1977, T. Andersen (1 m coll. Andersen); HOi., Ullensvang, Hovland, 21—30.X. 1977, T. Andersen (1 m 3 ?ff coll. Andersen). — Sweden: Hall., Enslöv, Årnilt, 13.V. 1972, H. Andersson (1 m coll. Andersson); Lpl., Abisko, 30.VII. 1951, J. R. Vockeroth (1 m CNC); same data, 8.VIII. 1951 (1 ?f CNC). — Finland: *Al:* Saltvik, Kvarnbo, 22.VII. 1942, R. Frey (1 m MZH); *Ab:* Vihti, Vihtijärvi, 30.VI. 1962, 26.VII. 1962, 5.VIII. 1962, 22.VIII. 1962, 8.VI. 1963, 23.VI. 1963, 29.VI. 1963, 23.VII. 1963, 3.VIII. 1963, 8.VIII. 1963, 15.VIII. 1963, 27.VIII. 1963, 6.X. 1963, 5.VI. 1964, 30.VII. 1964, 10.VIII. 1964, 8.VI. 1965, R. Tuomikoski (31 mm MZH); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (1 m MZH); Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (2 mm MZH); same locality, 26.VIII. 1965, R. Tuomikoski (1 m MZH); Karjalohja, Karkali, 6.VIII. 1964, R. Tuomikoski (1 m MZH); Lojo (Lohja), R. Frey (1 m MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH); *N:* Tvärminne, 8.VII. 1964, A. V. V. Mikkola (1 m MZH); Helsinki, Nordsjö (Vuosaari), 22.VI. 1963, 22.IX. 1963, R. Tuomikoski (2 mm MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (2 mm MZH); same locality, 27.IX. 1962 (1 m MZH); Helsingfors (Helsinki), 28.V. 1962, W. Hackman (1 m MZH); Esbo (Espoo), Westend, 31.VII. 1962, 29.V. 1963, W. Hackman (2 mm MZH); Esbo, Kolmperä, 6.VI. 1963, 22.VII. 1963, 3.VI. 1964, 21.VI. 1964, 18.IX. 1965, 16.X. 1965, W. Hackman (10 mm MZH); Esbo, Småholmen, 27.VI. 1962, 27.VII. 1962, W. Hackman (2 mm MZH); Pyhtää, Kiviniemi, 11.IX. 1977, R. V. (holotype & 1 m MZH); same locality, X. 1978, X. 1981, sugar bait trap, R. Väisänen (2 mm MZH); *Ka:* Virolahti, 26.IX. 1971, 4.VI. 1972, L. Tiensuu (3 mm MZH); Vehkalahti, 26.IX. 1953, Fagerström (1 m MZH); *Ta:* Urjala, 15.X. 1965, 22.X. 1965, T. Brander (2 mm MZH); same locality, 22.VIII. 1965, 20.XI. 1965, T. Brander (2 mm FLHM); Jokioinen, 30.VIII. 1965, 26.IX. 1965, A. Väre (2 mm FLHM); Lammi, Lamminjärvi, alder wood, 6.IX. 1977, R. Väisänen (1 m MZH); Lammi, Biol. Station, 8. IX. 1977, R. Väisänen (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, 16.IX. 1965, K. Mikkola (5 mm MZH); Punkaharju, Punkasalmi, 11.VI. 1964, R. Tuomikoski (1 m MZH); *Kb:* Kitee, Närsäkkälä, 27.VI. 1963, W. Hackman (1 m MZH); *Om:* Nykarleby (Uusikaarlepyy), Stennäs, 6.IX. 1960, W. Hackman (1 m MZH); *Ok:* Sotkamo, 8.VIII. 1962, 12.VIII. 1962, A. V. V. Mikkola (2 mm MZH); Sotkamo, Aarreniemi, 15.VI. 1964, A. V. V. Mikkola (1 m MZH); same locality, 19.VI. 1964, 7.VII. 1965, R. Tuomikoski (4 mm MZH); Kuhmo, 1.VII. 1965, R. Tuomikoski (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, 19—24.VII. 1967, R. Tuomikoski (2 mm MZH); Kuusamo, Rukavaara, 24.VI. 1964, R. Tuomikoski (1 m MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Curon., ?Anboten, 26.IX. 1926, P. Lackschewitz (1 m MNB); Estonia, st. Peedu, yuzhkh., 30.VII. 1951, Stackelberg (1 LEN); Leningrad, Udel'haya, 21.IX. 1937, Stackelberg (1 m LEN); Len. obl., Toksovo, 8.X. 1946, Stackelberg (1 m LEN); Leningrad. o., Luzhsk., Tolmachevo, 5.IX. 1937, Stackelberg (1 m LEN); Petr. g., Yukki, 15.VII. 1930, Stackelberg (1 m LEN); Leningrad. g., Yukki, 5.VIII. 1933, 12.VIII. 1933, Stackelberg (2 mm LEN); same locality, 18.IX. 1934, Rohdendorf (1 m LEN); Nuorttijoki, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (1 m MZH); Kol's., Khib. gory, bas. ozer Vud-yavr, 4.X. 1930, 20.VIII. 1933, 9.IX. 1933, Fridolin (3 mm LEN); Dudinka, Wuorentaus (1 m MZH); Bajkal, Cheremshanka, 27.VII. 1941, Chernovekij (1 m LEN); oz. Bajkal, Listvenichnoe, 13.VI. 1941, Chernovekij (1 m LEN); Altai, 40 km S Iogatsh, 1000—1300 m, 19.VIII. 1982, K. Mikkola (1 m MZH). — Alaska: Gulkana, Paxson Lodge, 4000′, 4.VIII. 1951, W. R. M. Mason (1 m CNC). — Canada: Man., Fort Churchill, 31.VII. 1952, J. G. Chillcott (1 m CNC).

Description:

Head. Palp, other mouthparts and face yellow, post-



Figs. 485—486. *Mycomya forestaria.* — 485: male hypopygium, tergal view. — 486: hypopygium, sternal view. Scale 0.2 mm.

erior parts of head brown. Antenna brownish, 2—4 basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 brown longitudinal stripes, middle stripe often with narrow yellow medial band, sometimes stripes light brownish, indistinct. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part brownish. Mediotergite light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae on anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.02—1.19, bt2:t2 = 0.78—0.86, bt3:t3 = 0.62—0.71.

Wing. Wing length 4.8—5.7 mm. Wing hyaline. Sc occasionally ending in C, Sc1 usually broken, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 14—24 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.56—0.76, 0.66—1.00. Cu ratios: 0.60—0.81, 0.83—1.20. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with yellow posterior margins, 6—7 brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 479—481, yellow. Processus long, broad. Tergal lateral appendage long apically tapered, with many long thin setae. Sternal lateral appendage short indistinct with some setae. Sternal submedian appendage comparatively long, with some small setae. Gonostylus with 2 branches, both with apical tooth. Aedeagus long, slender, apically bilobed.

Female. Wing length 5.6—7.0 mm. Abdominal tergites brown with posterior margins yellowish. Leg ratios: bt1:t1 = 1.03—1.09, bt2:t2 = 0.80—0.85, bt3:t3 = 0.63—0.66. Terminalia as in Figs. 482—484, yellow.

Distribution: Holarctic. Italy, Federal Republic of Germany, Austria, Hungary, Bulgaria, Czechoslovakia, Poland, United Kingdom, Norway, Sweden, Finland. USSR: Latvian SSR, Estonian SSR, Leningrad region, Murmansk region, Altai Mts., East Siberia (Yenisei River, Bajkal). Alaska. Canada: Manitoba. Also reported from France (Séguy 1940, Matile 1977), Netherlands (Landrock 1925a), Denmark (Staeger 1840), and Ireland (Chandler 1976). An uncertain record (Edwards 1935b) exists from SW Mongolia.

Biology: Ostroverchova (1971) has reared this species from *Lactarius,* and Sack (1907) has found a larva on one of the Polyporaceae s. lat. Some adults have been captured with light, air-suction (Plassmann 1979, 1980a) and sugar-bait traps. The collecting biotopes given are *Betula nana* vegetation, an alder wood, a hazel grove, birch forest, and mixed and coniferous forests.

Mycomya forestaria Plassmann, 1978

Figs. 485—486, key p. 35.

Mycomyia forestaria Plassmann, 1978. Plassmann 1978b:207, 1980a:178.

Mycomya forestaria: Väisänen in Hackman 1980:31; Väisänen 1982b:39.

Type locality: "Schwedisch-Lappland, Kaltisjokk" (Sweden).

Type: Holotype (studied): Senckenberg-Mus. 9301 Frankfurt/M. *Mycomyia forestaria* Plassm. Holotypus S-Messaure, Kaltisjokk 2. 7. 1969 Slg. W. Tobias. + hypopygium: 9301. Holotypus. *Mycomyia forestaria* Plassmann. (m SENCK).

Material examined: Sweden: Messaure, Kaltisjokk, 2.VII. 1969, W. Tobias (holotype SENCK). — Finland:

Ks: Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 9.VII. 1965, R. Tuomikoski (1 m MZH). — USSR: Kuril Isls., Kunashir, 23.VI. 1977, A. Zaitzev (1 m MOSC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5—3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow, with 3 brown posteriorly more or less fused longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow with brownish spot. Mesokatepisternum yellow, ventral half brownish to brown. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part brownish to brown. Mediotergite brownish, bare.

Legs. Coxae yellow, coxa 2 with or without brownish spot on lateral surface, coxa 3 with brown spot on lateral surface, femora yellow, tibiae and tarsi yellow. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.05—1.18, bt2:t2 = 0.84—0.85, bt3:t3 = 0.63—0.70.

Wing. Wing length 4.8—5.4 mm. Wing hyaline. Sc ending in C distally to middle of small cell or Sc1 weak or apically broken not reaching C, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 2—12 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to M fork. M ratios: 0.54—0.60, 0.71—0.73. Cu ratios: 0.64—0.67, 0.94—0.96. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with narrow posterior margins yellow, 6—7 and sometimes 5 entirely brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 485—486, brownish. Processus very long and wide. Tergal lateral appendage about as long as processus. Sternal synsclerite with 4—7 setae on both sides. Sternal submedian appendage short, wide, with some small setae. Gonostylus with 2 about equally long branches both with 1 apical tooth. Aedeagus comparatively long, narrow, apically bilobed.

Female. Unknown.

Distribution: Palaearctic. Sweden, Finland. Far East of USSR (Kuril Islands).

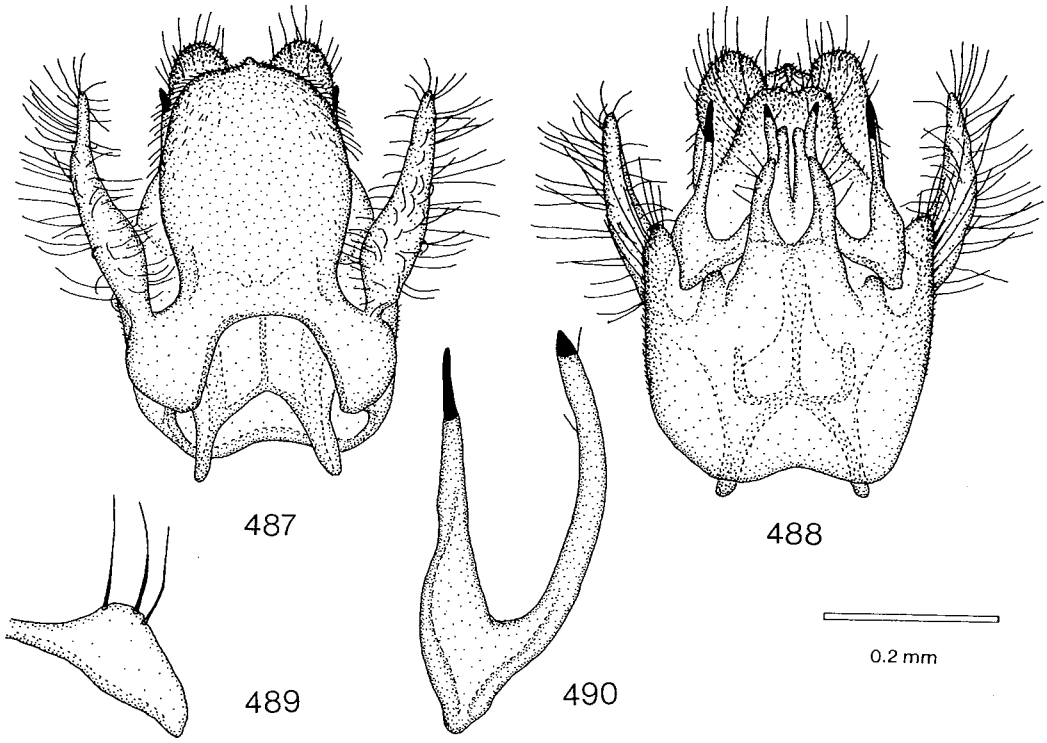
Biology: Plassmann (1980a) reports that this species has been taken with a light trap.

Mycomya autumnalis Garrett, 1924

Figs. 487—490, key p. 36.

Mycomya autumnalis Garrett, 1924. Garrett 1924:160; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia autumnalis: Coher 1959:124.



Figs. 487—490. *Mycomya autumnalis.* — 487: male hypopygium, tergal view. — 488: hypopygium, sternal view. — 489: tergite 8. — 490: gonostylus. Scale 0.2 mm for Figs. 487—489, Fig. 490 2 x enlarged.

Type locality: British Columbia, Michel (Canada).

Type: Lectotype (studied) by present designation: Michel 27.IX. BC. 5255 C Garrett Collector. hypo slide. Holotype *Mycomya autumnalis* C Garrett C. B. D. Garrett. + hypop. slide: *Mycomyia autumnalis* C Garrett Canada BC Michel 27.IX. hypo ♂ 5255. (m CNC).

Material examined: Canada: B. C., Michel 27.IX., C. Garrett (lectotype CNC); B. C., Kimberley, St. Mary's Lk., 1.IX., C. Garrett (1 ?f "metatype" CNC); Que., Abbotsford, 30.V. 1968, D. M. Wood (1 m CNC); Que., Beechgrove, 45°39′, 76°8′, 2.X. 1968, J. R. Vockeroth (1 m CNC); Que., Old Chelsea, 1.X. 1963, J. R. Vockeroth (1 m CNC); Newfoundland, Indian R., Baie Verte Cp., 23.VII. 1961, C. P. Alexander (1 m USNM).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow to brownish, with 3 indistinct brownish or distinct brown longitudinal stripes, middle stripe with yellow medial line. Mesanepisternum yellow to brownish. Mesokatepisternum yellow to brownish, ventral part darker. Scutellum yellow to brownish, with 2, occasionally 3, long setae. Laterotergite yellow to brownish. Mediotergite bare, light brownish to brownish, lateral and posterior parts brown.

Legs. Coxae yellow, coxa 3 with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.10—1.20, bt2:t2 = 0.78—0.86, bt3:t3 = 0.64—0.71.

Wing. Wing length 5.1—5.2 mm. Wing hyaline. Sc sometimes ending in C near middle of small cell, but Sc1 usually apically weak or broken, not reaching C, sometimes entirely missing, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 11—16 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.33—0.60, 0.43—0.77. Cu ratios: 0.63—0.80, 0.93—1.19. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yelllowish.

Abdomen. Entirely brownish to brown or tergites 1—5 with indistinct narrow yellowish posterior margins. Sternites 1—5 yellowish, 6—7 brownish.

Hypopygium. Figs. 487—490, brownish. Processus wide, long. Tergal lateral appendage slightly shorter than processus, slender. Sternal synsclerite with about 10 setae on both sides, without lateral appendages. Sternal submedian appendage comparatively long, with some small setae. Gonostylus with 2 branches, about equally long, both with 1 apical tooth. Aedeagus long.

(?) Female. Wing length 4.9 mm. Face yellowish, posterior parts of head brownish. Thorax lighter than in male, ground colour yellowish. Abdomen brown, with posterior margins of tergites yellow. Leg ratios: bt3:t3 = 0.60. Sc with 9—12 macrotrichia. Sc ending in R1, Sc1 missing or short. Terminalia yellow.

Remarks: Wing aberration: 10 macrotrichia on Sc, 5 on wing membrane in a parallel row (Abbotsford).

Distribution: Nearctic. Canada: British Columbia, Quebec, Newfoundland.

Biology: Unknown.

Mycomya echinata Garrett, 1924

Figs. 491—498, key p. 36.

Mycomya echinata Garrett, 1924. Garrett 1924:161; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia echinata: Coher 1959:121 (Syn. *Mycomya abbreviata* Van Duzee).

Mycomya abbreviata Van Duzee, 1928. Van Duzee 1928:42; Arnaud 1979:82.

Mycomya californica Van Duzee, 1928 (New synon.). Van Duzee 1928:40; Cole 1969:121; Arnaud 1979:82.

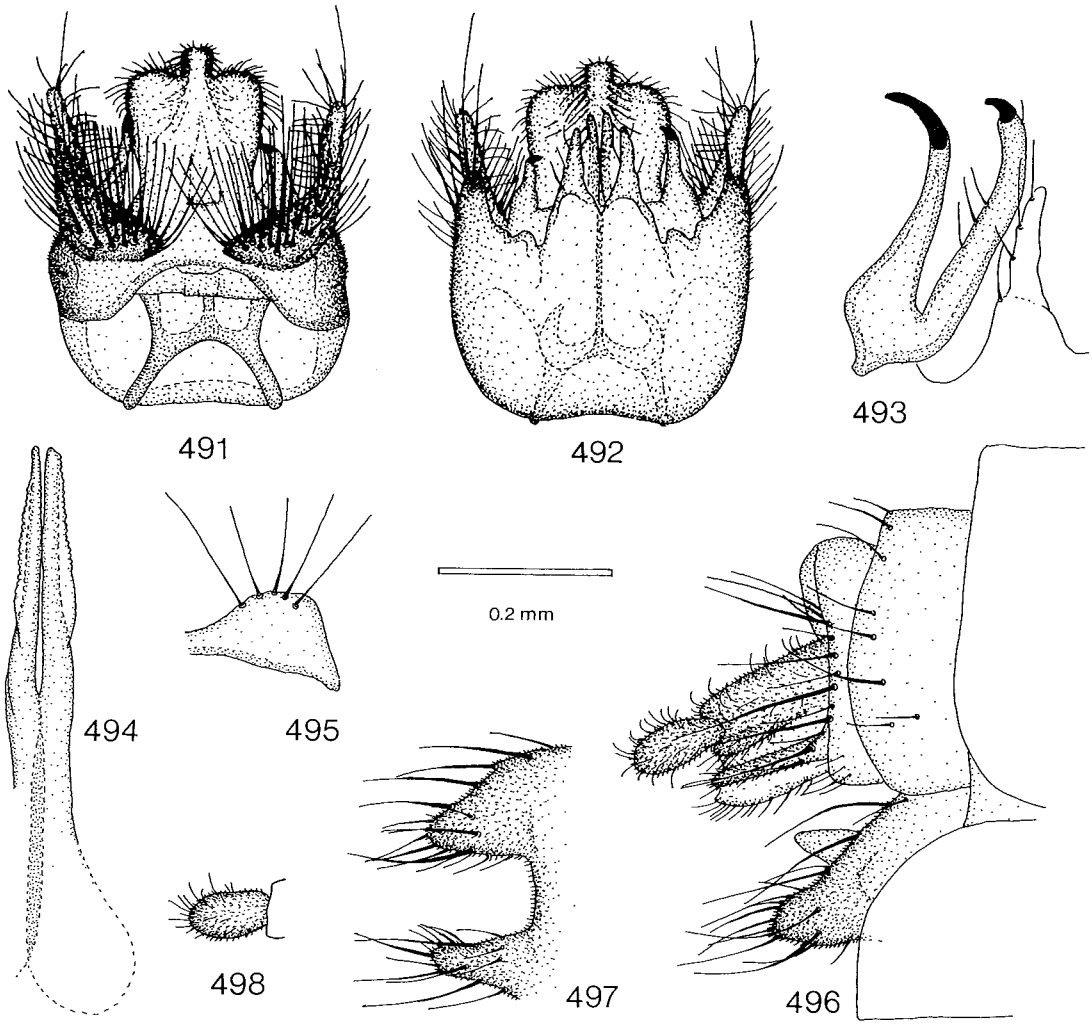
Type locality: British Columbia, Michel (Canada).

Types: — *Mycomya echinata* Garrett: Lectotype (studied) by present designation: Michel 8.VIII. B C. hyposlide. Holotype *Mycomyia echinata* ♂ C Garrett C. B. D. Garrett. + hypop. slide: *Mycomyia echinata* C Garrett Canada, B. C. Michel 8.VIII Holotype hypo ♂ 48.37. Lectotypus. (m CNC). — *Mycomya abbreviata* Van Duzee: Holotype (not seen but 3 paratypes studied): Mill Valley, Marin Co Cal., 3-13-26. *Mycomya abbreviata* Holotype. Van Duzee. California Academy of Sciences Type No. 2496. (m CAS). Type locality: California, Marin County, Mill Valley (USA). — *Mycomya californica* Van Duzee: Holotype (studied): Mill Valley, Marin Co Cal., 2-20-26. *Mycomya californica* Holotype. Van Duzee. California Academy of Sciences Type No. 3365. (m CAS). Type locality: California, Marin County, Mill Valley (USA).

Remarks: Coher (1959) examined the entire type series of *M. abbreviata* and synonymised this species of Van Duzee with *M. echinata*. The three paratypes of *M. abbreviata* studied fully support this treatment.

The date on the type of *M. californica* is indistinct, but the original description reveals that the type was taken in February, not in August (cf. Arnaud 1979).

Material examined: Alaska: Spenard, 21.VIII. 1957, E. L. Kessel (1 m CAS). — Canada: B. C., Kitimat, 2.VI. 1960, hemlock forest, J. G. Chillcott (1 m CNC); B. C., Squamish, Diamond Head Trail, 3200 ft., 3.VIII. 1953, G. J. Spencer (1 m CNC); B. C., Gagnon Road, 6 mi. W. Terrace, 220′, on thimbleberry, 20.VI. 1960, W. W. Moss (1 m CNC); B. C., Vancouver, Point Grey, 28.XI. 1972, 3.IV. 1973, J. R. Vockeroth (2 mm CNC); B. C., Terrace, marshy meadow, 11.VI. 1960, J. G. Chillcott (1 m CNC); B. C., Mt. Thornhill, nr. Terrace, 14.VII. 1960, J. G. Chillcott (1 m CNC); B. C., Mt. Revelstoke, 5800′, 15.VIII. 1952, G. J. Spencer (1 m CNC); B. C., Kimberly, St. Mary's Lake, 23.VII., C. Garrett (1 f "*M. echinata* metatype" CORN); B. C., Michel 8.VIII., C. Garrett (lectotype CNC); B. C., Vancouver, 23.V. 1917, R. S. Sherman (1 m paralectotype of *M. echinata* "holotype" 5272 CNC); same locality, 5.VI. [? II. — Garrett 1924: "February 5"] 1917, R. S. Sherman (1 m paralectotype of *M. echinata* 5271 CNC); B. C., Michel, 5000 ft., 24.IX., C. Garrett (1 m paralectotype of *M. echinata* 5256 MASS); B. C., Kimberly, St. Mary's Lake, 10.VI., 14.VI., 23.VII., 24.VII., 29.VII., C. Garrett (5 m hypop. slides USNM); same data, 28.VII. (1 hypop. slide "*M. echinata* metatype" USNM); same data, 8000 ft., 6.VIII. (1 m

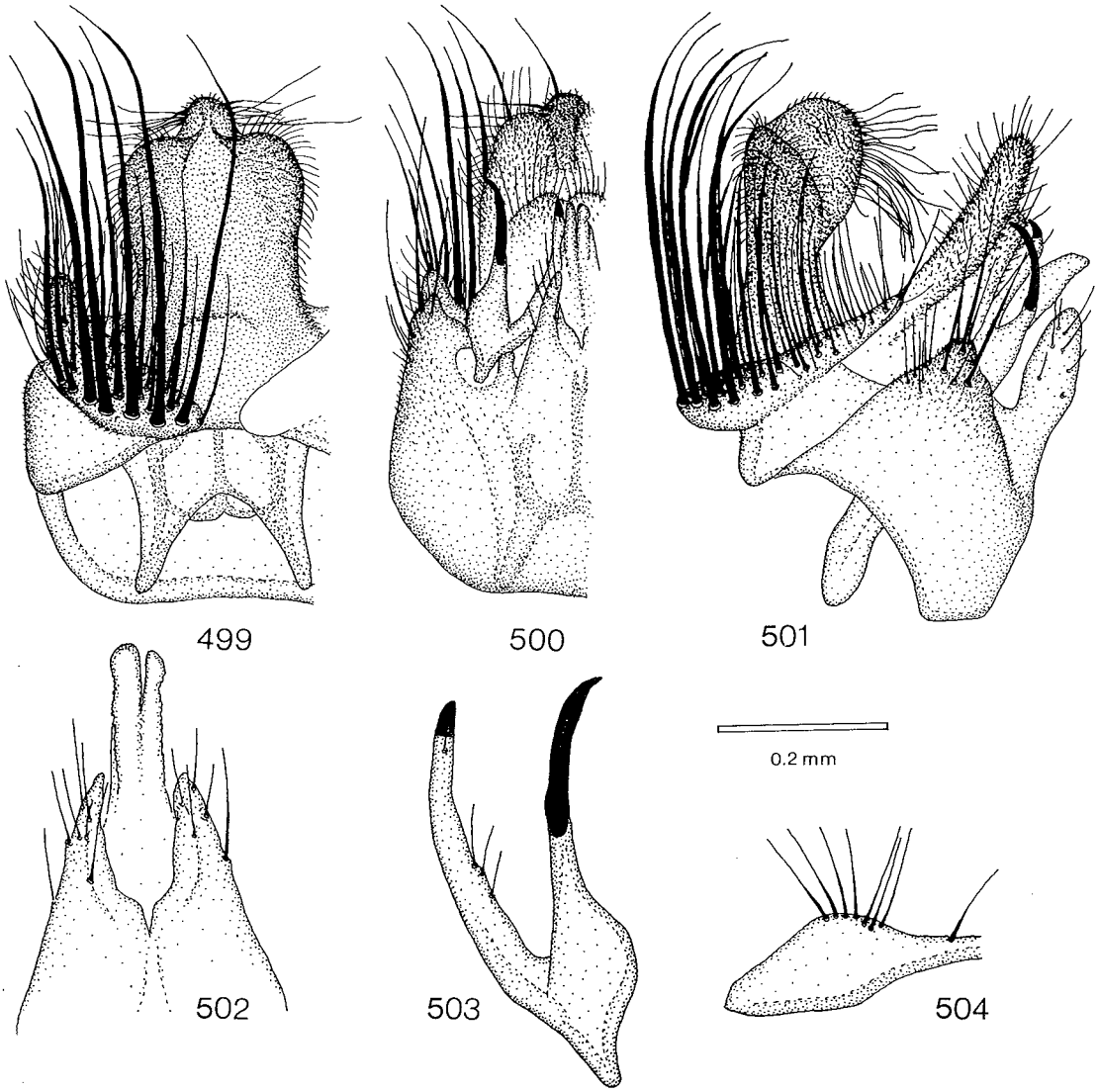


Figs. 491—498. *Mycomya echinata.* — 491: male hypopygium, tergal view. — 492: hypopygium, sternal view. — 493: gonostylus. — 494: aedeagus. — 495: tergite 8. — 496: female terminalia, lateral view. — 497: hypogynal valves, sternal view. — 498: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 491—492 and 495—498, Figs. 493—494 2 x enlarged.

hypop. slide USNM); B. C., Cranbrook, 12.VIII., C. Garrett (1 m hypop. slide USNM); B. C., Procter, 22.VII., C. Garrett (1 m hypop. slide USNM); Alta., Laggan, 26.VII. 1928, O. Bryant (1 m CAS). — USA: Was., Monroe, 20.V. 1908 (1 m PU); Ida., Moscow Mts., 11.VI. 1969, 15—17.VI. 1969, 17—18.VI. 1969, 10—16.VII. 1969, 16—22.VII. 1969, Malaise trap, H. S. Telford (5 mm WASH); Ore., Corvallis, Watershed, 12.V. 1953, V. Roth (1 m OREG); Oregon, Crook County, Cougar Campground, Marks Creek, 24.VII. 1974, P. H. Arnaud, Jr. (1 m CAS); Oregon, Marion County, Silver Falls State Park, South Silver Creek Falls, 23.VI. 1974, P. H. Arnaud, Jr. (1 ?f CAS); Ore., Baker Co., 9 mi. W. Unity, 4500′, 2.VII. 1965, Malaise trap (1 f CNC); Cal., Marin Co., Mill Valley, 13.III. 1926, M. C. Van Duzee *(M. abbreviata* Van Duzee paratypes: 2ff CAS); same locality, 20.II. 1926, M. C. Van Duzee *(M. californica* Van Duzee holotype CAS); San Francisco, 25.III. 1926, M. C. Van Duzee (1 m paratype of *M. abbreviata* Van Duzee CAS); Calif., Santa Cruz Mts., 10.VII. 1895, R. W. Doane (1 m CAS); Cal., Marin Co., Alpine Lake, Lily Pond, 1500′, 21.II. 1969, 1—12.III. 1970, IV—V. 1970, V—VI. 1970, 22.I. 1971, 19—21.IV. 1971, 4—10.V. 1971, 17—25.V. 1971, 25.V.—3.VI. 1971, Malaise trap, D. D. Munroe (17 mm 20 ff CNC).

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellowish to brownish, posterior parts of head



Figs. 499—504. *Mycomya electa.*— 499: male hypopygium, tergal view. — 500: hypopygium, sternal view. — 501: hypopygium, lateral view. — 502: sternal submedian appendages and apex of aedeagus. — 503: gonostylus. — 504: tergite 8. Scale 0.2 mm for Figs. 499—501 and 504, Figs. 502—503 2 x enlarged.

brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd about twice as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow to yellowish, with 3 more or less distinct, brown, posteriorly fused longitudinal stripes, anterolateral corners of mesoscutum yellow. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral part brown. Scutellum yellowish, with 2 long setae. Laterotergite yellowish, ventral part brownish. Mediotergite yellowish to brownish, lateral and posterior parts dark, bare.

Legs. Coxae yellow, coxa 2 sometimes with brownish spot on outer surface, coxa 3 with indistinct or distinct brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.11—1.26, bt2:t2 = 0.76—0.84, bt3:t3 = 0.63—0.68.

Wing. Wing length 4.3—5.5 mm. Wing hyaline. Sc occasionally ending in C slightly proximally to or near middle of small cell, usually Sc1 apically broken not quite reaching C, sometimes entirely missing, Sc2 ending in R1 slightly proximally to or near middle of small cell. Apical part of Sc bearing 2—17 macrotrichia. Small cell 1.5—3 times as long as wide. Cu fork proximal to M fork. M ratios: 0.49—0.71, 0.61—0.89. Cu ratios: 0.57—0.81, 0.85—1.25. Macrotrichia: M petiole: 0; M1:

+; M2: +; Cu petiole: + Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown, with lateral and posterior margins yellow, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 491—495, yellowish. Processus long, broad. Tergal lateral appendage very setose, slightly shorter than processus. Sternal lateral appendage short, indistinct, with some setae. Sternal submedian appendage apically tapered, with some setae. Gonostylus with 2 branches, both with 1 apical tooth. Aedeagus comparatively long, apically tapered, bilobed.

Female. Wing length 4.6—6.0 mm. Abdominal tergites brown with posterior fourths or fifths yellow, sternites lighter than tergites. Leg ratios: bt1:t1 = 1.05—1.14, bt2:t2 = 0.75—0.80, bt3:t3 = 0.61—0.68. Terminalia as in Figs. 496—498, yellow to yellowish.

Distribution: Western Nearctic. Alaska. Canada: British Columbia, Alberta. USA: Washington, Idaho, Oregon, California. Coher (1959) also had specimens from Montana and Utah. See the remarks on p. 21.

Biology: This species has been collected by sweeping and also caught successfully with a Malaise trap. The collecting biotopes given are a hemlock forest and a marshy meadow, also caught on thimbleberry.

Mycomya electa n. sp.

Figs. 499—504, key p. 35.

Type locality: Wisconsin, Washburn County (USA).

Type: Holotype (studied): Washburn Co. Wis T 39N R12W B32 25 VIII 1952 Coll R H Jones. Light trap (m WISC).

Material examined: USA: Wis., Washburn Co., T39N R12W B32, 24.VIII. 1952, light trap, R. H. Jones (1 m WISC); same data, 25.VIII. 1952 (holotype & 1 m WISC); same data, 28.VIII. 1952 (1 m WISC); same data 8.IX. 1952 (1 m WISC); same data, 9.IX. 1952 (1 m WISC); same data, 11.IX. 1952 (1 m WISC); same locality, T35N R7W B30, 8.VIII. 1953, R. H. Roberts (1 m WISC); Wisconsin, Vilas County, Squaw Lake, 16.VIII. 1954, J. L. Laffoonr (1 m ISU).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5 times, 2nd less than twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow to brownish, with 3 wide, fused, brownish to brown, usually distinct longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellowish. Mesokatepisternum entirely yellowish or its ventral half brown. Scutellum yellowish, with 2, occasionally 3, long setae. Laterotergite entirely yellowish or its ventral half brownish. Mediotergite yellowish, bare.

Legs. Coxae yellow, coxa 3 with brown spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long, thin setae along anteromedial surface. Coxa 2 with long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.05—1.11, bt2:t2 = 0.73—0.79, bt3:t3 = 0.64—0.66.

Wing. Wing length 4.5—5.0 mm. Wing apex and small cell very weakly infuscate. Sc ending in R1 proximally — slightly distally to middle of small cell, Sc1 broken or entirely missing. Apical part of Sc bearing 10–15 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.51—0.67, 0.60—0.81. Cu ratios: 0.74—0.82, 1.12—1.27. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior fourths or fifths yellow, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 499—504, brownish, comparatively large, in structure very closely resembling *M. echinata* Garrett, but strong setae of tergal lateral appendage much longer than processus.

Female. Unknown.

Distribution: Eastern Nearctic. Known only from Wisconsin.

Biology: Unknown.

Mycomya heydeni Plassmann, 1970

Figs. 505—510, key p. 35.

Mycomyia heydeni Plassmann, 1970. Plassmann 1970a:90, 1970b:388, 1977b:9, 1979:374, 1980a:18, 1980b:178.

Mycomya heydeni: Väisänen 1979a:47, in Hackman 1980:31; Väisänen 1982b:39.

Mycomyia trifida Ostroverchova, 1979 (New synon.). Ostroverchova 1979:73.

Mycomya trifida: Väisänen 1982b:41.

Sciophila egregia: Lundström 1912a:9, 1914:11.

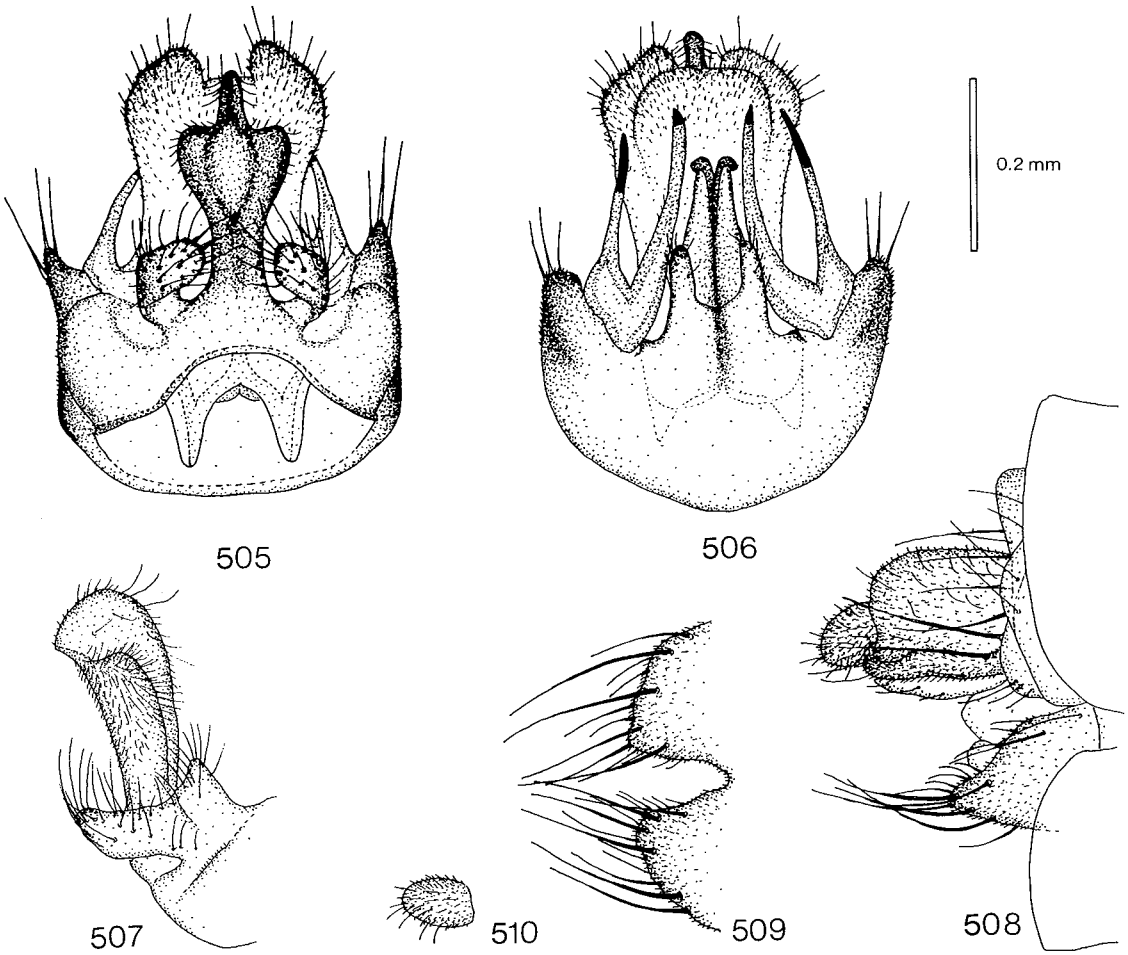
Mycomyia egregia: Frey & Storå 1941:46.

Type locality: Not stated (? Central Europe).

Types: — *Mycomya heydeni* Plassmann: Holotype (studied): *Sciophila* Ztt. Coll. v. Heyden. D 544. *Mycomyia heydeni* Plassm. ♂ Holotypus det. Plassmann Juli 1969. (m SENCK). — *Mycomya trifida* Ostroverchova: Holotype (not seen): Sikhote-Alinskij Zapovednik, Shanduj, 17.VI. 1974; prep. 1881 (possibly in Tomsk, if not lost). Type locality: "Sikhote-Alinskij zapovednik, Shanduj" (Far East of USSR).

Remarks: As far as can be judged from the original description and the figures of the male hypopygium (Ostroverchova 1979:61:Figs. 15.6 and 15.7.), it seems that *M. trifida* Ostroverchova is a junior synonym from *M. heydeni* Plassmann.

Material examined: Holotype (SENCK). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmidt (3 mm ISU). — Sweden: Kaltisjokk, loc. 20, 22—25.IX. 1969 (1 m ZSM). — Finland: *Ab:* Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (1 m MZH); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (1 m MZH); Vihti, Vihtijärvi, 1.VI. 1963, 8.VI. 1963, 16.VI. 1963, 29.VI. 1963, 15.VIII. 1963, 27.VIII. 1963, 5.VI. 1964, R. Tuomikoski (11 mm MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m "*S. egregia*" MZH); *N:* Tammisaaren mlk., Gullö, 16—28.IX. 1967, K. Mikkola (1 m MZH); Esbo (Espoo), Kolmperä, 4.VI. 1963, 6.VI. 1963, 9.VI. 1963, 10.VI. 1963, 3.VI. 1964, 21.VI. 1964, 12.IX. 1964, 13.VI. 1965, 18.IX. 1965, W. Hackman (13 mm MZH);



Figs. 505—510. *Mycomya heydeni.* — 505: male hypopygium, tergal view. — 506: hypopygium, sternal view. — 507: processus and tergal lateral appendage, lateral view. — 508: female terminalia, lateral view. — 509: hypogynal valves, sternal view. — 510: apical segment of cercus. Scale 0.2 mm.

Ta: Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (1 m MZH); Lammi, Biol. Station, 5.IX. 1977, light trap, R. Väisänen (1 m MZH); Urjala, 19.IX. 1965, T. Brander (1 m FLHM); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (3 mm MZH); *Kl:* Uukuniemi, 25.VI. 1965, W. Hackman (1 m MZH); *Kb:* Kesälahti, 24.VI. 1963, W. Hackman (1 m MZH); Pielisjärvi, Koli, 17.VI. 1964, 5.VII. 1965, R. Tuomikoski (2 mm MZH); *Ok:* Kuhmo, 29.VI. 1965 (2 mm MZH); Sotkamo, Aarreniemi, 19.VI. 1963, A. V. V. Mikkola (1 m MZH); same locality, 19.VI. 1964, R. Tuomikoski (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, R. Tuomikoski (3 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, R. Tuomikoski (2 mm MZH); Kuusamo, Liikasenvaara, 6.VII. 1965, K. Mikkola (2 mm MZH); *LkW:* Pallastunturi, 28.VII. 1911, R. Frey (1 m MZH). — USSR: Altai, 40 km Iogatsh S, 1000—1300 m, 1982, K. Mikkola (1 m MZH); Far East, Primorye Terr., Ussurijsk Reg., 9.V. 1969, N. Krivosheina (2 mm lot 169, 2 mm 3 ff lot XVIII MOSC); same data, 17.V. 1969 (4 mm lot 207 MOSC); same data, 20.IX. 1968 (1 m MOSC); Kuril Isls., Kunashir, 27.V. 1977, A. Zaitzev (1 m 1 f lot 294 MOSC); same data, 10.VI. 1977 (1 m lot XVI MOSC); same data, 13.VI. 1977 (1 ?f MOSC); same data, 1.VIII. 1979 (4 ff MOSC): Khabarovsk Terr., Bychikha, 10.V. 1976, A. Zaitzev (1 m without hypop., 3 ff, 3 pupae lot 317 MOSC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish to light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd about twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellowish to light brownish, with 3 brownish to dark brown longitudinal stripes, middle stripe with narrow yellow medial line, anterolateral corners yellow to

yellowish. Mesanepisternum yellowish to brown. Mesokatepisternum entirely brown or yellowish with ventral half brownish. Scutellum yellow to light brownish, with 2 long setae. Laterotergite entirely brown or yellowish with ventral part brownish. Mediotergite light brownish to brown, bare. Thorax sometimes entirely light brownish.

Legs. Coxae yellow, coxa 3 with or without brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long, thin setae along anteromedial surface. Coxa 2 with long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.09—1.19, bt2:t2 = 0.79—0.85, bt3:t3 = 0.60—0.71.

Wing. Wing length 4.3—6.0 mm. Wing hyaline. Sc occasionally ending in C near or proximally to middle of small cell, Sc1 usually weak or apically broken, sometimes entirely missing, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 7—14 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.54—0.63, 0.67—0.74. Cu ratios: 0.61—0.84, 0.94—1.42. Macrotrichia: M petiole: 0—5; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish or tergites 1—5 brown, with posterior margins yellowish, 6—7 brownish to brown. Sternites 1—5 yellowish to brownish, 6—7 brownish.

Hypopygium. Figs. 505—507, yellow to yellowish. Processus comparatively long and broad. Tergal lateral appendage very short and setose. Sternal lateral appendage indistinct, very short, with a few long setae. Sternal submedian appendage comparatively long with some small setae. Gonostylus with 2 branches, both with apical tooth, about equally long. Aedeagus comparatively long, slender, apically bilobed.

Female. Wing length 4.7—5.3 mm. Thorax entirely light brownish. Abdominal tergites brown with posterior margins yellowish, sternites yellowish, or abdomen entirely light brownish without distinct markings. Leg ratios: bt1:t1 = 1.08, bt2:t2 = 0.80, bt3:t3 = 0.70. Terminalia as in Figs. 508—510, yellow.

Pupa. Light brownish. Length 4.7—5.0 mm.

Distribution: Palaearctic. Switzerland, ? Central Europe, Sweden, Finland. USSR: Altai Mts., Far East: Primorye Territory, Ussurijsk region, Khabarovsk Territory, Kuril Islands.

Biology: This species has also been collected with air-suction (Plassmann 1979) and light traps. The Finnish collecting localities include coniferous forests, a *Corylus* grove and a *Sphagnum* bog.

Mycomya egregia (Dziedzicki, 1885)

Figs. 511—512, key p. 35.

Sciophila egregia Dziedzicki, 1885. Dziedzicki 1885:21; Kertész 1903:32.

Sciophila egregria: Kertész 1902:58 (error).

(not) *Sciophila egregia:* Lundström 1912a:9, 1914:11 (= *M. heydeni* Plassmann).

Mycomyia egregia: Landrock 1926—1927:45; Lackschewitz 1937:10; Plassmann 1969:24, 1970b:388, 1971b:61.

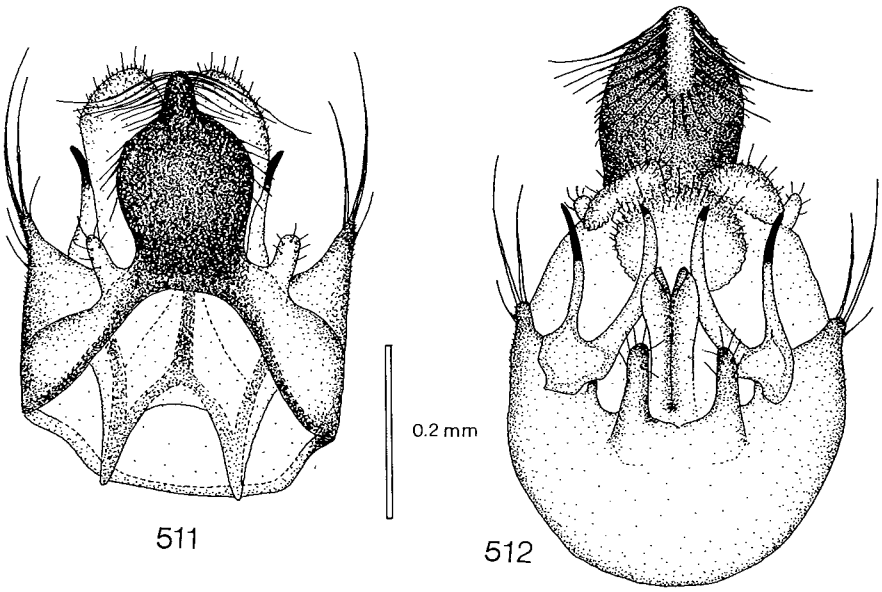
Mycomya egregia: Väisänen in Hackman 1980:31; Väisänen 1982b:39.

(not) *Mycomyia egregia:* Frey & Storå 1941:46 (= *M. heydeni* Plassmann).

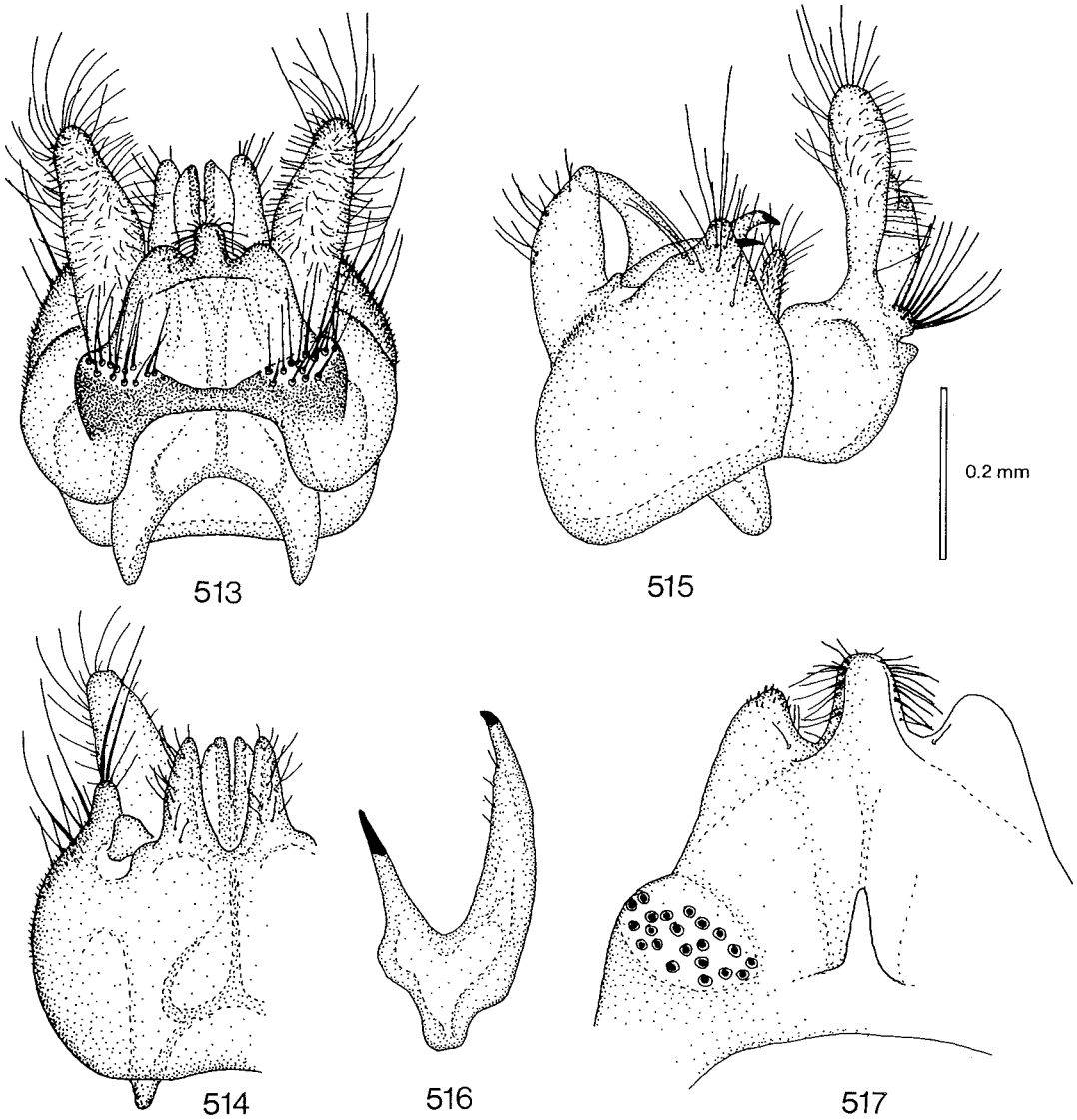
Type locality: Galicia (Poland).

Type: Holotype (not located, apparently destroyed): ♂.

Material examined: Czechoslovakia: Boh. or., Potštejn, 19.VII. 1967, P. Laštovka (1 m VUPP); Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (1 m VUPP); Boh. mer., Horská Kvilda, 24.VII. 1961, P.



Figs. 511—512. *Mycomya egregia.* — 511: male hypopygium, tergal view. — 512: hypopygium, sternal view. Scale 0.2 mm.



Figs. 513—517. *Mycomya polleni.* — 513: male hypopygium, tergal view. — 514: hypopygium, sternal view. — 515: hypopygium, lateral view. — 516: gonostylus. — 517: processus. Scale 0.2 mm for Figs. 513—515, Figs. 516—517 2 x enlarged.

Laštovka (1 m VUPP); Slov., Vihorlat-Mora. Oko, 1.VI. 1963, Laštovka (1 m VUPP); Slov. or., Bardejov, 18.VIII. 1962, P. Laštovka (1 m VUPP). — Poland: Puzcza Bialowieska Park Narod., kw. 369, grond niski, 6.VI. 1964, W. Mikolajczyk (1 m WARS). — Sweden: Hall., Enslöv, Årnilt, Hultet, 26.VI. 1967, H. Andersson (1 m coll. Andersson). — Finland: *Ab:* Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (2 mm MZH); Vihti, Vihtijärvi, 23.VI. 1963, 27.VIII. 1963, R. Tuomikoski (2 mm MZH); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (2 mm MZH); *Ok:* Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); same locality, 19—24.VII. 1967, R. Tuomikoski (3 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Leningrad. o., Luzhsk., Tolmachevo, 18.VI. 1938, Stackelberg (1 m LEN); Vyritsa Leningr., 4.IX. 1946, Stackelberg (1 m LEN); Petr. g., Yukki, 28.VIII. 1931, Stackelberg (1 m LEN).

Description:

Head. Palp and other mouthparts yellow, face yellow-

ish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 indistinct brownish longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellow, with 2 long setae. Laterotergite yellowish, ventral part brownish. Mediotergite brownish, lateral and posterior parts darker brown, bare.

Legs. Coxae yellow, coxa 3 with or without brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long, thin setae along anteromedial surface. Coxa 2 with long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.06—1.24, bt2:t2 = 0.87—0.88, bt3:t3 = 0.67—0.69.

Wing. Wing length 4.9—5.6 mm. Wing hyaline. Sc ending in R1 slightly proximally — slightly distally to middle of small cell, Sc1 apically broken, sometimes entirely missing. Apical part of Sc bearing 5—15 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.59—0.66, 0.71—0.85. Cu ratios: 0.71—0.91, 0.84—1.39. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown, with lateral and posterior margins yellow, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 511—512, yellow, processus dark. Processus long, broad. Tergal lateral appendage very small. Sternal lateral appendage short indistinct with some long setae. Sternal submedian appendage short, with some small setae. Gonostylus with 2 branches, about equally long, both with apical tooth. Aedeagus long, slender.

Female. Unknown.

Distribution: Western Palaearctic. Czechoslovakia, Poland, Sweden, Finland. USSR: Leningrad region. Also reported from the Federal Republic of Germany (Plassmann 1969, 1970b, 1971b) and from the Latvian SSR (Lackschewitz 1937).

Biology: Unknown.

Mycomya polleni Garrett, 1924

Figs. 513—519, key p. 35.

Mycomya polleni Garrett, 1924. Garrett 1924:65; Laffoon in Stone et al. 1965:221; Cole 1969:121.

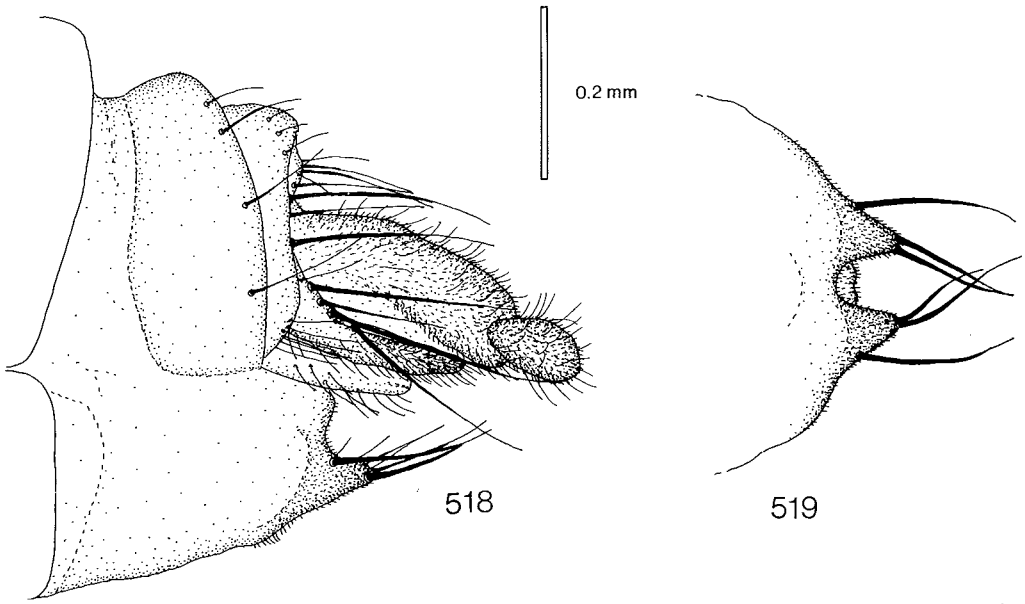
Mycomyia polleni: Coher 1959:121.

Type locality: British Columbia, Cranbrook (Canada).

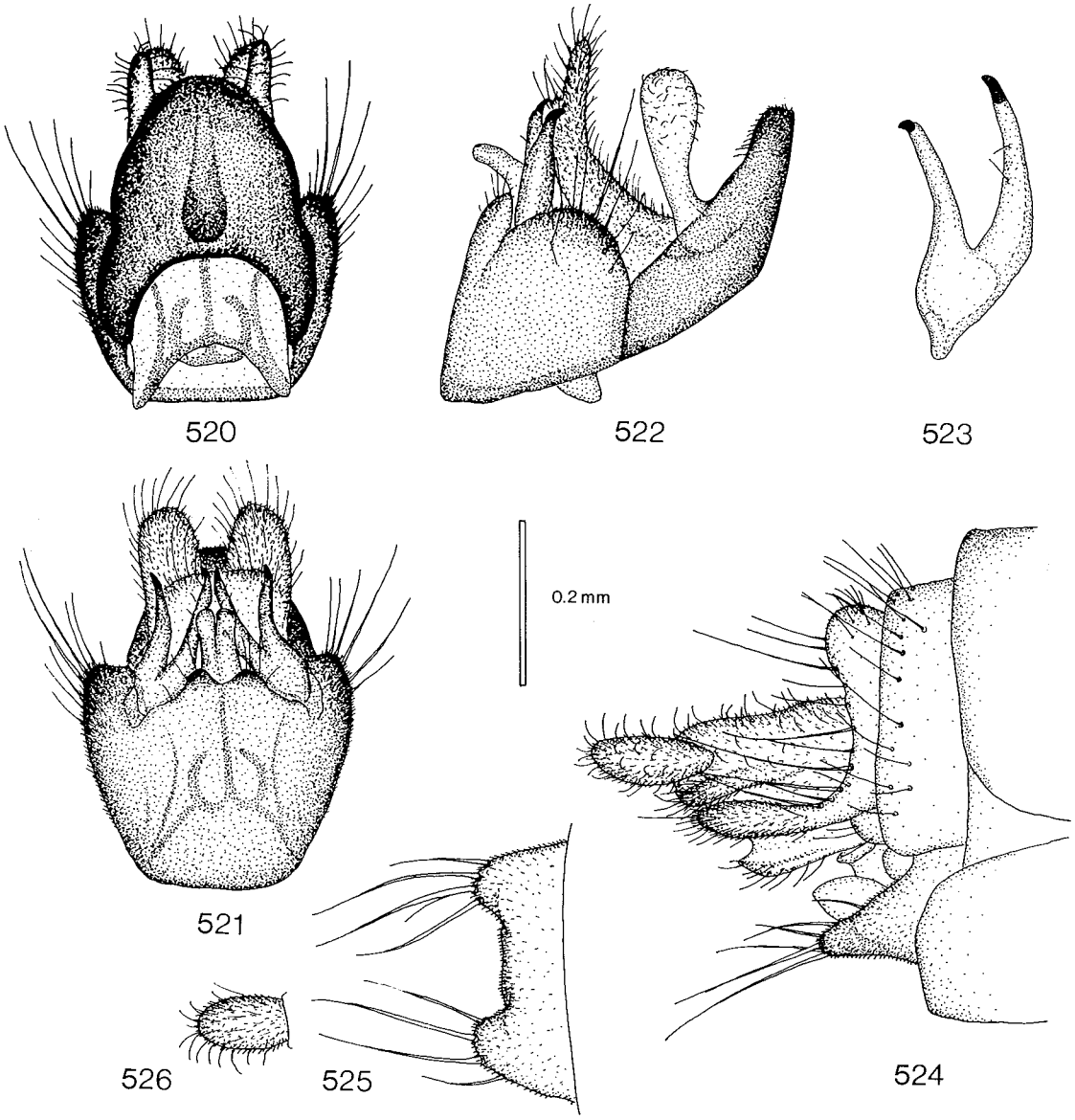
Type: Lectotype (studied) by present designation: Cranbrook 6.VII B C. 25.51 hypo. Holotype *Mycomyia* ♂ *polleni* C Garrett C. B. D. Garrett + hypop. slide: *Mycomyia polleni* C Garrett Canada B C Cranbrook 6.VII. Holotype. hypo 25.51. (m CNC).

Remarks: Garrett described this species from 6 male syntypes taken in Cranbrook in July. Thus, some of the specimens labelled as paratypes or syntypes (or metatypes) do not belong to his type series. The specimen in BMNH labelled as the holotype is considered to be one of the paralectotypes.

Material examined: Canada: Cranbrook, 25.V., C. Garrett (1 m BMNH); same data, 1.VI. (2 mm BMNH); same data, 2.VI. (2 mm "metatypes" USNM); same data, 3.VI (2 mm USNM); same data, 5.VI (1 m 1 f BMNH); same data, 8.VI. (2 mm 3 ff BMNH); same data, 13.VI. (1 m BMNH); same data, 18.VI. (1 m BMNH); same data, 29.VI. (1 f BMNH); same data, 3.VII. (3 mm paralectotypes: "holotype" No. 43.85, 2 "paratypes" BMNH); same data, 4.VII. (1 m "paratype"



Figs. 518—519. *Mycomya polleni.* — 518: female terminalia, lateral view. — 519: hypogynal valves, sternal view. Scale 0.2 mm.



Figs. 520—526. *Mycomya aneura.* — 520: male hypopygium, tergal view. — 521: hypopygium, sternal view. — 522: hypopygium, lateral view. — 523: gonostylus. — 524: female terminalia, lateral view. — 525: hypogynal valves, sternal view. — 526: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 520—522 and 524–526, Fig. 523 2 x enlarged.

BMNH); same data, 6.VII. (holotype, 1 m "metatype" CNC); same data, 7.VII. (2 mm "paratypes" BMNH); same data, 10.VII. (1 m 1 f "syntypes" CNC, 1 m BMNH); same data, 11.VII. (1 m BMNH); same data, 25.VII. (1 m "paratype" MASS); same data, 4.X. (1 m USNM).

Description:

Head. Palp and other mouthparts yellowish, face yellow, posterior parts of head brownish to brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow to yellowish, with 3 brownish to brown longitudinal stripes. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellowish, with 4, occasionally 5, long setae. Laterotergite yellowish, with ventral part light brownish. Mediotergite yellowish to brownish, bare.

Legs. Coxae yellow, coxa 3 with indistinct light brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long, thin setae along anteromedial surface. Coxa 2 with long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.95—1.00, bt2:t2 =0.73—0.82, bt3:t3 = 0.63—0.66.

Wing. Wing length 4.7—5.5 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 10—16 macrotrichia. Small cell about twice as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.51—0.65, 0.66—0.81. Cu ratios: 0.73—0.78, 1.00—1.16. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown, with posterior margins yellow, 6—7 brown. Sternites lighter than tergites.

Hypopygium. Figs 513—517, yellow, with dark markings on tergal portion. Processus wide, with 2 patches of long setae in front of it. Tergal lateral appendage broad, longer than processus, with many thin setae. Sternal lateral appendage short, with some long setae. Sternal submedian appendage comparatively long slender with many small setae. Gonostylus with 2 branches, medial branch longer, both with 1 apical tooth. Aedeagus comparatively long, apically bilobed.

Female. Wing length 5.1—5.5 mm. Mesoscutal stripes light brownish. Coxae yellow. Abdomen brown with posterior margins of tergites yellow. Leg ratios: bt1:t1 = 0.95, bt2:t2 = 0.77, bt3:t3 = 0.65. Terminalia as in Figs. 518—519, yellow.

Distribution: Western Nearctic. Canada: British Columbia. Known only from the type locality, where many specimens were collected by C. Garrett.

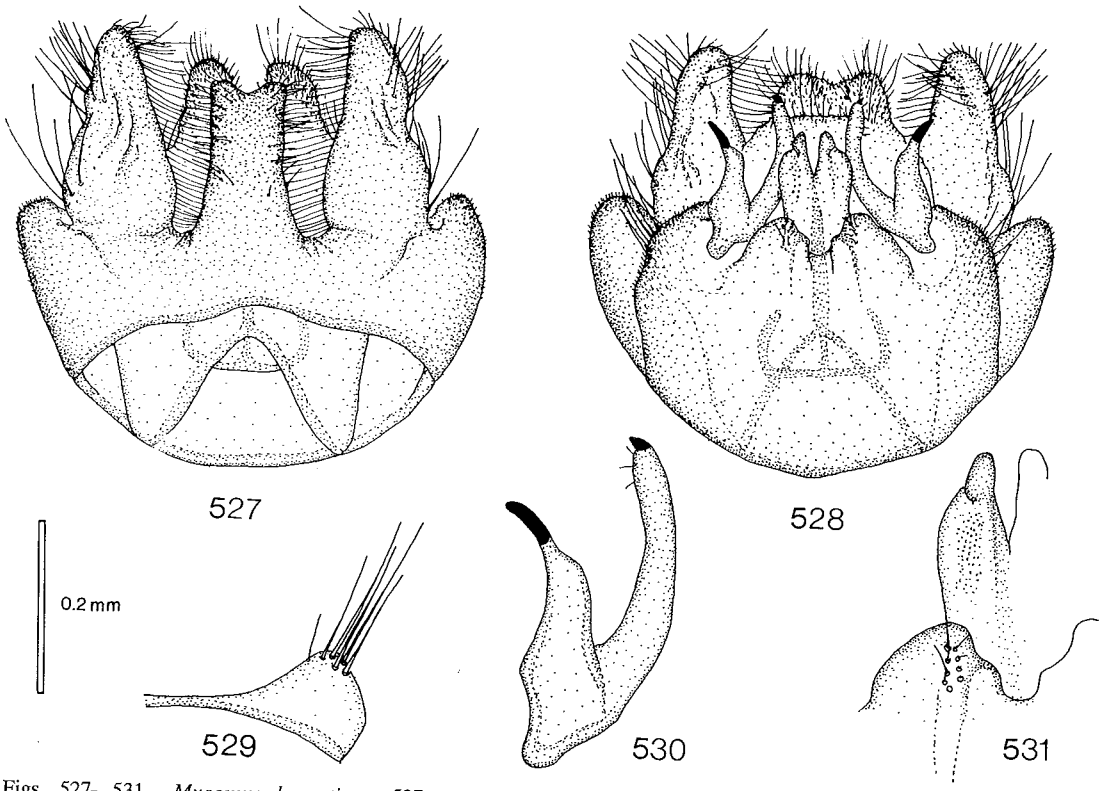
Biology: Unknown.

Mycomya aneura n. sp.
Figs. 520—526, key p. 36.

Type locality: Ontario, London (Canada).

Type: Holotype (studied): W. W. Judd BS1101 London, Ontario 3.XI. 56 (m USNM).

Material examined: Canada: N. W. T., Frobisher Bay, 10.VIII. 1959, J. A. Downes (2 mm CNC); B. C., Kimberly, St. Mary's Lake, 29.VIII., C. Garrett (2 m hypop. slides No. 5026, No. 4840, "*Mycomyia aneura*" USNM); same data, 8000 ft., 6.VIII. (1 m hypop. slide No. 5029 "*M. aneura*" USNM); Man., Fort Churchill, 12.VII. 1952, J. G. Chillcott (4 mm 2 ff CNC); same data, 31.VII. 1952 (1 m CNC); same data, 21.VIII. 1952 (3 mm 1 f CNC); same data, 6.VIII. 1952 (1 f CNC);



Figs. 527—531. *Mycomya bryanti.* — 527: male hypopygium, tergal view. — 528: hypopygium, sternal view. — 529: tergite 8. — 530: gonostylus. — 531: sternal submedian appendage and apex of aedeagus. Scale 0.2 mm for Figs. 527—529, Figs. 530—531 2 x enlarged.

same data, 15.VIII. 1952 (1 f CNC); Man., Pine Falls, 31.VIII. 1961 (3 mm 2 ff CNC); same locality, 3.VII. 1961, 13.VII. 1961, 2.VIII. 1961, 30.VIII. 1961 (4 ff CNC); Ont., Ottawa, Mer Bleue, in *Sphagnum* bog, 5.IX. 1956, J. R. Vockeroth (1 m CNC); Ontario, London, 19.X. 1956, 22.X. 1956, 3.XI. 1956, W. W. Judd (holotype & 2 mm USNM); Que., Laniel, 17.VIII. 1939, J. L. Hitchon (1 m CNC).

In addition, the following females from Saskatchewan possibly belong to this species: Sask., Otosquen, 53°18'N, 102°W, 12.IX. 1959, J. R. Vockeroth (1 f CNC); Sask., Cantyre, 53°23', 101°50', 12.IX. 1959, J. R. Vockeroth (1 f CNC).

Description:

Head. Palp and other mouthparts light brownish, face brown, posterior parts of head dark brown. Antenna brownish to brown, base of 1st flagellomere yellowish. 1st flagellomere about 3.5 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum brownish, with 3 longer setae. Mesoscutum brown with indistinct stripes. Mesanepisternum brown. Mesokatepisternum brown. Scutellum brownish, with 2 long setae. Laterotergite brown. Mediotergite brown, bare.

Legs. Coxae light brownish, femora yellow, tibiae and tarsi brownish to brown. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.06—1.19, bt2:t2 = 0.76—0.80, bt3:t3 = 0.63—0.67.

Wing. Wing length 4.4—5.1 mm. Wing hyaline. Sc ending in R1 proximally — distally to middle of small cell, Sc1 broken or entirely missing. Apical part of Sc bearing 1—12 macrotrichia. Small cell twice as long as wide. Cu fork proximal to M fork. M ratios: 0.55—0.79, 0.69—1.00. Cu ratios: 0.66—0.71, 0.92—1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +, seldom 0; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely dark brown to black, posterior margins of tergites 1—5 sometimes slightly paler.

Hypopygium. Figs. 520—523, brownish to brown. Processus broad, comparatively long, dark. Tergal lateral appendage about as long as processus, apically rounded, light, with small setae. Sternal synsclerite with some setae on both sides, without lateral appendages. Gonostylus with 2 branches, about equally long, both with apical tooth.

Female. Wing length 4.9—5.4 mm. Abdominal segments dark brown with posterior margins yellowish. Leg ratios: bt1:t1 = 1.07—1.09, bt2:t2 = 0.76, bt3:t3 = 0.66. Terminalia as in Figs. 524—526, yellow to yellowish.

Distribution: Nearctic. Canada: British Columbia, ? Saskatchewan, Manitoba, Ontario, Quebec.

Biology: Unknown. One specimen collected in a *Sphagnum* bog.

Mycomya bryanti n. sp.

Figs. 527—531, key p. 36.

Type locality: North West Territories, Aklavik (Canada).

Type: Holotype (studied): Aklavik, N. W. T. Aug. 26 1929 Owen Bryant. MacKenzie River 1929 Trip. Lot 69 Owen Bryant. (m CAS).

Material examined: Canada: Holotype (CAS).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellowish. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum with 3 wide, brownish to brown, fused, longitudinal stripes, anterolateral corners yellow. Mesanepisternum light brownish. Mesokatepisternum light brownish. Scutellum yellowish, with 2 long setae. Laterotergite light brownish. Mediotergite light brownish, bare.

Legs. Coxae yellowish, coxa 3 with brownish spot on lateral surface, femora yellowish, tibiae and tarsi brownish. Coxa 1 with row of comparatively long setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.76, bt3:t3 = 0.67.

Wing. Wing length 5.1 mm. Wing hyaline. Sc ending in R1 near or slightly distally to middle of small cell, Sc1 missing. Apical part of Sc bearing 6—8 macrotrichia. Small cell about twice as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.64, 0.62. Cu ratios: 0.71, ?. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites brown. Sternites 1—5 yellow, 6—7 yellowish.

Hypopygium. Figs. 527—531, brownish, comparatively wide. Processus long, relatively wide. Tergal lateral appendage very wide, longer than processus. Sternal synsclerite with some lateral setae, without lateral appendages. Sternal submedian appendage short, wide, with some small setae. Gonostylus with 2 branches, lateral branch shorter than medial one, both with apical tooth.

Female. Unknown.

Distribution: Nearctic. Known only from the holotype from Aklavik, North West Territories of Canada.

Biology: Unknown.

Mycomya hebrardi Väisänen & Matile, 1980

Figs. 532—535, key p. 36.

Mycomya hebrardi Väisänen & Matile, 1980. Väisänen & Matile 1980:181; Väisänen 1982b:39.

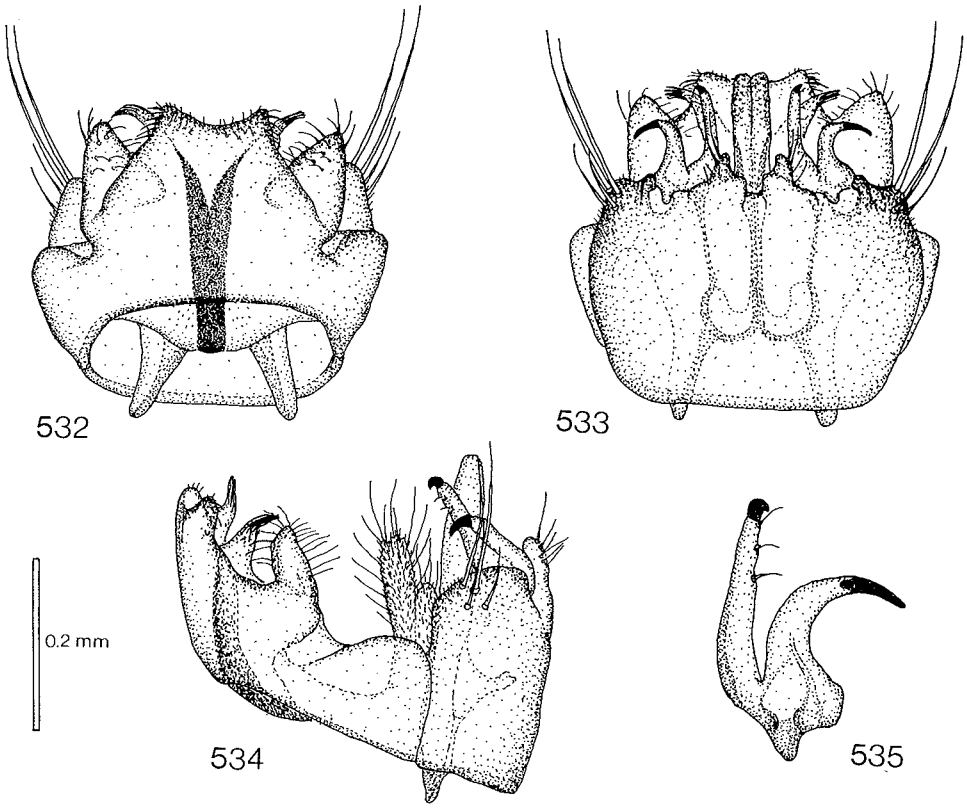
Mycomyia lindrothi Plassmann, 1981 (New synon.). Plassmann 1981:251.

Mycomyia lindrothi: Väisänen 1982b:40.

Type locality: Alpes-de-Haute Provence, ravin Valplane, Pessière (France).

Types: — *Mycomya hebrardi* Väisänen & Matile: Holotype (studied): Basses-Alpes, Pessière — Ravin Valplane 1700 m. 25.VII. 1972 Hebrard rec. Holotype. *Mycomya hebrardi* n. sp. ♂ holotype L. Matile det. 1974 (m MNHN). — *Mycomyia lindrothi* Plassmann: Holotype (not studied, but the paratype with the same data studied): Österreich, Tirol, Glockner, Guttal. In barberfalle, 29.VI.—11.VIII. 1978. Leg. K. Thaler (m ZSM). Type locality: Tirol, Glockner, Guttal (Austria).

Material examined: Italy: Aosta, Valnontey, 1620—1750 m, 10.VII. 1975, D. & L. Matile (1 m paratype of *M. hebrardi* MNHN); Aosta, Vallée de Rhêmes, 1880 m, 20.VII. 1975, L. Matile (1 m MNHN); Aosta, Comba



Figs. 532—535. *Mycomya hebrardi.* — 532: male hypopygium, tergal view. — 533: hypopygium, sternal view. — 534: hypopygium, lateral view. — 535: gonostylus. Scale 0.2 mm for Figs. 532—534, Fig. 535 2 x enlarged.

di Vertosan, 1900 m, 23.VII. 1975, D. & L. Matile (1 MNHN); Aosta, Bertolaz (Villeneuve), alt. 800 m, 5.VI. 1980, L. Matile (1 m MNHN). — France: Basses-Alpes, Pessière — ravin Valplane, 1700 m, 25.VII. 1972, Hebrard (holotype of *M. hebrardi* MNHN); Isola 2000, (06), Chemin Forestier, alt. 2000 m, 17.VII. 1976, J. Clastrier (1 m paratype of *M. hebrardi* MZH). — Austria: Tirol, Glockner, Guttal, VI (13), 29.VI.—11.VIII. 1978, K. Thaler (1 m paratype of *M. lindrothi* No. 10.489 A SENCK); Waldegg., Kowarz (1 m paratype of *M. hebrardi* LEN). — Hungary: Magas-Tátra, Poprádi-tó, 1500—1600 m, 3.VII. 1969, Mihályi (1 m TMB).

Description:

Head. Palp and other mouthparts yellow, face yellowish to light brownish, posterior parts of head dark brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, posteriorly brownish, with 3 brown, partially fused, longitudinal stripes, anterolateral corners yellow. Mesanepisternum light brownish to brownish. Mesokatepisternum entirely brownish or yellowish with ventral half brownish. Scutellum brownish with 2, occasionally 3, long setae. Laterotergite brownish. Mediotergite brownish, bare.

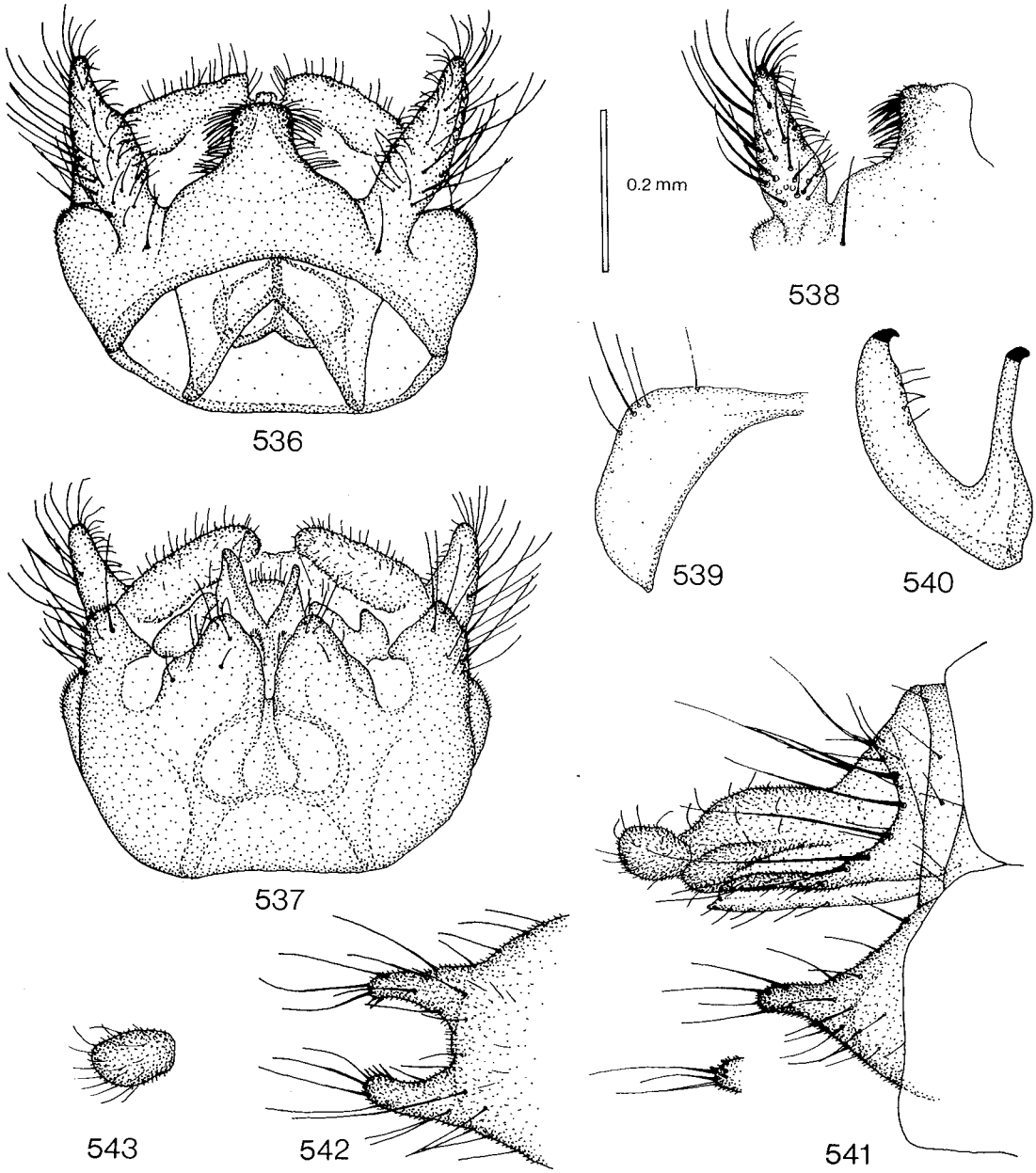
Legs. Coxae yellow, coxa 3 with distinct or indistinct brownish to brown spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1: = 1.14—1.19, bt2:t2 = 0.80—0.87, bt3:t3 = 0.66—0.70.

Wing. Wing length 4.4—5.6 mm. Wing hyaline. Sc1 apically broken or entirely missing, Sc2 ending in R1 near or slightly proximally to middle of small cell. Apical part of Sc bearing 0—10, usually less than 5, macrotrichia. Small cell about twice as long as wide. Cu fork below or slightly proximal to M fork. M ratios: 0.57—0.67, 0.67—0.80. Cu ratios: 0.65—0.71, 0.87—1.04. Macrotrichia: M petiole: 0—few; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with narrow yellow lateral and posterior margins, 6—7 brownish to brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 532—535, yellowish. Processus very wide. Tergal lateral appendage wide, short, with short setae. Sternal synsclerite with some setae on both sides, without lateral appendages. Sternal submedian appendage short, with some small setae. Gonostylus with 2 branches, both with apical tooth. Aedeagus comparatively long, slender, apically bilobed.

Female. Unknown.



Figs. 536—543. *Mycomya difficilis.* — 536: male hypopygium, tergal view. — 537: hypopygium, sternal view. — 538: processus and tergal lateral appendage. — 539: tergite 8. — 540: gonostylus. — 541: female terminalia, lateral view. — 542: hypogynal valves, sternal view. — 543: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 536—539 and 541—543, Fig. 540 2 x enlarged.

Distribution: Western Palaearctic. Mountains of Central Europe: Italy, France, Austria, Hungary. Altitudes 1500—2000 m.

Biology: Unknown.

Mycomya difficilis Garrett, 1924
Figs. 536—543, key p. 35, 42.

Mycomya difficilis Garrett, 1924. Garrett 1924:65; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia difficilis: Coher 1959:124.

Type locality: British Columbia, Cranbrook (Canada).

Type: Lectotype (studied) by present designation: Cranbrook BC 2.V. 18. C. Garrett Collector. 5257. G. *difficilis* ♂ *My difficilis*. (m CNC).

Material examined: Canada: B. C., Cranbrook, 2.V. 1918, C. Garrett (lectotype, f paralectotype CNC); same locality, 29.IV. 1918, C. Garrett (1 m paralectotype "*Mycomya difficilis* holotype" No 5257 CNC); same locality, farm, 4000 ft., C. Garrett (1 m hypop. slide paralectotype No. 49.75 USNM).

Remarks: The specimen labelled as holotype has not been designated as lectotype, because the other male specimen is in much better condition. In his original description of this species Garrett says clearly that the description is based on 6 males and 1 female, and the holotype was not selected by him.

Description:

Head. Palp and other mouthparts yellowish, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellowish, with 5—6 longer setae. Mesoscutum brownish to brown, without distinct markings. Mesanepisternum brown. Mesokatepisternum brownish to brown. Scutellum brownish with 4 long setae. Laterotergite brownish to brown. Mediotergite brownish to brown, bare.

Legs. Coxae yellowish, coxa 3 with brownish spot on lateral surface, femora yellowish, tibiae and tarsi brownish. Coxa 1 with some long thin setae along inner surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.92—0.94, bt2:t2 = 0.74—0.75, bt3:t3 = 0.67.

Wing. Wing length 5.0 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 0—5 macrotrichia. Small cell about twice as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.63—0.76, 0.80—0.89. Cu ratios: 0.60—0.66, 0.90—0.96. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown or tergites 1—6 brown with posterior fourths or fifths yellow, 7 brown. Sternites 1—5 yellowish with posterior margins yellow, 6—7 brownish with posterior margins yellow.

Hypopygium. Figs. 536—540, yellow. Processus broad comparatively short. Tergal lateral appendage longer than processus. Sternal synsclerite with some setae on both sides. Sternal submedian appendage very short, with some small setae. Gonostylus with 2 branches, both with apical tooth, very slender lateral branch slightly shorter than medial one. Aedeagus comparatively long, slender.

Female. Wing length 4.5 mm. Abdomen brown with posterior margins, fourths of tergites and thirds of sternites yellow. Leg ratios: bt1:t1 = 0.75, bt2:t2 = 0.61, bt3:t3 = 0.64. Terminalia as in Figs. 541—543, yellow.

Remarks: Wing anomaly: R4 missing on one wing (female).

Distribution: Western Nearctic. Canada: British Columbia. Known only from the type locality, Cranbrook.

Biology: Unknown.

Mycomya pygmalion n. sp.

Figs. 544—546, key p. 35.

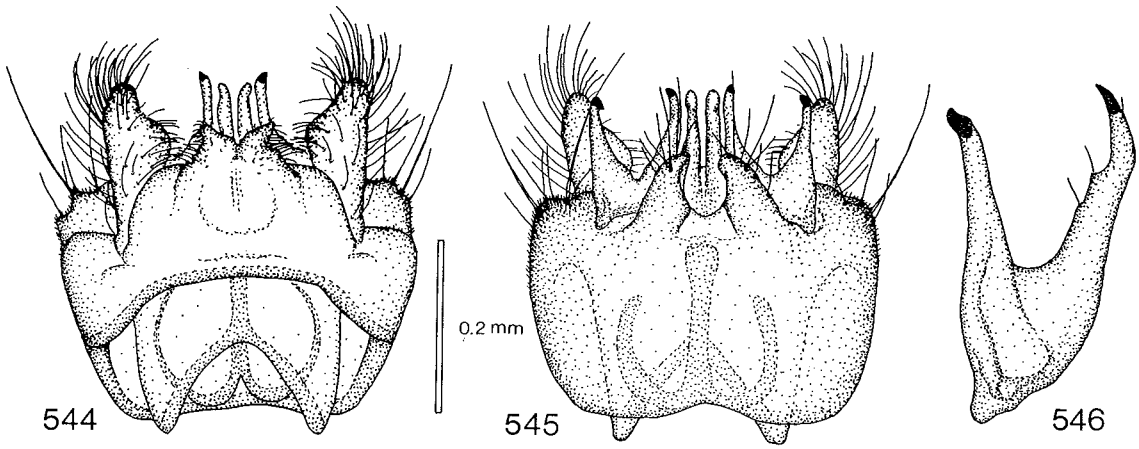
Type locality: Cyprus, Stavros.

Type: Holotype (studied): Stavros 3000 ft., Cyprus P. A. Buxton March 1953. *Mycomyia* sp. nov. LNK. (m BMNH).

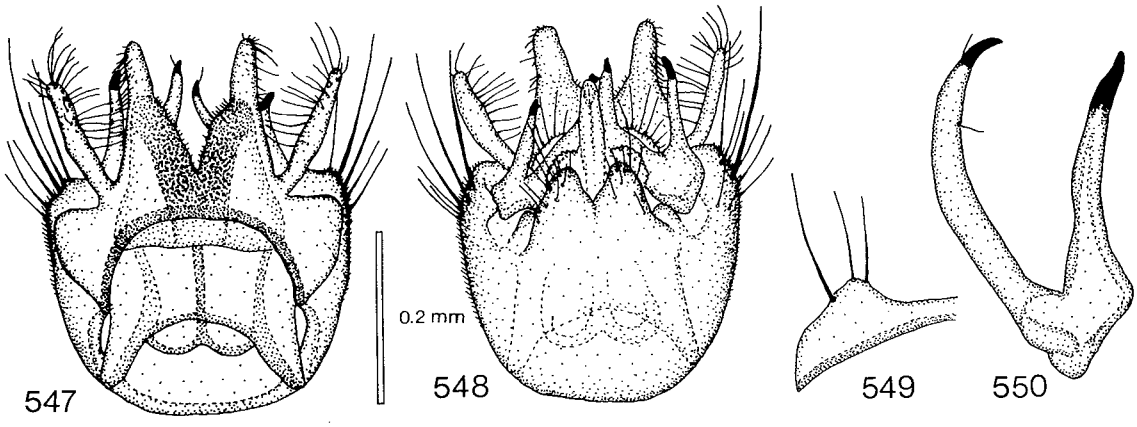
Material examined: Cyprus: Holotype (BMNH).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brownish to brown. Antenna brownish, scape, pedicel and base of 1st flagellomere slightly paler. 1st flagellomere 3 times, 2nd twice as long as wide.



Figs. 544—546. *Mycomya pygmalion*. — 544: male hypopygium, tergal view. — 545: hypopygium, sternal view. — 546: gonostylus. Scale 0.2 mm for Figs. 544—545, Fig. 546 2 x enlarged.



Figs. 547—550. *Mycomya muscovita.* — 547: male hypopygium, tergal view. — 548: hypopygium, sternal view. — 549: tergite 8. — 550: gonostylus. Scale 0.2 mm. for Figs. 547—549, Fig. 550 2 x enlarged.

Thorax. Pronotum yellowish, with brownish spot, with 4 longer setae. Mesoscutum brownish, with 3 brown indistinct longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish, ventral half brown. Scutellum yellow, with 4 long setae. Laterotergite brownish, ventral part brown. Mediotergite brownish, lateral and posterior parts brown, bare.

Legs. Coxae yellowish, femora yellowish, tibiae and tarsi brownish. Coxa 1 with some thin setae in sparse row along anterolateral surface. Coxa 2 with long curved spur. Leg ratios: bt1:t1 = 0.94.

Wing. Wing length 5.0 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing about 13 macrotrichia. Small cell twice as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.66, 0.79. Cu ratios: 0.51, 0.80. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with narrow posterior margin yellowish, 6—7 brown. Sternites lighter than tergites.

Hypopygium. Figs. 544—546, yellowish. Processus wide, short, apically slightly bilobed. Tergal lateral appendage wide, longer than processus. Sternal synsclerite with 3—4 setae on both sides, without lateral appendages. Gonostylus with 2 branches, lateral branch almost as long as medial one, both with apical tooth. Aedeagus long, slender, apically bilobed.

Female. Unknown.

Distribution: Known only from the holotype from Cyprus. Georghiou (1977) lists only three mycetophilid species from that island: *Exechia* sp., *Leia bimaculata* Mg. and *Mycetophila lineola* Mg.

Biology: Unknown.

Mycomya muscovita n. sp.

Figs. 547—550, key p. 34.

Type locality: Idaho, Latah County, Moscow Mt. (USA).

Type: Holotype (studied): Ida: Latah Co. Moscow Mt. VI-29-1971, W. J. Turner Collector (m WASH).

Material examined: Canada: B. C., Kimberly, St. Mary's Lake, 10.VI., C. Garrett (1 m hypop. slide No. 25.63 "*Mycomyia* acclinus" USNM); B. C., Cranbrook, 12.V., C. Garrett (1 m hypop. slide No. 5042 "*Mycomyia* acclinus" USNM). — USA: Ida., Latah Co., Moscow Mts., 29.VI. 1971, W. J. Turner (holotype WASH).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brownish, scape, pedicel and basal half of 1st flagellomere yellow. 1st flagellomere 2.5—3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum brown, anterolateral corners light brownish. Mesanepisternum brown. Mesokatepisternum brown, ventral half dark brown. Scutellum brown, with 4 long setae. Laterotergite brown, ventral part dark brown. Mediotergite brown, bare.

Legs. Coxae yellow, coxa 3 with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = ?, bt2:t2 = 0.77, bt3:t3 = 0.67.

Wing. Wing length 4.7 mm. Wing hyaline. Sc ending in R1 near middle of small cell, Sc1 missing. Apical part of Sc bearing 10 macrotrichia. Small cell slightly longer than wide. Cu fork slightly proximal to M fork. M ratios: 0.53, 0.64. Cu ratios: 0.75, 1.13. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, without distinct markings, posterior and lateral margins very slightly paler, 6—7 brown. Sternites slightly lighter than tergites.

Hypopygium. Figs. 547—550, yellow with darker area on tergite. Processus deeply bilobed. Tergal lateral appendage long slender. Sternal synsclerite with 3—4 setae on both sides, without lateral appendages. Sternal submedian appendage short, wide, with small setae. Gonostylus with 2 branches, branches about equally long, both with apical tooth. Aedeagus with brush of spines.

Female. Unknown.

Distribution: Western Nearctic. Canada: British Columbia. USA: Idaho.
Biology: Unknown.

Mycomya wirthi n. sp.
Figs. 551—553, key p. 34.

Type locality: New Hampshire, Mount Washington (USA).
Type: Holotype (studied): Mt. Washington VII. 8. 14 N. H 3000 ft (m PU).
Material examined: N. H., Mt. Washington, small creek, 3000′, 29.VII. 1961, W. W. Wirth (1 m USNM); same locality and elevation, 8.VII. 1914 (holotype PU).

Description:
Head. Palp and other mouthparts yellow, face brownish, posterior parts brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd about 1.5 times as long as wide.
Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum light brownish, without distinct markings, anterolateral corners yellow to yellowish. Mesanepisternum yellow. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellowish to light brownish, with 2 long setae. Laterotergite yellowish to light brownish, ventral part brownish. Mediotergite yellowish to brownish, posterior and lateral parts darker, brownish, bare.
Legs. Coxae yellow to yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.24—1.52, bt2:t2 = 0.79—0.84, bt3:t3 = 0.64—0.67.
Wing. Wing length 4.3—4.4 mm. Wing hyaline. Sc ending in R1 distally to middle of small cell, Sc1 apically broken or entirely missing. Apical part of Sc bearing 7—9 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork below or slightly proximal to M fork. M ratios: 0.61—0.71, 0.77—0.95. Cu ratios: 0.76—0.80, 1.19—1.33. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Tergites 1—5 brownish, with yellow posterior and lateral margins, 6—7 brownish. Sternites 1—5 yellowish, 6—7 brownish.

Hypopygium. Figs. 551—553, yellow. Processus comparatively long and narrow, apically bilobed. Tergal lateral appendage long and slender. Sternal synsclerite with some setae on both sides, without lateral appendages. Sternal submedian appendage very wide, comparatively long, with many setae. Gonostylus with 2 branches, lateral branches slightly longer than medial ones, both with apical tooth. Aedeagus with brush of spines.

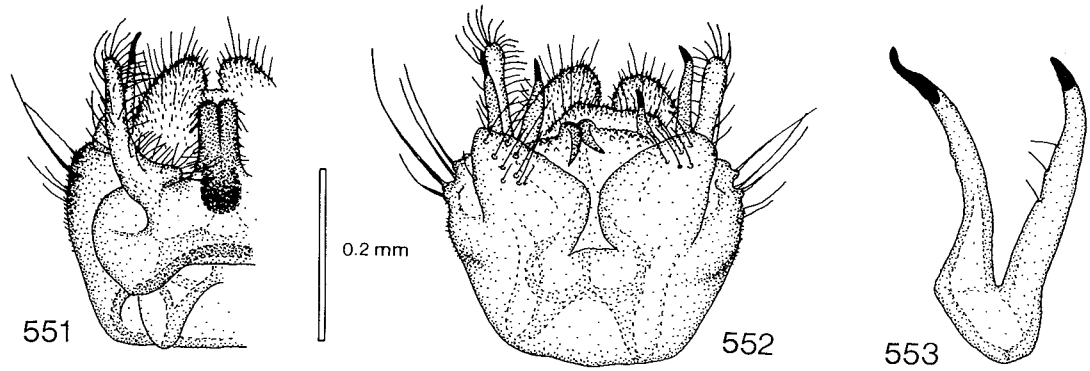
Distribution: Eastern Nearctic. Known only from Mt. Washington, New Hampshire (USA).
Biology: Unknown. One specimen collected in small creek.

Mycomya hians (Lundström, 1912)
Figs. 554—560, key p. 36, 42.

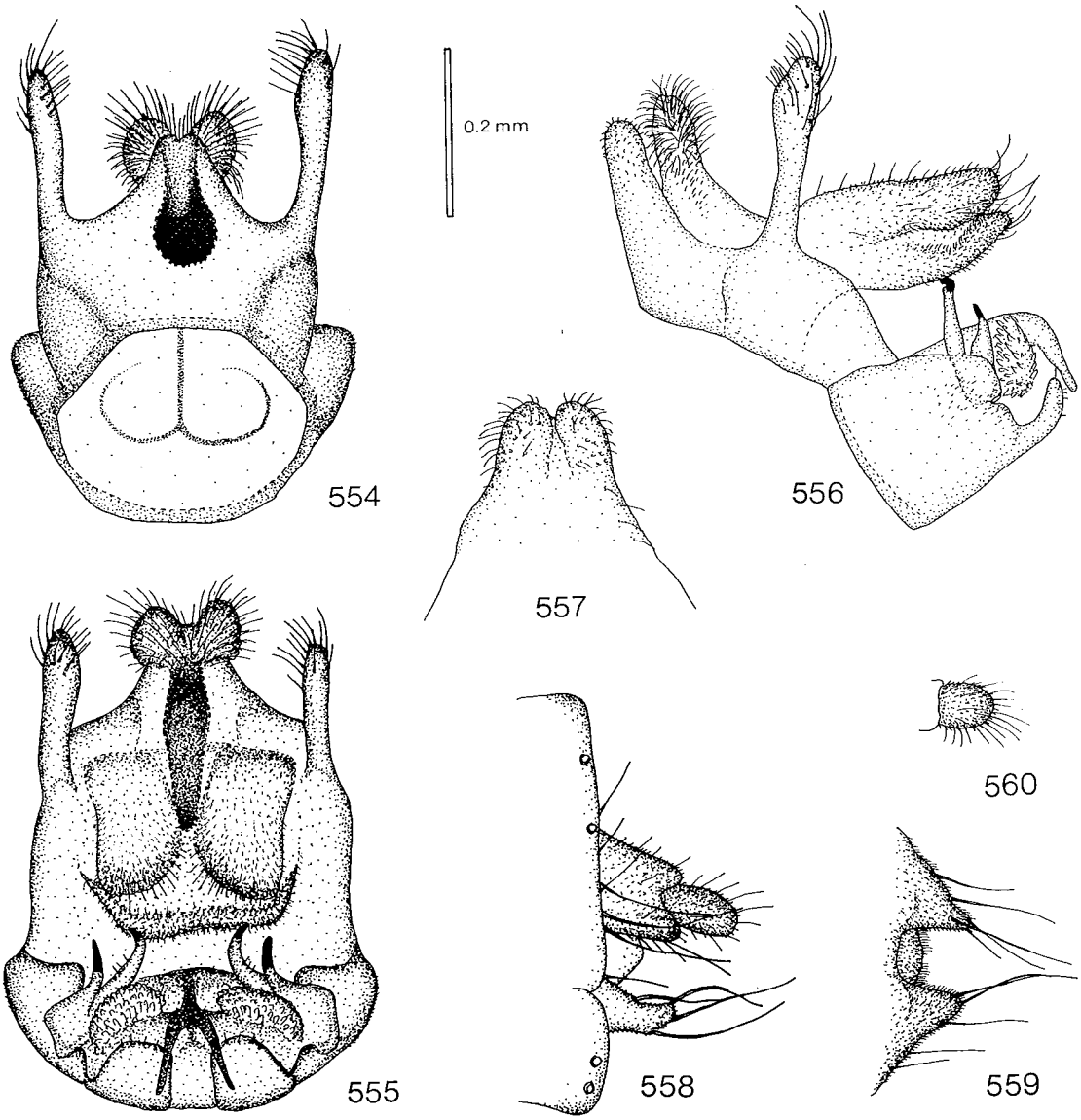
Sciophila hians Lundström, 1912. Lundström 1912a:12.
Mycomyia hians: Landrock 1926—1927:47; Lackschewitz 1937:10; Frey & Storå 1941:46; Plassmann 1977b:9, 1978c:48.
Mycomya hians: Väisänen 1982b:39.

Type locality: Kittilä (Finland).
Type: Holotype (studied): Mus. Zool. H:fors Spec. typ. No 4276. *Sciophila hians* Lun. *S. hians* Lundstr. 5494. R. Frey. Kittilä (m MZH).
Material examined: Austria: Arlberg Pass, 21.VII. 1971, A. E. Stubbs (1 m BMNH). — FRG: Birgsau/Allgäu, 12—25.IX. 1974, H. Mendl (1 m No. 8905 ZSM). — Finland: *Ab:* Vihti, Vihtijärvi, 5.VII. 1962, 8.VII. 1962, 14.VII. 1962, 29.VI. 1963, R. Tuomikoski (4 mm MZH); *Ok:* Sotkamo, 8.VIII. 1962, A. V. V. Mikkola (1 m MZH); same data, 14.VIII. 1962 (1 m 1 f MZH); *LkW:* Kittilä, 4.VIII. 1911, R. Frey (holotype MZH). — USSR: Leningrad. o., Luzhsk., Tolmachevo, 18.VI. 1938, Stackelberg (1 m LEN).

Description:
Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brownish. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5 times, 2nd twice as long as wide.
Thorax. Pronotum yellow, with 3—4 longer setae.



Figs. 551—553. *Mycomya wirthi.* — 551: male hypopygium, tergal view. — 552: hypopygium, sternal view. — 553: gonostylus. Scale 0.2 mm for Figs. 551—552, Fig. 553 2 x enlarged.



Figs. 554—560. *Mycomya hians*. — 554: male hypopygium, tergal view. — 555: hypopygium, sternal view. — 556: hypopygium, lateral view. — 557: processus. — 558: female terminalia, lateral view. — 559: hypogynal valves, sternal view. — 560: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 554—556 and 558—560, Fig. 557 2 x enlarged.

Mesoscutum yellowish, with 3 indistinct light brown longitudinal stripes. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellow, with 2 long, and occasionally 1 short, setae. Laterotergite yellowish, ventral part brownish. Mediotergite yellowish, bare.

Legs. Coxae yellow, coxa 3 sometimes slightly yellowish, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.12—1.25, bt2:t2 = 0.84—0.89, bt3:t3 = 0.63—0.65.

Wing. Wing length 4.0—5.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc1 occasionally apically broken, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 3—12 macrotrichia. Small cell about twice as long as wide. Cu fork almost below or slightly proximal to M fork. M ratios: 0.57—0.70, 0.68—0.74. Cu ratios: 0.76—0.77, 1.04—1.17. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 light brownish, lateral and posterior margins yellowish, 6—7 brown. Sternites yellowish, lighter than tergites.

Hypopygium. Figs. 554—557, yellow, with brown tergal area. Processus short, broad, apically slightly bilobed. Tergal lateral appendage comparatively long, slender, with some apical setae. Sternal lateral appendage missing, sternal synsclerite with about 6 setae on both sides. Sternal submedian appendage short, wide with some small setae. Gonostylus with 2 branches, both with apical tooth. Aedeagus long, curved, bilobed, with brushes of spines.

Female. Wing length 4.5 mm. Thorax light brownish, pleurites lighter than in male. Abdomen light brownish, tergites 1—5 with posterior margins yellow. Leg ratios: bt1:t1 = 1.27, bt2:t2 = 0.84, bt3:t3 = 0.67. Terminalia as in Figs 558—560, yellow.

Distribution: Western Palaearctic. Austria, Federal Republic of Germany, Finland. USSR: Leningrad region. Lackschewitz (1937) reported this species from the Latvian SSR.

Biology: Unknown.

Mycomya rosalba Hutson, 1979

Figs. 561—563, key p. 35.

Mycomya rosalba Hutson, 1979. Hutson 1979:131; Hutson et al. 1980:43; Väisänen 1982b:41.

Type locality: N. Yorks, Scargill (England).

Type: Holotype (studied): Yorks N. Scargill 16. vi. 1977 P. J. Chandler alderwood by stream. Holotype. *Mycomya rosalba* Hutson. (m BMNH).

Material examined: UK: Holotype (BMNH).

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellowish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellowish, with 3 brown longitudinal stripes, middle stripe with narrow yellowish medial band. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half light brownish. Scutellum yellowish, with 4 long setae. Laterotergite yellowish, ventral part light brownish. Mediotergite yellowish, bare.

Legs. Coxae yellow, coxa 3 with brown spot in middle on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt2:t2 = 0.73, bt3:t3 = 0.60.

Wing. Wing length 5.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 10—18 macrotrichia. Small cell about twice as long as wide. Cu fork almost below M fork. M ratios: 0.55, 0.67. Cu ratios: 0.75, 1.03. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish, with posterior margins yellow, 6—7 brownish. Sternites slightly lighter than tergites.

Hypopygium. Figs. 561—563, yellow, with dark area on tergal portion. Processus broad. Tergal lateral appendage long, slender, with some setae. Sternal synsclerite with 3 setae on both sides, without lateral appendages. Gonostylus with 2 branches, medial branch slightly longer than lateral one, both with apical tooth.

Female. Unknown.

Remarks: According to Hutson (1979), fore-tibia slightly shorter than basitarsus.

Distribution: Western Palaearctic. So far known only from the holotype from N. Yorks, England.

Biology: Collected in alder wood *(Alnus)* by streams.

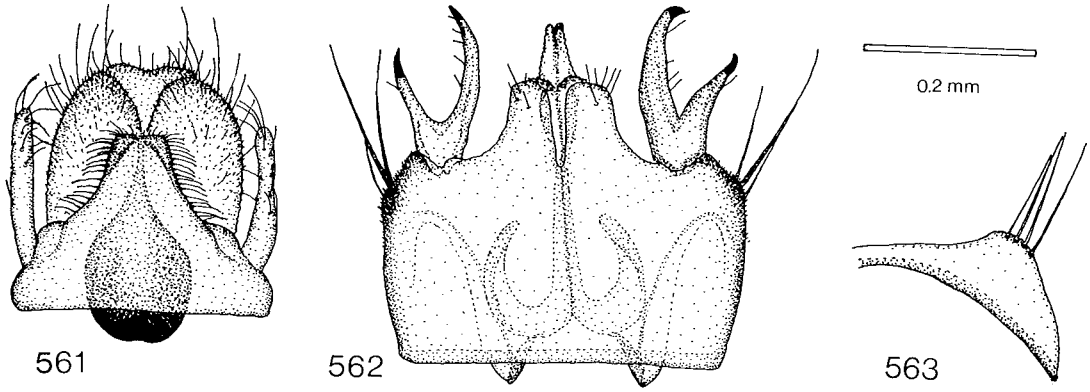
Mycomya abegena n. sp.

Figs. 564—566, key p. 36.

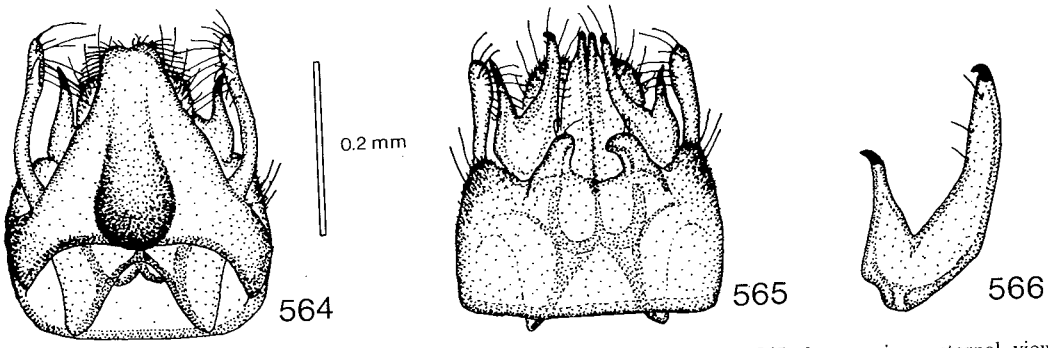
Type locality: Alberta, Laggan (Canada).

Type: Holotype (studies): Laggan, Alta. July 26, 1928 O. Bryant. Owen Bryant Collection. Collection of the California Academy of Sciences, San Francisco, Calif. (m CAS).

Material examined: Canada: B. C., Kimberly, St. Mary's Lake, 29.VIII., C. Garrett (3 m hypop. slides



Figs. 561—563. *Mycomya rosalba.* — 561: tergal part of male hypopygium, tergal view. — 562: sternal part of hypopygium, sternal view. — 563: tergite 8. Scale 0.2 mm.



Figs. 564—566. *Mycomya abegena*. — 564: male hypopygium, tergal view. — 565: hypopygium, sternal view. — 566: gonostylus. Scale 0.2 mm for Figs. 564—565, Fig. 566 2 x enlarged.

No. 48.41, 2582, 2568 "*Mycomyia abegena*" USNM); same data, 2.VIII. (1 m hypop. slide No. 5032 "*M. abegena*" USNM); same data, 10.VI. (2 m hypop. slides No. 5033, 2587 "*M. abegena*" USNM); Alta, Laggan, 26.VII. 1928, O. Bryant (holotype CAS). — USA: Washington, Yakima Co., 8 mi. SW Tieton RS, Snoqualmie NF, Bear Crk, 11—12.VI. 1973, M. Jackson (1 m WASH); IDA., Moscow Mts, 15—17.VI. 1969, Malaise trap, H. S. Telford (1 m WASH); Cal., Marin Co., Alpine Lk., Lily Pond, 1500′, 18.II. 1969, 8.III. 1969, Malaise trap (2 mm CNC); same locality, 1500′, IV—V. 1970, Malaise trap, D. D. Munroe (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd almost twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow to yellowish, with 3 indistinct light brownish to brownish more or less fused longitudinal stripes, or the lateral stripes brown and the medial one light reddish brown, anterolateral corners of mesoscutum yellow. Mesanepisternum yellowish to light brownish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellowish to brownish, with 2 long setae. Laterotergite yellowish to brownish, ventral part darker. Mediotergite yellowish to brownish, bare.

Legs. Coxae yellow, coxa 3 yellowish to brownish, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.13—1.14, bt2:t2 = 0.78—0.80, bt3:t3 = 0.63—0.66.

Wing. Wing length 4.5—5.9 mm. Wing hyaline. Sc ending in R1 proximally — distally to middle of small cell, Sc1 broken or entirely missing. Apical part of Sc bearing 4—20 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork slightly proximal to or almost below M fork. M ratios: 0.53—0.61, 0.67—0.77. Cu ratios: 0.68—0.76, 1.04—1.17. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites brownish with or without paler posterior margins, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 564—566, yellow, with dark tergal area. Processus wide, long. Tergal lateral appendage long, very slender. Sternal synsclerite with some setae on both sides, without lateral appendages. Sternal submedian appendage short, wide, with some small setae. Gonostylus with 2 branches, medial branch slightly longer than lateral one, both with apical tooth.

Female. Unknown.

Remarks: The Californian specimens are distinctly larger than the holotype from Alberta: wing length 5.5—5.9 mm, holotype 4.5 mm.

Distribution: Western Nearctic. Canada: British Columbia, Alberta. USA: Washington, Idaho, California.

Biology: Unknown. Several specimens collected with Malaise trap.

Mycomya fornicata (Lundström, 1911)

Figs. 567—577, key p. 36, 42.

Sciophila fornicata Lundström, 1911. Lundström 1911:395.

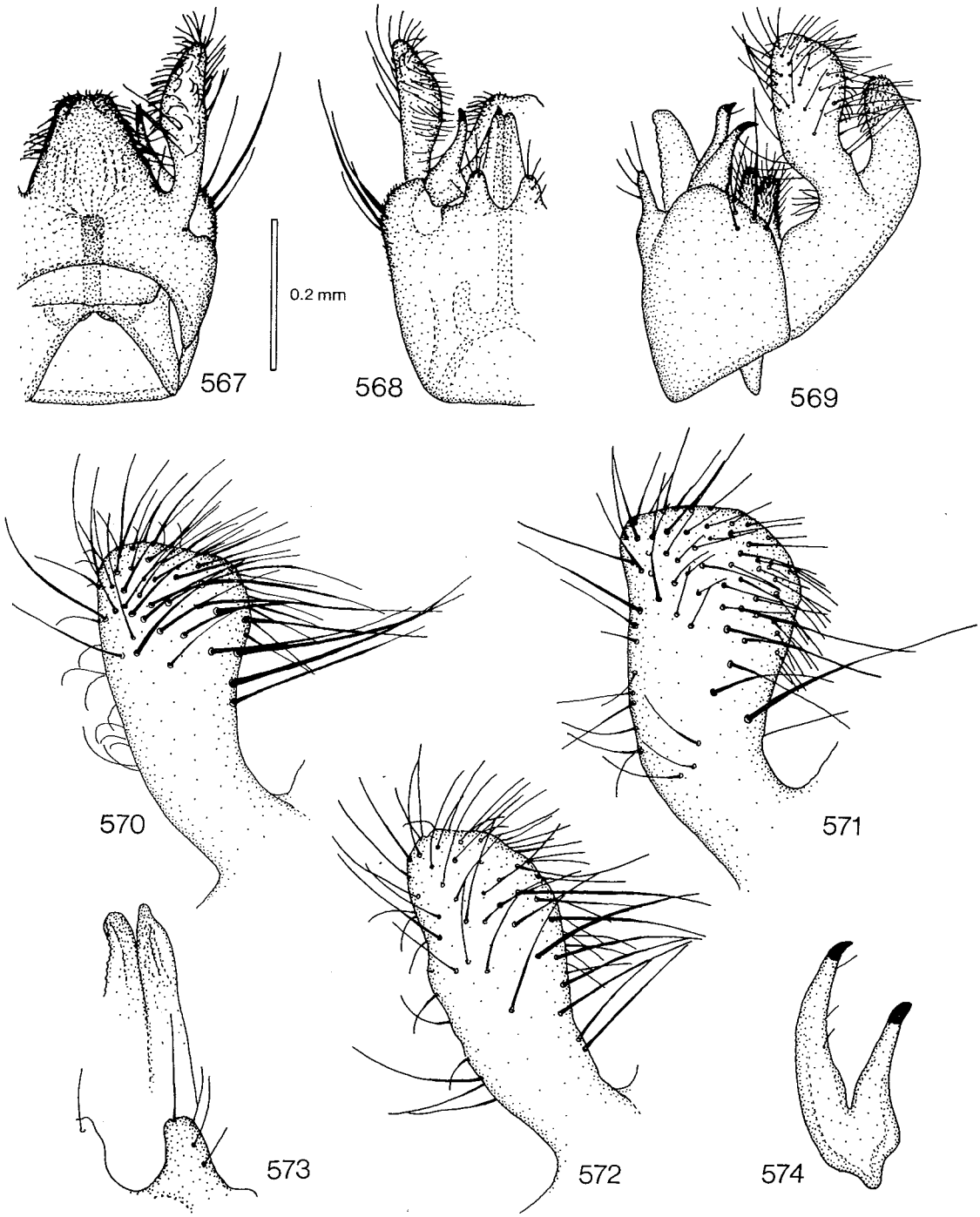
Mycomyia fornicata: Landrock 1926—1927:46; Matile 1972:76; Ostroverchova & Zaitseva 1979:73; Ostroverchova 1979:67.

Mycomya fornicata: Matile 1977:633; Väisänen 1982b:39.

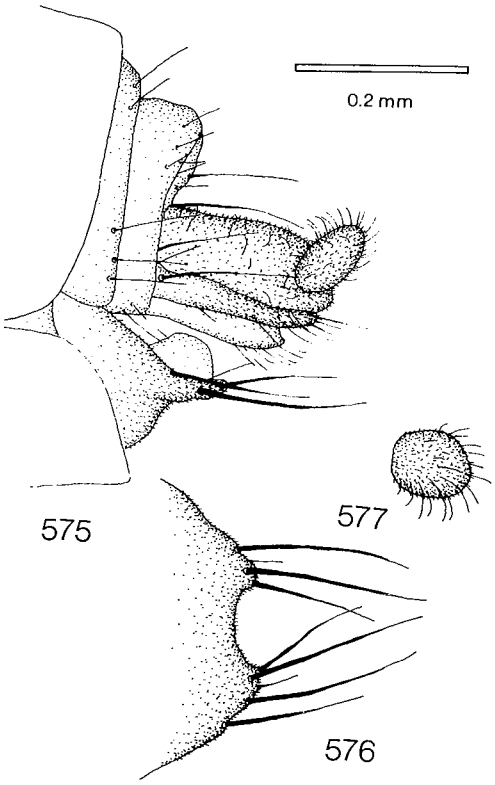
Type locality: "Carinthia, Dobracz" (Austria).

Type: Lectotype (studied) by present designation: Carinthia, Dobracz. Palmén. 3862. *Sciophila fornicata* ♂ Lundstr. Mus. Zool. H:fors Spec. typ. No 4767 *Mycomyia fornicata* Lundström. Lectotypus *Sciophila fornicata* Lundström ♂ (m MZH).

Material examined: Italy: Aosta, Vallée de Cogne, P. N. G. P., Valnontey, alt. 1650 m, 21.IX. 1974, L. Matile (9 mm 25 ff MNHN, 1 f MZH); Aosta, Vallée de Rhêmes, alt. 1900—2000 m, 8.IX. 1978, L. Matile (6 mm MNHN, 1 m MZH); same locality, 1880 m, 20.VII. 1975, L. Matile (2 mm MNHN, 1 m MZH); Aosta, Piano di Sylvenoire, 1600 m, 24.VII. 1975, L. Matile (3 mm MNHN); same locality, 1600—1650 m, 15.VII. 1975, D. & L. Matile (1 m MNHN); Aosta, Eau Rousse (Valsavaranche), alt. 1600 m, 4.IX. 1978, L. Matile (3 mm 8 ff MNHN, 1 f MZH); Aosta, Valgrisanche,



Figs. 567—574. *Mycomya fornicata.* — 567: male hypopygium, tergal view. — 568: hypopygium, sternal view. — 569: hypopygium, lateral view. — 570—572: tergal lateral appendages (570: USSR, Yakutia; 571: Italy, Aosta; 572: Austria, Obertilliach). — 573: sternal submedian appendage and apex of aedeagus. — 574: gonostylus. Scale 0.2 mm for Figs. 567—569, Figs. 570—574 2 x enlarged.



Figs. 575—577. *Mycomya fornicata*. — 575: female terminalia, lateral view. — 576: hypogynal valves, sternal view. — 577: apical segment of cercus, sternal view. Scale 0.2 mm.

Chamencon, alt. 1280 m, 12.IX. 1974, L. Matile (1 f MNHN); Aosta, Comba di Vertosan (Jovençan), alt. 1800 m, 15.IX. 1974, L. Matile (1 m MNHN). — Austria: Carinthia, Dobracz, 1870, Palmén (lectotype, 1 m paralectotype No. 4768 MZH); Obertilliach, 29.VII. 1951, R. Frey (1 m MZH); Salisburg, Gastein, 12.VIII. 1867, Mik (6 mm WIEN); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 26.VII. 1972, 31.VII.—1.VIII. 1972, 6—7.VIII. 1972, Malaise trap, A. C. & B. Pont (3 mm BMNH). — USSR: Yakutiya, Aldanskij r-n, Nagorhyj, 3.IX. 1974, Gorodkov (1 m LEN), Yakutiya, Aldan, smeshannyj les, 29.?. 1974, Gorodkov (1 m LEN); 17 v. II stanka Amginsk-Yakut. trakt, 14.VIII. 1925, L. Bianki (1 m "*M.* divaricata" LEN); Oz. Bajkal, Listvenichnoe, 13.VI. 1941, Chernovekij (1 m LEN); Bajk., Listvenichnoe, m Cheremshan., 14.VI. 1941, Chernovekij (1 m LEN); Klimoutsy Amur. obl., 40 km W Svobodhogo, dubobo-listvennichn les, 25.VIII. 1958, Zinov'ev (1 m LEN); ?Alpakhaj, Bal'. zino, Chit. u.?Zab. (? vic. Chita, East Siberia), 8.VIII. 1925, Vinogr. (2 mm LEN).

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere almost 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellowish to brown, with 3 dark brown longitudinal stripes, anterolateral corners yellowish. Mesanepisternum brownish. Mesokatepisternum brownish to brown. Scutellum brownish to brown, with 2 long setae. Laterotergite brownish to brown. Mediotergite brownish to brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae on anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.30—1.48, bt2:t2 = 0.86—0.90, bt3:t3 = 0.67—0.77.

Wing. Wing length 3.9—5.0 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, usually Sc1 broken, sometimes entirely missing, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 0—5, usually 0 or 1 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to or below M fork. M ratios: 0.64—0.81, 0.87—0.95. Cu ratios: 0.67—0.78, 1.04—1.26. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely dark brown or sometimes tergites 1—5 with narrow indistinct yellowish posterior margins. Sternites yellowish to brownish.

Hypopygium. Figs. 567—574, yellowish to brownish. Processus wide long dark. Tergal lateral appendage light slightly longer than processus. Sternal synsclerite with a few long setae, without lateral appendages. Sternal submedian appendage short wide with some small setae. Gonostylus with 2 branches, both with apical tooth. Aedeagus long, slender, apically bilobed.

Female. Wing length 4.5—5.6 mm. Coloration as in male. Sometimes with 1 seta on mediotergite. Leg ratios: bt1:t1 = 1.20—1.32, bt2:t2 = 0.84—0.91, bt3:t3 = 0.68—0.72. Terminalia as in Figs. 575—577, yellow.

Remarks: Wing length in males: European specimens: 4.1—5.0 mm, mean 4.60 mm, SD 0.28, N= 23; Asiatic specimens: 3.9—4.6 mm, mean 4.29 mm, SD 0.23, N=9. European females are larger than males: mean 4.93, SD 0.35, N=9. Some variation can be seen in the shape and in the relative length of the setae of the tergal lateral appendages of the male hypopygium (see Figs. 570—572).

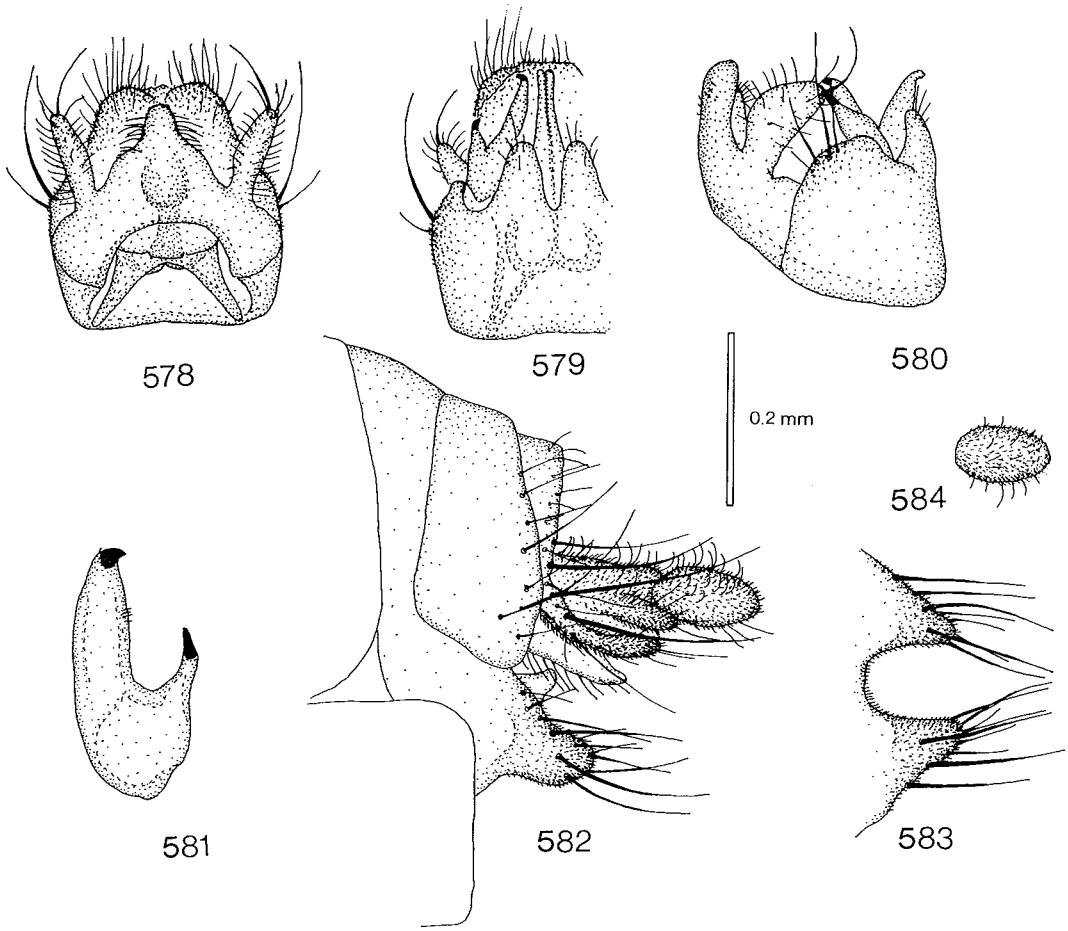
Distribution: Palaearctic. The Alps: Italy (altitudes 1280—2000 m), Austria. USSR: East Siberia, Far East. Also reported from France (Matile 1977). Ostroverchova (1979) erroneously listed this species from Finland also.

Biology: Unknown. Some specimens collected with Malaise trap.

Mycomya cinerascens (Macquart, 1826)

Figs. 578—584, key p. 36, 42.

Sciophila cinerascens Macquart, 1826. Macquart 1826:101, 1834:138; Meigen 1838:42; Zetterstedt 1838:860; Walker 1848:91; Zetterstedt 1852:4123, 4363; Osten-Sacken 1858:143; Zetterstedt 1860:6558; Winnertz 1863:722; Schiner 1864:444; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Siebke 1877:246; Dziedzicki 1885: Tab. VIII: Figs. 5—8 (Syn. *S. alacris* Winnertz, *S. inanis* Winnertz); Bobek 1890:(239); Czwalina 1893:2; Kowarz 1894:4; Strobl 1895:142, 1897:15; Thalhammer



Figs. 578—584. *Mycomya cinerascens.* — 578: male hypopygium, tergal view. — 579: hypopygium, sternal view. — 580: hypopygium, lateral view. — 581: gonostylus. — 582: female terminalia, lateral view. — 583: hypogynal valves, sternal view. — 584: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 578—580 and 582—584, Fig. 581 2 x enlarged.

1899:13; Rübsaamen 1901:96; Strobl 1901:11; Kertész 1902:58, 1903:31; Strand 1903:11; Sack 1907:11; Strobl 1909:241; Dziedzicki 1915:8; Stackelberg 1922:6; Morge 1974:171.

(p. p.) *Sciophila cinerascens:* Lundström 1907:9, 1909:11, 1912a:9 (p. p. = *M. shermani* Garrett).

Mycomya cinerascens: Landrock 1913:28; Dampf 1924:11; Hutson in Kloet & Hincks 1976:24; Chandler 1976:97; Matile 1977:633; Väisänen 1979a:47; Cole & Chandler 1979:51; Russel-Smith 1979:362; Väisänen in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:38.

Mycomyia cinerascens: Edwards 1921a:61; Wahlgren 1921:166; Edwards 1924b:161, 1925a:550; Landrock 1925a:33, 1926—1927:43; Edwards 1928a:160; Schmitz 1929:22; Riedel 1930:74; Landrock 1930:254; Edwards 1935b:1; Lackschewitz 1937:9; Barendrecht 1938:38; Karl 1939:53; Landrock 1940:29; Séguy 1940:72; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kröber 1956:131; Kidd in Kidd & Brindle 1959:72; Krogerus 1960:64; Sasakawa 1961:88; Coe 1962:96; Hackman 1963:54; Mikolajczyk 1967:21; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:23, 1970b:388, 1970c:394, 1971b:61, 80; Mikolajczyk 1971:371; Kidd 1971:20; Chandler 1974:14; Plassmann 1977b:8, 1978a:148, 1979:373; Joost & Plassmann 1979:369; Plachter 1979a:182, 1979b:282; Plassmann 1980a:177, 1980b:17.

(? p. p.) *Mycomyia cinerascens:* Ostroverchova 1971:94; Ostroverchova & Izotov 1974:82; Ostroverchova 1977:20; 1979:63 (p. p. = *M. shermani* Garrett).

Sciophila cinerascens var. *supposita* Strobl, 1900. Strobl 1900b:406; Kertész 1903:31; Strobl 1909:241.

(?) *Sciophila cinerascens* var. *inanis* Winn.: Lundström 1909:11.

(?) *Mycomyia cinerascens* var. *inanis:* Frey & Storå 1941:46.

Sciophila hyalinata Meigen, 1830 (New synon.). Meigen 1830:295; Edwards 1924a:14.

(not) *Sciophila hyalinata:* authors (= *M. neohyalinata* n. sp.).

(not) *Mycomya/Mycomyia hyalinata:* authors (= *M. neohyalinata* n. sp.).

Sciophila inanis Winnertz, 1863. Winnertz 1863:709; Schiner 1864:442; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Kowarz 1894:4; Strobl 1901:11; Kertész 1902:60, 1903:33.

Sciophila inanis var. *cinerascens:* Strobl 1895:142, 1901:11.

Sciophila inanis var. *alacris:* Strobl 1895:142, 1901:11.

Sciophila alacris Winnertz, 1863. Winnertz 1863:710; Schiner 1864:443; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Kowarz 1894:4; Kertész 1902:57, 1903:31.

Mycomyia var. *alacris:* Kröber 1956:131.

Mycomya sequax Johannsen, 1910 (New synon.). Johannsen 1910:172; Shaw & Fisher 1952:189, 190; Laffoon in Stone et al. 1965:221.

Mycomyia sequax: Fisher 1937:391; Coher 1959:125.

Mycomya incompta Johannsen, 1910 (New synon.). Johannsen 1910:186; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia incompta: Coher 1959:126.

Type locality: Not stated (Northern France).

Types: — *Sciophila cinerascens* Macquart: Types not located, apparently destroyed. — *Sciophila cinerascens* var. *supposita* Strobl: Lectotype (studied) by present designation: 7. *Sc. cinerasc.* v. *supposita m* ♂ Spanien Strobl. (m STROBL): Type locality: Brincola (Spain). — *Sciophila hyalinata* Meigen: Holotype (studied): Meigen. *hyalinata* ♂. *Mycomyia hyalinata* Mg. = *cinerascens* Zett. F. W. Edwards det. 1922 (f MNHN). Type locality: Aachen (Federal Republic of Germany). — *Sciophila alacris* Winnertz: Types not located, apparently destroyed. Type locality: Not stated (? Federal Republic of Germany). — *Sciophila inanis* Winnertz: Types not located, apparently destroyed. Type locality: Not stated (? Federal Republic of Germany). — *Mycomya sequax* Johannsen: Lectotype (studied) by present designation: Ithaca, N. Y. 10. July'01 O. A. Johannsen. ♂ Holotype *Mycomya sequax* Johannsen. O. A. Johannsen Lot 256 Sub ? slide Cornell U. Holotype Cornell U. No. 1974. (m CORN). Type locality: New York, Ithaca (USA). — *Mycomya incompta* Johannsen: Lectotype (studied) by present designation: Ithaca, N. Y. Sept. 01 O. A. Johannsen. ♀ Holotype *Mycomya incompta* Johannsen. O. A. Johannsen Lot 260 Sub Cornell U. Holotype Cornell U. No. 1980. (f CORN). Type localities: Originally: Selkirk Mts. (Canada); Ithaca, N. Y.; Capen, Maine (USA). By present designation: New York, Ithaca (USA).

Remarks: For *S. hyalinata* Meigen, see also remarks on *M. neohyalinata* n. sp. (p. 000).

Material examined: Algeria: Rocher Blanc, J. Surcouf (1 m MNHN). — Spain: Dist. of Madrid, Cercedilla, 27.IX. 1950, F. Schmid (1 m ISU); Spanien, Coll. Strobl (*Sciophila cinerascens* var. *supposita* lectotype, 3 mm paralectotypes STROBL). — France: Corse, Forêt d'Aitone, alt. 1000—1200 m, 30.V. 1972, L. Matile (1 m MNHN); Corse, Forêt de Pineta, Zipitoli, 19.VI. 1972, L. Matile (1 m 1 f MNHN); Corse, bord de ruisseau, maquis de l'Ospèdale, 7.VI. 1972, L. Matile (1 m 1 f MNHN); Corse, Forêt de Chiavari, alt. 450 m, 18.VI. 1972, L. Matile (2 mm 2 ff MNHN); Corse, Forêt de Zonza, alt. 750 m, 6.VI. 1972, L. Matile (2 mm 3 ff MNHN); Corse, Gorges de la Restonica, 1.VI. 1972, L. Matile (2 mm 2 ff MNHN); Corsica, Tavignano Forest, 10—25.IV. 1928, F. W. Edwards (1 m BMNH); Isola 2000, (06), alt. 2000 m, chemin forestier, 17.VII. 1976, J. Clastrier (2 ff MNHN); Bellevue (Avrillac), (44), 3.IX. 1977, L. Matile (1 m MNHN); Marcilly-en-Villette, L. & C., 29—2.V. 1973, J. J. Menier (1 m MNHN); Col de Rille (Ariège), alt. 1000—1100 m, 20.VI. 1970, L. Matile (1 f MNHN); Vallée de Biros (Ariège), Bords du Lez, alt. 900—1000, 16.VI. 1970, D. & L. Matile (3 mm 1 f MNHN); Vallée de Bethmale (Ariège), alt. 900—1000 m, 19.VI. 1970, D. & L. Matile (1 f MNHN); Forêt de Chandelais, Baugé (M. & L.), 12.VII. 1971, J. C. Beaucournu & L. Matile (3 mm MNHN); Basses-Alpes, Pont du Seignes, 1700 m d'alt., 24.VIII. 1972, Hebrard (1 m 1 f MNHN); Gorges du Tarn, (48), Les Vignes, alt. 400 m, 14.IX. 1977, L. Matile (2 mm MNHN); Gorges de la Dourbie, (12), alt. 400 m, 13.IX. 1977, L. Matile (1 m MNHN); Fontainebleau, 3.V. 70, Charles (1 m MNHN); Barrage du Castillon (Htes Pyr.), alt. 1600 m, 11.VI. 1964, L. Matile (2 ff MNHN). — Italy: Aosta, Valnontey, 1620—1750 m, 10.VII. 1975, D. & L. Matile (1 m MNHN); same locality, Chemin de Buttier, 1550—1600 m, 12.VII. 1975, D. & L. Matile (2 mm MNHN); Aosta, Valgrisanche, Chamencon, alt. 1280 m, 12.IX. 1974, L. Matile (1 m MNHN); Aosta, Piano di Sylvenoire (Cogne), alt. 1550 m, 27.VI. 1973, D. & L. Matile (1 m 3 ff MNHN); Aosta, Vallée de Cogne P. N. G. P., alt. 1650—2000 m, 25.VI. 1973, L. Matile (1 m MNHN); same data, alt. 19—2000 m (1 f MNHN); same locality, alt. 1650 m, 24.VI. 1973, D. & L. Matile (1 f MNHN); Aosta, Vallée de Cogne, 8 km amont d'Aymaville, alt. 950 m, 23.VI. 1973, L. Matile (2 mm MNHN); Aosta, Comba di Vertosan, alt. 1804 m, 1.VII. 1973, L. Matile & F. Lavy (1 m 1 f MNHN); Aosta, Vallée de Valsavaranche, alt. 1600 m, Eau Rousse, bois à *Picea excelsa,* 4.VI. 1971, L. Matile (1 m 1 f MNHN); Aosta, Vallée de Rhemes, alt. 1900—2000 m, 8.IX. 1978, L. Matile (3 mm MNHN); Aosta, Vallée de St. Barthelemy, Clemenceaud, alt. 1600 m, 7.IX. 1978, L. Matile (1 m MNHN); Aosta, Etroubles, bord de torrent, *Pisetum subalpinum,* alt. 1600—1650 m, 13.IX. 1978, L. Matile (1 m 2 ff MNHN); Aosta, Villeneuve, Bertolaz, alt. 800 m, 5—10.IX. 1978, Piège de Malaise, L. Matile (1 f MNHN); Prov. Novara, Maggiora, Hêtraie, bord du Sizzone, 1.VI. 1971, L. Matile (1 f MNHN). — Switzerland: Schaffhausen, Forêt de Steik (Ramsen), 500 m, 7.VI. 1976, L. Matile (1 m MNHN). — Yugoslavia: Montenegro, Kolasin, wet gorge in old forest, 5—9.VI. 1958, R. L. Coe (1 m BMNH). — Austria: Steirm., Admont, Strobl (1 m 1 f MNHN); Styria, Admont, VII. 1893, Mik (1 f MNHN); Austr. sup., Hammern, 13.IX. 1872, 14.IX. 1872, 12.VII. 1873, IX. 1871, Mik (3 mm 1 f WIEN); Simony, Donauauen (2 mm WIEN); without data (2 mm WIEN); Tirol, Otztal, Untergurgl, young pines along rocky stream, 5.VII. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH); Salzburg, Attelsee, Burgau, 30.VI. 1973, S. J. Chambers & A. M. Hutson (2 mm BMNH); Sterzing, coll. Kowarz (1 m LEN); Rotwandhs., 28.VIII. 1915, C. F. Adams (1 m PU). — Hungary: Bakony-hg., Cuha-völgy, 3.IX. 1958, Mihályi (1 m TMB); Bükk-hg., erdó, Tardi-patak, völgye, 29.V. 1960, S. Tóth (1 m TMB); Eger, coll Kowarz (1 m LEN). — Bulgaria: Kom, 1700, 8.VII. 1982, D. Bechev (1 m coll. Bechev). — Roumania: Transylvanie, env. de Scarisoara, 2.IX. 1968, L. Matile (1 m MNHN); Olténie, Vallée du

Motru, 17.X. 1968, 19.X. 1968, L. Matile (1 m 3 ff MNHN); Olténie, Forêt de Măgura, 15.X. 1968, L. Matile (1 m 4 ff MNHN); Olténie, Vallée Izvorelelor, 18.X. 1968, L. Matile (1 m 1 ?f MNHN); Retezatului Mts., above Hobita, c. 2500′, boggy slopes & woods, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH). — Czechoslovakia: Mor. bor., Blansko, 26.IX. 1962, Laštovka (1 m VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (10 mm 3 ff VUPP); Tatry, 100 m/m, Strbské P., 14.VI. 1966, P. Laštovka (1 m VUPP); Boh. mer., Horské Kvilda, 24.VII. 1961, 26.VII. 1961, 27.VII. 1961, P. Laštovka (8 mm VUPP); Boh. c., Komořany, 28.V. 1960, 16.VI. 1960, 19.IX. 1960, Laštovka (2 mm 2 ff VUPP); Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (3 mm VUPP); Boh., Krkonoše, Mechovinec, 26.VIII. 1960, Zuska (1 m VUPP); Boh. bor., Smržovka, 20.VII. 1962, P. Laštovka (1 m VUPP); Boh. bor., Potštejn pr. Hradec, 19.VII. 1967, 26.VII. 1967, 9.VII. 1968, P. Laštovka (17 mm 9 ff VUPP); Slanské, Drahov, p. 350 m/m, 29.VI. 1966, P. Laštovka (3 mm VUPP); Slov. or., Snin. Kameň, Vihorlat, 25.VI. 1966, P. Laštovka (3 mm VUPP); Adamstal, 13.V. 1911, K. Landrock (1 m WIEN); without data (1 m VUPP); Boh., nr. Prague, Lany, 12.VI. 1973, A. M. Hutson & S. J. Chambers (1 m BMNH); Mor., Jeseniky Mts., nr. Jesenik, Rejviz, 19.VI. 1973, S. J. Chambers & A. M. Hutson (2 mm BMNH); Slov., West Tatras, Podbanske, 25.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH). — Poland: Bialowiesa Park Narod., kw. 371, grond niski, 4.VI. 1964, W. Mikolajczyk (1 m WARS); same locality, kw. 399, Grad wysoki, 2.XI. 1962, W. Mikolajczyk (1 m WARS); same locality, kw. 283, grond niski, 6.VI. 1964, W. Mikolajczyk (1 m WARS); without data, coll. Dziedzicki (1 m MZH). — FRG: (Aachen) Coll. Meigen *(Sciophila hyalinata* holotype MNHN); S-Deutschland, bei Urach, Falkensteiner Höhle, Mischwald, 12.VI. 1978, Schmalfuss (1 f STAAT); Birgsau/Allgäu, 19—23.IX. 1973, H. Mendl (3 mm No. 8924 ZSM); Rheinland, Pflaz, Vallée de la Wisper, 25.VII. 1971, D. & L. Matile (1 f MNHN); ? Ziegenhals (1 m MNB). — Netherlands: Linschoten, 14.V. 1921, de Meijere (1 m AMST); Bussum, IX. 1902, 16.V. 1907, de Meijere (2 mm AMST); Velsen, 24.IX. 1917, 24.IX. 1918, de Meijere (1 m 1 f AMST); Epen, VI. 1911, de Meijere (1 AMST); Hilversum, 23.VIII. 1907, 20.V. 1909, de Meijere (2 mm AMST); Limburg, Maurissen (1 f AMST); ? Huilzburg, VII. 1890, de M. (1 m AMST). — UK: Cornwall, Shewiock, 10.IX. 1912, Yerbury (4 mm BMNH); same data, 13.IX. 1912 (1 m BMNH); Cornwall, Lelant, 28.VIII. 1912, Yerbury (1 m BMNH); S. Devon, Dartmouth, 28—31.V. 1920, F. W. Edwards (2 mm BMNH); N. Devon, Clovelly, 8.V. 1936, F. W. Edwards (1 m BMNH); Kent, Hothfield Bog, X. 1970, C. A. Adams (2 mm BMNH); same locality, Sallow Carr, 1964, Freeman (1 m 1 f BMNH); Cambs., Babraham, larva on *Stereum* on old beech trunk, IV. 1918, F. W. Edwards (2 ff BMNH); Hants., Minstead, 28.VIII. 1925, F. W. Edwards (1 m BMNH); Hunts., Monk's Wood, 25.IX. 1922, F. W. Edwards (1 m 1 f BMNH); Yorks., Ingleborough, 13.V. 1921, F. W. Edwards (1 m BMNH); Herts., Waterford, 9.XI. 1917, F. W. Edwards (1 f BMNH); Herts., Hitch Wood, 22.IX. 1917, F. W. Edwards (1 m BMNH); Herts., Knebworth, 7—9.IX. 1923, F. W. Edwards (1 m BMNH); Herts., Felden, ?24.X. 1894, 7.XI. 1894, 14.XI. 1894, 14.X. 1896, 23.X. 1896, 26.X. 1896, 31.X. 1896, 22.IV. 1897, 29.X. 1897, A. Piffard (6 mm 5 ff BMNH); Herts., Welwyn, 13.VI. 1924, F. W. Edwards (1 m BMNH); N. Forest, 12.IV. 1902, 25.IX. 1908, 13.XI. 1909, 14.IV. 1910, 25.VII. 1910, 28.X. 1910, F. C. Adams (7 mm 1 f BMNH); Oxford, Bagley, 27.V. 1916, A. H. Hamm (1 m BMNH); Bagley, ?1895, Ricardo (1 m BMNH); Wyre Forest, 14.IX. 1922, F. W. Edwards (1 m BMNH); Berks., Windsor Forest, 10.V. 1939, F. W. Edwards (1 m BMNH); Beds., Shefford, X. 1907, F. W. Edwards (2 mm BMNH); Surrey, Devil's Tunnel, Bowe, 30.V. 1954, H. Britten (1 m BMNH); Berks., Bagley Wd, 9.VI. 1962, K. G. V. Smith (1 f BMNH); same locality, 8.VII. 1962, M. Ackland (1 m BMNH); without data (1 m named by F. Walker as *Sc. fasciata* BMNH); Ch. Delamere F., 14.VI. 1954, 19.IV. 1958, C. N. Colyer (1 m 1 ?f BMNH); MG Hirnant, 12.VI. 1954, C. N. Colyer (1 m BMNH); Nairn, N. B., 28.V. 1905, J. W. Yerbury (1 m BMNH); Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (1 m BMNH); Merioneth, Brithdir nr. Dolgelly, 21.V. 1972, A. M. Hutson (1 m BMNH); Merioneth, Brithdir-isof nr. Dolgelly, 21.V. 1972, A. M. Hutson (1 m BMNH); St., Alton, 20.X. 1951, J. Edwards (1f ISU); Brecknock, Wells, Llangammarch, 3.VIII. 1913, Yerbury (1 m BMNH); Logie, Elgin, 18—29.VIII. 1903, F. Jenkinson (1 m BMNH); Flintshire, Frith, 7—9.VI. 1919, F. W. Edwards (1 m BMNH); Arran, Brodick, 22—25.V. 1919, F. W. Edwards (1 m BMNH); Arran, Corriegills, 2—4.VI. 1919, F. W. Edwards (1 m BMNH). — Ireland: Lough Dan., IX. 09 (1 m MNI). — Denmark: Rudstrup skov, 12.X. 1941 (1 m COPEN); Silkeborg, 2.VIII. 1944 (1 m COPEN); Hattenaes, 1.VI. 1939 (1 m COPEN); Bógeshoven, Engestofte, Maribo, 20.X. 1964, B. Vest P. (1 m COPEN); Bornholm, Paradisbakkerne, 25.VI. 1964, O. M. & B. V. P. (1 m COPEN). — Norway: HOy., Os, Lundatrae, IX—X. 1975, 20—27.VIII. 1976, 31.X. 1976, T. Andersen (2 mm 2 ff coll. Andersen); HOy., Fjell, Sotra, Vindenes, 15.X. 1978, T. Andersen (1 f coll. Andersen); HOy., Fjell, Sotra, Eidsvåg, 31.X. 1976, T. Andersen (1 m 1 f coll. Andersen); HOi., Ullensvang, Hovland, 21—30.X. 1977, T. Andersen (24 mm 35 ff coll. Andersen); HOi., Odda, Teigen, 21—30.X. 1977, T. Andersen (1 m 2 ff coll. Andersen); HOi., Eidfjord, Hardangervidda, Viveli-Veigdalen, 27.VII. 1968, T. Nielsen et al. (1 m BERG). — Sweden: Sk., Kullaberg, 14.VII. 1967, 4.VIII. 1969, H. Andersson (2 mm coll. Andersson); Sk., Klostersågen, 5.X. 1968, H. Andersson (1 m coll. Andersson); Sk., Rövarekulan, 12.VII. 1969, H. Andersson (1 m coll. Andersson); Sk., Linnebjer, 13.X. 1968, H. Andersson (2 ?ff coll. Andersson); Hall., Enslöv, Årnilt, 7.VII. 1962, 1.X. 1967, 21.VI. 1971, H. Andersson (3 mm 1 f coll. Andersson); Sm., Bolmen, 1.VII. 1959, O. Ringdahl (1 m LUND); Dlr., Sångån, 20.VII. 1971, T. Tjeder (1 m LUND); Messaure, 25.IX. 1969 (1 m No. 10270 + K270 SENCK); Muonio, Muonionalusta, Muonionvaara, 8.VII. 1911, R. Frey (1 m MZH); Lpl., Abisko, 30.VII. 1951, J. R. Vockeroth (1 m CNC). — Finland: *Al:* Geta, 29.IX. 1942, R. Frey (5 mm MZH); *Ab:* Turku, 6712:234, 18.IX. 1981, M. Koponen (1 m AFZ); Halikko, 6703:274, 18.IX. 1981, M. Koponen (1 m AFZ); Kuustö (Kaarina, Kuusisto), Lundström (2 mm MZH); Tenhola, Skogby, 26.VIII. 1965, R. Tuomikoski (1 m MZH); same locality, 24.IX. 1965, A. V. V. Mikkola (2 mm MZH); same locality, 15.X. 1965, K. Mikkola (3 mm MZH); Vihti, Vihtijärvi,

30.VI. 1962, 4.VII. 1962, 13.VII. 1962, 14.VII. 1962, 20.VII. 1962, 28.VII. 1962, 5.VIII. 1962, 23.VIII. 1962, 24.VIII. 1962, 29.VI. 1963, 8.VII. 1963, 12.VII. 1963, 18.VII. 1963, 23.VII. 1963, 27.IX. 1965, R. Tuomikoski (28 mm MZH); *N:* Tvärminne, 8.VII. 1964, A. V. V. Mikkola (1 m MZH); Tammisaari, Gullö, 16—28.VIII. 1965, K. Mikkola (1 MZH); Lojo (Lohja), Vaanila, 23.VII. 1941, R. Frey (1 m MZH); Inkoo, Fagervik, IX. 1980, light trap, J. Jalava, J. Järkkä & L. Löfgren (1 m MZH); Esbo (Espoo), 23.VI. 1962, 30.VI. 1962, 7.VII. 1962, 14.VII. 1962, W. Hackman (4 mm MZH); Esbo, Småholmen, 22.VI. 1962, 24.VI. 1962, 27.VI. 1962, 24.VII. 1962, 13.VIII. 1962, 20.VIII. 1962, W. Hackman (9 mm MZH); Esbo, Westend, 8.VII. 1962, W. Hackman (2 mm MZH); Esbo, Kolmperä, 22.VII. 1963, 29.IX. 1965, W. Hackman (2 mm MZH); Helsinki, Malminkartano, 27.IX. 1962, R. Tuomikoski & W. Hackman (2 mm MZH); Villinki, 21.VII. 1962, O. Ranin (1 m MZH); Nordsjö (Vuosaari), 7.X. 1962, 23.X. 1962, W. Hackman (2 mm MZH); Pyhtää, Kiviniemi, 15.VIII. 1981, R. Väisänen (2 mm MZH); *Ka:* Vehkalahti, Neuvoton, VII. 1979, R. Väisänen (1 m MZH); Vehkalahti, 17.X. 1970, 30.VI. 1971, 9.X. 1971, L. Tiensuu (5 mm 2 ff MZH); Virolahti, Leppämäki, 1.VIII. 1971, L. Tiensuu (1 m MZH); *Ta:* Urjala, 12.IX. 1965, 19.IX. 1965, 20.IX. 1965, 21.IX. 1965, T. Brander (4 mm FLHM); same data, 22.X. 1965 (1 m MZH); Jokioinen 5.IX. 1965, A. Väre (1 m FLHM); Kangasala, 26.VIII. 1911, 26.VII. 1914, R. Frey (2 mm MZH); *Sa:* Punkaharju, Punkasalmi, 30.VI. 1963, W. Hackman (1 m MZH); Valkeala, Utti, 16.IX. 1965, K. Mikkola (1 m MZH); Joutseno, 29.IX. 1965, E. Thuneberg (1 m MZH); *Oa:* Vasa (Vaasa), R. Frey (1 m MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (2 mm MZH); *Ok:* Sotkamo, Aarreniemi, 15.VIII. 1964, A. V. V. Mikkola (1 m MZH); *Ob:* Oulu, Hermans (1 m MZH); Hailuoto, Isomatala, 17.VII. 1947, R. Frey (1 m MZH); Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); same locality, 19—24.VII. 1967, R. Tuomikoski (1 m MZH); Oulanka Biol. Stat., NL 66.3°, 23.VII. 1967, Mihályi (1 m TMB); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); *Li:* Inari, Törmänen, 18.VIII. 1960, R. Tuomikoski (1 m MZH). — USSR: Rossia (? Byelorussian SSR), coll. Dziedzicki (1 m WIEN); Curon., Ambotn, 9.IX. 1928, P. Lackschewitz (1 m MNB); Estonia, st. Peedu, yuzhkh. 11.VIII. 1951, Stackelberg (1 m LEN); Leningrad. g., Yukki, 18.VIII. 1932, 18.IX. 1934, Stackelberg (2 mm LEN); Leningrad. o., Luzhsk., Tolmachevo, 4.IX. 1937, Stackelberg (1 m LEN); Leningr. o., Luzhsk., Yashera, 22.VIII. 1966, Stackelberg (1 m LEN); Kol'sk, Khib. gory, bas. ozer Vud-Yavr, 5.VIII. 1933, Fridolin (1 m LEN); Altai kr., Teletskoj oz., Artybash, 20.VIII. 1982, K. Mikkola (2 mm MZH); Altai, 40 km Iogatsh S, 1000—1300 m, 19.VIII. 1982, K. Mikkola (1 m 4 ?ff MZH); Kuril Isls., Kunashir, 20.VI. 1977, 7.VII. 1977, Zaitzev (2 mm No. VII, X MOSC). — Alaska: Unakleet, 5.VIII. 1961, 6.VIII. 1961, 12.VIII. 1961, B. S. Heming (4 mm CNC). — Canada: B. C., Terrace, Airport area, 2.VIII. 1960, C. H. Mann (1 m CNC); B. C., Procter, 9.IX., C. Garrett (1 m hypop. slide No. 5156 USNM); B. C., Selkirk Mts., J. C. Bradley (2 ?ff *M. incompta* paralectotypes No. 1981.1 and 1981.2 MCZ); Toronto, 6.VI. 1922, Parrish (1 m CAS); Que., Old Chelsea, 16.X. 1956, 18.VIII. 1961, 20.IX. 1961, 1.X. 1963, J. R. Vockeroth (7 mm CNC); Que., Knowlton Ldg., 17.VII. 1968, 19.VII. 1968, J. R. Vockeroth (2 mm CNC); Que., Abbotsford, 30.V. 1968, D. M. Wood (1 m CNC). — USA: Me., Capens, 21.VII. 1907, C. W. Johnson (1 ?f *M. incompta* paralectotype No. 27241 MCZ); N. Y., Allegany State Park, *Sphagnum* bog, 28.V.—3.VI. 1963, W. W. Wirth (1 m USNM); same data, stream margin (1 m USNM); New York, Ithaca, Coy Glen, 9.VIII. 1961, J. L. Laffoon (7 mm ISU); N. Y., Cattaraugus Co., Stoddard Hollow, 42°4'N, 78°45.5'W, 1900', 10.VIII. 1961, R. J. Gagné (1 m ISU); N. Y., Ithaca, 10.VII. 1901, O. A. Johannsen (*M. sequax* lectotype, 1 f paralectotype CORN); N. Y., Ithaca, IX. 1901, O. A. Johannsen (1 f *M. incompta* lectotype CORN); Pa., Tioga Co., Colton Point State Park, 27.VIII. 1956, J. L. Laffoon (1 m ISU); Pa., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run., 11.VIII. 1961, J. L. Laffoon (1 m ISU); Va., Shenandoah, Big Meadows, 15.VI. 1941, A. L. Melander (1 m USNM); N. C., Macon Co., Highlands, 35°3.2'N, 83°11.3'W, 3850', 27.VI. 1958, 19.VII. 1958, J. L. Laffoon (2 mm ISU); N. C., Macon Co., Wayah Gap, 4100', 29.VII. 1957, J. G. Chillcott (1 m CNC); N. C., Tennessee, Great Smoky Mt. N. P., Indian Gap, 5200', 2.VII. 1957, W. R. M. Mason (1 m CNC); same locality (Tenn.), 5200', 28.V. 1957, J. R. Vockeroth (1 ?f CNC); same locality (Tenn.), 5100', 23.VII. 1957, J. G. Chillcott (1 m CNC); Tennessee, Sevier Co., Great Smoky Mts., near Indian Gap, 5000', 35°36.6'N, 83°27.1'W, 7.VII. 1958, J. Laffoon (1 m ISU); Tenn., Sevier Co., Gr. Smoky Mts., Mt Collins, north slope, 5900', 35°35.5'N, 83°28.3'W, 25.VI. 1958, J. Laffoon (1 m ISU).

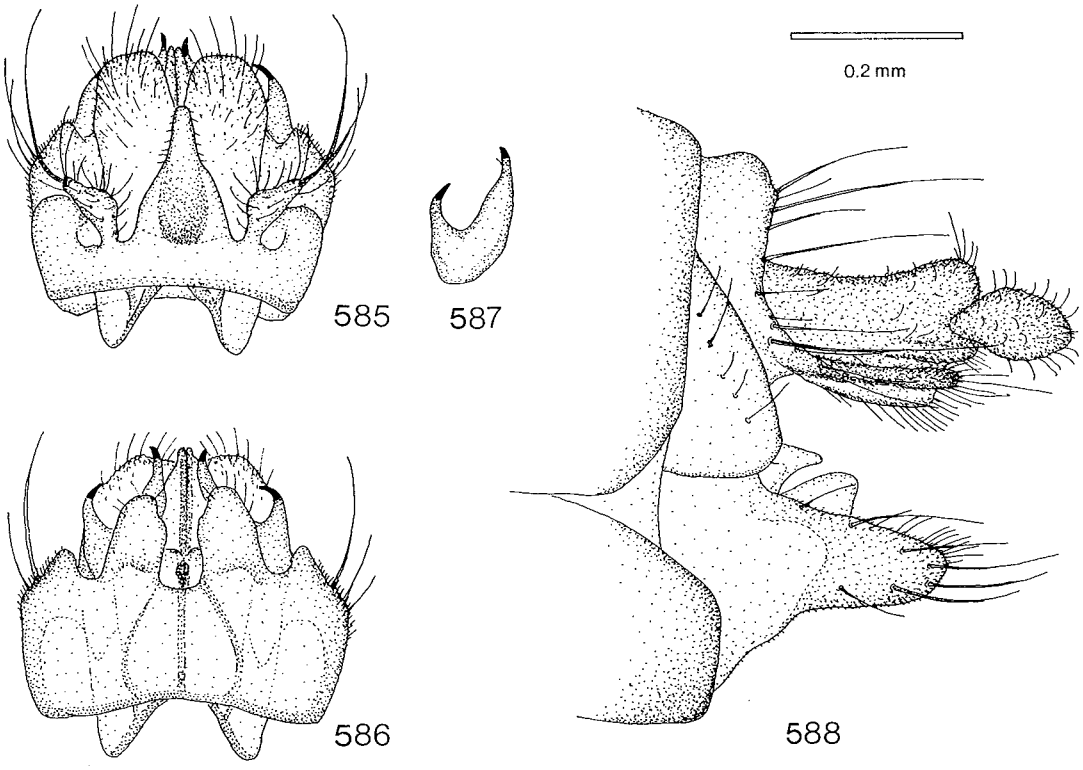
Description:

Head. Palp and other mouthparts yellow, face slightly brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd less than twice as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow to brownish, with 3 light brownish to dark brown, more or less indistinct, posteriorly often fused, longitudinal stripes, anterolateral corners yellow to yellowish. Mesanepisternum yellow to brownish. Mesokatepisternum yellow with brownish ventral part or entirely brownish. Scutellum yellowish to brownish, with 2 long setae. Laterotergite yellow with brownish ventral part or entirely brownish to brown. Mediotergite light brownish to brown, bare.

Legs. Coxae yellow, coxa 3 sometimes with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae on anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.14—1.65, bt2:t2 = 0.70—0.88, bt3:t3 = 0.62—0.71.

Wing. Wing length 3.5—5.4 mm. Wing hyaline. Sc ending in C slightly proximally — distally to middle of small cell, Sc1 seldom apically broken not quite reaching C, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 0—17 macrotrichia. Small cell 1—2.5 times as long as wide. Cu fork almost below or proximal to M fork. M ratios: 0.53—0.78, 0.67—1.05. Cu ratios: 0.58—0.92, 0.79—1.42. Macrotrichia: M



Figs. 585—588. *Mycomya alpina.* — 585: male hypopygium, tergal view. — 586: hypopygium, sternal view. — 587: gonostylus. — 588: female terminalia, lateral view. Scale 0.2 mm.

petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with lateral and posterior margins widely yellow to yellowish or only posterior margins slightly yellow, 6—7 brown, sometimes with very narrow yellow posterior margin. Sternites 1—5 yellow, 6—7 yellowish to brownish.

Hypopygium. Figs. 578—581, yellow, comparatively small. Processus comparatively short. Tergal lateral appendage about as long as processus, triangular, with 2 long apical setae. Sternal synsclerite with 3—4 setae on both sides, without lateral appendages. Sternal submedian appendage short wide with small setae. Gonostylus with 2 branches, lateral branch only half of length of medial one, both with apical tooth. Aedeagus comparatively long.

Female. Wing length 4.3—6.4 mm. Thorax usually lighter than in male, sometimes yellowish without distinct markings. Abdomen usually brown, but tergites posteriorly with narrow but distinct yellow margins. Leg ratios: bt1:t1 = 1.12—1.23, bt2:t2 = 0.78—0.82, bt3:t3 = 0.60—0.67. Terminalia as in Figs. 582—584, yellow.

Larva. Described by Plachter (1979b). Length 9 mm. Diameter 0.87 mm.

Remarks: Aberrant specimen (Minsted, Hants.) with length of scutellar bristles reduced to 0.18—0.25 mm.

Wing length in males: Palaearctic specimens: 3.6—5.4 mm, mean 4.63 mm, SD 0.39, N=56; Nearctic specimens: 3.5—5.2 mm, mean 4.43 mm, SD 0.38, N=33.

Distribution: Holarctic. North Africa: Algeria. Spain, Corse, France, Italy, Switzerland, Yugoslavia, Austria, Hungary, Bulgaria, Roumania, Czechoslovakia, Poland, Federal Republic of Germany, Netherlands, United Kingdom, Ireland, Denmark, Norway, Sweden, Finland. USSR: ?Byelorussian SSR, Latvian SSR, Estonian SSR, Leningrad region, Murmansk region, Altai Mts., Far East: Kuril Isls. Alaska. Canada: British Columbia, Ontario, Quebec. USA: ?Maine, New York, Pennsylvania, Virginia, North Carolina, Tennessee. Also reported from Lithuanian SSR (Czwalina 1893, ?Landrock 1930), (?)West and East Siberia (Ostroverchova 1971, Ostroverchova & Izotov 1974, Ostroverchova 1977, 1979), Georgian SSR (Joost & Plassmann 1979), Mongolia (Edwards 1935b) and Japan (Sasakawa 1961).

Biology: This species has been reared from *Stereum* in Britain (Edwards 1925a). Adults have been caught in a wide variety of habitats, including deciduous, mixed and coniferous forests and *Sphagnum* bogs, and they are common in many areas. Some specimens have been collected with air-suction, pit-fall, light and Malaise traps (see also Plassmann 1978a, 1979, 1980a). According to Plassmann (1969, 1971b), *M. cinerascens* has two generations during summer in Vogelsberg. The larval web has been described by Plachter (1979a:182, Fig. 7).

Mycomya alpina Matile, 1972
Figs. 585—588, key p. 36, 42.

Mycomyia alpina Matile, 1972. Matile 1972:74; Plassmann 1977b: 8, 1980b:17.
Mycomya alpina: Matile 1977:633; Väisänen 1982b:38.

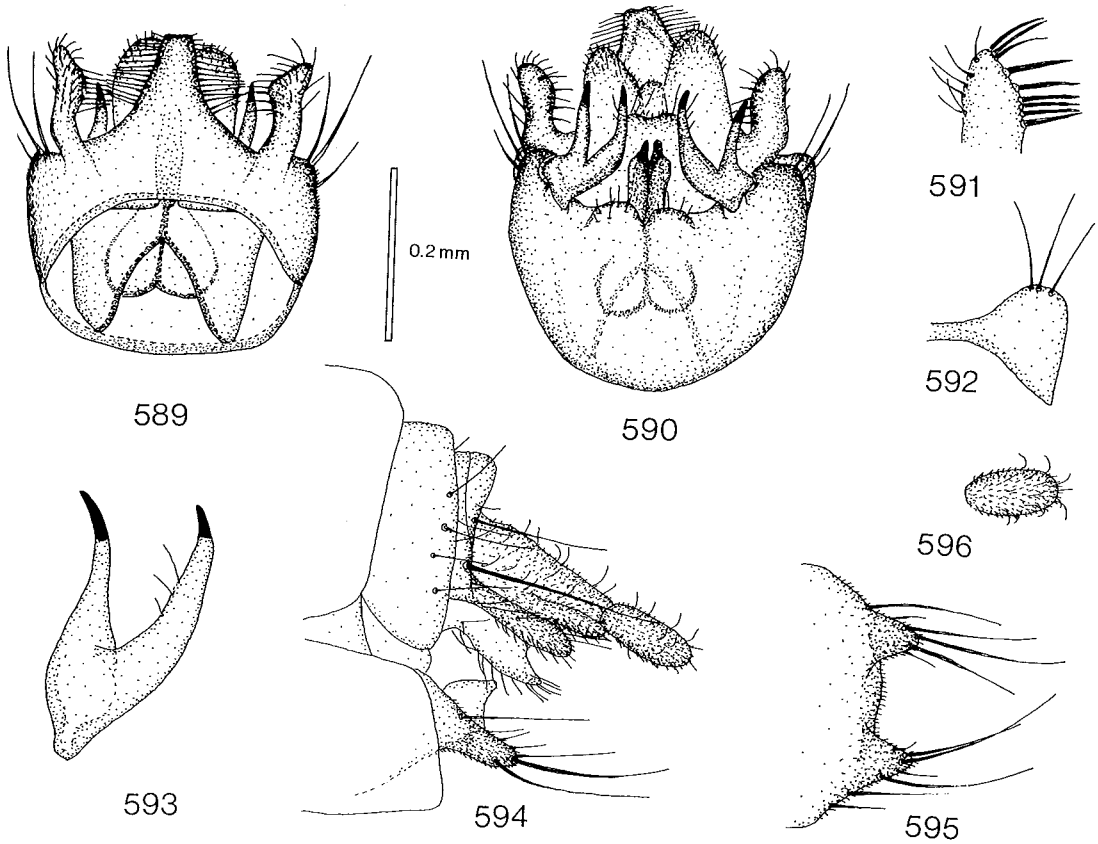
Type locality: Drôme, Fôret de Lente (France).
Type: Holotype (studied): Ft de Lente (Drome) alt. 1400 m. 25-VI-1970. Holotype. *Mycomyia alpina* n. sp. ♂ holotype L. Matile det. 1971 (m MNHN).
Material examined: Italy: Aosta, Valnontey, 1800 m, 16.VII. 1975, L. Matile (1 m MNHN); same locality, 1650 m, 21.IX. 1974, L. Matile (1 m MNHN); same locality, 1600 m, 14.VI. 1976, L. Matile (1 m MNHN); same locality, 1980 m, 24.VII. 1975, L. Matile (1 m MNHN); same locality, 1620—1750 m, 11.VII. 1975, D. & L. Matile (1 m MNHN); Aosta, Comba di Vertosan, alt. 1809 m, 25.VI. 1972, L. Matile (1 f MNHN); same locality, (Jovençan), alt. 1800 m, 15.IX. 1974, L. Matile (1 m MNHN); Aosta, Vallée de Cogne, Ozein, Chem. Turlin, 1500—1550 m, 12.VI. 1980, L. Matile (1 m MNHN); Aosta, Bertolaz (Villeneuve), alt. 800 m, 5.VI. 1980, L. Matile (1 m MNHN); Aosta, Etroubles, alt. 1600—1650 m, bord de torrent *Pisetum subalpinum*, 13.IX. 1978, L. Matile (3 mm MNHN, 1 m MZH); Aosta, Vallée de Rhêmes, alt. 1900—2000 m, 8.IX. 1978, L. Matile (1 m MNHN); Creton, Vallée de Rhêmes (Aosta), alt. 1200 m, bois à *Picea excelsa* creux rochers, 7.VI. 1971, L. Matile (4 mm MNHN); Pellaud, Vallée de Rhêmes (Aosta), alt. 1816 m, creux de rochers, bois à *Larix europa*, 7.VI. 1971, L. Matile (1 m MNHN); Aosta, Eau Rousse (Valsavaranche), alt. 1600 m, 4.IX. 1978, L. Matile (1 m MNHN); same locality, alt. 1600 m, bois à *Picea excelsa* creux rochers, 4.VI. 1971, L. Matile (1 m paratype MZH); Aosta, Valsavaranche, P. N. G. P., Ponte del Gran Clapey, alt. 1750 m, 30.VI. 1973, 20.IX. 1974, L. Matile (2 mm MNHN); Aosta, Vallée de St. Barthelemy, alt. 1450 m, 7.IX. 1978, L. Matile (1 m MNHN); Aosta, (?) Introd..., d'Arbe, alt. 1050—1150 m, 17.IX. 1974, L. Matile (1 m MNHN); Aosta, Piano di Sylvenoire (Cogne), alt. 1550 m, fôret d'epigea, 27.VI. 1973, D. & L. Matile (1 m MNHN). — France: Ft. de Lente (Drome), alt. 1400 m, 25.VI. 1970, L. Matile (holotype, allotype MNHN); Isola, 2000, (06), alt. 2000 m, chemin forestier, 17.VII. 1976, J. Clastrier (1 m MNHN). — Austria: Tyrol, Obergurgl, Pirchüttberg, 1850 m, 29—30.VII. 1972, Malaise trap, A. C. & B. Pont (1 m BMNH) — FRG: Mittlere Rappenalpe, Allgäu, 15—1700 m, 23.VIII. 1976 (1 m No. 8976 ZSM). — USSR: Kuril Isls., Kunashir, 13.VI. 1977, A. Zaitzev (1 m XII MOSC).

Description:
Head. Palp and other mouthparts yellow, face yellowish to brownish, posterior parts of head dark brown. Antenna brownish to brown, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd 2.5 times as long as wide.
Thorax. Pronotum yellow, with 3—6 longer setae. Mesoscutum brown or brownish with indistinct longitudinal stripes, anterolateral corners yellow. Mesanepisternum brownish to brown. Mesokatepisternum brownish to brown. Scutellum brownish to brown with 2 long setae. Laterotergite brownish to brown. Mediotergite brown, bare.
Legs. Coxae yellow, coxa 3 with brownish spot on lateral surface or whole lateral surface dark, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along medial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.37—1.49, bt2:t2 = 0.89—0.96, bt3:t3 = 0.70—0.75.
Wing. Wing length 4.2—5.3 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell or Sc continuing from C to R1, Sc1 seldom apically weak, Sc2 ending in R1 distally to or near middle of small cell. Apical part of Sc bearing 0—8 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.51—0.63, 0.67—0.79. Cu ratios: 0.52—0.73, 0.74—1.12. Macrotrichia: M petiole: 0; M1: 0; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Entirely brown or with indistinct narrow yellowish posterior margins of tergites. Sternites brown to light brownish.
Hypopygium. Figs. 585—587, brownish. Processus triangular, comparatively long, dark. Tergal lateral appendage triangular, apically relative wide and short, with 2 long apical setae. Sternal synsclerite with about 2 setae on both sides, without lateral appendages. Sternal submedian appendage short with a few small setae. Gonostylus with 2 branches, lateral branch shorter than medial one, both with 1 apical tooth. Aedeagus long slender.
Female. Wing length 4.2—5.5 mm. Brownish to brown like male. Leg ratios: bt1:t1 = 1.32. Terminalia as in Fig. 588, yellow.
Remarks: Wing anomaly in one specimen: An additional transverse vein running from R1 towards R5, distally to R4, but ending before it reaches R5.

Distribution: Palaearctic. The Alps: Italy, France, Federal Republic of Germany, Austria; elevations 800—2000 m. USSR: Kuril Islands (Kunashir).
Biology: The collecting biotopes given are *"Pisetum subalpinum"*, and *Picea* and *Larix* forests. One specimen caught with Malaise trap.

Mycomya trivittata (Zetterstedt, 1838)
Figs. 589—596, key p. 36, 42.

Sciophila trivittata Zetterstedt, 1838. Zetterstedt 1838:858, 1852:4103, 4362; Siebke 1877:245; Czwalina 1893:2; Kertész 1902:64, 1903:35; Lundström 1907:7, 1909:7 (Syn. *S. marginata* Dziedzicki), 1912a:11, 1913b:310, 1914:11.
(?) *Sciophila trivittata:* Osten-Sacken 1858:143; Walker 1856:38; Stackelberg 1922:6.
(not) *Sciophila trivittata* Dziedzicki, 1885 (= *M. sigma* Johannsen).
Mycomyia trivittata: Wahlgren 1921:167; Edwards 1924b:162; Landrock 1926—1927:52; Riedel 1930:74; Lackschewitz 1937:10; Landrock 1940:32; Séguy 1940:79; Edwards 1941:26; Coe in Kloet & Hincks 1945:345; Kröber 1956:132; Kidd in Kidd & Brindle 1959:72; Krogerus 1960:64; Hackman 1963a:54; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:26; Mikolajczyk 1971:372; Plassmann 1971b:62, 1971c:255, 1977b:9, 1978a:148, 1979:375, 1980a:178, 1980b:20.
Mycomya trivittata: Hutson in Kloet & Hincks 1976:24; Väisänen 1979a:47, in Hackman 1980:42; Hutson et al. 1980:42; Väisänen 1982b:41.



Figs. 589—596. *Mycomya trivittata.* — 589: male hypopygium, tergal view. — 590: hypopygium, sternal view. — 591: apex of tergal lateral appendage. — 592: tergite 8. — 593: gonostylus. — 594: female terminalia, lateral view. — 595: hypogynal valves, sternal view. — 596: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 589—590, 592 and 594—596, Figs. 591 and 593 2 x enlarged.

(not) *Mycomya trivittata:* Landrock 1913:40 (= *M. sigma* Johannsen).

(not) *Mycomyia trivittata:* Edwards 1925a:550 (= *M. shermani* Garrett).

Polylepta fragilis Loew, 1869 (New synon.). Loew 1869:138; Osten-Sacken 1878:9; Kertész 1902:66; Aldrich 1905:141; Johannsen 1909:43 ("perhaps *Mycomya*"), 1910:147; Shaw & Fisher 1952:193.

Mycomyia fragilis: Coher 1959:112 ("may be synonymous with the European *M. trivittata* Zett., 1838").

Mycomya fragilis: Laffoon in Stone et al. 1965:220.

Sciophila marginata Dziedzicki, 1885. Dziedzicki 1885:19; Kertész 1902:60, 1903:33.

Mycomya marginata: Landrock 1913:35.

(not) *Mycomyia marginata* Dziedz.: Frey & Storå 1941:46 (= *M. marginata* (Meigen)).

Sciophila pseudocinerascens var. *abruptinervis* Strobl, 1901 (New synon.). Strobl 1901:11.

(p. p.) *Sciophila pseudocinerascens* form. *abruptinervis:* Strobl 1909:241 (p. p. = *M. levis* (Dziedzicki)).

Mycomyia nigra Fisher, 1938 (New synon.). Fisher 1938:198; Coher 1959:123.

Mycomya nigra: Laffoon in Stone et al. 1965:221.

(p. p.) *Sciophila fasciata:* Lundström 1907:7 (p. p. = *M. fasciata* (Zetterstedt)).

Type locality: "Kengis (Lapponia Tornensis)" (Sweden).

Types: — *Sciophila trivittata* Zetterstedt: Holotype (studied, see the remarks below): *Sc. trivittata* Zett. ♀. Kengis. 210 (f, in very poor condition, without abdomen LUND). — *Polylepta fragilis* Loew: Holotype (studied): Loew Coll. *fragilis* m. *Polylepta fragilis* Lw. *Mycomyia fragilis* (Lw.) Det. Coher 1953. Type 1224 (m MCZ). Type locality: Massachusetts (USA). — *Sciophila marginata* Dziedzicki: Lectotype (studied) by present designation: *Sciophila marginata* n. sp. ♂. Mus. Zool. H:fors Spec. typ. No 4764 *Mycomyia marginata* Dziedzicki (m from coll. Dziedzicki MZH). Type localities: "Zazierze w gubernii Mińskiéj", "Zaczernie na Bialorusi w gub. Mohilewskiéj" (Byelorussian SSR). — *Sciophila pseudocinerascens* var. *abruptinervis* Strobl: Holotype (not located, apparently destroyed) m. Type locality: Kärnten, Gesäuse (Austria). — *Mycomya nigra* Fisher:

Holotype (studied): Lock Raven Md. I.-1-38 E. G. Fisher coll. 613. Type *Mycomyia nigra* Fisher No. 6545 (m ANSP). Type locality: Maryland, Towson, Lock Raven (USA).

Remarks: The other Zetterstedt specimen (LUND), labelled "*Sc. trivittata* Zett. Dipt. Scand. (*S. fasciata* Fries ♂) Kengis ♀," "*Scioph. fasciata.* Fries. ♂.", is a male of the species group *M. ornata* (without abdomen, in poor condition) and cannot be considered the type of *S. trivittata.* The possibility cannot be excluded that the real holotype has been lost and both the present specimens are later determinations by Zetterstedt.

For *S. pseudocinerascens* and its var. *abruptinervis,* see the remarks on *M. levis* (Dziedzicki). Note also the homonymy with *S. lucorum* form. *abruptinervis* Strobl (see *M. circumdata* (Staeger)).

Material examined: Austria: Steirm., Admont, Strobl (1 m "*S. pseudocinerascens* v. *abruptinervis*" STROBL); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 2—3.VIII. 1976, Malaise trap, A. C. & B. Pont (1 m BMNH); Tyrol, Igls, forêt de pins, 900—1000 m, 12.VIII. 1964, L. Matile (1 m MNHN). — FRG: Dachau, (?) Himmelreith, 26.IX. 1914, C. F. Adams (1 m PU): — Czechoslovakia: Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (1 m VUPP). — UK: Cromarty, Dingwall, 29.V. 1911, Yerbury (1 m BMNH); Nethy Bridge, 16.VI.—17.VII. 1906, D. Sharp (1 f BMNH); Inverness, Aviemore, 13.VI. 1913, Yerbury (1 f BMNH); Morayshire, Brodie, 30.?X. 1905, J. W. Yerbury (1 m BMNH); Logie, Elgin, 18—19. VIII. 1903, F. Jenkinson (2 mm BMNH); Logie, 16.IX. 1909, F. J. (1 m BMNH); same locality, IX. 1909, F. J. (1 m BMNH); H A, (?) Pennjton, 25.VII. 1953, C. N. Colyer (1 m BMNH). — Denmark: Rudstrup Skov, 22.VI. 1947, P. Nielsen (1 m COPEN); V. Hógild, 28.IX. 1930, P. Nielsen (1 m 1 f COPEN). — Norway: HOy., Os, Lundatrae, IX—X. 1975, T. Andersen (2 mm coll. Andersen); HOy., Fjell, Sotra, Vindenes, 5.IX. 1976, T. Andersen (1 m coll. Andersen); HOi., Odda, Teigen, 21—30.X. 1977, T. Andersen (1 m coll. Andersen); HOi., Eidfjord, Hardangervidda, Viveli-Veigdalen, 27.VII. 1968, T. Nielsen et al. (1 m BERG). — Sweden: Hall., Enslöv, Årnilt, 16.IX. 1972, H. Andersson (1 m coll. Andersson); same locality, Hultet, 26.VI. 1967, H. Andersson (1 m coll. Andersson); Nb., Råneå, Högsön, 30.VIII. 1965, H. Andersson (1 f coll. Andersson); Kaltisjokk, 25—29.IX. 1969 (14—16) (1 m No. 9153 ZSM); Messaure, 25.IX. 1969 (1 m No. 10273 + K273 SENCK); Kengis (*S. trivittata* Zetterstedt holotype LUND); Lpl., Abisko, 8.VIII. 1951, 9.VIII. 1951, 15.VIII. 1951, J. R. Vockeroth (2 mm 1 f CNC). — Finland: *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH, 1 m 1 f BMNH); Karislojo (Karjalohja), R. Frey (1 m MZH); Halikko, 6703:274, 18.IX. 1981, M. Koponen (1 m AFZ); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (2 mm MZH); Vihti, Vihtijärvi, 2—5.VII. 1959, 4.VII. 1962, 7.VII. 1962, 13.VII. 1962, 14.VII. 1962, 15.VII. 1962, 20.VII. 1962, 26.VII. 1962, 23.VI. 1963, 29.VI. 1963, 8.VII. 1963, 12.VII. 1963, 18.VII. 1963, 15.VIII. 1963, 15.IX. 1963, 10.VIII. 1964, R. Tuomikoski (28 mm MZH); *N:* Esbo (Espoo), 23.VI. 1962, 6.VII. 1962, 14.VII. 1962, W. Hackman (6 mm MZH); Esbo, Westend, 27.VI. 1962, 15.IX. 1962, W. Hackman (2 mm MZH); Esbo, Småholm, 17.VII. 1962, W. Hackman (1 m MZH); Esbo, Kolmperä, 21.V. 1963, 19.VI. 1963, 3.VII. 1963, 13.X. 1963, 22.VII. 1964, 12.IX. 1964, 20.IX. 1965, W. Hackman (9 mm MZH); Esbo, Bodom, 9.X. 1962, W. Hackman & R. Tuomikoski (1 m MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (1 m MZH); Helsinki, Nordsjö (Vuosaari), 22.IX. 1963, R. Tuomikoski (2 mm MZH); Helsinki, Villinki, 21.VII. 1962, O. Ranin (2 mm MZH); Pyhtää, Kiviniemi, 11.IX. 1977, R. Väisänen (1 m MZH); *Ka:* Vehkalahti, 13.VII. 1971, 19.VII. 1971, 21.VII. 1971, 24.VII. 1971, 11.IX. 1971, 15.IX. 1971, 9.X. 1971, L. Tiensuu (7 mm MZH); Virolahti, 24.VI. 1971, 26.IX. 1971, L. Tiensuu (2 mm MZH); *Ta:* Jokioinen, 26.VIII. 1965, 31.VIII. 1965, A. Väre (2 mm FLHM); Urjala, 21.IX. 1965, T. Brander (1 m FLHM); same locality, 15.X. 1965, 16.X. 1965, 21.X. 1965, T. Brander (8 mm MZH); Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (2 mm MZH); *Sa:* Punkaharju, Punkasalmi, 30.VI. 1963, W. Hackman (1 m MZH); Valkeala, Utti, 16.IX. 1965, K. Mikkola (3 mm MZH); *Kl:* Uukuniemi, 25.VI. 1963, W. Hackman (1 m MZH); *Oa:* Vasa (Vaasa), R. Frey (2 ?ff MZH); *Kb:* Kesälahti, 27.VI. 1963, W. Hackman (2 mm MZH); same locality, Jänissaari, 27.VI. 1963, W. Hackman (1 m MZH); Kitee, Papinniemi, 26.VI. 1963, W. Hackman (2 mm MZH); Pielisjärvi, Koli, 15—16.VIII. 1964, 5.VII. 1965, R. Tuomikoski (9 mm MZH); *Ok:* Sotkamo, 12.VII. 1962, A. V. V. Mikkola (1 m MZH); Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (5 mm MZH); same locality, 7.VII. 1965, R. Tuomikoski (1 m MZH); same locality, 4.VII. 1965, 29—30.VII. 1965, A. V. V. Mikkola (2 mm MZH); same locality, 17.VII. 1967, Mihályi (1 m TMB); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (1 m MZH); same locality, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (10 mm MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (10 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (11 mm MZH); *Lk:* Kittilä, 4.VIII. 1911, R. Frey (1 m MZH); *Le:* Kilpisjärvi, 28.VII. 1969, Mihályi (1 m TMB). — USSR: Coll. Dziedzicki (*S. marginata* Dziedzicki lectotype MZH); Kur., Kalwen, 25.IX. 1931, L. (1 m MNB); Leningrad. obl., Tatchika, 16.VIII. 1940, Stackelberg (1 m LEN); Leningrad. o., Luzhsk., Tolmachevo, 18.VI. 1938, Stackelberg (1 m MZH); Kol'sk., Khibin. g., bass. ozer Vyd'yavr, 25.VIII. 1933, 9.IX. 1933, Fridolin (2 mm LEN); Irkutsk. obl., Listvenichnoe, berezovyj les., 28.VIII. 1962, Gorodkov (1 m LEN); Altai, 40 km Iogatsh S, 1000—1300 m, 19.VIII. 1982, K. Mikkola (1 m MZH). — Canada: N. W. T., Aklavik, 27.VIII. 1929, 9.IX. 1929, 5.VIII. 1930, O. Bryant (3 mm 1 f CAS); B. C., Mt. Thornhill, nr. Terrace, 26.VII. 1960, B. Heming (1 m CNC); B. C., Horseshoe Bay, 0—300′, 30.V. 1961, J. R. Vockeroth (1 m CNC); B. C., Kimberly, St. Mary's Lake, 10.VI., 23.VII., 24.VII., 29.VII., C. Garrett (5 m hypop. slides No. 25.60, 5030, 25.66, 5043, 5031 "*M.* anomalia" USNM); B. C., Marysville, Kimberly, 1.VIII., C. Garrett (1 m hypop. slide No. 2559 "*M.* anomalia" USNM); Ont., Normandale, 42°42′, 80°19′, 2.VI. 1956, J. R. Vockeroth (1 m CNC); Ont., Stirling, 14.X. 1956, J. R. Vockeroth (1 m CNC); Ont., Midland, 2.V. 1959, J. G. Chillcott (1 m CNC); Que., Beechgrove, 45°39′, 76°8′, 2.X. 1964, J. R. Vockeroth (2 mm 3 ff CNC); Que., Kam. Co., Parke Reserve, 8.VII. 1957, 11.VII. 1957, 24.VII. 1957, G. E. Shewell

(3 mm CNC); Que., Eardley, 18.X. 1956, J. R. Vockeroth (1 m CNC); Que., Knowlton Ldg., 19.VII. 1968, J. R. Vockeroth (1 m CNC); Que., Old Chelsea, 3.X. 1956, 16.X. 1956, 11.VI. 1959, 13.VI. 1961, 9.VIII. 1961, 20.IX. 1961, 10.X. 1961, 15.X. 1964, J. R. Vockeroth (9 mm 3 ff CNC); N. B., Kouchibouguac N. P., 14.VII. 1977, J. F. McAlpine (1 m CNC). — USA: Colo., Mt. Evans, Doolidle Ranch, 9800′, 23.VII. 1961, W. R. M. Mason (1 m CNC); same locality, 6.VIII. 1961, J. G. Chillcott (1 m CNC); Minn., Lake Co., Basswood Lake, Q—S WRC, Sec. 9, Twp. 64 N, Rge. 10 W, 9.VII. 1951, R. Namba (1 m MINN); N. Y., Bear Mtn., 13.X. 1924, F. M. Schott (1 m MCZ); N. Y., Cattaraugus Co., Stoddard Hollow, 1800′—1900′, 42°4′N, 78°45.5′W, 10.VIII. 1961, D. L. Deonier (1 m ISU); (Massachusetts) coll. Loew *(Sciophila fragilis* holotype MCZ); Belchertown, Sept. 25 (1 m slide MASS); Conn., Beacon Falls, 12.IX. 1933, C. P. A. (1 m hypop. slide MASS); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, J. L. Laffoon (1 m ISU); same data, R. J. Gagné (1 m ISU); Md., Laurel, 20.V. 1965, Malaise trap (1 m CNC); Md., Lock Raven, 1.I. 1938, E. G. Fisher *(M. nigra* holotype ANSP); Va., Falls Church, Holmes Run, 27.IV. 1962, light trap, W. W. Wirth (2 mm USNM); Va., Mount Vernon, 19.IV. 1917, W. L. McAtee (1 m USNM); Ky., 11.5 mi. S. E. Irvine, 19.IV. 1967, B. V. Peterson (2 mm CNC); North Carolina, Burke County, Linville Falls, 14.VI. 1958, G. W. Byers (1 m SNOW); N. C., Highlands, 3800′, 15.V. 1957, J. R. Vockeroth (2 mm CNC); N. C., Mt. Mitchell, 6500—6684′, 5.VI. 1962, J. R. Vockeroth (1 m CNC); N. C., Macon Co., Highlands, 35°3.2′N, 83°11.3′W, 3850′, 19.VII. 1958, J. L. Laffoon (2 mm ISU); No. Car., Macon Co., Robin Branch (near Wayah Bald), 35°10.1′N, 83°35.1′W, 4400′, 3.VII. 1958, J. Laffoon (1 m ISU); Tenn., Gr. Smoky Mt. Nat. Pk., Indian Gap, 5200′, 2.VII. 1957, J. R. Vockeroth (1 m CNC); same locality, 5200′, 3.VII. 1957, C. D. Hines (1 m CNC); Ala., Florence, 26.XII. 1957 (1 m USNM); LA., Summerfield, Kisatchie N. F., 13—14.III. 1972, H. J. Teskey (1 m CNC).

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellow to brown, posterior parts of head brown. Antenna brownish, scape, pedicel and base or whole of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow to light brownish, with 3—4 longer setae. Mesoscutum entirely brownish to brown or yellowish to brownish with 3 indistinct longitudinal stripes, anterolateral corners sometimes yellow. Mesanepisternum yellowish to brown. Mesokatepisternum yellowish to brown, ventral part darker. Scutellum yellow to brownish, with 2 long setae. Laterotergite yellowish to brown, ventral part darker. Mediotergite yellowish to brown, lateral and posterior parts darker, bare.

Legs. Coxae yellow to yellowish, coxa 3 sometimes with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.09—1.29, bt2:t2 = 0.75—0.84, bt3:t3 = 0.64—0.81.

Wing. Wing length 3.6—5.4 mm. Wing hyaline. Sc1 apically broken sometimes entirely missing, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 2—14 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork, usually below it. M ratios: 0.54—0.73, 0.68—0.80. Cu ratios: 0.67—0.85, 0.93—1.25. Macrotrichia: M petiole: 0—1; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish to dark brown or tergites 1—7 brownish to brown with posterior margins yellow, 6—7 brown. Sternites brownish or 1—3 yellow to yellowish, 4—5 brownish with posterior margins widely yellow, 6—7 brown.

Hypopygium. Figs. 589—593, yellowish to yellow. Processus comparatively short with long lateral spines. Tergal lateral appendage shorter than processus, with strong spines projecting medially. Sternal synsclerite with about 3 setae on both sides, without lateral appendages. Sternal submedian appendage very short and wide with a few small setae. Gonostylus with 2 branches, both with apical tooth. Aedeagus slender, relatively long, apically bilobed.

Female. Wing length 4.3—5.2 mm. Thorax light with 3 indistinct mesoscutal stripes. Abdomen brownish with posterior margins of tergites narrowly yellowish. Leg ratios: bt1:t1 = 1.08—1.25, bt2:t2 = 0.84—0.89, bt3:t3 = 0.65—0.73. The females also sometimes have a brown spot on the lateral surface of coxa 3. Terminalia as in Figs. 594—596, yellow.

Remarks: Wing length in males: Nearctic specimens: mean 4.45 mm, SD 0.36, N=23; Palaearctic specimens: mean 4.52 mm, SD 0.39, N=25.

Distribution: Holarctic. Europe: Austria, Federal Republic of Germany, Czechoslovakia, United Kingdom, Denmark, Norway, Sweden, Finland. USSR: Byelorussian SSR, Latvian SSR, Leningrad region, Murmansk region, Altai Mountains, Irkutsk region (East Siberia). Canada: North West Territories, British Columbia, Ontario, Quebec, New Brunswick. USA: Colorado, Minnesota, New York, Massachusetts, Connecticut, Pennsylvania, Maryland, Virginia, Kentucky, North Carolina, Tennessee, Alabama, Louisiana. Also reported from Poland and Lithuanian SSR (Czwalina 1893).

Biology: In Finland adults have been caught in mixed and coniferous forests and bogs. In northern Sweden this species has been collected with light, pit-fall and air-suction traps (Plassmann 1978a, 1979, 1980a). *M. trivittata* has also been caught with a Malaise trap.

Mycomya shermani Garrett, 1924

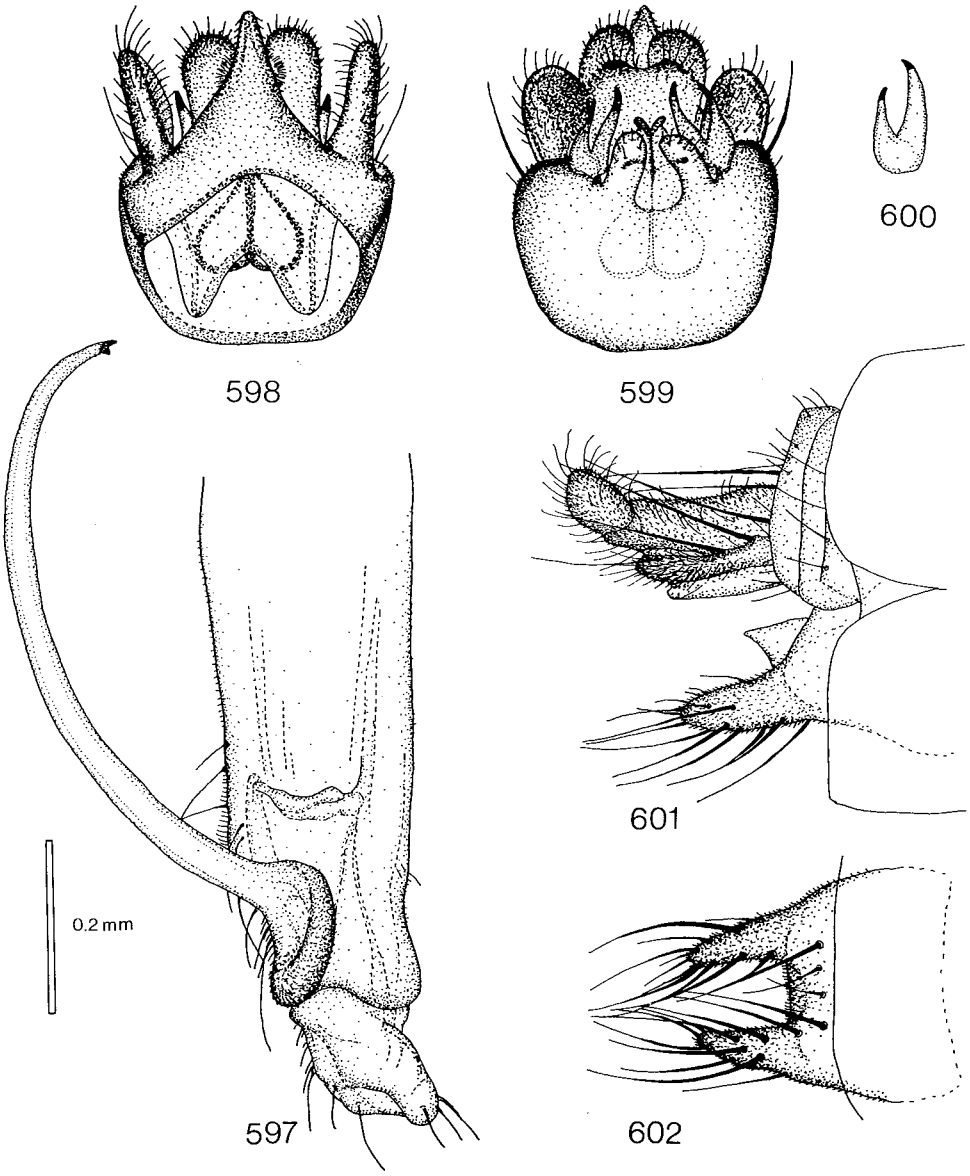
Figs. 597—602, key p. 36, 41, 42.

Mycomya shermani Garrett, 1924. Garrett 1924:66; Laffoon in Stone et al. 1965:221; Cole 1969:121.

Mycomyia shermani: Coher 1959:124.

Mycomyia kingi Edwards, 1941 (New synon.). Edwards 1941:27; Coe in Kloet & Hincks 1945:345; Plassmann 1974b:351, 1977b:9, 1978a:148, 1979:374, 1980a:178, 1980b:19.

Mycomya kingi: Kidd & Ackland 1969:22, 1970:11; Hutson in Kloet & Hincks 1976:24; Matile 1977:633; Väisänen in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:39.



Figs. 597—602. *Mycomya shermani.* — 597: mid-coxal spur and coxa 2. — 598: male hypopygium, tergal view. — 599: hypopygium, sternal view. — 600: gonostylus. — 601: female terminalia, lateral view. — 602: hypogynal valves, sternal view. Scale 0.2 mm.

Mycomyia trivittata: Edwards 1925a:550.

(p. p.) *Sciophila cinerascens:* Lundström 1907:9, 1909:11, 1912a:9. (p. p. = *M. cinerascens* (Macquart)).

(p. p.) *Mycomyia cinerascens:* Ostroverchova 1971:94; Ostroverchova & Izotov 1974:82; Ostroverchova 1977:20, 1979:63 (? p. p. = *M. cinerascens* (Macquart)).

Type locality: British Columbia, Michel (Canada).

Types: — *Mycomya shermani* Garrett: Lectotype (studied) by present designation: Michel 1.IX. BC. 5277. C. Garrett Collector. *My shermani.* hypo slide. Holotype *Mycomya shermani* ♂ C. Garrett C. B. D. Garrett. + hypop. slide: *Mycomyia shermani* C Garrett Canada. B. C. Michel 1.IX. Holotype hypo ♂ 5277. (m CNC). — *Mycomya kingi* Edwards: Holotype (studied): Aviemore 5.8. 03 J. J. F. X. King. Ex. coll. J. J. F. X. King. B. M. 1938—52. Type. *Mycomya kingi* Edws. (m BMNH). Type locality: Inverness, Aviemore (UK).

Material examined: Italy: Aosta, Vallée de Rhêmes, alt. 1900—2000 m, 8.IX. 1978, L. Matile (1 m MNHN); Aosta, Vallée de St. Barthelemy, alt. 1450 m, 7.IX. 1978, L. Matile (1 m MNHN); Aosta, Eau Rousse (Val-

savaranche), alt. 1600 m, 4.IX. 1978, L. Matile (3 mm 1 f MNHN); Aosta, Valsavaranche, P. N. G. P., Ponte del Gran Clapey, alt. 1750 m, 20.IX. 1974, L. Matile (6 mm MNHN); Aosta, Valgrisanche, Chamencon, alt. 1280 m, 12.IX. 1974, L. Matile (1 m 3 ff MNHN); Aosta, Vallée de Cogne, P. N. G. P., Valnontey, alt. 1650 m, 21.IX. 1974, L. Matile (4 mm MNHN). — France: Basses Alpes, Pessière — Ravin Valplane, 1700 m, 25.VII. 1972, Hebrard (2 mm 2 ff MNHN); Basses Alpes, Pont du Seignes, 1700 m, 24.VIII. 1972, Hebrard (2 mm MNHN). — Austria: Styria, Admont, 10.VIII. 1891, VII. 1893, Mik (2 mm *"Scioph. cinerascens"* WIEN); Austr. sup., Hammern, 13.IX. 1872, Mik (1 m WIEN); Austr. sup., Schanz, 29.VIII. 1883, Mik (3 mm WIEN); Tirolis, Achenthal, 27.VII. 1876, Mik (1 m WIEN); Rotwand hs., 28.VIII. 1915, C. F. Adams (2 mm PU). — Hungary: Magas-Tátra, Popráditó, 1500 m, 11.VIII. 1963, Mihályi (1 m TMB); Tatra, Smreczynski-tó, 1250 m, 28.VIII. 1957, Soós (2 mm 2 ff TMB). — UK: Aviemore, 5.VIII. 1903, J. J. F. X. King (*M. kingi* holotype, 1 m paratype BMNH); same locality, 23.VIII. 1903, J. J. F. X. King (1 m paratype of *M. kingi* BMNH); same locality, 10.VIII. 1903, J. J. F. X. King (1 m paratype of *M. kingi* BMNH). — Norway: Bv., Uvdal, Geitsjøen, 1160 moh, Skråning, 24.VIII. 1969, K. E. Jørstad et al. (4 mm BERG); Bv., Haugastøl, Lillevann, 1100 moh, 15.VIII. 1971, A. Løken (1 m BERG); same locality, E-sia, Håvet i *Salix* og *Vaccinium*, 30.VIII. 1969, A. Løken (1 m BERG); Bv., Uvdal, Øvre Hein, 1130 moh, Frodig kratt, 20.VIII. 1969, K. E. Jørstad et al. (1 m BERG); HOi., Eidfjord, Sysenvatn, 980 moh, törr mark, 7.VIII. 1969, K. E. Jørstad et al. (1 m BERG); same locality, 940 moh, Kratt, 9.VIII. 1969, K. E. Jørstad et al. (2 mm BERG); same locality, 960 moh, Srissen bjørkeskog, 8.VIII. 1969, K. E. Jørstad et al. (1 m BERG); HOi., Eidfjord, Halnefjorden, 1240 moh, Skreut, 29.VIII. 1969, K. E. Jørstad et al. (1 f BERG); HOi., Ulvik, Finse, sørskråning Nordnut, 24.VIII. 1969, Feltkurs (1 m BERG); N. Norge, Pålus (1 m MZH); Finmark, Seiland Is., VIII. 1934, FitzGerald (1 m 1 f BMNH). — Sweden: Dlr., Leksand, Sångån, 21.VIII. 1971, 24.VIII. 1971, T. Tjeder (3 mm LUND); Nb., Råneå, Högsön, blandskog, 30.VIII. 1965, H. Andersson (8 mm coll. Andersson); Nb., Råneå, Bergviken, Tallhed, 2.IX. 1965, H. Andersson (2 mm coll. Andersson); Kaltisjokk, 11—15.IX. 1969 (20—22) (1 m No. 9097 ZSM); Lpl., Abisko, 20.VIII. 1951, 21.VIII. 1951, 23.VIII. 1951, J. R. Vockeroth (4 mm 1 f CNC). — Finland: *Ab:* Vihti, Vihtijärvi, 22.VIII. 1962, VIII. 1962, 15.VIII. 1963, 27.VIII. 1963, 15.IX. 1963, 27.IX. 1965, R. Tuomikoski (22 mm MZH); Tenhola, Skogby bruk, 26.VIII. 1965, R. Tuomikoski (8 mm MZH); Nagu (Nauvo), Bishopsö, 15—20.VII. 1944, Nordman (1 m MZH); Nystad (Uusikaupunki), 1923, Hellen (1 m MZH); Karislojo (Karjalohja), J. Sahlberg (1 m MZH); Kuustö (Kaarina, Kuusisto), Lundström (20 mm MZH); Halikko, 6703:274, 18.IX. 1981, M. Koponen (1 m AFZ); Halikko, 670:27, 25.VIII. 1981, Siitonen (1 m MZH); *N:* Tammisaari, Gullö, 16—28.IX. 1967, K. Mikkola (1 m MZH); Helsinki, Nordsjö (Vuosaari), 2 IX. 1963, R. Tuomikoski (1 m MZH); Helsinki, Malminkartano, 27.IX. 1962, R. Tuomikoski & W. Hackman (8 mm MZH); same locality, 16.IX. 1965, R. Tuomikoski (6 mm MZH); Esbo (Espoo), R. Frey (1 m MZH); Espoo, Bodom, 3.IX. 1963, R. Tuomikoski (9 mm MZH); Esbo, Kolmperä, 6.IX. 1964, 12.IX. 1964, 4.IX. 1965, 20.IX. 1965, W. Hackman (22 mm MZH); Esbo, Westend, 15.IX. 1962, W. Hackman (1 m MZH); Pyhtää, Kiviniemi, 11.IX. 1977, R. Väisänen (abundant, 43 mm MZH); *Ka:* Vehkalahti, 17.VIII. 1971, 28.VIII. 1971, 4.IX. 1971, 11.IX. 1971, 21.IX. 1971, 2.X. 1971, 9.X. 1971, 26.X. 1971, 13.IX. 1972, L. Tiensuu (19 mm 3 ff MZH); Virolahti, 1.VIII. 1971, 26.IX. 1971, L. Tiensuu (3 mm MZH); *Ta:* Ruovesi, Ryövärinkuoppa, 20.IX. 1965, R. Tuomikoski (1 m MZH); Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (8 mm MZH); Janakkala, Rastila, 19.VI. 1965, R. Tuomikoski (7 mm MZH); Lammi, Biol. Station, 5.IX. 1977, light trap, R. Väisänen (1 m MZH); Kangasala, 26.VII. 1914, R. Frey (3 mm MZH); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (7 mm MZH); St. Michel (Mikkeli), E. J. Bonsd. (1 m MZH); *Oa:* Vasa (Vaasa), IX. 1907, R. Frey (1 m MZH); *Tb:* Etseri (Ähtäri), 25.VIII. 1918, R. Frey (2 mm MZH); *Kb:* Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (12 mm MZH); Tohmajärvi, Hiidenvaara, 14.VIII. 1964, R. Tuomikoski (1 m MZH); Tohmajärvi, Hyypiänvaara, 14.VIII. 1964, R. Tuomikoski (2 mm MZH); *Om:* Nykarleby (Uusikaarlepyy), R. Frey (1 m MZH); Nykarleby, Stennäs, 6.IX. 1960, W. Hackman (1 m MZH); Raahe, Wuorentaus (18 mm MZH); Raahe, Pitkäkari, IX.1908, Wuorentaus (13 mm 7 ff MZH); *Ok:* Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (91 mm MZH); Säräisniemi (Vaala), Wuorentaus (1 m MZH); *Ob:* Turtola (Pello) (1 m MZH); Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (30 mm MZH); *Ks:* Kuusamo, Liikanen, 21.VII. 1967, R. Tuomikoski (1 m MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (106 mm MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (175 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (88 mm MZH); Kuusamo, Oulanka, 10.IX. 1980, A. Albrecht (4 mm 3 ff MZH); *LkW:* NL 68°, Pallastunturi, Pyhäjoki, 27.VII. 1967, Mihályi (1 m TMB); *Le:* Kelottijärvi, 19.VIII. 1967, M. Meinander (9 mm MZH); Enontekiö, S. E. slopes of Tshuukisvaara, 15.VIII. 1957, E. W. Groves (1 m BMNH); Kilpisjärvi, 16.VIII. 1970, L. Tiensuu (2 mm MZH); Malla, 14.VIII. 1970, L. Tiensuu (3 mm MZH); *Li:* Inari, Paskaloutuma, 5.VIII. 1961, K. Ahola & E. Pätiälä (1 m MZH). — USSR: Transcarpathien, Studnjenoe, 25.VIII. 1977, N. Krylova (1 m lot IV MOSC); Leningrad. o., Luzhsk., Tolmachevo, 19.VIII. 1935, Stackelberg (1 m LEN); Kol'sk., Khibin. g., bass. oz. Vud-Yavr, 16.VIII. 1930, 22.VIII. 1930, 30.VIII. 1930, 9.IX. 1930, 14.IX. 1930, 18.IX. 1932, Fridolin (6 mm LEN); Kol'sk., Khib. gory, bas. ozer Vud-yavr, 7.VIII. 1933, 9.IX. 1933, Fridolin (2 mm LEN); Arkhang. g., Kola, 8.IX. 1928, Cheburova (1 m LEN); Arkhang. g., Murm. zh. d., st. Khibiny, 19.VIII. 1928, Cheburova (2 mm LEN); Tobol. g., s. Muzhi na Obi, 65°30′, 14.IX. 1925, 17.IX. 1925, Fridolin (2 mm 4 ff LEN); Altai, 40 km Iogatsh S, 1000—1300 m, 19.VI. 1982, K. Mikkola (29 mm 33 ff MZH). — Alaska: Naknek, on tundra, 8.VIII. 1952, 9.VIII. 1952, W. R. Mason (4 mm 1 f CNC); Naknek, King Salmon, VIII. 1952, W. R. Mason (1 m CNC); Steese Hwy., MP 81, 4.IX. 1948, G. Jefferson (1 m USNM); Lower Tonsina, 21.VIII. 1953, W. C. F. (2 mm 1 f WASH); Girdwood, Mile Post 90, Seward Highway, 25.VIII. 1957, E. L. Kessel (1 m CAS); Spenard, 17.VIII. 1957,

E. L. Kessel (2 mm 1 f CAS); same data, 24.VIII. 1957 (1 m 1 f CAS). — Canada: Yukon Terr., Watson Lake Camp, Alaska Highway, 7.VIII. 1957, E. L. Kessel (1 m CAS); Y. T., Watson L., 30.VIII. 1960, W. W. Moss (1 f CNC); Y. T., 14 mi. E. Dawson, 1300′, 3.VIII. 1962, P. J. Skitsko (3 mm MZH); NWT., 50 mi. NE. of Aklavik, 9.VIII. 1930, O. Bryant (1 m CAS); B. C., Michel, 1.IX., C. Garrett (*M. shermani* lectotype, 1 m paralectotype CNC); B. C., Kimberly, St. Mary's Lake, 1.IX., C. Garrett (3 m hypop. slides No. 4424, 4421, 4734 USNM); same locality, 29.VIII., C. Garrett (5 m hypop. slides No. 4733, 4422, 4423, 2580, 2569, No. 2569 labelled as "metatype" USNM); B. C., Ketchum L., 131°45′, 58°22′, 3600′, grass and moss bogs, 23.VIII. 1960, R. Pilfrey (1 m 1 f CNC); B. C., King Salmon L., 1750′, in camp grounds, 58°43′, 132°54′, 4.VIII. 1960, R. Pilfrey (1 m CNC); B. C., Mt. Thornhill, nr. Terrace, 1500′—2000′, second growth hemlock forest, 8.VIII. 1960, B. Heming (5 mm CNC); Alta., Slave L., 17.VIII. 1924, O. Bryant (1 m CAS); Alta., Waterton Nat. Park, Cameron L. Rd., 19.VIII. 1961, B. H. Poole (7 mm 1 f CNC); Que., Indian House L., 14.VIII. 1954, W. R. Richards (4 mm CNC); same locality, 15.VIII. 1954, 16.VIII. 1954, 20.VIII. 1954, R. Coyles (6 mm 2 ff CNC); Lab., Nagvak Fjord, Tessiujak Bay, 15.VIII. 1954, E. E. Sterns (1 m CNC).

Description:

Head. Palp and other mouthparts yellow to yellowish, face brownish, posterior parts of head dark brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5—3 times, 2nd twice as long as wide.

Thorax. Pronotum light brownish to brown, with 4 longer setae. Mesoscutum entirely brown or light brown without distinct markings or yellowish with 3 brown posteriorly partially fused longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish, ventral part brown. Scutellum light brownish to brown, with 2 long setae. Laterotergite brownish, ventral part brown. Mediotergite brown, bare, occasionally with 1—2 setae.

Legs. Coxae yellow to yellowish, coxa 3 with brownish to brown spot on lateral surface, femora yellow to yellowish, tibiae and tarsi brownish. Coxa 1 with many long thin setae on anteromedial margin. Coxa 2 with long curved spur with 2 apical teeth (Fig. 597). Leg ratios: bt1:t1 = 1.30—1.63, bt2:t2 = 0.90—1.00, bt3:t3 = 0.70—0.82.

Wing. Wing length 3.7—5.1 mm. Wing hyaline. Sc occasionally ending in C slightly distally to middle of small cell, Sc1 usually apically weak, broken or entirely missing, Sc2 ending in R1 slightly proximally to or near middle of small cell. Apical part of Sc usually bare, seldom bearing 1—3 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.59—0.82, 0.80—1.00. Cu ratios: 0.57—0.86, 0.79—1.36. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish to dark brown or tergites 1—5 with indistinct brownish posterior margins. Sternites 1—4 yellowish, 5—7 brownish.

Hypopygium. Figs. 598—600, yellowish to brownish. Processus short, triangular, with short spines. Tergal lateral appendage wide, rounded, with many short setae. Sternal synsclerite with 1 long and a few shorter setae on both sides, without lateral appendages. Sternal submedian appendage short, wide, with small setae. Gonostylus with 2 branches, lateral branch shorter than median one, both with apical tooth. Aedeagus comparatively long, slender, apically bilobed.

Female. Wing length 3.7—5.0 mm. Abdomen brownish to brown. Mediotergite usually bare, sometimes with 1—2 small setae. Leg ratios: bt1:t1 = 1.38—1.40, bt2:t2 = 0.91—0.94, bt3:t3 = 0.74—0.78. Terminalia as in Figs. 601—602, yellowish.

Remarks: Wing length in males: European specimens: 3.8—5.1 mm, mean 4.42 mm, SD 0.30, N=26; Asiatic specimens (Altai): 3.7—4.8 mm, mean 4.32 mm, SD 0.24, N=25; Nearctic specimens: 3.7—5.0 mm, mean 4.21 mm, SD 0.34, N=21. Great differences seem to exist between the North American populations: specimens from Quebec: 3.7—4.1 mm, mean 3.94 mm, SD 0.18, N=9; specimens from Alberta: 4.4—5.0 mm, mean 4.6 mm, SD 0.23, N=6.

Distribution: Holarctic. Europe: Italy, France, Austria, Hungary, United Kingdom, Norway, Sweden, Finland. USSR: Ukrainian SSR, Leningrad region, Murmansk region, Ob River, Altai Mountains. Alaska. Canada: Yukon Territory, North West Territories, British Columbia, Alberta, Quebec, Labrador. Also reported from the Federal Republic of Germany (Plassmann 1977b, 1980b), and very probably as "*M. cinerascens*" from West and East Siberia (e.g. Ostroverchova 1979).

Biology: Some specimens have been collected with pitfall, light and air-suction traps (Plassmann 1978a, 1979, 1980a). The collecting biotopes given are grass, moss and pine bogs, hazel, birch and birch-alder woods, pine, spruce, hemlock and mixed forests, fells in Lapland and arctic tundra.

Mycomya ruficollis (Zetterstedt, 1852)

Figs. 603—605, key p. 35, 36, 42.

Sciophila ruficollis Zetterstedt, 1852. Zetterstedt 1852:4121; Siebke 1877:246; Kertész 1902:64, 1903:35; Lundström 1907:9, 1909:11, 1914:11.

(not) *Sciophila ruficollis:* Walker 1856:40 (= *M. affinis* (Staeger)).

Mycomyia ruficollis: Wahlgren 1921:165; Edwards 1924b:162; Landrock 1926—1927:51, 1930:255; Lackschewitz 1937:9; Landrock 1940:31; Frey & Storå 1941:46; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:26, 1970b:388, 1971b:62, 1977b:9, 1978c:48; Ostroverchova 1979:73; Plassmann 1980a:178.

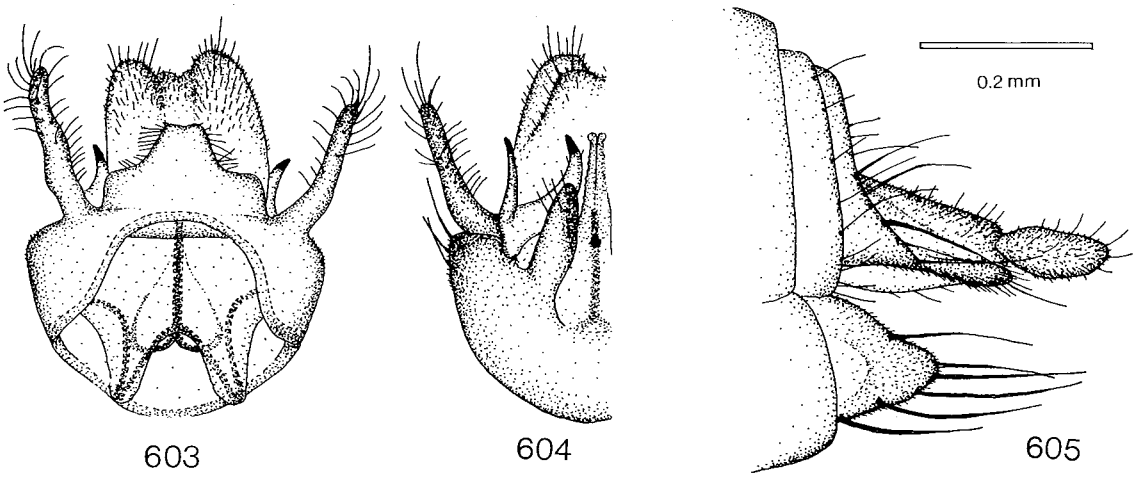
Mycomya ruficollis: Väisänen 1979a:47, in Hackman 1980:31; Väisänen 1982b:41.

(?) *Sciophila flavicollis:* Lundström 1907:10, 1909:11.

Type locality: "Jemtlandia ad radicem alpis Mulfjellet" (Sweden).

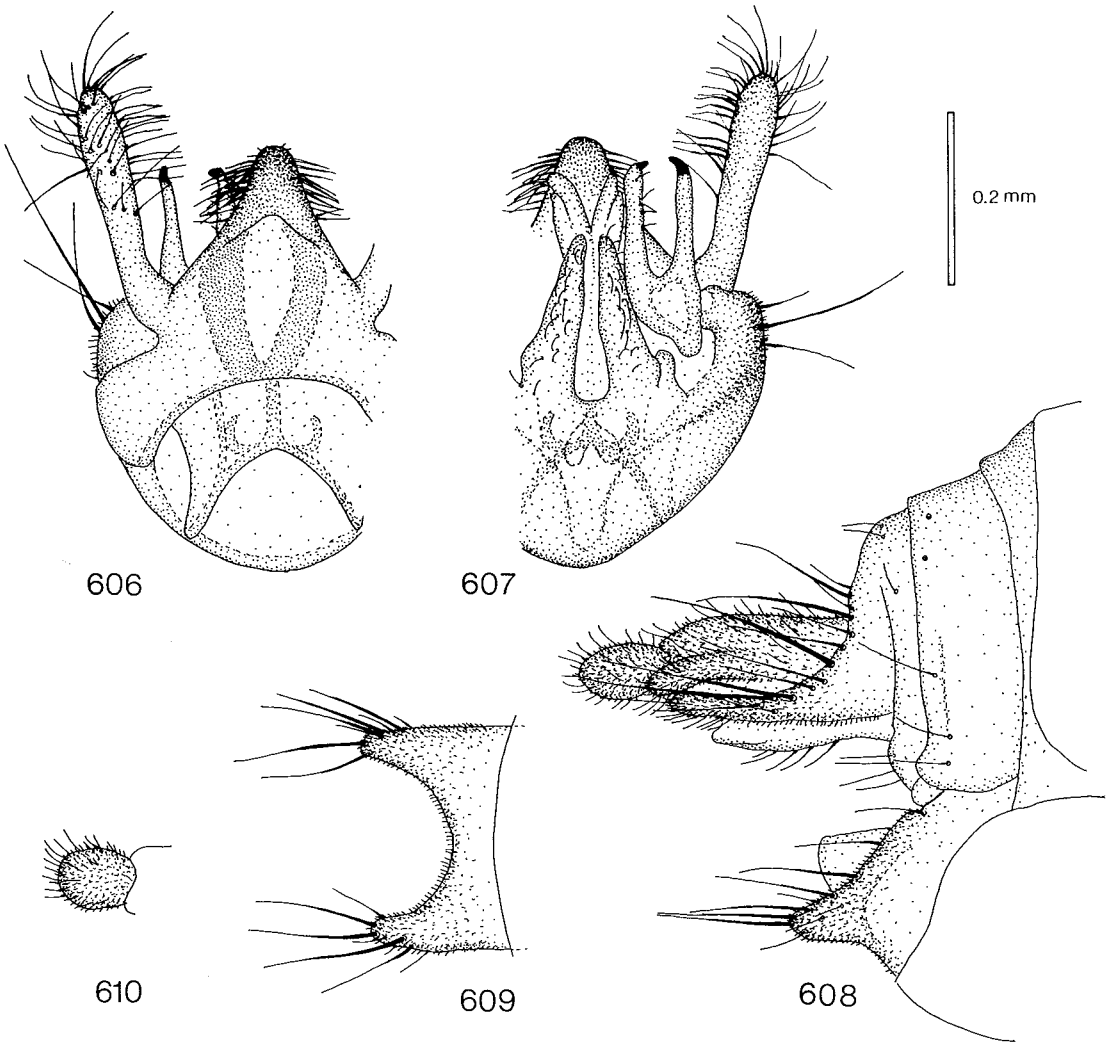
Type: Lectotype (studied) by present designation: *Sc. ruficollis* Zett. ♂. Mulfiellet Jemtl. 203. (m LUND).

Material examined: France: Rre. des Ecouges (Isère), alt. 850 m, 26.VI. 1970, D. & L. Matile (1 f MNHN). — Italy: Aosta, Piano di Sylvenoire (Cogne), alt. 1550 m, forêt epicea, 27.VI. 1973, D. & L. Matile (39 ff MNHN); same locality, 1700 m, 14.VII. 1975, D. & L. Matile (3 mm 11 ff MNHN); Aosta, Comba di Verto-



Figs. 603—605. *Mycomya ruficollis*. — 603: male hypopygium, tergal view. — 604: hypopygium, sternal view. — 605: female terminalia, lateral view. Scale 0.2 mm.

san, alt. 1804 m, 1.VII. 1973, L. Matile & F. Lavy (1 f MNHN); same locality, Breuíl, alt. 1809 m, 25.VI. 1972, L. Matile (1 m MNHN); Aosta, Valnontey, Chemin de Buttier, 1550—1600 m, 12.VII. 1975, D. & L. Matile (2 ff MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (1 m ISU). — Austria: Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 26.VII. 1972, 29—30.VII. 1972, 3.VII.—1.VIII. 1972, A. C. & B. Pont (3 mm 2 ff BMNH); Tirol, Nr. Gries, wooded slopes and river bank, 4.VII. 1969, H. & M. C. Cogan & R. I. & R. Vane-Wright (1 f BMNH); Salzburg, Attelsee, Burgau, 30.VI. 1973, S. J. Chambers & A. M. Hutson (27 ff BMNH); Breitenau, 13.VI. 1915, C. F. Adams (1 f PU). — Hungary: Králova Hola, Zubrovicza vgy., 19.VII. 1964, G. Bencze (1 m TMB); Zemplénihg., N. Pétermenkó, 21.VI. 1960, Zsirkó (1 m TMB); Durmitor, Mont., Crno Jezero, 1400 m, 29.VI. 1958, Mihályi (1 m 2 ff TMB). — Roumania: Cibinului Mts. below Paltinis, c. 4000′, stream through wooded valley, 24—25.VI. 1969, B. H. & M. C. Cogan & A. C. & B. Pont (3 mm BMNH); Retezatului Mts., nr. Hobita Cabana, mature pine forests, c. 4000′, 29.VI. 1969, B. H. & M. C. Cogan & A. C. & B. Pont (6 mm BMNH). — Czechoslovakia: Tatry, Štrbské P., 1000 m/m, 14.VI. 1966, P. Laštovka (1 m VUPP); Boh. bor., Smržovka, 20.VII. 1962, P. Laštovka (1 m 5 ff VUPP); Boh. Komořany, 16.VI. 1960, Laštovka (1 m VUPP); Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (22 ff VUPP); Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovkfa (9 ff VUPP); Boh. mer., Horská Kvilda, 24.VII. 1961, P. Laštovka (1 f VUPP); Boh. c., Dobřichovice, 23.VI. 1968, P. Laštovka (1 f VUPP); Vihorlat, Snin. Kameň, 600 m/m, 25.V. 1966, P. Laštovka (1 f VUPP); same locality, 25.VI. 1966, P. Laštovka (1 m VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (3 mm 22 ff VUPP). — Poland: Bialowieza Park Narod., kw. 371, grond niski, 4.VI. 1964, W. Mikolajczykj (2 mm WARS); same data, kw. 314, oles jesionowy, 27.VI. 1964 (1 f WARS); same data, kw. 369, grond niski, 6.VI. 1964 (2 ff WARS); same data, kw. 399, grond wysoki, 27.VI. 1964 (2 ff WARS); same data, kw. 399, Grąd wysoki, 13.VIII. 1965 (2 ff WARS); same data, kw. 283, grond niski, 6.VI. 1964, 28.VI. 1964, 29.VI. 1964 (6 ff WARS); same data, kw. 340, grond niski, 27.VI. 1964 (4 ff WARS). — FRG: Murnauer Moos, 30.V. 1979, W. Schacht (1 m No. 10600 ZSM); Frassdorf b. Rosenheim, 28.VI. 1917, C. F. Adams (1 m PU); Harz, Wildemann, 14.VI. 1962, J. C. Deeming (12 mm 6 ff BMNH). — Denmark: Rudstrup Skov, 20.V. 1934, P. Nielsen (1 m COPEN). — Sweden: Jemtl., Mulfiellet (lectotype, 4 ff paralectotypes LUND); Nb., Pajala s:n, Rutijärvi, 22.VII. 1951, Ander, Ardö, Berdén & Dahl (1 m LUND); Nb., Pajala s:n, Harrijoki, (fälla), 26.VII. 1951, Ander, Ardö (1 f LUND); Nb., Pajala, 22.VII. 1951, J. R. Vockeroth (1 f CNC); Lpl., Abisko, 9.VIII. 1951, J. R. Vockeroth (2 ff CNC); Muonio, Muonionvaara, 8.VII. 1911, R. Frey (2 mm MZH). — Finland: *Al:* Jomala, Konungsö, 16.VI. 1945, R. Frey (1 m MZH); *Ab:* Vihti, R. Frey (3 mm MZH); Vihti, Vihtijärvi, 19—20.VI. 1959, 22.VI. 1962, 5.VII. 1962, 6.VII. 1962, 12.VII. 1962, 8.VI. 1963, 15.VI. 1963, 16.VI. 1963, 23.VI. 1963, 29.VI. 1963, 8.VII. 1963, 12.VII. 1963, R. Tuomikoski (36 mm MZH); same locality, 3.VII. 1967, Mihályi (2 ff TMB); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH, 1 f BMMN); Bromarv, Framnäs, 12.VI. 1966, K. Mikkola (2 mm MZH); *N:* Helsinki, Nordsjö (Vuosaari), 26.VI. 1963, R. Tuomikoski (1 m MZH); Esbo (Espoo), 21.VI. 1962, 30.VI. 1962, 6.VII. 1962, W. Hackman (3 mm MZH); Esbo, Westend, 27.VI. 1962, 8.VII. 1962 (2 mm MZH); Esbo, Småholmen, 27.VI. 1962, 7.VII. 1962, W. Hackman (2 mm MZH); Esbo, Kolmperä, 21.V. 1963, 4.VI. 1963, 10.VI. 1963, 19.VI. 1963, 23.VI. 1963, 21.VI. 1964, 22.VII. 1964, W. Hackman (10 mm MZH); same locality, 4.VII. 1967, Mihályi (5 ff TMB); *Ka:* Vehkalahti, 3.VI. 1971, 14.VI. 1971, 19.VI. 1971, 30.VI. 1971, 13.VII. 1971, L. Tiensuu (4 mm 4 ff MZH); Virolahti, 3.VII. 1971, L. Tiensuu (1 f MZH); *Ta:* Jokioinen, 24.VI. 1964, A. Väre (1 m FLHM); Lammi, Biol. Stat., 17.VII. 1967, Mihályi (4 ff TMB); same locality, 9.VII. 1967, meat trap, Mihályi (3 ff TMB); *Kl:* Uukuniemi, 25.VI. 1963, W. Hackman (4 mm MZH); *Kb:* Kesälahti, 24.VI. 1963, W. Hackman (1 m MZH); Kitee, Papinniemi, 26.VI. 1963, W. Hackman (1 m



Figs. 606—610. *Mycomya arcuata.* — 606: male hypopygium, tergal view. — 607: hypopygium, sternal view. — 608: female terminalia, lateral view. — 609: hypogynal valves, sternal view. — 610: apical segment of cercus, sternal view. Scale 0.2 mm.

MZH); Pielisjärvi, Koli, 15—16.VIII. 1964, 5.VII. 1965, 6.VII. 1965, R. Tuomikoski (91 mm MZH); same locality, 15.VII. 1967, Mihályi (1 f TMB); *Ok:* Sotkamo, Aarreniemi, 7.VII. 1965, R. Tuomikoski (4 mm MZH); same locality, 14—15.VII. 1965, 16—21.VII. 1965, 22—28.VII. 1965, A. V. V. Mikkola (3 mm MZH); same locality, 2.VII. 1966, K. Keynäs (4 mm MZH); same locality, 17.VII. 1967, Mihályi (3 ff TMB); Kuhmo, 1.VII. 1965, R. Tuomikoski (89 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, 13.VII. 1965, R. Tuomikoski (49 mm MZH); *Ks:* Kuusamo, Iivaara, 10.VII. 1965, R. Tuomikoski (1 m MZH); Kuusamo, Rukavaara, 24.VI. 1964, 9.VII. 1965, R. Tuomikoski (19 mm MZH); Kuusamo, Liikanen, 21.VII. 1967, R. Tuomikoski (1 m MZH); Kuusamo, Kiutaköngäs, 10.VII. 1965, 19—24.VII. 1967, R. Tuomikoski (19 mm MZH); Oulanka, biol. Stat., 23.VII. 1967, 24.VII. 1967, 28.VII. 1967, Mihályi (1 m 4 ff TMB); same data, 22.VII. 1967, meat trap (1 m TMB); *LkW:* Pallas, Sammaltunturi, 15.VII. 1962, G. Roos (1 m MZH); Pallastunturi, 27.VII. 1967, 28.VII. 1967, Mihályi (1 m 3 ff TMB). — USSR: Kur., Legen, 31.V. 1931, L. (1 m MNB); Leningrad. o., Luzhsk., Tolmachevo, 17.VI. 1937, Stackelberg (1 m LEN); Petroskoi, Günther (1 ?f MZH); Bjäloguba, 1.VII. 1912, R. Frey (1 m MZH); Nuorttijoki, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (1 m MZH); Kol'sk., Khib. gory, bas. ozer Vyd-Yavr, 31.VII. 1932, 9.VIII. 1935, Fridolin (2 mm LEN). — Alaska: Isabel Pass, Mi. 206, Richardson Hwy., 2900′, 19.VII. 1962, R. E. Leech (1 m CNC). — Canada: Que., Indian House L., 4.VII. 1954, W. R. Richards (1 m CNC).

Description:

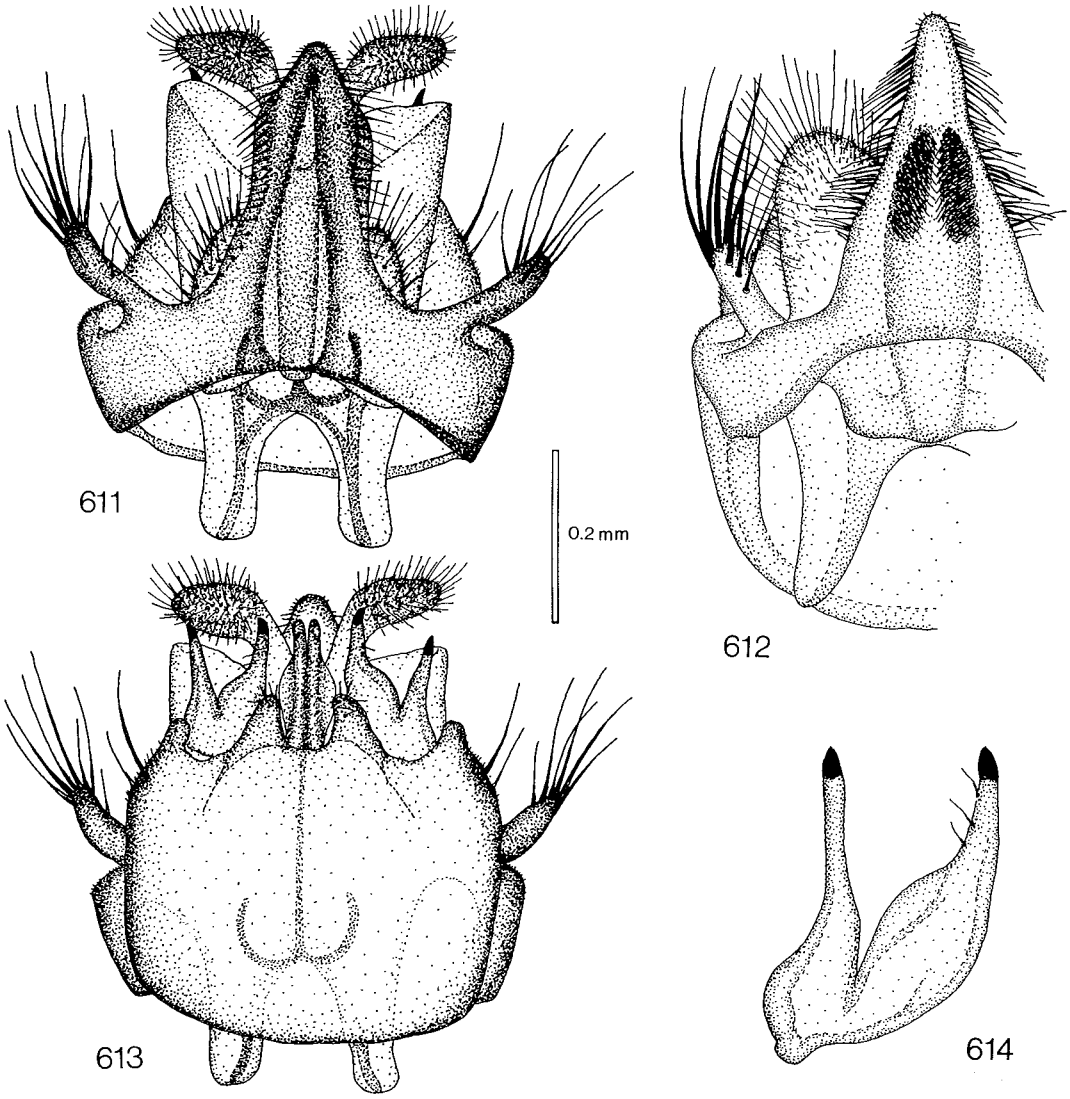
Head. Palp, other mouthparts and face yellow, posterior parts of head light brownish. Antennae light brownish, scape and pedicel yellow. 1st flagellomere about 2.5 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow to yellowish, without distinct markings or with light brownish more or less fused longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 2, occasionally 4, long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with some long and thin setae along anteromedial margin. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.87—1.00, bt2:t2 = 0.69—0.76, bt3:t3 = 0.55—0.65.

Wing. Wing length 3.5—4.4 mm. Wing hyaline. Sc1 usually apically broken, sometimes entirely missing, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 2—17 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.56—0.83, 0.69—1.05. Cu ratios: 0.61—0.73, 0.85—1.10. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely yellowish to light brownish or tergites 1—5 brownish with posterior margins yellow to yellowish, 6—7 brownish. Sternites yellow.



Figs. 611—614. *Mycomya fasciata*. — 611—612: male hypopygia, tergal view. — 613: hypopygium, sternal view. — 614: gonostylus. Scale 0.2 mm for Figs. 611—613, Fig. 614 2 x enlarged.

Hypopygium. Figs. 603—604, yellowish. Processus very broad. Tergal lateral appendage long slender. Sternal synsclerite with about 3 long setae on both sides, without lateral appendages. Sternal submedian appendage short, wide, with some small setae. Gonostylus with 2 branches, about equally long, both with apical tooth. Aedeagus long slender, apically bilobed.

Female. Wing length 3.7—5.2 mm. Yellow to yellowish. Leg ratios: bt1:t1 = 0.93—1.00, bt2:t2 = 0.70—0.77, bt3:t3 = 0.59—0.67. Terminalia as in Fig. 605, yellow.

Distribution: Holarctic. Italy, France, Switzerland, Austria, Federal Republic of Germany, Hungary, Roumania, Czechoslovakia, Poland, Denmark, Sweden, Finland. USSR: Latvian SSR, Leningrad region, ?Karelian ASSR, Murmansk region. Alaska. Canada: Quebec. Also reported from Norway (Siebke 1877), GDR (Landrock 1940), ?Lithuanian SSR (Landrock 1930), Estonian SSR (Lackschewitz 1937) and Soviet Far East (Ostroverchova 1979).

Biology: Some specimens collected with light (Plassmann 1980a) and meat traps.

Mycomya arcuata n. sp.
Figs. 606—610, key p. 35.

Type locality: California, Shasta County, Lassen Volcanic National Park (USA).

Type: Holotype (studied): U.S.A.: California: Shasta County, Lassen Volcanic Nat'l Park, creek by gravel pit, ca. 2.5 km W. of Kings Creek 2200 m 30-VII-1974 Paul H. Arnaud, Jr. (m CAS).

Material examined: Canada: British Columbia, Glacier National Park, ca. 1.6 km. N. Glacier, 14.VII. 1974, P. H. Arnaud, Jr. (2 mm CAS); British Columbia, Glacier National Park, Mountain Creek Campground, 14.VII. 1974, P. H. Arnaud, Jr. (1 f CAS); B. C., Procter, 8000 ft., 23.VII., C. Garrett (1 m hypop. slide No. 4958 "*Mycomyia arcuata*", "holotype" USNM); B. C., Mt. Revelstoke Nat'l Pk., Eva Lake trail, 6000', 23.VII. 1952, G. J. Spencer (4 mm CNC). — USA: Idaho, Moscow Mt., ?1.VI. 1907 (1 m PU); Oregon, Deschutes County, E. side McKenzie Pass near summit, ca. 1585 m, 25.VII. 1974 (1 m CAS); California, Shasta County, Lassen Volcanic Nat'l Park, creek by gravel pit, ca. 2.5 km W. of Kings Creek, 2200 m, 30.VII. 1974, P. H. Arnaud, Jr. (holotype & 1 m CAS); California, El Dorado Co., Lake Tahoe, 13.VI. 1959, Byers & party (1 m SNOW).

Remarks: Garrett never described his "*Mycomyia arcuata*". Thus, the label holotype on slide 4958 (USNM) is not correct.

Description:

Head. Palp and other mouthparts yellow, face yellowish to light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and basal half of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, posteriorly light brownish, with 3 brown, not very dark, longitudinal stripes. Mesanepisternum yellowish to brownish. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellow to light brownish, with 4 long setae. Laterotergite yellow to yellowish, ventral part brownish. Mediotergite yellow, lateral and posterior parts yellow, bare.

Legs. Coxae yellow, coxa 3 sometimes with brownish spot on lateral surface, coxa 3 usually with distinct, sometimes indistinct, brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae sparsely distributed along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.19—1.26, bt2:t2 = 0.80—0.91, bt3:t3 = 0.68—0.77.

Wing. Wing length 5.2—6.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 4—13 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.47—0.55, 0.56—0.69. Cu ratios: 0.55—0.76, 0.79—1.11. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—6 brown, with posterior fifths yellow, 7 brown. Sternites 1—5 yellow, 6 yellow, with light brownish anterior part, 7 brownish.

Hypopygium. Figs. 606—607, yellowish to brownish. Processus comparatively long, basally wide, triangular. Tergal lateral appendage longer than processus, comparatively narrow. Sternal synsclerite with about 3 setae on both sides, without distinct lateral appendages. Sternal submedian appendage long, narrow, with many setae. Gonostylus with 2 branches about equally long, both with apical tooth.

Female. Wing length 5.5 mm. Mesoscutal stripes more or less fused, brownish, anterolateral corners of mesoscutum yellow. Abdominal tergites brown with apical fifths yellow, sternites lighter without distinct markings. Leg ratios: bt1:t1 = 1.09, bt2:t2 = 0.80, bt3:t3 = 0.64. Terminalia as in Figs. 608—610, yellowish.

Distribution: Western Nearctic. Canada: British Columbia. USA: Idaho, Oregon, California.

Biology: Unknown.The collecting biotope given for one specimen is a creek by a gravel pit.

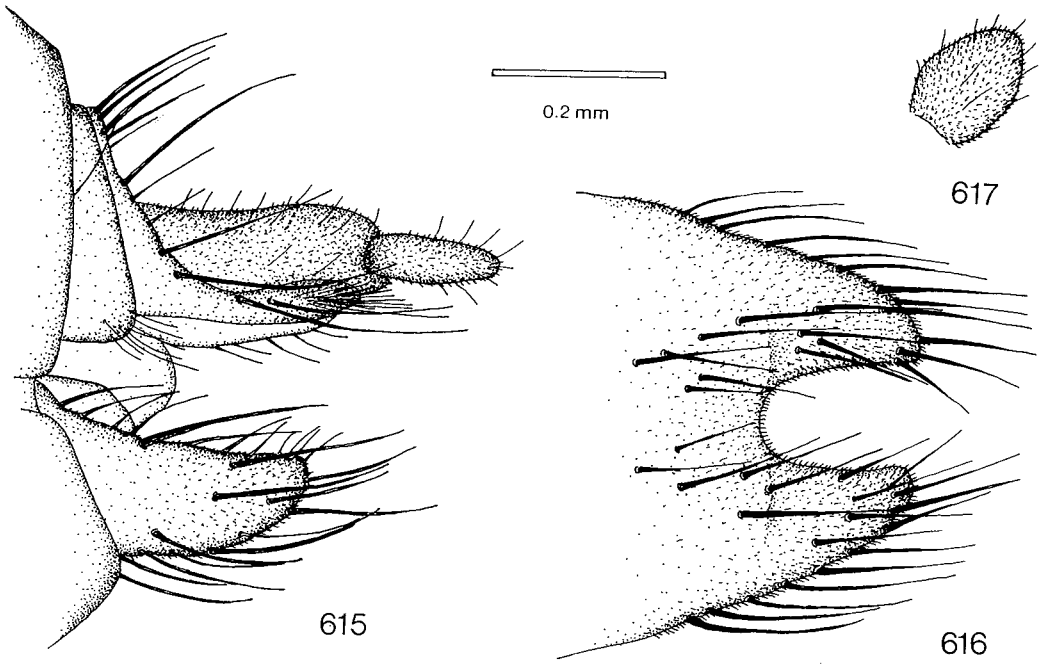
Mycomya fasciata (Zetterstedt, 1838)
Figs. 611—617, key p. 35, 42.

(p. p.) *Sciophila fasciata* Zetterstedt, 1838. Zetterstedt 1838:858 (p. p. = *Sciophila sororcula* Zetterstedt = ? *M. wankowiczii* (Dziedzicki)).

Sciophila fasciata: Staeger 1840:270; Zetterstedt 1852:4105, 4362; Osten-Sacken 1858:143; Schiner 1864:442; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Siebke 1877:245; Strobl 1880:45; Girschner 1883:204; Fedtschenko 1891:180; Theobald 1892:138; Czwalina 1893:2; Strobl 1895;143, 1898:598 (= 1900a:652), 1901:12; Kertész 1902:59, 1903:32; Strand 1903:11; Sack 1907:11; Lundström 1909:8; Strobl 1909:241; Lundström 1912a:9, 1914:11; Poppius et al. 1916:666; Stackelberg 1922:6; Edwards 1924b:161 (? syn. of *M. livida* (Dziedzicki)); Morge 1974:171.

(p. p.) *Sciophila fasciata:* Lundström 1907:7 (p. p. = *M. trivittata* (Zetterstedt)).

(not) *Sciophila fasciata:* Walker 1856:37; Winnertz 1863:720; Bonnamour 1925:88 (= *M. winnertzi* (Dziedzicki)).



Figs. 615—617. *Mycomya fasciata.* — 615: female terminalia, lateral view. — 616: hypogynal valves, sternal view. — 617: apical segment of cercus, sternal view. Scale 0.2 mm.

Mycomya fasciata: Landrock 1913:26; Väisänen in Hackman 1980:31; Väisänen 1982b:39.

Mycomyia fasciata: Wahlgren 1921:166; Frey & Storå 1941:46.

Sciophila fasciata Gimmerthal, 1847 (New synon.). Gimmerthal 1847a:9, 1847b:150; Dziedzicki 1885:Tab. VIII: Figs. 10—11, 1915:8.

Mycomyia fasciata: Landrock 1926—1927:45, 1930:254; Lackschewitz 1937:10; Landrock 1940:30; Krogerus 1960:107; Mikolajczyk 1967:21; Ostroverchova & Stackelberg 1969:273; Plassmann 1970b:388; Mikolajczyk 1971:371; Plassmann & Joost 1976:68; Ostroverchova 1977:20; Plassmann 1977b:8, 1978c:48, 1979:374, 1980a:177.

Sciophila griseovittata Zetterstedt, 1852 (New synon.). Zetterstedt 1852:4113; Siebke 1877:246; Kertész 1902:60, 1903:33; Edwards 1924b:162.

Mycomyia griseovittata: Landrock 1926—1927:47.

Mycomya griseovittata: Väisänen 1982b:39.

(? not) *Mycomyia griseovittata:* Plassmann 1971c:255, 1976b:61 (? = *Mycomya* sp.).

Sciophila clavicera Lundström, 1912 (New synon.). Lundström 1912a:9, 1914:11.

Mycomyia clavicera: Landrock 1926—1927:44; Edwards 1938:88, 1941:25; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Plassmann 1976a:77, 1979:373, 1980a:177.

Mycomya clavicera: Hutson in Kloet & Hincks 1976:24; Väisänen 1979a:48, in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:38.

Mycomya magna Garrett, 1924 (New synon.). Garrett 1924:64; Laffoon in Stone et al. 1965:221; Cole 1969:121.

Mycomyia magna: Coher 1959:123.

Mycomyia gimmerthali Landrock, 1925 (as new name for *Sciophila fasciata* Gimmerthal, preocc. Zetterstedt) (New synon.). Landrock 1925b:181.

Mycomya gimmerthali: Väisänen 1982b:39.

Type localities: Originally: "Dowre" (Norway); "Lapponia Tornensi passim, ad Muonioniska et Kengis"; "Botnia borealis ad Johannis Ro"; "Scan." (Sweden). By present designation: "Dowre" (= Dovre) (Norway).

Types: — *Sciophila fasciata* Zetterstedt: Lectotype (studied) by present designation: Dovre. 187. (f LUND). — *Sciophila fasciata* Gimmerthal: Holotype not located, apparently destroyed, f. Type locality: "Curland" (Latvian SSR). — *Sciophila griseovittata* Zetterstedt: Holotype (studied): *Sc. griseovittata* Zett. ♀. Näs. 193. (f LUND). Type locality: "Oestre-Naes Vardaliae" (Norway). — *Sciophila clavicera* Lundström: Lectotype (studied) by present designation: Muonio, R. Frey. Mus. Zool. H:fors Spec. typ. No 4271. *Sciophila clavicera* Lun. 3331. (m MZH). Type localities: Originally: Muonio; Enontekis (Enontekiö) (Finland). By present designation: Muonio (Finland). — *Mycomya magna* Garrett: Lectotype (studied) by present designation: Fernie 21 VII BC. C. Garrett Collector. 5239. hy. head legs. Holotype. *Mycomyia* ♂ *magna* Garrett. C. B. D. Garrett + slide: *Mycomyia magna* C Garrett BC Fernie 3 Sisters Mt. 8000 ft. 21.VII. Hypo ♂ also slide head ? legs. Holotype 5239. Also slide head legs Holotype.

+ slide: *Mycomyia magna* O C Garrett Canada. B C Fernie 3 Sisters Mt 9000 ft 21. VII. Head ♂ 3 legs. Holotype 5239. (m CNC). Type locality: British Columbia, Fernie (Canada).

Remarks: Several European authors, including Landrock (1926—1927, 1930, 1940), have used the name *Mycomyia fasciata* when referring to the species described by Gimmerthal as *Sciophila fasciata*, in spite of the fact that this name was preoccupied by Zetterstedt. If no senior synonyms existed, the correct name for Gimmerthal's species would be *M. gimmerthali* Landrock. Fortunately, part of Zetterstedt's material, including the syntypes of his *Sciophila fasciata*, was recently rediscovered in Sweden. The lectotype shows that *S. fasciata* Zetterstedt is both the senior homonym and senior synonym of *S. fasciata* Gimmerthal.

The fact that the male hypopygia of *M. fasciata* can vary greatly in appearance evidently led Lundström to describe his *S. clavicera*. No real structural difference can be found between his species and *M. fasciata* (in fact the variation in the appearance of the male hypopygium occurred in the same samples even in Lundström's material).

Material examined: Italy: Aosta, Vallée de Cogne P. N. G. P., alt. 1700 m, 23.VI. 1973, L. Matile (1 m MNHN); same locality, alt. 1650 m, 24.VI. 1973, D. & L. Matile (4 ff MNHN); Aosta, Piano di Sylvenoire (Cogne), alt. 1550 m, 27.VI. 1973, D. & L. Matile (2 mm 4 ff MNHN); same locality, 1550—1600 m, 9.VII. 1975, L. Matile (3 mm 5 ff MNHN); same locality, 24.VII. 1975, L. Matile (1 f MNHN); same locality, 1600—1650 m, 15.VII. 1975, D. & L. Matile (3 mm 7 ff MNHN); same locality, 1600—1700 m, 14.VII. 1975, D. & L. Matile (6 mm 7 ff MNHN); Aosta, Vallée de Rhêmes, 1880 m, 20.VII. 1975, L. Matile (1 m MNHN); Aosta, Valnontey, 1600 m, 14.VI. 1976, L. Matile (1 m MNHN); same locality, 1620—1750 m, 10.VII. 1975, D. & L. Matile (5 mm 2 ff MNHN); same data, 11.VII. 1975 (3 mm MNHN); same locality, 1800 m, 16.VII. 1975, L. Matile (1 m 1 f MNHN); same locality, Chemin de Buttier, 1550—1600 m, 12.VII. 1975, D. & L. Matile (1 f MNHN); Aosta, Bertolaz (Villeneuve), alt. 800 m, 5.VI. 1980, L. Matile (1 f MNHN); same locality, alt. 800 m, 1.VII. 1973, L. Matile & F. Lavy (1 f MNHN); Aosta, Vertosan, Jovançan, 1900—2000 m, 22.VII. 1975, L. Matile (4 ff MNHN); Aosta, Comba di Vertosan, 1900 m, 23.VII. 1975, D. & L. Matile (1 m MNHN); Aosta, Valsavaranche, Pont, alt. 2000 m, 15.IX. 1980, L. Matile (1 ?f MNHN); Aosta, Eau Rousse (Valsavaranche), alt. 1600 m, 4.IX. 1978, L. Matile (1?f MHNH); Seiser Alp, Dolomiten, 1800 m, 13.VII. 1958, Mannheims (2 ff BONN); Dolom., Sella-Joch, 1800—2000 m, 7—9.VII. 1958, Mannheims (1 m BONN). — France: Isola 2000, (06), alt. 2000 m, chemin forestier, 17.VII. 1976, J. Clastrier (1 m 4 ff MNHN); (Ariége), Port de Massat, alt. 1500 m, 17.VI. 1970, D. & L. Matile (1 m MNHN); (Htes Pyr.), Barrage du Castillon, alt. 1600 m, 11.VI. 1964, L. Matile (2 mm MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (1 f ISU). — Austria: Tirol, Igls, 900 m, 1.IX. 1953, J. R. Vockeroth (1 ?f CNC); Tirol, Zwieselstein, 1400 m, 24.VIII. 1953, J. R. Vockeroth (1 ?f CNC); Tirol, Obergurgl, 1950 m, 20.VII. 1953, 22.VII. 1953, 24.VII. 1953, 25.VII. 1953, J. R. Vockeroth (5 ff CNC); Coll. Kowarz (1 m LEN); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 26.VII. 1972, 28.VII. 1972, 29—30.VII. 1972, Malaise trap, A. C. & B. Pont (5 mm BMNH); Tirol, Otztal, above Obergurgl, 5.VII. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (3 mm BMNH). — Hungary: Durmitor, Mont., Crno Jezero, 1400 m, 28.VI. 1958, Mihályi (1 f TMB). — Roumania: Cibinului Mts., below Paltinis, c. 4000′, stream through wooded valley, 24—25.VI. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m BMNH). — Czechoslovakia: Tatranskà Polianka, Velicky R., Tatra Mts., 3,300 ft., 9.VI. 1932, D. Aubertin & E. Trewavas (1 m BMNH). — UK: Own Fell, 7.VI. 1976, P. J. Chandler (1 m coll. Chandler); Pertshire, Killin distr., Glen Lochay, 500—1500 ft., 8.VI. 1932, F. W. Edwards (4 mm BMNH); Inverness, Aviemore, 1.VI. 1913, Yerbury (1 m BMNH). — Norway: Näs (*Sciophila griseovittata* Zetterstedt holotype LUND); Dovre (*Sciophila fasciata* Zetterstedt lectotype LUND); Laerdal, 24—27.VII. 1923, F. W. Edwards (1 m 1 f BMNH); L. Tyin, 3—4000ft., 28—30.VII. 1923, F. W. Edwards (1 m BMNH); HOi., Kinsarvik, Stavali omr., 1150 moh, nordvendt skråning, 29.VII. 1968, A. Fjellberg et al. (3 mm BERG); same locality, nordvendt ur., rasmark, 1100—1200 moh. 2.VIII. 1968, A. Fjellberg et al. (2 ff BERG); HOi., Ulvik, Finse, Finsenut, 7.IX. 1966, Feltkurs (1 f BERG); HOi., Ullensvang, Hardangervidda, Bersavikvatn, dvergbjörk og *Salix*, 1230 moh, 13.VII. 1968, T. Nielsen et al. (1 m BERG); same locality, 1230 moh, 14.VII. 1968, T. Nielsen et al. (1 m BERG); HOi., Eidfjord, Hardangervidda, Viveli-Veigdalen, 27.VII. 1968, T. Nielsen et al. (4 ff BERG); same locality, 995 moh, *Salix*, 21.VII. 1968, T. Nielsen et al. (1 f BERG); same locality, moh. ca. 880, 23.VII. 1967, Hg-lampe, T. Nielsen (1 m BERG); same locality, 1040 moh, 16.VII. 1968, T. Nielsen et al. (2 ff BERG); same locality, 1000 moh, 24.VII. 1967, spritfeller, T. Nielsen (1 f BERG); same data, J. Rönhovde (1 f BERG); same locality, moh ca. 1100, dvergbjörk, 26.VII. 1967, K. Björklund (1 m BERG); HOi., Eidfjord, Måbödalen, 580 moh, 7.VII. 1968, T. Nielsen et al. (5 ff BERG); same locality, 490 moh, frodig skråning, 4.VII. 1969, T. Nielsen et al. (1 f BERG); HOi., Eidfjord, Måbödalen, 2 km V. Fassli, 450 moh, 24.VII. 1967, A. Løken (1 f BERG); HOi., Ullensvang, Hardangervidda, 1150 moh, 17.VII. 1968, T. Nielsen et al. (1 m BERG); HOi., Eidfjord, Isdalen, 980 moh, dvergbjørk-vier, 27.VI. 1969, K. E. Jørstad et al. (1 f BERG); HOi., Ullensvang, Omkjelvann omr., fuktig strandmark, 1200 moh, 22.VII. 1968, A. Fjellberg et al. (1 m BERG); Kvalsund, 7.VII. 1967, R. Tuomikoski (3 mm MZH); Tana, Nedre Storfoss, 4.VII. 1964, R. Tuomikoski (1 m MZH); Skaidi, 7.VII. 1964, R. Tuomikoski (3 mm MZH); Börselv, Silfarfossen, 5.VII. 1964, R. Tuomikoski (6 mm MZH); same data, 20.VII. 1965, R. Tuomikoski (1 m MZH); Leirbotn, Lakselv, 23.VII. 1965, R. Tuomikoski (24 mm MZH); ?Mattselva, 8.VII. 1964, R. Tuomikoski (1 m MZH); Sappen, 9.VII. 1964, R. Tuomikoski (1 m MZH); Fø., Sør-Varanger, Emanuelbekken, 28.VI. 1977, I. & T. Nielsen (1 m coll. Andersen); Troms fylke, Tromsö, 20.VI. 1947, P. Ardö (1 f LUND). — Sweden: Sm., Fiolen vid Åkhult, 6.VI. 1970, H. Andersson (1 f coll. Andersson); Sm., Gårdsby s:n, Gasslanda by, 16.V. 1937, J. A. Z. Brundin (1 m LUND); Kengis (1 f paralectotype LUND); ?Jogau Ro (Johannis Ro) (1 f paralectotype LUND); Nb., Pajala, Utmockan, fäll.,

15.VII. 1951, Ander, Ardö (1 m LUND); Nb., Pajala, 8:n, Kengis, Utmockan, fälla, Ander, Ardö, Berdén, Dahl (5 mm LUND); T. lpm., Tjuonaj. 28.VII. 1926, O. Ringdahl (1 f LUND); T. lpm., Vassij., 14.VII. 1918, O. Ringdahl (1 m LUND); Jmt., Vällistafj., 2.VII. 1914, O. Ringdahl (1 f LUND); Kaltisjokk, 26.VI. 1969 (20—22) (1 m No. 9488 ZSM); same locality, 27.VI. 1969, (8—10) (2 mm No. 9534 ZSM); Messaure, 14.VII. 1969 (1 m No. 10217 + K217 "*M. clavicera*" SENCK); same locality, 18.VI. 1969 (1 m No. 10087 + K87 "*M. fasciata*" SENCK); Abisko, 2.VII. 1918, 12.VII. 1918, O. Ringdahl (2 ff LUND); same locality, 4.VII. 1951, J. R. Vockeroth (1 m CNC); same locality, indoors, Naturvet. Sta., ventilation room, 10.VIII. 1970, A. C. & B. Pont (1 m BMHN). — Finland: *Al:* Sund, ekbacke, 11.VII. 1942, R. Frey (1 f MZH); Lemland, Flaka, 9.VI. 1962, 13.VI. 1962, R. Tuomikoski (2 mm MZH); Finström, Vandö, 28.V.—3.VI. 1965, K. Mikkola (1 m MZH); Föglö, Jyddö, 11.VI. 1965, K. Mikkola (2 mm MZH); *Ab:* Bromarv, Framnäs, 12.VI. 1966, K. Mikkola (1 m MZH); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (1 m MZH); Vihti, Vihtijärvi, 1.VI. 1963, R. Tuomikoski (1 m MZH); Nagu (Nauvo), 28.VI. 1909, R. Frey (1 f MZH); Karislojo (Karjalohja), 14.VI. 1908, R. Frey (1 m MZH); same locality, J. Sahlb. (2 ff MZH); Kuustö (Kaarina, Kuusisto), Lundström (3 mm 2 ff MZH); *N:* Helsinge, J. Sahlb. (1 f MZH); same locality, Palmen (1 f MZH); Mäntsälä, 30.VI. 1863, J. A. Palmen (1 f MZH); Nyland, Tengström (1 m MZH); Esbo (Espoo), Westend, 29.V. 1963, W. Hackman (1 m MZH); Esbo, Kolmperä, 3.VI. 1964, W. Hackman (1 m MZH); Esbo, Bodom, 24.V. 1963, W. Hackman & R. Tuomikoski (2 mm MZH); Hoplax (Huopalahti), Johansson (1 m MZH); *Ka:* Vehkalahti, 1.VI. 1973, L. Tiensuu (1 f MZH); Rajala, Saima-Kanal, 27.V. 1907, Adelung (1 f MZH); same data (1 f LEN); *Ta:* Lammi, Biol. Station, VI. 1979, light trap, R. Väisänen (1 m MZH); Urjala, 4.VI. 1964, 8.VI. 1965, T. Brander (2 mm FLHM); Kangasala, 29.VI. 1914, R. Frey (1 f MZH); *Sa:* Punkaharju, Punkasalmi, 11.VI. 1964, R. Tuomikoski (1 m MZH); *Sb:* Kuopio, Lundström (1 f MZH); *Kb:* Kesälahti, 27.VI. 1963, W. Hackman (1 m MZH); Pielisjärvi, Koli, 14.VI. 1964, 15.VI. 1964, 17.VI. 1964, 5.VII. 1965, R. Tuomikoski (5 mm MZH); *Ok:* Kuhmo, 29.VI. 1965, R. Tuomikoski (2 mm MZH; Kajaani, Wuorentaus (1 f MZH); Sotkamo, Aarreniemi, 19.VI. 1964, R. Tuomikoski (2 mm MZH); same locality, 24.VI. 1963, 19.VI. 1964, 9.VII. 1965, A. V. V. Mikkola (4 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (2 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, R. Tuomikoski (15 mm MZH); Kuusamo, Iivaara, 23.VI. 1964, 10.VII. 1965, R. Tuomikoski (4 mm MZH); Kuusamo, Rukavaara, 24.VI. 1964, 9.VII. 1965, R. Tuomikoski (4 mm MZH); same locality, 25.VI. 1978, R. Väisänen (1 m MZH); Kuusamo, Kuusinkijoki, 25.VI. 1964, R. Tuomikoski (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 9.VII. 1965, R. Tuomikoski (1 m MZH); Kuusamo, Liikasenvaara, 6.VII. 1965, K. Mikkola (1 m MZH); Ks., Thnbg. (1 m MZH); Salla, Pyhäkuru, 30.VI. 1936, R. Frey (2 mm MZH); Vuorijärvi, 8.VII. 1934, Winter (1 m MZH); *Lk:* Sodankylä, Peurasuvanto, 8.VII. 1965, R. Tuomikoski (1 m MZH); Pyhätunturi, 30.VI. 1951, H. Lindberg, (1 f MZH); Pallastunturi, 6.VII. 1943, R. Frey (1 f MZH); same locality, R. Frey (2 ff MZH); Muonio, R. Frey (*Sciophila clavigera* Lundström lectotype, 4 m paralectotypes, 1 f paralectotype MZH, 1 m paralectotype BMNH, 2 m paralectotypes WIEN); *Le:* Enontekis (Enontekiö), Palojoensuu, 11.VII. 1911, R. Frey (1 m paralectotype of *S. clavigera* MZH); Malla, R. Frey (1 f MZH); Kilpisjärvi, Saana, 27.VII. 1965, R. Tuomikoski (3 mm MZH); *Li:* Inari, Laanila, 2.VII. 1964, 16.VII. 1965, R. Tuomikoski (4 mm MZH); Utsjoki, 18.VII. 1965, R. Tuomikoski (1 m MZH); Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (1 m MZH); Utsjoki, Karigasniemi, 8—12.VII. 1965, K. Mikkola (5 mm MZH); Utsjoki, Äimäjoki, 2.VII. 1930, (1 m MZH); Utsjoki, Kaamanen, 17.VII. 1948, Ahlqvist (1 f MZH); Utsjoki, Laiti, 3.VII. 1930, R. Frey (1 m MZH); Utsjoki, Poodusvaara, 5.VII. 1949, R. Frey (1 f MZH). — USSR: Curon., (?)Luzen, 2.VI. 1929, P. Lackschewitz (1 m MNB); Leningrad. o., Luzhsk., Tolmachevo, 2.VI. 1941, Stackelberg (1 m LEN); Leningrad. obl., Tatchina, 24.V. 1940, Stackelberg (1 m LEN); Vyritsa Leningr., 27.VIII. 1946, 4.IX. 1946, Stackelberg (2 ff LEN); Sortavala (1 m MZH); Kirjavalaks, J. Sahlb. (1 f MZH); Petrosawodsk, Günther (1 f MZH); Kantalaks, Hellen (1 m MZH); same locality, R. Frey (2 ff MZH); same locality, 28.VI. 1913, R. Frey (1 m MZH); Bjäloguba, 1.VII. 1913, R. Frey (1 m MZH); Kusomen, 20.VI. 1913, R. Frey (1 m MZH); Imandra, 5.VII. 1870, J. Sahlb. (1 f MZH); Kol'sk., Khibin. g., bass. oz. Vyd'yavr, 15.VII. 1931, 13.VII. 1935, 20.VII. 1935, 7.VI. 1936 (4 mm LEN); Ponoj, 16.VII. 1913, R. Frey (1 m MZH); same locality, Hellen (1 f MZH); Jekostroff, 30.VI. 1913, R. Frey (1 m MZH); Pg. Voron, Palmen (1 m MZH); Kola, 31.VII. 1913, R. Frey (1 f MZH); same locality, 29.VII. 1913, 30.VII. 1913, R. Frey (3 mm MZH); same locality, Hellen (1 m MZH); Gavrilova, 22.VII. 1913, R. Frey (2 mm MZH); Semj. Ostrova, Envald (2 mm MZH); Salmijärvi, 8.VII. 1930, R. Frey (1 f MZH); Pummanki, 20.VII. 1930, 23.VII. 1930, R. Frey (2 ff MZH). — Alaska: Isabel Pass, Mi. 206, Richardson Hwy., 2900′, 19.VII. 1962, R. E. Leech (1 m CNC); Mi. 32. Denali Hwy., 4000′, 20.VII. 1962, R. E. Leech (9 mm CNC); same data, 22.VII. 1962 (14 mm 1 f CNC); same data, 23.VII. 1962, P. J. Skitsko (9 mm CNC). — Canada: Y. T., Mi. 51, Demster Hwy., 7—12.VII. 1973, G. & D. M. Wood (3 mm 5 ff CNC); B. C., Lisadele L., 58°41′, 133°04′, 4000′, *Cassiope* along stream bank, 10.VIII. 1960, W. W. Moss (5 mm 28 ff CNC); same locality, 4000′, 6.VIII. 1960, R. Pilfrey (11 mm 10 ff CNC); same data, 7.VIII. 1960 (2 mm 8 ff CNC); same data, 11.VIII. 1960 (1 m 1 f CNC); same locality, 4000′, *Potentilla* meadow, 6.VIII. 1960, W. W. Moss (2 mm 3 ff CNC); same data, 5.VIII. 1960 (4 mm 6 ff CNC); B. C., Pete Lake, 57°56′, 131°56′, 4000′, dry upland meadow, 16.VIII. 1960, 20.VIII. 1960, R. Pilfrey (2 mm 5 ff CNC); B. C., Mt. Thornhill, nr. Terrace, on alpine tundra, 4300′ 5300′, 26.VII. 1962, B. Heming (1 m CNC); B. C., Atlin, 4800′, B. A. Gibbard (1 m CNC); same data, H. Huckel (1 m CNC); B. C., Mt. Revelstoke, 6000′, 27.VII. 1952, G. J. Spencer (1 f CNC); B. C., London Hill Mine, Bear Lake, altitude 7000 ft., 21.VII. 1903, R. P. Currie (1 m USNM); B. C., Fernie, 21.VII., C. Garrett (*Mycomya magna* Garrett lectotype, 1 m paralectotype, 1 f paralectotype CNC); same data, 22.VII. (1 *M. magna* m paralectotype CNC); same data, 23.VII. (2 m paralectotypes MASS, CNC); same data, 25.VII. (1 *M. magna* m paralectotype CNC); same data,

27.VII. (1 *M. magna* m paralectotype CNC); B. C., Procter, 8.VII., C. Garrett (1 m hypop. slide No. 50.39 USNM); Alta., Banff, Sulfur Mt., 7200′, 28.VII. 1967, J. R. Vockeroth (2 mm CNC); Alta., Banff Nat'l Pk., 9.VII. 1955, G. E. Shewell (1 m CNC); same locality, Bow Pass, 7000—7500′, 17.VII. 1955, R. Coyles (3 mm 2 ff CNC); Alta., Banff, 21.VII. 1922, E. Hearle (1 f CNC); Alta., Banff, Jasper Hwy., Sunwapta Pass, 6600′, 9.VII. 1955, R. Coyles (1 m CNC); B. N. P., Moraine Lake, Larch Valley, 7500′, 20.VII. 1955, R. Coyles (1 m CNC); Alberta, Cameron Lake, 25.VII. 1946, G. F. Knowlton (2 ?ff ISU). — USA: Idaho, Priest Lake, 21.V. 1960, W. W. Cone (1 m WASH); Wyo., Yellowstone, Thumb, 21.VII. 1946, G. F. Knowlton (2 ?ff ISU); Colo., Rocky Mt. N. P., Roaring River, 40°25.6′N, 105°38.4′W, 9400′, 11.VII. 1959, J. Laffoon (2 ?ff ISU); Colo., Mt. Evans, Doolidle Ranch, 9800′, 1.VIII. 1961, C. H. Mann (1 ?f CNC); Colo., Mt. Evans, Echo L., 10,600′, 23.VII. 1961, C. H. Mann (4 mm CNC).

Description:

Head. Palp and other mouthparts yellow, face brownish to brown, posterior parts of head brown. Antenna brownish to brown, scape, pedicel and base of 1st flagellomere yellow to yellowish. 1st flagellomere twice or more, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow to yellowish, sometimes with brownish markings, with 3—5 longer setae. Mesoscutum yellowish to brown, with 3 dark brown to black, broad, partially fused, more or less distinct longitudinal stripes. Mesanepisternum yellowish to brown. Mesokatepisternum entirely brown or yellowish with ventral part brown. Scutellum yellow to brownish, with 4, occasionally 5, long setae, seldom also with 2 shorter ones. Laterotergite entirely brown or yellowish with ventral part brown. Mediotergite entirely brown or yellowish with lateral and posterior parts brown, bare.

Legs. Coxae yellow to yellowish, coxa 3 sometimes brownish on lateral surface, femora yellowish, tibiae and tarsi brownish. Coxa 1 with row of comparatively strong long setae along anterolateral surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.96—1.00, bt2:t2 = 0.75—0.82, bt3:t3 = 0.63—0.73.

Wing. Wing length 4.7—7.1 mm. Wing hyaline. Sc usually ending in C distally to middle of small cell, seldom Sc1 apically broken or weak, Sc2 ending in R1 slighlty proximally — slightly distally to middle of small cell. Apical part of Sc bearing 7—21 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.48—0.62, 0.57—0.67. Cu ratios: 0.53—0.73, 0.73—0.88. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 0—+; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Brownish to dark brown or tergites 1—5 brown with narrow yellow to yellowish posterior margins, 6—7 brown. Sternites brownish to brown with yellow posterior margins. Seldom abdomen yellowish.

Hypopygium. Figs. 611—614, brownish to brown. Processus long, apically tapered, its shape varying according to relative position of inner structures. Tergal lateral appendage short with several apical setae. Sternal synsclerite with some setae on both sides, without lateral appendages. Sternal submedian appendage short with several small setae. Gonostylus with 2 branches, about equally long, both with apical tooth. Aedeagus long, slender, apically bilobed.

Female. Usually larger than male. Wing length 5.5—7.8 mm. Abdominal tergites usually with wide yellow posterior margin, sometimes yellow margins narrow, sometimes lateral and posterior margins widely yellow, seldom abdomen with 3 indistinct rows of dark spots. Ground colour of abdomen and thorax warm yellowish brown, usually comparatively dark. Leg ratios: bt1:t1 = 0.88—1.00, bt2:t2 = 0.73—0.74, bt3:t3 = 0.65—0.67. Terminalia as in Figs. 615—617, yellowish.

Remarks: The North American specimens are very similar to the European ones, wing length in males: Nearctic: mean 6.00 mm, SD 0.46, N=22; Palaearctic: mean 6.02 mm, SD 0.52, N=21; in females: Nearctic: mean 7.07 mm, SD 0.39, N=23; Palaearctic: mean 6.66 mm, SD 0.60, N=22.

The males can be easily separated from *M. simplex* (Coquillett) males by the setosity of coxa 1 and the tergal lateral appendages of the hypopygium. The females of *M. fasciata* are usually larger than those of *M. simplex* and the colour pattern of the abdomen is usually diagnostic. In North America, however, where the two species occur together, not all females can be separated with full certainty.

Distribution: Holarctic. Italy, France, Switzerland, Austria, Hungary, Roumania, Czechoslovakia, United Kingdom, Norway, Sweden, Finland. USSR: Latvian SSR, Leningrad region, Karelian ASSR, Murmansk region. Alaska. Canada: Yukon Territory, British Columbia, Alberta. USA: Idaho, Wyoming, Colorado. Also reported from Yugoslavia (Strobl 1900a), Denmark (Staeger 1840), Federal Republic of Germany (Sack 1907, Landrock 1940, Plassmann 1970b, 1977b, 1978c), Poland (Nowicki 1873, Grzegorzek 1872, Czwalina 1893), Lithuanian SSR (Czwalina 1893, ?Landrock 1930), Moscow region (Fedtschenko 1891) and Georgian SSR (Joost & Plassmann 1976). The Central European records are from the mountains.

Biology: Some specimens have been collected in oak woodland and coniferous and mixed forests, but it is commonly found on alpine tundra, among *Salix* shrubs and *Betula nana*, on dry upland meadows and *Potentilla* meadows, and among *Cassiope* along stream banks. Some specimens have been caught with light and air-suction traps (Plassmann 1979).

Mycomya simplex (Coquillett, 1905)

Figs. 618—622, key p. 33, 42.

Sciophila simplex Coquillett, 1905. Coquillett 1905:67.

Mycomya simplex: Johannsen 1909:50, 1910:173; Laffoon in Stone et al. 1965:221; Cole 1969:121.

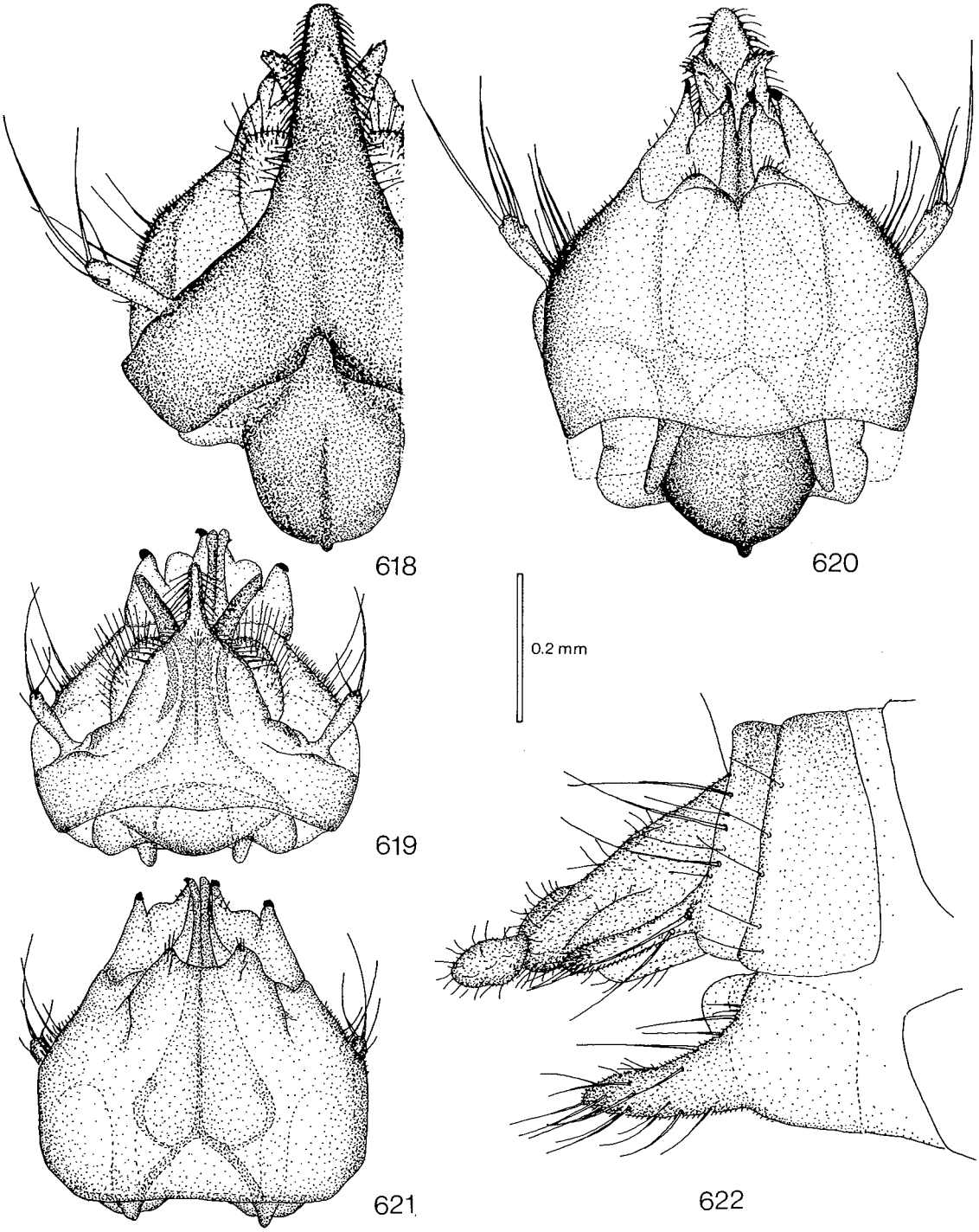
Mycomyia simplex: Coher 1959:125.

Mycomya vulgaris Garrett, 1924 (New synon.). Garrett 1924:63; Laffoon in Stone et al. 1965:221; Cole 1969:121.

Mycomyia vulgaris: Coher 1959:122.

Type locality: British Columbia, Antoine Mine, McGuigan (Canada).

Types: — *Sciophila simplex* Coquillett: Holotype (studied): Antoine Mine. McGuigan 26.7. 03 BC. Altitude 10 000 ft. Anderson Collector. *Sciophila simplex* Coq. Type No 8379 U. S. N. M. (m USNM). — *Mycomya vulgaris* Garrett: Lectotype (studied) by pre-



Figs. 618—622. *Mycomya simplex*. — 618—619: male hypopygia, tergal view. — 620—621: hypopygia, sternal view. — 622: female terminalia, lateral view. Scale 0.2 mm.

sent designation: Fernie 22.VII. BC. C. Garrett Collector. Holotype *Mycomyia* ♂ *vulgaris* C Garrett C. B. D. Garrett. Lectotype *Mycomya vulgaris* Garrett ♂ (m CNC). Type locality: British Columbia, Fernie (Canada).

Remarks: Coquillett originally reported *S. simplex* from Antoine Mine, McGuigan (July 26, Anderson), London Hill Mine, Bear Lake (July 21, 28 and 29, R. P. Currie and A. N. Caudell) and Kokanee Mt. (August 11, R. P. Currie), British Columbia. However, since the type is from Antoine Mine, this is given here as the type locality.

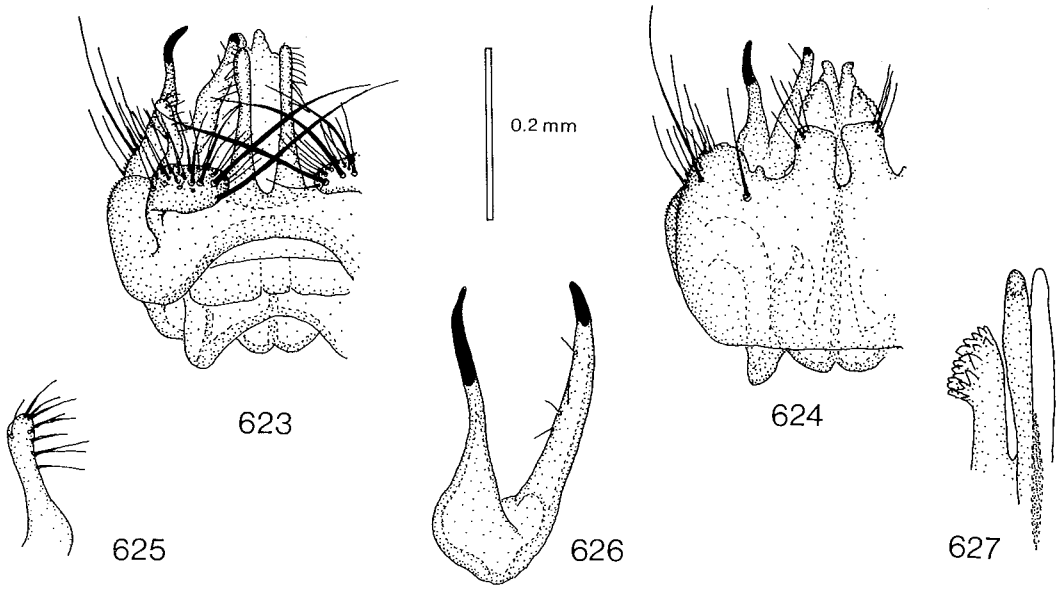
M. vulgaris was described from 186 syntypes, and the lectotype is selected here. Thus, the *M. vulgaris* "holotype" in BMNH is one of the paralectotypes, the *M. vulgaris* "holotype" in CNC being the lectotype.

Material examined: Alaska: Mi. 32, Denali Hwy., 4500′, 20.VII. 1962, R. E. Leech (5 mm 1 f CNC); same data, 22.VII. 1962 (10 mm 1 f CNC); same locality, 4500′, 23.VII. 1962, P. J. Skitsko (6 mm 1 f CNC); same data, 24.VII. 1962 (1 f CNC). — Canada: Mi. 51, Demster Hwy., 7—12.VII. 1973, G. & D. M. Wood (1 ?f CNC); same locality, 4000′, 23.VII. 1962, P. J. Skitsko (1 m CNC); N. W. T., Aklavik, 9.IX. 1929, 25.VII. 1931, O. Bryant (2 ?ff CAS); B. C., Lisadele L., 58°41′, 133°04′, 6.VIII. 1960, W. W. Moss (10 mm 11 ff CNC); same data, 9.VII. 1960 (2 mm 4 ff CNC); same data, 10.VIII. 1960 (39 mm 126 ff CNC); same locality, *Potentilla* meadow, 5.VIII. 1960, W. W. Moss (2 mm 10 ff CNC); same locality, *Cassiope* and shrub of alpine fir, 4500 ft., 12.VII. 1960, R. Pilfrey (1 m CNC); same locality, 4000′, 12.VII. 1960, W. W. Moss (2 mm 1 f CNC); same data, 7.VIII. 1969 (2 mm 10 ff CNC); same locality, 4000′, 7.VIII. 1960, R. Pilfrey (25 mm 26 ff CNC); same data, 11.VIII. 1960 (1 m CNC); B. C., Pete Lake, 57°56′, 131°56′, 4000′, in meadow, 16.VIII. 1960, W. W. Moss (1 m 8 ff CNC); same locality, to 5500′, *Arnica* meadow, 19.VIII. 1960, W. W. Moss (1 m 2 ff CNC); same locality, 4000′, dry grass and flower meadows, 20.VIII. 1960, R. Pilfrey (1 m 17 ff CNC); same data, 21.VIII. 1960 (3 ff CNC); same locality, 4000′, fleabane meadow, 21.VIII. 1960, W. W. Moss (1 f CNC); B. C., Moosehorn L., 58°10′, 132°07′, 4500′, *Potentilla* meadow, 26.VII. 1960, W. W. Moss (22 mm 3 ff CNC); same locality, 4500′, dry grass and flower meadows, 26.VII. 1960, R. Pilfrey (3 mm 5 ff CNC); same locality, 5000′—5500′, heath, tundra flowers, 26.VII. 1960, R. Pilfrey (10 mm 5 ff CNC); same locality, 5200′, 27.VII. 1960, W. W. Moss (61 mm 6 ff CNC); same locality, 4500′, wet grass and flower meadow, 25.VII. 1960, R. Pilfrey (1 m 4 ff CNC); same locality, 4500′, heath tundra, *Potentilla* meadows, 25.VII. 1960, W. W. Moss (3 mm 2 ff CNC); same data 28.VII. 1960 (1 m 3 ff CNC); same locality, 4500′, 30.VII. 1960, 1.VIII. 1960, 3.VIII. 1960, W. W. Moss (3 mm 3 ff CNC); B. C., Atlin, 4800′, 16.VII. 1955, H. Huckel (1 m CNC); B. C., Mt. Allard, 23 mi. N. Terrace, shrubby tundra above treeline, elev. 4000′, 20.VII. 1960, B. S. Heming (1 m CNC); B. C., Mt. Whistler, 6300, 27.VII. 1972, J. R. Vockeroth (2 mm CNC); same data, 1520 m (4 mm 1 f CNC); B. C., Diamond Head Trail, Garibaldi Pk., nr. Squamish, 5000 ft., 25.VIII. 1953, S. D. Hicks (1 m CNC); same data, 5200 ft. (1 f CNC); B. C., Squamish, Diamond Head Trail, 4600 ft., 25.VIII. 1953, G. J. Spencer (1 m CNC); same locality, 4200 ft., 10.VIII. 1953, W. R. M. Mason (1 m CNC); B. C., Mt. Revelstoke Nat'l Pk., Eva Lake trail, 6000′, 23.VII. 1952, G. J. Spencer (1 m CNC); B. C., Mt. Revelstoke Nat'l Pk., Snowfield, Jade Pass, 7300′, 3.VIII. 1952, G. J. Spencer (1 m CNC); B. C., Mt. Thornhill, Terrace, 8.VIII. 1960, C. H. Mann (2 ff CNC); same locality, 26.VII. 1960, elev. 3000′—4000′, C. H. Mann (1 f CNC); B. C., London Hill Mine, Bear Lake, altitude 7000 ft., 28.VII. 1903, R. P. Currie (2 mm 2 ff USNM); same data, 29.VII. 1903 (1 m USNM); B. C., Antoine Mine, McGuigan, altitude 10 000 ft., 26.VII. 1903, Anderson *(Sciophila simplex* Coquillett holotype, 4 mm USNM); B. C., Fernie, 20.VII., C. Garrett *(M. vulgaris* paralectotype: 1 m CNC); same data, 21.VII. *(M. vulgaris* paralectotypes: 1 f MCZ, 1 m CNC, 2 mm BMNH); same data, 22.VII. *(M. vulgaris* Garrett lectotype CNC, paralectotypes: 1 f MCZ, 3 mm 1 f CNC, 5 mm 1 f (one m labelled "holotype") BMNH, 1 m hypop. slide 5249 USNM); same data, 23.VII. *(M. vulgaris* paralectotype: 1 f CNC); same data, 24.VII. *(M. vulgaris* paralectotypes: 3 mm MCZ, 1 m CNC, 2 mm 3 ff BMNH); same data, 25.VII. *(M. vulgaris* paralectotypes: 1 m MCZ, 1 f CNC, 3 mm 1 f BMNH); same data, 26.VII. *(M. vulgaris* paralectotypes: 1 m MCZ, 1 f CORN, 1 m MASS, 1 f CNC, 1 m 1 f BMNH); same data, 27.VII. *(M. vulgaris* paralectotypes: 1 m CNC, 2 mm BMNH); same data, VII. (? *M. vulgaris* paralectotype: 1 m hypop. slide 611 USNM); B. C. Procter, 22.VII., C. Garrett (1 m hypop. slide No. 5133? USNM); Alta., Moraine Lake, 31.VII. 1936, A. L. Melander (1 m USNM); same locality, 11.VII. 1925, O. Bryant (1 ?f CAS); Alta., Banff, Cascade Mt., Amphitheatre, 7000 ft., 4.VII. 1925, O. Bryant (4 mm 6 ?ff CAS); Alta., Banff, 29.VI. 1925, O. Bryant (1 m CAS); Alta., Banff, Norquay Mt., meadows, 5000—6000 ft., 20.VII. 1925, O. Bryant (1 ?f CAS); Alta., Laggan, 22.VII. 1928, O. Bryant (1 m 2 ?ff CAS); same data, 26.VII. 1928 (1 ?f CAS); same locality, Pike Mt., 7600—8600 ft., 21.VII. 1928, O. Bryant (3 ?ff CAS); Alta., Laggan, Ptarmigan Pass, 7000—8000 ft., 20.VII. 1928, O. Bryant (1 m CAS); Alta., Banff Natl. Pk., Bow Pass, 7000′—7500′, 17.VII. 1955, R. Coyles (27 mm 1 f CNC); Alta., Banff N. P., Snow Cr. Pass, 7400′, 20.VII. 1962, W. R. M. Mason (1 m CNC); Alta., Banff N. P., Peyto Lookout, 23.VII. 1962, E. Mason (1 m CNC); Alta., Banff, Johnston Canyon, 4700′, 18.VII. 1962, W. R. M. Mason (1 m CNC); Alta., Banff, Sunshine Lodge, 7500′, 15.VIII. 1962, W. R. M. Mason (1 m CNC). — USA: Wn., Mt. Rainier, Paradise Park, VIII. 1917, A. L. Melander (3 mm 6 ff USNM); Mt. Rainier, Sluiskin, 28.VII. 1922, A. L. Melander (1 m USNM); Mt. Rainier, Alta Vista, 22.VII. 1922, A. L. Melander (1 m USNM); Colo., Lake Co., Independence Pass, 12,100′, tundra, 7.VIII. 1961, J. G. Chillcott (1 m 1 f CNC); Colo., Mt. Evans, Echo L., 10,600′, 23.VII. 1961, C. H. Mann (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face brownish to brown, posterior parts of head dark brown to black. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2—2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellowish to brownish, with 3—4 longer setae. Mesoscutum dark brown, with indistinct darker longitudinal stripes. Mesanepisternum brown. Mesokatepisternum brown. Scutellum brownish to



Figs. 623—627. *Mycomya danielae.* — 623: male hypopygium, tergal view. — 624: hypopygium, sternal view. — 625: lateral part of tergal lateral appendage. — 626: gonostylus. — 627: apex of aedeagus. Scale 0.2 mm for Figs. 623—624, Figs. 625—627 2 x enlarged.

brown, with 4, occasionally, 2 long setae. Laterotergite brown. Mediotergite brown, bare.

Legs. Coxae yellow, coxa 3 brownish on lateral surface, femora yellow to yellowish, tibiae and tarsi brownish. One very strong seta anteromedially near middle of coxa 1. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.89—1.00, bt2:t2 = 0.72—0.90, bt3:t3 = 0.62—0.75.

Wing. Wing length 4.8—6.7 mm. Wing hyaline. Sc ending in C distally to, seldom near middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing (?0—)5—21, usually about 10 macrotrichia. Small cell 2—3 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.51—0.68, 0.61—0.85. Cu ratios: 0.48—0.63, 0.75—0.96. Macrotrichia: M petiole: 0—2; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely dark blackish brown or tergites 1—5 with very narrow brownish posterior margins.

Hypopygium. Figs. 618—621, yellowish to dark brown. Processus long wide, shape varying greatly with relative position of different structures. Tergal lateral appendage short, with very few apical setae. Sternal synsclerite with some setae on both sides, without lateral appendages. Sternal submedian appendage short with some small setae. Gonostylus with 2 branches, medial branch longer than lateral one, both with 1 apical tooth.

Female. Wing length 5.1—7.2 mm. Abdominal tergites entirely blackish brown or with narrow brownish to yellowish posterior margins or with yellowish posterolateral spots. Leg ratios: bt1:t1 = 0.87—1.00, bt2:t2 = 0.71—0.78, bt3:t3 = 0.54—0.73. Terminalia as in Fig. 622, yellow.

Remarks: One aberrant reddish brown male from Denali Hwy., Alaska. See also *M. fasciata* (Zetterstedt) (p. 186).

Distribution: Western Nearctic. Alaska. Canada: Yukon Territory, North West Territories, British Columbia, Alberta. USA: Washington, Colorado.

Biology: The collecting biotopes given have been dry grass and flower meadows, fleabane meadow, *Potentilla* meadow, *Arnica* meadow, wet grass and flower meadows, heath and shrubby tundra.

Mycomya danielae Matile, 1972

Figs. 623—627, key p. 33.

Mycomyia danielae Matile, 1972. Matile 1972:77; Plassmann 1976a:77, 1977b:8, 1979:373, 1980a:177, 1980b:18.

Mycomya danielae: Matile 1977:633; Väisänen in Hackman 1980:31; Väisänen 1982b:39.

Mycomyia daniele: Ostroverchova 1979:64 (error).

Type locality: Savoie, Col du Granier (France).

Type: Holotype (studied): Rive de torrent après le Col du Granier (Savoie) 26-6-1970 alt. 900 m. D. et L. Matile rec. Holotype. *Mycomyia danielae* n. sp. holotype ♂ L. Matile det. 1971 (m MNHN).

Material examined: France: Holotype (MNHN). — FRG: Dachau, a. Fenster, 4.X. 1916, C. F. Adams (1 m PU). — Austria: Tirol, Zwieselstein, 1400 m, 24.VIII. 1953, J. R. Vockeroth (1 m CNC); Tirol, Igls, 25.VI. 1953, J. R. Vockeroth (1 ?f CNC); same locality, 900 m, 3.IX. 1953, J. R. Vockeroth (1 ?f CNC). — Hungary: Javorina, 28.VIII. 1963, Zsirkó (1 m TMB); Tátralomnic, patak mellett, 900 m, 4.VIII. 1963, Mihályi (1 m TMB). — Roumania: Olténie, Forêt de Măgura, 15.X. 1968, L. Matile (1 m MNHN). — Czechoslovakia: Boh. mer., Horská Kvilda, 24.VII. 1961, P. Laštovka (1 m VUPP); Beskydy, Velké Karlovice, 9.VII. 1969,

P. Laštovka (2 mm VUPP); Mor., Jesniky Mts., nr. Jesenik, Rejviz, 19.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH). — Poland: Bieszczady, distr. Ustrzyki Dln. Pszczeliny Bukowe, Berdo, 31.VII. 1967, W. Mikołajczyk (1 m WARS). — Sweden: Messaure, 11—23.?VI. 1969 (3 mm No. 10004 + K4 SENCK); Kaltisjokk, loc 20, 7—10.VII. 1969 (16—18) (1 m ZSM). — Finland: *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Rukavaara, 9.VII. 1965, R. Tuomikoski (1 m MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — Canada: B. C., Terrace, Airport area, 4.VIII. 1960, C. H. Mann (1 m CNC); B. C., Terrace, Mt. Thornhill, 8.VIII. 1960, C. H. Mann (1 m CNC); B. C., Kitimat, hemlock forest, 2.VI. 1960, J. G. Chillcott (1 m CNC); B. C., Kimberly, St. Mary's Lake 23.VII., C. Garrett (1 m hypop. slide No. 50.35 "*Mycomyia* attenuata" USNM); B. C. Cranbrook, 16.X., C. Garrett (1 m hypop. slide No. 4736 "*M.* attenuata" USNM); Sask., Hudson Bay, 15.IX. 1959, J. R. Vockeroth (2 mm 2 ?ff CNC); Ont., Ottawa, 27.X. 1956, 20.X. 1963, J. R. Vockeroth (2 mm CNC); Ont., St. Ignace Il., Sturgeon Bay, 2.V. 1959, J. G. Chillcott (1 m CNC); Que., Knowlton Ldg., 17.VII. 1968, J. R. Vockeroth (1 m CNC); Que., Old Chelsea, 1.X. 1963, 25.V. 1964, 8.VI. 1964, J. R. Vockeroth (4 mm CNC); same locality, Summit King Mt., 1150′, 18.VI. 1963, J. R. Vockeroth (2 mm CNC). — USA: Washington, Lewis County, La Wis Wis, Ohanapecosh River, 3.VII. 1974, P. H. Arnaud, Jr. (1 m CAS); Ariz., SW Res. Sta., 5 mi. Portal, 5400 ft., 5—25.IX. 1965, Malaise trap, C. W. Sabrosky (1 m USNM); New Mexico, Taos, Hondo Can., 9000′, 15—24.VI. 1960, Burks & Kinzer (1 m USNM); Coll. Mcatee, without data (1 m hypop. lot 1104 sub 8 CORN).

Description:

Head. Palp and other mouthparts yellow, face brown, posterior parts of head brown to dark brown. Antenna brownish, 2—3 basal segments yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with 3 brown, posteriorly partly fused, longitudinal stripes, markings indistinct, anterolateral corners yellow. Mesanepisternum light brownish. Mesokatepisternum light brownish, ventral half brownish. Scutellum yellowish with 2, occasionally 3, long setae. Laterotergite light brownish to brownish. Mediotergite brownish to brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.17 (mean 1.08), bt2:t2 = 0.58—0.90, bt3:t3 = 0.54—0.65.

Wing. Wing length 3.5—5.1 mm. Wing hyaline, with apex and small cell sometimes very slightly infuscate. Sc ending in C near middle of small cell, Sc1 usually apically broken, sometimes entirely missing, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 1—14 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal to or below M fork. M ratios: 0.64—0.77, 0.78—1.09. Cu ratios: 0.68—0.96, 1.08—1.53. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow posterior markings, sometimes tergites brownish without distinct markings, 6—7 brown. Sternites lighter than tergites.

Hypopygium. Figs. 623—627, yellow. Processus divided into 2 parallel long slender parts. Tergal lateral appendage curving in front of processus, with long setae. Sternal synsclerite with about 5 setae on both sides, without lateral appendages. Sternal submedian appendage short, with some small setae. Gonostylus with 2 branches, both with 1 apical tooth. Aedeagus long, comparatively slender, apically bilobed, with basal brushes of spines.

Female. Unknown, but some of the females from the same localities may belong to this species.

Remarks: Wing anomaly: R4 missing on one wing (Summit King Mt.).

Wing length in males: Nearctic specimens: 3.5—5.0 mm, mean 4.30 mm, SD 0.34, N=16; Palaearctic specimens: 3.9—5.1 mm, mean 4.56 mm, SD 0.40, N=12.

Distribution: Holarctic. France, Federal Republic of Germany, Austria, Hungary, Roumania, Czechoslovakia, Poland, Sweden, Finland. Canada: British Columbia, Saskatchewan, Ontario, Quebec. USA: Washington, Arizona, New Mexico. Also reported from East Siberia (Ostroverchova 1979).

Biology: Also collected with light and air-suction traps (Plassmann 1979, 1980a).

Mycomya leporina n. sp.

Figs. 628—631, key p. 34.

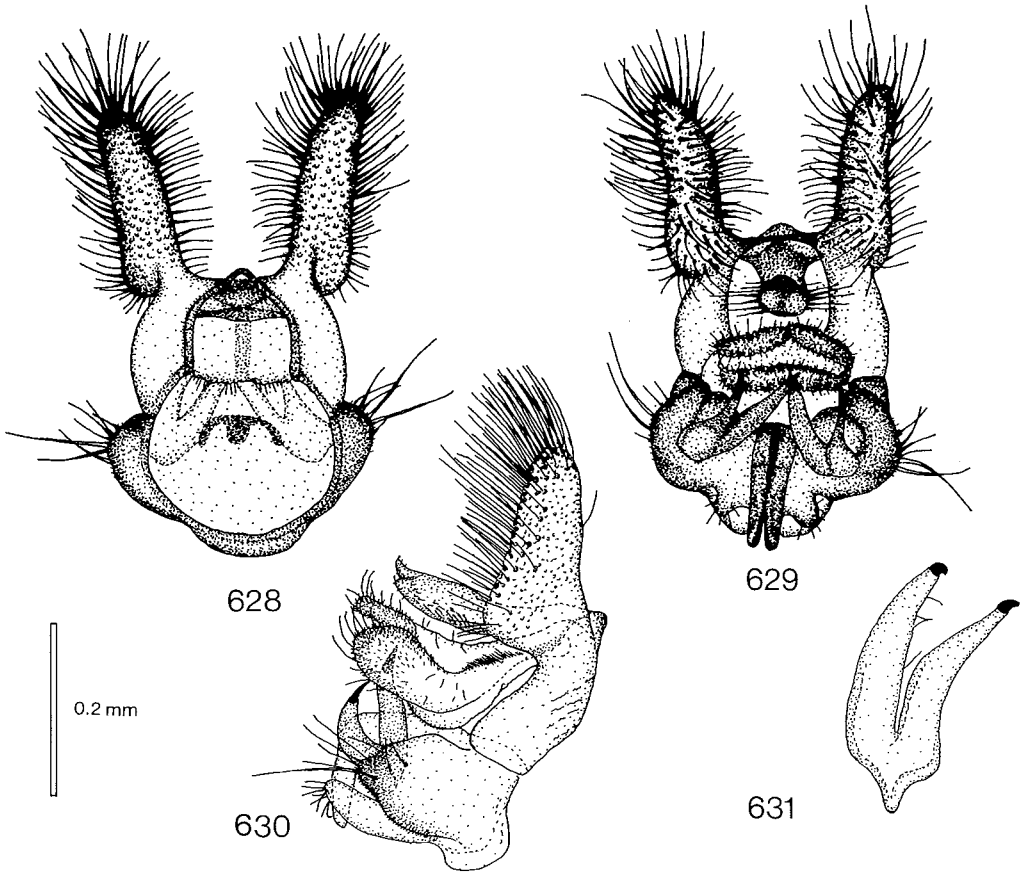
Type locality: North West Territories, 21 miles east of Tuktoyaktuk (Canada).

Type: Holotype (studied). N. W. T. —21 m. e. Tuktoyaktuk 17—21.VII. 71 D. M. Wood (m CNC).

Material examined: Finland: *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (1 m MZH). — Canada: N. W. T., 21 m. e. Tuktoyaktuk, 17—21.VII. 1971, D. M. Wood (holotype CNC); N. W .T., Bathurst Inl., Ekalulia Island, 12.VIII. 1966, G. E. Shewell (1 m CNC); B. C., Mt. Revelstoke Nat'l Pk., Mt. Harry, 6200′, 21.VIII. 1952, G. J. Spencer (1 m CNC); B. C., Pete Lake, 57°56′, 131°56′, 4000′, in meadow, 16.VIII. 1960, W. W. Moss (1 m CNC); B. C., Penticton, Apex Mt., 5800′, 5.VIII. 1967, 13.VIII. 1967, J. R. Vockeroth (2 mm CNC); B. C., Terrace, Mt. Thornhill, 2500′, along trail in hemlock forest, 26.VII. 1960, C. H. Mann (1 m CNC); B. C., Kokanee Mtn., altitude 8000 ft., 11.VIII. 1903, R. P. Currie (1 m USNM); B. C., Kimberly, St. Mary's Lake, 28.VII., 1.IX., C. Garrett (2 m hypop. slides No. 4735, 2583 "*Mycomyia* abscens" USNM); B. C., Procter, 22.VII., C. Garrett (1 m hypop. slide No. 5132 "*M.* abscens" USNM); same locality, Kootenay Lake, 7000 ft., 22.VII., C. Garrett (1 m hypop. No. 4731 "*M.* abscens" USNM); B. C., Cranbrook, 10.VII., C. Garrett (1 m hypop. slide "*M.* abscens" USNM); Man., Fort Churchill, 21.VIII. 1952, J. G. Chillcott (1 m CNC); Que., Indian House L., 5.VIII. 1954, 11.VIII. 1954, W. R. Richards (2 mm CNC); Que., Kam. Co., Parke Reserve, 11.VII. 1957, G. E. Shewell (1 m CNC); Lab., Tessiujak Bay, Nagvak Fjord, 15.VIII. 1954, J. F. McAlpine (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brow-



Figs. 628—631. *Mycomya leporina.* — 628: male hypopygium, tergal view. — 629: hypopygium, sternal view. — 630: hypopygium, lateral view. — 631: gonostylus. Scale 0.2 mm for Figs. 628—630, Fig. 631 2 x enlarged.

nish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum brownish, with 3 indistinct dark brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish, ventral part darker. Scutellum yellowish to brownish, with 2 long setae. Laterotergite brownish, ventral part brown. Mediotergite brownish to brown, bare.

Legs. Coxae yellow, coxa 3 with brown spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.14, bt2:t2 = 0.80—0.83, bt3:t3 = 0.67—0.74.

Wing. Wing length 4.1—6.0 mm. Wing hyaline. Sc ending in R1 slightly proximally — slightly distally to middle of small cell, Sc1 broken or entirely missing. Apical part of Sc bearing 5—14 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.61—0.64, 0.73—0.82. Cu ratios: 0.62—0.73, 0.93—1.07. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

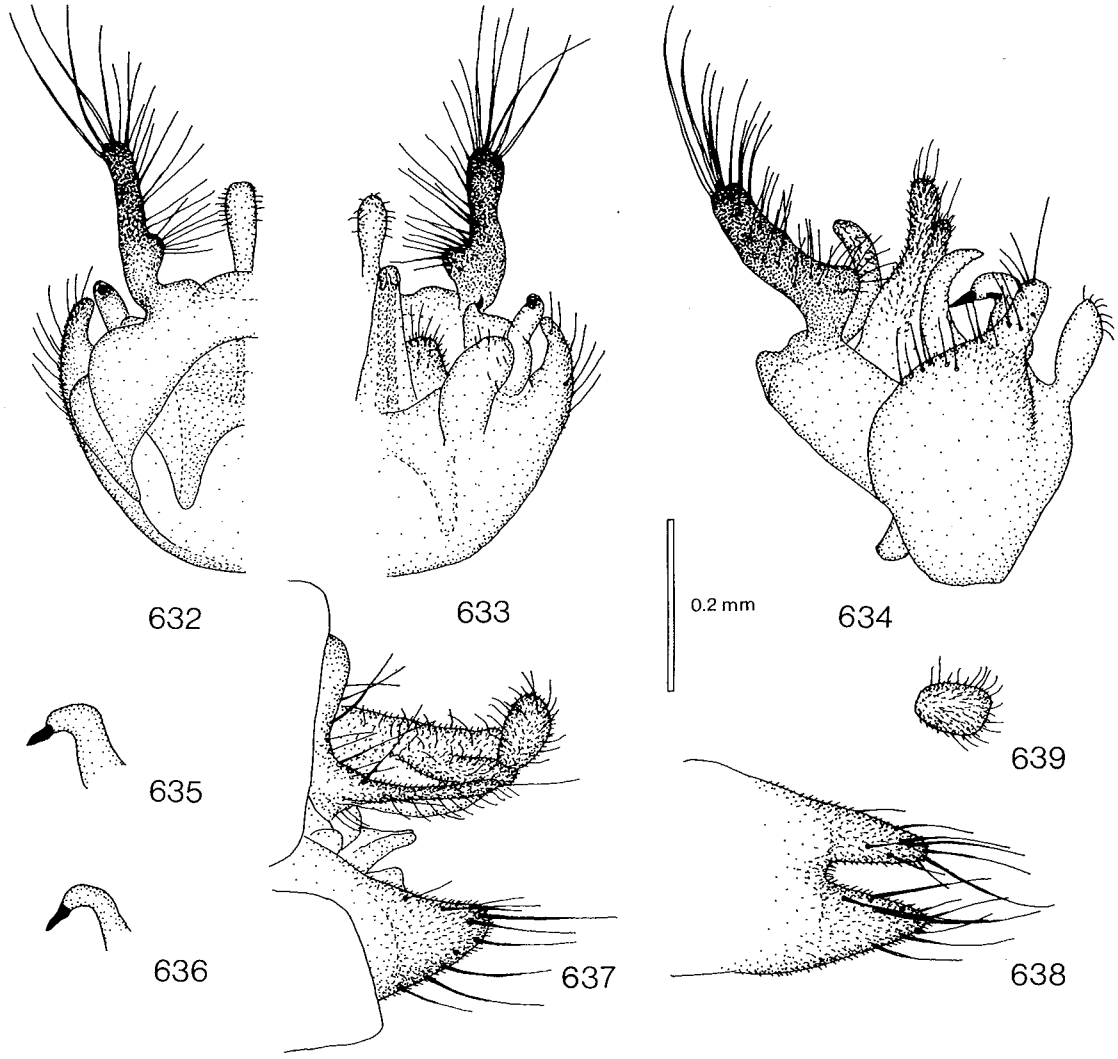
Abdomen. Entirely brown or tergites 1—5 with posterior margins narrowly yellow.

Hypopygium. Figs. 628—631, yellowish. Processus long narrow, bent sternally, apically slightly bilobed. Tergal lateral appendage very wide, long, with long setae. Sternal synsclerite with several setae on both sides, without lateral appendages. Sternal submedian appendage wide, short, with some small setae. Gonostylus with 2 branches, about equally long, both with apical tooth.

Female. Unknown.

Distribution: Holarctic. Finland. Canada: North West Territories, British Columbia, Manitoba, Quebec, Labrador.

Biology: The collecting biotopes given are a meadow, and a trail in hemlock forest.



Figs. 632—639. *Mycomya hirticollis.* — 632: male hypopygium, tergal view. — 633: hypopygium, sternal view. — 634: hypopygium, lateral view. — 635—636: apex of gonostylus (635: *hirticollis*-type; 636: *hirticauda*-type). — 637: female terminalia, lateral view. — 638: hypogynal valves, sternal view. — 639: apical segment of cercus, sternal view. Scale 0.2 mm.

Mycomya hirticollis (Say, 1824)
Figs. 632—639, key p. 33, 41.

Sciophila hirticollis Say, 1824. Say 1824:362; Wiedemann 1828:64; Say in LeConte 1859:246; Osten-Sacken 1878:9; Kertész 1902:60; Aldrich 1905:140.

Mycomya hirticollis: Johannsen 1909:48, 1910:181; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:220; Cole 1969:121; Ackerman & Shenefelt 1973:188, 195.

Mycomyia hirticollis: Fisher 1937:393; Coher 1959:107 (Syn. *Sciophila appendiculata* Loew).

Sciophila appendiculata Loew, 1869. Loew 1869:139; Osten-Sacken 1878:9; Kertész 1902:57, Aldrich 1905:140.

Mycomya appendiculata: Johannsen 1909:46, 1910:181; Shaw & Fisher 1952:190.

Mycomyia appendiculata: Fisher 1937:391.

Mycomyia hirticauda Van Duzee, 1928 (New synon.). Van Duzee 1928:38; Coher 1959:109.

Mycomya hirticauda: Laffoon in Stone et al. 1965:220; Cole 1969: 121; Arnaud 1979:82.

Type locality: "North-west Territory" (USA).

Types: — *Sciophila hirticollis* Say: Type not located, apparently destroyed. — *Sciophila appendiculata* Loew: Holotype (studied): Loew Coll. Type 1221. *appendiculata* m. (m MCZ). Type locality: New York (USA). — *Mycomyia hirticauda* Van Duzee: Mill Valley, Marin

Co Cal. 3-6-26. *Mycomya hirticauda* Holotype Van Duzee (m CAS). Type locality: California, Marin County, Mill Valley (USA).

Material examined: Alaska: Anchorage, 23.VII. 1951, R. S. Bigelow (1 m CNC); Alaska, Naknek, on tundra, 8.VIII. 1952, W. R. M. Mason (1 m CNC); Spenard, 21.VIII. 1957, E. L. Kessel (3 mm 5 ff CAS); same data, 17.VIII. 1957 (2 ff CAS); same data, 24.VIII. 1957 (2 ff CAS). — Canada: N. W. T., W of Zinto L., 64°10′N, 116°40′W, 25.VIII. 1966, G. E. Shewell (1 m CNC); B. C., Vancouver, Point Grey, 21.XI. 1972, 20.VII. 1973, J. R. Vockeroth (2 mm CNC); B. C., Mt. Thornhill nr. Terrace, elev. 700′, 29.VII. 1960, W. R. Richards (1 m CNC); same locality, elev. 1500′, ex wet hollow along trail, 26.VII. 1960, B. Heming (1 m CNC); same locality, elev. 2000′, ex wet hollow along trail, 26.VII. 1960, B. Heming (1 m CNC); same locality, elev. 700′, 8.VIII. 1960, B. Heming (1 m CNC); same locality, 1500—2000′, second growth hemlock forest, 8.VIII. 1960, B. Heming (2 mm CNC); same locality, 1500 feet, 8.VIII. 1960, C. H. Mann (1 m CNC); B. C., Squamish, Diamond Head Trail, 3200 ft., 23.VIII. 1953, W. R. M. Mason (1 m CNC); same locality, 3100 ft., 23.VIII. 1953, G. J. Spencer (3 mm CNC); same locality, 3200 ft., 19.VIII. 1953, G. J. Spencer (1 m CNC); B. C., Liard, Hot Springs, Mile Post 496, Alaska Hwy., 2.IX. 1957, E. L. Kessel (1 m CAS); B. C., Marysville, Kimberly, 13.VIII., C. Garrett (1 m hypop. slide No. 4957 "*Mycomyia* alae" USNM); B. C., Kimberly, St. Mary's Lake, 29.VIII., C. Garrett (1 m hypop. slide No. 5155 "*M.* alae" USNM); same locality, 1.IX., C. Garrett (1 m hypop. slide No. 51.52 "*Mycomyia* abronia" USNM); Alta., Slave L., 17.VIII. 1924, O. Bryant (1 m CAS); Sask., Cantyre, 52°23′, 101°50′, 12.IX. 1959, J. R. Vockeroth (1 m CNC); Sask., Hutson Bay, 15.IX. 1959, J. R. Vockeroth (1 m CNC); Man., Riding Mtn. Nat. Pk., Clear Lk., spruce forest, 12.VIII. 1958, N. B. Chillcott (1 m CNC); Ont., Midland, 20.VIII. 1955, J. G. Chillcott (1 m CNC); Ont., Rockport, 24.VII. 1963, J. R. Vockeroth (1 m CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 3.VII. 1966, Malaise trap, D. D. Munroe (1 m CNC); Que., Old Chelsea, 9.VII. 1959, 21.VII. 1959, 26.VIII. 1964, J. R. Vockeroth (3 mm CNC); same data, 30.VIII. 1961 (3 ff CNC); Que., La Vendrye Prov. Pk., Mi. 61, Rte. 58, 21.VIII. 1965, D. M. Wood (2 mm CNC); Que., Hull, 3.VIII. 1965, Malaise trap (1 m 1 f CNC); Que., Gatineau Pk., Meach L., 20.VII. 1959, J. G. Chillcott (1 m CNC); same locality, 9.VIII. 1959, C. H. Mann (1 f CNC); Que., Beechgrove, 45°39′, 76°8′, 2.X. 1964, J. R. Vockeroth (1 f CNC); N. S., Springfield, 6.VIII. 1958, J. R. Vockeroth (1 m CNC); N. S., Mount Uniacke, 5.VIII. 1958, J. R. Vockeroth (1 m CNC); N. S., Shelburne, 10.VIII. 1958, J. R. Vockeroth (2 mm CNC); N. S., Lockeport, 28.VII. 1958, J. R. Vockeroth (2 mm 1 f CNC); same data, 1.VIII. 1958 (2 mm CNC); N. S., Cape Breton, 30.VIII. 1936, E. G. Fisher (1 m hypop. No. 615 USNM). — USA: Wash., Friday Harbor, 11.VII. 1966, Malaise trap, W. Baker (2 mm 1 f WASH); Wash., Clall. Co., 5 mi. S. W. Snider R. S. nr. Soleduck R., 4.VIII. 1972, Malaise trap, dry ice, W. J. Turner & W. B. Garnett (1 m WASH); Wash., Mt. Rainier Nat'l Park, 10.VIII. 1941, L. J. Lipovsky (4 mm WASH); Mt. Rainier, White River, 20.VII. 1924, A. L. Melander (1 m USNM); Mt. Rainier, Eagle Peak, 25.VIII. 1921, A. L. Melander (4 mm USNM); Mt. Rainier, Longmire, 26.VIII. 1921, A. L. Melander (1 m USNM); WN., Lucerne, Lake Chelan, 29.VII. 1919, A. L. Melander (1 m USNM, 1 m PU); Wash., Everett, Lake Stephens, 5.VIII. 1917, A. L. Melander (1 m USNM), Wash., Mt. Constitution, 31.VII. 1908 (1 m USNM); Wash., Toledo, 28.VIII. 1921, A. L. Melander (1 m USNM); Wash., Mt. Baker, Nooksack Riv., 11.VIII. 1925, A. L. Melander (1 m USNM); Washington, Olympia N. P., 17.VIII. 1954, R. Coleman (1 m USNM); Wash., Rosemary Inn, L. Crescent, 25.VII., Sherry (1 m MCZ); Id., Priest L., Soldier Crk., 22.VIII. 1919, A. L. Melander (1 m USNM); Mont., Pipestone Pass, 13 mi. S. Butte, 6200′, 19.VIII. 1961, J. G. Chillcott (1 m CNC); Or., Hood River, 30.VI. 1917, A. L. Melander (1 m USNM); Or., Mt. Hood, 3000 ft., 29.VII. 1921, A. L. Melander (1 m USNM); Cal., Idylwild, 7.VII. 1940, A. L. Melander (1 m USNM); Cal., Marin Co., Mill Valley, 6.III. 1926 (*M. hirticauda* holotype CAS); same locality, 28.VIII. 1965, P. H. Arnaud, Jr. (1 m CAS); Calif., Madera Co., Meadow near locked gate, road to Mark Mine, SE. slope of Green Mt., 7600 ft., 20.VIII. 1971, H. Leech (1 m CAS); California, Del Norte County, Gasquet, 20.VI. 1974, P. H. Arnaud, Jr. (1 m CAS); Calif., Marin Co., Alpine Lk., Lily Pond, 1500′, 18.VII. 1970, Mal. tr., D. D. Munroe (2 mm CNC); same locality, 20—25.VI. ?1973 (1 m CNC); Ariz., Huachuca Mts., Sierra Vista, V. 1965, R. F. Sternitzky (1 m CNC); Colo., Gunnison Co., Gothie, 9500′, 30.VII. 1961, J. G. Chillcott (1 m 1 f CNC); Colo., Clear Cr. Co., West Chicago Cr., 9800′, 11.VIII. 1961, B. H. Poole (2 mm CNC); Colo. (1 ?f USNM); Colo., Rocky Mt. N. P., Roaring River, 40°25.6′N, 105°33.4′W, 9400′, 11.VII. 1959, J. Laffoon (4 mm 1 f ISU); Minn., Itasca St. Pk., Prof. Green Trail, 25.VII. 1963, D. L. Deonier (1 m ISU); Minn., Itasca St. Pk., Chamber's Creek, 18.VII. 1963, D. L. Deonier (1 m ISU); Minn., Lake Co., Basswood Lake, Q-S WRC Sec. 9 Twp. 64 N Rge. 10 W, 14.VII. 1952, R. Namba (1 m MINN); Iowa, Boone County, Ledges State Park, 23.VII. 1953, 3.VII. 1961, J. Laffoon (2 mm ISU); Wis., Washburn Co., T39N R12W B32, 10.VII. 1952, 29.VIII. 1952, 1.IX. 1952, R. H. Jones (4 mm WISC); Mich., Isabella, Co., 26.VIII. 1944, R. R. Dreisbach (1 m MICH); Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (10 mm 2 ff BMNH); N. H., White Mts., Dolly Copp, 11.VII. 1931, A. L. Melander (2 mm USNM); Belchertown, 2.X. 1930 (1 m hypop. + wing MASS); Ct., Colebrook, 28.VIII. 1941, A. L. Melander (1 m USNM); Conn., Candlewd., 2.IX. 1941, A. L. Melander (3 mm USNM); Ct., Redding, 26.VI. 1929, A. L. Melander (1 m 1 f USNM); NY, Bear Mt., 19.IX. 1926, A. L. Melander (1 m USNM); L. I., Cld. Sp. Har., VIII. (1 m USNM); Ithaca, 4.XI. 1933, F. R. Shaw (4 mm slides MASS); Loew Coll. (*Sciophila appendiculata* holotype MCZ); N. Y., Keene Valley, 20.VII. 1962, J. G. Chillcott (3 mm CNC); same locality, Essex Co., 1200′, 20.VII. 1962, J. R. Vockeroth (1 m 1 f CNC); New York, Ithaca, Coy Glen, 9.VIII. 1961, J. L. Laffoon (1 m ISU); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12′N, 74°32′W, 1600′, 5.VIII. 1961, R. J. Gagné (1 m ISU); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, R. J. Gagné (1 m ISU); PA., Schuylkill Co., Summit Sta., 13.VI. 1964, J. G. Chillcott (1 m CNC); N. J., Mor. Co., Brookside, VII., A. J. Wedt (1 m AMNH); same data and locality (1 m

CORN); VA., Madison Co., Whiteoak Canyon, south slope of Stony Man, 38°35'N, 78°22'W, 3500', 22.VII. 1961, D. L. Deonier (1 m ISU); No. Car., Swain Co., Great Smoky Mts., Mingus Creek, 35°31.2'N, 83°18.7'W, 2100', 16.VII. 1958, J. Laffoon (1 m ISU); No. Car., Macon Co., Robin Branch (near Wayah Bald), 35°9.4'N, 83°35.4'W, 3900', 3.VII. 1958, J. Laffoon (1 m ISU); N. C., Wayah Bald, 4100', 29.VII. 1957, W. R. Richards (1 m CNC); N. C., Macon Co. Wayah Gap, 3500', 10.VIII. 1957, J. G. Chillcott (1 m CNC); same data, 16.VIII. 1957 (3 mm 1 f CNC); same locality, 4000', 16.VIII. 1957, J. G. Chillcott (2 mm CNC); same locality, 4100', 28.VII. 1957, J. G. Chillcott (3 mm CNC); N. C., Highlands, 3800', 15.V. 1957, J. R. Vockeroth (1 m CNC); N. Carolina, Mitchell Co., Roan Mtn., 6200', 13.VIII. 1957, J. G. Chillcott (1 m CNC); Tenn., Smokies, Laurell Falls, 24.VI. 1941, A. L. Melander (1 m USNM); Ga., Rabun Co., Rabun Bald, 9.VIII. 1957, C. J. Durden (1 m CNC); Ga., Rabun Co., Satolah, 2000', 1.VII. 1957, J. R. Vockeroth (1 m CNC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head light brownish to brown. Antenna brownish, 3—4 basal segments yellow to yellowish. 1st flagellomere 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum entirely yellow or light brownish or anteriorly yellow, posteriorly light brownish, usually without distinct markings, sometimes with 3 indistinct light brownish longitudinal stripes. Mesanepisternum and mesokatepisternum yellow to yellowish. Scutellum yellow to yellowish, with 2 long setae. Laterotergite and mediotergite yellow to yellowish. Mediotergite bare.

Legs. Coxae yellow to yellowish, coxa 3 sometimes brownish on lateral surface, femora yellow to yellowish, tibiae and tarsi brownish. Coxa 1 with longer setae sparsely distributed along anteromedial surface. Coxa 2 with comparatively long curved spur with prominently backwards curved apical portion and 1 strong apical tooth. Leg ratios: bt1:t1 = 0.79—1.00 (mean 0.87), bt2:t2 = 0.67—0.81, bt3:t3 = 0.51—0.63.

Wing. Wing length 3.5—4.8 mm. Wing hyaline, small cell often more or less distinctly infuscate. Sc ending in C, usually distally to, rarely near middle of small cell, Sc2 ending in R1 proximally — distally, usually distally to middle of small cell. Apical part of Sc bearing 5—21 macrotrichia. Small cell 1—1.5, seldom 2 x as long as wide. Cu fork proximal to or below M fork. M ratios: 0.53—0.78, 0.67—0.93. Cu ratios: 0.56—0.75, 0.74—1.17. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish, knob slightly darker.

Abdomen. Tergites 1—5 brownish to brown, with posterior margins yellowish, 6—7 entirely brown, sometimes with posterior margins very narrowly yellow. Tergites 1—5 sometimes yellow with brown anteromedial spots. Sternites like tergites but paler.

Hypopygium. Figs. 632—636, yellow, tergal lateral appendage shining dark brown. Processus long, slender, bent medially. Tergal lateral appendage long, with many long setae. Sternal lateral appendage short, with some setae. Sternal submedian appendage broad, short, with some small setae. Gonostylus with 2 branches, lateral branch stronger, both with 1 apical tooth. Aedeagus long, slender.

Female. Wing length 3.5—4.8 mm. Abdominal tergites 1—5 brownish with posterior thirds yellow, 6—7 brownish with posterior fifths yellow. Sternites light brownish, posterior margins yellow. Leg ratios: bt1:t1 = 0.83—0.91, bt2:t2 = 0.62—0.69, bt3:t3 = 0.63. Terminalia as in Figs. 637—639, yellow.

Remarks: There is some variation in the shape of the gonostylus of the male hypopygium: The lateral branch of the gonostylus is usually distinctly broader apically than the apical tooth (most specimens), but occasionally the gonostylus is apically only very slightly broader than the apical tooth *(M. hirticauda* Van Duzee holotype and specimen from Sierra Vista, Arizona). Coher (1959) considered that this difference justified separation at specific level, but since no other differences are evident, I prefer to treat it as individual variation. Van Duzee's (1928) original description did not give details of the hypopygial structures.

Distribution: Nearctic. Alaska. Canada: North West Territories, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia. USA: Washington, Idaho, Montana, Oregon, California, Arizona, Colorado, Minnesota, Iowa, Wisconsin, Michigan, Maine, New Hampshire, Massachusetts, Connecticut, New York, Pennsylvania, New Jersey, Virginia, North Carolina, Tennessee, Georgia. Also reported from Vermont (Coher 1959).

Biology: This species has been reared on *Clavaria* sp., *Ramaria apiculata* (Fr.) Donk and *Piptoporus betulinus* (Fr.) Karst. (= "*Polyporus betulinus* (Bull.) Fr.") (Ackerman & Shenefelt 1973). Adults have been collected from tundra, a wet hollow on a trail, and hemlock and spruce forest, but apparently from a wide variety of other biotopes, too. Some specimens were captured with a Malaise trap.

Mycomya stares n. sp.

Figs. 640—643, key p. 33.

Type locality: Arizona, 5 mi. SW Portal (USA).

Type: Holotype (studied): Ariz.: SW Res. Sta.; 5 mi. SW Portal, 5400 ft. 5/25-IX-1965 C W Sabrosky, Malaise trap. (m USNM).

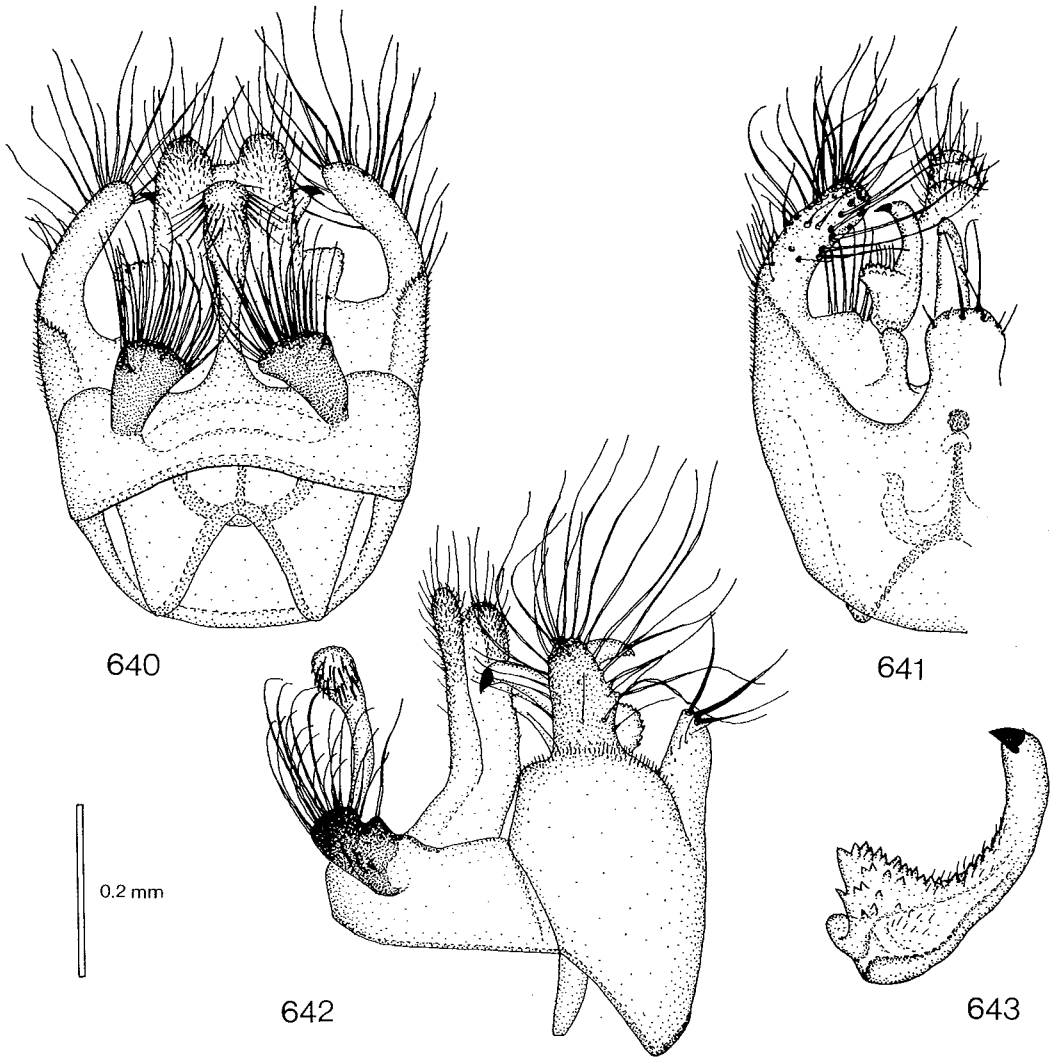
Material examined: USA: Holotype (USNM).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd about 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow with indistinct light brownish longitudinal stripes. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral half brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow to yellowish, ventral part brownish. Mediotergite yellow to yellowish, with lateral and posterior parts brownish, bare.

Legs. Coxae yellow, coxa 3 with indistinct yellowish to light brownish spot on lateral surface, femora yellow,



Figs. 640—643. *Mycomya stares.* — 640: male hypopygium, tergal view. — 641: hypopygium, sternal view. — 642: hypopygium, lateral view. — 643: gonostylus. Scale 0.2 mm for Figs. 640—642, Fig. 643 2 x enlarged.

tibiae and tarsi brownish, with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 3 apical teeth. Leg ratios: bt1:t1 = 1.05, bt2:t2 = 0.80, bt3:t3 = 0.57.

Wing. Wing length 4.6 mm. Wing apex and small cell slightly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 8—11 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.46, 0.57. Cu ratios: 0.71, 1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter yellowish, knob slightly darker.

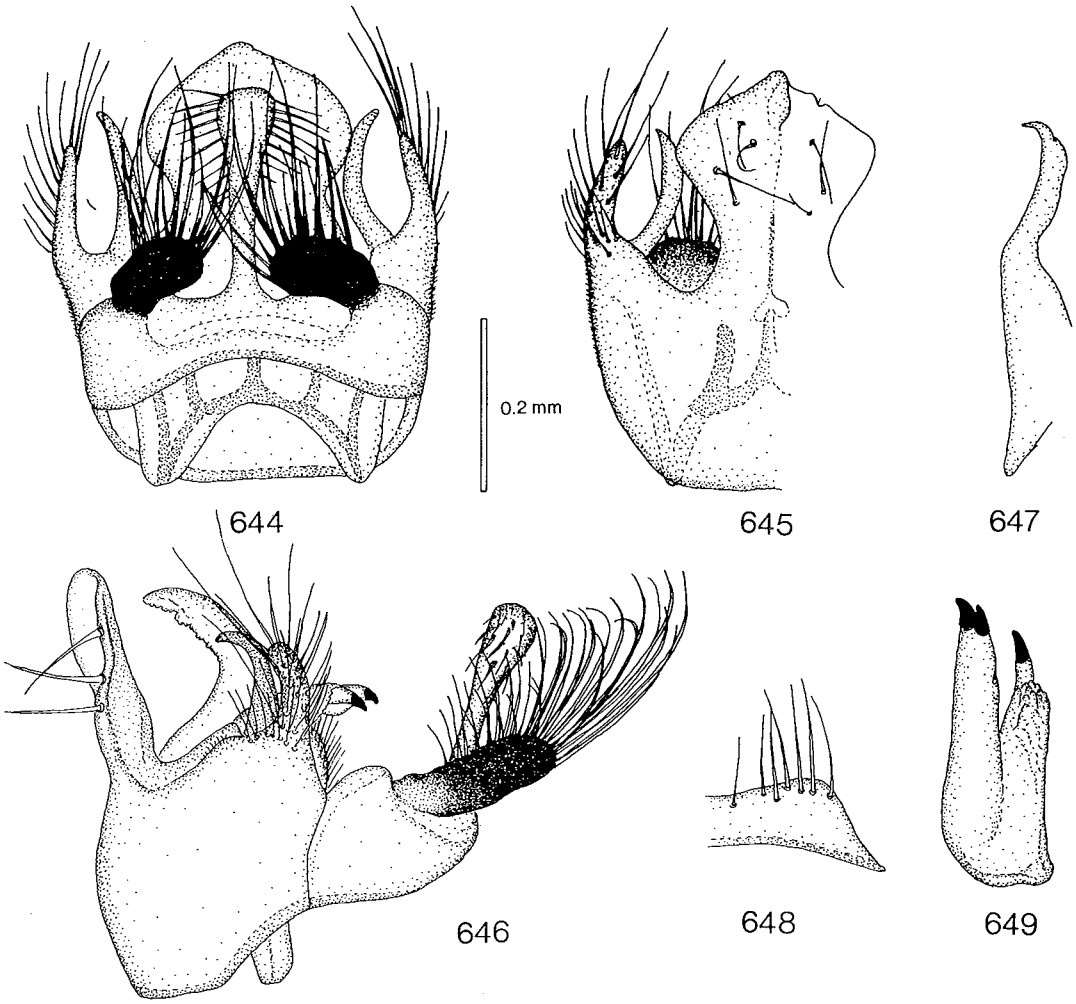
Abdomen. Tergites 1—5 brown, not very dark, with posterior margins broadly yellow, 6—7 brown. Sternites 1—5 yellow, 6—7 yellowish.

Hypopygium. Figs. 640—643, yellow. Processus long slender, apically wider. Tergal lateral appendage dark, short, with long setae. Sternal lateral appendage comparatively long, wide, with long curved setae. Sternal submedian appendages fused, rounded, with a few long setae. Gonostylus with basal lobe with spines, and with 1 broad apical tooth.

Female. Unknown.

Distribution: Western Nearctic. USA: Arizona.

Biology: Collected with Malaise trap together with *M. canoak* n. sp.



Figs. 644—649. *Mycomya canoak.* — 644: male hypopygium, tergal view. — 645: hypopygium, sternal view. — 646: hypopygium, lateral view. — 647: paramere, lateral view. — 648: tergite 8. — 649: gonostylus. Scale 0.2 mm for Figs. 644—648, Fig. 649 2 x enlarged.

Mycomya canoak sp. n.
Figs. 644—649, key p. 33.

Type locality: Arizona, Oak Creek Canyon, Todds Lodge (USA).

Type: Holotype (studied): Oak Cr Can ToddsLodge 9/9/47 Ariz. J. L. Sperry. A L Melander Collection 1961 (m USNM).

Material examined: USA: Ariz., Oak Crk. Can., Todds Lodge, 9.IX. 1947, J. L. Sperry (1 m USNM); Ariz., SW Res. Sta., 5 mi. SW Portal, 5400 ft., 5—25.IX. 1965, Malaise trap, C. W. Sabrosky (1 m USNM); Ariz., Navajo Co., Pine Forest, 4 mi. SW. of Forestdale, 23—24.VIII. 1952, H. B. Leech & J. W. Green (1 m CAS); Ariz., Huachuca Mts., Ramsey Cnyn., 15 mi. S. Sierra Vista, 6000′, 27.VIII. 1967, Sternitzky (1 m CNC); same locality, 19.VI. 1969, Malaise trap, Sternitzky (1 ?f CNC).

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellowish, posterior parts of head brownish. Antenna brownish, scape, pecicel and base of 1st flagellomere yellow. 1st flagellomere almost 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum entirely light brownish or yellow with 3 indistinct yellowish to brownish longitudinal stripes. Mesanepisternum yellow to yellowish. Mesokatepisternum entirely yellow to yellowish or ventral half brownish. Scutellum yellow to yellowish, with 4 long setae. Laterotergite entirely yellow to yellowish or ventral part brownish. Mediotergite entirely yellow to light brownish or lateral and posterior parts brownish, with 1—2 setae.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with long thin setae sparsely distributed along anteromedial surface. Coxa 2 with long

curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.95, bt2:t2 = 0.70—0.81, bt3:t3 = 0.59—0.62.

Wing. Wing length 3.9—5.0 mm. Wing apex and small cell very weakly infuscate. Sc ending in C distally to middle of small cell and distally to apex of R4, Sc2 ending in R1 slightly distally to or near middle of small cell. Apical part of Sc bearing 9—19 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork proximal to or below M fork. M ratios: 0.52—0.63, 0.61—0.77. Cu ratios: 0.66—0.73, 0.92—1.05. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter yellowish, knob brownish.

Abdomen. Tergites 1—5 anteriorly brown, with posterior thirds or halves yellow, 6—7 brown. Sternites yellow, 6—7 brownish or with posterior margins yellow.

Hypopygium. Figs. 644—649, yellow. Processus long, slender. Tergal lateral appendage black, short, shining, with many long setae. Sternal lateral appendage slender, with many setae. Sternal submedian appendages fused, wide, comparatively long, with some long setae. Paramere curved, slender. Gonostylus with 2 branches, medial branch longer, with 2 teeth, lateral with 1 tooth.

(?) Female. Wing length 4.9 mm. Scutellum with 2 long setae. Leg ratios: bt1:t1 = 0.79.

Distribution: Western Nearctic. USA: Arizona.
Biology: Unknown. Collected with Malaise trap.

Mycomya siebecki (Landrock, 1912)

Figs. 650—651, key p. 33.

Sciophila siebecki Landrock, 1912. Landrock 1912:27.
Mycomya siebecki: Landrock 1913:33; Väisänen in Hackman 1980:31; Väisänen 1982b:41.
Mycomyia siebecki: Landrock 1926—1927:41; Lackschewitz 1937:10; Landrock 1940:30; Plassmann 1980b:19.
Mycomyia siebeckii: Plassmann 1977b:9 (error).

Type localities: Originally: "Adamstal" (Adamov, distr. Blansko); "Bilowitz" (Bílovice nad Svitavou, distr. Brno) (Czechoslovakia). By present designation: "Bilowitz".

Type: Lectotype (studied) by present designation: ♂. Type. Bilowitz 20.5. K. Landrock. Collectio K. Landrock, K. Cižek, D. Jacentkovský Mor. museum, Brno. Transcriptio *Sciophila siebecki* sp. n. ♂ K. Landrock det. Invent. č. 1693/Ent. Mor. museum, Brno. Syntypus. Lectotypus (m BRNO).

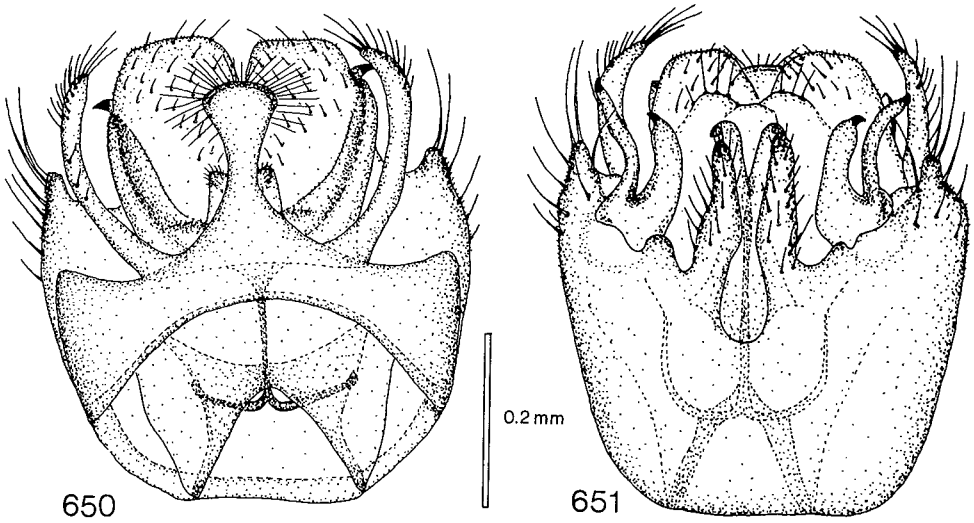
Material examined: Yugoslavia: Slovenia, Bohinj, Bukovska Dolina, to 1400 m, 1.VIII. 1973, A. E. Stubbs (1 m BMNH). — Czechoslovakia: Slov. or., Snin. Kameň, Vihorlat, 25.VI. 1966, P. Laštovka (1 m VUPP); Bilowitz, 20.V., K. Landrock (lectotype, 1 m paralectotype No. 1695 BRNO); Adamstal, 27.V. 1911, K. Landrock (m paralectotype No. 1694 BRNO). — Finland: *Al:* Mariehamn, 14.VI. 1945, R. Frey (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Kurl., Langen, 30.VIII. 1930, L. (1 m MNB); Estonia, st. Peedu, yuzhkh., 22.VIII. 1951, Stackelberg (1 m LEN); Leningrad. obl., Tatchina, 16.VIII. 1940, Stackelberg (1 m LEN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, 2—4 basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 5—6 longer setae. Mesoscutum yellow, with 3 brown narrow longitudinal stripes or stripes more or less fused, middle stripe with narrow yellow medial band. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellowish, with 2 long setae. Laterotergite yellowish, ventral part brownish. Mediotergite light brownish, bare.

Legs. Coxae yellow, coxa 3 with brownish lateral spot,



Figs. 650—651. *Mycomya siebecki.* — 650: male hypopygium, tergal view. — 651: hypopygium, sternal view. Scale 0.2 mm.

femora yellow, tibiae and tarsi brownish. Coxa 1 with dense brush of 4—6 strong setae anteromedially near apex, and some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.10, bt2:t2 = 0.73—0.84, bt3:t3 = 0.63—0.71.

Wing. Wing length 4.0—5.5 mm. Wing hyaline. Sc ending in C distally to middle of small cell, sometimes distally to apex of R4, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 3—18 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.54—0.79, 0.67—1.13. Cu ratios: 0.66—0.73, 0.83—1.07. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with narrow brown dorsal line, 6—7 brownish to brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 650—651, yellow. Processus long slender apically rounded. Tergal lateral appendage long, very slender. Sternal lateral appendage short, indistinct, with some setae. Sternal submedian appendage long, slender, with many setae. Gonostylus with 2 branches, lateral branch longer than medial one, curved, both with apical tooth. Aedeagus long, slender, bilobed.

Female. Unknown.

Distribution: Western Palaearctic. Yugoslavia, Czechoslovakia, Finland. USSR: Latvian SSR, Estonian SSR, Leningrad region. Also reported from Federal Republic of Germany (Plassmann 1977b, 1980b).

Biology: Unknown.

Mycomya montalba n. sp.

Figs. 652—656, key p. 33.

Type locality: New Hampshire, White Mountains, Pinkham Notch (USA).

Type: Holotype (studied): New Hampshire, White Mountains, Pinkham Notch, 22 June 1977, R. J. Gagné (m USNM).

Material examined: USA: Holotype (USNM).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellow, with 3 brownish to brown longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half yellowish. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part yellowish. Mediotergite yellow, posterior and lateral parts yellowish, bare.

Legs. Coxae yellow, coxa 3 with distinct brown spot in middle on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with extremely strong black preapical anteromedial spine formed by several joined setae. Coxa 2 with long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.77, bt3:t3 = 0.63.

Wing. Wing length 5.7 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 6 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.62, 0.79. Cu ratios: 0.67, 1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites brown with posterior margins and lateral margins yellow, brown area indistinctly divided into 3 spots in each tergite, 6—7 slightly darker than other tergites. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 652—656, yellow, with brown spots on tergal portion. Processus long slender. Tergal lateral appendage long, slender. Sternal lateral appendage comparatively short and narrow. Sternal submedian appendage narrow, with small setae. Gonostylus with 2 branches, lateral branch longer and more slender than medial one, both with apical tooth. Tergite 10 resembling that of *M. siebecki* Landrock.

Female. Unknown.

Distribution: Eastern Nearctic. Known only from the holotype from New Hampshire.

Biology: Unknown.

Mycomya rivalis Santos Abreu, 1920

Figs. 657—663, key p. 33, 42.

Mycomya rivalis Santos Abreu, 1920. Santos Abreu 1920:33; Väisänen 1982b:41.

Mycomyia rivalis: Landrock 1926—1927:51; Frey 1937:10.

Type locality: "Isla de la Palma, en el Barranco del Río" (Canary Islands).

Type: Lectotype (studied) by present designation: 5. *Mycomya rivalis* Type. (m TENE). Taken on April 9th, 1901.

Material examined: Canary Islands: La Palma, Barranco del Río, IV. 1901, Santos Abreu (lectotype, 1 m paralectotype TENE); Tenerife, Bco. Ahavingo, 14.III. 1976, M. Baez (1 f coll. Baez).

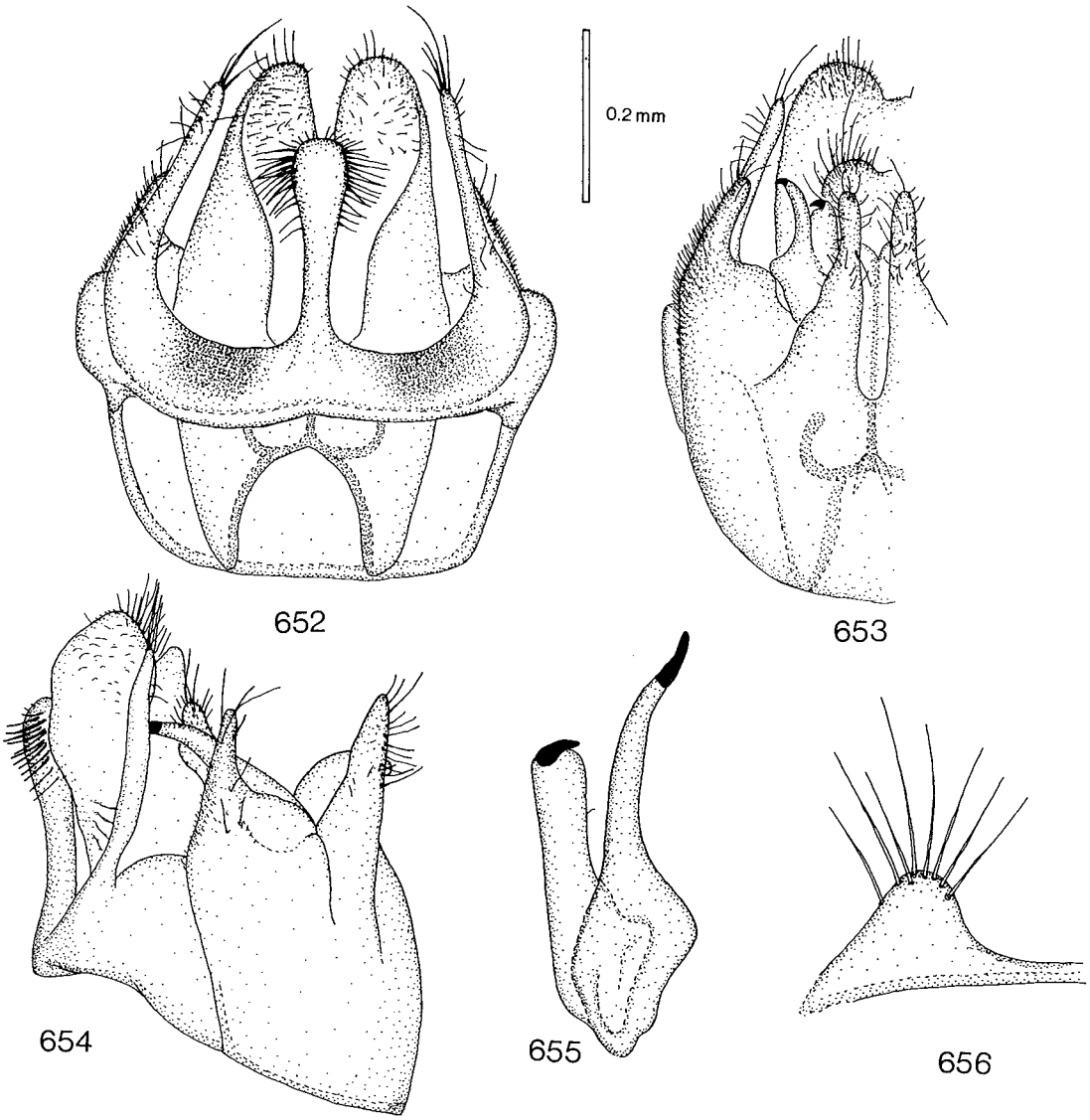
Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 3 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with brownish anterodorsal spots, with 3 longer setae. Mesoscutum anteriorly brownish, posteriorly brown, with 3 indistinct, more or less fused, broad brown longitudinal stripes, anterolateral corners widely brownish. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum yellowish to light brownish, with 4 long setae. Laterotergite brownish. Mediotergite brownish, bare.

Legs. Coxae brownish, femora yellowish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt3:t3 = 0.62.

Wing. Wing length 5.1—5.5 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 13—16 macrotrichia. Small cell 2—2.5 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.51—0.56, 0.63—0.69. Cu ratios: 0.30—0.50, 0.57—0.69. Macrotrichia: M petiole:



Figs. 652—656. *Mycomya montalba.* — 652: male hypopygium, tergal view. — 653: hypopygium, sternal view. — 654: hypopygium, lateral view. — 655: gonostylus. — 656: tergite 8. Scale 0.2 mm for Figs. 652—654 and 656, Figs. 655 2 x enlarged.

0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter yellowish.

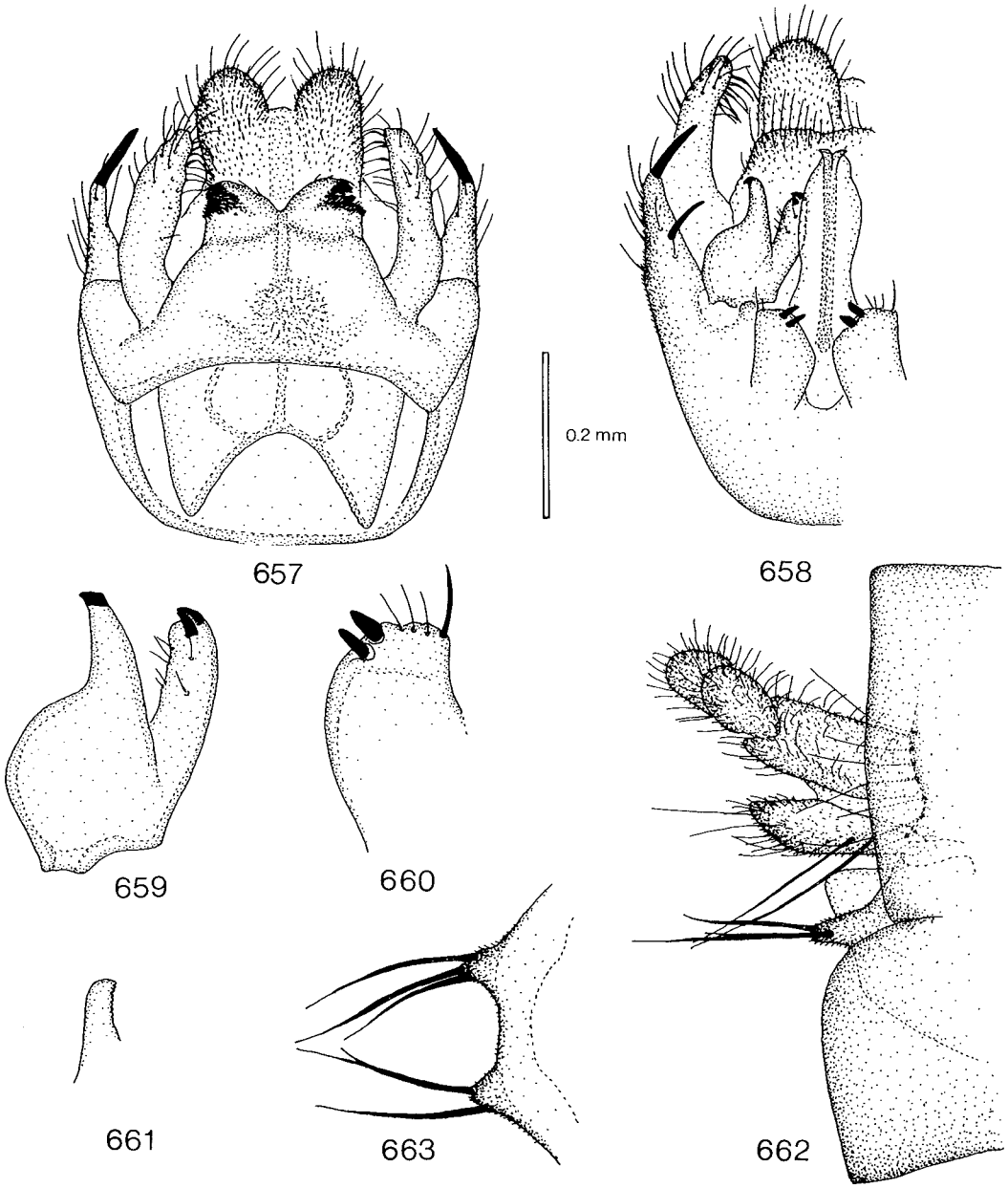
Abdomen. Tergites 1—6 brown with posterior fourths yellow, 7 brown. Sternites brownish, posterior margins widely yellow.

Hypopygium. Figs. 657—661, yellow. Processus very wide. Tergal lateral appendage long comparatively slender. Sternal lateral appendage short with 1 apical spine. Sternal submedian appendage broad with 2 strong spines and 1 strong setae. Gonostylus with 2 branches, about equally long, medial branch with 2 apical teeth, lateral with 1 apical teeth. Aedeagus long, slender, apically bilobed.

Female. Wing length 6.4 mm. Mesoscutum yellow to yellowish, posteriorly brownish. Mediotergite yellow to yellowish. Coxae yellow with faint brownish markings. Abdominal tergites brown, posterior thirds or fourths yellow. Sternites slightly lighter than tergites. Leg ratios: bt2:t2 = 0.75, bt3:t3 = 0.64. Terminalia as in Figs. 662—663, yellow.

Distribution: Western Palaearctic. Canary Islands: La Palma, Tenerife.

Biology: Unknown.



Figs. 657—663. *Mycomya rivalis.* — 657: male hypopygium, tergal view. — 658: hypopygium, sternal view. — 659: gonostylus. — 660: sternal submedian appendage. — 661: apex of aedeagus, lateral view. — 662: female terminalia, lateral view. — 663: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 657—658 and 661—663, Figs. 659—660 2 x enlarged.

Mycomya tridens (Lundström, 1911)
Figs. 664—665, key p. 34.

Sciophila tridens Lundström, 1911. Lundström 1911:394.
Mycomyia tridens: Landrock 1926—1927:41; Mikolajczyk 1971:372, 393; Plassmann 1972b:93, 1973:85, 1977b:9, 1980b:20.
Mycomya tridens: Väisänen 1982b:41.
(?) *Mycomyia tridens:* Matile 1967:121, 125.
(?) *Mycomya tridens:* Matile 1977:633.

Type locality: Semmering (Austria).
Type: Holotype (studied): Austria. Semmering. Palmén. 247. *Sciophila tridens* ♂. Lundstr. Mus. Zool.

H:fors Spec. typ. No 4761 *Mycomyia tridens* Lundström (m MZH).

Remarks: Matile (1967) designed a female neoallotype for *M. tridens* from the Pyrenees, probably assuming that the type material was lost. However, both the holotype and a female from the same locality are deposited in MZH.

Material examined: France: Gave d'Ossone-Gavarnie, (Htes Pyr.), alt. 1500 m, 12.VI. 1964, L. Matile (2 ?ff MNHN). — Austria: Semmering, 1870, Palmén (holotype, 1 f MZH). — Hungary: Bükk-fennsik, Nagymező, 26.IV. 1959, S. Tóth (2 mm TMB). — Poland: Bieszczady, Ustrzyki Górne — Polonina Caryńska, lasy bukowe, 10.V. 1968, W. Mikolajczyk (1 m WARS); Bieszczady, distr. Ustrzyki Dln. Berezki — Magura Stup., 12.V. 1968, W. Mikolajczyk (1 m WARS).

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellowish, with 3 brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum brownish, with 4 long and sometimes 2 shorter, setae. Laterotergite brownish. Mediotergite brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.91—0.97, bt2:t2 = 0.71—0.77, bt3:t3 = 0.61—0.67.

Wing. Wing length 5.4—6.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally to or near middle of small cell, Sc1 often apically weak and sometimes broken. Apical part of Sc bearing 9—18 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.53—0.66, 0.63—0.81. Cu ratios: 0.54—0.68, 0.76—0.97. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow with brown anteromedial spots or brown with posterior margins yellow, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish with posterior margins widely yellow.

Hypopygium. As in Figs. 664—665, yellow. Processus comparatively long. Tergal lateral appendage about as long as processus, wide. Sternal lateral appendage indistinct, short with many setae. Sternal submedian appendage comparatively short with many small setae. Gonostylus with 2 branches, both with apical tooth, lateral branch longer than medial one. Aedeagus long, relatively wide, apically bilobed.

Female. Wing length 7.2 mm. Mesoscutum yellow, with 3 distinct brown longitudinal stripes. Mesanepisternum and mesokatepisternum light brownish. Scutellum yellowish. Laterotergite and mediotergite light brownish. Sc with 26—29 macrotrichia. Abdomen yellow with brown spots anteromedially on tergites. Leg ratios: bt1:t1 = 0.83, bt2:t2 =0.73. Terminalia yellow.

Distribution: Western Palaearctic. ? France, Austria, Hungary, Poland. Also reported from Federal Republic of Germany (Plassmann 1972b, 1973, 1977b). All specimens apparently collected on the mountains of Central Europe.

Biology: Unknown.

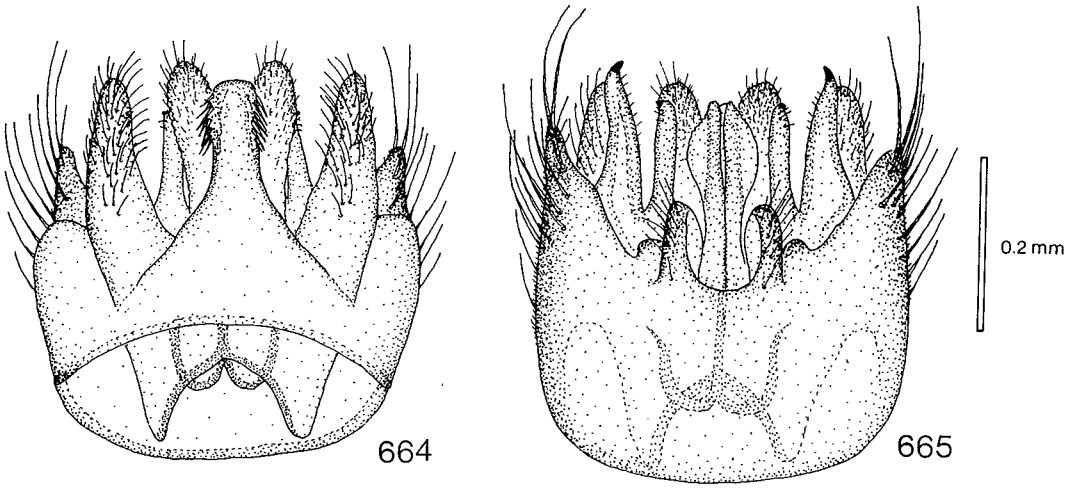
Mycomya tamerlani n. sp.

Figs. 666—673, key p. 35.

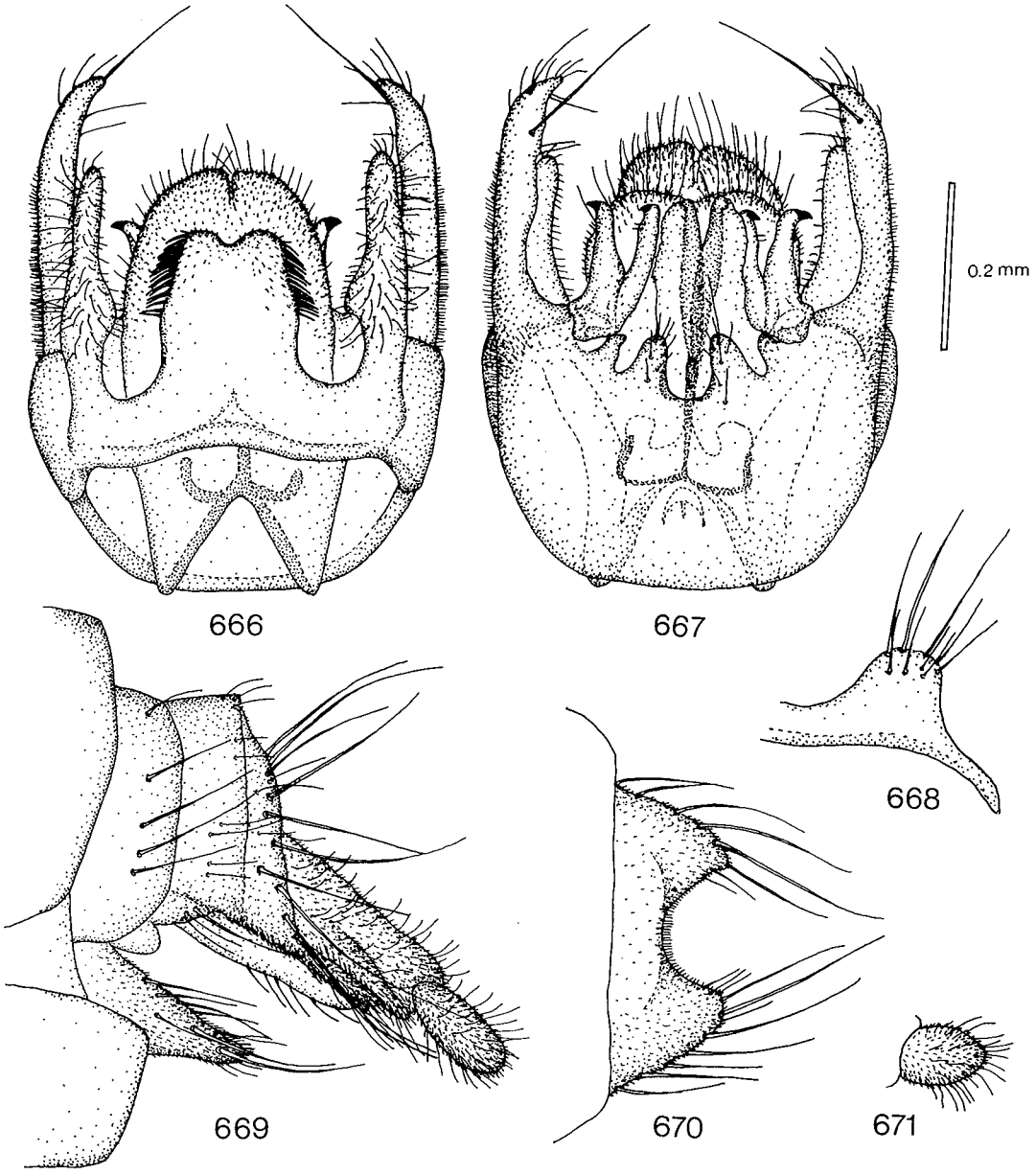
(?) *Mycomya fissa:* Zaitsev 1979:862.

Type locality: Tadzhikistan, Kvak (USSR).

Type: Holotype (studied): ur. Kvak, verh. r. Kondary, Tadzh. Stackelberg 6.VI. 43 (In Russian). *M. maculata* det. A. Zaitzev 1979. (m LEN).

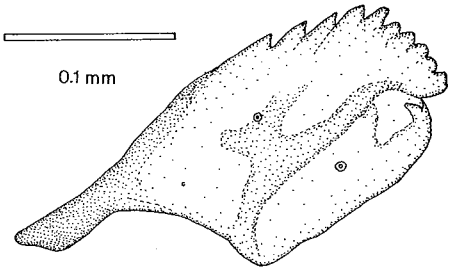


Figs. 664—665. *Mycomya tridens.* — 664: male hypopygium, tergal view. — 665: hypopygium, sternal view. Scale 0.2 mm.

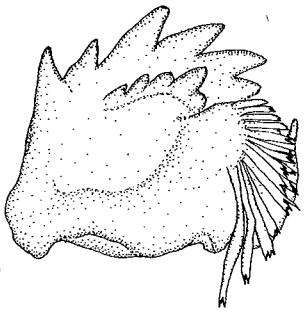


Figs. 666—671. *Mycomya tamerlani.* — 666: male hypopygium, tergal view. — 667: hypopygium, sternal view. — 668: tergite 8. — 669: female terminalia, lateral view. — 670: hypogynal valves, sternal view. — 671: apical segment of cercus, sternal view. Scale 0.2 mm.

Material examined: USSR: Tadzh., ur Kvak, verh. r. Kondary, 5.VI. 1943, Stackelberg (2 mm LEN); same data, 6.VI. 1943 (holotype & 1 m LEN); same data, 7.VI. 1943 (1 m LEN); Kirghizia, Sary-Chelek, 20.V. 1978, A. Zaitzev (1 f + pupa + head capsule of larva MOSC); same data, 26.V. 1978 (1 m Lot 46 MOSC); same data, 27.V. 1978 (1 f Lot 58 MOSC); same data, 29.V. 1978 (2 mm 1 f Lot 67 MOSC); same data, 30.V. 1978 (1 f + pupa + head capsule of larva Lot 82 MOSC); same data, 31.V. 1978 (1 m + pupa Lot 87 MOSC); same data, 2.VI. 1978 (2 mm 1 f Lot 107 MOSC); same data, 5.VI. 1978 (1 m MOSC); same data, 20.VI. 1978 (1 m + pupa + head capsule of larva, 2 ff + pupa + head capsule of larva MOSC); Kuril Isls., Kunashir, 20.VII. 1977, A. Zaitzev (1 m No. XV MOSC).



672



673

Figs. 672—673. *Mycomya tamerlani.* — 672: maxilla of larva. — 673: mandible. Scale 0.1 mm.

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brownish. Antenna light brownish, basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow, with 3 brown longitudinal stripes, middle stripe with narrow medial yellow line. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow to yellowish. Mediotergite yellow to yellowish, bare.

Legs. Coxae yellow, coxa 3 with brownish spot on lateral surface, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.03, bt2:t2 = 0.78, bt3:t3 = 0.60.

Wing. Wing length 4.7—5.6 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly distally to middle of small cell. Apical part of Sc bearing 6—14 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.49—0.57, 0.57—0.67. Cu ratios: 0.56—0.62, 0.83—0.93. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with lateral and posterior margins widely yellow, 6—7 brown. Sternites lighter than tergites, yellow to yellowish.

Hypopygium. Figs. 666—668, yellow.

Female. Wing length 5.3—5.9 mm. Abdominal tergites brown with posterior thirds yellow, sternites yellow. Leg ratios: bt1:t1 = 0.93—0.95, bt2:t2 = 0.70—0.71, bt3:t3 = 0.60—0.61. Terminalia as in Figs. 669—671, yellow.

Larva. Mandible and maxilla as in Figs. 672—673.

Pupa. Light brownish. Length about 6.0 mm — male, 6.5 mm — female.

Remarks: Wing abnormality: Small cell divided by additional oblique crossvein from R1 to R4 (Kunashir).

Distribution: Palaearctic. USSR: Tadzhikistan SSR, Kirghizian SSR, Kuril Islands: Kunashir.

Biology: Unknown.

Mycomya fissa (Lundström, 1911)

Figs. 674—679, key p. 34.

Sciophila fissa Lundström, 1911. Lundström 1911:394.

Mycomyia fissa: Landrock 1926—1927:45.

Mycomya fissa: Matile 1977:633; Väisänen 1982b:39.

(? not) *Mycomya fissa:* Zaitsev 1979:862 (? = *M. tamerlani* n. sp.).

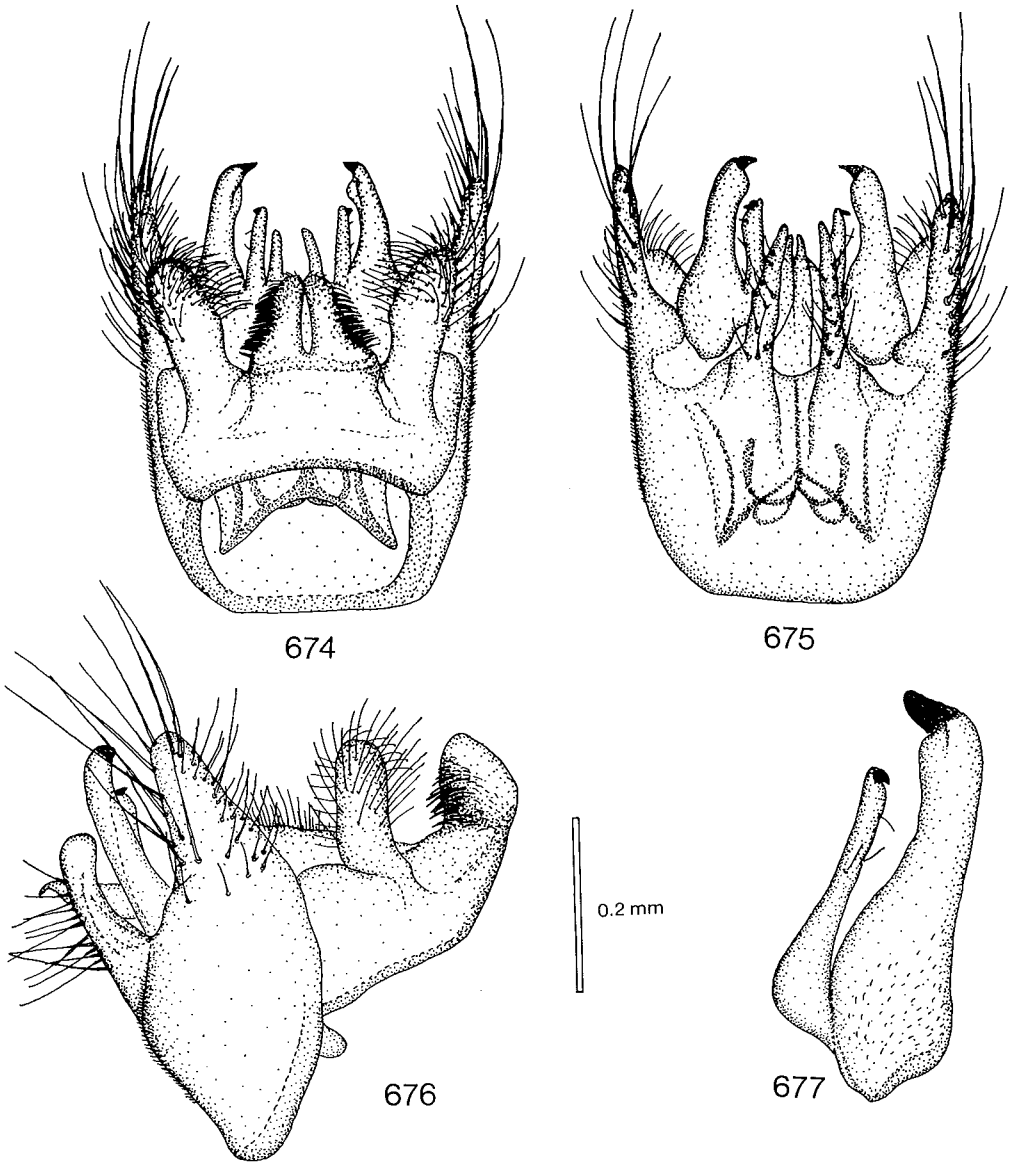
(? not) *Mycomyia fissa:* Plassmann 1974b:351, 1977b:8, 1978a:148, 1979:374, 1980a:178 (? = *M. wankowiczii* (Dziedzicki)).

(not) *Mycomyia fissa:* Barendrecht 1938:38 (= *M. wankowiczii* (Dziedzicki)).

Type locality: Styria (Steiermark), Admont (Austria).

Type: Holotype (not located, apparently destroyed): m, leg. Strobl (originally deposited in Mus. Hung.).

Material examined: Italy: Aosta, Comba di Vertosan, Breuil, alt. 1809 m, 25.VI. 1972, L. Matile (1 m MNHN); Aosta, Vertosan, Jovançan, 1900—2000 m, 22.VII. 1975, L. Matile (1 m MNHN, 1 m MZH); Aosta, Piano di Sylvenoire, 1600—1700 m, 14.VII. 1975, D. & L. Matile (1 m MNHN); same locality, 1550—1600 m, 9.VII. 1975, L. Matile (1 m MNHN); same locality, 1600—1650 m, 15.VII. 1975, D. & L. Matile (4 mm MNHN); Aosta, Vallée de Rhêmes, 1880 m, 20.VII. 1975, L. Matile (1 m MNHN); same locality, 1900—2000 m, 8.IX. 1978, L. Matile (1 m 3 ff MNHN, 1 f MZH); Aosta, Val Veny, 1800 m, 17.VII. 1975, L. Matile (2 mm 1 f MNHN); Aosta, Valsavaranche, Pont, 1980—2050 m, 19.VII. 1975, L. Matile (1 f MNHN); Aosta, Valsavaranche, Ponte del Gran Clapey, alt. 1730 m, 30.VI. 1973, L. Matile (1 m MNHN); Aosta, Vallée de Cogne, Ozein, Chem. Turlin, 1500—1550 m, 12.VI. 1980, L. Matile (1 m MNHN); Aosta, Vallée de Cogne, P. N. G. P., alt. 1650 m, 24.VI. 1973, D. & L. Matile (1 m MNHN); Aosta, Valpelline, Près Oyace, alt. 1100 m, 26.VI. 1973, L. Matile (1 m MNHN); Aosta, Valnontey, 1620—1750 m, 10.VII. 1975, D. & L. Matile (1 m MNHN); same data, 11.VII. 1975 (3 mm MNHN). — France: Col de Porte (Isère), alt. 1300 m, 26.VI. 1970, L. Matile (1 m MNHN); Basses Alpes, Pessière-Ravin, Valplane, 1700 m, 25.VII. 1972, Hebrard (1 m 2 ff MNHN); Isola 2000, (06), alt. 2000 m, chemin forestier, 17.VII. 1976, J. Clastrier (2 mm MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (1 m ISU); Suisse (Grisons), Lenzerheide-Dieschen, Résineux, 1550—1600 m, 9.VI. 1976, L. Matile (2 mm MNHN). — Austria: Tirol, Igls, 2000 m, 5.VII. 1953, J. R. Vockeroth (2 mm CNC); same locality, 1200 m, 1.VII. 1953, J. R. Vockeroth (2 ff CNC); same locality, 900 m, 30.VIII. 1953, J. R. Vockeroth (1 ?f CNC); Tirol, Obergurgl, 1950 m, 22. VII. 1953, J. R. Vockeroth (2 ff CNC); same data, 24.VII. 1953 (2 ff CNC);



Figs. 674—677. *Mycomya fissa.* — 674: male hypopygium, tergal view. — 675: hypopygium, sternal view. — 676: hypopygium, lateral view. — 677: gonostylus. Scale 0.2 mm for Figs. 674—676, Fig. 677 2 x enlarged.

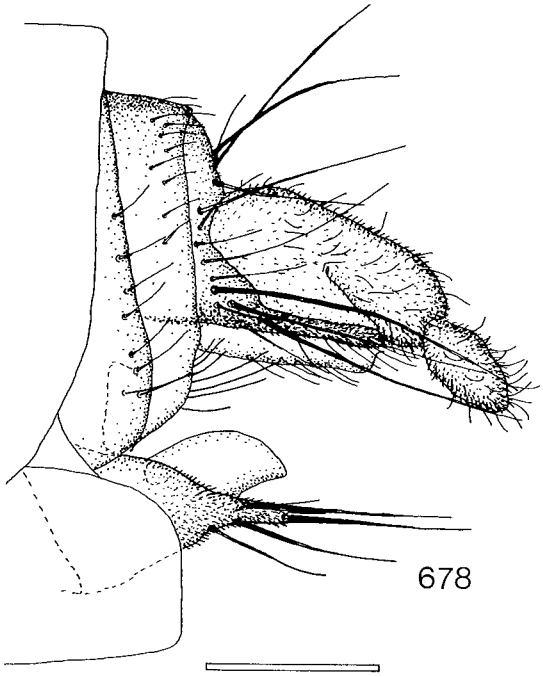
same data, 25.VII. 1953 (1 m 1 f CNC); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 26.VII. 1972, 29—30.VII. 1972, 2—3.VIII. 1972, 6—7.VIII. 1972, Malaise trap, A. C. & B. Pont (6 mm BMNH); St. Anton, 12.VII. 1971, A. E. Stubbs (1 m 2 ff BMNH).

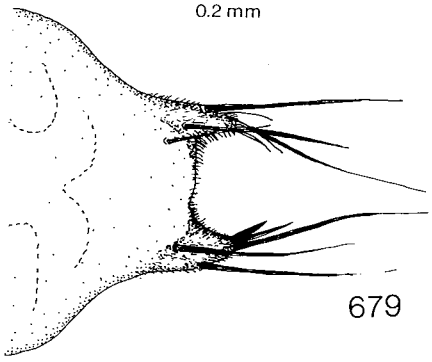
Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and basal half of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow to yellowish, with 3 dark brown longitudinal stripes, anterolateral corners of mesoscutum yellow. Mesanepisternum brown. Mesokatepisternum brown, ventral part dark brown. Scutellum light brownish to brownish, with 4 long setae. Laterotergite brown, ventral part dark. Mediotergite brown, bare.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long anteromedial setae. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.88—1.00, bt2:t2 = 0.70—0.76, bt3:t3 = 0.57—0.66.





Figs. 678—679. *Mycomya fissa.* — 678: female terminalia, lateral view. — 679: hypogynal valves, sternal view. Scale 0.2 mm.

Wing. Wing length 4.2—6.1 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 3—20 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.53—0.58, 0.62—0.72. Cu ratios: 0.49—0.57, 0.64—0.78. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 dark brown, with posterior margins narrowly yellow, markings distinct, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 674—677, yellow. Processus wide short bilobed. Tergal lateral appendage short broad. Sternal lateral appendage comparatively long with several long setae. Sternal submedian appendage long narrow, setose. Gonostylus with 2 branches, medial branch much shorter than lateral one, with 1—2 apical-preapical teeth, lateral branch with 1 apical tooth. Aedeagus comparatively long, apically bilobed, comparatively slender.

Female. Wing length 5.0—6.0 mm. Thorax and abdomen as in male but abdominal tergites 6—7 also with yellow posterior margins. Leg ratios: bt1:t1 = 0.86—0.91, bt2:t2 = 0.70—0.73, bt3:t3 = 0.63—0.66. Terminalia as in Figs. 678—679, yellow.

Distribution: Western Palaearctic. The Alps (Italy, France, Switzerland, Austria).

Biology: Unknown.

Mycomya norna n. sp.
Figs. 680—682, key p. 35.

(? p. p.) *Mycomyia fulva:* Plassmann 1976a:77, 1979:374 (? p. p. = *Mycomya* sp.).

Type locality: Messaure (Sweden).

Type: Holotype (studied): S-Messaure 22.IX. 1969, Slg. W. Tobias. Senckenberg-Mus. 10254 Frankfurt/M. *Mycomyia fulva* Dzied. det. Plassmann. (m SENCK).

Material examined: Sweden: Holotype (SENCK).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna light brownish, basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 distinct brown longitudinal stripes. Mesanepisternum light brownish. Mesokatepisternum light brownish. Scutellum yellow, with 4 long setae. Laterotergite light brownish. Mediotergite light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.84, bt3:t3 = 0.63.

Wing. Wing length 4.1 mm. Wing hyaline. Sc ending in C proximally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 5—8 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.79, 0.94. Cu ratios: 0.76, 1.06. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Yellowish, without distinct markings.

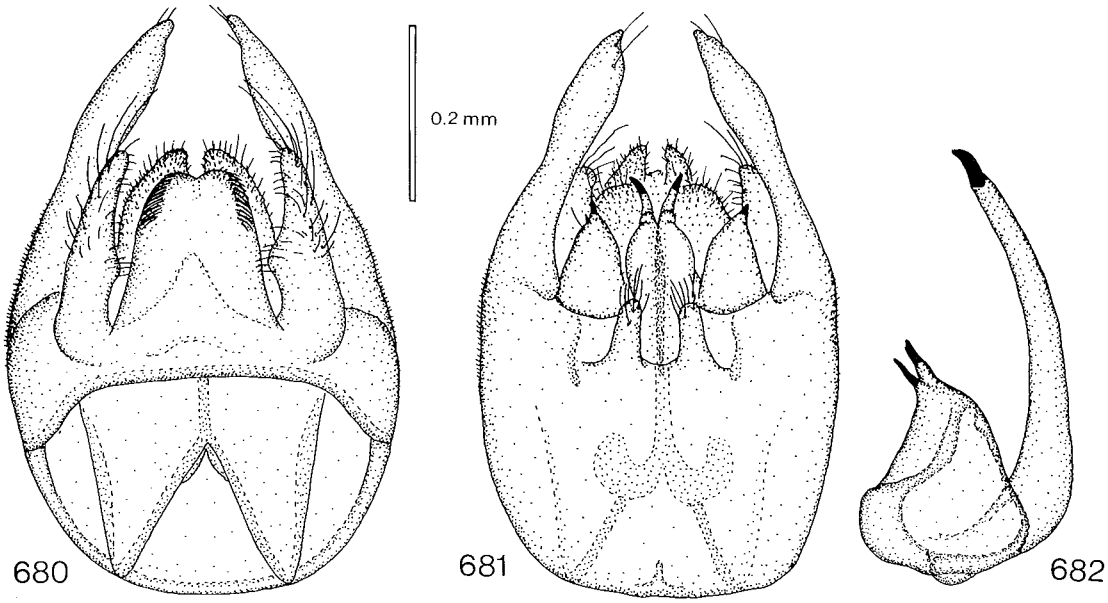
Hypopygium. Figs. 680—682, yellow.

Female. Unknown.

Remarks: 1—2 macrotrichia on r-m crossvein.

Distribution: Western Palaearctic. Known only from the holotype from northern Sweden.

Biology: The holotype was apparently collected with an air-suction trap on 22—25.IX. 1969 at 12.00—14.00 near Kaltisjokk, about 20 km N of the Arctic Circle near the river of Stora Lule Älv in Swedish Lapland, by a dense wet thicket of bushes on the river bank (Plassmann 1979).



Figs. 680—682. *Mycomya norna.* — 680: male hypopygium, tergal view. — 681: hypopygium, sternal view. — 682: gonostylus. Scale 0.2 mm for Figs. 680—681, Fig. 682 2 x enlarged.

Mycomya dziedzickii Väisänen, 1981

Figs. 683—686, key p. 33.

Mycomya dziedzickii Väisänen, 1981 (n. name for *Sciophila fulva* Dziedzicki, preocc. Meigen, 1838). Väisänen 1981a:164, 1982b:39.

Sciophila fulva Dziedzicki, 1885. Dziedzicki 1885:25; Kertész 1902:60, 1903:32.

(not) *Sciophila fulva:* Lundström 1909:10 (= *M. wankowiczii* (Dziedzicki), *M. maculata* (Meigen)).

Mycomya fulva: Landrock 1913:30; Matile 1977:633; Väisänen in Hackman 1980:31.

Mycomyia fulva: Landrock 1926—1927:46; Lackschewitz 1937:10; Landrock 1940:31; Mikolajczyk 1967:21.

(? not) *Mycomyia fulva:* Plassmann 1976a:77, 1977b:9, 1979:374, 1980b:18 (p. p. = *M. norna* n. sp., ? *Mycomya* sp.).

Type localities: "Zazierze w gubernii Minskiéj"; "Zaczernie w gubernii Mohilewskiéj" (Byelorussian SSR).

Type: Lectotype (studied) by present designation: Biala-Rus. 6, 80. *Sciophila fulva.* n. sp. ♂. Mus. Zool. H:fors Spec. typ. No 4763 *Mycomyia fulva* Dziedzicki. Lectotypus *Sciophila fulva* Dziedzicki ♂. *Mycomya dziedzickii* Väisänen. Type. (m MZH).

Remarks: The type comes from Dziedzicki's original collection, and very probably belonged to the original type material.

Material examined: France: Hte Savoie, Mont Salève, alt. 1000 m, 27.VI. 1970, D. & L. Matile (1 m MNHN). — FRG: Ruhpolding, Taubensee, 1.VII. 1916, C. F. Adams (1 m 1 f PU). — Czechoslovakia: Boh., Horské Kvilda, 27.VII. 1961, Janda (1 m VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (1 m VUPP). — Sweden: Sm., Bolmen, 16.IX. 1958, O. Ringdahl (1 m LUND). — Finland: *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH); Lojo (Lohja), Storå (1 m MZH); Vihti, Vihtijärvi, 14.VII. 1962, 17.VIII. 1962, 23.VI. 1963, R. Tuomikoski (3 mm MZH); *Ka:* Ravijoki-Ravijärvi, 24.VI. 1971, L. Tiensuu (1 m MZH); *Kb:* Tuovilanlaks (Maaninka), 16.VII. 1865, A. Palmén (1 m MZH). — USSR: Latvia, Kalwen, 10—12.VIII. 1933, F. W. Edwards (1 m BMNH); Curon, Ugcken, 20.VI. 1926, P. Lackchewitz (1 m MNB); Yarosl. g., Berditsyno, 30.VI. 1907, K. A. Yakovleva (1 m LEN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish to yellow, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellow with 3 distinct light brownish to brown longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4, occasionally 2 or 5, long setae. Laterotergite yellow. Mediotergite yellow, bare. Sometimes thorax entirely light brownish, without distinct markings.

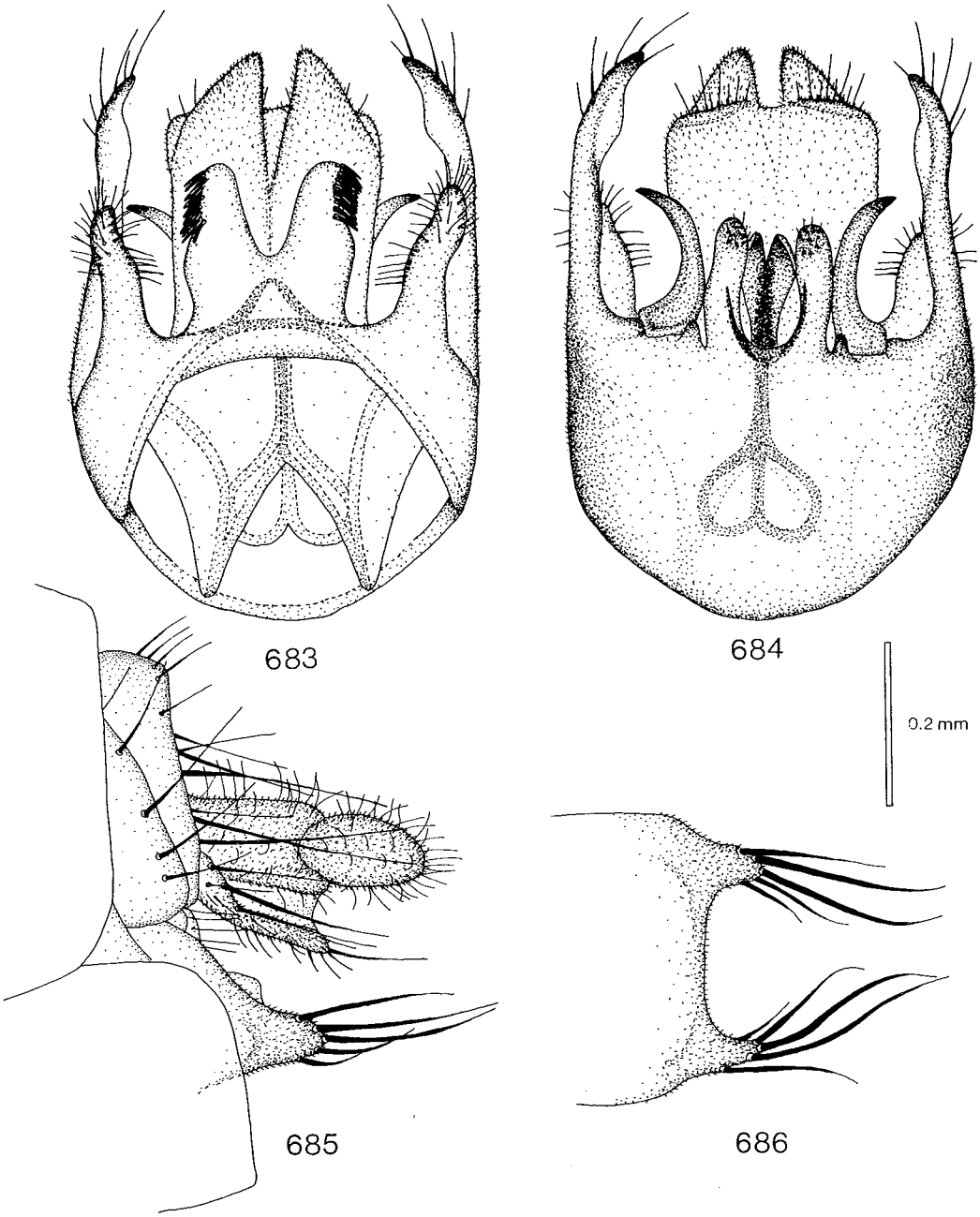
Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with several thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.12, bt2:t2 = 0.73—0.82, bt3:t3 = 0.62—0.64.

Wing. Wing length 4.7—5.7 mm. Wing hyaline. Sc ending in C slightly proximally — slightly distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part

of Sc bearing 14—26 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.46—0.74, 0.58—0.89. Cu ratios: 0.47—0.72, 0.67—1.07. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with narrow brown anteromedial spots or brown with posterior and lateral margins yellow, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 683—684, yellow, comparatively large. Processus wide, deeply bilobed. Tergal lateral appendage slightly shorter than processus with thin setae. Sternal lateral appendage very long slender, with some



Figs. 683—686. *Mycomya dziedzickii.* — 683: male hypopygium, tergal view. — 684: hypopygium, sternal view. — 685: female terminalia, lateral view. — 686: hypogynal valves, sternal view. Scale 0.2 mm.

setae. Sternal submedian appendage comparatively slender, with some small setae. Gonostylus slender, curved, apical part dark. Aedeagus comparatively long, apically bilobed.

Female. Wing length 6.6 mm. Mesoscutal stripes indistinct. Abdominal tergites brownish with posterior margins widely yellow. Terminalia as in Figs. 685—686, yellow.

Distribution: Western Palaearctic. France, Federal Republic of Germany, Czechoslovakia, Sweden, Finland. USSR: Latvian SSR, Yaroslavl region.

Biology: Unknown.

Mycomya maculata (Meigen, 1804)

Figs. 687—693, key p. 33.

Platyura maculata Meigen, 1804. Meigen 1804:101; Walker 1848:91.

Sciophila maculata: Meigen 1818:248 (Syn. *Tipula platyura* Fabricius); Staeger 1840:271; Zetterstedt 1852:4109, 4362; Winnertz 1863:712; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; van der Wulp 1877:166; Siebke 1877:245; Dziedzicki 1885: Tab. IX: Figs. 16—17; Kertész 1902:61, 1903:33.

(? p. p.) *Sciophila maculata:* Lundström 1907:8, 1909:9, 1912a:9 (p. p. = *M. wankowiczii* (Dziedzicki)).

Mycomyia maculata: Wahlgren 1921:166; Landrock 1926—1927:48, 1930:254; Séguy 1940:75; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:25, 1971b:61; Laštovka & Matile 1974:94; Ostroverchova & Izotov 1974:82; Plassmann 1976a:77, 1977b:9, 1979:374: Os. troverchova & Zaitseva 1979:75; Ostroverchova 1979:70; Plassmann 1980a:178, 1980b:19.

Mycomya maculata: Väisänen in Hackman 1980:31; Väisänen 1982b:40.

(?) *Mycomyia maculata;* Frey & Storå 1941:46.

(? p. p.) *Mycomyia maculata:* Lackschewitz 1937:8 (p. p. = *M. wankowiczii* (Dziedzicki)).

Tipula platyura Fabricius, 1805. Fabricius 1805:33.

Mycomya hamatus Garrett, 1924 (New synon.). Garrett 1924:160.

Mycomya hamata: Coher 1959:124.

Mycomya hamata: Laffoon in Stone et al. 1965:220; Cole 1969:121.

(p. p.) *Sciophila fulva:* Lundström 1909:10 (p. p. = *M. wankowiczii* (Dziedzicki)).

(p. p.) *Mycomyia wankowiczii:* Plassmann 1969:27, 1970b:388, 1971b:62, 1977b:9, 1979:375, 1980a:178, 1980b:20 (? p. p. = *M. wandowiczii* (Diedzicki)).

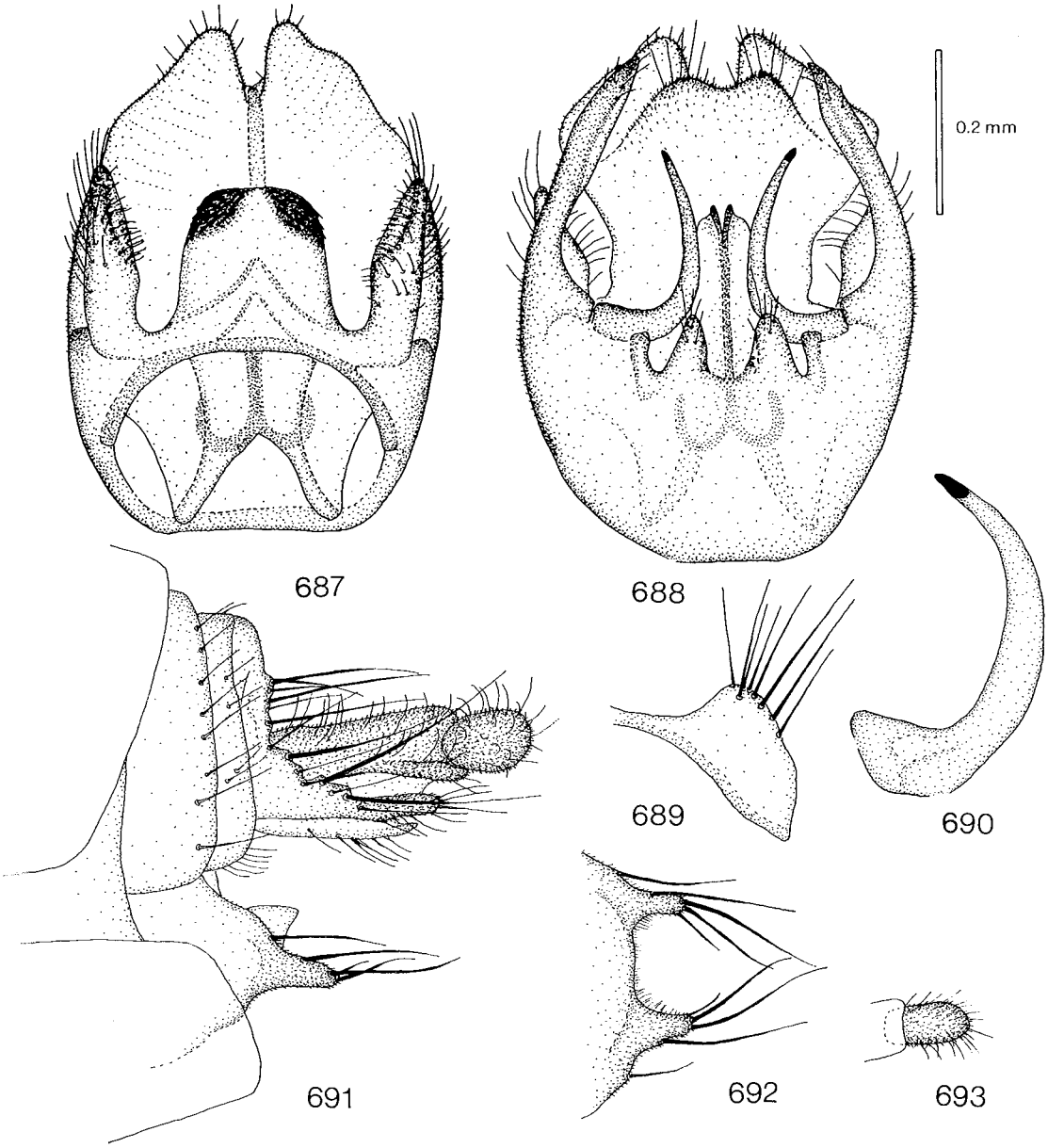
Type locality: Not stated (Federal Republic of Germany).

Types: — *Platyura maculata* Meigen: Holotype (not studied): in extremely poor condition, only remnants of thorax left (L. Matile, pers. comm.) (f MNHN). — *Tipula platyura* Fabricius: Type not located, apparently destroyed. Type locality: Not stated (Central Europe). — *Mycomya hamatus* Garrett (correct spelling *M. hamata):* Holotype (studied): Wilson Parks Creek. Michel 5200 ft. 22.VII. BC. Holotype *Mycomya hamatus* ♂ C Garrett C. B. D. Garrett. 4963 hypo. (m CNC, hypop. slide not located, apparently destroyed). Type locality: British Columbia, Michel, Wilson Creek (Canada).

Remarks: Although the hypopygium of the *M. hamata* holotype was not available, I was able to identify this species with the aid of Garrett's other specimens of *M. hamata.*

In CORN there is a specimen of *M. maculata* labelled "*Mycomyia* bretonensis Fisher", "Holotype Cornell U. No. 1470". However, Fisher never described this species, and the specimen is not a type.

Material examined: Poland: Bialowieza Park Narod., kw. 314, bor mieszany, 7.X. 1966, W. Mikolajczyk (1 m WARS). — Sweden: T. Lpm., Abisko, 4.VII. 1922, O. Ringdahl (1 m LUND); Kaltisjokk, loc 7, (Sapta), 4—7.VIII. 1969, (0—2) (1 m No. 9490 "*M. wankowiczii*" ZSM); Messaure, 11.IX. 1969 (3 mm No. 10154 + K154 "*M. maculata*" SENCK); Messaure, 8—11.IX. 1969 (1 m No. 10035 + K35 "*M. wankowiczii*" SENCK). — Finland: *Ab:* Vihti, Vihtijärvi, 23.VII. 1963, 3.VIII. 1963, R. Tuomikoski (2 mm MZH); Karuna, Sandö, 25.V. 1933, R. Storå (1 m MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m "*S. fulva*" MZH); *U:* Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (1 m MZH); *Ka:* Virolahti, Leppämäki, 1.VIII. 1971, L. Tiensuu (1 m MZH); *St:* Kokemäki, 1953, R. Tuomikoski (1 m MZH); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (1 m MZH); *Tb:* Etseri (Ähtäri), 30.VII. 1914 (1 m MZH); Keuru (Keuruu), 1928, Hellen (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (2 mm MZH); same locality, 19—24.VII. 1967, R. Tuomikoski (2 mm MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (5 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (2 mm MZH); *LkW:* Kittilä, Pallastunturi, 29.VII. 1967, R. Tuomikoski (1 m MZH); same locality, 27.VII. 1911, R. Frey (1 m MZH). — USSR: Kivikoski, Saima-Kanal, 9.VI. 1903, Adelung (1 m MZH); Paanajärvi, 25.VII. 1934, H. Ahlqvist (1 m MZH); Estonia, st. Peedu, yuzhkh., 14.VIII. 1951, Stackelberg (1 m LEN); Leningrad. o., Luzhsk., Tolmachevo, 24.VIII. 1936, 11.VIII. 1937, 19.VIII. 1937, Stackelberg (4 mm LEN); Leningr. o., Luzhsk., Yashera, 23.VII. 1960, 10.VII. 1961, 19.VII. 1965, 23.VII. 1965, 3.IX. 1966, Stackelberg (5 mm LEN); Vyritsa Leningr., 4.IX. 1946, Stackelberg (1 m LEN); Leningrad. g., Yukki, 22.VII. 1932, Stackelberg (1 m LEN); Ostrovki na Neve, Shlissel'b. u., 15.VI. 1906, G. Jakobson (1 m LEN); 0-i B. Shantar, yakshina Guba, 13.VIII. 1925, Dul'kejt (1 m LEN); Arkhang. g., Aleksandrovsk, 26.VIII. 1923, Fridolin (1 m LEN); Kol'sk., Khibin. g., bass. ozer Vud'yavr, 20.VIII. 1933, 22.VIII. 1933, 9.VIII. 1935, Fridolin (3 mm LEN). — Mongolia: Central aimak, Tosgoni ovoo, 10 km N von Ulan-Baator, 1700—1900 m, 23—24.VII. 1967 Z. Kaszab (1 m MNHN). — Alaska: Anchorage, 20.VII. 1951, R. S. Bigelow (1 m CNC); Alaska, Mt. McKinley N. Pk., 14.VII. 1954, R. Coleman (1 m USNM). — Canada: Y. T., 14 mi. E. Dawson, 1300′, 3.VIII. 1962, P. J. Skitsko (2 mm CNC); B. C., Lac Le Jeune, 27.VI. 1973, H. J. Teskey (1 m CNC); B. C., Michel, Wilson Parks Creek, 5200 ft., 22.VII., C. Garrett (*M. hamatus* holotype CNC); B. C., Cranbrook, Fort Steele, 17.VII., C. Garrett (1 m hypop. slide No. 4951 "*Mycomyia hamatus*" USNM); B. C., Kimberly, St. Mary's Lake, 13.VIII., C. Garrett (1 m hypop. slide No. 2586 "*M. hamatus*" USNM); Alta., Banff, Upper Hot Springs,



Figs. 687—693. *Mycomya maculata.* — 687: male hypopygium, tergal view. — 688: hypopygium, sternal view. 689: tergite 8. — 690: gonostylus. — 691: female terminalia, lateral view. — 692: hypogynal valves, sternal view. — 693: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 687—689 and 691—693, Fig. 690 2 x enlarged.

13.VII. 1928, O. Bryant (1 m CAS); Man., Pine Falls, 31.VIII. 1961 (1 m CNC); Man., Fort Churchill, 11.VIII. 1952, 21.VIII. 1952, J. G. Chillcott (2 mm CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 6.VIII. 1966, Malaise trap, D. D. Munroe (1 m CNC); Que., Indian House L., 3.VIII. 1954, 14.VIII. 1954, 19.VIII. 1954, W. R. Richards (3 mm CNC); same locality, 27.VII. 1954, R. Coyles (1 m CNC); N. B., Kouchibouguac N. P., 30.VI. 1977, J. R. Vockeroth (1 m 1 f CNC); same data, 5.VII. 1977 (1 m 1 f CNC); N. S., Margaree, Intervale Margaree, 31. VIII. 1936, E. G. Fisher (1 m "*Mycomyia* bretonensis Fisher Holotype Cornell U. No. 1470" CORN). — USA: Yellst. Park, Spring Crk., 15.VII. 1923, A. L. Melander

(1 m "*M. marginalis* det. E. G. Fisher 1940" USNM); S. D., Custer St. Pk., 18.VI. 1955, W. A. Drew (1 m MICH); Minn., Itasca St. Pk., 1 mi. E. of Biol. Sta., 22.VII. 1963, D. L. Deonier (1 m ISU); Mich., Delta Co., 11.VI. 1960, R. & K. Dreisbach (1 m MICH); ME., Mt. Katahdin, 4.VII. 1968, D. M. Wood (1 m CNC): Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (1 m BMNH); New York, Hamilton Co., along Shanty Brook, 43°17.2'N, 74°33.4'W, 1700', 5.VIII. 1961, R. J. Gagné (1 m ISU); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, J. L. Laffoon (2 mm ISU).

Description:

Head. Palp and other mouthparts yellow, face yellowish to light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5—3 times, 2nd 1.5—2 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow with dark brown longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow to light brownish. Mesokatepisternum light brownish, or yellow with ventral half light brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow to light brownish or yellow with light brownish ventral part. Mediotergite yellowish to brownish, bare. Sometimes thorax brownish with dark markings.

Legs. Coxae yellow, coxa 3 sometimes with brown lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.97—1.07, bt2:t2 = 0.75—0.82, bt3:t3 = 0.60—0.67.

Wing. Wing length 4.2—6.0 mm. Wing hyaline, apex and small cell occasionally extremely weakly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 4—20 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.55—0.68, 0.64—0.83. Cu ratios: 0.58—0.81, 0.86—1.20. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with posterior margins narrowly yellow, often almost yellow, with brown anteromedial spots, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 687—690, yellow. Processus wide, long, with blunt apex. Tergal lateral appendage about as long as processus, with comparatively short and thin setae. Sternal lateral appendage long, with comparatively short apical setae. Sternal submedian appendage short, with small setae. Gonostylus long, slender, curved, with apical teeth. Aedeagus comparatively long, apically bilobed.

Female. Wing length 4.7—5.2 mm. Abdominal tergites brown with posterior halves yellow. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.77—0.88, bt3:t3 = 0.62—0.65. Terminalia as in Figs. 691—693, yellow.

Remarks: Wing length in males: Nearctic specimens: mean 4.92 mm, SD 0.41, N=21; Palaearctic specimens: mean 5.16 mm, SD 0.36, N=22.

Distribution: Holarctic. Poland, Sweden, Finland. USSR: Estonian SSR, Leningrad region, Karelian ASSR, Murmansk region. Mongolia. Alaska. Canada: Yukon Territory, British Columbia, Alberta, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia. USA: Wyoming, South Dakota, Minnesota, Michigan, Maine, New York, Pennsylvania. Also reported from the Netherlands (van der Wulp 1877), Federal Republic of Germany (Plassmann 1969, 1971b, 1977b), Norway (Siebke 1877), Denmark (Staeger 1840), USSR: ? Lithuanian SSR (Landrock 1930), Latvian SSR (Lackschewitz 1937), East and West Siberia (Ostroverchova & Izotov 1974, Ostroverchova & Zaitseva 1979, Ostroverchova 1979). However, I consider the records unreliable, especially the old ones.

Biology: According to Plassmann (1979, 1980a), *M. maculata* has been collected with air-suction and light traps. Ostroverchova (1979) reports that it was reared on *Boletus edulis* Fr.

Mycomya wankowiczii (Dziedzicki, 1885)

Figs. 694—699, key p. 33.

Sciophila wankowiczii Dziedzicki, 1885. Dziedzicki 1885:26; Kertész 1902:65, 1903:35.

Mycomya wankowiczi: Landrock 1913:31; Chandler 1976:97.

Mycomya wankowiczii: Hutson in Kloet & Hincks 1976:24; Väisänen 1979a:47, in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1982b:41.

Mycomyia wankowiczii: Edwards 1913:355, 1921a:61, 1925a:550; Landrock 1926—1927:53; Schmitz 1929:17; Landrock 1930:255; Lackschewitz 1937:9; Madvar 1937:54; Landrock 1940:30; Séguy 1940:79; Coe in Kloet & Hincks 1945:345; Eisfelder 1955:13; Kröber 1956:132; Kidd in Kidd & Brindle 1959:71; Kidd 1971:20; Mikolajczyk 1971:372; Plachter 1979b:282.

(? p. p.) *Mycomyia wankowiczii:* Plassmann 1969:27, 1970b:388, 1971b:62, 1977b:9, 1979:375, 1980a:178, 1980b:20 (p. p. = *M. maculata* (Meigen)).

(?) *Sciophila ferruginea* Meigen, 1818. Meigen 1818:249; Kertész 1902:59, 1903:32.

(not) *Sciophila ferruginea:* Walker 1848:91, 1856:40 (= *M. trilineata* (Zetterstedt)).

(?) *Mycomyia ferruginea:* Edwards 1924a:14 (? syn. *M. wankowiczii* (Dziedzicki)).

(not) *Mycomyia ferruginea* Brunetti, 1912. Brunetti 1912:74; Edwards 1924c:293 (Oriental; transferred to *Neoempheria*, see also Colless & Liepa in Delfinado & Hardy 1973:453).

(?) *Sciophila notabilis* Staeger, 1840. Staeger 1840:272; Zetterstedt 1852:4106, 1860:6555; Winnertz 1863:715; Siebke 1877:245; Strobl 1895:143; Kertész 1902:62, 1903:34; Sack 1907:11; Strobl 1909:241; Kröber 1910:9; Morge 1974:171.

(? not) *Sciophila notabilis:* Lundström 1909:9 (= ? *M. marginata* (Meigen)).

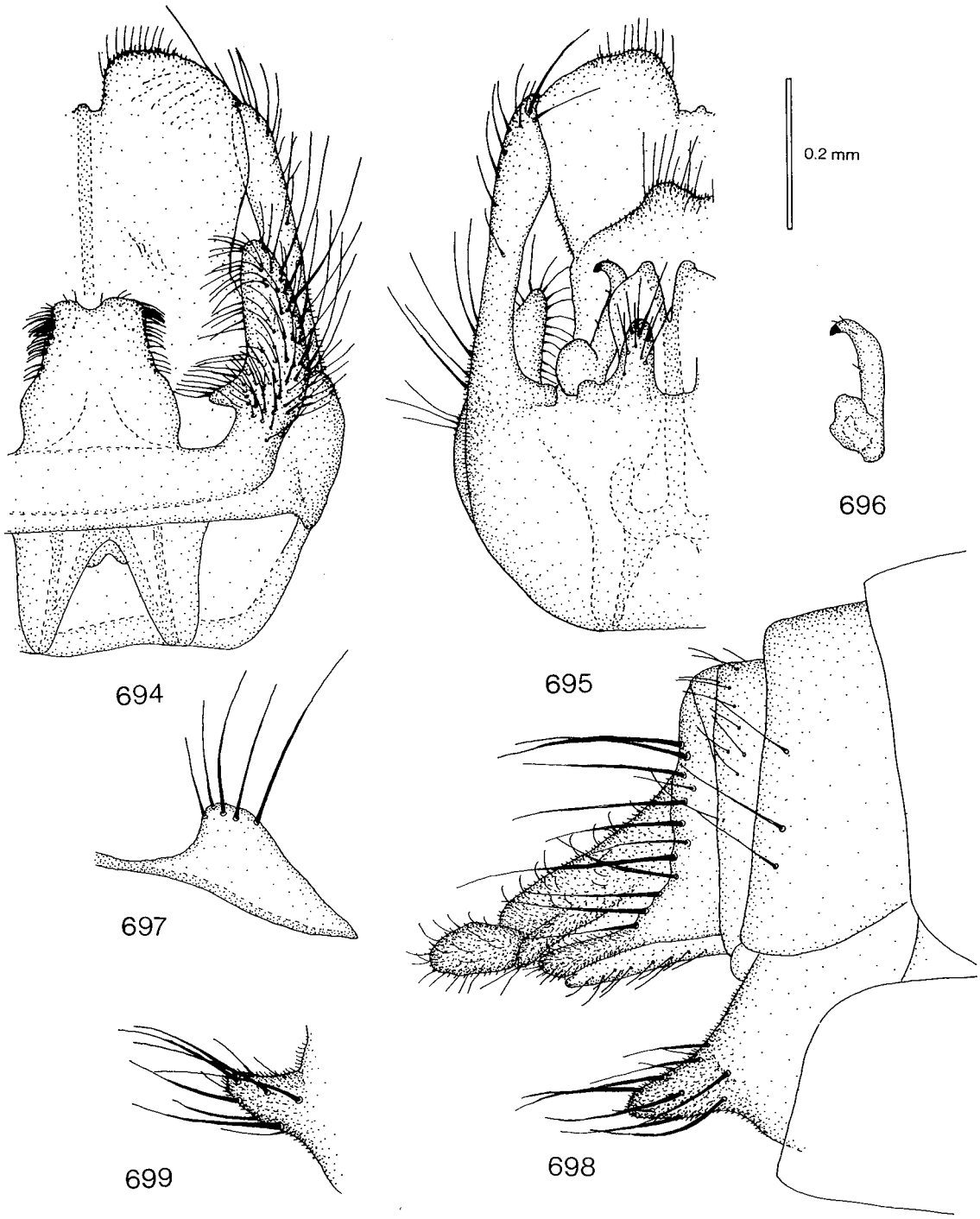
(?) *Mycomyia notabilis:* Wahlgren 1921:166; Edwards 1924b:165; Landrock 1926—1927:49; Kröber 1956:131.

(?) *Mycomya notabilis:* Väisänen 1982b:40.

(? not) *Mycomyia notabilis:* Frey & Storå 1941:46 (= ? *M. marginata* (Meigen)).

(?) *Sciophila sororcula* Zetterstedt, 1852. Zetterstedt 1852:4110; Kertész 1902:64, 1903:35.

(?) *Mycomyia sororcula:* Edwards 1924b:162; Landrock 1926—1927:45 (as ? syn. for *M. fasciata* (Gimmerthal)).



Figs. 694—699. *Mycomya wankowiczii.* — 694: male hypopygium, tergal view. — 695: hypopygium, sternal view. 696: gonostylus. — 697: tergite 8. — 698: female terminalia, lateral view. — 699: hypogynal valve, sternal view. Scale 0.2 mm.

(?) *Mycomya sororcula:* Väisänen 1982b:41.

(? p. p.) *Sciophila fasciata* Zetterstedt, 1838. Zetterstedt 1838:858 (p. p. = *M. fasciata* (Zetterstedt)).

(p. p.) *Sciophila maculata:* Lundström 1907:8, 1909:9, 1912a:9 (p. p. = ? *M. maculata* (Meigen)).

(p. p.) *Sciophila fulva:* Lundström 1909:10 (p. p. = *M. maculata* (Meigen)).

(p. p.) *Mycomyia maculata:* Lackschewitz 1937:8 (p. p. = ? *M. maculata* (Meigen)).

Mycomyia fissa: Barendrecht 1938:38.

(?) *Mycomyia fissa:* Plassmann 1974b:351, 1977b:8, 1978a:148, 1979:374, 1980a:178, 1980b:18.

Type localities: "Zazierze w gubernii Minskiéj" (Byelorussian SSR); Galicia (Poland).

Types: — *Sciophila wankowiczii* Dziedzicki: Syntypes not located, apparently destroyed. — *Sciophila ferruginea* Meigen: Holotype (studied): *ferruginea* ♀. Meigen. (f from the collection of Mr. Baumhauer MNHN). Type locality: Not stated (? Central Europe). — *Sciophila notabilis* Staeger: Holotype (studied): ♀ S. Holotypus *Sciophila notabilis* Staeger (f COPEN). Type locality: Not stated (Denmark). — *Sciophila sororcula* Zetterstedt: Lectotype (studied) by present designation: 191. *Sc. sororcula* Zett. ♀ (f. .... a inf. cap.) Johan. Ro. (f LUND). Type localities: Originally: "Scania circa Lund"; "Gottlandiae ad Rohne et Storungs"; "Nericia ad Kils Blacksta"; "Helsingia as diversorim Kålböle"; "Bottnia boreali ad villam Johannis Ro prope Torneå" (Sweden). By present designation: the last-mentioned locality.

Remarks: The paralectotypes of *S. sororcula* probably do not belong to this species: Gotl. Rohne (f LUND); Helsingland, Kårböle, 19—20.VIII. 1840 (f LUND); Nerike, Kils Blacksta, 9.IX. 1840 (f LUND).

Material examined: Austria: Austr. sup., Hammern, 21.IX. 1874, Mik (1 m WIEN); Tyrol, Obergurgl, Pirchhüttberg, 1850 m, 6—7.VIII. 1972, Malaise trap, A. C. & B. Pont (1 m BMNH). — Yugoslavia: Montenegro, Kolasin, wet gorge in old forest, 5—9.VI. 1958, R. L. Coe (1 m BMNH). — Bulgaria: H. B. voda, 26.VI. 1982, D. Bechev (1 m coll. Bechev). — Roumania: Olténie, Vallée Lupsa, 16.X. 1968, L. Matile (1 m MNHN). — Poland: Bieszczady, distr. Ustrzyki, Dln. Berezki — Magura Stup., 3.VIII. 1967, W. Mikolajczyk (1 m WARS). — Netherlands: Hilversum, 21.V. 1911, de Meijere (1 m *"M. fissa"* AMST); same locality, V. 1903, IX. 1907, 29.X. 1919, de Meijere (3 mm AMST); same locality, 14.VII. 1907, 1.X. 1909, de Meijere (2 ?ff AMST); Bussum, 1.X. 1916, de M. (2 ?ff AMST); Baarn, 20.VII. 1909, de Meijere (1 ?f AMST). — UK: Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (2 mm BMNH); Herts., Hitch Wood, IX. 1918, F. W. Edwards (3 mm 1 ?f BMNH); Beds., Shefford, X. 1917, F. W. Edwards (1 m 1 ?f BMNH); New Forest, VII. 1904, D. Sharp (2 mm BMNH); Sannox, Arran, larva on *Poria* on fallen birch branch, 26—28.V. 1919, F. W. Edwards (1 m BMNH); same locality and date, F. W. Edwards (2 mm 2 ?ff BMNH). — Denmark: Hareskoven, 4.X. 1960, W. Buch (1 m COPEN); Dania, Lolland, Maribo, Engestofte Skov, 21.V. 1967, B. Vest Pedersen (1 m COPEN); same locality, 30.V. 1967, B. Vest Pedersen (1 ?f COPEN); Vrads, 20.IX. 1931, P. Nielsen (1 m COPEN); Silkeborg d., 17.X. 1918, P. Nielsen (1 m COPEN); same locality, 27.X. 1923, 4.VI. 1943, (2 ?ff COPEN); Rudstrup Skov, 22.IX. 1944, P. Nielsen (1 ?f COPEN); Sjaelland, ? Seenholtsvana, 11.VI. 1967, B. Vest Pedersen (1 ?f COPEN); without data *(S. notabilis* holotype COPEN). — Norway: HOy., Bergen, Fana, Straume, 18—22.VIII. 1977, T. Andersen (1 m coll. Andersen); HOi., Ullensvang, Simadalen, Kjeåsen, 1.IX. 1979, G. E. Ellefsen (1 m coll. Andersen). — Sweden: Sk., Linnebjer, 28.IX. 1968, H. Andersson (1 ?f coll. Andersson); Sk., Bökeberg, 20.X. 1965, 20.X. 1968, H. Andersson (2 mm coll. Andersson); Sk., Skäralid, bäckravin, 26.IX. 1963, H. Andersson (1 m coll. Andersson); Hall., Enslöv, Årnilt, 23.VII. 1971, H. Andersson (1 m 1 ?f coll. Andersson); same locality, Lunnaberg, 24.VI. 1967, H. Andersson (1 m coll. Andersson); same locality, Hultet, 26.VI. 1967, H. Andersson (1 m coll. Andersson); Sk., Hälsingborg, IX. 1920, O. Ringdahl (1 m LUND); Dlr., Leksand, Sångån, 18.VII. 1971, T. Tjeder (1 m LUND); Nb., Pajala s:n, Kengisfors, myr, 11.VII. 1951, Ander, Ardö, Berdén & Dahl (1 m LUND); Botnia boreali, Johan. Ro. *(S. sororcula* lectotype LUND). — Finland: *Al:* Saltvik, Kvarnbo, 24.VII. 1942, R. Frey (2 mm MZH); *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (1 m MZH); Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (1 m MZH); Bromarv, Framnäs, 22.VI.—5.VII. 1966, K. Mikkola (1 m MZH); Vihti, Vihtijärvi, 14.VII. 1962, 7.VIII. 1962, 23.VIII. 1962, VIII. 1962, 8.VI. 1963, 23.VI. 1963, 8.VII. 1963, 12.VII. 1963, 18.VII. 1963, 23.VII. 1963, 3.VIII. 1963, 8.VIII. 1963, 15.IX. 1963, 30.VII. 1964, R. Tuomikoski (25 mm MZH); *N:* Tammisaari, Gullö, sugar bait trap, 15.VI. 1967, K. Mikkola (1 m MZH); Esbo (Espoo), 23.VI. 1962, 7.VII. 1962, W. Hackman (2 mm MZH); Esbo, Småholmen, 4.VIII. 1962, W. Hackman (1 m MZH); Esbo, Westend, 17.VII. 1962, W. Hackman (1 m MZH); Porvoo, E. Suomalainen (1 m MZH); *Ka:* Vehkalahti, 30.VI. 1971, 13.VII. 1971, 21.IX. 1971, L. Tiensuu (3 mm MZH); Virolahti, 3.VII. 1971, 15.IX. 1971, L. Tiensuu (2 mm MZH); *Ta:* Jokioinen, 30.VIII. 1965, 31.VIII. 1965, 5.IX. 1965, A. Väre (3 mm FLHM); Urjala, 3.IX. 1965, 19.IX. 1965, T. Brander (2 mm FLHM); Lammi, Biol. Station, 5.IX. 1977, R. Väisänen (1 m MZH); Kangasala, VIII. 1907, VII. 1914, R. Frey (2 mm MZH); *Sa:* Valkeala, Utti, 18.VI. 1965, 9.VIII. 1965, 16.IX. 1965, K. Mikkola (5 mm MZH); Punkaharju, Punkasalmi, 30.VI. 1963, W. Hackman (1 m MZH); *Tb:* Keuru (Keuruu), Hellen (1 m MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (1 m MZH); *Ok:* Sotkamo, Aarreniemi, 22—28.VII. 1965, A. V. V. Mikkola (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, R. Tuomikoski (1 m MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (2 mm MZH); *LkW:* Pallastunturi, 27.VII. 1911, R. Frey (1 m *"S. maculata"* MZH). — USSR: Kurl., Kalwen, 23.VI. 1935, L. (1 m *"maculata"* MNB); Curon., Paplaken, 4.IX. 1926, P. Lackschewitz (1 m *"wankowiczii"* MNB); Impilahti, kk., 20.VIII. 1910, L. v. Essen (1 m MZH); AK, Vaaseni, 18.IX. 1942, L. Tiensuu (1 m MZH); Leningrad. obl., Toksovo, 22.IX. 1940, Stackelberg (3 mm LEN); Yenis. g., Minusinsk, 1.IX. 1897, Tyutchev (1 m LEN); Pronvno(?), r Vitim, 66 v. ot Bodajbo, 18.VIII. 1912, Rozent. (1 m LEN); Far East, Primorye Terr., Lazo, Socolchi, 12.VIII. 1979, A. Zaitzev (2 mm lot 437 MOSC); Far East, Primorye Terr., Ussurijsk Reg., 9.IX. 1968, Mamaev (6 mm 5

ff lot 12 MOSC). — Canada: Que., Old Chelsea, Summit King Mt., 1150′, 24.VI. 1964, J. R. Vockeroth (1 m CNC). — USA: Wash., Asot. Co., Fields' Spr. State Prk., 31.VII. 1971, Malaise trap, dry ice, W. J. Turner (1 m WASH); ME., Mt. Katahdin, 4.VII. 1968, D. M. Wood (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face yellow to yellowish, posterior parts of head brownish. Antenna light brownish, basal segments yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with about 4 longer setae. Mesoscutum yellow to yellowish, with 3 brown longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish. Scutellum yellow, with 4, occasionally 3, long setae. Laterotergite yellow to yellowish. Mediotergite yellow to yellowish, bare.

Legs. Coxae yellow, coxa 3 with or without brown lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with several long comparatively thin setae in indistinct row along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.03—1.22, bt2:t2 = 0.75—0.83, bt3:t3 = 0.62—0.70.

Wing. Wing length 4.5—6.0 mm. Wing hyaline or apex and small cell occasionally very weakly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 8—21 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.40—0.61, 0.48—0.72. Cu ratios: 0.55—0.66, 0.80—0.97. Macrotrichia: M petiole: 0—4; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with lateral and posterior margins widely yellow, sometimes with brown anteromedial area divided into 3 spots, a large medial spot with a smaller lateral spot on both sides, 6—7 brown. Sternites 1—5 yellow, 6—7 yellow to brownish.

Hypopygium. Figs. 694—697, yellow to yellowish. Processus very wide comparatively long, with blunt apex. Tergal lateral appendage longer than processus, with long setae. Sternal lateral appendage long with some comparatively long setae. Sternal submedian appendage short with small setae. Gonostylus with long curved medial branch with apical tooth, lateral branch with only short basal lobe. Aedeagus broad, apically bilobed.

Female. Wing length 6.0—8.4 mm. Abdominal tergites usually with 3 more or less distinct brown basal spots. Leg ratios: bt1:t1 = 1.00—1.06, bt2:t2 = 0.78—0.82, bt3:t3 = 0.62—0.68. Terminalia as in Figs. 698—699, yellow.

Larva. Described by Madvar (1937:54, Figs. 169—174). Length about 10 mm (Plachter 1979b).

Distribution: Holarctic. Austria, Yugoslavia, Bulgaria, Roumania, Poland, Netherlands, United Kingdom, Denmark, Norway, Sweden, Finland. USSR: Byelorussian SSR, Latvian SSR, Karelian ASSR, Leningrad region, Primorye Territory. Canada: Quebec. USA: Washington, Maine. Also reported from Federal Republic of Germany (Landrock 1940, Kröber 1956, Plassmann 1969, 1970b, 1971b, 1977b, 1980b), Czechoslovakia (Landrock 1913), Ireland (Chandler 1976), ? Lithuanian SSR (Landrock 1930) and Estonian SSR (Lackschewitz 1937).

Biology: This species has been reared on *Stereum* sp., *Naematoloma sublateritium* (Fr.) Karst., "*Poria*" and on a whitish fungus encrusting the bark of a fallen branch (Edwards 1925a, Eisfelder 1955, Hutson et al. 1980). Plassmann (1969, 1971b) has observed two adult males on *Phallus impudicus* Pers. Some adults have been caught with Malaise and sugar-bait traps, according to Plassmann (1978a, 1979, 1980a) also with pit-fall, light and air-suction traps. The collecting biotopes given are a wet gorge in old forest, bog and hazel woods. It is also found in coniferous and mixed forests.

Mycomya britteni Kidd, 1955

Figs. 700—704, key p. 35.

Mycomyia britteni Kidd, 1955. Kidd 1955:258.

Mycomya britteni: Hutson in Kloet & Hincks 1976:24; Väisänen in Hackman 1980:31; Hutson et al. 1980:31; Väisänen 1982b:38.

Type locality: Cumberland, Skirwith (UK).

Type: Holotype (studied): Skirwith Cumberland Aug. 24th, 1953, Britten. *Mycomyia britteni* Kidd 1955. Mycomyia sp. nov. P. Freeman det., 1955. Manchester Museum Holotype. (m MANCH).

Material examined: UK: Holotype (MANCH). — Finland: *Ab:* Karislojo (Karjalohja), Suurniemi, 22.VI. 1908, Forsius (1 m MZH).

Description:

Head. Palp and other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd almost twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with 3 brown longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part yellowish to light brownish. Scutellum yellow, with 2 long setae. Laterotergite yellow, ventral part yellowish to light brownish. Mediotergite bare, yellow, lateral and posterior parts yellowish to light brownish.

Legs. Coxae yellow, coxa 3 with brown lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.05—1.06, bt2:t2 = 0.80—0.81, bt3:t3 = 0.64—0.66.

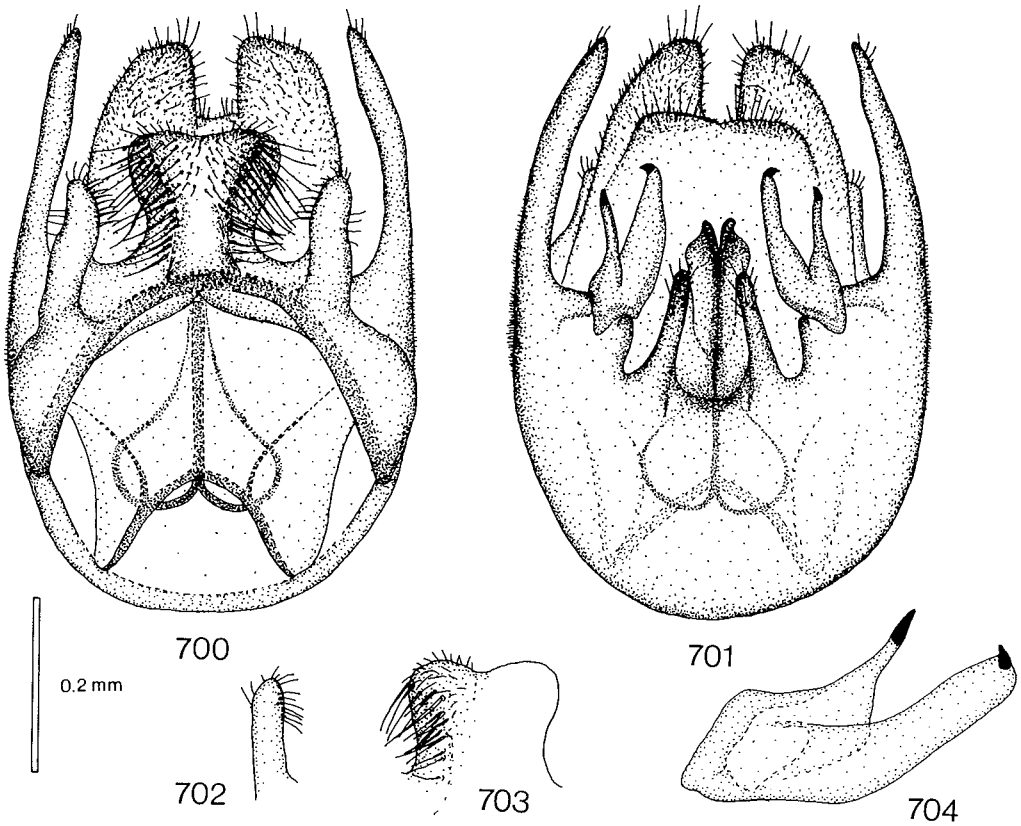
Wing. Wing length 4.3—4.6 mm. Wing hyaline. Sc ending in C distally to middle of small cell or Sc1 apically broken, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 14—18 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to M fork. M ratios: 0.53—0.63, 0.64—0.74. Cu ratios: 0.64—0.68, 0.89—0.96. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with brown dorsomedial line, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 700—704, yellowish to yellow, closely resembling that of *M. marginalis* Johannsen.

Female. Unknown.

Remarks: The lateral appendage of tergite 9 is smaller



Figs. 700—704. *Mycomya britteni.* — 700: male hypopygium, tergal view. — 701: hypopygium, sternal view. — 702: tergal lateral appendage. — 703: processus. — 704: gonostylus. Scale 0.2 mm for Figs. 700—703, Fig. 704 2 x enlarged.

than that of Nearctic *M. marginalis.* However, *M. britteni* might be conspecific with *M. marginalis.*

Distribution: Western Palaearctic. Known only from the United Kingdom and Finland.
Biology: Unknown.

Mycomya marginalis Johannsen, 1910
Figs. 705—714, key p. 35.

Mycomya marginalis Johannsen, 1910. Johannsen 1910:177; Laffoon in Stone et al. 1965:221; Cole 1969:121.
Mycomyia marginalis: Coher 1959:121.
Mycomya nigrihirta Van Duzee, 1928 (New synon.). Van Duzee 1928:39; Laffoon in Stone et al. 1965:221; Cole 1969:121; Arnaud 1979:83.
Mycomyia nigrihirta: Coher 1959:121.

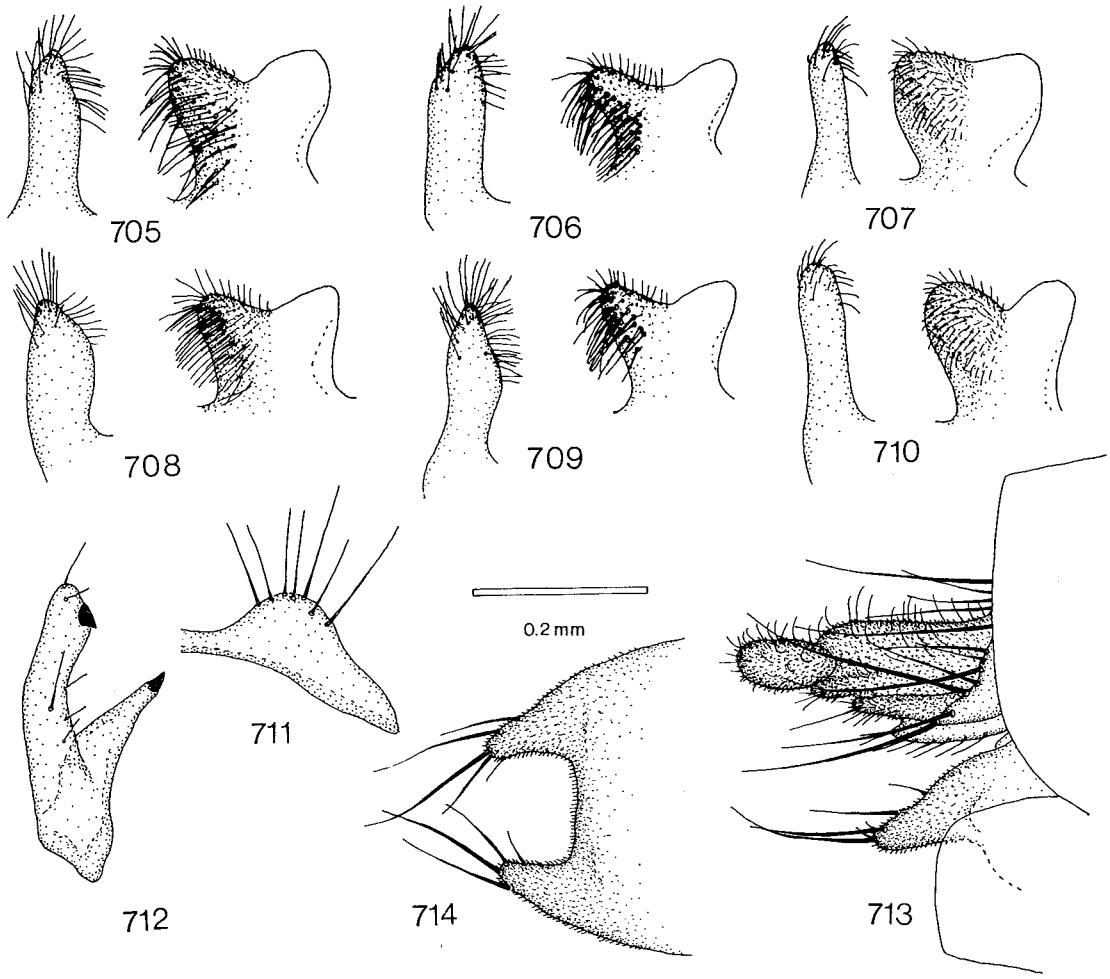
Type locality: British Columbia, Selkirk Mountains (Canada).
Types: — *Mycomya marginalis* Johannsen: Holotype (studied): Selkirk Mts. July B. C. J. C. Bradley. ♂ Holotype *Mycomya marginalis* Johannsen. O A Johannsen Lot 266 Sub Cornell U. Holotype Cornell U. No. 1976 (m CORN). — *Mycomya nigrihirta* Van Duzee: Holotype (studied): Berkeley, Cal. May 29 1915 M C Van Duzee. California Academy of Sciences Type No. 2493. *Mycomya nigrihirta* Holotype. Van Duzee (m CAS). Type locality: California, Berkeley (USA).

Material examined: Canada: B. C., Selkirk Mts., VII., J. C. Bradley (*M. marginalis* holotype CORN); B. C., Kaslo, 3.VI., H. G. Dyar (2 mm USNM); B. C., Kimberly, St. Mary's Lake, 28.VII., C. Garrett (1 m hypop. slide No. 49.64 "*Mycomyia* acratia" USNM); same locality, 24.VII., C. Garrett (2 m hypop. slides No. 4956 & 25.55 "*M.* acratia" USNM); B. C., Capilano, 300 m. N. Vancouver, 17.XI. 1972, J. R. Vockeroth (1 m CNC); B. C., Squamish, Diamond Head Trail, 3200 ft., 21.VIII. 1953, W. R. M. Mason (1 m CNC); B. C., 5 mi. E. Hope, 11.VII. 1973, H. J. Teskey (1 m CNC); B. C., Terrace, 3.VIII. 1960, W. R. Richards (1 m CNC); B. C., Horseshoe Bay, 0—300′, 29.V. 1961, 30.V. 1961, J. R. Vockeroth (2 mm 1 ?f CNC); B. C., Vancouver, Point Grey, 15.V. 1973, J. R. Vockeroth (1 m CNC); B. C., Mission City, 9.VI. 1953, W. R. M. Mason (1 m CNC); Que., Gatineau Co., Masham Twp., 21.VII. 1974, D. M. Wood (1 m CNC); Que., Knowlton Ldg., 17.VII. 1968, 18.VII. 1968, J. R. Voc-

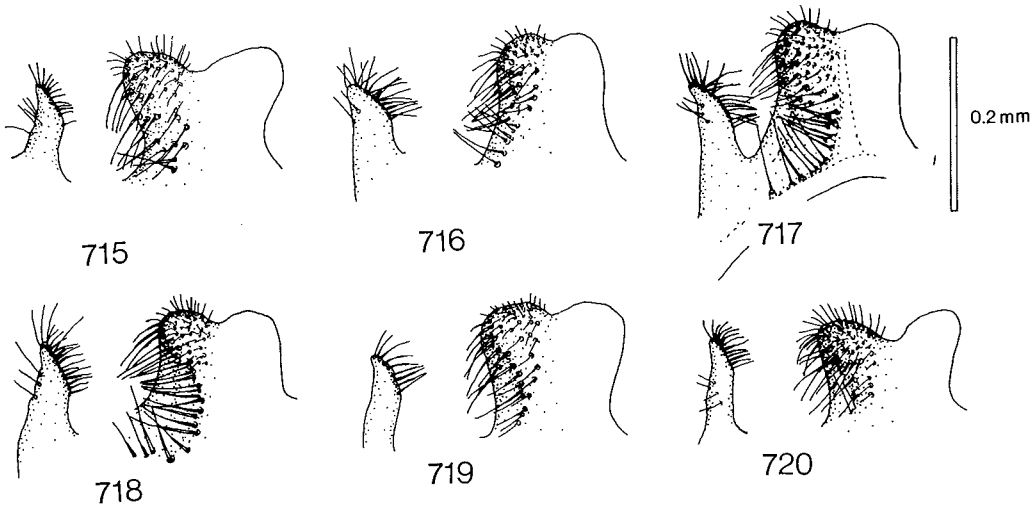
keroth (4 mm CNC). — USA: Wash., Whatcom Co., Maple Falls, 1.VI. 1965, F. Schmid (1 m CNC); WN., Mt. Spokane, 30.VII. 1920, A. L. Melander (1 m USNM); Wash., Pullman, 28.V. 1969, Malaise trap, R. W. Dawson (1 m WASH); same data, 5.VI. 1969 (1 ?f WASH); Asot. Co., Fields' Spr. State Prk., 31.VII. 1971, dry ice Malaise trap, W. J. Turner (2 mm WASH); Washington, Asotin Co., Fields' Spr. S. P., 4 mi. S. Anatone, 3500 to 4000 ft., 19.V. 1973, J. D. Hansen (1 ?f WASH); same data, D. Corredor (1 ?f WASH); Wash., Chela Co., Eight Mi. Cmpg., 8 mi. S. W. Leavenworth, 18.VII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); Wash., Dartford, 2—3.VIII. 1969, Malaise trap, R. D. Gray (1 m WASH); Idaho, Latah Co., Moscow Mt., 10—16.VII. 1969, H. S. Telford (1 m WASH); same locality, 17—18.VI. 1969, Malaise trap, H. S. Telford (1 f WASH); same locality, 23—30.VI. 1969, Malaise trap, H. S. Telford (1 m WASH); Cal., Muir Woods, 7.VIII. 1915, A. L. Melander (1 m USNM); Calif., Humboldt Co., 10 mi. E. Blue Lake, 12.VIII. 1948, W. W. Wirth (1 m USNM); Cal., Berkeley, 29.V. 1915, M. C. Van Duzee (*M. nigrihirta* holotype CAS); Cal., Marin Co., Alpine Lk., Lily Pond, 1500′, 22.III. 1969 (1 m CNC); same data, 1—12.III. 1976 (1 f CNC); same locality, 1500′, IV—V. 1970, V—VI. 1970, Malaise trap, D. D. Munroe (2 mm CNC); same data, 17—25.V. 1971 (2 ff CNC): PA., Tioga Co., Colton Point State Park, 27.VIII. 1956, J. L. Laffoon (1 m ISU).

Description:

Head. Palp and other mouthparts yellow, face yellow to yellowish, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagello-



Figs. 705—714. *Mycomya marginalis*. — 705—710: tergal lateral appendages and processi (705: California, Marin Co.; 706: British Columbia, Kimberly; 707: *M. marginalis* holotype; 708: *M. nigrihirta* holotype; 709: Quebec, Knowlton Ldg.; 710: *M. marginalis* holotype). — 711: tergite 8. — 712: gonostylus. — 713: female terminalia, lateral view. — 714: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 705—711 and 713—714, Fig. 712 2 x enlarged.



Figs. 715—720. *Mycomya accrescens*. — 715—719: tergal lateral appendages and processi of male hypopygium (715: Washington, Clallam Co.; 716: British Columbia, Cranbrook; 717: B. C., Cranbrook; 718: Ontario, St. Lawrence Is. National Park; 719: Quebec, Beechgrove; 720: Quebec, Knowlton Ldg.). Scale 0.2 mm.

mere yellow. 1st flagellomere about 2.5 times, 2nd almost twice as long as wide.

Thorax. Pronotum yellow, with 4—6 longer setae. Mesoscutum yellow to yellowish, with 3 brown, sometimes fused, longitudinal stripes, middle stripe often with narrow yellow medial line. Mesanepisternum yellow to light brownish. Mesokatepisternum yellow to light brownish, ventral half dark brownish. Scutellum yellow with 4 long setae. Laterotergite yellow to light brownish, ventral part brownish. Mediotergite yellow to light brownish, posterior and lateral parts brownish, bare.

Legs. Coxae yellow, coxa 3 with more or less distinct brownish lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.95—1.07, bt2:t2 = 0.63—0.78, bt3:t3 = 0.61—0.68.

Wing. Wing length 4.7—6.3 mm. Wing hyaline, or apex and small cell weakly infuscate. Sc ending in C distally to, sometimes near middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 8—22 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.49—0.68, 0.60—0.78. Cu ratios: 0.50—0.68, 0.71—1.04. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish without distinct markings, or tergites 1—5 yellow with brown anteromedial spots, or tergites 1—5 brown with posterior and lateral margins widely yellow, or tergites 1—3 yellow with brown dorsomedial line, 4—5 brown with posterior and lateral margins yellow, and 6—7 brown. Sternites 1—5 yellow, 6—7 yellow to brown.

Hypopygium. Figs. 705—712, yellow to brownish, very similar to that of *M. britteni*. Processus comparatively long and wide, usually with short spines and long apicolateral spines, sometimes all spines short *(M. marginalis* holotype), sometimes almost all spines long *(M. nigrihirta* holotype). Tergal lateral appendage comparatively long and broad with relatively long setae. Sternal lateral appendage long, with some setae. Sternal submedian appendage short with small setae. Gonostylus with 2 branches, medial branch with 1 preapical tooth, lateral branch with 1 apical tooth. Aedeagus long, comparatively broad, apically bilobed.

Female. Wing length ?5.5—6.3 mm. Abdomen yellow with 3 rows of brown spots forming more or less distinct dorsal lines, tergite 7 brownish with posterior margins yellow, sometimes tergites 1—5 brown with posterior thirds yellow. Leg ratios: bt1:t1 = 1.07, bt2:t2 = 0.66, bt3:t3 = 0.61. Terminalia as in Figs. 713—714, yellow.

Distribution: Nearctic. Canada: British Columbia, Quebec. USA: Washington, Idaho, California, Pennsylvania.

Biology: Several specimens collected with Malaise trap.

Mycomya accrescens n. sp.

Figs. 715—720, key p. 35.

Type locality: Washington, Clallam County, Bogachiel, Bogachiel River (USA).

Type: Holotype (studied): U.S.A.: Washington: Clallam County, Bogachiel, Bogachiel River, 29-VI-1974, Paul H. Arnaud, Jr. Calif. Acad. Sci. Coll. (m CAS).

Material examined: Canada: B. C., Cranbrook, 6.V., C. Garrett (1 m hypop. slide No. 4828 labelled by Garrett as "*Mycomyia accrescens*" USNM); same data, 22.IV., 20.V., 28.V. (3 m hypop. slides No. 5426, 5427, 5154 "*M. accrescens*" USNM); B. C., 32 mi. SW of Terrace, wet, thick poplar cedar forest, 6.VI. 1960, J. G. Chillcott (1 m CNC); B. C., Kleanza Cr., 14 mi. E. Terrace, 17.VI. 1960, C. H. Mann (1 m CNC); B. C., Point Grey, Vancouver, 27.IV. 1973, 1.V. 1973, J.

R. Vockeroth (2 mm CNC); Ontario, St. Lawrence Is. National Park, Thwartway Island, 27.VIII. 1976, Malaise trap, A. Carter (1 m CNC); Que., Knowlton Ldg., 8.VII. 1968, 17.VII. 1968, J. R. Vockeroth (2 mm CNC); Que., Beechgrove, 45°39′, 76°8′, 2.X. 1964, J. R. Vockeroth (1 m CNC); Que., Abbotsford, 30.V. 1968, D. M. Wood (1 m 1 ?f CNC); Que., Old Chelsea, 15.X. 1958, J. R. Vockeroth (1 m CNC). — USA: Wash., Pullman, 6.VII. 1965, 26.VII. 1965, 9.VIII. 1965, R. D. Akre (3 mm 1? f WASH); Wash., Skagit Co., Rockport St. Park. 7 mi. E. Concrete, 2.VIII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); Wash., Pac. Co., 1 mi. N. Nahcotta, 31.VII. 1972, Malaise trap, dry ice, W. J. Turner & W. B. Garnett (1 m WASH); Washington, Clallam County, Bogachiel, Bogachiel River, 21.VI. 1974, P. H. Arnaud, Jr. (holotype CAS); Washington, Jefferson County, Nolan River, 23 road km. NE. Kalaloch, flying on shaded north side of Nolan River, damp sandy shore, 29.VI. 1974, P. H. Arnaud, Jr. (1 m CAS); Wash., Ilwaco, 25.V. 1917, A. L. Melander (1 m USNM); WN., Mukilteo, 1.VII. 1924, A. L. Melander (1 m USNM); ID., Priest Lake, 4-Mile Camp, VIII. 1920, A. L. Melander (1 m USNM); Cal., Palo Alto, 22.VII. 1895, R. W. Doane (1 m CAS); Mich., Gogebic Co., 15.VI. 1960, R. & K. Dreisbach (1 m MICH); Mich., Menominee Co., 29.VIII. 1959, R. & K. Dreisbach (1 m MICH); N. H., Franconia, A. T. Slosson (1 m AMNH).

Description:

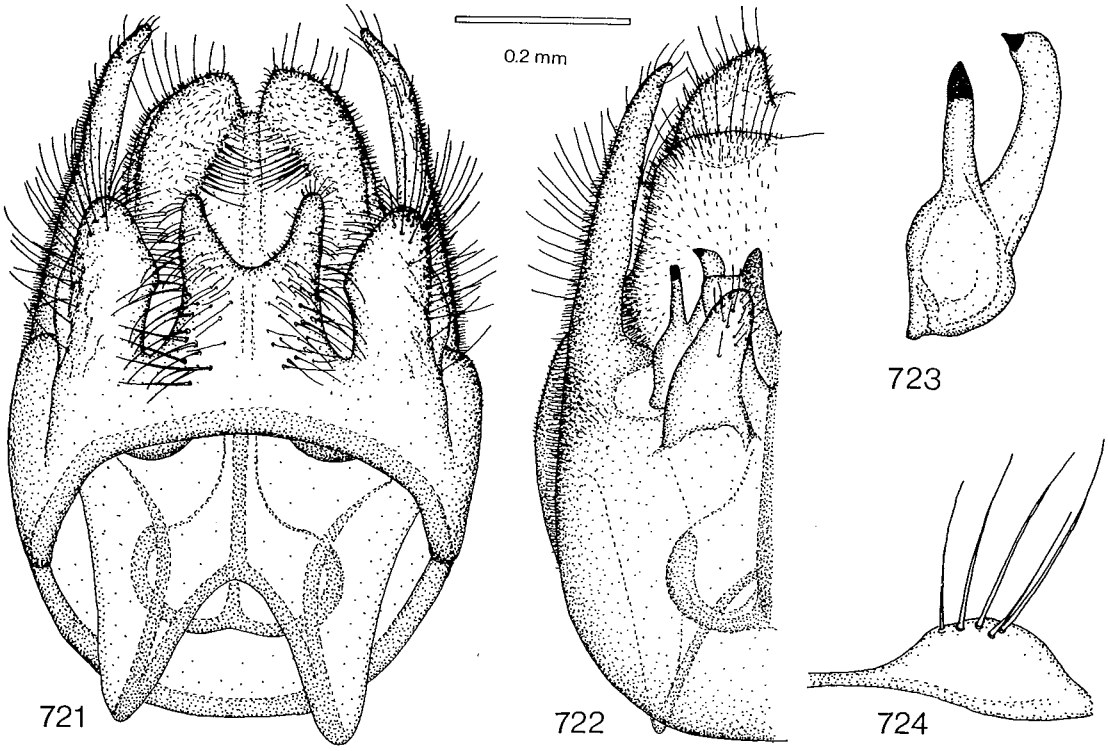
Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 brown longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half slightly darker. Scutellum yellow, with 2—4 long setae. Laterotergite yellowish. Mediotergite yellowish to light brownish, bare.

Legs. Coxae yellow, coxa 3 with or without brownish lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.11, bt2:t2 = 0.74—0.83, bt3:t3 = 0.60—0.68.

Wing. Wing length 4.7—5.5 mm. Wing hyaline, or apex and small cell weakly infuscate. Sc ending in C distally to middle of small cell, or occasionally Sc1 apically broken, not reaching C, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 6—14 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.56—0.61, 0.69—0.75. Cu ratios: 0.66—0.70, 0.96—1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with lateral and post-



Figs. 721—724. *Mycomya comesa*. — 721: male hypopygium, tergal view. — 722: hypopygium, sternal view. — 723: gonostylus. — 724: tergite 8. Scale 0.2 mm for Figs. 721—722 and 724, Fig 723 2 x enlarged.

erior margins widely yellow, or yellow with brown dorsomedial line, 6—7 brown. Sternites yellow.

Hypopygium. Figs. 715—720, yellow, resembling that of *M. marginalis* Johannsen, but paler in coloration, tergal lateral appendage very small, apically pointed, with some stronger spines projecting medially.

(?) Female. Wing length 5.5 mm. Abdomen yellow with brown dorsomedial line. Some females possibly belonging to this species also with brown lateral line on both sides of abdomen. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.81, bt3:t3 = 0.69.

Distribution: Nearctic. Canada: British Columbia, Ontario, Quebec. USA: Washington, Idaho, California, Michigan, New Hampshire.

Biology: Several specimens have been captured with a Malaise trap. The collecting biotopes given are wet, thick poplar cedar forest and the shaded damp sandy shore of a river.

Mycomya comesa n. sp.
Figs. 721—724, key p. 34.

Type locality: Colorado, Mesa County, Glade Park (USA).

Type: Holotype (studied): Glade Park, Mesa Co. Colo, July 1953, A B Gurney colr. (m USNM).

Material examined: USA: Holotype (USNM).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow, with 3 distinct brown longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow to yellowish, bare.

Legs. Coxae yellow, coxa 3 with brownish lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.76, bt3:t3 = 0.67.

Wing. Wing length 5.9 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 16—19 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to M fork. M ratios: 0.52, 0.59. Cu ratios: 0.49, 0.73. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior fourths yellow, 6—7 brown. Sternites yellow.

Hypopygium. Figs. 721—724, yellow, comparatively large. Processus broad, comparatively short. Tergal lateral appendage broad, longer than processus. Sternal lateral appendage long, tapered. Sternal submedian appendage broad, comparatively short, with small setae. Gonostylus with 2 branches, lateral branch slightly shorter than medial one, both with apical tooth.

Female. Unknown.

Distribution: Western Nearctic. USA: Colorado.

Biology: Unknown.

Mycomya pyriformis n. sp.
Figs. 725—729, key p. 35.

Type locality: Quebec, Old Chelsea (Canada).

Type: Holotype (studied): Old Chelsea Que. 8.VIII. 1961 J. R. Vockeroth (m CNC).

Material examined: Canada: Ontario, St. Lawrence Is. National Park, Thwartway Island, 27.VIII. 1976, Malaise trap, A. Carter (1 m CNC); Ont., Innisville, 12.VII. 1966, Malaise trap (1 m CNC); Que., Old Chelsea, 8.VIII. 1961, J. R. Vockeroth (holotype CNC); same data, 10.X. 1961 (1 m CNC); N. B., Kouchibouguac N. P., 8.VI. 1977, J. R. Vockeroth (1 m CNC). — USA: Minn., Lake Co., Basswood Lake, Q-S WRC, Sec. 9, Twp. 64N, Rge. 10W, 9.VII. 1951, R. Namba (1 m MINN); Mich., Charlevoix Co., 31.V. 1960, R. & K. Dreisbach (1 m MICH); Mich., Mecosta Co., 9.IX. 1959, R. R. Dreisbach (1 m MICH); N. Y., Williamsville, 8.VIII. 1920, M. C. Van Duzee (1 m CAS); New York, Ithaca, Coy Glen, 9.VIII. 1961, J. L. Laffoon (1 m ISU); Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (1 m BMNH); Mass., Cohasset, 20.VII. 1905 (1 m PU); Belchertown, 25.IX. (1 m hypop. slide MASS).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd less than twice as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellow, with 3 brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with about 10 long comparatively thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.97—1.03, bt2:t2 = 0.74—0.85, bt3:t3 = 0.63—0.67.

Wing. Wing length 4.1—5.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 7—21 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.52—0.53, 0.63—0.72. Cu ratios: 0.59—0.64, 0.83—0.96. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

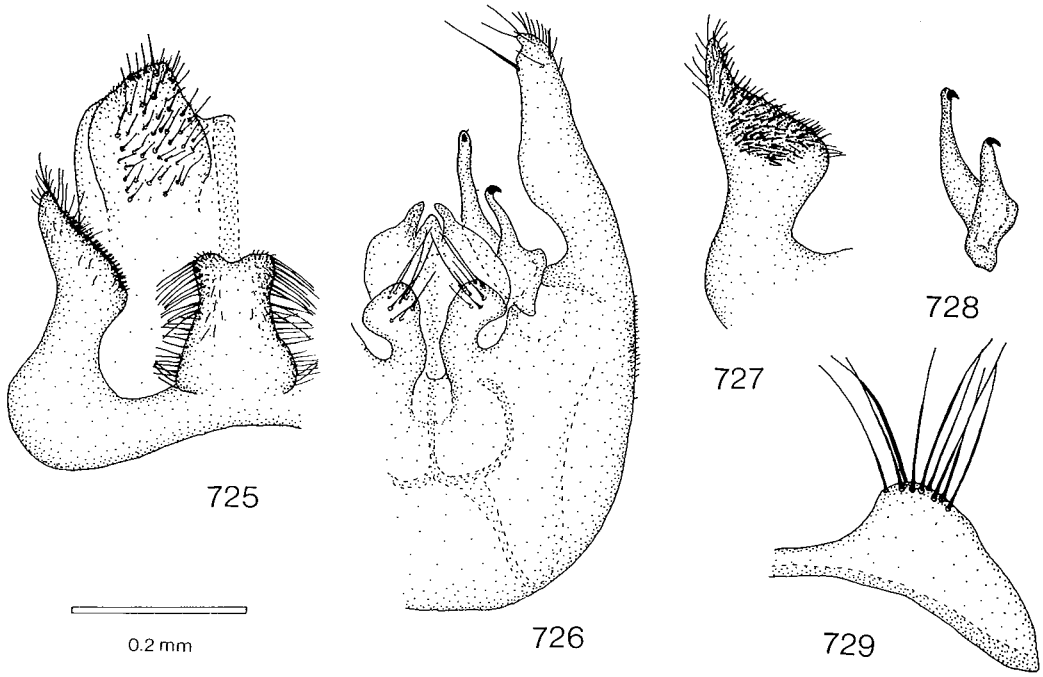
Abdomen. Tergites 1—5 brownish, with posterior parts, almost halves, broadly yellow, 6 brown, with posterior margin narrowly yellowish, 7 brown. Sternites lighter than tergites.

Hypopygium. Figs. 725—729, yellow.

Female. Unknown.

Distribution: Eastern Nearctic. Canada: Ontario, Quebec, New Brunswick. USA: Minnesota, Michigan, New York, Maine, Massachusetts.

Biology: Some specimens have been collected with Malaise traps.



Figs. 725—729. *Mycomya pyriformis.* — 725: tergal part of male hypopygium, tergal view. — 726: sternal part of hypopygium, sternal view. — 727: tergal lateral appendage. — 728: gonostylus. — 729: tergite 8. Scale 0.2 mm.

Mycomya winnertzi (Dziedzicki, 1885)

Mycomya winnertzi winnertzi

Figs. 730—734, 736—737, 740—741, 743—744, 746—749, key p. 35.

Sciophila winnertzi/winnertzii Dziedzicki, 1885 (for *Sciophila fasciata:* Winnertz). Dziedzicki 1885:23; Kertész 1902:65, 1903:35; Lundström 1909:8 (Syn. ? *Sciophila sororcula* Zetterstedt).

Mycomya winnertzi/winnertzii: Landrock 1913:27; Hutson in Kloet & Hincks 1976:24; Chandler 1976:97; Matile 1977:633; Cole & Chandler 1979:51; Russel-Smith 1979:362; Väisänen in Hackman 1980:31; Hutson & al. 1980:43; Väisänen 1982b:42.

Mycomyia winnertzi/winnertzii: Edwards 1913: 355, 1924c:293 (Syn. *M. trilineata* Brunetti), 1925a:549; Landrock 1926—1927:53; Schmitz 1929:22; Edwards 1928b:1; Landrock 1930:255; Edwards 1931:32; Lackschewitz 1937:9; Shinji 1939:4; Karl 1939:53; Landrock 1940:32; Séguy 1940:79; Okada 1940:32; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kröber 1956:132; Kidd in Kidd & Brindle 1959:71; Krogerus 1960:107; Skidmore 1963:182; Kidd 1964:3; Matile 1967:126; Mikolajczyk 1967:23; Plassmann 1969:27, 1970b:388, 1970c:395; Mikolajczyk 1971:372; Plassmann 1971a:22, 1971b:62, 80; Chandler 1974:14; Plassmann 1977b:9, 1978c:48; Joost & Plassmann 1979:369; Plassmann 1979:375, 1980a:178.

Sciophila fasciata: Walker 1856:37; Winnertz 1863:720; Bonnamour 1925:88.

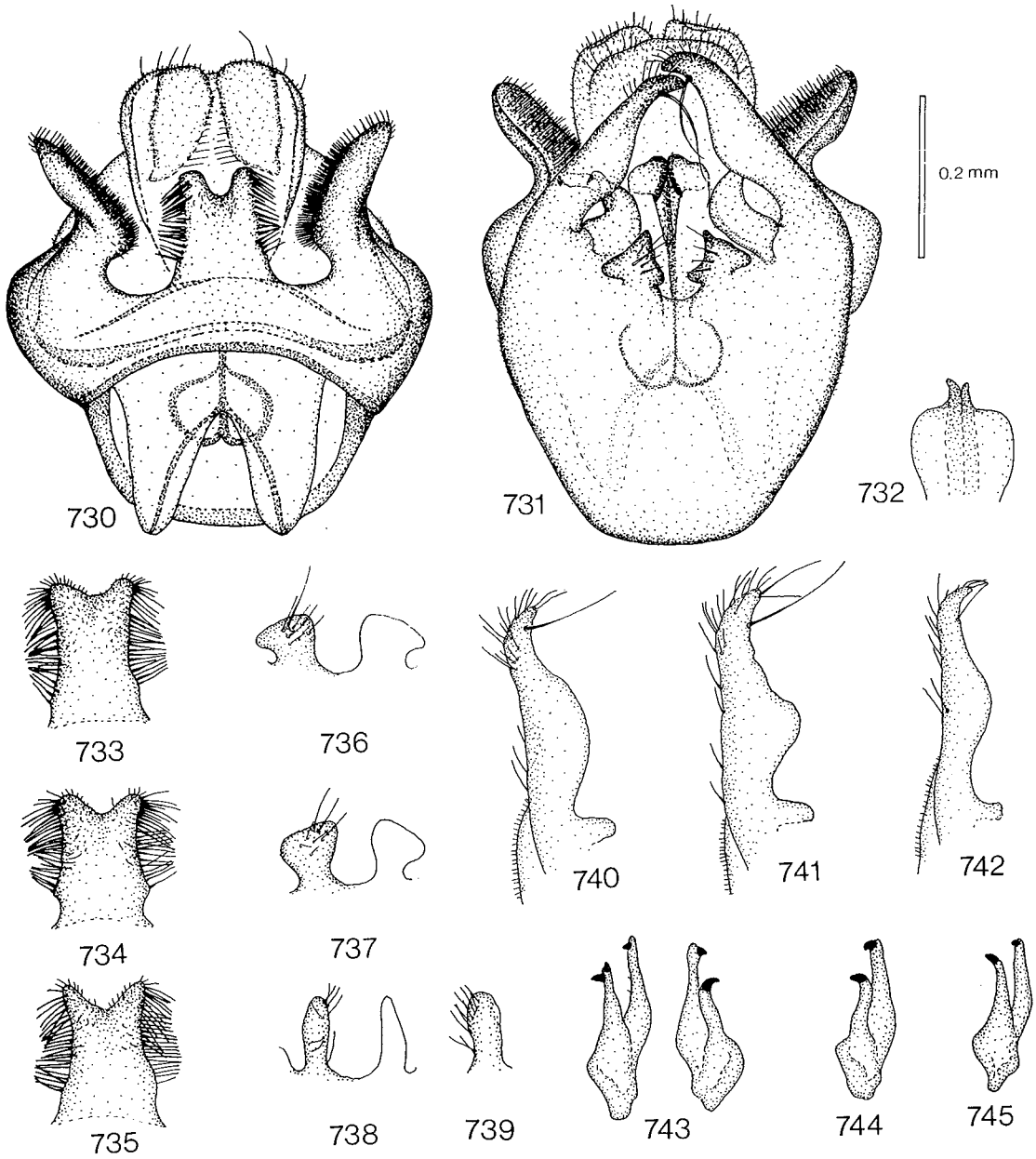
Mycomyia parascopula Fisher, 1937 (New synon.). Fisher 1937:394; Coher 1959:116.

Mycomya parascopula: Laffoon in Stone et al. 1965:221.

Remarks: The specific name has been written in two ways, *winnertzi* and *winnertzii,* and both occur in the original description of Dziedzicki (1885). The short form is used here, since it has been accepted by most specialists and is linguistically correct.

M. winnertzi is easily recognizable and most if not all the records of it are probably correct. The Indian records, however, are here considered to refer to a separate subspecies (see below). Some old records of *Sciophila fasciata* may belong to this species (in addition to those by Walker 1856 and Winnertz 1863).

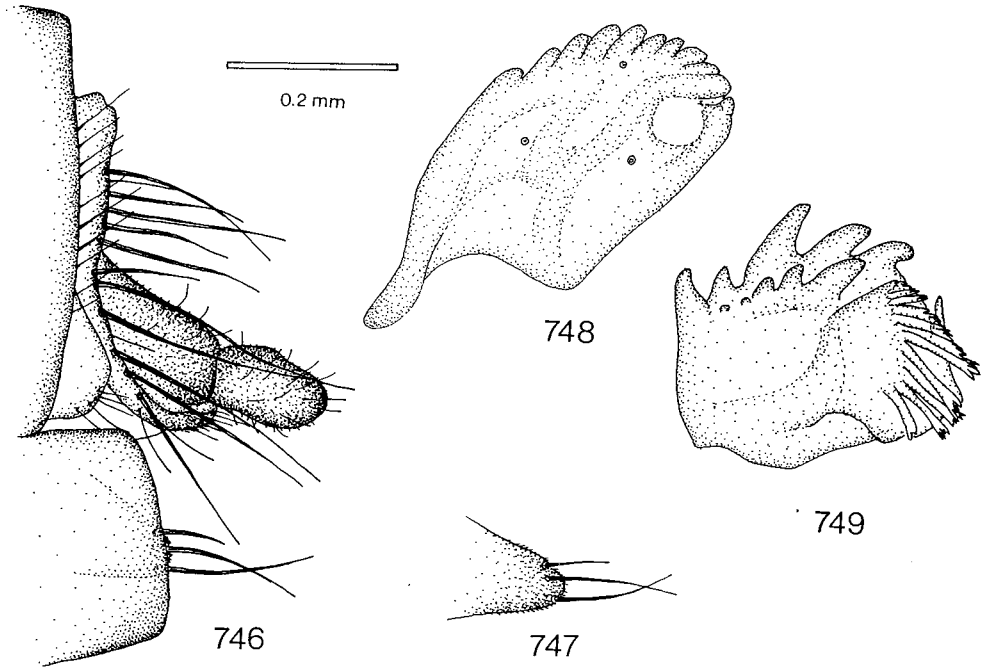
Material examined: Italy: Aosta, Piano di Sylvenoire, 1600—1650 m, 15.VII. 1975, D. & L. Matile (2 mm MNHN); Aosta, Vallée de Cogne, 8 km Amount d'Aymaville, alt. 950 m, 23.VI. 1973, L. Matile (1 m MNHN); Alagna, s-ö. Monte Rosa, 1200 m, 29.VII. 1959, Mannhs. (1 m BONN). — France: Corse, Forêt de Pineta, Zipitoli, 19.VI. 1972, L. Matile (1 m MNHN); Corse, Forêt de Zonza, alt. 750 m, 6.VI. 1972, L. Matile (2 mm MNHN); Barrage du Castillon, (Htes Pyr.), alt. 1600 m, 11.VI. 1964, L. Matile (1 m MNHN); bois près de Morlaix, (Finistère), 25.VII. 1962, L. Tsacas (1 m MNHN); Richelieu, (I. et L.), ex larva, 31.VIII. 1963 (1 m + pupa MNHN); ? Chaumes en Brie, souche de pommier, Dec. 1970, ex larvae, 18.I. 1971, P. Bourricaud (7 mm 6 ff + 1 pupa MNHN); Forêt de Chandelais, Baugé, (M. et L.), 12.VII. 1971, J. C. Beaucournu & L. Matile (1 m MNHN); Forêt de Lepuix.? Gy, (90), 700—800 m, 3.VI. 1976, L. Matile



Figs. 730—745. *Mycomya winnertzi* (730—734, 736—737, 740—741, 743—744: ssp. *winnertzi;* 735, 738—739, 742, 745: ssp. *schmidi).* — 730: male hypopygium, tergal view. — 731: hypopygium, sternal view. — 732: apex of aedeagus. — 733—735: processi. — 736—738: sternal submedian appendages, sternal view. — 739: sternal submedian appendage, lateral view. — 740—742: sternal lateral appendages. — 743—745: gonostyli. (733, 736, 740, 743: Switzerland; 734, 737, 741, 744: Iowa; 735, 738—739, 742, 745: Jammu & Kashmir). Scale 0.2 mm.

(1 m MNHN); Ruisseau, d'Azet, (65), alt. 1150 m, 4.VIII. 1972, A. Thomas (1 m MNHN); Forêt de Malvoisine, (77), ex larva éclos 1—3.X. 1977, L. Matile (1 m + pupa + head capsule of larva MNHN); same data, 6.X., 12.X. (2 ff MNHN); Forêt de Valbonne, (30), 21.IX. 1977, L. Matile (1 m MNHN); Gorges du Tarn, (48), Lesvignes, alt. 400 m, 14.IX. 1977, L. Matile (1 m MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (1 m ISU). — Yugoslavia: Slovenia, Bohinj, Normanj, 490 m, 2—4.VIII. 1973, A.

H. Stubbs (1 m BMNH); Slovenia, Bohinj, Dom Savica, 600 m, 30.VI. 1973, A. E. Stubbs (1 m BMNH). — Netherlands: Velsen, 30.V. 1918, de Meijere (1 m AMST); Zwammerdam, 14.VIII. 1913, de M. (1 m AMST). — FRG: Birgsau/Allgäu, 19—23.IX. 1973, H. Mendl (2 mm No. 8915 ZSM). — Czechoslovakia: Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (2 mm VUPP); same data, 19.VII. 1967 (2 mm VUPP); Boh. bor., Albeřice, 23.IX. 1960, P. Pecina (1 m VUPP); Boh. c., Komořany, 19.IX. 1960, P. Láštovka (1 m VUPP); Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (9 mm 1 ?f VUPP); Slov., Remetske Hamre, 2.VI. 1963, Laštovka (1 m VUPP). — Austria: Obertilliach, R. Frey (1 m MZH); Austria, coll. Egger (1 m WIEN); Steierm., Admont, Strobl (1 m WIEN). — Hungary: Bükk hgs., Tardi-patak, völhye, erdó, 17.VIII. 1960, 27.VIII. 1960, 14.IX. 1960, S. Tóth (3 mm TMB); Bükk-hg., Lillafüred, 9.VIII. 1963, S. Tóth (1 m TMB); Kószegi-hg., Velemi erdó, 11.VII. 1960, Mihályi (1 m TMB). — Roumania: Olténie, Forêt de Măgura, 15.X. 1968, L. Matile (1 m MNHN); Olténie, Vallée Calului, 15.X.1968, L. Matile (1 m MNHN). — Poland: Polonia Ins Dępina, distr. Pinczow, 28.VIII. 1960, W. Mikolajczyk (1 m WARS); Bieszczady distr. Ustrzyki Dln. Berezki-kolejka, 15.IX. 1969, W. Mikolajczyk (1 m WARS). — UK: N. F., Rhinefeld, H. A., 17.IV. 1953, C. N. Colyer (1 m BMNH); England, Sh. Totton, 23.V. 1962, C. R. Vardy (1 m BMNH); Lancashire, Belle Grange Beck, swept in clearing near stream in wood, mainly pines, 24.VI. 1936, J. Smart (1 m BMNH); S. Devon, Sidmouth, 19.IV. 1925, F. W. Edwards (2 mm BMNH); N. W. Yorks, Austwick 24.VI.—4.VII. 1930, F. W. Edwards (1 m BMNH); Wyre Forest, 14.IX. 1922, F. W. Edwards (2 mm BMNH); Herts, Welwyn, 13.VI. 1924, F. W. Edwards (1 m BMNH); Herts, Knebsworth, 12.X. 1920, F. W. Edwards (1 m 1 ?f BMNH); England, old collection (1 m named *Sciophila annulata* Meig. BMNH); Old collection (1 m named by F. Walker as *Sciophila fasciata* "Type" BMNH); Cornwall, Lelant, 31.VIII. 1912, Yerbury (1 m BMNH); N. Forest, 17.X. 1909, F. C. Adams (1 m BMNH); same data, 9.VI. 1902, 18.X. 1910 (2 ?exx. without abd. BMNH); Herts, Felden, 8.X. 1894, 25.X. 1894, 29.XI. 1894, 4.XI. 1896, 18.IV. 1897, 19.X. 1897, A. Piffard (5 mm 1 ?f BMNH); Cornwall, Shewiock, 14.IX. 1912, Yerbury (2 mm 3 ?ff BMNH); N. B., Nairn, 4.VII. (?) 1904, J. W. Yerbury (1 m BMNH); Llangammarch, Wells, Brecknock, 28.VII. 1913, Yerbury (2 ?ff BMNH); Aberdeenshire, Balmoral Forest, 24.VI.—13.VII. 1951, R. L. Coe (1 m BMNH). — Ireland: Killaney, Cromaglan, Gostroc, 5.VIII. 1940, B. P. Bierne (1 m BMNH); Ireland, 20.II. 1882, Haliday (1 m 1 f NMI). — Norway: HOy., Tysnes, Ånugo, planted granskog, ved insjø, 26.V. 1968 (1 m BERG); same locality, 4.VI. 1966, Feltkurs (1 ?f BERG); HOy., Fjell, Sotra, Vindenes, 10.IX. 1978, T. Andersen (1 m coll. Andersen); HOi., Odda, Teigen, 21—30.X. 1977, T. Andersen (1 m coll. Andersen) HOi., Ullensvang, Hovland, 21—30.X. 1977, T. Andersen (3 mm 2 ff coll. Andersen). — Sweden: Sk., Kullaberg, 17.VII. 1968, 24.VII. 1968, 1.VIII. 1969, 4.VIII. 1969, 5.VIII. 1969, 2.VIII. 1972, H. Andersson (5 mm 1?f coll. Andersson); same locality, Möllemosse, 15.VII. 1967, H. Andersson (1 m 1 f coll. Andersson); Sm., Traryd, Axhult (fälla),



Figs. 746—749. *Mycomya winnertzi* (ssp. *winnertzi*). — 746: female terminalia, lateral view. — 747: hypogynal valve, lateral view. — 748: maxilla of larva. — 749: mandible. Scale 0.2 mm for Figs. 746—747, Figs. 748—749 2 x enlarged.

VIII. 1952, G. Olsson (1 m LUND); Hall., Enslöv, Ärnilt, 31.VIII. 1966, 1.X. 1967, 13.V. 1972, 16.IX. 1972, H. Andersson (6 mm coll. Andersson). — Finland: *Al:* Lemland, Flaka, 8.VI. 1966, 10.VI. 1966, R. Tuomikoski (2 mm MZH); Saltvik, Kvarnbo, 28.VII. 1942, R. Frey (1 m MZH); Finström, 8.VII. 1942, R. Frey (1 m MZH); *Ab:* Karislojo (Karjalohja), Haapajärvi trakten, 12.VII. 1911, J. Sahlberg (1 m MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH, 1 m BMNH); Lojo (Lohja), R. Frey (1 m MZH); Pargas (Parainen), Lundström (1 m MZH); Karjalohja, Karkali, 6.VIII. 1964, R. Tuomikoski (1 m MZH); Lohja, Vaanila, 25.VI. 1966, K. Keynäs (2 mm MZH); Bromarv, Framnäs, 12.VI. 1966, 22.VI.—5.VII. 1966, K. Mikkola (2 mm MZH); Tenhola, Skogby bruk, 26.VIII. 1965, R. Tuomikoski (1 m MZH); Vihti, Vihtijärvi, 22.VI. 1962, 23.VI. 1962, 4.VII. 1962, 7.VII. 1962, 28.VII. 1962, 8.VI. 1963, 29.VI. 1963, 8.VII. 1963, 23.VII. 1963, 8.VIII. 1963, 15.VIII. 1963, R. Tuomikoski (16 mm MZH); *N:* Esbo (Espoo), 23.VI. 1962, 6.VII. 1962, W. Hackman (5 mm MZH); Esbo, Småholmen, 27.VI. 1962, W. Hackman (1 m MZH); Espoo, Bodom, 3.IX. 1963, R. Tuomikoski (1 m MZH); Esbo, Kolmperä, 6.VI. 1963, 23.VI. 1963, W. Hackman (2 mm MZH); Helsinge, R. Frey (1 m MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (1 m MZH); Nothamn, 22.VI. 1935, R. Storå (1 m MZH); Kyrkslätt (Kirkkonummi), R. Frey (1 m MZH); Tammisaari, Gullö, 15.VI. 1967, sugar bait trap, K. Mikkola (1 m MZH); Tvärminne, 7—8.VII. 1965, W. Hackman (1 m MZH); *Ka:* Vehkalahti, 26.IX. 1970, 17.VIII. 1971, L. Tiensuu (2 mm MZH); *St:* Kokemäki, 1953, R. Tuomikoski (1 m MZH); *Ta:* Urjala, 22.X. 1965, T. Brander (1 m MZH); Lammi, Biol. Station, 30.VIII. 1977, R. Väisänen (1 m MZH); same locality, 5.IX. 1977, light trap, R. Väisänen (1 m MZH); *Sa:* Valkeala, Utti, 18.VI. 1965, 9.VIII. 1965, 16.IX. 1965, K. Mikkola (1 m MZH); Punkaharju, Punkasalmi, 30.VI. 1963, W. Hackman (1 m MZH); *Sb:* Kiuruvesi, 14.VII. 1865, Palmén (1 m MZH); *Kb:* Pielisjärvi, Koli 17.VI. 1964, 15—16.VIII. 1964, 5.VII. 1965, R. Tuomikoski (5 mm MZH); Tohmajärvi, Hiidenvaara, 14.VIII. 1964, R. Tuomikoski (1 m MZH); Polvijärvi, E. Grönvik (1 m MZH); *Ok:* Sotkamo, 14.VIII. 1962, A. V. V. Mikkola (1 m MZH); Sotkamo, Aarreniemi, 15.VIII. 1964, 22—28.VII. 1965, A. V. V. Mikkola (2 mm MZH); *Ob:* Liminka, 23.VIII. 1909, Wuorentaus (1 m MZH); Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (1 m MZH); *Ks:* Kuusamo, Rukavaara, 9.VII. 1965, R. Tuomikoski (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Biala-Rus., Coll. Dziedzicki (1 m labelled *Sciophila Winnertzii* n. sp., Mus. Zool. Spec. typ. No 4766 *Mycomya Winnertzii* Dziedzicki MZH); without data, Coll. Dziedzicki (1 m labelled *S. winnertzi* m., *Sciophila Winnertzi* Dziedz. Type WIEN); 1874, *Sciophila* sp. 4 var. (1 m LEN); Leningrad. o., Luzhsk., Tolmachevo, 11.VII. 1935, 20.VIII. 1936, 24.VIII. 1936, 20.VIII. 1937, 23.VIII. 1937, Stackelberg (5 mm LEN); Leningr. o., Luzhsk., Yashera, 17.VIII. 1960, Stackelberg (1 m LEN); Novs. g., Vologoe, 30.VIII. 1903, F. Zaitsev (1 m LEN); Amur. obl., Klimoutsy, 40 km W Svobodnogo, 24.IX. 1958, Zinov'ev (1 m LEN). — Alaska: Fairbanks, 28—29.VII. 1944, J. C. Chamberlin (1 m USNM). — Canada: B. C., Kleanza Creek, 14 mi. E. Terrace, on liliaceous undergrowth — hemlock forest, 29.VI. 1960, J. G. Chillcott (1 m 1 f CNC); same locality, wet, shrubby clearing, 4.VII. 1960 (1 m CNC); B. C., Kimberly, St. Mary's Lake, 14.VI., 4.VII., C. Garrett (2 m hypop. slides No. 50.27 25.54 labelled *Mycomyia* armistyle USNM); Man., Pipestone, 3.IX. 1966, G. E. Shewell (1 m CNC). — USA: Wash., Ilwaco, 28.VI. 1925, A. L. Melander (1 m "*M. marginalis* det. E. G. Fisher 1940" USNM); Iowa, Boone County, Ledges State Park, 18.IX. 1951, J. Laffoon (11 mm ISU); same data but 19.VI. 1962 (1 m ISU); Conn., Windsor, 7.VIII. 1958, W. Downes (1 m ISU); Md., Beltsville, 22.X. 1915, W. L. McAtee (*M. parascopula* Fisher holotype CORN); Md., Laurel, 20.V. 1965, Malaise trap (1 m CNC); Va., Fairfax Co., Potomac River at Scott Run, 12.VII. 1954, W. W. Wirth (1 m USNM); N. C., Macon Co., Highlands, 35°3.2'N, 83°11.3'W, 3850', 21.VI. 1958, 29.VI. 1958, J. L. Laffoon (2 mm ISU); Ga., Rabun Co., 13.VII. 1957, W. R. Richards (1 m CNC).

Description:

Head. Palp, other mouthparts and face yellow to yellowish, posterior parts of head brown. Antenna brownish, scape, pedicel and base or whole of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow to yellowish, sometimes posteriorly brownish, with 3 brownish to brown longitudinal stripes, middle stripe usually with narrow yellow medial band. Mesanepisternum yellow to light brownish. Mesokatepisternum yellow to light brownish, ventral half sometimes brownish to brown. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part sometimes brownish to brown. Mediotergite yellow, posterior and lateral parts brownish, bare.

Legs. Coxae yellow, coxa 3 sometimes with brown lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin anteromedial setae. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.11, bt2:t2 = 0.73—0.87, bt3:t3 = 0.59—0.67.

Wing. Wing length 4.1—5.6 mm. Wing hyaline. Sc ending in C near or distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 5—22 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.50—0.70, 0.63—0.88. Cu ratios: 0.63—0.82, 0.81—1.13. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with yellow posterior and usually also lateral margins, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 730—734, 736—737, 740—741, 743—744, yellow. Processus comparatively short with strong spines. Tergal lateral appendage longer than processus with many very short setae or spines on medial surface. Sternal lateral appendage long, with some setae on apical part. Sternal submedian appendage short, comparatively wide, basally tapered. Gonostylus with 2 branches, medial branch much longer than lateral one, with 1 subapical tooth, lateral branch with 1 apical and seldom 1 subapical tooth. Aedeagus long, apically bilobed.

Female. Wing length 5.6—6.5 mm. Abdominal tergites

brown with posterior margins widely yellow, brown area sometimes extending backwards medially. Leg ratios: bt1:t1 = 1.00—1.03, bt2:t2 = 0.75—0.78, bt3:t3 = 0.60—0.65. Terminalia as in Figs. 746—747, yellow.

Larva. Length of head capsule 0.3 mm, width 0.25 mm. Mandible and maxilla as in Figs. 748—749.

Pupa. Length 5.2—5.8 mm, light brownish.

Remarks: Wing length in males: Palaearctic specimens: 4.1—5.6 mm, mean 4.91 mm, SD 0.34, N=43; Nearctic specimens: 4.1—5.0 mm, mean 4.58 mm, SD 0.27, N=17.

Distribution: Holarctic. Europe: Italy, France, Switzerland, Netherlands, Federal Republic of Germany, Czechoslovakia, Austria, Hungary, Roumania, Poland, United Kingdom, Ireland, Norway, Sweden, Finland. USSR: Byelorussian SSR, Leningrad region, West Siberia, Amur region (Far East). Alaska. Canada: British Columbia, Manitoba. USA: Washington, Iowa, Connecticut, Maryland, Virginia, North Carolina, Georgia. Also reported from Japan: Honchu (Shinji 1939, Okada 1940), and ? Lithuanian SSR (Landrock 1930), Latvian SSR (Lackschewitz 1937), Georgian SSR (Joost & Plassmann 1979: W Caucasus, 2000—2300 m), and ? Kamchatka (Edwards 1928b: ? female). In India as a separate subspecies (see below).

Biology: This species has been reared ex larvae on *Ganoderma applanatum* (S. F. Gray) Pat. (Bonnamour 1925), *Phellinus* (Hutson et al. 1980) and under bark of *Fagus* (Plassmann 1969, 1971b). According to Plassmann (1969, 1971b), the larva is the overwintering stage of *M. winnertzi*. This species has been caught by sweeping, and with light, sugar-bait and air-suction traps in several biotopes: dry woodland, pine wood, planted spruce forest, bog, wet shrubby clearing, on liliaceous undergrowth in hemlock forest, mixed forest, etc.

Mycomya winnertzi schmidi n. ssp.

Figs. 735, 738—739, 742, 745, key p. 35.

(?) *Mycomya trilineata* Brunetti, 1921 (preocc. Zetterstedt, 1838). Brunetti 1912:75.

(?) *Mycomyia winnertzi:* Edwards 1924c:293 (Syn. *M. trilineata* Brunetti).

(?) *Mycomya winnertzi:* Colless & Liepa in Delfinado & Hardy 1973:452.

Type locality: Jammu & Kashmir (India).

Types: — *Mycomya winnertzi schmidi:* Holotype (studied): Jammu & Kashmir, KEL, 6500′, 19.V. 1954, F. Schmid (m ISU). — *Mycomyia trilineata:* Two syntypes originally, now one badly damaged specimen present in Calcutta, India (Dr. A. N. T. Joseph, Zool. Survey of India, pers. comm., type not seen): Simla, 7000 feet, 10.V. 1909, Annandale. Type locality: Simla (India).

Material examined: India: Holotype (ISU).

Description:

Wing length 4.4 mm. Very similar to *M. winnertzi* (Dziedzicki) s. str., but differing in details of hypopygium: sternal lateral appendage slender, without long apical seta, sternal submedian appendage relatively long, slender, not distinctly widened apically. Leg ratios: bt1:t1 = 0.97, bt2:t2 = 0.75, bt3:t3 = 0.64. M ratios: 0.67, 0.80. Cu ratios: 0.72, 1.13. Hypopygium as in Figs. 735, 738—739, 742, 745.

Remarks: Edwards noticed the homonymy but gave no new substitute name for Brunetti's species, since he considered it conspecific with the European *M. winnertzi* (Dziedzicki). However, there seem to be morphological grounds for treating the Indian specimen examined as a separate subspecies of *M. winnertzi*. Brunetti's specimens (without available name) probably also belong to this taxon.

Mycomya bisulca Lackschewitz, 1937

Figs. 750—752, key p. 34.

Mycomyia bisulca Lackschewitz, 1937. Lackschewitz 1937:8; Landrock 1940:36; Plassmann 1979:373, 1980a:177.

Mycomya bisulca: Väisänen in Hackman 1980:31; Väisänen 1982b:38.

Type locality: Susta (Latvian SSR).

Type: Holotype (studied):
Curon. Langen 10.IX. 1930 Dr. P. Lackschewitz. Typus. *bisulca*. 11 (m MNB).

Material examined: Sweden: Kaltisjokk, loc 20, 23.VI. 1969 (1 m No. 9421 SENCK). — Finland: *Ab:* Vihti, Vihtijärvi, 8.VI. 1963, 23.VI. 1963, R. Tuomikoski (2 mm MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH); *N:* Esbo (Espoo), Kolmperä, 8.VII. 1963, W. Hackman (1 m MZH); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (1 m MZH); *Ks:* Kuusamo, Kiutaköngäs, 24.VI. 1964, R. Tuomikoski (1 m MZH); Salla, 30.VI. 1936, R. Frey (1 m MZH). — USSR: Curon., Langen, 10.IX. 1930, P. Lackschewitz (holotype MNB).

Description:

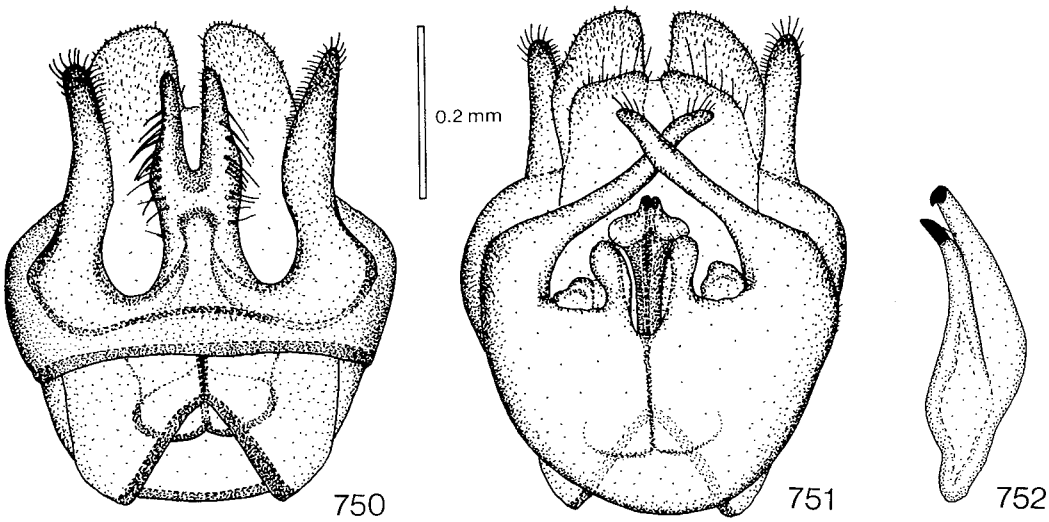
Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with 3 brown, usually posteriorly more or less fused, longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half usually brownish. Scutellum yellow with 2 long setae. Laterotergite entirely yellow or ventral part brownish. Mediotergite yellow to brownish, bare.

Legs. Coxae yellow, coxa 3 with or without brownish lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with many long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.03, bt2:t2 = 0.75—0.80, bt3:t3 = 0.60—0.64.

Wing. Wing length 4.3—5.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 8—12 macrotrichia. Small cell 1.5 times as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.59—0.66, 0.71—0.80. Cu ratios: 0.64—0.76, 0.92—1.07. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with large brown anteromedial spots, 6—7 brown. Sternites 1—5 yellow, 6—7 brownish.



Figs. 750—752. *Mycomya bisulca.* — 750: male hypopygium, tergal view. — 751: hypopygium, sternal view. — 752: gonostylus. Scale 0.2 mm for Figs. 750—751, Fig. 752 2 x enlarged.

Hypopygium. Figs. 750—752, yellow. Processus deeply bilobed. Tergal lateral appendage slightly longer than processus, with many very short dense setae along medial side. Sternal lateral appendage long slender with some setae. Sternal submedian appendage short, tapered proximally, with some small setae. Gonostylus with 2 branches medial branch slightly longer than lateral one, with 1 subapical tooth, lateral branch with 1 apical tooth. Aedeagus comparatively long, slender, apically bilobed.

Female. Unknown.

Distribution: Western Palaearctic. Sweden, Finland. USSR: Latvian SSR.

Biology: Collected with light and air-suction traps (Plassmann 1979, 1980a).

Mycomya bicolor (Dziedzicki, 1885)

Figs. 753—757, key p. 34.

Sciophila bicolor Dziedzicki, 1885. Dziedzicki 1885:20; Kertész 1902:57, 1903:31; Lundström 1909:8, 1912a:9.

Mycomya bicolor: Landrock 1913:30; Matile 1977:633; Väisänen 1979a:46, in Hackman 1980:31; Väisänen 1982b:38.

Mycomyia bicolor: Landrock 1926—1927:43, 1930:254; Lackschewitz 1937:9; Barendrecht 1938:38; Karl 1939:53; Landrock 1940:30; Frey & Storå 1941:46; Kröber 1956:131; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:23, 1970b:388, 1971b:61; Mikolajczyk 1971:370; Ostroverchova & Izotov 1974:82; Plassmann 1979:373; Ostroverchova & Zaitseva 1979:71; Ostroverchova 1979:58; Plassmann 1980a:177.

Mycomya maxima Johannsen, 1910 (New synon.). Johannsen 1910:179; Johnson 1925:81; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:221; Cole 1969:121.

Mycomyia maxima: Fisher 1937:392; Coher 1959:117.

Type locality: "Zaczernie" (Byelorussian SSR).

Types: — *Sciophila bicolor* Dziedzicki: Holotype (not located, apparently destroyed): ♂. — *Mycomya maxima* Johannsen: Lectotype (studied) by present designation: Nain Aug. 18′ 08 Lab. Owen Bryant. O A Johannsen Lot 264 Sub Cornell U. ♂ Holotype *Mycomya maxima* Johannsen. Holotype Cornell U. No. 1977. (m CORN). Type locality: Labrador, Nain (Canada).

Remarks: Johannsen originally gave the wrong type locality — "Maine" (actually Nain). This was corrected by Johnson (1925).

The lectotype of *M. maxima* is deposited in CORN. The specimen labelled as the holotype in MCZ (Type 7443) is the female paralectotype, although (Coher 1959) considered it the male type.

Material examined: Italy: Aosta, Piano di Sylvenoire (Cogne), alt. 1550 m, forêt d'epicea, 27.VI. 1973, D. & L. Matile (1 m MNHN); same locality, 1600—1650 m, 15.VII. 1975, D. & L. Matile (1 m MNHN). — France: Col de Porte (Isère), alt. 1300 m, 26.VI. 1970, L. Matile (1 m MNHN); Lac d'Estaragne, (65), alt. 1850 m, 29.VI. 1966, A. Thomas (1 m MNHN). — Bulgaria: Kom, 1700, 8.VII. 1982, D. Bechev (1 m coll. Bechev). — Roumania: Retezatului Mts., nr. Hobita Cabana, c. 4000′, mature pine forests, 29.VI. 1969, B. H. & C. Cogan & R. I. & R. Vane-Wright (2 mm BMNH). — Austria: Tyrol, Obergurgl, Pirchhüttberg, 1850 m. 26.VII. 1972, Malaise trap, A. C. & B. Pont (1 m BMNH); ? Austria, coll. Kowarz (1 m LEN). — Czechoslovakia: Boh., Krkonose Mts., Korenov, 14.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH); Boh., Krkonose Mts., Harrachov, R. Sejsky, 14.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH).

— Netherlands: Hilversum, e.l., de M. (3 mm AMST); Hilversum, de M. (7 mm AMST); Hilversum, 29.IX. 1907, de M. (1 m AMST); Hilversum, 7.X. 1909, de M. (1 m AMST); Hilversum, X. ?1907, de M. (1 m 1 ?f AMST). — Poland: Danzig, Czwalina (1 m 1 ?f MNHN). — Norway: HOy., Fjell, Sotra, Vindenes, 15.X. 1978, T. Andersen (1 m coll. Andersen); Skaidi, 7.VII. 1964, R. Tuomikoski (1 m MZH). — Sweden: Nb., Pajala s:n, Kengis, Utmockan 15.VII. 1951, 30.VII. 1951, Ander, Ardö, Berdén & Dahl (2 mm 1 ?f LUND); Nb., Pajala, Kengis, 18.VIII. 1951, J. R. Vockeroth (1 m CNC); Messaure, 25.VII. 1969 (4 mm No. 10258 SENCK); Kaltisjokk, 3—7.VII. 1969 (0—2) (3 mm No. 9372 ZSM); Lpl., Abisko, 15.VIII. 1951, J. R. Vockeroth (1 m CNC); Abisko, 22.VII. 1918, O. Ringdahl (1 ?f LUND). — Finland: *Al:* Finström, R. Frey (1 m MZH); Föglö, Jyddö, 11.VI. 1965, K. Mikkola (1 m MZH); *Ab:* Vihti, Vihtijärvi, 24.VIII. 1959, 12.VII. 1962, 15.VII. 1962, 8.VI. 1963, 15.VI. 1963, 16.VI. 1963, 23.VI. 1963, 18.VII. 1963, 5.VI. 1964, R. Tuomikoski (13 mm MZH); Lohja, Vaanila, 25.VI. 1965, K. Keynäs (1 m MZH); Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (1 m MZH); same locality, 15.X. 1965, K. Mikkola (1 m MZH); Lojo (Lohja), R. Frey (1 m MZH); Karislojo (Karjalohja), R. Frey (1 ?f MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH, 1 m 1 ?f WIEN); Naantali, 17.IX. 1938, R. Storå (1 ?f MZH); *N:* Esbo (Espoo), Kolmperä, 7.VI. 1963, 18.VI. 1963, 23.VI. 1963, 13.VI. 1964, 22.VII. 1964, 13.VIII. 1964, W. Hackman (6 mm MZH); Esbo, 21.VI. 1962, 6.VII. 1962, W. Hackman (3 mm MZH); Esbo, Småholmen, 27.VI. 1962, 21.VII. 1962, W. Hackman (2 mm MZH); Esbo, Westend, 22.VI. 1962, 24.VI. 1962, 28.VI. 1962, W. Hackman (3 mm MZH); Helsinki, Nordsjö (Vuosaari), 26.VI. 1963, R. Tuomikoski (1 m MZH); Helsinki, Ruskeasuo, 22.VI. 1980, I.T. & R. Väisänen (1 m MZH); Hanko, Uddskatan, 14—20.IX. 1980, light trap, K. Mikkola (1 m MZH); Porvoo, E. Suomalainen (2 ?ff MZH); Pyhtää, Kiviniemi, X. 1981, sugar-bait trap, R. Väisänen (1 m MZH); *Ka:* Vehkalahti, Neuvoton, VII. 1979, R. Väisänen (2 ?ff MZH); Björkö, Nordman (1 ?f MZH); *Ta:* Urjala, 4.VI. 1964, T. Brander (1 m FLHM); Hattula, Wegelius (1 m MZH); *Sa:* Punkaharju, Punkasalmi, 11.VI. 1964, R. Tuomikoski (1 m MZH); *Kl:* Uukuniemi, 25.VI. 1963, W. Hackman (1 m MZH); *Oa:* Vasa (Vaasa), IX. 1907, R. Frey (1 m MZH); *Tb:* Saarijärvi, Wolstedt (1 m MZH); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (3 mm MZH); *Ok:* Sotkamo, Aarreniemi, 2.VII. 1966, K. Keynäs (1 m MZH); Kuhmo, 1.VII. 1965, R. Tuomikoski (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 13.VII. 1965, R. Tuomikoski (3 mm MZH); *Ks:* Kuusamo, Liikasenvaara, 6.VII. 1965, K. Mikkola (1 m MZH); *Lk:* Muonio, kk., 1.VIII. 1911, R. Frey (1 m MZH); Kittilä, Pallastunturi, 29.VII. 1967, R. Tuomikoski (1 m MZH); Pelkosenniemi, Pitkäjängän kuusikko, 6.VII. 1967, K. Keynäs (1 m MZH); Sodankylä, Peurasuvanto, 8.VII. 1967, K. Keynäs (1 m MZH); *Le:* Kilpisjärvi, Saana, 27.VIII. 1965, R. Tuomikoski (1 m MZH); *Li:* Inari, Paskaloutuma, 5.VIII. 1961, K. Ahola & E. Pätiälä (1 m 1 ?f MZH); Utsjoki, Poodusvaara, 5.VII. 1949, R. Frey (1 m MZH). — USSR: Estonia, st. Peedu, 13.VIII. 1951, Stackelberg (1 ?f LEN); Leningrad. o., Luzhsk., Tolmachevo, 11.VIII. 1937, Stackelberg (1 m LEN); Vaaseni, 22.IX. 1942, L. Tiensuu (1 m MZH); Nuorttijoki, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (1 mm MZH); Kol'sk., Khibin. g., bass. oz. Vud'yavr, 30.VI 1936, Fridolin (1 m LEN); Luzhsk. u., d. Log, 10.VII 1918, G. Jakobson (1 m LEN); Shuvalovo, Podyandak zh. d., 18.VI. 1897, Jakobson (1 m LEN); Moscow Reg., Opalikha, 8.VII. 1965, N. Krivosheina (1 mm lot 57 MOSC); Rybinsk Reg., 20.VI. 1961, N. Krivosheina (1 ?f lot 127 MOSC); Yenis. g., Tunguska, Podkam. Bajkit, 28.VII. 1928, Valdaev (1 m LEN); Altai, 40 km Iogatsh S, 1000—1300 m, 19.VIII. 1982, K. Mikkola (1 m 1 f MZH). — Alaska: Isabel Pass, Mi. 200, Richardson Hwy., 2900′, 14.VII. 1962, 15.VII. 1962, 17.VII. 1962, P. J. Skitsko (4 mm CNC). — Canada: Y. T., Mi. 87, Demster Hwy, 16—17.VII. 1973, G. & D. M. Wood (1 m CNC); same data, 4—8.VIII. 1973 (2 mm 1 f CNC); B. C., Summit Lake, Mi. 392, Alaska Hwy., 4200′, 31.VII. 1959, R. E. Leech (1 m CNC); B. C., Mt. Revelstoke, 6000′, 25.VII. 1952, G. J. Spencer (1 m CNC); B. C., Procter, 8000 ft., 22.VII., C. Garrett (1 m hypop. No. 4959 "*M.* anatropa" USNM); B. C., Crows Nest, 8.VII., C. Garrett (1 m hypop. No. 20—52 "*M.* anatropa" USNM); Alta., Laggan, 26.VII. 1928, O. Bryant (1 m USNM, 2 mm CAS); Alta. Moraine L., 11.VII. 1925, O. Bryant (1 m CAS); Man., Pine Falls, 22.VI. 1961 (1 m CNC); Lab., Nain, 18.VIII. 1908, O. Bryant (*M. maxima* lectotype CORN, f paralectotype MCZ). — USA: Me., Orono, VI. 1910, O. A. J. (1 ?f slide: legs + wing CORN); N. Y., Pinnacle Mt., 16.IX. 1910, O. A. J. (3 ?ff CORN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish to brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

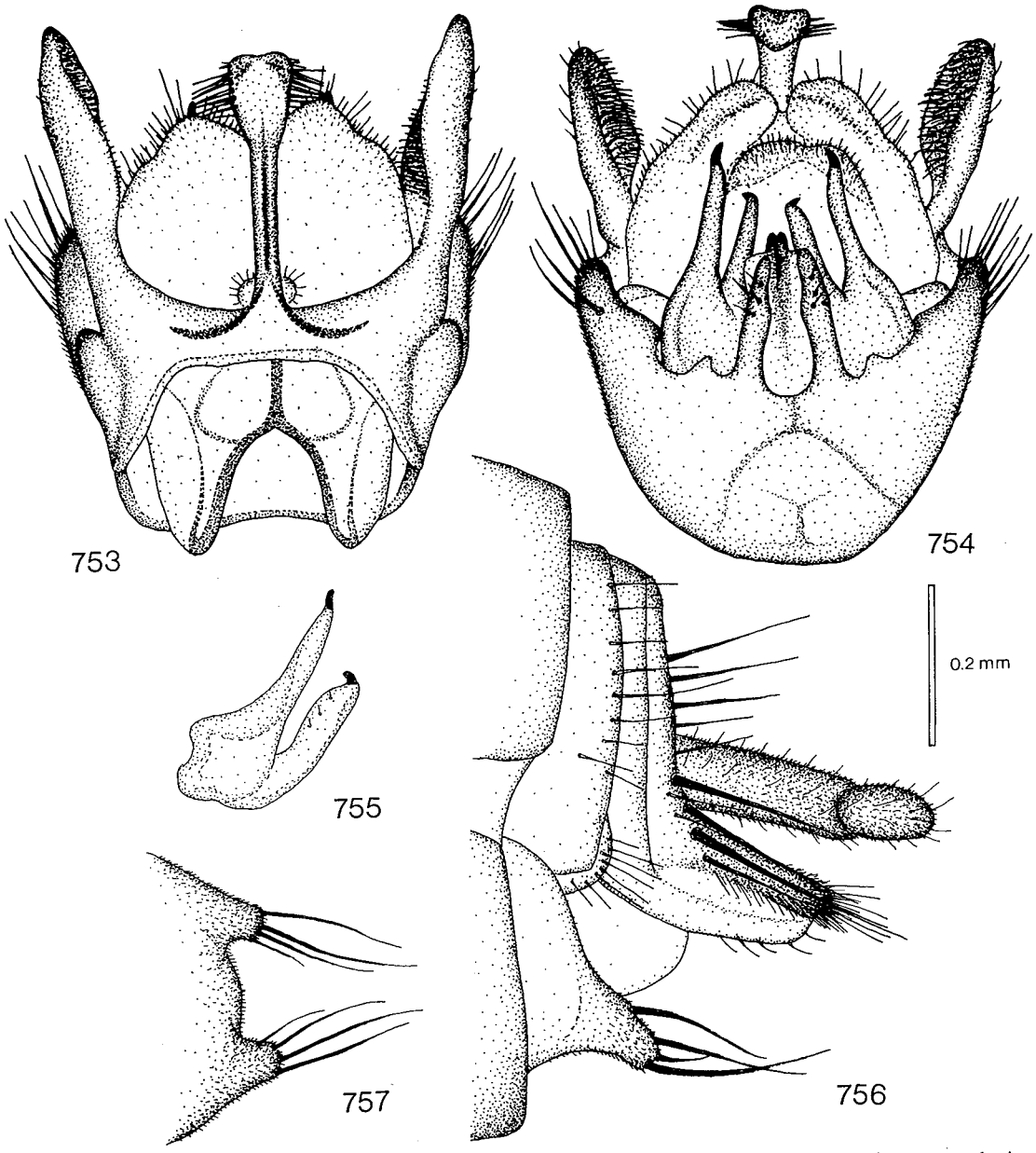
Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, posteriorly often light brownish, with 3 dark brown longitudinal stripes, middle stripe often with narrow yellow medial band. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral half darker. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow to yellowish, ventral part darker. Mediotergite yellowish, bare.

Legs. Coxae yellow, coxa 3 with brown lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with about 10 stronger anteromedial setae in indistinct vertical row. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.17, bt2:t2 = 0.72—0.84, bt3:t3 = 0.64—0.71.

Wing. Wing length 5.4—7.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 14—23 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.51—0.72, 0.63—1.00. Cu ratios: 0.51—0.71, 0.74—1.06. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior margins yellow, 6—7 brown. Sternites yellow to yellowish. Sometimes tergites 1—5 yellow with 3 rows of brown spots: large anteromedial and smaller lateral spot on each tergite, or these spots more or less fused anteriorly.

Hypopygium. Figs. 753—755, yellow. Processus long



Figs. 753—757. *Mycomya bicolor*. — 753: male hypopygium, tergal view. — 754: hypopygium, sternal view. — 755: gonostylus. — 756: female terminalia, lateral view. — 757: hypogynal valves, sternal view. Scale 0.2 mm.

slender apically slightly dilated. Tergal lateral appendage longer than processus, wide with many short spines on medial side. Sternal synsclerite with several setae on both sides, without distinct lateral appendages. Sternal submedian appendage comparatively long, slender, with some setae. Gonostylus with 2 branches, lateral branch longer than medial one, both with 1 apical tooth. Aedeagus comparatively long, slender.

Female. Wing length 5.6—8.1 mm. Coloration as in male. Leg ratios: bt1:t1 = 1.03—1.18, bt2:t2 = 0.79—0.88, bt3:t3 = 0.64. Terminalia as in Figs. 756—757, yellow.

Distribution: Holarctic. Italy, France, Austria, Bulgaria, Roumania, Czechoslovakia, Netherlands, Poland, Norway, Sweden, Finland. USSR: Byelorussian SSR, ?

Estonian SSR, Leningrad region, Karelian ASSR, Murmansk region, Moscow region, Rybinsk region, Altai Mts., East Siberia. Alaska. Canada: Yukon Territory, British Columbia, Alberta, Manitoba, Labrador. ? USA: Maine, New York. Also reported from Federal Republic of Germany (Plassmann 1969, 1970b, 1971b), Estonian SSR, Latvian SSR (Lackschewitz 1937), West Siberia and Soviet Far East (Ostroverchova & Izotov 1974, Ostroverchova 1979), and from Oregon (Coher 1959), New Hampshire, Maine, Vermont, Massachusetts and New York (Shaw & Fisher 1952).

Biology: According to Plassmann (1969, 1971b), the larva of this species overwinters. He has found a larva under a polyporous fungus in January. Adults of this species have been collected by sweeping, and with air-suction (Plassmann 1979), light and sugar-bait traps.

Mycomya scopula Fisher, 1937

Figs. 758—761, key p. 34.

Mycomyia scopula Fisher, 1937. Fisher 1937:394; Coher 1959:115.

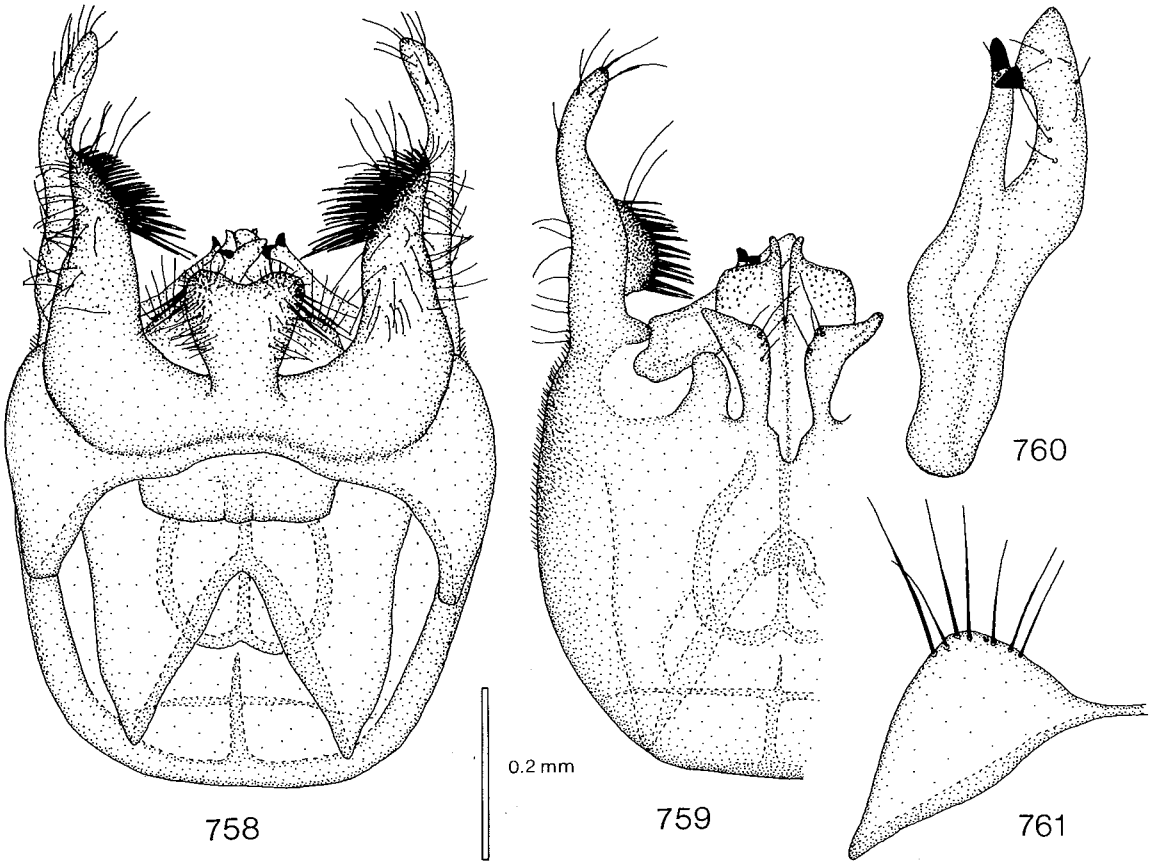
Mycomya scopula: Shaw & Fisher 1952; Laffoon in Stone et al. 1965:221.

Type locality: Originally: New York, Ithaca. Correctly: New York, McLean Res., Hemlock Ridge (USA).

Type: Holotype (studied): Hemlock Ridge, McLean Res. N. Y. 31 Aug. 25. Holotype *Mycomyia scopula* Fisher hypopygium in vial alc. Holotype Cornell U. No. 1409. (m CORN).

Remarks: Originally Fisher (1937) reported: "Holotype taken at Ithaca, New York, May 24, 1934. Type (No. 1411) in the Cornell University Collection." The same sentence, including the type number, can be found below the description of *Mycomyia pseudomaxima* Fisher. Thus, it is apparent that there was a mistake in her article, and that the label of the *M. scopula* holotype is the correct one with the real type locality. The type agrees well with Fisher's description.

Material examined: Canada: B. C., Kimberly, St. Mary's Lake, 10.VI., C. Garrett (1 m hypop. slide "*Mycomyia* absteria" USNM); Man., Pine Falls, 6.VII. 1961 (1 m CNC); Que., Knowlton Ldg., 19.VII. 1968, J. R. Vockeroth (2 mm CNC). — USA: Ida., Latah Co., 5 mi. NE Harvard, jct. Strychnine Cr., Palouse R., VI. 1972, W. J. Turner & W. B. Garnett (1 m WASH); N. Y., Cattaraugus Co., Stoddard Hollow, 42°4′N, 78°45.5′W, 1900′, 10.VIII. 1961, R. J. Gagné (1 m ISU); N. Y., McLean Res., Hemlock Ridge,



Figs. 758—761. *Mycomya scopula.* — 758: male hypopygium, tergal view. — 759: hypopygium, sternal view. — 760: gonostylus. — 761: tergite 8. Scale 0.2 mm for Figs. 758—759 and 761, Fig. 760 2 x enlarged.

31.VIII. 1925 (holotype CORN); N. C., Macon Co., Highlands, 35°3.2'N, 83°11.3'W, 3850', 29.VI. 1958, J. L. Laffoon (1 m ISU).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow with 3 brownish partially fused longitudinal stripes, or with 3 brown stripes, the middle stripe with narrow yellow medial line, or without distinct markings. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 2 long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae yellow, coxa 3 sometimes with brownish lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin anteromedial setae in 2 indistinct rows. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.97—1.03, bt2:t2 = 0.72—0.82, bt3:t3 = 0.61—0.67.

Wing. Wing length 4.6—5.2 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc1 apically weak, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 4—16 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.57—0.69, 0.71—0.86. Cu ratios: 0.58—0.68, 0.83—0.97. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish or tergites 1—5 yellow, with brown anteromedial spots, 6—7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 758—761, yellowish. Processus short, comparatively wide. Tergal lateral appendage very wide, longer than processus, with brush of dark spines apically on medial side. Sternal lateral appendage very long, slender, with some setae. Sternal submedian appendage narrow, basally tapered, with a few small setae. Gonostylus with 2 branches, medial branch slightly longer, with subapical tooth, lateral branch with apical tooth.

Female. Unknown.

Distribution: Nearctic. Canada: British Columbia, Manitoba, Quebec. USA: Idaho, New York, North Carolina. Coher (1959) reported this species from Vermont as well.

Biology: Unknown.

Mycomya marginata (Meigen, 1818)

Figs. 1, 57, 762—768, key p. 33, 41, 42.

Sciophila marginata Meigen, 1818. Meigen 1818:249; Haliday 1833:148; Staeger 1840:271; Zetterstedt 1852:4108; Walker 1856:37; Osten-Sacken 1858:143; Siebke 1877:245; Czwalina 1893:2; Kertész 1902:61, 1903:33; Stackelberg 1922:6.

(not) *Sciophila marginata:* von Roser 1834:263; Osten-Sacken 1862:161, 168 (correction) (= *Mycetophila* sp.).

(not) *Sciophila marginata* Dziedzicki, 1885 (= *M. trivittata* (Zetterstedt)).

Mycomyia marginata: Keilin 1919: Pl. III: Figs. 7—10; Edwards 1921a:61, 1925a:549 (Syn. *M. punctata* (Meigen)), 1928a:160; Schmitz 1929:22; Riedel 1930:74; Lackschewitz 1937:8; Madvar 1937:52; Edwards 1941:25 (Syn. *M. limbata* (Winnertz), not *M. punctata* (Meigen)). Coe in Kloet & Hincks 1945:345; Parmenter 1953:124; Kröber 1956:131; Kidd in Kidd & Brindle 1959:71; Buxton 1960:63, 65, 74; Kidd 1964:3; Mikolajczyk 1967:22; Matile 1969:242; Ostroverchova & Stackelberg 1969:272; Mikolajczyk 1971:371; Ostroverchova 1971:94; Plassmann 1971c:255; Ostroverchova & Izotov 1974:82; Plassmann 1977b:9; Plachter 1979a:183, 1979b:282; Kobel-Voss & Plassmann 1979:11; Joost & Plassmann 1979:369; Ostroverchova 1979:71; Plassmann 1980b:19.

Mycomya marginata: Hutson in Kloet & Hincks 1979:24; Chandler 1976:97, 1977:15; Matile 1977:633; Russel-Smith 1979:362; Väisänen in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:40.

Mycomyia marginata Dziedz.: Frey & Storå 1941:46.

(not) *Mycomya marginata:* Landrock 1913:35 (= *M. trivittata* (Zetterstedt)).

(not) *Mycomyia marginata:* Landrock 1926—1927:48, 1940:29 (= *M. punctata* (Meigen)).

Sciophila limbata Winnertz, 1863. Winnertz 1863:716; Schiner 1864:443; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; van der Wulp 1877:165; Strobl 1880:45; Mik 1885:52; Kowarz 1894:4; Strobl 1895:143, 1897:15, 1898b:598 (= 1900a:652), 1900b:98, 1901:11; Rübsaamen 1901:96; Kertész 1902:61, 1903:33; Sack 1907:11; Lundström 1909:9 (? Syn. *S. marginata* Meigen), Morge 1974:171.

Mycomya limbata: Landrock 1913:25.

Mycomyia limbata: Landrock 1926—1927:47; Barendrecht 1938:38; Karl 1939:52; Landrock 1940:29; Frey & Storå 1941:46; Kröber 1956:131; Mikolajczyk 1967:21; Plassmann 1969:25, 1970b:388, 1971b:61.

Sciophila punctata: Dziedzicki 1885: Tab. IX: Figs. 6—7 (Syn. *S. limbata* Winnertz), 1915:8.

(p. p.) *Mycomyia punctata:* Séguy 1940:77 (Syn. *M. limbata* (Winnertz), *M. marginata* (Meigen), *M. unimaculata* (Macquart)) (p. p. = *M. punctata* (Meigen)).

(?) *Sciophila notata:* Palm 1869:402.

(?) *Sciophila notabilis:* Lundström 1909:9.

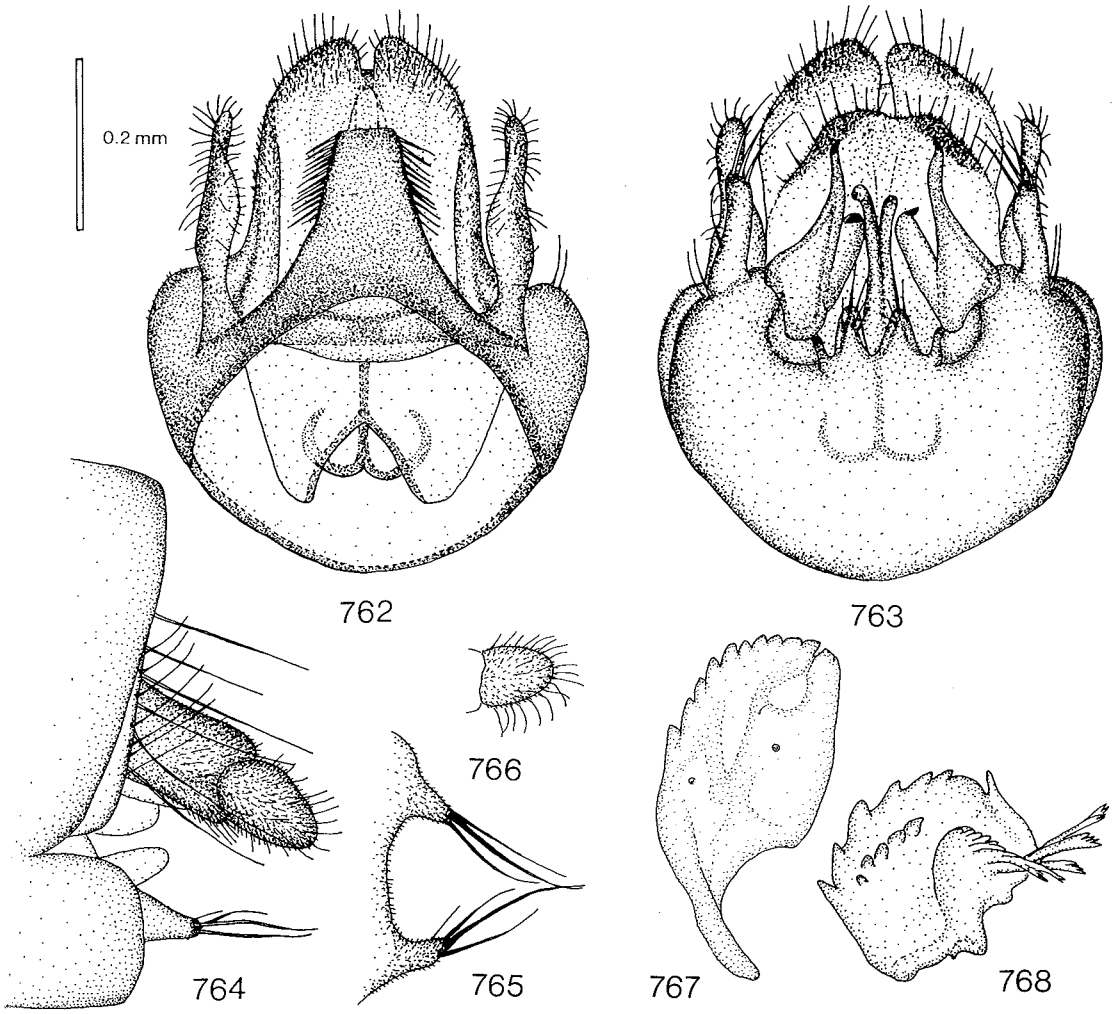
(?) *Mycomyia notabilis:* Frey & Storå 1941:46.

Remarks: Some records of *Sciophila* or *Mycomyia punctata,* not listed above, evidently refer to *M. marginata,* which is common in Central and Northern Europe.

Type locality: "Oesterreich" (Austria).

Types: — *Sciophila marginata* Meigen: Type not located, apparently destroyed. — *Sciophila limbata* Winnertz: Types not located, apparently destroyed (511 exx.). Type locality: Not stated (? Federal Republic of Germany).

Dziedzicki (1885) synonymized *Sciophila limbata* with *S. punctata* (for his *S. marginata,* see *M. trivittata).* Lundström (1909) did not accept Dziedzicki's opinion but considered *S. punctata* and *S. limbata* (in his paper possibly a synonym for *S. marginata)* as separate species. He was followed by Landrock (1913). However, Edwards (1925a) and Landrock (1926—1927) considered *M. marginata* and *M. punctata* to be synonyms. *M. marginata* sensu Edwards (1925a) agree with Dziedzicki's *S. limbata* — *S. punctata,* but Landrock (1926—1927) considered *M. marginata* to be the same species figured



Figs. 762—768. *Mycomya marginata.* — 762: male hypopygium, tergal view. — 763: hypopygium, sternal view. — 764: female terminalia, lateral view. — 765: hypogynal valves, sternal view. — 766: apical segment of cercus, sternal view. — 767: maxilla of larva. — 768: mandible. Scale 0.2 mm for Figs. 762—766, Figs. 767—768 2 x enlarged.

by Lundström as *S. punctata,* and thus Landrock gave *M. limbata* (= *M. marginata* sensu Edwards 1925a) as a separate species. Séguy (1940) synonymized both *S. marginata* and *S. limbata* (and *S. unimaculata)* with *M. punctata.* Some confusion has persisted, since some recent authors have overlooked or not accepted the paper by Edwards (1941), where he returned to the opinion first proposed by Lundström. The identities of *M. marginata* and *M. punctata* adopted here follow the proposals by Lundström (1909) and Edwards (1941), although no type material exists for these species.

Material examined: Spain: Distr. of Madrid, Cercedilla, 8.VII. 1950, F. Schmid (1 f ISU); Gerona, Las Planas, 12—18.VII. 1965, A. M. Hutson (3 ff BMNH). — France: Corse, Forêt de Vizzavona, 3.VI. 1972, L. Matile (4 ff MNHN); Corse, Forêt de Pineta, Zipitoli, 19.VI. 1972, L. Matile (2 mm 2 ff MNHN); Corse, bord de ruisseau, maquis de l'Ospèdale, 7.VI. 1972, L. Matile (1 f MNHN); Corse, Forêt de Chiavari, alt. 450 m, 18.VI. 1972, L. Matile (3 mm 4 ff MNHN); Corse, Forêt de Zonza, alt. 750 m, 6.VI. 1972, L. Matile (3 mm 5 ff MNHN); Corse, Gorges de la Restonica, 1.VI. 1972, L. Matile (7 mm 1 f MNHN); Corsica, R. Restonica, 10—25.IV. 1928, F. W. Edwards (1 f BMNH); Corsica, R. Porto, Nr. Evisa, 10—25.IV. 1928, F. W. Edwards (1 m BMNH); Cirque de Navacelles (Aude), 23—24.VI. 1970, L. Matile (1 f MNHN); Gorges du Tarn, (48), Lesvignes, alt. 400 m, 14.IX. 1977, L. Matile (2 mm 1 f MNHN); Gorges de la Dourbie (12), alt. 400 m, 13.IX. 1977, L. Matile (1 f MNHN); Forêt Domaniale de Roquet Escut (34), (l'Esclandorgue), alt. 750 m, 18.IX. 1977, L. Matile (2 mm MNHN); Dixmont (Yonne), 7.VI. 1970, L. Matile & J. J. Menier (1 m MNHN); (Vaucluse), Serignan, 10—11.IV. 1969, L.

Tsacas (1 m MNHN); Ft. de Carnelle (S-O), 6.VII. 1941, A. Bayard (1 m MNHN); Bords de Lac de Pont (Côte d'Or), 13.VII. 1946, A. Bayard (2 mm 2 ff MNHN); Puiseux (Aisne), 25.V. 1942, A. Bayard (1 m MNHN); Col de Porte (Isère), alt. 1300 m, 26.VI. 1970, L. Matile (1 m MNHN); Forêt de Chandelais, Baugé (M. & L.), 12.VII. 1971, J. C. Beaucournu & L. Matile (1 m MNHN); Seine et Oise, Forêt de Marly, 14.IX. 1973, R. Bénard (1 m MNHN); Yonne, Forêt d'Otre, 14.VIII. 1971, L. Matile (1 m MNHN); ruisseau d'Azet (65), alt. 1150 m, 4.VIII. 1972, A. Thomas (1 m MNHN); Forêt de Valbonne (30), 21.IX. 1977, L. Matile (21 mm 8 ff MNHN); Haut-Rhin, Lachtenweiher près Niederbruch, alt. 900 m, C. Couturier (1 m MNHN); Fontainebleau, (Seine-et-Marne), V—VI., Laboulbene (2 mm 1 f MNHN); Richelieu, (I. & L.), ex larvae, 13—17.IX. 1963 (3 ff + pupae MNHN); Bar s. Seine, (Cortereau), Laboulbene (1 f MNHN); Rennes, L. Bleuse, coll. Brunetti (1 ?f BMNH). — Italy: Aosta, eau Rousse (Valsavaranche), alt. 1600 m, 4.IX. 1978, L. Matile (2 ff MNHN); Aosta, Bertolaz (Villeneuve), alt. 800 m, 5.VI. 1980, L. Matile (1 f MNHN); N. Italy, Dolomites, Seis am Schlern, 1—13.VI. 1964, J. Abraham & J. C. Deeming (1 m BMNH). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (1 m ISU). — Austria: Austr. sup., Hammern, IX. 1871, 12.IX. 1872, 13.IX. 1872, 14.IX. 1872, 8.VIII. 1874, 27.VII. 1876, Mik (7 mm 5 ff WIEN); Hamern, 29.VIII. 1873, Bgst. (1 f WIEN); Salisburg, Böckstein, 25.VII. 1879, Mik (1 m 1 f WIEN); Austr. inf., Mödling, 5.VI. 1881, Mik (2 mm 2 ff WIEN); Austr. inf., Brühl, 14.V. 1883, Mik (1 m WIEN); Austr. inf., Hainefeld, 22.VIII. 1893, Mik (1 f WIEN); Austr. inf., Seebenstein, 17.VII. 1866, Mik (1 f WIEN); Austr. inf., Lerweiden, 8.X. 1882, Mik (1 f WIEN); Wechselgb., A. i., Mader (1 f BMNH); (?) Weidend, 23.IV. (1 m WIEN); Austria, 1869, Schiner (2 mm 1 f WIEN); Austria (10 mm 3 ff WIEN); Coll. Winthem (1 m WIEN); without data (1 m WIEN). — Hungary: Mecsek-hg., Lámpás-völgy, 29.VII. 1957, Mihályi (2 mm 2 ff TMB); Melegmány, Mecsek hgys, L. Móczar (1 m TMB); Pécs, Mecsek-hg., 26.IV. 1956, Z. Sebess (4 mm TMB); same locality, Hidekut, patak mellet, 25.IV. 1956, Z. Sebess (2 mm TMB); Vérteskozma, Fánien-v., 11.IV. 1961, Zsirkó (9 mm 9 ff TMB); same locality, 25.IV. 1961, Mihályi (4 ff TMB); Bükk-hg., Csanyik völgy, 30.V. 1961, S. Tóth (1 m 1 f TMB); Bükk hgs., Tardi-patak völgye, erdó, 12.VIII. 1960, S. Tóth (4 ff TMB); same data, 27.VIII. 1960 (1 f TMB); same data, 17.VIII. 1960 (2 mm 1 f TMB); same data, 8.IX. 1960 (1 f TMB); same data, 12.IV. 1959 (1 m 1 f TMB); same data, 4.IX. 1960 (3 mm 4 ff TMB); same locality, völgye, erdó, vizenyós terület, 11.V. 1958, S. Tóth (1 f TMB); Tard, Bábavölgy, rét, 12.V. 1959, 23.V. 1959, S. Tóth (1 f TMB); Csákvár, Hajduvágás, 25.V. 1961, Zsirkó (1 f TMB); Budapest, Csúcshegy, 24.X. 1965, 31.X. 1965, Mihályi (2 mm TMB); Mátranovák, Cser-puszta, 1.X. 1964, Soós (1 m TMB); Kószegi-hg., Velemi erdó, 11.VII. 1960, Zsirko (1 f TMB); Tatra, erdó, Öreg-tó, 24.III. 1959, Mihályi (1 m TMB); Kovácspatak, Ujhelyi (1 m MZH). — Yugoslavia: Montenegro, Kolasin, wet gorge in old forest, 5—9.VI. 1958, R. L. Coe (2 ff BMNH); Croatia, Plitvice, 4—10.VII., R. L. Coe (1 m BMNH); Slovenia, Bled, Vintgar Gorge, 550 m, 3.VIII. 1973, A. E. Stubbs (1 m BMNH); Slovenia, Bohinj, Slap Savica, 800 m, 30.VII. 1973, A. E. Stubbs (1 f BMNH); Slovenia, Bohinj, Riocev Laz, 530 m, 27.VII.—6.VIII. 1973, A. E. Stubbs (1 f BMNH). — Bulgaria: W. of Velingrad, dry forested hillside above narrow stream, 10.VI. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (2 ff BMNH); Nr. Jakoruda, rank veg. by stream, 9.VI. 1969, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 f BMNH); H. B. voda, 26.VI. 1982, D. Bechev (1 m coll. Bechev). — Roumania: Olténie, Vallée du Motru-sec, 17.X. 1968, 19.X. 1968, L. Matile (3 mm 27 ff MNHN); Olténie, Forêt de Măgura, 15.X. 1968, L. Matile (1 m 9 ff MNHN); Olténie, Vallée Calului, 15.X. 1968, L. Matile (4 mm 10 ff MNHN); Olténie, Vallée Lupşa, 16.X. 1968, L. Matile (5 mm 26 ff MNHN); Olténie, Vallée Izvorelelor, 18.X. 1968, L. Matile (10 ff MNHN); Mehadia, 24.VI. 1912 (1 m ISU); same locality, 13.VI. 1912 (1 f ISU); Cibinului Mts., nr. Rasinari, 24.VI. 1969, by streams, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (4 mm 2 ff BMNH); Retezatului Mts., above Hobita, c. 2,500′, boggy slopes and woods, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (1 m 1 f BMNH). — Czechoslovakia: Bohemia, Malšice u Tábora, 9.VII. 1960, P. Laštovka (8 mm 4 ff VUPP); Boh., Horské Kvilda, 26.VII. 1961, 27.VII. 1961, Laštovka (2 mm 1 f VUPP); Boh. c., Méchenice, 24.VI. 1966, P. Laštovka (1 m VUPP); Boh. c., Vrané, 27.IX. 1959, Laštovka (2 mm VUPP); same locality, 12.V. 1969, P. Laštovka (5 mm 2 ff VUPP); Boh. c., Komořany, 19.IX. 1960, P. Laštovka (1 m VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (8 mm 2 ff VUPP); Boh. or., Potštejn, 19.VII. 1967, 22.VII. 1967, 26.VII. 1967, P. Laštovka (4 mm 1 f VUPP); same locality, pr. Hradec, 9.VII. 1968, P. Laštovka (6 mm 7 ff VUPP); Vihorlat, Sninský Kamen, 25.V. 1969, P. Laštovka (1 f VUPP); same locality, 25.VI. 1966, P. Laštovka (3 mm 2 ff VUPP); same locality, 300 m/m, 24.V. 1966, P. Laštovka (1 f VUPP); Slov., Remetské Hamre, 2.VI. 1963, Laštovka (3 mm 1 f VUPP); Slanské p. 450 m/m, Cábov, 29.VI. 1966, P. Laštovka (2 mm VUPP); same locality, Druhov, p. 350 m/m, 29.VI. 1966, P. Laštovka (4 mm VUPP); Umg. Brünn, K. Landrock (1 f WIEN); Mähren, Brünn, K. Landrock (1 m WIEN); Mor., Jeseniky Mts., nr. Bruntal, Moravice, 21.VI. 1973, S. J. Chambers & A. M. Hutson (1 m BMNH); Adamstal, 13.V. 1911, K. Landrock (1 m WIEN); Bilowitz, 13.V. 1911, K. Landrock (1 m WIEN). — Poland: Puczcza Bialowieska Park Narod., kw. 340, grond niski, 7.X. 1966, W. Mikolajczyk (1 f WARS); same locality, kw. 283, grąd niski, 28.VIII. 1963, W. Mikolajczyk (1 ?f WARS); same data, 1.IX. 1962 (1 f WARS); ? Poland, coll. Dziedzicki (1 m WIEN); Ziegenhals, 3.VI. (1 m MNB). — GDR: Berlin, Warusee, VI. 1898 (1 m ISU); Schildhorn, V. 1898 (1 f ISU); Harz, 10.VI. 1877, Kowarz (1 m LEN). — FRG: Coll. Oldenberg, IX. 1918 (1 m BONN): Dachau, 13.IX. 1912, C. F. Adams (2 mm PU); Allgäu, Wengen, b. Hinterstein, 7.VIII. 1912, C. F. Adams (1 m PU); Franken, Langwasser, 7.III. 1977, H. Plachter (1 m No. 9202 ZSM); Germania (1 m WIEN); (?) Dohnau, 21.VIII. (1 m MNB); Rheinland, Pflaz, Vallée de la Wisper, 25.VII. 1971, D. & L. Matile (2 mm 4 ff MNHN). — Netherlands: (?) Uit *Sparassis crispa* if Loo, X. 1923, de M. (14 mm 21 ff AMST); 20.VII. 1918, de Meijere (1 m AMST); (?) Uilner Zuin, de M. (1 m AMST); Zeist, IV. 1889, de M. (1 m AMST); without data (6 mm 4 ff 4 pupae AMST); Denekamp, 18.V. 1918, de Meijere (1 f AMST); Velzen, 30.V. 1918, de Meijere

(1 f AMST); Lirschoten, 3.VI. 1920, de Meijere (1 f AMST); Valkenburg, 26.VII. 1923, de Meijere (1 f AMST); Hilversum, 15.IV. 1911, de Meijere (1 m AMST); same data, 28.V. 1907 (1 f AMST); 8.VI. 1903, de M. (1 f AMST). — UK: Warwickshire, Knavehill Wood, larva living in threads on *Sebacina* sp., 1.IX. 1969, R. Ewans (1 f BMNH); Surrey, Wisley, from *Sparassis crispa,* XI. 1954, P. A. Buxton (2 mm 2 ff BMNH); Bucks., Gerrard's Cross, larva in web under *Stereum purpureum,* I. 1954, P. A. Buxton (3 mm 5 ff BMNH); same locality, from *Stereum hirsutum,* III. 1951, P. A. Buxton (2 mm BMNH); Wyre Forest, 14.IX. 1922, F. W. Edwards (1 f BMNH); N. Lancs., Holker Moss, 11—13.VII. 1923, F. W. Edwards (1 f BMNH); New Forest, II. 1904, D. Sharp (1 m BMNH); same locality, 3.IV. 1898, 19.V. 1900, 28.IX. 1900, 30.X. 1908, F. C. Adams (4 ff BMNH); Sussex, Three Bridges, 2.VIII. 1888, G. H. Verrall (1 ?f BMNH); Kent, Hothfield Bog, 17.X. 1970, R. I. Vane-Wright (1 m BMNH); Herts., Felden, 19.XI. 1894, 1.XII. 1894, A. Piffard (2 ff BMNH); Cornwall, Sheviock, 12.IX. 1912, Yerbury, Middx., Northwood, in house, 9.II. 1931, E. E. Austen (1 m BMNH); Snailbeach, Salop., 8.V. 1921, F. W. Edwards (1 m BMNH); Cambs., Shepheth, II. 1918, larvae fungus *Auricularia mesenterica,* F. W. Edwards (1 f BMNH); Cambs., Shepreth, II. 1918, F. W. Edwards (1 ?f BMNH); Cambs., Royston, II. 1918, F. W. Edwards (3 mm BMNH); Berkshire, Bagley Wd., 9.VI. 1962, K. G. V. Smith (1 f BMNH); same locality, 8.VII. 1962, M. Ackland (1 f BMNH); Dorset, Chesil Beach, 12.IX. 1968, R. I. Vane-Wright (1 m BMNH); Bettws y Coed, Carnarvon, 16.VI. 1887, G. H. Verrall (1 f BMNH); Eigg Is., Cleadale, 28.V. 1970, A. M. Hutson (1 m BMNH); Scillies, Tresco, 6.X. 1970, A. M. Hutson (4 mm 1 f BMNH); Llangammarch, Wells, Brecknock, 23.VII. 1913, Yerbury (2 mm BMNH); Arran, Sannox, 26—28.V. 1919, F. W. Edwards (1 m BMNH); Inverness, Aviemore, 1.VI. 1913, Yerbury (1 f BMNH); Aberdeenshire, Balmoral Forest, 24.VI.—13.VII. 1951, R. L. Coe (1 f BMNH). — Denmark: Rudstrup Skov, 25.XI. 1934, P. Nielsen (3 mm 8 ff COPEN); V. Högilt, 28.IX. 1930, P. Nielsen (1 m COPEN); same locality, 3.VII. 1929 (1 m COPEN); same locality, 6.V. 1934 (1 f COPEN); Silkeborg, 13.V. 1930, 2.VIII. 1944, P. Nielsen (1 m 1 ?f COPEN); same locality, 16.IV. 1919, 4.XII. 1932, 2.VI. 1947 (3 ff COPEN); same locality, Gjessó, 21.VIII. 1943, P. Nielsen (1 m COPEN); same locality, Balle, 30.V. 1915, (1 f COPEN); same locality, Ródebak, 24.III. 1935 (1 f COPEN); Skamling, 16.VI. 1919, P. Nielsen (1 m 1 f COPEN); Velling Skov, 12.X. 1930 (1 f COPEN); Dannerhøj, 14.VIII. 1916 (1 f COPEN). — Norway: HOy., Os, Lundatrae, IX—X. 1975, T. Andersen (1 m coll. Andersen); HOi., Ullensvang, Hovland, 21—30.X. 1977 T. Andersen (1 m coll. Andersen). — Sweden: Sk., Hälsingborg, 3.VIII. 1922, 7.VIII. 1922, O. Ringdahl (2 mm LUND); same data, IX.1920 (1 f LUND); Sk., Kullaberg, 5.VIII. 1969, H. Andersson (1 ?f coll. Andersson); same locality, Kärr v. Hj.-h., 8.VII. 1967, H. A. (1 f coll. Andersson); Sk., Åkarp, Dammen, 23.VIII. 1951, S. Berdén (2 mm LUND); Sk., Åsbo F., 16.VII. 1921, O. Ringdahl (1 f LUND); Hall., Enslöv, Årnilt, 13.V. 1972, H. Andersson (1 m 1 f coll. Andersson); Sm., Traryd, Axhult (fälla) VIII. 1951, G. Olsson (1 m 1 f LUND); Gästr., Torsåker, 3.VII. 1945, P. A-n (1 f LUND). — Finland: *Al:* Lemland, Flaka, 7.VI. 1962, 9.VI. 1962, 12.VI. 1962, R. Tuomikoski (3 mm MZH); Geta, Bolstaholm, 6.VI. 1965, K. Mikkola (1 m MZH); *Ab:* Kuustö (Kaarina, Kuusisto), Lundström (1 f *"S. notabilis"* BMNH, 1 m MZH); Bromarv, Framnäs, 12.VI. 1966, 24.VII. 1966, K. Mikkola (12 mm MZH); Vihti, Vihtijärvi, 19—20.VI. 1959, 8.VII. 1962, 26.VII. 1962, 22.VIII. 1962, 8.VI. 1963, 9.VI. 1963, 23.VI. 1963, 29.VI. 1963, 8.VII. 1963, 15.VIII. 1963, 27.VIII. 1963, 30.VII. 1964, R. Tuomikoski (18 mm MZH); Vihti, R. Frey (1 m MZH); Tenhola, Skogby bruk, 26.VIII. 1965, R. Tuomikoski (1 m MZH); *N:* Snappertuna, 10.VI. 1962, O. Ranin (1 m MZH); Tvärminne, 22.V. 1935, R. Storå (1 m MZH); Sjundeå (Siuntio), 26.V. 1963, W. Hackman (3 mm MZH); Esbo (Espoo), 23.VI. 1962, 6.VII. 1962, W. Hackman (2 mm MZH); Esbo, Småholmen, 14.VIII. 1962, 20.VIII. 1962, W. Hackman (2 mm MZH); Esbo, Kolmperä, 19.V. 1963, 5.VI. 1964, 13.VI. 1965, 18.IX. 1965, W. Hackman (4 mm MZH); same locality, 4.VII. 1967, Mihályi (2 ff TMB); Espoo, Bodom, 3.IX. 1963, R. Tuomikoski (1 m MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (1 m MZH); Åggelby (Oulunkylä), 22.V. 1962, W. Hackman (1 m MZH); Pyhtää, Kiviniemi, 11.IX. 1977, R. Väisänen (1 f MZH); same locality, 15.VIII. 1981, R. Väisänen (3 ff MZH); *Ka:* Vehkalahti, 20.V. 1971, 4.VIII. 1971, 9.X. 1971, 1.VI. 1973, L. Tiensuu (4 mm MZH); Virolahti, 27.V. 1973, L. Tiensuu (1 f MZH); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (2 ff MZH); Punkaharju, Punkasalmi, 30.VI. 1963, W. Hackman (1 m MZH); *Kb:* Kitee, Papinniemi, 26.VI. 1963, W. Hackman (1 m MZH). — USSR: Kurl., Kalwen, 23.V. 1935, L. (1 m *"decorosa"* MNB); Kur., Paplaken, 20.V. 1932, L. (1 m *"marginata"* MNB); Estonian SSR, Lahemaa, Nömmeveski, 7.VII. 1982, K. Mikkola (1 f MZH); Leningrad. o., Luzhsk., Tolmachevo, 30.IX. 1938, Stackelberg (1 m LEN); Leningrad, Udel'naya, 13.X. 1940, Chernovekij (1 m LEN). — Iran: Gorgan, Forêt de Golestan, 23.VI. 1965, L. Matile (1 m MNHN); Assalem, forêt, 3.VII. 1965, L. Matile (1 m MNHN).

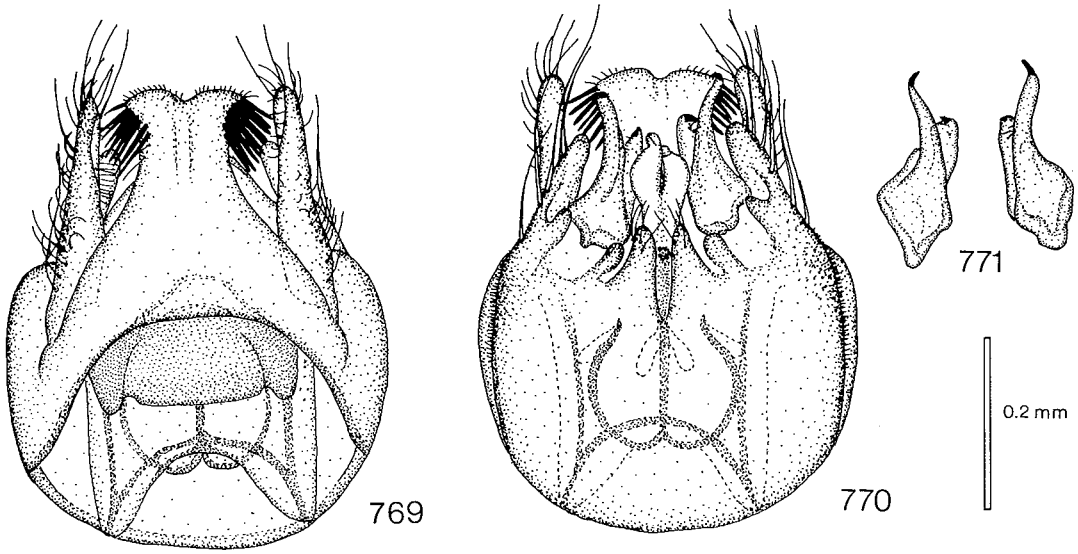
Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere almost 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4—6 longer setae. Mesoscutum yellow, with 3 distinct dark brown longitudinal stripes, middle stripe with narrow yellow medial line. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half brownish. Scutellum yellow, with 4 long setae. Laterotergite yellowish to brownish, ventral part brownish. Mediotergite yellowish to brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with 10—15 comparatively strong anteromedial setae in vertical row. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00—1.13, bt2:t2 = 0.75—0.77, bt3:t3 = 0.60—0.65.

Wing. Wing length 4.0—6.5 mm. Wing usually with apex and small cell weakly but more or less distinctly infuscate, sometimes wing hyaline without markings. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly distally — slightly proximally to middle of small cell. Apical part of Sc bearing 7—18 macrotrichia. Small cell 1—2 times as long as wide. Cu fork



Figs. 769—771. *Mycomya rebellicosa.* — 769: male hypopygium, tergal view. — 770: hypopygium, sternal view. — 771: gonostyli. Scale 0.2 mm.

proximal to M fork. M ratios: 0.51—0.64, 0.68—0.86. Cu ratios: 0.57—0.59, 0.70—0.84. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with broad yellow lateral and posterior margins, or yellow with brown anteromedial spots, 6—7 brown. Sternites 1—5 yellow, 6—7 light brownish to brown.

Hypopygium. Figs. 762—763, brownish to yellowish. Processus comparatively long and broad, usually dark. Tergal lateral appendage comparatively long. Sternal lateral appendage comparatively long, with a few apical setae. Sternal submedian appendage short, with some small setae. Gonostylus with 2 branches, lateral branch distinctly longer than medial one, both with 1 apical tooth. Aedeagus long, slender, apically bilobed.

Female. Wing length 5.0—7.2 mm. Abdominal tergites brown with wide yellow posterior margins, sometimes with brown area dorsomedially extending posteriorly, markings usually very distinct. Leg ratios: bt1:t1 = 1.00—1.15, bt2:t2 = 0.73—0.83, bt3:t3 = 0.60—0.64. Terminalia as in Figs. 764—766, yellow.

Larva. Figs. 57, 767—768. Described by Keilin (1919: Pl. III: Figs. 7—10), in detail by Madvar (1937:52—54, Figs. 161—168) and by Plachter (1979b:282, Fig. 7). Length 12 mm (Plachter), 16—18 mm (Madvar). Diameter of body about 0.95 mm (Plachter). Head capsule bright yellow to ochre, margins of mandible and maxilla brown. Intestine gives larva yellowish to reddish brown coloration.

Pupa. Yellowish to light brownish. Length 5.8—6.7 mm.

Distribution: Palaearctic. Spain, France, Corse, Italy, Switzerland, Austria, Hungary, Yugoslavia, Bulgaria, Roumania, Czechoslovakia, Poland, GDR, Federal Republic of Germany, Netherlands, United Kingdom, Denmark, Norway, Sweden, Finland. USSR: Latvian SSR, Leningrad region. Asia: Iran. Also reported from Ireland (Chandler 1976), Lithuanian SSR (Czwalina 1893), Estonian SSR (Lackschewitz 1937), Georgian SSR (Joost & Plassmann 1979). West Siberia (Ostroverchova & Izotov 1974) and Soviet Far East (Ostroverchova 1979).

Biology: This species has been reared on *Sebacina* sp., *Auricularia mesenterica* (S. F. Gray) Pers., *Stereum hirsutum* (Fr.) S. F. Gray, *Chondrostereum purpureum* (Fr.) Pouz., *Sparassis crispa* (Fr.) Fr., *Phlebia radiata* Fr., *Merulius tremellosus* Fr., ? *Antrodia sinuosa* (Fr.) Karst., *Trametes versicolor* (Fr.) Pil. and on fungoid wood (Edwards 1925a, Madvar 1937, Parmenter 1953, Buxton 1960, Plachter 1979b, Hutson et al. 1980). According to Parmenter (1953), the larvae fed by scraping the upper part of the fungus *(Merulius)* and left a trail formed by a viscous thread issuing from the mouth as they retreated. They worked under a network of these jelly-like threads. They pupated in a light brown pupal case, under the cover of a dead leaf drawn over the fungus and tied down with threads. The larval web has been described by Plachter (1979a:183, Fig. 5). The larvae were found on 9 November by Parmenter and pupation took place about a month later (7 December). The pupal stage lasted about one week (up to 13 December).

Mycomya rebellicosa n. sp.

Figs. 769—771, key p. 33.

Type locality: New Hampshire, Mount Lafayette (USA).

Type: Holotype (studied): Summit of Mt. Lafayette July 17. Collection C. V. Riley (m USNM).

Material examined: USA: Holotype (USNM).

Description:

Head. Palp and other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

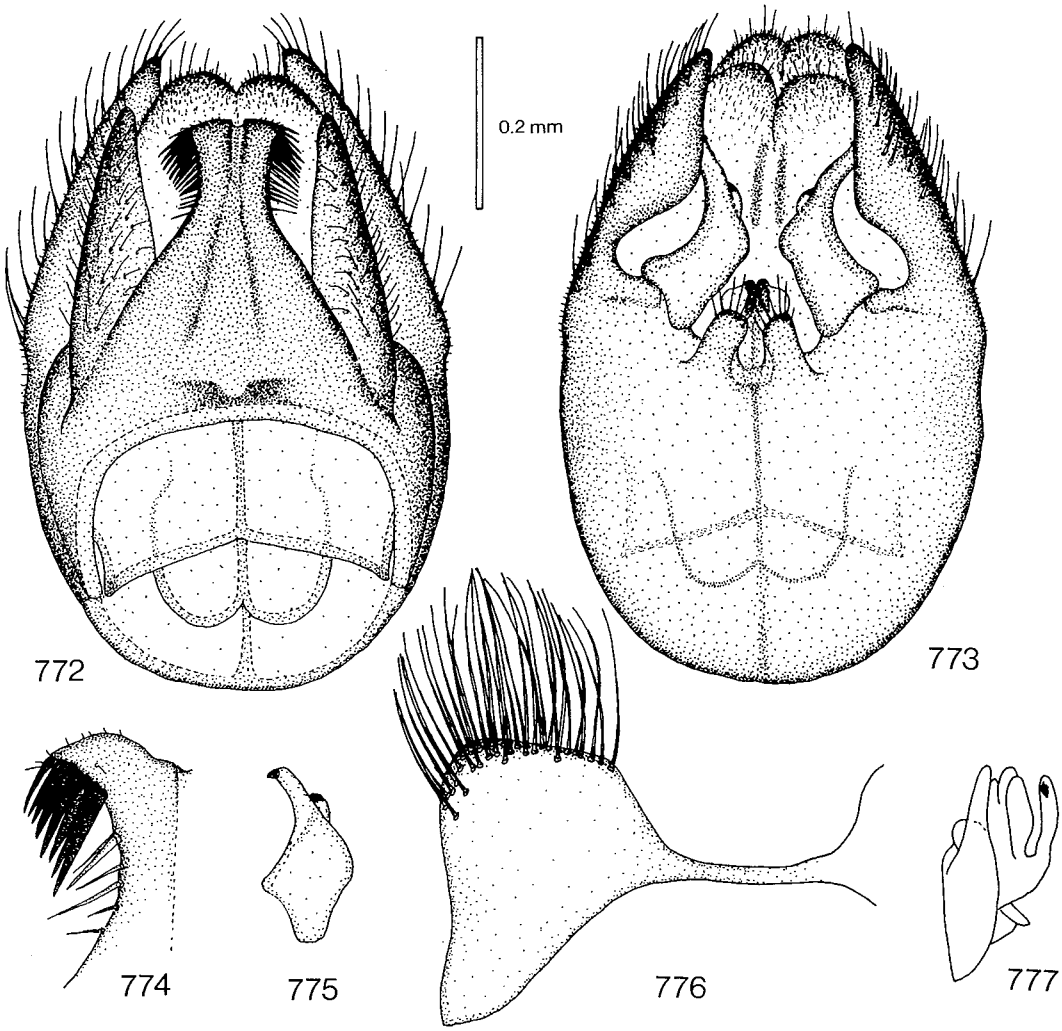
Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow, with 3 brownish longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum light brownish. Mesokatepisternum light brownish, ventral part brownish. Scutellum yellow with 4 long setae. Laterotergite light brownish, ventral part brownish. Mediotergite light brownish, lateral and posterior parts brownish, bare.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with vertical comb of 11—14 comparatively long and strong setae anteromedially near apex. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.10, bt2:t2 = 0.75, bt3:t3 = 0.66.

Wing. Wing length 4.9 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near or slightly distally to middle of small cell. Apical part of Sc bearing 10—12 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to M fork. M ratios: 0.60, 0.75. Cu ratios: 0.61, 0.83. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish, with yellow posterior margins, 6—7 brownish. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 769—771, brownish. Processus long, wide. Tergal lateral appendage slightly longer than processus. Sternal lateral appendage shorter than gonostylus, with several long curved setae. Sternal submedian



Figs. 772—777. *Mycomya punctata*. — 772: male hypopygium, tergal view. — 773: hypopygium, sternal view. — 774: apex of processus. — 775: gonostylus. — 776: tergite 8. — 777: schematic structure of hypopygium, lateral view. Scale 0.2 mm for Figs. 772—773 and 775—776, Fig. 774 2 x enlarged.

appendage short, comparatively narrow, with some small setae. Gonostylus with 2 branches, lateral branch longer, both with apical tooth.

Female. Unknown.

Distribution: Eastern Nearctic. Known only from the holotype from Mt. Lafayette, New Hampshire.

Biology: Unknown.

Mycomya punctata (Meigen, 1804)

Figs. 772—777, key p. 33.

Platyura punctata Meigen, 1804. Meigen 1804:101.

Asindulum punctatum: Latreille 1809:261.

Sciophila punctata: Meigen 1818:248; Kertész 1902:63, 1903:34; Lundström 1907:8, 1909:9, 1914:11.

(?) *Sciophila punctata:* Macquart 1834:137; Gimmerthal 1846:55; Walker 1856:40; Winnertz 1863:714; Schiner 1864:442; van der Wulp 1877:167; Strobl 1880:45; Girschner 1883:204; Strobl 1895:142; Strobl 1901:11, 1909:241; Kuntze 1913:544; Morge 1974:171.

(not) *Sciophila punctata:* Dziedzicki 1885: Tab. IX: Figs. 6—7, 1915:8 (= *M. marginata* (Meigen)).

Mycomya punctata: Landrock 1913:24; Hutson in Kloet & Hincks 1976:24; Matile 1977:633 (Syn. *Sciophila unimaculata* Macquart); Väisänen in Hackman 1980:31; Hutson et al. 1980:43; Väisänen 1982b:41.

Mycomyia punctata: Edwards 1925a:549 (as syn. for *M. marginata* (Meigen)), 1941:25 (re-established status); Coe in Kloet & Hincks 1945:345.

(?) *Mycomyia punctata:* Landrock 1925a:34; Ostroverchova & Stackelberg 1969:274; Plassmann 1977b:9, 1980b:19.

(p. p.) *Mycomyia punctata:* Séguy 1940:77 (Syn. *Sciophila marginata* Meigen, *Sciophila unimaculata* Macquart) (p. p. = *M. marginata* (Meigen)).

Sciophila unimaculata Macquart, 1826. Macquart 1826:99, 1834:137; Meigen 1838:41; Perris 1849:341; Kertész 1902:64, 1903:35

Mycomyia marginata: Landrock 1926—1927:48.

Type locality: Not stated (Federal Republic of Germany).

Types: — *Platyura punctata* Meigen: Holotype not located, apparently destroyed: f, taken in June. — *Sciophila unimaculata* Macquart: Type not located, apparently destroyed. Type locality: Not stated (Northern France).

Remarks: Many references to *Sciophila punctata* and *Mycomya punctata* evidently concern *M. marginata* (Meigen), which is a much more common species. I have here accepted Edwards' (1941) opinion on the identity of *M. punctata* (see also *M. marginata*, p. 000).

Material examined: France: Col de Porte, (Isère), alt. 1300 m, 26.VI. 1970, L. Matile (5 mm MNHN). — Switzerland: Canton of Vaud, Jorat, 24.V. 1950, F. Schmid (2 mm ISU); (Grisons), Lenzerheide-Dieschen, 1550—1600 m, Rèsineux, 9.VI. 1976, L. Matile (1 m MNHN). — Czechoslovakia: Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (5 mm VUPP); Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (1 m VUPP). — UK: Glasgow, 3 mile W, 30.VIII. 1921, J. J. F. X. King (1 m BMNH); Eiggs Is., Cleadale, by stream, road to source, 28.V. 1970, A. M. Hutson (2 mm BMNH). — Norway: Mattselva, 8.VII. 1964, R. Tuomikoski (1 m 1 ?f MZH). — Finland: *Ab:* Vihti, Vihtijärvi, 14.VII. 1962, R. Tuomikoski (1 m MZH); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH); *N:* Esbo (Espoo), Kolmperä, 4.VI. 1963, 21.VI. 1964, W. Hackman (2 mm MZH); same locality, 4.VII. 1967, Mihályi (1 m TMB); *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (2 mm MZH); *Ok:* Sotkamo, Aarreniemi, 19.VI. 1964, R. Tuomikoski (2 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 30.VI. 1964, R. Tuomikoski (2 mm MZH); *Ks:* Kuusamo, Kuusinkijoki, 25.VI. 1964, R. Tuomikoski (1 m MZH); *LkW:* Muonio, 4.VII. 1911, R. Frey (1 m MZH); *Li:* Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (1 m MZH).

Description:

Head. Palp, other mouthparts and face yellow to yellowish, posterior parts of head dark brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, with 3 brownish to dark brown longitudinal stripes, middle stripe with narrow medial yellow line. Mesanepisternum yellow. Mesokatepisternum entirely yellow or ventral half brownish. Scutellum yellow, with 4 long setae. Laterotergite entirely yellow or ventral part brownish. Mediotergite yellow, lateral and posterior parts brownish, bare.

Legs. Coxae yellow, coxa 3 with brownish lateral spot, femora yellow, tibiae and tarsi brownish. Coxa 1 with several long setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.02—1.10, bt2:t2 = 0.80—0.88, bt3:t3 = 0.64—0.73.

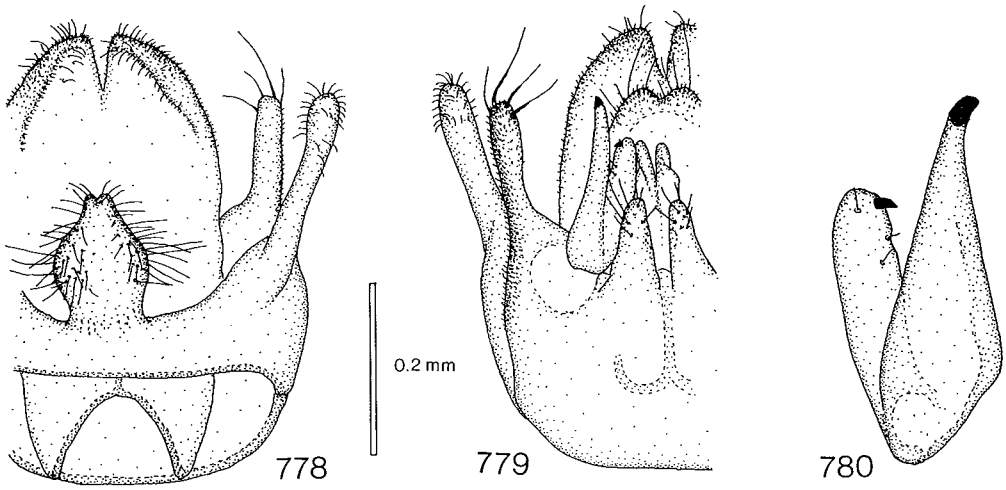
Wing. Wing length 5.0—6.3 mm. Wing hyaline. Sc ending in C slightly distally to middle of small cell, Sc2 ending in R1 slightly distally — slightly proximally to middle of small cell. Apical part of Sc bearing 11—20 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.52—0.67, 0.63—0.88. Cu ratios: 0.50—0.63, 0.70—0.90. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with lateral and posterior margins yellow, 6—7 brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 772—777, brown to yellowish. Processus long comparatively broad. Tergal lateral appendage broad about as long as processus. Sternal synsclerite very large. Sternal lateral appendage long, broad, setose. Sternal submedian appendage small with some small setae. Gonostylus with 2 branches, lateral branch longer, both with 1 apical tooth. Aedeagus comparatively long, apically bilobed.

(?) Female. Wing length ca. 5.8 mm. Abdominal tergites brown with posterior margins broadly yellow. Terminalia yellow.

Distribution: Western Palaearctic. France, Switzerland, Czechoslovakia, Federal Republic of Germany, United Kingdom, Norway, Finland. Also reported from Corse (Kuntze 1913, Matile 1977), Austria (Schiner 1864, Strobl 1895, 1901), the Netherlands (van der Wulp 1877, Landrock 1925), and Latvian SSR, but all these records probably concern *M. marginata*.



Figs. 778—780. *Mycomya livida*. — 778: male hypopygium, tergal view. — 779: hypopygium, sternal view. — 780: gonostylus. Scale 0.2 mm for Figs. 778—779, Fig. 780 2 x enlarged.

Biology: Perris (1849) gives notes on the biology of the larva of "*Sciophila unimaculata* Macq.".

Mycomya livida (Dziedzicki, 1885)

Figs. 778—780, key p. 33.

Sciophila livida Dziedzicki, 1885. Dziedzicki 1885:22; Kertész 1902:61, 1903:33.
Mycomya livida: Landrock 1913:32; Väisänen 1982b:40.
Mycomyia livida: Landrock 1926—1927:48, 1940:32; Kröber 1956:131.

Type locality: "Zaczernie" (Byelorussian SSR).
Type: Holotype (not located, apparently destroyed): m, taken in June.
Material examined: Czechoslovakia: Bilowitz (Bílovice nad Svitavou, distr. Brno), 2.VI. 1911, K. Landrock (1 m BRNO).

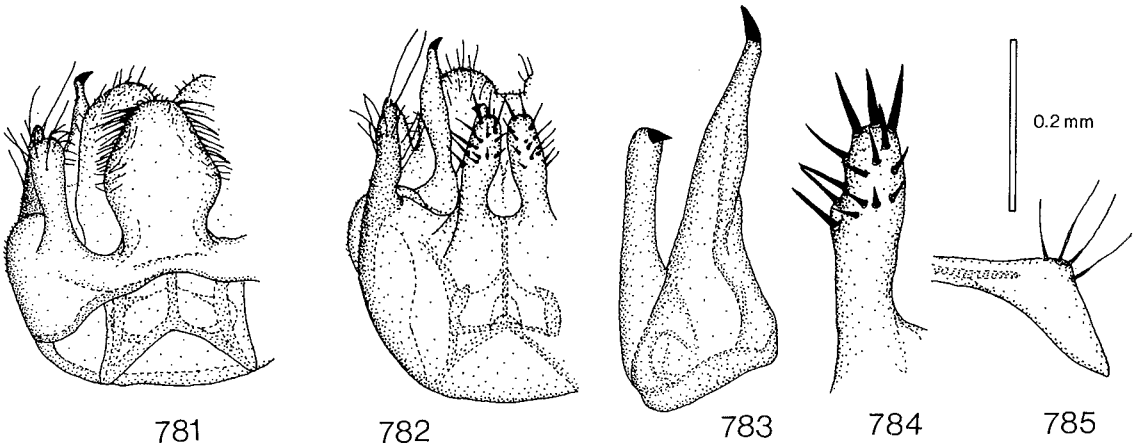
Description:
Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, 3 basal segments yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.
Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow to yellowish, with 3 brown longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part yellowish. Scutellum yellow, with 4 long setae. Laterotergite yellow, its ventral part yellowish. Mediotergite yellow, lateral and posterior parts yellowish. Mediotergite bare.
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with about 10 long setae forming brush anteromedially near apex. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.67, bt3:t3 = ?.
Wing. Wing length 4.1 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in C proximally to middle of small cell. Apical part of Sc bearing 10—12 macrotrichia. Small cell a little longer than its width. Cu fork proximal to M fork. M ratios: 0.59, 0.74. Cu ratios: 0.68, 1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Tergites 1—5 brownish, with posterior margins yellow, 6—7 brownish. Sternites yellow to yellowish.
Hypopygium. Figs. 778—780, yellow. Processus short, comparatively wide, with tapered apex. Tergal lateral appendage long, slender. Sternal lateral appendage long, with some long setae. Sternal submedian appendage comparatively long, slender, with some small setae. Gonostylus with 2 branches, lateral branch much longer than medial one, with 1 apical tooth, medial branch with 1 subapical tooth. Aedeagus comparatively long, slender, apically bilobed.
Female. Unknown.

Distribution: Western Palaearctic. Czechoslovakia. USSR: Byelorussian SSR. Also reported from Federal Republic of Germany (Kröber 1956; also included in Landrock's "Tierwalt Deutschlands 38", 1940).
Biology: Unknown.

Mycomya lividella n. sp.

Figs. 781—785, key p. 34.

Type locality: Manitoba, Fort Churchill (Canada).
Type: Holotype (studied): Fort Churchill, Man. 21.VIII. 1952, J. G. Chillcott. Ecological data f-E 21. (m CNC).
Material examined: Canada: Holotype (CNC).



Figs. 781—785. *Mycomya lividella.* — 781: male hypopygium, tergal view. — 782: hypopygium, sternal view. — 783: gonostylus. — 784: sternal submedian appendage. — 785: tergite 8. Scale 0.2 mm for Figs. 781—782 and 785, Figs. 783—784 2 x enlarged.

Description:

Head. Palp and other mouthparts yellow, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 brownish, partially, and posteriorly entirely, fused, longitudinal stripes, middle stripe with narrow yellow medial band. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum yellowish, with 4 long setae. Laterotergite brownish. Mediotergite brownish, bare.

Legs. Coxae yellow, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.89, bt2:t2 = 0.70, bt3:t3 = 0.60.

Wing. Wing length 4.2 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 9—10 macrotrichia. Small cell slightly longer than its width. Cu fork proximal to M fork. M ratios: 0.74, 0.91. Cu ratios: 0.61, 0.88. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with posterior margins narrowly yellowish, 6—7 brown. Sternites 1—5 brown with yellowish posterior margins, 6—7 brown.

Hypopygium. Figs. 781—785, yellow. Processus wide long. Tergal lateral appendage slightly shorter than processus. Sternal lateral appendage comparatively short, slender, with some setae. Sternal submedian appendage with some strong spines. Gonostylus with 2 branches, lateral branch much longer than medial one, both with apical tooth.

Female. Unknown.

Distribution: Nearctic. Known only from the holotype from Manitoba, Canada.

Biology: Unknown.

Mycomya humida Garrett, 1924

Figs. 786—791, key p. 34.

Mycomya humidus Garrett, 1924. Garrett 1924:62.

Mycomyia humida: Coher 1959:123.

Mycomya humida: Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia curvata Fisher, 1937 (New synon.). Fisher 1937:395; Coher 1959:119.

Mycomya curvata: Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:220; Cole 1969:121; Väisänen in Hackman 1980:31; Väisänen 1982b:38.

Mycomyia frigida Plassmann, 1978 (New synon.). Plassmann 1978b:207, 1980a:178.

Mycomya frigida: Väisänen 1982b:39.

Mycomyia corcyrensis: Plassmann 1979:373.

Type locality: British Columbia, Michel, Wilson Creek (Canada).

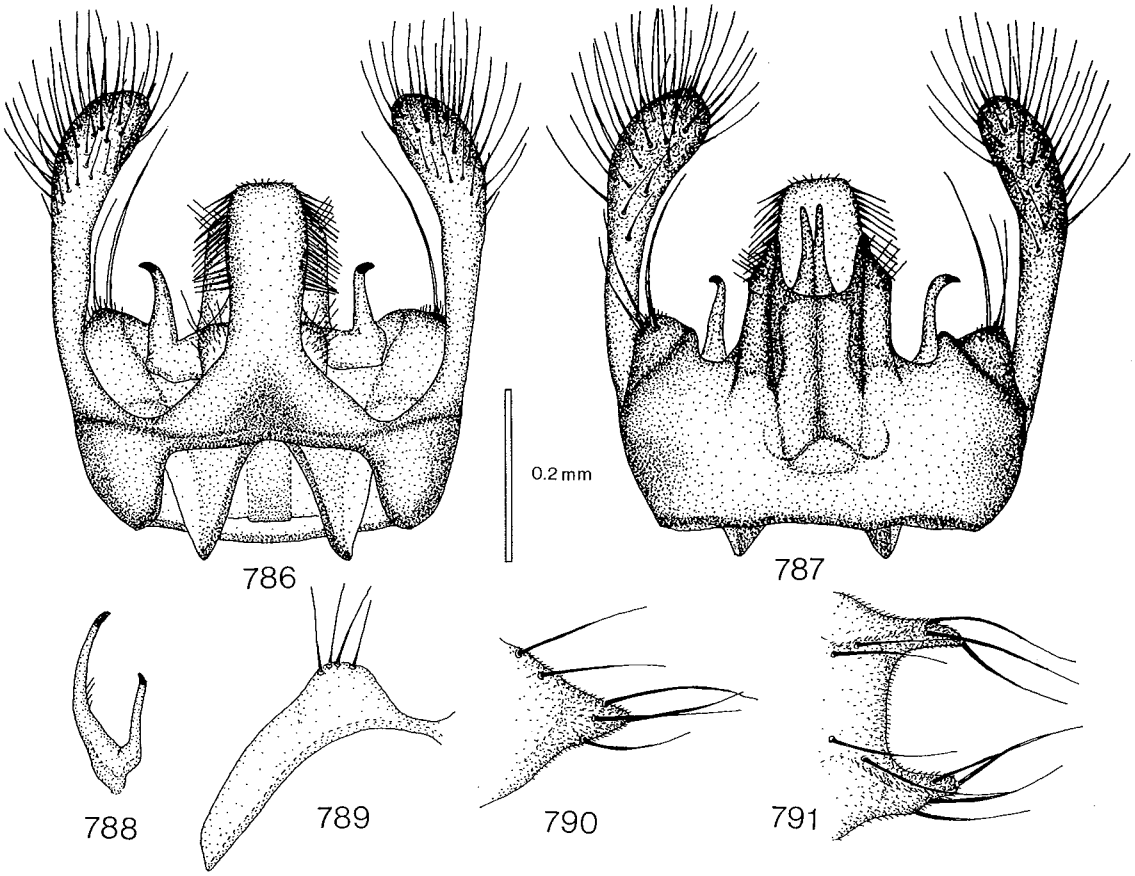
Types: — *Mycomya humida* Garrett: Holotype (studied): Michel 5200 ft 24. IX BC. Wilson N Park Creek. C. Garrett Collector. 4961 hypo. Holotype *Mycomya humidus* C Garrett C. B. D. Garrett. + hypop. slide: *Mycomyia humidus.* C. Garrett Canada BC Michel Wilson Crk. 5.200 ft. 24/IX. hypo ♂ 49—61. (m CNC). — *Mycomya curvata* Fisher: Holotype (studied): Holotype Cornell U. No. 1414 *Mycomyia curvata* Fisher Beaver Lake Jasper Alberta Aug. 15 1934. Holotype Cornell U. no. 1414. (m CORN). Type locality: Alberta, Beaver Lake near Jasper (Canada). — *Mycomya frigida* Plassmann: Holotype (studied): M: Senckenberg-Mus. 9701 Frankfurt/M. *Mycomyia frigida* Plassmann Holotypus S-Messaure, Kaltisjokk 4.—8.9.1969 Slg. W. Tobias. 9701. + hypop. prep.: 9701. Holotypus. *Mycomyia frigida* Plassmann. (m SENCK). Type locality: "Schwedisch-Lappland, Kaltisjokk" (Sweden).

Material examined: Sweden: Nb., Råneå, Högsön, blandskog, 30.VIII. 1965, H. Andersson (1 m coll. Andersson); Messaure, Kaltisjokk, 4—8.IX. 1969 *(M.*

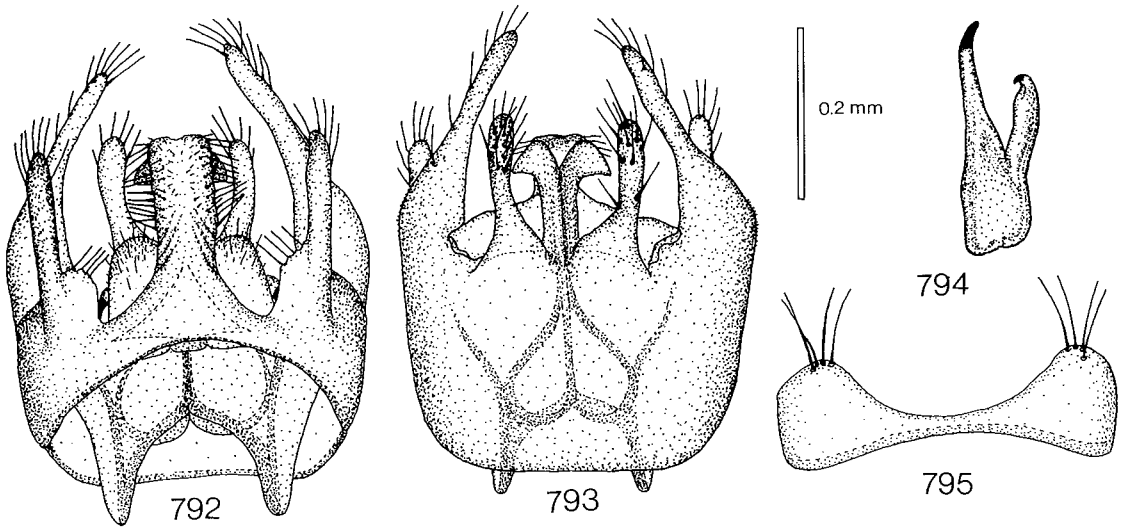
frigida holotype SENCK); same locality, 1969 (1 m No. 4771 "*M. corcyrensis*" SENCK). — Finland: *Ok:* Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (3 mm MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (9 mm MZH). — USSR: m. M. Ural i oz. Varcha-ty, Obdor, 31.VIII. 1925, Fridolin (1 m "*M.* divaricata" LEN). — Canada: Y. T., Whitehorse, 23.VIII. 1959, R. Madge (1 m CNC); N. W. T., Salmita Mines, 64°05'N, 111°15'W, 16.VIII. 1953, J. G. Chillcott (1 m CNC); B. C., Terrace, Mt. Thornhill, 8.VIII. 1960, C. H. Mann (1 f CNC); same data, 1500 feet (1 m 1 f CNC); same data, 2000' (1 m 1 f CNC); same locality, 1500'—2000', second growth hemlock forest, 8.VIII. 1960, B. Heming (5 mm 1 f CNC); same data, along trail in hemlock forest, 2500' (1 m 2 ff CNC); same data, open clearings in hemlock fir, treeline 3500' (1 m CNC); same data, 3000'—4000'(2 mm 1 f CNC); same data, 700'(1 f CNC); same locality, 26.VII. 1960, C. H. Mann (1 m CNC); same data, elev. 2000', ex wet hollow along trail (1 f CNC); B. C., Glacier Cr., 10 mi. N. Terrace, 7.VII. 1960, B. S. Heming (1 ?f CNC); B. C., Michel, Wilson Creek, 5200 ft., 24.IX., C. Garrett (*M. humida* holotype, 1 f paratype CNC); B. C., Procter, 26.VIII., C. Garrett (1 m hypop. slide No. 25.90 USNM); B. C., Kimberly. St. Mary's Lake, 8000 ft., 24.VIII., C. Garrett (1 m hypop. slide No. 4952 USNM); Alberta, Jasper, Beaver Lake, 15.VIII. 1934, (*M. curvata* holotype CORN); Alberta, Jasper, Park (1 m hypop. slide No. 4829 USNM); Alta., Laggan, Lake Agnes, 6800 ft., 1.IX. 1925, O. Bryant (1 m CAS); Sask., Pr. Albert, RR Swamp, 14.IX. 1951, W. J. Turnock (1 m CNC); Man., Fort Churchill, 12.VIII. 1952, J. G. Chillcott (1 m CNC). — USA: Wash., Mt. Rainier Nat'l Park, 10.VIII. 1941, L. J. Lipovsky (1 m WASH); Mont., Yellowstone Park, Exp. Sta., 25.VIII. 1915, 8000 (?8200) ft., C. Garrett (1 m hypop. slide of *M. humida* paratype No. 4962 USNM); Mt. Washington, Slosson (1 m USNM).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.



Figs. 786—791. *Mycomya humida.* — 786: male hypopygium, tergal view. — 787: hypopygium, sternal view. — 788: gonostylus. — 789: tergite 8. — 790: hypogynal valve of female terminalia, lateral view. — 791: hypogynal valves, sternal view. Scale 0.2 mm.



Figs. 792—795. *Mycomya pseudocurvata.* — 792: male hypopygium, tergal view. — 793: hypopygium, sternal view. — 794: gonostylus. — 795: tergite 8. Scale 0.2 mm.

Thorax. Pronotum yellowish, with 3—4 longer setae. Mesoscutum yellowish to brownish, with 3 brown, more or less fused, indistinct longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum yellowish, with 2 long setae. Laterotergite brownish. Mediotergite brownish to brown, with 0—2 small setae. Sometimes thorax entirely brown.

Legs. Coxae yellow, coxa 2 sometimes with brownish lateral spot, coxa 3 with brownish lateral spot or lateral surface entirely brownish, femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.83—0.97, bt2:t2 = 0.66—0.91, bt3:t3 = 0.57—0.66.

Wing. Wing length 4.0—5.4 mm. Wing hyaline. Sc ending in C distally to middle of small cell, sometimes Sc1 apically weak or broken, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 1—17 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal to M fork. M ratios: 0.56—0.69, 0.67—0.92. Cu ratios: 0.58—0.76, 0.83—1.13. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish to brown or tergites 1—5 with narrow indistinct yellowish posterior margins. Sternites lighter than tergites.

Hypopygium. Figs. 786—789, yellowish. Processus long, relatively narrow. Tergal lateral appendage longer than processus. Sternal synsclerite with some setae on both sides. Sternal submedian appendage comparatively short, with several setae. Gonostylus with 2 slender branches, medial branch distinctly longer, both with 1 apical tooth.

Female. Wing length 4.0—5.2 mm. Abdominal tergites brownish with posterior thirds yellow. Leg ratios: bt1:t1 = 0.84—0.91, bt2:t2 = 0.71, bt3:t3 = 0.58. Terminalia as in Figs. 790—791, yellow.

Distribution: Holarctic. Sweden, Finland. USSR: Ural Mountains. Canada: Yukon Territory, North West Territories, British Columbia, Alberta, Saskatchewan, Manitoba. USA: Washington, Montana, New Hampshire. Also reported from Maine (Fisher 1937) and Wyoming (Coher 1959).

Biology: Some specimens collected with light (Plassmann 1980a) and air-suction traps (Plassmann 1979: *"M. corcyrensis"*). The collecting biotopes given are hemlock and mixed forests, in Finland spruce forests.

Mycomya pseudocurvata Väisänen, 1979

Figs. 792—795, key p. 34.

Mycomya pseudocurvata Väisänen, 1979. Väisänen 1979b:110, in Hackman 1980:31; Väisänen 1982b:40.

Type locality: Vihti, Vihtijärvi (Finland).

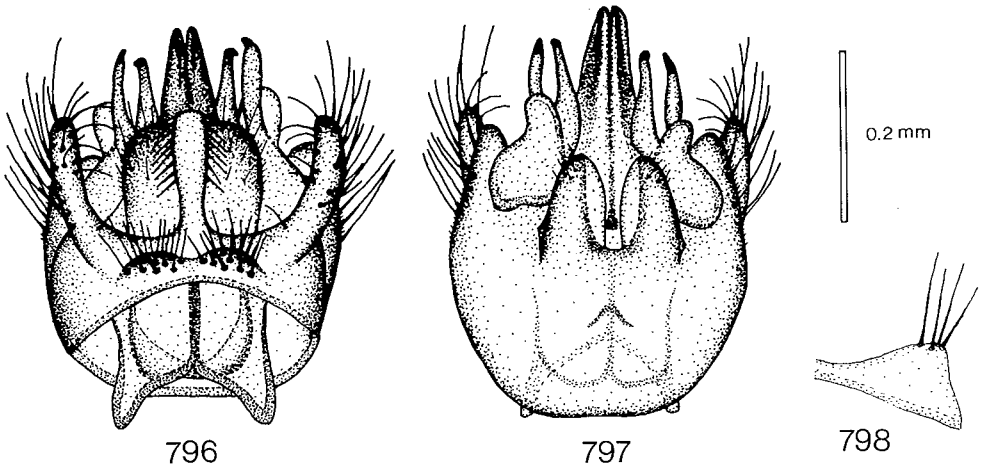
Type: Holotype (studied): Vihtijärvi 7.VII. 1962 R. Tuomikoski. Holotypus *Mycomya pseudocurvata* Väisänen ♂. Mus. Zool. H:fors Spec. typ. No 14337. (in MZH).

Material examined: Finland: Holotype (MZH).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna yellowish to light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellowish, with 3 indistinct light brownish longitudinal stripes. Mesanepisternum yellowish. Mesokatepisternum yellowish, ventral half light brownish. Scutellum yellowish, with 2 long setae. Laterotergite yellowish, ventral part light brownish. Mediotergite yellowish to light brownish, bare.



Figs. 796—798. *Mycomya occultans.* — 796: male hypopygium, tergal view. — 797: hypopygium, sternal view. — 798: tergite 8. Scale 0.2 mm.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with some comparatively long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 1.13, bt2:t2 = 0.82, bt3:t3 = 0.64.

Wing. Wing length 4.3 mm. Wing hyaline. Sc ending in C or Sc1 apically broken, Sc2 ending in R1 slightly proximally to middle of small cell. Apical part of Sc bearing 3—8 macrotrichia. Small cell about twice as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.67, 0.80. Cu ratios: 0.77, 1.08. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 light brownish, lateral and posterior margins yellow, 6—7 brownish. Sternites 1—5 yellow, 6—7 brownish.

Hypopygium. Figs. 792—795, yellow. Processus long, slender, with blunt apex. Tergal lateral appendage very slender about as long as processus. Sternal lateral appendage very slender with some small setae. Sternal submedian appendage long slender with some small setae. Gonostylus with 2 branches, lateral branch longer than medial one, both with 1 apical tooth. Aedeagus long, slender, with some small setae.

Female. Unknown.

Distribution: Western Palaearctic. Known only from the holotype from southern Finland.

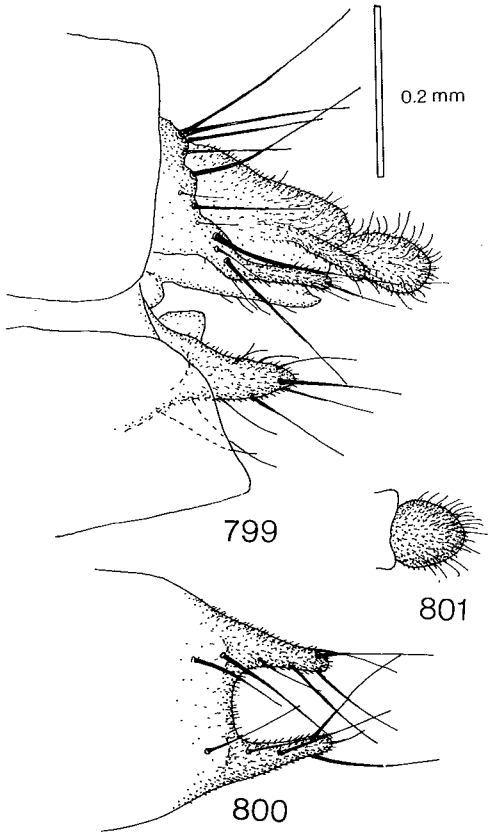
Biology: Unknown.

Mycomya occultans (Winnertz, 1863)

Figs. 58, 796—801, key p. 34, 41.

Sciophila occultans Winnertz, 1863: Winnertz 1863:719; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Dziedzicki 1885: Tab. VIII: Figs. 13—14; Kertész 1902:62, 1903:34; Dziedzicki 1915:8.

Mycomya occultans: Landrock 1913:25; Väisänen in Hackman 1980:31; Väisänen 1982b:40.



Figs. 799—801. *Mycomya occultans.* — 799: female terminalia, lateral view. — 800: hypogynal valves, sternal view. — 801: apical segment of cercus, sternal view. Scale 0.2 mm.

Mycomyia occultans: Landrock 1925a:34, 1926—1927:49, 1930:255, 1940:29; Eisfelder 1955:13; Kröber 1956:131; Sasakawa 1961:88; Ostroverchova & Stackelberg 1969:273; Ostroverchova & Izotov 1974:82; Plachter 1979a:187, 1979b:282, 1979c:432.

Sciophila corcyrensis Lundström, 1912 (New synon.). Lundström 1912b:515.

Mycomyia corcyrensis: Landrock 1926—1927:44.

Mycomya corcyrensis: Väisänen 1982b:38.

(not) *Mycomyia corcyrensis:* Plassmann 1979:373 (= *M. humida* Garrett).

Type locality: Not stated (Federal Republic of Germany).

Types: — *Sciophila occultans* Winnertz: ? Syntypes (not located, apparently destroyed): m. — *Sciophila corcyrensis* Lundström: Holotype (not located, originally in Mus. Hung., apparently destroyed): m, Corfu, leg. Paganetti. Type locality: Corfu (Greece).

Material examined: France: Forêt de Valbonne, (30), 21.IX. 1977, L. Matile (2 mm MNHN); Gorges du Tarn (48), Lesvignes, alt. 400 m, 14.IX. 1977, L. Matile (4 mm 2 ff MNHN); Gorges de la Dourbie, (12), alt. 400 m, 13.IX. 1977, L. Matile (1 m MNHN); St. Hilaire, (31), alt. 200 m, 28.VII. 1968, A. Thomas (1 m MNHN). — Switzerland: Basel, Insteiner Klotz, IX. 1975, A. Kobel-Voss (1 m No. 10239 ZSM). — Austria: Austr. sup., Linz, IX. 1866, Mik (1 m WIEN); Austr. sup., Hammern, IX. 1871, VII. 1873, Mik (2 mm WIEN); Spitz, VIII. 1892, IX. 1892, X. 1892, Bgst. (5 mm 1 f WIEN); Coll. Winthem (1 m 2 ff WIEN); Sievrng, 2.X. 1876 (1 m WIEN); Austr. inf., Hainfeld, 12.VII. 1892, Mik (1 m WIEN). — Hungary: Hejóbába, 16.IX. 1963, S. Tóth (1 m TMB); Budajenó, 21.IX. 1963, Horvatovich (1 ?f TMB). — Czechoslovakia: Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (1 m VUPP); Slov., Remetské Hamre, 2.VI. 1963, Laštovka (1 m VUPP). — Finland: *N:* Helsinki, Nordsjö (Vuosaari), 22.IX. 1963, R. Tuomikoski (1 m MZH); Ekenäs (Tammisaari), Hagen, kl. fr. *Inonotus radiatus*, 9.III. 1935, N. Malmström (1 ?f MZH); *Kb:* Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (1 m MZH). — USSR: Bialo-Rus., 6, 80, Coll. Dziedzicki (1 m MZH); Leningrad, Udel'kaya, 13.X. 1940, Stackelberg (1 m LEN); Far East, Primorye Terr., Lazo, Sokolchi, 15.VII. 1979, A. Zaitzev (1 m MOSC); Kuril Isls., Kunashir, 20.IX. 1976, A. Zaitzev (1 m V MOSC). — India: U. P., Mussoorie, elev. 5400 feet, 21.V. 1962, J. P. Donahue (3 mm MICH). — Japan: Hokkaido, 11.X. 1932, Okada (1 m SAPP); same locality, 2.VIII. 1931, 1.IX. 1932, 5.IX. 1932, 18.IX. 1932, Okada (4 ff SAPP); To-kyo, Mt. Takao, 27.I. 1935, S. Yamamoto (1 f SAPP).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd less than 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellow to yellowish, with 3 indistinct fused brownish longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow to light brownish. Mesokatepisternum yellow to light brownish, ventral half brownish. Scutellum yellowish, with 4 long setae. Laterotergite yellowish to light brownish, ventral part brownish. Mediotergite yellowish to brownish, bare. Sometimes thorax entirely light brownish without markings.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 with some long thin setae along anteromedial surface. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.97—1.00, bt2:t2 = 0.70—0.76, bt3:t3 = 0.57—0.61.

Wing. Wing length 3.3—5.0 mm. Wing hyaline or small cell infuscate. Sc ending in C distinctly distally to middle of small cell and distally to apex of R4, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 13—22 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.69—0.90, 0.86—1.14. Cu ratios: 0.56—0.71, 0.80—1.09. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish to brown with usually widely yellow lateral and posterior margins, 6—7 brown. Sternites yellow.

Hypopygium. Figs. 796—798, yellow. Processus long, slender. In front of processus two patches of long setae. Tergal lateral appendage long, slender. Sternal lateral appendage indistinct, short, with some setae. Sternal submedian appendage broad, short, with short setae. Gonostylus with 2 branches and membraneous lobe, both branches with 1 apical tooth. Aedeagus long slender apically bilobed.

Female. Wing length 4.2—5.9 mm. Abdominal tergites brownish to brown with posterior margins broadly yellow. Leg ratios: bt1:t1 = 1.00—1.13, bt2:t2 = 0.71—0.78, bt3:t3 = 0.63—0.65. Terminalia yellow, as in Figs. 799—801, yellow.

Larva. Described by Plachter (1979b:282). Length 10—11 mm. Diameter 0.73 mm.

Pupa. Fig. 58. Described by Plachter (1979c:432, Fig. 4). Length about 3 mm. Dark, ochraceous brown.

Distribution: Palaearctic. Greece, France, Switzerland, Federal Republic of Germany, Austria, Hungary, Czechoslovakia, Finland. USSR: Byelorussian SSR, Leningrad region, Far East: Primorye Territory, Kuril Islands. India: Uttar Pradesh. Japan. Also reported from the Netherlands (Landrock 1925), Poland (Nowicki 1873, Grzegorzek 1873), ? Lithuanian SSR (Landrock 1930) and West Siberia (Ostroverchova & Izotov 1974).

Biology: According to Winnertz (1863), the larva lives in *Daedalea quercina* Fr. and in leather-like *"Polyporus"* species, and pupates in the fungus. In Finland a female obviously belonging to this species has been reared on *Inonotus radiatus* (Fr.) Karst. Eisfelder (1955) lists *M. occultans* from *Lenzites betulina* (Fr.) Fr. and *Plicaturopsis crispa* (Fr.) Reid. (= *"Plicatura faginea")*. The larval web has been described by Plachter (1979a:187, Fig. 6).

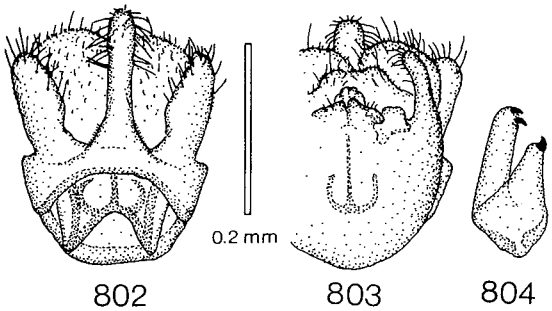
Mycomya pini n. sp.

Figs. 802—804, key p. 34.

Type locality: New York, Fulton County, one mile northwest Pine Lake (USA).

Type: Holotype (studied): 1 m nw. Pine Lake, Fulton Co., N. Y. 43°12'N, 74°32'W, 1600' Aug. 5, 1961, R. J. Gagné (m ISU).

Material examined: USA: N. Y., Fulton Co., 1 m.



Figs. 802—804. *Mycomya pini.* — 802: male hypopygium, tergal view. — 803: hypopygium, sternal view. — 804: gonostylus. Scale 0.2 mm for Figs. 802—803, Fig. 804 2 x enlarged.

nw. Pine Lake, 43°12'N, 74°32'W, 1600', 5.VIII. 1961, R. J. Gagné (holotype & 1 m ISU); N. Y., Hamilton Co., e. foot of West Notch Mt., 43°20.6'N, 74°37.2'W, 1900', 6.VIII. 1961, R. J. Gagné (1 m ISU); N. C., Macon Co., Highlands, 35°3.2'N, 83°11.3'W, 3850', 16.VI. 1958, J. L. Laffoon (2 mm ISU); same data but 21.VI. 1958 (1 m ISU).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head light brownish, ocellar prominence brownish. Antenna light brownish, basal segments yellow. 1st flagellomere twice, 2nd 1.5 times as long as wide.

Thorax. Entirely yellow to yellowish. Pronotum with 4 longer setae. Scutellum with 2 long setae. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.72—0.81, bt2:t2 = 0.61—0.68, bt3:t3 = 0.56—0.63.

Wing. Wing length 3.0—3.1 mm. Wing hyaline. Sc ending in R1 proximally to middle of small cell, Sc1 apically broken not reaching C. Apical part of Sc bearing 1—8 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.68—1.00, 0.83—1.29. Cu ratios: 0.46—0.62, 0.67—0.94. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 light brown, with lateral and posterior margins broadly yellow, 6—7 light brown. Sternites yellow.

Hypopygium. Figs. 802—804, yellow, small. Processus long slender. Tergal lateral appendage broad, shorter than processus. Sternal lateral appendage comparatively long, apically rounded, with some small setae. Sternal submedian appendage short, wide, with a few small setae. Gonostylus with 2 branches, medial branch longer than lateral one with 2 apical teeth, lateral branch with 1 tooth. Aedeagus long, slender, apically bilobed.

Female. Unknown.

Remarks: In addition to the hypopygial details, diagnostic differences from *M. nitida* (Zetterstedt) are: Sc1 broken, not reaching C, 2 scutellar setae, small and light species.

Distribution: Eastern Nearctic. USA: New York, North Carolina.

Biology: Unknown.

Mycomya nitida (Zetterstedt, 1852)

Figs. 805—809, key p. 34, 42.

Sciophila nitida Zetterstedt, 1852. Zetterstedt 1852:4119, 4362; Siebke 1877:246; Kertész 1902:34, 1903:62; Edwards 1924b:162.

(not) *Sciophila nitida* Dziedzicki, 1885 (= *M. bialorussica* Landrock).

Mycomyia nitida: Landrock 1926—1927:42.

Mycomya nitida: Väisänen 1982b:40.

Sciophila exigua Winnertz, 1863 (New synon.). Winnertz 1863:725; Dziedzicki 1885: Tab. IX: Figs. 4—5; Kowarz 1894:4; Kertész 1902:58, 1903:32; Lundström 1907:7, 1909:11, 1912a:9, 1914:11; Dziedzicki 1915:9.

Mycomya exigua: Landrock 1913:29; Dampf 1924:11; Hutson in Kloet & Hincks 1976:24; Chandler 1976:98; Väisänen in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:39.

Mycomyia exigua: Edwards 1921a:61, 1925a:549; Landrock 1926—1927:45; Lackschewitz 1937:8; Karl 1939:53; Landrock 1940:28; Séguy 1940:73; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kröber 1956:131; Kidd in Kidd & Brindle 1959:71; Hackman 1963a:54, 1963b:128; Ostroverchova & Stackelberg 1969:272; Joost & Plassmann 1976:68; Plassmann 1977b:8, 1979:373, 1980a:177, 1980b:18.

Mycomyia pseudomaxima Fisher, 1937 (New synon.). Fisher 1937:393; Coher 1959:123.

Mycomya pseudomaxima: Laffoon in Stone et al. 1965:221.

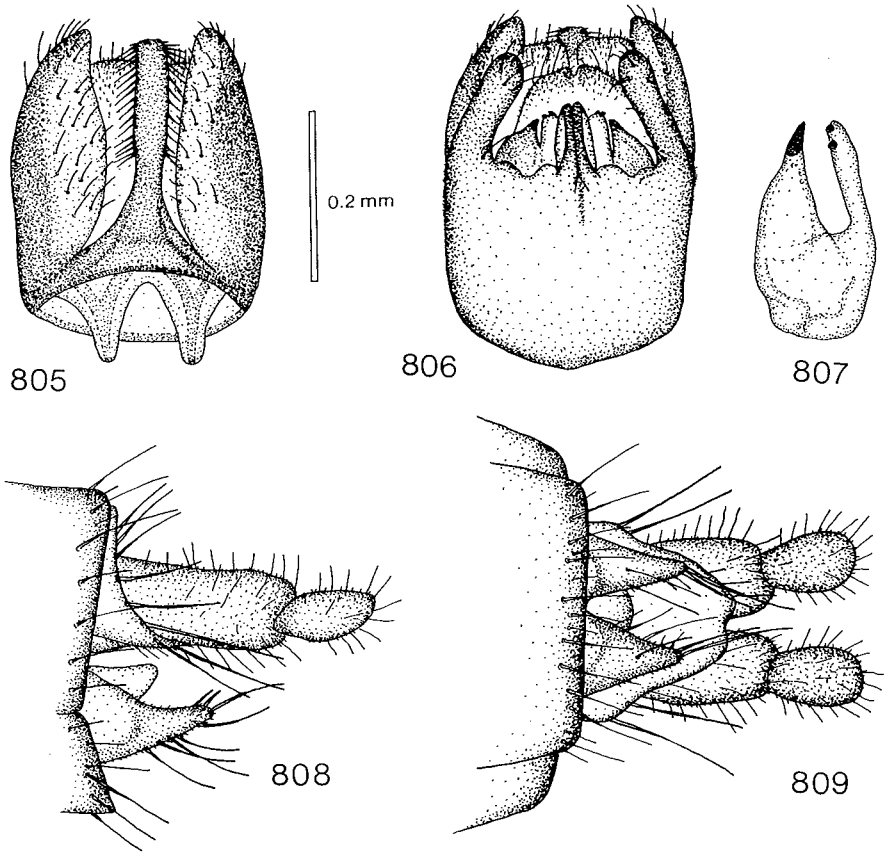
(?) *Sciophila nigra:* Walker 1848:91, 1856:42.

Type locality: By present designation: "Norwegia ad Suul" (Norway). Originally also: "Svecia"; "Helsingia in monte Harsfåsberget propre Kurland in paroecia Arbrå"; "Lapponia Lulensi"; Jemtlandia ad Skalstugan" (Sweden).

Types: — *Sciophila nitida:* Lectotype (studied) by present designation: ♀. Suul, lug. alp. Norweg. 11—15/7 40. 197. (f LUND). — *Sciophila exigua* Winnertz: Holotype (not located, apparently destroyed) m. Type locality: Not stated (? Federal Republic of Germany). — *Mycomya pseudomaxima* Fisher: Holotype (studied): Ithaca, N. Y. 24 May '34. Holotype Cornell U. No. 1411. Holotype *Mycomyia pseudomaxima* Fisher hypopygium in vial alc. (m CORN).

Remarks: The three paralectotypes (No. 195, 196, 198 LUND) of *S. nitida* Zetterstedt are in very poor condition, practically unidentifiable, and probably do not belong to this species.

Material examined: UK: Suffolk, Walberswick, 7.V. 1973, Malaise trap, A. M. Hutson (4 mm BMNH); England, SH, Romsey, 7.V. 1961, C. R. Vardy (1 m BMNH); without data (1 m labelled by F. Walker as "*S. nigra.* Type." BMNH); Herts., Knebsworth, 29.V. 1922, F. W. Edwards (1 .m BMNH); Sutherland, Lockinver, 30.VI. 1911, Yerbury (1 m 1 f BMNH); same data, 23.VI. 1911 (1 f without abdomen BMNH); Aberdeenshire, Balmoral Forest, 24.VI.—13.VII. 1951, R. L. Coe (1 f BMNH); Perthshire, Lock Rannock, VI. 1931,



Figs. 805—809. *Mycomya nitida.* — 805: male hypopygium, tergal view. — 806: hypopygium, sternal view. — 807: gonostylus. — 808: female terminalia, lateral view. — 809: terminalia, sternal view. Scale 0.2 mm for Figs. 805—806 and 808—809, Fig. 807 2 x enlarged.

F. W. Edwards (1 m BMNH); Arran, Catacol, 29—30.V. 1919, F. W. Edwards (3 mm 2 ff BMNH); Arran, Sannox, 26—28.V. 1919, F. W. Edwards (1 m BMNH); Arran, Brodick, 22—25.V. 1919, F. W. Edwards (1 m BMNH). — Ireland: Kerry, Torc Cascade, Killarney Pines etc., c. 150′, 16.VI. 1970, R. I. Vane-Wright (1 m BMNH). — Denmark: Rudstrup skov, 5.VI. 1930, P. Nielsen (1 m with 2 scutellar setae COPEN); Silkeborg d., Lillesó, 19.VI. 1942, P. Nielsen (1 m 2 ff COPEN); Silkeborg d., Mosen H., 3.VI. 1915, P. Nielsen (1 m COPEN). — Norway: Laerdal, 24—27.VII. 1923, F. W. Edwards (1 m BMNH); Suul, lug. alp., 11—15.VII. 1840 (*Sciophila nitida* Zetterstedt lectotype LUND); HOy., Tysnes, Ånuglo, 4.VI. 1966, feltkurs (2 mm BERG); HOi., Eidfjord, Hardangervidda, Viveli-Veigdalen, moh 1000, 28.VII. 1967, spritfelle, K. Björklund (1 m 1 f BERG); HOy., Bergen, Fana, Kalandsvann, 16—22.VI. 1976, T. Andersen (1 m coll. Andersen); HOi., Eidfjord, Måbødalen, 430 moh, nordvendt bjørkeskog, 4.VII. 1969, T. Nielsen et al. (8 mm 1 f BERG); same locality, 2 km V. Fossli, 450 moh, 24.VII. 1967, A. Løken (1 m BERG); HOi., Eidfjord, Isdalen, 980 moh, spredt kratt, 27.VI. 1969, K. E. Jørstad et al. (3 mm BERG); same locality, 880 moh, bjørkekratt, 25.VI. 1969, K. E. Jørstad et al. (2 mm BERG); same locality, 880 moh, bjørkeskog, 29.VI. 1969, K. E. Jørstad et al. (5 mm BERG); same data, 30.VI. 1969 (1 m BERG); HOi., Kvinnherad, 3.VI. 1964, feltkurs (2 ff BERG); Kvalsund, 7.VII. 1964, R. Tuomikoski (9 mm MZH); Skaidi, 7.VII. 1964, R. Tuomikoski (6 mm MZH); Leirbotn, Lakselv, 8.VII. 1964, R. Tuomikoski (5 mm MZH) same data, 23.VII. 1965 (28 mm MZH); Kvaenangsfjord, 8.VII. 1964, R. Tuomikoski (1 m MZH); Mattselva, 8.VII. 1964, R. Tuomikoski (5 mm MZH); Tana, Nedre Storfoss 4.VII. 1964, R. Tuomikoski (3 mm MZH); Börselv, Silfarfossen, 20.VII. 1965, R. Tuomikoski (13 mm MZH). — Sweden: Dlr., Floda, Sångtorpet, 26.VI. 1971, T. Tjeder (1 m LUND); Nb., Pajala, Rutijärvi, 22.VII. 1951, J. R. Vockeroth (1 m CNC); Nb., Pajala sn., Utmockanfäll, 15.VII. 1951, Ander, Ardö (2 mm 5 ff LUND); same data, Ander, Ardö, Berdén, Dahl (1 m LUND); Nb., Tärendö s:n, 3 km S Niva, 10.VII. 1951, Ander, Ardö, Berdén & Dahl (1 m LUND); Lulpm., Liggaby v. Luleälv, 19.VII. 1947, H. Kauri (1 m LUND); Kaltisjokk, loc. 20, 7—10.VII. 1969 (16—18) (2 mm No. 9126 ZSM); Messaure, 30.VI. 1969 (3 mm No. 10025 + K25 SENCK); Lpl., Abisko, 28.VI. 1951, J. R. Vockeroth

(1 m 1 f CNC). — Finland: *Al:* Saltvik, Kvarnbo, 23.VII. 1942, 25.VII. 1942, R. Frey (2 mm MZH); Lemland, Flaka, 7.VI. 1962, 8.VI. 1962, 10.VI. 1962, 11.VI. 1962, 14.VI. 1962, R. Tuomikoski (5 mm MZH); Föglö, Jyddö, 11.VI. 1965, K. Mikkola (3 mm MZH); *Ab:* Nagu (Nauvo), 3.VII. 1909, R. Frey (1 m MZH); Bromarv, Framnäs 12.VI. 1966, 22.VI.—5.VII. 1966, K. Mikkola (3 mm MZH); Karislojo (Karjalohja), R. Frey (3 mm MZH); same locality, J. Sahlb. (1 m MZH); Lojo (Lohja), R. Frey (3 mm MZH); Vihti, Vihtijärvi, 14—16.VI 1960, 2.VI. 1962, 23.VI. 1962, 6.VII. 1962, 7.VII. 1962, 9.VI. 1963, 23.VI. 1963, 8.VII. 1963, R. Tuomikoski (10 mm MZH); *N:* Tammisaari, Gullö, 15.VI. 1967, sugar bait trap, K. Mikkola (1 m MZH); Esbo (Espoo), Westend, 27.VI. 1962, 2.VII. 1962, W. Hackman (12 mm MZH); Esbo, 23.VI. 1962, 30.VI. 1962, 6.VII. 1962, W. Hackman (9 mm MZH); Esbo, Småholmen, 24.VI.1962, 27.VI. 1962, W. Hackman (2 mm MZH); Esbo, Kolmperä, 9.VI. 1963, 23.VI. 1963, 21.VI. 1964, W. Hackman (5 mm MZH); Helsinki, Nordsjö (Vuosaari), 26.VI. 1963, R. Tuomikoski (2 mm MZH); *Ka:* Vehkalahti, 14.VI. 1971, 19.VI. 1971, 30.VI. 1971, 3.VII. 1971, L. Tiensuu (5 mm MZH); *St:* Porin mlk., Säppi 26.VI. 1962, R. Tuomikoski (1 m MZH); *Ta:* Kangasala, Pyysalo, 16—28.VI. 1914, R. Frey (1 m MZH); *Sa:* Punkaharju, Punkasalmi, 11.VI. 1964, R. Tuomikoski (11 mm MZH); *Kb:* Kitee, Papinniemi, 26.VI. 1963, W. Hackman (1 m MZH); Pielisjärvi, Koli, 14.VI. 1964, 15.VI. 1964, 17.VI. 1964, 5.VII. 1965, 6.VII. 1965, R. Tuomikoski (89 mm MZH); *Ok:* Kuhmo, 29.VI. 1965, 1.VII. 1965, R. Tuomikoski (25 mm MZH); Sotkamo, Aarreniemi, 19.VI. 1964, 7.VII. 1965, R. Tuomikoski (9 mm MZH); same locality, 9.VII. 1965, 11—14.VII. 1965, 14—15.VII. 1965, A. V. V. Mikkola (5 mm MZH); *Ob:* Oulu, Wuorentaus (1 m MZH); Rovaniemen mlk., Pisavaara, 13.VII. 1965 R. Tuomikoski (13 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 10.VII. 1965, 19—24.VII. 1967, R. Tuomikoski (2 mm MZH); Oulanka, Biol. Stat., NL 66.3°, 24.VII. 1967, Mihályi (1 m TMB); Kuusamo, Rukavaara, 9.VII. 1965, R. Tuomikoski (4 mm MZH); Kuusamo, Kuusinkijoki, 25.VI. 1964, R. Tuomikoski (1 m MZH); Kuusamo, Liikasenvaara, 6.VII. 1965, K. Mikkola (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, 9.VII. 1965, R. Tuomikoski (8 mm MZH); *Lk:* Pallastunturi, Ryövärinkuru, subalp., 17.VII. 1962, G. Roos (2 mm MZH); Muonio, R. Frey (2 mm BMNH); Muonio, 28.VI. 1911, 4.VII. 1911, 7.VII. 1911, R. Frey (6 mm MZH); *Le:* Kilpisjärvi, Saana, 27.VII. 1965, R. Tuomikoski (2 mm MZH); Enontekiö, Palojoensuu, 11.VII. 1911, R. Frey (1 m MZH); *Li:* Ivalo, 7.VII. 1965, K. Mikkola (1 m MZH); Inari, Laanila, 16.VII. 1965, R. Tuomikoski (1 m MZH); Utsjoki, R. Frey (7 mm MZH); Utsjoki, 3.VII. 1964, 18.VII. 1965, R. Tuomikoski (7 mm MZH); Utsjoki, Ailigas, 14.VII. 1965, K. Mikkola (17 mm MZH); Utsjoki, 16—22.VII. 1962, 23—31.VII. 1962, rodent burrow, H. Heikkilä (2 mm MZH). — USSR: Kurl., Kalwen, 11.VI. 1935, L. (1 m MNB); Leningrad. obl., Kuokkala, 18.VI. 1941, Stackelberg (1 m LEN); Valamo, 27.VI. 1909, R. Forsius (1 ?m MZH); Bjäloguba, 1.VII. 1913, W. Hellen (1 m MZH); Kantalaks, 27.VI. 1913, 28.VI. 1913, R. Frey (5 mm MZH, 3 mm WIEN, 1 m BMNH); same locality, 28.VI. 1913, W. Hellen (1 m MZH); Kol'sk, Khibin. g., bass. oz. Vud'yavr, 20.VI. 1936, 10.VI. 1936, Fridolin (2 mm LEN); Nuorttijoki, Ylä-Tuloma, 9—14.VII. 1964, K. Mikkola (11 mm MZH). — Alaska: Mi. 32, Denali Hwy., 4500′, 22.VII. 1962, R. E. Leech (1 m 1 f CNC); Unakleet, 5.VII. 1961, 15.VII. 1961, B. S. Heming (4 mm CNC); Isabel Pass, Mi. 206, Richardson Hwy., 2900′, 13.VII. 1962, P. J. Skitsko (1 m CNC); King Salmon, Naknek R., 3.VII. 1952, 4.VII. 1952, W. R. Mason (3 mm 1 f CNC); Nenana, 14.VI. 1951, R. I. Sailer (1 m USNM). — Canada: B. C., Terrace, Spring Creek, 1.VI. 1960, C. H. Mann (1 m CNC); B. C., Kitsukalum Lake, 20 m. N. Terrace, 31.V. 1960, C. H. Mann (1 m CNC); B. C., Summit Lake, Mi. 392, Alaska Hwy., 4500′, 26—27.VI. 1959, R. E. Leech (1 m CNC); B. C., Kimberly, St. Mary's Lake, 10.VI., C. Garrett (1 m hypop. slide No. 50.38 "*Mycomyia* arboralis" USNM); Sask., Uranium City, 20.VI. 1962, J. G. Chillcott (1 m CNC); Que., Old Chelsea, King Mt., 16.VI. 1961, J. G. Chillcott (2 mm CNC). — USA: Colo., Eldora, 2 mi. N. W., along wooded stream, 2.VII. 1961, J. G. Chillcott (1 m CNC); Colo., Rocky Mt. N. P., Roaring River, 40°25.6′N, 105°38.4′W, 9400′, 11.VII. 1959, J. Laffoon (1 m ISU); ME., Mt. Katahdin, Hunt Trail, 2400′, 6.VII. 1968, P. Ward (1 m CNC); same locality, 2400′, 1—6.VII. 1968, D. M. Wood (1 m CNC); ME., Mt. Katahdin, Katahd. Strm Camp, 1100′, 28.VI. 1968, P. Ward (1 m CNC); N. Y., Ithaca, 24.V. 1934 (*Mycomya pseudomaxima* Fisher holotype CORN); N. Y., Allegany State Park, stream margin, 28.V.—3.VI. 1963, W. W. Wirth (1 m USNM).

Description:

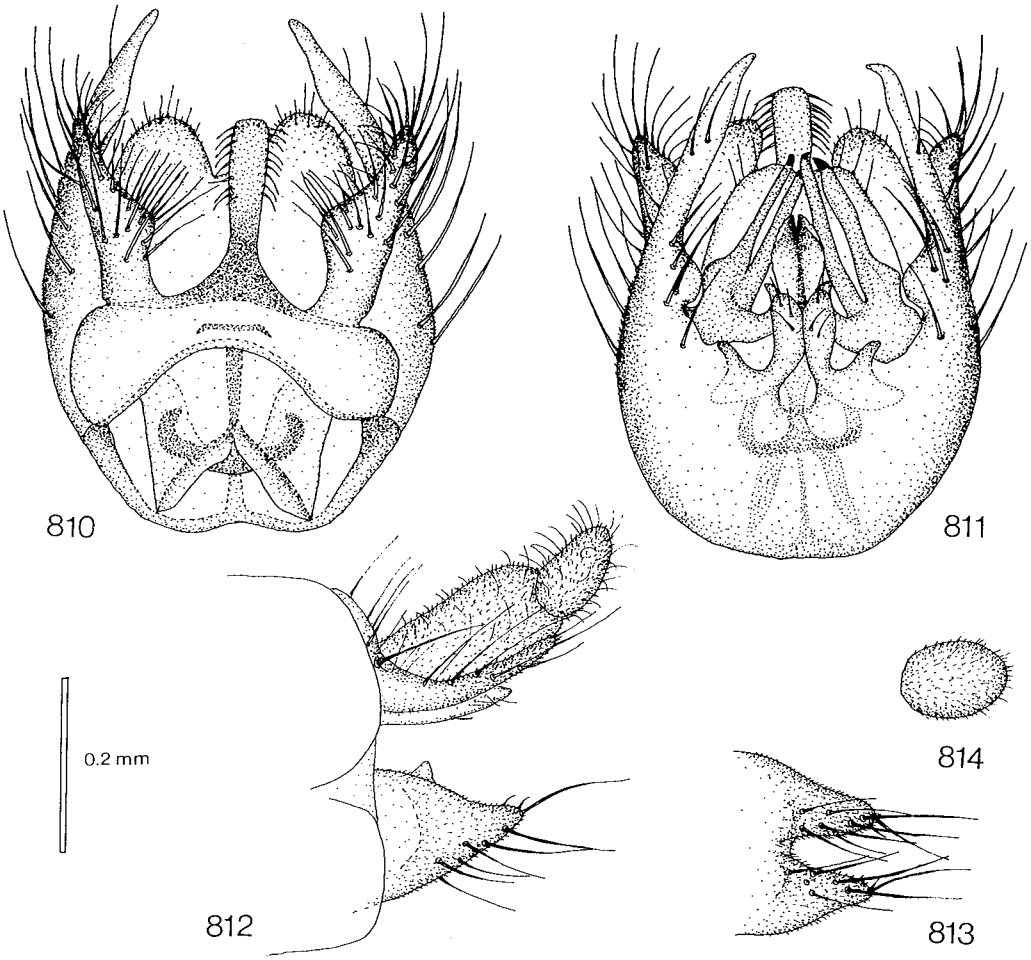
Head. Palp and other mouthparts yellow, face brownish, posterior parts of head dark brown. Antenna brown, scape, pedicel and base of 1st flagellomere yellowish. 1st flagellomere about twice, 2nd less than 1.5 times as long as wide.

Thorax. Pronotum yellow to light brownish, with 4 longer setae. Mesoscutum brownish to brown, with 3 indistinct more or less fused blackish brown longitudinal stripes, anterolateral corners of mesoscutum yellow to yellowish. Mesanepisternum light brownish to brownish. Mesokatepisternum light brownish to brownish, ventral half brown. Scutellum yellowish to brownish, with 4, occasionally 2, long setae. Laterotergite light brownish to brown. Mediotergite light brownish to brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish, comparatively dark. Joints of tibial and tarsal segments very distinctly and widely yellow, bare. Coxa 1 without special setae except for anteromedial row of some comparatively long setae. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.68—0.77, bt2:t2 = 0.63—0.76, bt3:t3 = 0.55—0.63.

Wing. Wing length 3.4—4.5 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 11—23 macrotrichia. Small cell about twice as long as wide. Cu fork proximal to middle of small cell. M ratios: 0.55—0.80, 0.63—1.00. Cu ratios: 0.50—0.69, 0.70—0.95. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—4 brownish with indistinct yellowish posterior margins, 5 brown, 6—7 dark brown. Sternites 1—5 yellow, 6—7 brown.



Figs. 810—814. *Mycomya festivalis.* — 810: male hypopygium, tergal view. — 811: hypopygium, sternal view. — 812: female terminalia, lateral view. — 813: hypogynal valves, sternal view. — 814: apical segment of cercus, sternal view. Scale 0.2 mm.

Hypopygium. Figs. 805—807, brownish. Processus long slender. Tergal lateral appendage wide, longer than processus. Sternal lateral appendage comparatively short, apically rounded with some setae. Sternal submedian appendage small. Gonostylus with 2 branches, medial branch slightly longer than lateral branch, with 2 subapical teeth, lateral branch with 1 apical tooth. Aedeagus comparatively slender, apically bilobed.

Female. Wing length 3.5—4.1 mm. Thorax lighter than in male. Mesoscutum light brown with 3 brown stripes. Abdominal tergites 1—7 and sternites 6—7 brown, sternites 1—5 yellow with lateral margins brown, or posterior margins of tergites 1—5 yellow. Leg ratios: bt1:t1 = 0.58—0.73, bt2:t2 = 0.68—0.72, bt3:t3 = 0.55—0.61. Terminalia as in Figs. 808—809, yellowish.

Remarks: Wing length in males: Palaearctic specimens: 3.4—4.5 mm, mean 3.77 mm, SD 0.31, N=21; Nearctic specimens: 3.5—4.3 mm, mean 3.87 mm, SD 0.29, N=11. (European) females slightly larger than males, wing length 3.5—4.1 mm, mean 3.89 mm, SD 0.20, N=23.

Distribution: Holarctic. United Kingdom, Ireland, Denmark, Norway, Sweden, Finland. USSR: Latvian SSR, Leningrad region, Karelian ASSR, Murmansk region. Alaska. Canada: British Columbia, Saskatchewan, Quebec. USA: Colorado, Maine, New York. Also reported from Federal Republic of Germany (? Winnertz 1863, Landrock 1940, Kröber 1956, Plassmann 1977b, 1980b), Czechoslovakia (Kowarz 1894, Landrock 1913), Estonian SSR (Dampf 1924, Lackschewitz 1937) and Georgian SSR (Joost & Plassmann 1976: Dongusorum, 2100—2700 m, 17.VI. 1972). Only the holotype of *M. pseudomaxima* has been known previously from North America.

Biology: In Finland, adults have been collected in oak-

hazel woods, mixed and coniferous forests, Lappish birch forests and mountains. Some specimens have been found in the burrows of rodents, including those of lemmings (see Hackman 1963a, b). Most specimens have been caught with sweep nets, but some have been caught with light, air-suction (Plassmann 1979, 1980a) and Malaise traps.

Mycomya festivalis n. sp.
Figs. 810—814, key p. 34, 42.

Type locality: Kuhmo (Finland).
Type: Holotype (studied): Kuhmo 1.7.1965 R. Tuomikoski (m MZH).
Material examined: Finland: *Kb:* Pielisjärvi, Koli, 5.VII. 1965, R. Tuomikoski (3 mm MZH); same locality, 15.VII. 1967, Mihályi (1 f TMB); *Ok:* Kuhmo, 29.VI. 1965, R. Tuomikoski (3 mm MZH); same locality, 1.VII. 1965, R. Tuomikoski (holotype & 5 mm MZH); *Ks:* Kuusamo, Juuma, Jäkälävuoma, 26.VI. 1964, R. Tuomikoski (2 mm MZH).

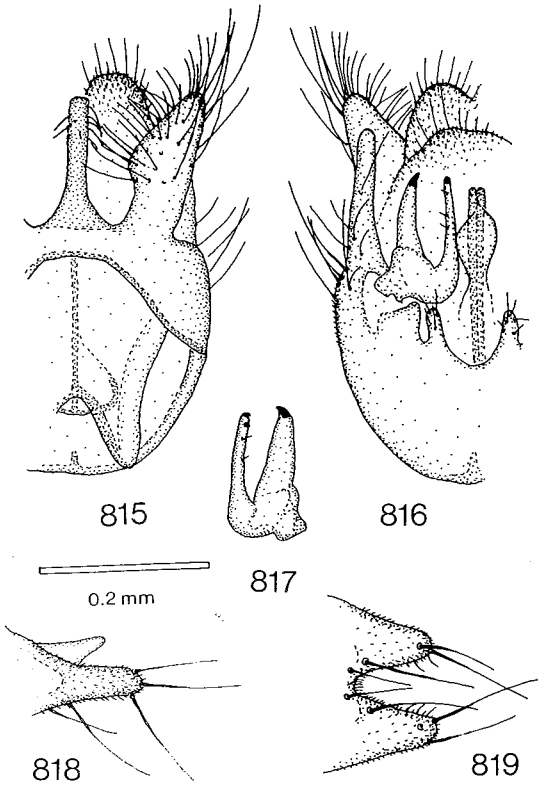
Description:
Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.
Thorax. Pronotum yellow, with 5 longer setae. Mesoscutum yellow to yellowish, with 3 indistinct light brownish to brownish longitudinal stripes. Mesanepisternum yellow to yellowish. Mesokatepisternum yellowish, ventral half light brownish. Scutellum yellowish with 4, occasionally 3, long setae. Laterotergite yellowish, ventral part light brownish. Mediotergite yellowish to light brown, bare.
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with long curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.72—0.83, bt2:t2 = 0.71—0.75, bt3:t3 = 0.60—0.64.
Wing. Wing length 3.7—4.3 mm. Wing hyaline. Sc ending in R1, seldom almost reaching C, distinctly distally to or near middle of small cell, Sc1 apically weak or broken, Sc2 ending in R1 slightly distally to middle of small cell. Apical part of Sc bearing 8—16 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork proximal to M fork. M ratios: 0.48—0.69, 0.59—0.90. Cu ratios: 0.56—0.65, 0.83—1.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.
Abdomen. Tergites 1—4 brown, with lateral and posterior margins yellow, 5—7 brown. Sternites 1—4 yellow, 5—7 brown.
Hypopygium. Figs. 810—811, yellowish, processus brownish. Greatly resembling that in *M. flavicollis* (Zetterstedt), but larger. Tergal lateral appendage comparatively wide. Sternal submedian appendage relatively strong. Gonostylus with 2 branches and additional medial appendage.
Female. Wing length 4.0 mm. Abdominal tergites 1—6 brown, with posterior fourths yellow, 7 brown. Sternites lighter than tergites. Leg ratios: bt1:t1 = 0.79, bt2:t2 = 0.78, bt3:t3 = 0.68. Terminalia as in Figs. 812—814, yellow.

Remarks: Wing length in males: mean 4.10 mm, SD 0.17, N=13. Width of hypopygium about 0.4 mm.

Distribution: Western Palaearctic. Finland, provinces *Kb, Ok* and *Ks*.
Biology: Unknown.

Mycomya flavicollis (Zetterstedt, 1852)
Figs. 815—819, key p. 34, 42.

Sciophila flavicollis Zetterstedt, 1852. Zetterstedt 1852:4121; Winnertz 1863:709; Dziedzicki 1885: Tab. VIII:23, Tab. IX: 1; Strobl 1895:142, 1901:11; Kertész 1902:59, 1903:32; Strobl 1909:11; Dziedzicki 1915:8; Morge 1974:171.
(? not) *Sciophila flavicollis:* Lundström 1907:10, 1909:11 (? = *M. ruficollis* (Zetterstedt)).
Mycomya flavicollis: Landrock 1913:22; Dampf 1924:11; Kidd & Ackland 1970:11; Hutson in Kloet & Hincks 1976:24; Chandler 1976:97; Väisänen in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:39.



Figs. 815—819. *Mycomya flavicollis.* — 815: male hypopygium, tergal view. — 816: hypopygium, sternal view. — 817: gonostylus. — 818: hypogynal valve of female terminalia, lateral view. — 819: hypogynal valves, sternal view. Scale 0.2 mm.

Mycomyia flavicollis: Wahlgren 1921:165; Edwards 1924b:162, 1925a:551; Landrock 1925a:33, 1926—1927:46; Lackschewitz 1937:10; Landrock 1940:31; Séguy 1940:31; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Coe 1962:96; Mikolajczyk 1967:21; Plassmann 1970a:90 (Syn. *M. fraterna* (Winnertz)), 1970b:388; Chandler 1974:15; Joost & Plassmann 1976:68; Plassmann 1979:374.

Sciophila fraterna Winnertz, 1863. Winnertz 1863:729; Grzegorzek 1872: (30), 1873:26; Nowicki 1873:16; Strobl 1895:143, 1897:15; Thalhammer 1899:117; Strobl 1901:12; Kertész 1902:59, 1903:32; Sack 1907:11; Strobl 1909:241; Morge 1974:171.

Mycomyia fraterna; Landrock 1926—1927:46, 1940:33; Kröber 1956:131.

Mycomyia incisurata: Matile 1969:242.

Type locality: "Gotlandia ad westö in Hall" (Sweden).

Types: — *Sciophila flavicollis* Zetterstedt: Holotype (studied, in very poor condition): 1 wing and 1 leg left: *Sc. flavicollis* Zett. ♀. Gotlandia 1841. 192. (f LUND). Collected by D. Dahlbom on 28.VII. 1844. — *Sciophila fraterna* Winnertz: Holotype (studied): Coll. v. Heyden. *Sc. fraterna* Wnz. Frankf. Heyd. 393. D. 543. rev. Plassmann Juli 1969. *Mycomyia flavicollis* Zett. ♂ Lectotypus für *M. fraterna* Winn. Type locality: not stated originally, very probably Frankfurt am Main (Federal Republic of Germany).

Remarks: Plassmann (1970) designated the lectotype for *M. fraterna,* but it seems probable that Winnertz's original description of this species was based on a single male. Thus, the specimen is apparently the holotype.

Edwards (1924b) studied some of Zetterstedt's types, including that of *Sciophila flavicollis:* "possibly the ♀ of *M. ruficollis* Zett.". Since the type is badly damaged and shows no features distinguishing it from the specimens of *M. flavicollis* sensu authors, I accept Dziedzicki's (1885) traditional opinion of this species (as was also done by Edwards).

Material examined: Italy: Aosta, Bertolaz (Villeneuve), 800—850 m, 25.VII. 1975, L. Matile (1 m MNHN); same locality, alt. 800 m, 5—10.IX. 1978, 11—15.IX. 1978, Piège de Malaise, L. Matile (6 mm MNHN, 1 m MZH); Aosta, Comba di Vertosan, 1900 m, 23.VII. 1975, D. & L. Matile (1 ?f MNHN). — France: Chaos de Monpellier, Le Vieux, (12), 15.IX. 1977, L. Matile (1 m MNHN); Forêt Domaniale de Roquet Escut (34) (l'Esclandorgue), alt. 750 m, 18.IX. 1977, L. Matile (2 mm MNHN); Gave d'Ossoue-Gavarnie (Htes Pyr), alt. 1500 m, 12.VI. 1964, L. Matile (1 m MNHN); Rambouillet (Seine-&-Marne), E. Séguy (1 m MNHN). — Switzerland: Helvetia, Geux de la Griffe, htès Gingins (Vaud), 1.IX. 1953, E. Roman (1 m MNHN). — Austria: Tirolis, Achenthal, 27.VII. 1886, Mik (1 m WIEN). — Yugoslavia: Slovenia, Bled, Podhem, 600 m, 3—5.VIII. 1973, A. E. Stubbs (1 m BMNH); Slovenia, Postavna, wooded hill N. W. of village, 13.VII.—1.VIII. 1958, R. L. Coe (1 m BMNH); Macedonia, Prespa Geul, Otesevo, edge of oak wook above lake, 20—27.VI. 1958, R. L. Coe (1 m BMNH). — Bulgaria: Veslec, 20.VII. 1982, D. Bechev (2 mm coll. Bechev). — Hungary: Kószegi-hg., Óháa-h., erdó, 9.VII. 1960, Mihályi (2 mm TMB); Mecsek-hg., Éger-völgy, 30.VII. 1958, Zsirkó (1 f TMB); Bükk-hg., Csanyik völgy, 30.V. 1961, S. Tóth (1 m TMB); Bükk-hg., erdó, Tardi-patak völgye, 13.IX. 1959, 4.IX. 1960, S. Tóth (2 ff TMB). — Czechoslovakia: Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (1 m VUPP); Marienbad (Mariánské Lázně), VII. 1873, J. Mik (1 f WIEN). — ? Poland or Byelorussian SSR: Coll. Dziedzicki, without data (1 m MZH, 1 m WIEN). — FRG: Frankfurt a. M., Heyden *(Sciophila fraterna* holotype SENCK). — UK: S. Devon, Stoke Gabriel, 7.VI. 1920, F. W. Edwards (1 m BMNH); Herts., Baldock, IX—X. 1917, F. W. Edwards (1 m BMNH); Dorset, ? Stanevilles Wootton, VIII. 1939, F. W. Edwards (1 m BMNH); I. o. W., Bonchurch, 28.VI. 1885, G. K. Verral (1 f BMNH). — Sweden: Gotlandia, 1841 *(Sciophila flavicollis* holotype LUND). — Finland: *N:* Borgå (Porvoo), Solskenholm, 3.VIII. 1952, R. Frey (1 m MZH); *Ka:* Virolahti, Leppämäki, 1.VIII. 1971, L. Tiensuu (2 mm MZH). — USSR: Transcarpathien, Vinogradovo, 3.IX. 1977, N. Krylova (1 m MOSC). — Iran: Assalem, 4.VII. 1965, L. Matile (1 m MNHN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish, ocellar prominence darker. Antenna yellowish to light brownish, basal segments yellow. 1st flagellomere more than twice, 2nd 1.5 times as long as wide.

Thorax. Entire yellow to yellowish. Pronotum with about 5 longer setae. Scutellum with 2—4 long setae. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi light brownish. Coxa 1 without special setae. Coxa 2 with comparatively long (about 2/3 of coxal length) curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.75—0.86, bt2:t2 = 0.71—0.78, bt3:t3 = 0.61—0.68.

Wing. Wing length 3.1—4.0 mm. Wing hyaline. Sc1 apically broken, usually entirely missing, Sc2 ending in R1 usually distally to middle of small cell, sometimes at apex of R4, sometimes near middle of small cell. Apical part of Sc bearing 9—12 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork below or slightly distal to M fork. M ratios: 0.64—0.78, 0.82—0.97. Cu ratios: 0.62—0.70, 0.78—1.06. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

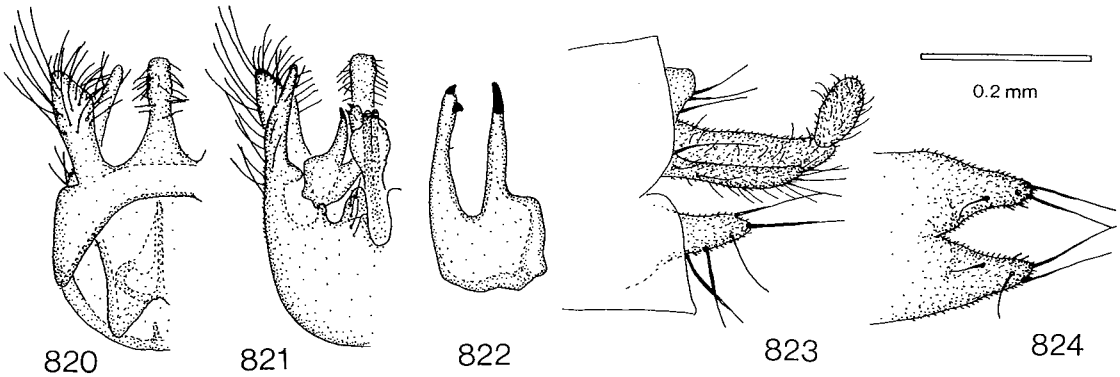
Abdomen. Tergite 1 yellow with indistinct light brownish anteromedial spot, 2—5 yellow with anterior half brownish, 6—7 brownish. Sternites 1—5 yellow to yellowish, 6—7 brownish.

Hypopygium. Figs. 815—817, yellow. Processus long slender. Tergal lateral appendage long, wide, apically tapered. Sternal lateral appendage long, setose but apically bare, tapered. Sternal submedian appendage small with some small setae. Gonostylus with 2 branches, branches about equally long, medial branch with 1—2 teeth, lateral one with 1 tooth. Aedeagus comparatively long, slender.

Female. Wing length 3.3—4.0 mm. Abdomen yellow with anterior halves of tergites light brownish. Leg ratios: bt1:t1 = 0.71—0.79, bt2:t2 = 0.57—0.68, bt3:t3 = 0.59—0.64. Terminalia as in Figs. 818—819, yellow.

Remarks: Wing length in males: mean 3.57 mm, SD 0.23, N=18. Width of hypopygium about 0.3 mm.

Distribution: Western Palaearctic. Italy, France, Switzerland, Federal Republic of Germany, Austria, Yugoslavia, Hungary, Bulgaria, Czechoslovakia, ? Poland (or Byelorussian SSR), United Kingdom, Sweden, Finland.



Figs. 820—824. *Mycomya pura.* — 820: male hypopygium, tergal view. — 821: hypopygium, sternal view. — 822: gonostylus. — 823: female terminalia, lateral view. — 824: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 820—821 and 823—824, Fig. 822 2 x enlarged.

USSR: Ukrainian SSR. Iran. Also reported from the Netherlands (Landrock 1925a), Ireland (Chandler 1976), Poland (Mikolajczyk 1967), Estonian SSR (Dampf 1924, Lackschewitz 1937), Latvian SSR (Lackschewitz 1937) and Georgian SSR (Joost & Plassmann 1976: Dongusorum, 2100—2700 m).

Biology: The collecting biotopes given are edge of oak wood above lake and wooded hill. According to Chandler (1974) in southern England this species has probably been collected only in dry woodlands. Also collected with air-suction trap (Plassmann 1979). Chandler (1974) has once observed this species feeding ivy *(Hedera)* flowers, where members of the genera *Cordyla* and *Brevicornu* have also been seen.

Mycomya pura n. sp.
Figs. 820—824, key p. 34, 42.

Type locality: New York, Essex County, Keene Valley (USA).

Type: Holotype (studied): Keene Valley, Essex Co. N. Y. 1200′, 20.VII. 62 J. R. Vockeroth (m CNC).

Remarks: Fisher never described her *"Mycomyia pura"*, although one specimen (CORN) has been labelled as its holotype, with the type number 1472 (probably by Fisher in January 1942).

Material examined: Canada: B. C., Mt. Thornhill, nr. Terrace, 30.VII. 1960, W. R. Richards (2 mm CNC); same locality, elev. 700′, 8.VIII. 1960, B. Heming (1 m CNC); Ont., Osgoode, 22.VI. 1964, J. R. Vockeroth (1 m CNC); Ont., Innisville, 16.VII. 1963, Malaise trap (1 m CNC); Ontario, St. Lawrence Is. National Park, Thwartway Island, 27.VIII. 1976, Malaise trap, A. Carter (1 m CNC); Que., Gr Vallee Gaspe, 20.VII. 1931, J. M. Aldrich (1 m USNM); Que., Hull, 3.VIII. 1965, Malaise trap (1 m CNC); Que., Old Chelsea, 31.VIII. 1958, J. R. Vockeroth (2 mm CNC); same data but 15.VI. 1964 (2 mm CNC); same data, Summit King Mt., 1150′(1 f CNC); Que., Lac Phillipe, 45°37′N, 76°W, 7.VII. 1968, J. R. Vockeroth (1 m CNC); Que., Beechgrove, 45°39′, 76°8′, 29.VI. 1962, J. R. Vockeroth (3 mm CNC); Que., Kam. Co., Parke Reserve, 11.VII. 1957, 28.VII. 1957, G. E. Shewell (3 ff CNC); same locality, sweeping *Kalmia angustifolia*, 11.VII. 1957, G. E. Shewell (1 m CNC); Que., Meach Lake, 9.VIII. 1959, C. H. Mann (1 m CNC); Que., Gatineau Co., Masham Twp., 1—5.VII. 1974, D. M. Wood (1 f CNC); N. S., Port Hasting, 30.VIII. 1936 (1 m *"Mycomyia pura* Fisher", "Holotype Cornell U. No. 1472" CORN); N. S., Springfield, 6.VIII. 1958, J. R. Vockeroth (1 m 1 f CNC); N. S., Cranberry I., Lockeport, 24.VII. 1958, J. R. Vockeroth (2 mm CNC); same data, 26.VII. 1958, J. R. Vockeroth (2 mm CNC); N. S., Shelburne, 10.VIII. 1958, J. R. Vockeroth (1 m CNC); N. S., Mount Uniacke, 5.VIII. 1958, J. R. Vockeroth (1 m CNC). — USA: Minn., Lake Co., Basswood Lake, Q-S WRC, Sec. 9, Twp. 64N, Rge. 10W, 17.VIII. 1950, R. Namba (1 m MINN); Minn., Lake Co., Basswood Lake, Washington Island, 16.VIII. 1950, R. Namba (1 m MINN); Minn., Itasca St. Pk., Chamber's Creek, 18.VI. 1963, D. L. Deonier (1 m ISU); Minn., Clearwater Co., Lake Itasca, 1.IX. 1950, J. Laffoon (1 f ISU); Wis., Washburn Co., T39N R12W B32, 28.VIII. 1953, light trap, R. H. Jones (1 f WISC); Mich., Lake Co., Branch, 4—11.IX. 1974, Malaise trap, R. L. Fisher (2 mm MICH); Mich., Dickinson Co., 22.VI. 1960, R., K. Dreisbach (1 m MICH); Mich., Mecosta Co., 9.IX. 1959, R. R. Dreisbach (1 m MICH); Mich., Monroe Co., TG5 RGE, Sec. 35, 4.VII. 1965, Malaise trap, J. Truchan (1 f MICH); N. Y., Keene Valley, 20.VII. 1962, J. G. Chillcott (1 m CNC); N. Y., Essex Co., Keene Valley, 1200′, 20.VII. 1962, J. R. Vockeroth (holotype & 1 m CNC); New York, Ithaca, vic. Sixmile Creek, 9.VIII. 1961, R. J. Gagné (1 m ISU); same data, D. L. Deonier (1 ex. ISU); New York, Hamilton Co., along Shanty Brook, 43°17.2′N, 74°33.4′W, 1700′, 5.VIII. 1961, J. L. Laffoon (1 m ISU); Mass., C. Cod, Brewster, 7.VIII. 1964, J. R. Vockeroth (4 mm CNC); Mass., Mt. Tom, 14.VII. 1905 (1 m PU); Connecticut, Terryville, 22.VI. 1957, R. I. Sailer (1 m USNM); Ct., Colebrook, 28.VIII. 1941, A. L. Melander (1 m USNM); Conn., Candlewood Lk., 30.VIII. 1941, A. L. Melander (1 m USNM); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, D. L. Deonier (1 m ISU); N. J., Del.

W. Gap, 12.VII., C. W. Johnson (1 m MCZ); Maryland, Prince Georges Co., Beltsville, 28—29.IX. 1964, P. H. Arnaud, Jr. (1 m CAS); MD., Laurel, 11.V. 1965, Malaise trap (2 mm 3 ff CNC); same data, 20.V. 1965 (2 mm 1 f CNC); same data, 21.VI. 1965 (1 m CNC); Va., Augusta Co., Mount Solon, stream margin, 26.VI. 1931, W. W. Wirth (1 m USNM); Va., Blacksburg, Brush Mt., 2800′, 27.V. 1962, J. G. Chillcott (1 m CNC); Va., Martinsville, 800′, 30.V. 1962, J. R. Vockeroth (1 m CNC); Va., Madison Co., Whiteoak Canyon, south slope of Stony Man, 38°35′N, 78°22′W, 3500′, 22.VII. 1961, J. L. Laffoon (3 mm ISU); Virginia, Madison Co., along Hogcamp Branch, 38°31.2′N, 78°25.5′W, 2800′, 22.VII. 1961, J. L. Laffoon (2 mm 2 ff ISU); Tenn., Smokies, Laurel Falls, 24.VI. 1941, A. L. Melander (1 m USNM); Tenn., Sevier Co., Great Smoky Mts., Fighting Creek, 35°40.7′N, 83°33.3′W, 1600′, 7.VII. 1958, J. Laffoon (1 m ISU); Tenn., Gr. Sm. Mt. Nat. Park, Indian Gap to Clingman's Dome, 5200—6600′, 6.VIII. 1957, J. G. Chillcott (1 m CNC); N. C. Tenn., Great Smoky Mt. N. P., Indian Gap, 5200′, 8.VII. 1957, W. R. M. Mason (1 m CNC); N. C., Wayah Bald, 4100′, 29.VII. 1957, W. R. Richards (3 mm 1 f CNC); N. C., Base of Wayah Bald, 11.VIII. 1957, W. R. Richards (1 m CNC); N. C., Macon Co., Wayah Bald, 3500′, 6.VII. 1957, J. R. Vockeroth (2 mm CNC); N. C., Macon Co., Wayah Gap, 4100′, 29.VII. 1957, 20.VIII. 1957, J. G. Chillcott (2 mm 1 f CNC); same locality, 3500′, 10.VIII. 1957, 16.VIII. 1957, J. G. Chillcott (1 m 1 f CNC); N. C., Wayah Bald, 13.VII. 1957, C. J. Durden (1 m CNC); N. C., Looking Glass Rock nr. Pisgah Forest, 2500′, 19.VII. 1957, J. G. Chillcott (1 m 1 f CNC); No. Car., Graham Co., J. Kilmer Mem. For., Poplar Cove, 35°21.3′N, 83°56.1′W, 2500′, 20.VI. 1958, J. Laffoon (1 m ISU); N. C., Graham Co., J. Kilmer Mem. For., Little Santeetlah Creek, 35°21.5′N, 83°55.8′W, 2300′, 20.VI. 1958, J. L. Laffoon (1 m ISU); No. Car., Macon Co., Clear Creek, 1 mile so. Highlands, 35°1.5′N, 83°11.5′W, 3000′, 1.VII. 1958, J. Laffoon (3 mm 2 ff ISU); N. C., Macon Co., Highlands, 35°3.2′N, 83°11.3′W, 3850′, 16.VI. 1958, 17.VI. 1958, 21.VI. 1958, 24.VI. 1958, 27.VI. 1958, 28.VI. 1958, 29.VI. 1958, 12.VII. 1958, 19.VII. 1958, J. L. Laffoon (11 mm 1 f ISU); same data, 6.VII. 1958, at light (1 f ISU); N. C., Highlands, 26.VII. 1957, W. R. Richards (1 f CNC); same locality, 3100′, 15.V. 1957, W. R. M. Mason (1 m CNC); same locality, 3800′, 27.V. 1957, 6.VI. 1957, 7.VI. 1957, 10.VI. 1957, 21.VI.1957, 25.VI. 1957, 7.VII. 1957, J. R. Vockeroth (12 mm 3 ff CNC); same locality, 3800′, 7.VI. 1957, 16.VI. 1957, W. R. M. Mason (2 mm CNC); same locality, 15.VII. 1957, 23.VIII. 1957, J. G. Chillcott (1 m 1 f CNC); same locality, Whitesides Cove, 2800′, 11.VIII. 1957, J. G. Chillcott (1 m CNC); N. C., Highlands, Whiteside Mt., 4900′, 13.V. 1957, W. R. M. Mason (1 m CNC); So. Carolina, Pickens Co., Table Rock State Park, 35°2′N, 82°32′W, 1500′, 6.VII. 1958, J. Laffoon (1 f ISU); Ga., Rabun Co., 13.VII. 1957, W. R. Richards (1 m CNC); same locality, Rabun Bald, 4600′, 9.VIII. 1957, J. G. Chillcott (1 f CNC); Ga., Pine Mtn., 1 mi. N., 3000′, 13.VII. 1957, J. G. Chillcott (2 mm 1 f CNC); same locality, 1 mi. E., 2000′, 26.VII. 1957, J. G. Chillcott (1 m CNC); Fla., Florida Caverns St. Park, Jackson Co., 26.V. 1973, Malaise trap, W. W. Wirth (1 m 3 ff USNM).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head light brownish, ocellar prominence slightly darker. Antenna light brownish, basal segments yellow. 1st flagellomere about twice, 2nd hardly 1.5 times as long as wide.

Thorax. Pronotum yellow, with about 4 longer setae. Mesoscutum yellow to yellowish, sometimes with indistinct light brownish posterior areas. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, usually with 2, occasionally 4, long setae. Laterotergite yellow. Mediotergite yellow to yellowish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with comparatively long, curved spur with 2 apical teeth. Leg ratios: bt1:t1 = 0.78—0.93, bt2:t2 = 0.65—0.72, bt3:t3 = 0.56—0.61.

Wing. Wing length 2.6—3.5 mm. Wing hyaline. Sc ending in C distinctly distally — slightly proximally to middle of small cell or in R1, or Sc1 broken or entirely missing, Sc2 ending in R1 slightly distally to middle of small cell. Apical part of Sc bearing 5—11 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork proximal — slightly distal to M fork. M ratios: 0.70—0.77, 0.92—1.04. Cu ratios: 0.51—0.64, 0.80—0.94. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—4 yellow, with brown anteromedial spots, 5 usually entirely yellow, sometimes with faint, seldom distinct, light brownish anteromedial spot, 6—7 brown. Sternites 1—5 yellow, 6—7 entirely brown or 6 slightly brownish with anterior and posterior margins yellow. Seldom abdomen entirely yellow to light brownish.

Hypopygium. Figs. 820—822, yellow, greatly resembling that of *M. flavicollis* (Zetterstedt). Gonostylus with 2 branches, medial with 2 apical teeth, lateral with 1 apical tooth.

Female. Wing length 2.6—3.3 mm. Coloration usually similar to that of male. Leg ratios: bt1:t1 = 0.80—0.94, bt2:t2 = 0.64—0.70, bt3:t3 = 0.58—0.61. Terminalia as in Figs. 823—824, yellow.

Remarks: Wing length in males: mean 3.00 mm, SD 0.17, N=48. Width of hypopygium about 0.2 mm.

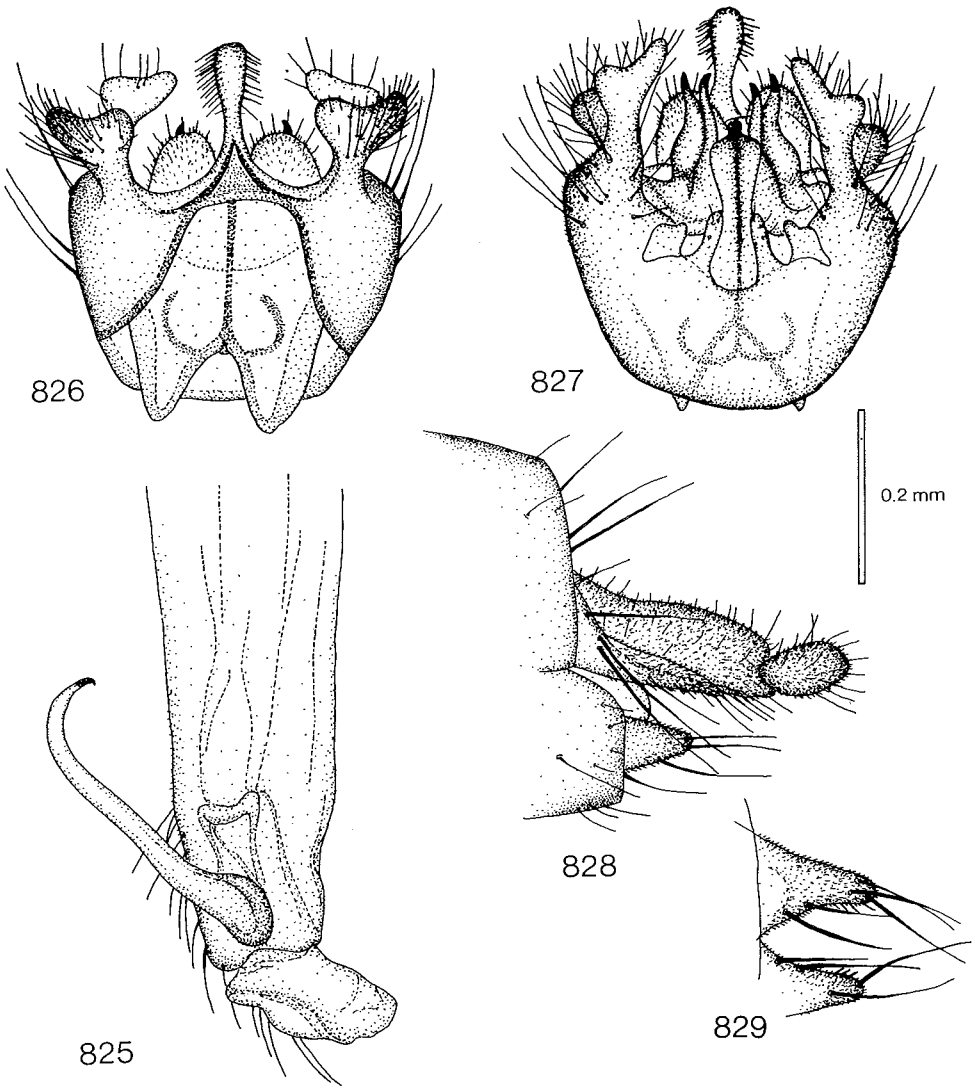
Distribution: Nearctic. Three specimens from British Columbia, common in eastern North America. Canada: Ontario, Quebec, Nova Scotia. USA: Minnesota, Wisconsin, Michigan, New York, Massachusetts, Connecticut, Pennsylvania, New Jersey, Maryland, Virginia, Tennessee, North Carolina, South Carolina, Georgia, Florida.

Biology: Very poorly known. Specimens collected by sweeping and with Malaise trap, also at light. The biotopes given are only "around and on wet cliff face", and *Kalmia angustifolia* vegetation.

Mycomya annulata (Meigen, 1818)

Figs. 825—829, key p. 33, 42.

Sciophila annulata Meigen, 1818. Meigen 1818:247; Hummel 1823:33; von Roser 1834:263; Schummel 1836:81; Gimmerthal 1846:55; Walker 1848:91, 1856:38; Kertész 1902:57, 1903:31; Edwards 1924a:14 (as uncertain synon. for *M. incisurata);* Stackelberg 1922:6.



Figs. 825—829. *Mycomya annulata.* — 825: male mid-coxal spur and coxa 2. — 826: male hypopygium, tergal view. — 827: hypopygium, sternal view. — 828: female terminalia, lateral view. — 829: hypogynal valves, sternal view. Scale 0.2 mm.

Sciophila incisurata Zetterstedt, 1838 (Synon. confirmed). Zetterstedt 1838:859, 1852:4122, 4362, 1855:4908; Osten-Sacken 1858:143; Winnertz 1863:723; Schiner 1864:444; van der Wulp 1877:167; Siebke 1877:246; Dziedzicki 1885: Tab. IX: Figs. 2—3; Czwalina 1893:2; Strobl 1895:143, 1898a:283, 1898b:598 (= 1900a:652), 1900b:98; Kertész 1902:60, 1903:33; Sack 1907:11; Lundström 1907:9, 1909:11; Strobl 1909:241; Dziedzicki 1915:9; Stackelberg 1922:6; Morge 1974:171.

Mycomya incisurata: Landrock 1913:21; Hutson in Kloet & Hincks 1976:24; Chandler 1976:97; Matile 1977:633; Cole & Chandler 1979:51; Russel-Smith 1979:362; Väisänen in Hackman 1980:31; Hutson et al. 1980:42; Väisänen 1982b:39.

Mycomyia incisurata: Edwards 1913:355, 1921a:61; Wahlgren 1921:167; Dampf 1924:11; Edwards 1924b:162, 1925a:551; Landrock 1926—1927:47; Schmitz 1929:22; Landrock 1930:254; Lackschewitz 1937:10; Barendrecht 1938:38; Karl 1939:53; Landrock 1940:33; Séguy 1940:75; Frey & Storå 1941:46; Coe in Kloet & Hincks 1945:345; Kidd in Kidd & Brindle 1959:72; Krogerus 1960:64; Hackman 1963a:23; Matile 1967:125; Mikolajczyk 1967:21; Skidmore 1969:104; Ostroverchova & Stackelberg 1969:273; Plassmann 1970b:388; Ostroverchova 1971:94; Plassmann 1973:83, 1974a:51; Chandler 1974:15; Ostroverchova & Izotov 1974:82; Plassmann 1975:28, 1976b:61, 1977b:9, 1978a:148, 1978c:48, 1979:374; Ostroverchova 1979:69; Plassmann 1980a:178.

(not) *Mycomyia incisurata:* Matile 1969:22 (= *M. flavicollis* (Zetterstedt)).

Type locality: Not stated (? Federal Republic of Germany).

Types: — *Sciophila annulata* Meigen: Lectotype (studied) by present designation: Meigen. *annulata. Mycomyia annulata* Mg. = *incisurata* Zett. F. W. Edwards det. 1922 (f MNHN). — *Sciophila incisurata* Zetterstedt: Lectotype (studied) by present designation: *Sc. incisurata* Zett. ♂. ♀. Hernösand. 194. (m LUND). Type locality: "Lapponia-Hernösand" (Sweden).

Remarks: Another specimen, a female paralectotype of *S. annulata,* is available (MNHN) from Meigen's collection. Below the lectotype of *S. incisurata,* on the same pin is a female paralectotype.

Material examined: France: L. & C., Marcilly-en-Villette, 29—2.V. 1973, J. J. Menier (2 mm MNHN); Tourbière, Réserve des Cailleuses, Forêt de Montmorency (95), 31.VIII. 1975, G. Couturier (10 mm 2 ff MNHN); Gallia, Conte du Prévon d'Arauf ..., Divonne, 19.VIII. 1931, E. Roman (1 m MNHN); Maison, Laff., 25.V. 1919, J. de Gaulle (1 MHNH); Forêt de l'Aigoual (48), alt. 1400 m, 15.IX. 1977, L. Matile (1 m MNHN); Forêt de Chambiers (Maine et Loire), 15.VIII. 1969, J. C. Beaucournu & L. Matile (2 mm MNHN); Forêt d'Othe (Yonne), 6.VI. 1970, L. Matile & J. J. Menier (1 m 1 f MNHN); Col de Rille (Ariège), alt. 1000–1100 m, 20.VI. 1970, L. Matile (1 m MNHN); Forêt de Chandelais, Baugé (M. & L.), 12.VII. 1971, J. C. Beaucournu & L. Matile (1 m MNHN); Vendresse (Ardennes), 1923, R. Benoist (1 m MNHN); Fontainebleau, 3—5.VI. 1970, Charles (5 mm MNHN). — Switzerland: Herzogen Weilrr., b. Villingen, 31.VIII. 1947, O. Allgaier (1 m WASH). — Austria: Austria (1 m WIEN); without data (1 m WIEN). — FRG: Rhénanie, Crefeld, J. Winnertz (1 m 1 f MNHN); without data, coll. Meigen *(S. annulata* lectotype, 1 f paralectotype MNHN). — Netherlands: Denekamp, 14.V. 1918, 19.V. 1918, de Meijere (2 mm 1 f AMST); Hilversum, 7.VIII. 1905, 18.IX. 1905, 19.IX. 1905, 28.V. 1907, 24.IX. 1907, 26.IX. 1907, 3.X. 1907, IX., 23.VII. 1909, 14.X. 1909, 8.VII. 1910, de Meijere (6 mm 9 ff AMST); Baarn, VIII. 1895, 9.VI. 1907, 9.VIII. 1909, de Meijere (1 m 6 ff AMST); Maars, 21.V. 1905, de M. (1 m AMST); Nederland, de Meijere (1 m 7 ff AMST); localities illegible, VII. 1916, 6.VI. 1907, VIII. 1890, 7.VI. 1917, de Meijere (1 m 3 ff AMST); Drieb. (1 f AMST). — UK: Essex, Epping Forest, 14.V. 1955, R. D. Weal (1 m CAS); Devon, Heathfield, 2.IX. 1960, J. R. Vockeroth (1 f CNC); Dorset, Studland, 24.V. 1912, Yerbury (1 m BMNH); same data, 21.VI. 1907 (1 m BMNH); same data, 20.V. 1912 (2 ff BMNH); same data, 24.V. 1912 (1 f BMNH); Suffolk, Walberswick, 7.V. 1973, Malaise trap, A. M. Hutson (13 mm 1 f BMNH); Kent, Hothfield Bog. 17.X. 1970, R. I. Vane-Wright (3 mm BMNH); same data, 11.VII. 1970 (1 f BMNH); same locality, X. 1907, C. A. Adams (1 m BMNH); same data, V. 1907 (8 mm BMNH); Kent, Blean Wood, 19—20.V. 1973, A. M. Hutson (1 m BMNH); Kent, Hothfield, Sallow Carr, 1964, B. Freeman (3 ff BMNH); without data (2 mm labelled by F. Walker as *Sciophila annulata* BMNH); Hampshire, Headley Common, 23.X. 1972, P. S. Cranston (1 m 1 f BMNH); HA., Mark Ash., 11.V. 1964, C. N. Colyer (1 m 1 f BMNH); HA., NF, Linwood, 18.IV. 1954, C. N. Colyer (1 m BMNH); HA., NF, Oakley Inc., 9.IV. 1966, C. N. Colyer (1 m BMNH); HA., NF, Rhinefield, 10.IV. 1966, C. N. Colyer (1 m BMNH); HA., NF, Ridley Wood, 9.V. 1964, C. N. Colyer (4 mm 1 f BMNH); HA., New Forest, 26.IV. 1952, C. N. Colyer (1 m BMNH); same data, 12.V. 1951, 13.V. 1951 (2 ff BMNH); New Forest, Denny Wood, VI. 1939, F. W. Edwards (1 m BMNH); N. Forest, 16.V. 1910, F. C. Adams (1 m BMNH); New Forest, Lyndhurst Rd., 20.V. 1896, Yerbury (1 m BMNH); Cornwall, Lelant, 31.VII. 1912, 28.VIII. 1912, 29.VIII. 1912, Yerbury (3 mm 2 ff BMNH); Cornwall, Sheviock, 4.IX. 1912, 9.IX. 1912, 10.IX. 1912, Yerbury (5 mm 1 f BMNH); Sussex, Three Bridges, 13.VI. 1892, 15.VI. 1892, G. H. Verrall (2 ff BMNH); Bucks., Burnham Beeches, 7.V. 1912, 6.V. 1914, F. W. Edwards (2 mm BMNH); Herefordshire, Jarrington, 5.IX. 1913, Yerbury (1 f BMNH); Hereford, Wyre, 4.IX. 1892, G. H. Verrall (2 mm 1 f BMNH); Wyre Forest, 13.IX. 1922, 14.IX. 1922, F. W. Edwards (1 m 1 f BMNH); Lancashire, nr. Rufford, Mere Sand Wood, 20.IX. 1970, A. M. Hutson (10 mm 1 f BMNH); Lancashire, Freshfield, 19.IX. 1970, A. M. Hutson (2 mm BMNH); N. Lancs., Holker Moss, 11—13.VII. 1923, F. W. Edwards (1 m BMNH); Surrey, Devils Punch Bowl, 30.V. 1954, H. Britten (1 m 3 ff BMNH); Norfolk, Burntfen Broad nr. Horning, 29.V. 1963, Banks & Vane-Wright (1 m BMNH); Herts., Knebworth, IX. 1921, 29.V. 1922, F. W. Edwards (2 mm 1 f BMNH); Oxfordshire, Pamber Forest, 1.VI. 1968, B. H. Cogan (1 m BMNH); Forest of Dean, 27.V. 1962, K. G. V. Smith (1 m BMNH); ES, Coopersale, 27.VIII. 1950, C. N. Colyer (2 mm BMNH); Berks., Windsor Forest, 10.V. 1939, F. W. Edwards (1 m BMNH); Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (2 mm BMNH); Notts., Strelley, 21.IX. 1922, F. W. Edwards (1 m 1 f BMNH); Westmorland, Stock Ghyll, 5.X. 1971, A. M. Hutson (1 m BMNH); N. Wales, Newton, 18.VIII. 1893, Ricardo (1 m BMNH); Brecknock, Wells, Llangammarch, 23.VIII. 1913, Yerbury (1 m BMNH); Merioneth, Dolgelley, 13.VI. 1887, G. H. Verrall (1 m BMNH); Merioneth, Brithdir nr. Dolgellau 21.V. 1972, A. M. Hutson (2 mm BMNH); Merioneth, Brithdir-isaf nr. Dolgelly, 25.X. 1971, A. M. Hutson (1 m BMNH); Aberdeenshire, Balmoral Forest, 24.VI.—13.VII. 1951, R. L. Coe (1 m BMNH); Arran, Catacol, 29—30.V. 1919, F. W. Edwards (2 mm BMNH); same locality, IX. 1920, J. Waterston (4 ff BMNH); Arran, Sannox, 26—28.V. 1919, F. W. Edwards (1 f BMNH); Arran, Brodick, 22—25.V. 1919, F. W. Edwards (2 mm BMNH); Coll. Wood (1 m 1 f BMNH); Logie, 12.IX. 1905, 1906, F. J. (2 mm BMNH). — Ireland: Killarney, Cromaglan, Gortroč, 5.VIII. 1940, B. P. Bierne (1 m 3 ff BMNH); Kerry, Torc Cascade, Killarney Pines etc., c. 150′, 16.VI. 1970, R. I. Vane-Wright (1 m BMNH); S. E. Ireland, Enniskerry, 1940, B. P. Beirne (1 m BMNH); L. ?Dan., 30.IX. 1909 (1 m NMI). — Denmark: Rudstrup Skov, 29.VIII. 1930, 25.IX. 1931, 10.VI. 1940, 20.VI. 1942, 22.VI. 1942 (6 mm 5 ff COPEN); Funder, 8.IX. 1918, 14.VIII. 1930, 30.IX. 1930 (3 mm 1 f COPEN); V. Hógild, 28.IX. 1930 (1 f COPEN); Silkeborg, 19.X. 1918, 16.IX. 1919, 21.IX. 1926, 19.VIII. 1930, 18.X. 1942 (3 mm 2 ff COPEN); Silkeborg d., Slaaensó (11 mm 5 ff COPEN); Silkeborg d., Savverket, 16.IX. 1932, 17.IX. 1932, (2 ff COPEN);

Silkeborg d., Gjessó, 5.IX. 1941 (1 m COPEN); Ragebjorg, 6.IX. 1934 (1 m COPEN); Bornholm, Almindingen, 17.VI. 1964, L. L., O. M. & B. V. P. (1 m COPEN). — Norway: TEy., Porsgrunn, Skjelsvik, Østvedtmyra, 10.VIII. 1982, G. E. Ellefsen (2 mm 2 ff coll. Andersen); HOy., Fjell, Sotra, Ongeltvedt, 31.X. 1976, T. Andersen (1 f coll. Andersen); HOy., Fjell, Sotra, Eidsvåg, 31.X. 1976, T. Andersen (1 f coll. Andersen); HOy., Os, Lundatræ, IX—X. 1975, 3—12.IX. 1976, T. Andersen (12 mm 5 ff coll. Andersen); HOy., Osteröy, Bysheimsvann, 21.VIII. 1982, A. Fieldså (1 f coll. Andersen); HOi., Odda, Teigen, 21—30.X. 1977, T. Andersen (1 m coll. Andersen); HOi., Ullensvang, Hovland, 20—24.IX. 1977, T. Andersen (1 m coll. Andersen); same data, 21—30.X. 1977 (44 mm 54 ff coll. Andersen); HOi., Ullensvang, Kjeåsen, Simadalen, 1.IX. 1979, G. E. Ellefsen (2 mm coll. Andersen). — Sweden: Sk., Hälsingborg, IX. 1920, 29.VIII. 1922, O. Ringdahl (2 mm LUND); Sk., Kullaberg, 6.VIII. 1965, H. Andersson (1 m coll. Andersson); Sk., Skäralid, bäckravin, 26.IX. 1963, H. Andersson (1 m coll. Andersson) Sk., Margretetorp, bäckravin, 24.VI., H. Andersson (1 ?f coll. Andersson) Hall., Enslöv, Ärnilt, 29.VII. 1964, 31.VIII. 1966, 26.VI. 1967, 1.X. 1967, 9.VIII. 1968, 13.V. 1972, 10.VII. 1972, 16.IX. 1972, H. Andersson (37 mm 24 ff coll. Andersson); Sm., Bolmen, 16.IX. 1958, O. Ringdahl (4 mm LUND); Hernösand *(Sciophila incisurata* lectotype, 1 f paralectotype LUND); Nb., Råneå, Bergviken, tallhed, 2.IX. 1965, H. Andersson (1 m 2 ff coll. Andersson); Nb., Råneå, Högsön, blandskog, 30.VIII. 1965, H. Andersson (2 mm coll. Andersson); Kaltisjokk, 18—22.IX. 1969 (14—16) (1 m No. 9279 ZSM); Messaure, Kaltisjokk, 1969 (1 m No. 4441 SENCK). — Finland: *Ab:* Halikko, 6703:274, 18.IX. 1981, M. Koponen (1 m AFZ); Kuustö (Kaarina, Kuusisto), Lundström (1 m MZH, 1 m 1 f BMNH); Tenhola, Skogby, 3.IX. 1963, R. Tuomikoski (13 mm MZH); Vihti, Vihtijärvi, VIII. 1962, 22.VIII. 1962, 24.VIII. 1962, 8.VIII. 1963, 15.VIII. 1963, 27.VIII. 1963, 15.IX. 1963, 6.X. 1963, 27.IX. 1965, 3.X. 1965, R. Tuomikoski (86 mm MZH); *N:* Ekenäs (Tammisaari), Hästö, 19.VIII. 1930, H. Ahlqvist (1 m MZH); Tvärminne, VIII. 1930, H. Ahlqvist (1 m MZH); Kyrkslätt (Kirkkonummi), R. Frey (1 m MZH); Esbo (Espoo), Westend, 15.IX. 1962, W. Hackman (6 mm MZH); Esbo, Kolmperä, 29.VIII. 1963, 3.IX. 1963, 12.IX. 1963, 14.IX. 1963, 6.IX. 1964, 12.IX. 1964, 10.X. 1964, 4.IX. 1965, 18.IX. 1965, 20.IX. 1965, W. Hackman (79 mm MZH); Espoo, Bodom, 3.IX. 1963, R. Tuomikoski (14 mm MZH); Helsinge, R. Frey (1 m 3 ff MZH); Helsinge, Cedervarf (1 MZH); Helsinki, Nordsjö (Vuosaari), 2.IX. 1963, 22.IX. 1963, R. Tuomikoski (68 mm MZH); Helsinki, Malminkartano, 16.IX. 1965, R. Tuomikoski (51 mm MZH); same locality, 27.IX. 1962, R. Tuomikoski & W. Hackman (2 mm MZH); Borgå (Porvoo), Seitlax, 6.IX. 1930, 14.VIII. 1931, 17.VIII. 1931, H. Ahlqvist (3 mm MZH); Pyhtää, Kiviniemi, 11.IX. 1977, R. Väisänen (abundant, 3 mm MZH); *Ka:* Vehkalahti, 19.IX. 1970, 26.IX. 1970, 17.X. 1970, 17.VIII. 1971, 22.VIII. 1971, 4.IX. 1971, 15.IX. 1971, 21.IX. 1971, 26.IX. 1971, L. Tiensuu (25 mm 1 f MZH); *Ta:* Ruovesi, Ryövärinkuoppa, 20.IX. 1965, R. Tuomikoski (2 mm MZH); Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (7 mm MZH); Janakkala, Rastila, 19.VI. 1965, R. Tuomikoski (15 mm MZH); Kuhmois (Kuhmoinen), J. Sahlb. (1 m MZH); Lammi, Laaviosuo, pine bog, *Ledum, Sphagnum,* 30.VIII. 1977, R. Väisänen (abundant, 3 mm MZH); Lammi, Biol. Station, 30.VIII. 1977, 8.IX. 1977, R. Väisänen (abundant, 2 mm MZH); *Oa:* Vasa (Vaasa), R. Frey (2 ff MZH); *Kb:* Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (1 m MZH); *Om:* Jakobstad (Pietarsaari), Varvet, 7.IX. 1957, R. Storå (1 m MZH); Raahe, Pitkäkari, IX. 1908, Wuorentaus (1 m MZH); *Ok:* Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (2 mm MZH); *Ob:* Rovaniemen mlk., Pisavaara, 22.VIII. 1960, 26.VIII. 1964, R. Tuomikoski (2 mm MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (6 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Transkarpathien, Studjenoe, 25.VIII. 1977, Krylova (1 m MOSC); Curon., Langen, 10.IX. 1930, P. Lackschewitz (1 m MNB); Metsäpirtti, 6.X. 1935, Krogerus (1 m MZH); Leningrad, Luzhsk., Tolmachevo, 7.VIII. 1935, 22.VIII. 1935, 13.VIII. 1936, 17.VIII. 1936, 24.VIII. 1936, 9.VIII. 1937, 13.VIII. 1937, 19.VIII. 1937, 20.VIII. 1937, 23.VIII. 1937, 27.VIII. 1937, 28.VIII. 1937, 3.IX. 1937, 4.IX. 1937, 6.IX. 1937, Stackelberg (26 mm LEN); Leningrad. obl., Toksovo, 22.IX. 1940, Stackelberg (1 m LEN); Leningrad, Yukki, 18.IX. 1934, Rohdendorf (2 mm LEN); Leningrad. o., Lakhta, 18.IX. 1960, Stackelberg (1 m LEN); Leningr. o., Luzhsk., Yashera, 27.VIII. 1963, Stackelberg (1 m LEN); Vyritsa Leningr., 4.IX. 1946, Stackelberg (5 mm 1 f LEN); Ostrovki na Neve, Tlissel'b. u., 30.VII. 1906, G. Jakobson (1 m LEN); Leningrad. ob., 22.VIII. 1929 (2 mm LEN); Kola, Arkhang. g., 10.IX. 1928, Cheburova (1 ?f LEN).

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3 times, 2nd twice as long as wide.

Thorax. Pronotum yellow to light brownish, with 3—5 longer setae. Mesoscutum ligth brownish, with 3 indistinct brownish, longitudinal stripes. Mesanepisternum light brownish. Mesokatepisternum light brownish. Scutellum light brownish with 4 long setae. Laterotergite light brownish. Mediotergite light brownish, bare.

Legs. Coxae and femora yellow to yellowish, tibiae and tarsi brownish. Joints of tibial and tarsal segments distinctly marked by bare areas. Coxa 1 without special setae. Coxa 2 with short (about 1/2 of coxal length), curved spur with 1 apical tooth strongly curved backwards (Fig. 825). Leg ratios: bt1:t1 = 0.80—0.86, bt2:t2 = 0.71—0.78, bt3:t3 = 0.59—0.65.

Wing. Wing length 3.5—5.5 mm. Wing hyaline. Sc sometimes ending in C near or distally to middle of small cell, usually Sc1 broken, Sc2 ending in R1 near middle of small cell. Apical part of Sc bearing 6—16 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.65—0.88, 0.84—1.15. Cu ratios: 0.67—0.76, 0.89—1.04. Macrotrichia: M petiole: 0—1; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with distinct yellow

posterior margins, 6—7 brown. Sternites lighter than tergites.

Hypopygium. Figs. 826—827, yellowish. Processus long slender. Tergal lateral appendage longer than processus, apically wide. Sternal lateral appendage long wide. Sternal submedian appendage short with some small setae. Gonostylus with 2 branches, both with apical tooth. Aedeagus about as long as gonostyli.

Female. Wing length 4.0—4.5 mm. Pronotum yellow. Mesoscutum very light brownish with indistinct brownish stripes. Mesanepisternum and mesokatepisternum yellowish. Scutellum yellowish. Laterotergite and mediotergite yellowish. Abdomen paler than in male. Tergites 1—5 brown with posterior thirds yellow, 6—7 brown with posterior margins yellow. Sternites 1—5 yellow, 6—7 brownish with posterior margins widely yellow. Terminalia as in Figs. 828—829, yellow.

Distribution: Palaearctic. France, Switzerland (also Plassmann 1970), Austria, Federal Republic of Germany, Netherlands, United Kingdom, Ireland, Denmark, Norway, Sweden, Finland. USSR: Ukrainian SSR, Latvian SSR, Leningrad region, ? Murmansk region. Also reported from Spain (Strobl 1900b), Yugoslavia (Strobl 1898b = 1900a), Czechoslovakia (Landrock 1913), Poland (Czwalina 1893, Karl 1939, Mikolajczyk 1967), Lithuanian SSR (Czwalina 1893, Landrock 1930), Estonian SSR (Dampf 1924, Lackschewitz 1937), West and East Siberia (Ostroverchova 1971, Ostroverchova & Izotov 1974, Ostroverchova 1979). Matile's (1969) record from Iran concerns *M. flavicollis* (Zetterstedt).

Biology: *M. annulata* is often very abundant locally, especially in autumn. Adults have been caught in various biotopes: birch, alder and hazel woods, mixed and coniferous forests and pine and *Sphagnum* bogs in Finland. Chandler (1974) also gives ash and alder carrs, box bushes and *Carex* beds as collecting biotopes for this species. Some specimens have been caught with light, air-suction, pit-fall (Plassmann 1975, 1978a, 1979, 1980a) and Malaise traps. Ostroverchova (1979) reports that this species has been reared on *Polyporus*.

7.3. Subgenus Calomycomya n. subg.

Type species: *Sciophila pulchella* Dziedzicki, 1885.

Mediotergite bare. Coxa 1 without specialized setae or other structures. Coxa 2 in Holarctic species with comparatively short curved spur. Coloration usually vivid yellow and dark brown, abdominal tergites yellow with posterior margins dark. Abdominal tergite 8 bare. Tergite 9 with fork-like medial structure and characteristic inner structure with dark spurs, basal part of tergite 9 bare, no setose lateral appendages. Sternal synsclerite usually large, variable in shape.

Distribution: Holarctic. In addition, the following species from other zoogeographic regions can be tentatively placed in this subgenus: *M. boringuensis* Coher, 1959 (Puerto Rico, Brazil), *M. dumeta* Coher, 1959 (Brazil; without mid-coxal spur), *M. basinerva* Freeman, 1951 (Chile), *M. ansata* Freeman, 1951 (Chile), *M. funebris* Freeman, 1951 (Chile), and *M. valdiviana* (Philippi, 1865) (Chile).

One species group is recognized in this subgenus in the Holarctic region.

Species group M. pulchella

Head. Anteclypeus short, triangular, with some comparatively long setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with some relatively long dorsal setae. Ocellar setae 3 or more times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxa 1 without special setae or other structures. Coxa 2 with short curved spur with one apical tooth. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 longer than tibia 1. Tibial setae relatively weak to moderately strong, longest 1.5—2 times as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C, Sc1 very occasionally apically broken. Cu fork slightly proximal — slightly distal to M fork. M petiole usually short. Cu petiole long to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Tergites yellow with posterior margins dark, sometimes markings indistinct.

Tergite 8 very narrow, arcuate band, without setae. Sternite 8 wide, triangular, bare.

Hypopygium. Tergite 9 with medial fork-like structure and usually thin lateral lobes, Tergite 10 relatively large to very large. Sternal synsclerite with large lateral appendages, without setose submedian appendages, medially with U-shaped emargination.

Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, apically tapered, triangular, extensively setose, setae relatively short.

One Holarctic, four Palaearctic and three Nearctic (including two Mexican) species are recognized in this species group in the Holarctic region.

Mycomya yunga n. sp.
Figs. 830—837, key p. 39.

Type locality: Puebla, 9 mi. SW. Coacoyunga (Mexico).

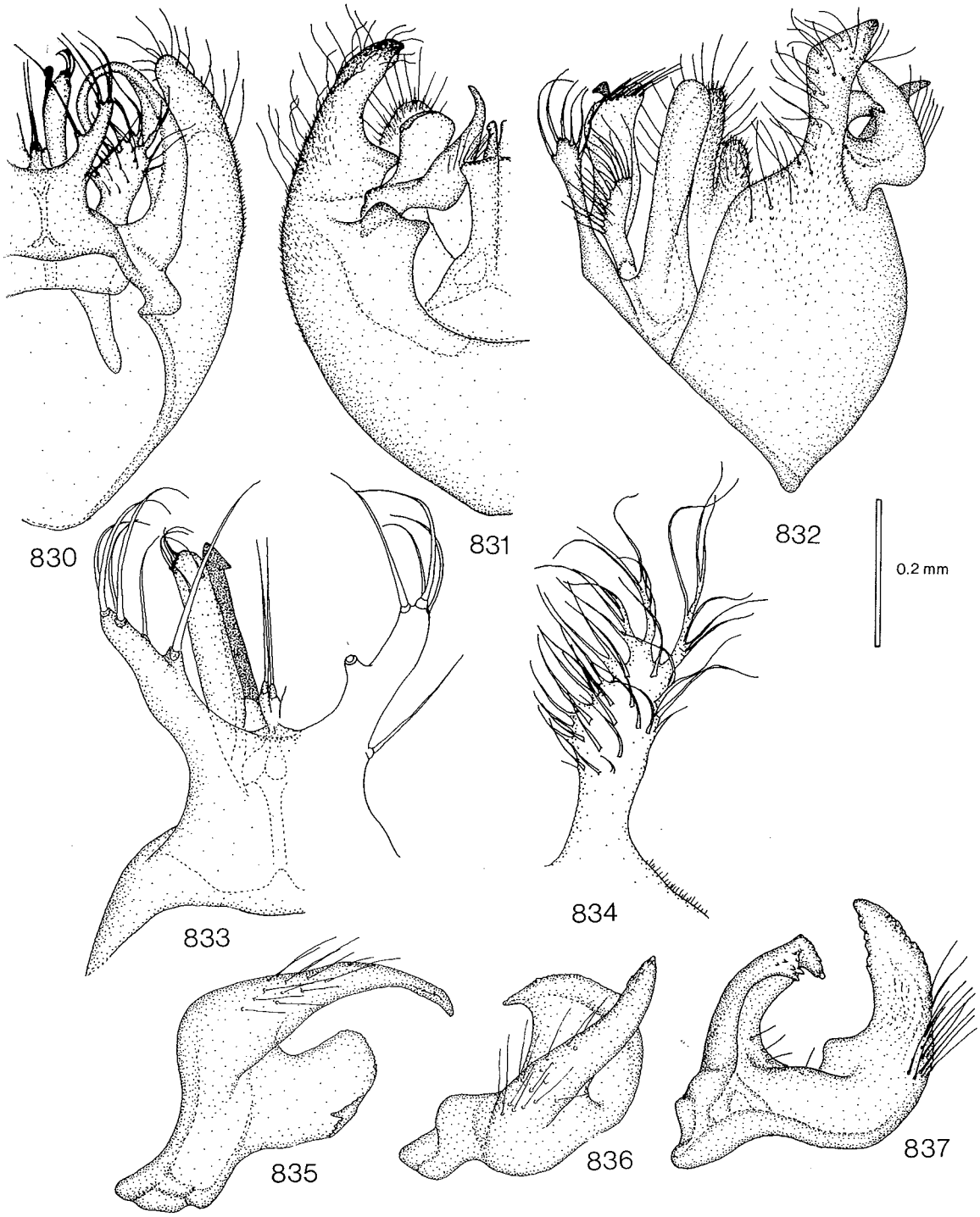
Type: Holotype (studied): Mexico, Puebla, lot 24, 9 mi. SW. Coacoyunga, 14 Aug. 1969, 9700′, George W. Byers (m SNOW).

Material examined: Mexico: Holotype (SNOW).

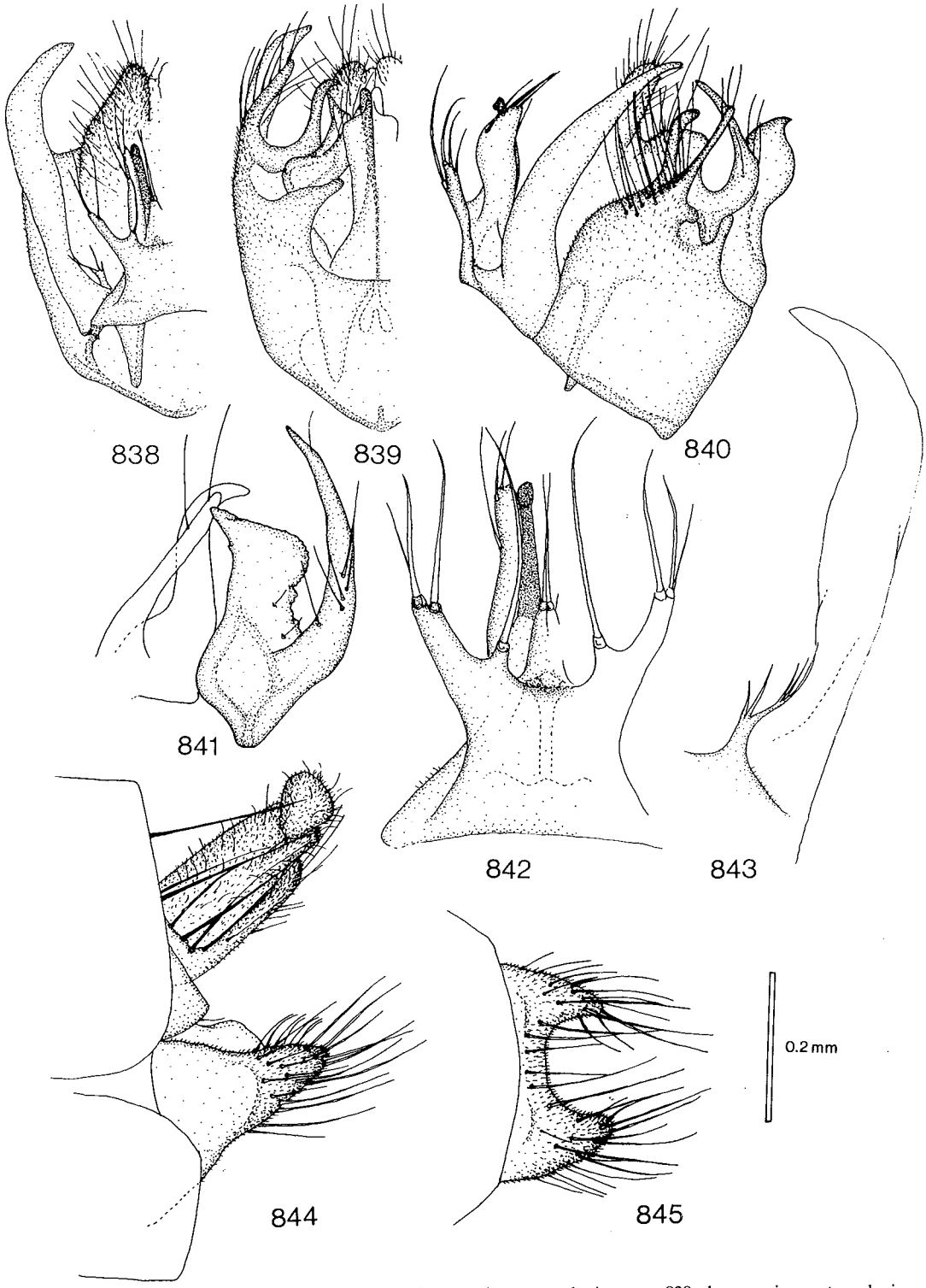
Description:

Head. Palp, other mouthparts and face light brownish, posterior parts of head brown, ocellar prominence dark. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellowish, with very indistinct brownish longitudinal stripes. Mesanepisternum yellowish. Mesokatepisternum yellowish to light brownish. Scutellum yellowish, with 4 long setae. Laterotergite yellowish to light brownish. Mediotergite light brownish, bare.



Figs. 830—837. *Mycomya yunga*. — 830: male hypopygium, tergal view. — 831: hypopygium, sternal view. — 832: hypopygium, lateral view. — 833—834: details of tergite 9. — 835—837: gonostylus, different views. Scale 0.2 mm for Figs. 830—832, Figs. 833—837 2 x enlarged.



Figs. 838—845. *Mycomya tolteca*. — 838: male hypopygium, tergal view. — 839: hypopygium, sternal view. — 840: hypopygium, lateral view. — 841: gonostylus. — 842—843: details of tergite 9. — 844: (?) female terminalia, lateral view. — 845: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 838—840 and 844—845, Figs. 841—843 2 x enlarged.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length, with 1 apical tooth. Leg ratios: bt1:t1 = 1.43, bt2:t2 = 0.78, bt3:t3 = 0.60.

Wing. Wing length 4.6 mm. Wing apex and small cell weakly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 14—16 macrotrichia. Small cell about twice as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.53, 0.67. Cu ratios: 0.70, 1.04. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish, knob yellowish.

Abdomen. Tergites 1—6 brown, with yellow anterolateral spots, 7 brown. Sternites yellow to yellowish.

Hypopygium. Figs. 830—837, yellowish, not very light. Tergal fork with some long setae, without lateral lobes. Tergite 9 with weakly sclerotized long, curved lateral appendages and membraneous setose sublateral appendages. Sternal synsclerite with prominent setose lateral appendages. Gonostylus setose, bilobed.

Female. Unknown.

Remarks: Some macrotrichia on wing membrane, near base of Cu1.

Distribution: Mexico.
Biology: Unknown.

Mycomya tolteca n. sp.
Figs. 838—845, key p. 39.

Type locality: Puebla, 5 mi. NE. Teziutlán (Mexico).

Type: Holotype (studied): Mexico Puebla No. 7, 5 mi. NE. Teziutlán, 20 June 1961, 6400, George W. Byers (m SNOW).

Material examined: Mexico: Puebla, 5 mi. NE. Teziutlán, 6400′, 20.VI. 1961, G. W. Byers (holotype, paratype: 1 m SNOW); Puebla, lot 5, 4 mi. S. Zacapoaxtla, 6800′, 19.VI. 1961, G. W. Byers (1 ?f SNOW).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish, ocellar prominence brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellowish, without distinct markings. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellowish, with 4 long setae. Laterotergite yellow. Mediotergite yellow to yellowish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length, with 1 apical tooth. Leg ratios: bt1:t1 = 1.32, bt2:t2 = 0.75—0.78, bt3:t3 = 0.57—0.59.

Wing. Wing length 4.1—4.4 mm. Wing more or less distinctly infuscate on small cell and apex. Sc ending in C distally to near middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 12—15 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork slightly proximal — slightly distal to M fork. M ratios: 0.50—0.59, 0.64—0.74. Cu ratios: 0.82—1.00, 1.29—1.47. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish, knob brown.

Abdomen. Tergites 1—5 light brownish, with brown posterior margins and brown dorsomedial line, 6—7 brown. Sternites 1—5 yellow, 6—7 yellowish.

Hypopygium. Figs. 838—843, yellow to yellowish. Tergal fork with some long setae, without lateral lobes. Tergite 9 with weakly sclerotized, long lateral appendages and very short, setose sublateral appendages. Sternal lateral appendage with 2 branches. Gonostylus with 2 branches.

(?) Female. Posterior parts of head yellowish, ocellar prominence brown. Leg ratios: bt1:t1 = 1.41, bt2:t2 = 0.76, bt3:t3 = 0.63. Wing length 5.7 mm. Sc with 15—17 macrotrichia. Small cell about twice as long as wide. Abdominal tergites 1–5 yellow, with broad brown posterior margins and brown dorsomedial line, 6 brown with yellow anterolateral spots, 7 brown, sternites yellow. Terminalia as in Figs. 844—845, yellow.

Distribution: Mexico.
Biology: Unknown.

Mycomya amica n. sp.
Figs. 846—853, key p. 39.

Type locality: California, Monterey (USA).

Type: Holotype (studied): Monterey N. L. 5 mi. S., May 9, 1968, Malaise trap, M. W. McFadden (m WASH).

Material examined: USA: Monterey, N. L. 5 mi. S., 8.V. 1968, Malaise trap, M. W. Mc Fadden (1 f WASH); same data, 9.V. 1968 (holotype WASH).

Description:

Head. Palp, other mouthparts and face yellowish, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

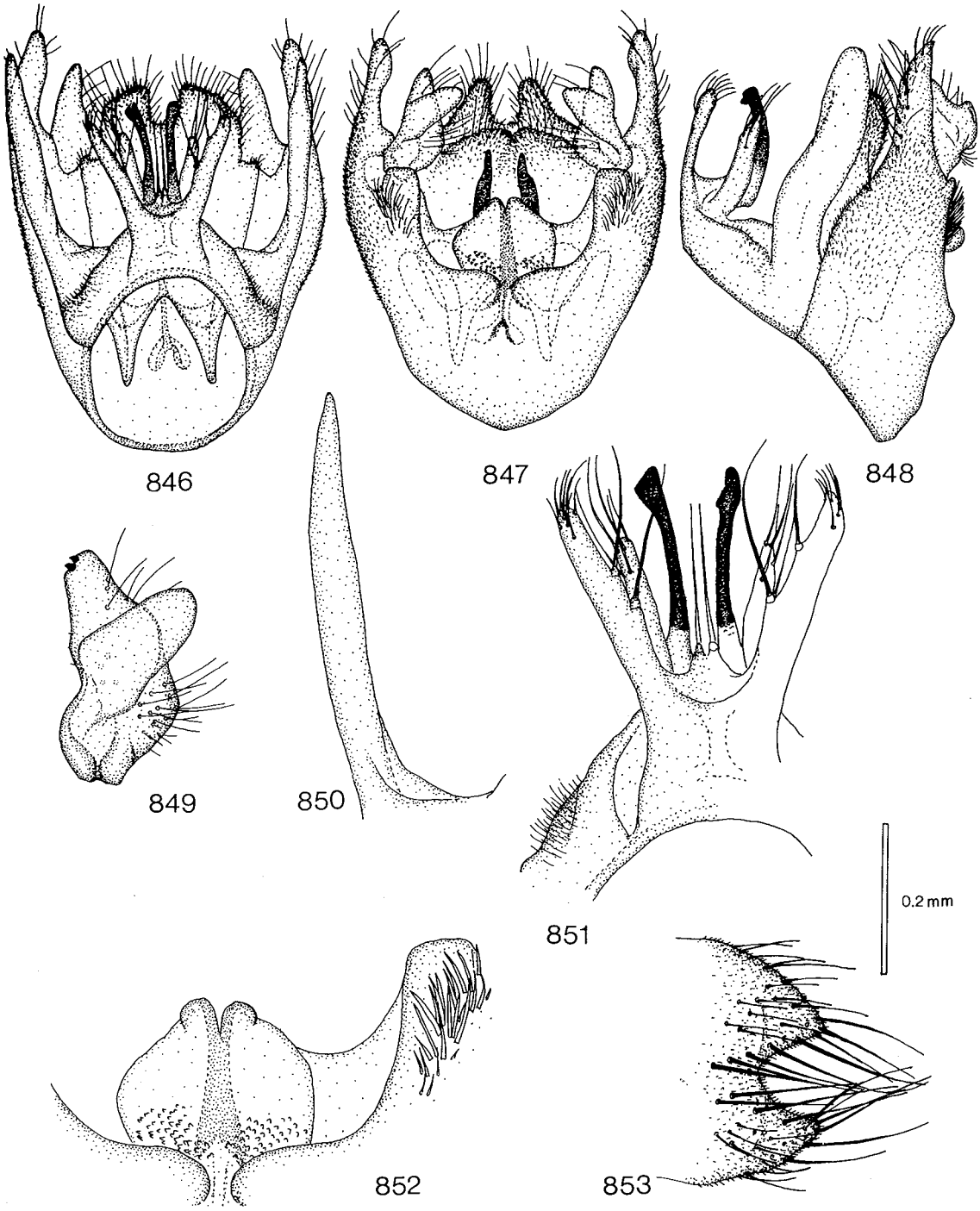
Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 brownish, partially fused brown longitudinal stripes, anterolateral corners and lateral margins yellow. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum brownish, with 4 long setae. Laterotergite yellow. Mediotergite light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with short curved spur. Coxa 3 with brownish spot on lateral surface. Leg ratios: bt1:t1 = ?, bt2:t2 = 0.74, bt3:t3 = 0.57.

Wing. Wing length 3.6 mm. Wing hyaline, small cell and apex very sligshtly infuscate. Sc ending in C distally to middle of small cell or Sc1 apically broken not reaching C, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 16—18 macrotrichia. Small cell almost twice as long as wide. Cu fork below or slightly distal to M fork. M ratios: 0.50, 0.59. Cu ratios: 0.92, 1.41. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish, knob yellowish to brownish.

Abdomen. Tergites 1—5 brown with yellow anterolateral spots, 6—7 brown. Sternites 1—5 yellow, 6—7 yellow, with yellowish posterior margins.

Hypopygium. Figs. 846—852, yellow. Tergal fork



Figs. 846—853. *Mycomya amica.* — 846: male hypopygium, tergal view. — 847: hypopygium, sternal view. — 848: hypopygium, lateral view. — 849: gonostylus. — 850—851: details of tergite 9. — 852: aedeagus and details of sternal synsclerite. — 853: hypogynal valves of female terminalia, sternal view. Scale 0.2 mm for Figs. 846—848 and 853, Figs. 849—852 2 x enlarged.

without lateral lobes, with some long setae. Tergite 9 with long, slender, weakly sclerotized lateral appendages. Sternal synsclerite with long lateral appendages and specialized spine-like setae near base of gonostylus. Gonostylus wide, setose, with lateral lobe and 2 apical teeth.

Female. Wing length 4.3 mm. Posterior parts of head brownish, ocellar prominence brown. Thorax yellow with 3 indistinct brown mesoscutal stripes and brownish scutellum. All coxae entirely yellow. Leg ratios: bt1:t1 = 1.33, bt2:t2 = 0.72, bt3:t3 = 0.66. M ratios: 0.39, 0.50. Cu ratios: 0.87, 1.30. Terminalia as in Fig 853, yellow.

Distribution: Western Nearctic. USA: California.
Biology: Unknown.

Mycomya pulchella (Dziedzicki, 1885)

Remarks: The data for the two subspecies are given separately.

Mycomya pulchella pulchella (Dziedzicki, 1885)
Figs. 854—861, key p. 39.

Sciophila pulchella Dziedzicki, 1885. Dziedzicki 1885:24; Kertész 1902:63, 1903:34.
Mycomyia pulchella: Landrock 1926—1927:51; Barendrecht 1938:38; Frey & Storå 1941:46; Mikolajczyk 1967:22.
Mycomya pulchella: Laštovka & Matile 1974:94; Väisänen in Hackman 1980:31; Väisänen 1982b:41.
(?) *Mycomyia pulchella:* Krogerus 1960:64.
(p. p.) *Mycomyia pulchella:* Ostroverchova & Stackelberg 1969:273 (p. p. = *M. avala* n. sp.).
(not) *Mycomyia pulchella:* Lackschewitz 1937:11 (= *M. avala* n. sp.).
Mycomyia pseudopulchella Ostroverchova, 1939 (New synon.). Ostroverchova 1979:72.
Mycomya pseudopulchella: Väisänen 1982b:41.

Type locality: "Zaczernie" (Byelorussian SSR).
Types: — *Sciophila pulchella* Dziedzicki: Holotype (studied): *Sciophila pulchella* n. sp. ♂. Mus. Zool. H:fors Spec. typ. No 4765 *Mycomyia pulchella* Dziedzicki. In addition, a white label with five red vertical bands. (m MZH). Since this specimen agrees well with the original description and figures of Dziedzicki (1885) and its history shows that it originates from Dziedzicki's collection, I consider it to be the holotype. Other specimens of Dziedzicki have also been secondarily labelled as types (WIEN) but they obviously are not type material. — *Mycomya pseudopulchella* Ostroverchova: Holotype (not seen): male from the type locality, 28.VII. 1969; prep. 638 (possibly in Tomsk, if not lost). Type locality: "Tomskaja obl., Verhneketskij r-n, sr. tetshenie r. Orlovki" (West Siberia, USSR).

Remarks: As far as can be judged from the original description and the figure of the male hypopygium (Ostroverchova 1979:61, Fig. 15.5.), it seems that *M. pseudopulchella* is a junior synonym of *M. pulchella*. The differences from *M. pulchella* listed by Ostroverchova (p. 73) are insufficient to distinguish *M. pseudopulchella* as a separate species; as already noted by Laštovka & Matile (1974), mid-coxal spur is present in the males of *M. pulchella* as well (cf. Landrock 1926—1927).

Material examined: Netherlands: Zeist, VIII. 1891, de M. (1 m 3 ff AMST); Baarn, 9.VIII. 1903, de M. (2 ff AMST); Nederland, de Meijere (1 f AMST). — ?Austria: *pulchella* det. Schnabel (1 m WIEN). — Poland: Bogucice Ias distr. Pinczow, 27.VIII. 1960, W. Mikolajczyk (1 m + prep. slide 503 WARS). — Finland: *N:* Tvärminne, 12.VII. 1932, R. Frey (3 mm 1 f MZH); Borgå (Porvoo), Seitlax, 15.VIII. 1934, H. Alqvist (1 m MZH); *Ka:* Vehkalahti, 5.VIII. 1974, L. Tiensuu (1 m MZH); *Sa:* Valkeala, Utti, 9.VIII. 1965, K. Mikkola (1 m MZH); *Om:* Pyrkenäs, 16.VII. 1934, R. Storå (2 mm MZH); *Kb:* Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (1 m 1 f MZH); Kitee, Närsäkkälä, 27.VI. 1963, W. Hackman (1 m MZH); *Ok:* Sotkamo, Aarreniemi, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); *Ob:* Liminka, 23.VIII. 1909, Wuorentaus (1 m 2 ff MZH). — USSR: Without data (coll. Dziedzicki) (holotype MZH, 1 m WIEN — also labelled as type); Rossia, (Dziedzicki) Mik (1 m WIEN — also labelled as type); Leningr., Luzhsk., Tolmachevo, 13.VIII. 1936, 23.VIII. 1937, Stackelberg (2 mm LEN); Khibin. g. Kol'sk., bass. oz. Vud-yavr, 4.IX. 1930, Fridolin (1 m LEN); M. M. Ural i oz. Varcha-ty, Obdor, 28.VIII. 1925, Fridolin (1 m LEN). — Remarks: Uncertain females are available from *Ab:* Sammatti and Halikko, *Ks:* Kuusamo and USSR: Kola (MZH).

Description:
Head. Palp, other mouthparts, face and posterior parts of head yellow, ocellar prominence brown. Antenna yellowish, basal segments lighter, yellow. 1st flagellomere 3—4 times, 2nd twice as long as wide.

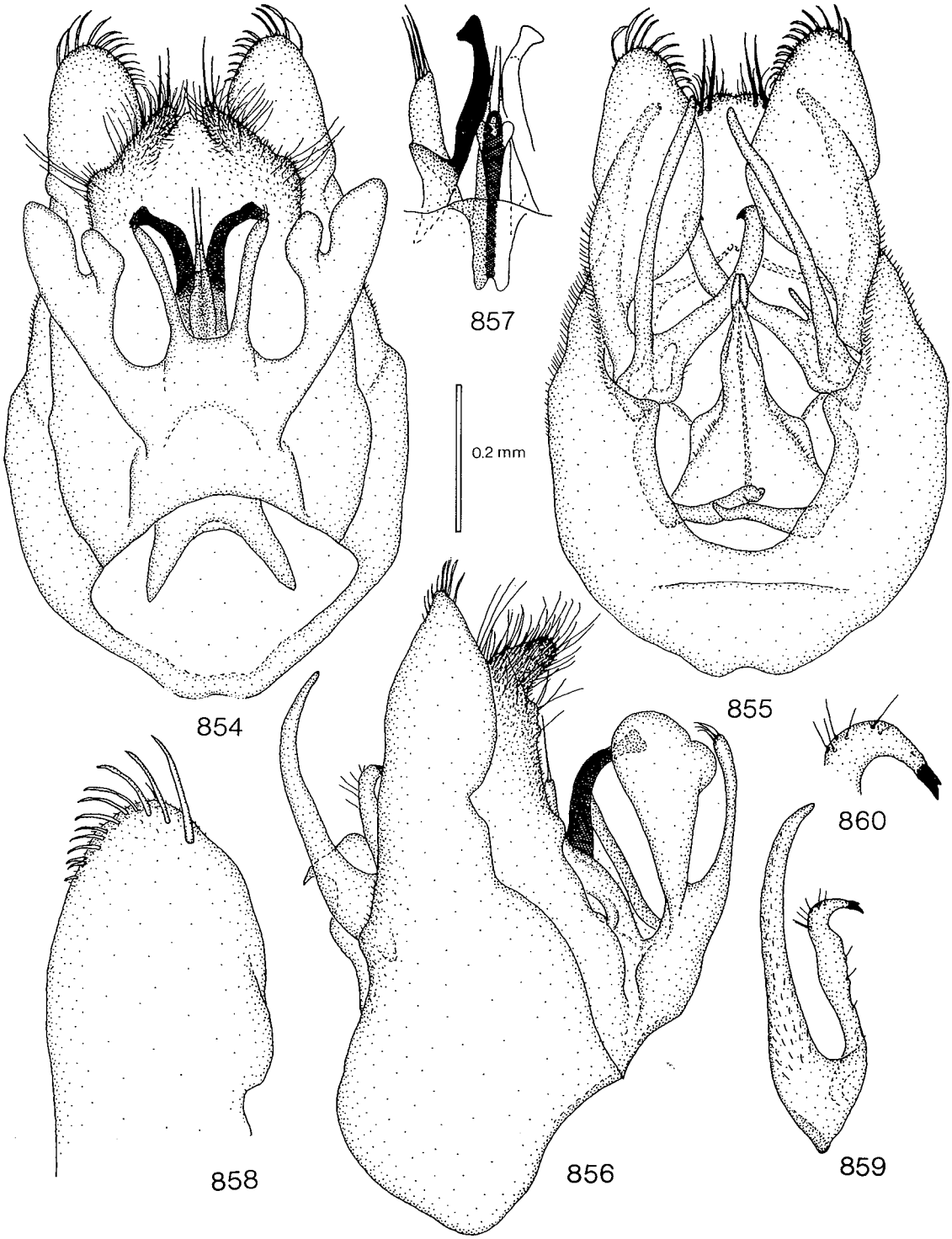
Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow with indistinct short anterior brownish medial stripe with narrow yellow middle band, and indistinct brownish posterolateral longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, sometimes with lateral and caudal parts slightly darker, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length, with 1 apical tooth. Leg ratios: bt1:t1 = 1.00—1.14, bt2:t2 = 0.70—0.76, bt3:t3 = 0.54—0.65.

Wing. Wing length 4.2—5.0 mm. Wing hyaline or apex and small cell slightly infuscate. Sc ending in C distally to middle of small cell, Sc1 seldom apically broken not quite reaching C, Sc2 ending in R1 near or distally to middle of small cell. Apical part of Sc bearing 12—22 macrotrichia. Small cell less than or about twice as long as wide. Cu-fork slightly proximal — slightly distal to M fork. M ratios: 0.37—0.49, 0.44—0.50. Cu ratios: 0.74—0.88, 1.12—1.40. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with narrow brown posterior margins and narrow brown dorsomedial stripe, sometimes missing on tergite 5, 6 brown, 7 yellow. Sternites 1—5 and 7 yellow, 6 slightly darker.

Hypopygium. Figs. 854—860, yellow, large. Tergal fork with short apical and large thin membraneous lateral lobes. Sternal lateral appendage long, wide, with several wide curved apical setae. Sternal submedial appendage bending outwards, curved. Gonostylus long,



Figs. 854—860. *Mycomya pulchella pulchella.* — 854: male hypopygium, tergal view. — 855: hypopygium, sternal view. — 856: hypopygium, lateral view. — 857: details of the inner structures of tergite 9. — 858: apex of sternal lateral appendage. — 859: gonostylus. — 860: apex of gonostylus. Scale 0.2 mm for Figs. 854—857 and 859, Figs. 858 and 860 2 x enlarged.

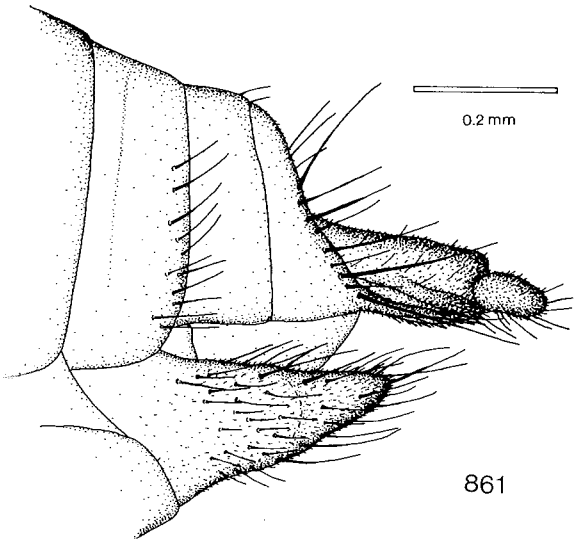


Fig. 861. *Mycomya pulchella pulchella,* female terminalia, lateral view. Scale 0.2 mm.

slender 2-branched. Aedeagus long, narrow, apically hook-like.

Female. Coloration and setosity of head and thorax as in male. Leg ratios: bt1:t1 = 1.12—1.18, bt2:t2 = 0.71—0.77, bt3:t3 = 0.60—0.61. Wing length 4.8—5.5 mm. Abdominal tergites 1—5 yellow, with narrow posterior margins and dorsomedial line brown, 6—7 brown with small anterolateral corners yellowish. Terminalia as in Fig. 861, yellow.

Distribution: Palaearctic. Netherlands, ? Austria, Poland, Finland. USSR: Byelorussian SSR, Leningrad region, Kola peninsula and Ural Mountains. Also reported from Mongolia (Laštovka & Matile 1974: Figs. 3—4).

See *M. p. imitans* Johannsen.

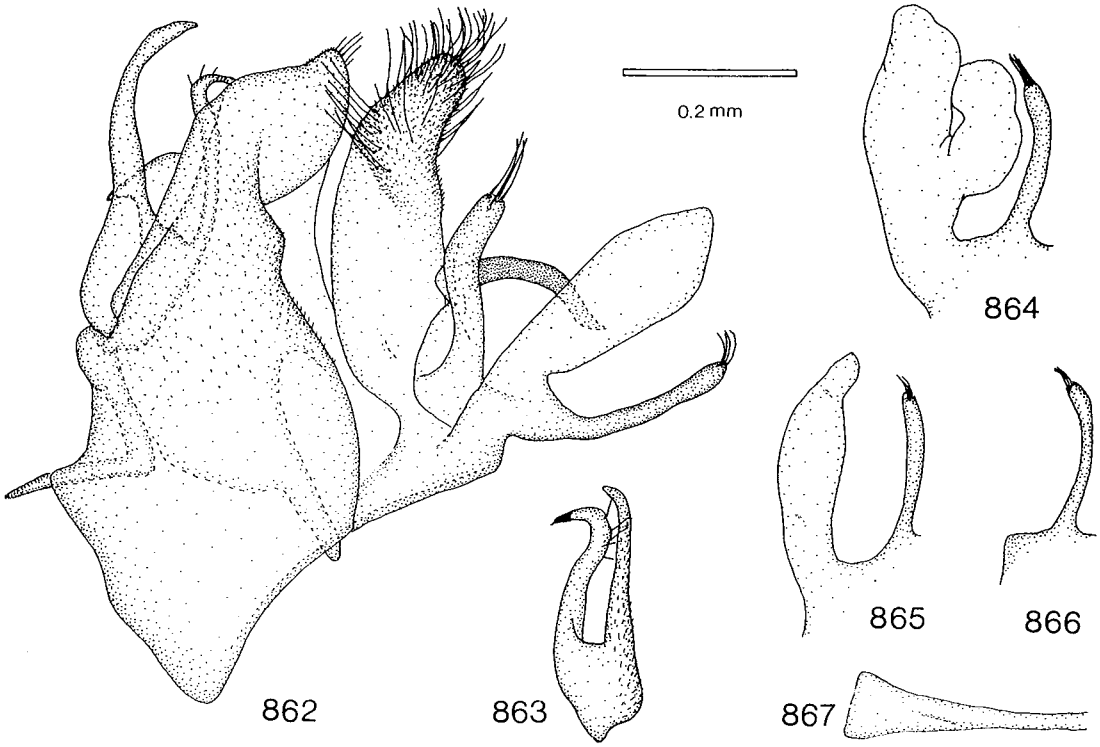
Biology: Finnish specimens collected from boreal forests and bushy meadows.

Mycomya pulchella imitans Johannsen, 1910 n. status

Figs. 862—867, key p. 39.

Mycomya imitans Johannsen, 1910. Johannsen 1910:177; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia imitans: Fisher 1937:391; Shaw 1940:51, 1947:711; Coher 1959:105.



Figs. 862—867. *Mycomya pulchella imitans.* — 862: male hypopygium, lateral view. — 863: gonostylus. — 864—866: variation in the shape of tergal fork of tergite 9 (864: type 5; 865: type 3; 866: type 1). — 867: tergite 8. Scale 0.2 mm.

Table 8. The proportions of the different hypopygium types in *Mycomya pulchella imitans* Johannsen expressed as percentages (N = number of specimens examined). Type 1 — the lateral lobes of the tergal fork missing, type 2 — the lateral lobes small, type 3 — the lateral lobes of medium size, type 4 — the lateral lobes long (European type), type 5 — the lateral lobes very large. The classification is more or less arbitrary, since these types tend to intergrade.

Area	Type 1	Type 2	Type 3	Type 4	Type 5	N
B. C.	—	—	—	100	—	4
Wash., Alta.	—	—	—	100	—	3
Manitoba	—	—	—	100	—	1
Minn., Iowa, Wisc.	16	14	62	4	4	73
Ont., Que., N. B., N. S.	30	38	21	4	7	98
Me., Vt., Md., N. H., Pa., N. Y., Ct.	54	27	9	10	—	135
N. C., Ky., Tenn., Gr. Smokies etc.	18	71	11	—	—	56
Total area	33	34	23	8	3	371

Type locality: Originally: Ithaca, N.Y.; Mass. and Wis.; Selkirk Mts., B. C.; Kingston, R. I. Type locality by present designation: Rhode Island, Kingston (USA).

Type: Lectotype (studied) by present designation: Kingston R. I., 28. Aug. 07, ♂ Holotype, *Mycomya imitans* Johannsen. O. A. Johannsen, Lot 278, Sub. Cornell U., Holotype Cornell U. No. 1975 (m CORN).

Material examined: Alaska: Alsk., Valdez, 3 mi. W., 24.VIII. 1948, R. I. Sailer, Alaska Ins. Project (1 f USNM). — Canada: B. C., Selkirk Mts., J. C. Bradley (*Mycomya imitans* Johannsen, allotype, lot 279, CORN No. 1975); same data (*Mycomya imitans* Johannsen 2 m paratypes, lot 271 & lot 280, CORN No. 1975.4 & 1975.3); B. C., Procter 8.VII. (m hypop. slide 50.37 USNM); B. C., 5 mi. E. Hope, 28.VI. 1973, H. J. Teskey (2 mm CNC); B. C., Mt. Thornhill, nr. Terrace, elev. 700′, along trail, 30.VI. 1960, B. Heming (1 m CNC); B. C., Terrace, 12.VIII. 1960, W. R. Richards (1 f CNC); B. C., Liard, Hotsprings, Mile Post 496, Alaska Hwy., 2.IX. 1957, E. L. Kessel (1 m CNC); Alta., Slave L., 15.VIII. 1924, 17.VIII. 1924, O. Bryant (1 m 3 ff CAS); Alta., Jumping Pd. Cr., 20 mi. W. Calgary, 11.VII. 1962, W. R. M. Mason (1 m CNC); Man., Int. Peace Gardens, Turtle Mtn. For. Res., 7.VIII. 1958, J. G. Chillcott (1 m CNC); Ont., Toronto, High Park, borders of marsh, 14.VI. 1899, E. M. Walker (1 f BMNH); Ont., Glen Major, 10.VIII. 1928, F. P. Ide (1 f ROM); Ont., Kearney, 29.VII. 1911, 1.VIII. 1911, M. C. Van Duzee (1 m 3 ff CAS); Ont., Bell's Cor., 7.VII. 1952, J. F. Mc Alpine (2 mm 1 f CNC); Ont., Stittsville, 27.VIII. 1963, 21.IX. 1963, W. R. M. Mason (2 mm CNC); Ont., Merivale, 20.VI. 1957, J. G. Chillcott (1 m CNC); Ont., Ottawa, Mer Bleue, 25.VI. 1964, J. R. Vockeroth (2 mm CNC); same locality, 23.VI. 1952, G. E. Shewell (1 m CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 2.IX. 1963, 29.VI. 1966, Malaise trap, D. D. Munroe (2 mm 1 f CNC); Ont., Rockport, 24.VII. 1963, J. R. Vockeroth (1 f CNC); Ont., St. Ignace Il., Sturgeon Bay, 2.V. 1959, wooded ravine, J. G. Chillcott (1 f CNC); Ont., 6 mi. W. Richmond, 29.VI. 1971, J. E. H. Martin (1 m CNC); Que., Rouville Co., 11.VII. 1902 (1 f MCZ); Que., Old Chelsea, 22.VII. 1956, 31.VIII. 1958, 11.VI. 1959, 21.VIII. 1959, 18.VII. 1961, 9.VIII. 1961, 30.VIII. 1961, 5.IX. 1963, 1.X. 1963, 15.VI. 1964, J. R. Vockeroth (12 mm, 6 ff CNC); same locality, 25.VI. 1963, J. G. Chillcott (4 mm 2 ff CNC); same locality, Summit of King Mt., 1150 feet, 11.VI. 1959, 11.X. 1960, 22.VI. 1961, 18.VII. 1961, 9.VIII. 1961, 25.VI. 1962, 14.VI. 1963, 15.VI. 1964, 24.VI. 1964, 24.VI. 1965, 7.VII. 1965, J. R. Vockeroth (15 mm 3 ff CNC); same locality, 1000′, 8.VII. 1969, Mal. tr., D. D. Munroe (4 mm 5 ff CNC); Que., Hull, 3.VIII. 1965, 10.VIII. 1965, Malaise trap (2 mm 3 ff CNC); Que., La Vendrye Prov. Pk., 6.IX. 1964, D. M. Wood (1 f CNC); same locality, Mi. 61 Rte. 58, 21.VIII. 1965, D. M. Wood (1 m 4 ff CNC); Que., Mt. Orford, 2000—2800′, 21.VII. 1968, J. R. Vockeroth (2 mm 2 ff CNC); Que., Lac Phillipe, 43°37′N, 76°W, 31.VII. 1955, J. R. Vockeroth (1 m CNC); Que., Indian House L., 30.VII. 1954, 5.VIII. 1954, 8.VIII. 1954, 14.VIII. 1954, W. R. Richards (4 mm 2 ff CNC); same locality, 15.VIII. 1954, 20.VIII. 1954, R. Coyles (1 m 1 f CNC); Que., Knowlton Ldg., 17.VII. 1968, 18.VII. 1968, 19.VII. 1968, J. R. Vockeroth (25 mm 32 ff CNC); Que., Duncan Lake, Nr. Rubert, 18.VII. 1969, 30.VII. 1969, 4.VIII. 1969, J. F. McAlpine (2 mm 1 f CNC); Que., Gatineau Co., Masham Twp., 1—5.VII. 1974, 10—20.VII. 1974, D. M. Wood (3 mm CNC); Que., Kam. Co., Parke Reserve, 28.VII. 1957, G. E. Shewell (2 mm CNC); Que., Mt. St. Hilaire, 950—1350′, 19.VI.1964, J. R. Vockeroth (3 mm 1 f CNC); Que., Riv.-de-Loup, 27.VII. 1957, G. E. Shewell (1 m CNC); Que. Beechgrove, 45°39′, 76°8′, 2.X. 1964, J. R. Vockeroth (1 f CNC); N. B., Kouchibouguac N. P., 18.VII. 1977, G. A. Calderwood (1 m CNC); N. S., Lockeport, 28.VII. 1958, 1.VIII. 1958, J. R. Vockeroth (2 mm CNC); same locality, Cranberry I., 9.VIII. 1958, J. R. Vockeroth (1 f CNC); N. S., Shelburne, 10.VIII. 1958, J. R. Vockeroth (2 mm CNC); N. S., Mount Uniacke, 5.VIII. 1958, J. R. Vockeroth (1 m CNC). — USA: Wash., Pac. Co., 1 mi. N. Nahcotta, 31.VII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); Wash., Clall. Co., Olympic N. P. nr. Hurrigane Rdg. Ldg., 4.VIII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 f WASH); Wash., Quilcene, 24.VII. 1917, 11.VIII. 1921, A. L. Melander (2 ff USNM); Wash., Tulalip, 3.VIII. 1917, A. L. Melander (1 f USNM); Wash., Blaine, 7.VIII. 1917, A. L. Melander (1 f USNM); Minn., Hennepin Co., 9.VIII. 1929, R. E. Wall (1 m MINN); Minn., Lake Co., Baswood Lake, Q-S WRC, Sec. 9, Twp. 64N, Rge. 10W,

15.VIII. 1950, 11.VII. 1951, 15.VII. 1952, R. Namba (2 mm 1 f MINN); Minnesota, Itasca St. Park, 30.VI. 1955 (1 m MINN); Minn., Clearwater Co., Lake Itasca, 2.IX. 1950, J. Laffoon (1 f ISU); Minn., Itasca St. Pk., 1 mi. E. of Biol. Sta., 22.VII. 1963, D. L. Deonier (1 f ISU); Minn., Hubbard Co., ? Kalsekona City, sec 32, T143N, R33W, 29.VII. 1963, D. L. Deonier (1 m ISU); Iowa, Boone County, Ledges State Park, 20.VI. 1949, 25.VI. 1949, 10.VII. 1949, 30.VII. 1949, 21.VI. 1950, 25.VI. 1950, 29.VII. 1950, 6.IX. 1950, 25.IX. 1950, 13.X. 1950, 12.VI. 1952, 23.VI. 1953, 4.VII. 1953, 29.VII. 1955, 27.VI. 1956, 23.VI. 1960, 3.VII. 1961, 23.VII. 1961, 27.VII. 1961, 12.VI. 1962, 26.VI. 1963, 2.VII. 1963, J. L. Laffoon (38 mm 87 ff 2 exx. ISU); same data, 29.VII. 1950 (1 f 1 m MICH, 1 f 1 m OREG); same data, 25.VI. 1950 (2 mm 2 ff BMNH); same locality, 23.VI. 1961, 13.VII. 1961, 23.VII. 1961, R. J. Gagné (8 ff ISU); same locality, 20.VI. 1949, D. Neuman (1 m ISU); same locality, 30.VII. 1955, W. L. Downes (2 ff ISU); same locality, 20.VI. 1949, B. Heffner (1 f ISU); same locality, 2.VII. 1963, D. M. Miller (2 mm 2 ff ISU); Iowa, Guthrie Co., Springbrook St. Park, w.1/2 Sec. 33, T81N, R31W, 19.VII. 1960, J. Laffoon (1 m 3 ff ISU); Iowa, Dubuque Co., White Pine Hollow, 4.VII. 1949, J. Laffoon (2 ff ISU); Iowa, Clayton Co., Pike's Peak St. Pk., 4.VII. 1949, J. Laffoon (4 ff ISU); Iowa, Jackson Co., Maquoketa Caves St. Pk., 3.VII. 1949, J. Laffoon (2 ff ISU); Iowa, Webster Co., Dolliver Mem. St. Park, 30.VI. 1950, J. Laffoon (1 f ISU); Iowa, Linn Co., Palisades-Kepler St. Pk., 8.VII. 1950, Laffoon, Slater, Hicks (2 ff ISU); MO., Oregon Co., McCormack Lake, Shawnee Natl. For., 6.VI. 1968, R. L. Fischer (1 m MICH); Wis., W. M. Wheeler (1 f AMNH); Wisconsin, Rusk Co., T34N R8W B24, 17.VI. 1952, 1.VIII. 1952, 27.VIII. 1952, light trap, R. H. Roberts (3 mm WISC); same locality, T35N R7W B30, 22.VII. 1953, 4.VIII. 1953, 12.VIII. 1953, 15.VIII. 1953, light trap, R. H. Roberts (3 mm 4 ff WISC); Wisconsin, Washburn Co., T39N R12W B32, 14.VII. 1952, 22.VIII. 1952, 26.VIII. 1952, 27.VIII. 1952, 28.VIII. 1952, 31.VIII. 1952, 9.IX. 1952, 10.IX. 1952, 18.VII. 1953, 28.VIII. 1953, 31.VIII. 1953, R. H. Jones (12 mm 3 ff WISC); same locality, B29, 30.VI. 1952, B28, 2.IX. 1952, B33, 29.VI. 1953, R. H. Jones (2 mm 1 f WISC); Wisconsin, Vilas County, Squaw Lake, 15.VIII. 1954, 16.VIII. 1954, J. L. Laffoon (1 f 1 m ISU); Michigan, Douglas Lake, 30.VI. 1949, W. Porter (1 f ISU); Michigan, Cheboygan Co., 18.VII. 1949, G. W. Byers (3 ff ISU); Mich., Ontonagon Co., T51N R42W, Sec. 8, 10.IX. 1967, N. T. Baker (2 ff MICH); Mich., E. Lansing, 28.VI. 1941, light trap, C. Sabrosky (1 f USNM); Ohio, Hocking Co., 4.VII. 1949, R. R. Dreisbach (1 f MICH); O., Columbus, 28.V. 1925, R. H. Painter (1 m 1 f PU); ME., Mt. Katahdin, 4.VII. 1968, D. M. Wood (2 mm 1 f CNC); same locality, Hunt Trail -16- 2400′, 1—6.VII. 1968, D. M. Wood (9 mm CNC); Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (7 mm 9 ff BMNH); Me., Orono, 5.VIII. 1913, A. P. Morse (1 f PU); ME., Seal Harbor, 29.VII. 1930, A. L. Melander (2 mm USNM); NH., Cepter Harbor, H. G. Dyar (1 f USNM); N. H., White Mts., Dolly Copp, 13.VII. 1931, 29.VIII. 1937 A. L. Melander (3 mm USNM); White Mts., Morrison (8 ff USNM, 1 f WIEN); NH, Mt. Washington, 3000, 29.VII. 1961, W. W. Wirth (2 mm USNM); same data, 12.VIII. 1961 (1 m USNM); Mt. Washington, 4800′, auto road, 14.VIII. 1958, J. R. Vockeroth (3 mm 3 ff CNC); same data, 3200′(1 m CNC); Mt. Wash'n, A. T. Slosson (1 m AMNH); N. H., Benton, 6.VII. 1931, A. L. Melander (2 mm USNM); N. H., Graham, 15.VII. 1957, J. R. Vockeroth (1 m CNC); VT., Jay Peak, 2600—3000′, 20.VII. 1968, J. R. Vockeroth (10 mm 3 ff CNC); Vt., Laurel Lake, Jacksonville, 9.VIII. 1939, H. D. Pratt (1 m MINN); VT., Springfield, 15.VII. 1931, A. L. Melander (1 m USNM); VT., Peru, 15.VII. 1931, A. L. Melander (1 m USNM); Mass., New Bedford, W. M. Wheeler *(Mycomya imitans* Johannsen 2 mm paratypes, lot 109 & lot 286 CORN No. 1975.1 & 1975.2); Mass., Holliston 15.VII. (1 f MCZ); same locality, 7.IX., 11.IX., N. Banks (2 ff MCZ); same locality, Bryant's place, 19.VIII., N. Banks (1 f MCZ); Mass., Dedham, 4.IX., C. W. Johnson (2 ff MCZ); Mass., Petersham, VII. 26, A. L. Melander (1 m USNM); Mass., Concord, 27.VII. 1961, marshy pond, W. W. Wirth (1 f USNM); Mass., Leyden, 9.VI. 1946, F. R. Shaw (1 m slide MASS); Belchertown, 25.IX. 1930, Holl & Glen (1 m slide MASS); R. I., Kingston, 28.VIII. 1907, O. A. Johannsen *(Mycomya imitans* Johannsen, holotype CORN 1975); same locality, 25.VII. 1915 (1 f PU); R. I., Buttonwoods, 22.VI. (1 f MCZ); Ct., Middletown, 17.VI., C. W. Johnson (1 f MCZ); Connecticut, sw. corner Sleeping Giant St. Pk. (near Hamden), 30.VII. 1961, J. L. Laffoon (1 m 1 f ISU); CT., Redding, 25.VI. 1928, 2.VI. 1929, 26.VI. 1929, 30.VI. 1929, 25.VI. 1930, A. L. Melander (7 mm USNM); CT., L. Waramaug, 23.VII. 1929, A. L. Melander (1 m USNM); CT., Putnam Park, 20.VII. 1939, 24.VII. 1939, A. L. Melander (1 m 1 f USNM); Ct., Canaan, 5.IX. 1952, A. Stone (2 mm USNM); Ct., Deanes Ravine, Lime Rock Sta., 5.IX. 1952, A. Stone (3 ff USNM); CT., Kent Fall, 28.VIII. 1940, A. L. Melander (1 f USNM); CT., Colebrook, 28.VIII. 1941, A. L. Melander (1 f USNM); N. Y., Shandakan, 3.VIII., N. Banks (1 m 2 ff MCZ); N. Y., Colden, 3.VIII. 1913, 9.VII. 1922, M. C. Van Duzee (1 m 4 ff CAS); N. Y., S. Wales, 9.VII. 1911, 13.VII. 1913, M. C. Van Duzee (1 m 3 ff CAS); N. Y., Gowanda, 7.VI. 1918, M. C. Van Duzee (1 m CAS); N. Y., East Aurora, 20.IX. 1914, M. C. Van Duzee (1 f CAS); N. Y., Boston, 3.IX. 1911, M. C. Van Duzee (1 f CAS); N. Y., Essex Co., Keene Valley, 1200′, 20.VII. 1962, J. R. Vockeroth (6 mm 4 ff CNC); N. Y., St. Lawrence Co., Stark, 19.VII. 1962, J. R. Vockeroth (7 mm 5 ff CNC); N. Y., Lake Placid, 2000′, 19.VII. 1962, J. R. Vockeroth (1 m 2 ff CNC); N. Y., Franklin Co., Paul Smiths, 20.VII. 1962, J. R. Vockeroth (1 f CNC); N.Y., Cattaraugus Co., Stoddard Hollow, 1720′—1880′, 42°4′N, 78°45.5′W, 10.VIII. 1961, J. L. Laffoon (26 mm 23 ff ISU); same data, R. J. Gagné (5 mm 5 ff ISU); N. Y., Hamilton Co., along Shanty Brook, 1700′, 43°17.2′N, 74°33.4′W, 5.VIII. 1961, J. L. Laffoon (5 mm 4 ff ISU); same data, R. J. Gagné (3 mm 8 ff); N. Y., Hamilton Co., e. foot of West Notch Mt., 1900′, 43°20.6′N, 74°37.2′W, 6.VIII. 1961, J. L. Laffoon (3 mm 5 ff ISU); same data, R. J. Gagné (2 mm 6 ff ISU); same data, D. L. Deonier (1 m 3 ff ISU); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°21′N, 74°32′W, 1600′, 5.VIII. 1961, J. L. Laffoon (6 mm 1 f ISU); same data, R. J. Gagné (2 mm 1 f ISU); New York, Coy Glen, Ithaca, 9.VIII. 1961, D. L. Deonier (1 m ISU); N. York, 7 mis. so. town of Long Lake, 26.VIII. 1956, J. L. Laffoon (1 f ISU); NY., Bear Mt., 3.VII. 1929, A. L. Melander (1 m USNM); N. Y., Well Co., 29.VII. (1 m hypop. slide

4738 USNM); Pa., Philadelphia, 31.VII., C. W. Johnson (1 f MCZ); Pennsylvania, Sullivan Co., No. 4, Rickets Glen Park, 2200 ft., 6.VII. 1960, Byers & party (1 m SNOW); Pennsylvania, Luzerne Co., No. 6, Rickets Glen Park, 1100 ft., 6.VII. 1960, Byers & party (1 m 1 f SNOW); Pa., Lycoming Co., Ralston, 8.VI. 1962, J. R. Vockeroth (1 m CNC); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run, 11.VIII. 1961, D. L. Deonier (1 m ISU); same locality, J. L. Laffoon (1 m 3 ff ISU); same data, R. J. Gagné (2 mm 2 ff ISU); PA., Tioga Co., Colton Point State Park, 27.VIII. 1956, J. L. Laffoon (9 ff ISU); Penn., Dupois, 3.IX. 1927, A. L. Melander (1 m USNM); NJ., Merchantville, 28.VI. 1891, C. W. Johnson (2 ff MCZ); Md., Bowie, r-29. 1945, DDT Expt. (2 mm USNM); Md., Glen Echo, 25.VI. 1922, 2.VII. 1922, 16.VII. 1922, J. R. Malloch (1 m 3 ff USNM); same locality, 22.VIII. 1922, W. L. McAtee (2 ff USNM); Md., Plummers I., 14.VI. 1912, H. Barber (1 f USNM); same locality, 10.VIII. 1912, Schwarz & Barber (1 f USNM); W. Va., Pocahontas Co., Cranberry, Glades, 16.VII. 1955, C. W. Sabrosky (1 m USNM); Va., Falls Church, Holmes Run, 4.VI. 1961, light trap, W. W. Wirth (1 m USNM); Va., Falls Church, 10.VII., N. Banks (1 f MCZ); Va., Alexandria, *Osmunda* bog, 14.VI. 1951, W. W. Wirth (1 m USNM); Va., Augusta Co., Reddish Knob, 29.VIII. 1953, W. W. Wirth (2 mm USNM); VA., Shenandoah, Big Meadows, 3.VII. 1939, A. L. Melander (2 mm USNM); VA., Shenandoah, Lewis Falls, 4.VII. 1939, A. L. Melander (1 m USNM); Virginia, Madison Co., along Hogcamp Branch, 2800′, 38°31.2′N, 78°25.5′W, 22.VII. 1961, R. J. Gagné (3 mm ISU); same data, O. S. Flint (5 ff 1 m ISU); same data, J. L. Laffoon (4 ff 3 mm ISU); same data, D. L. Deonier (3 mm 1 f ISU); VA., Madison Co., Whiteoak Canyon, south slope of Stony Man, 3500′, 38°35′N, 78°22′W, 22.VII. 1961, D. L. Deonier (4 mm 3 ff ISU); same data, J. L. Laffoon (2 mm 3 ff ISU); same data, R. J. Gagné (8 mm 7 ff ISU); same data, O. S. Flint (2 mm 4 ff ISU); Virginia, Giles Co., Mountain Lake, 3880′, 8.VII. 1969, G. W. Byers (1 f SNOW); same locality, Biol. Sta., 3450 ft., 19.VI. 1965, G. W. Byers (1 m SNOW); KY., Laurel Co., Bald Rock, 11.VI. 1978, M. Evans (1 m MICH); Ky., Ky. Ridge St. For., 1200′, NW sweeps, mixed mesoph., R. H. Whittaker (1 m ISU); N. C., Macon Co., Wayah Gap, 3500′, 16.VIII. 1957, J. G. Chillcott (1 m CNC); same locality, 4100′, 28.VII. 1957, 29.VII. 1957, J. C. Chillcott (2 mm CNC); N. C., Wayah Bald, 4100′, 28.VII. 1957, W. R. Richards (1 m CNC); N. C., Indian Gap, Gt. S. M. N. P., 5200′, 3.VII. 1957, C. D. Hines (1 f CNC); N. C., Tenn., Great Smoky Mt. N. P., Indian Gap, 5200′, 2.VII. 1957, W. R. M. Mason (1 f CNC); N. C., Highlands, 20.VII. 1957, W. R. Richards (1 f CNC); same locality, 3800′, 24.V. 1957, 6.VI. 1957, 20.VI. 1957, J. R. Vockeroth (3 ff CNC); same locality, 3850′, 35°3.2′N, 83°11.3′W, 21.VI. 1958, 23.VI. 1958, 24.VI. 1958, 27.VI. 1958, 29.VI. 1958, 6.VII. 1958, 8.VII. 1958, 10.VII. 1958, 12.VII. 1958, 15.VII. 1958, 19.VII. 1958, J. L. Laffoon (8 mm 5 ff ISU); same locality, 3920′, 35°3.2′N, 83°11.1′W, 13.VII. 1958, 17.VII. 1958, J. Laffoon (3 mm 4 ff ISU); N. C., Macon Co., Clear Creek, 1 mile so. Highlands, 35°1.5′N, 83°11.5′W, 3000′, 2.VII. 1958, J. L. Laffoon (2 ff ISU); No. Car., Macon Co., Robin Branch (near Wayah Bald), 4400′, 35°10.1′N, 83°35.1′W, 13.VII. 1958, J. Laffoon (1 m 1 f ISU); N. Car., Smokies, Andrews Bald, 9.VII. 1941, A. L. Melander (1 m 1 f USNM); Gt. Smokies N. P., New fnd Ridge, 11.VII. 1941, A. L. Melander (4 mm 1 f USNM); Tenn., Smokies, Chimneys, 25.VI. 1941, A. L. Melander (2 mm USNM); Gt. Smokies N. P., Clingman Dome, 18.VII. 1941, A. L. Melander (1 m USNM); Tenn., G. S. M. N. P., Indian Gap, 5200′, 3.VII. 1957, C. D. Hines (1 f CNC); Tenn., Gr. Sm. Mt. Nat. Park, Indian Gap to Clingman's Dome, 5200—6600′, 6.VIII. 1957, J. G. Chillcott (1 f CNC); Tenn., GSMNP, Gatlinburg, Cove Forest, N Sweeps, 4400′, 21. VII. 1947, R. H. Whittaker (1 f ISU); Tennessee, Great Smoky Mts., Sevier Co., near Indian Gap, 5000′, 35°36.6′N, 83°27.1′W, 7.VII. 1958, J. Laffoon (1 f ISU); South Car., Greenville, 2.X. 1932 (1 m slide MASS); Ga., Floyd Co., Cave Spring, 24.V. 1965, J. G. Chillcott (1 m CNC).

Description:

Head. Palp, other mouthparts and face yellow to yellowish, posterior parts of head yellowish, ocellar prominence brown. Antenna yellowish to light brownish, basal segments lighter, yellow. 1st flagellomere about 3 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with or without 3 indistinct light brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part slightly darker. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow, ventral part slightly darker. Mediotergite yellow to yellowish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length, with 1 curved apical tooth. Leg ratios: bt1:t1 = 1.00—1.15, bt2:t2 = 0.67—0.73, bt3:t3 = 0.56—0.57.

Wing. Wing length 3.3—5.0 mm. Wing hyaline or weakly infuscate at small cell and apex. Sc ending in C distinctly distally to middle of small cell, seldom Sc1 weak or broken not quite reaching C, Sc2 ending in R1 near or distally to middle of small cell. Apical part of Sc bearing 12—22 macrotrichia. Small cell 1.5—2 times as long as wide. M ratios: 0.37—0.48, 0.50—0.62. Cu ratios: 0.77—1.00, 1.13—1.56. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

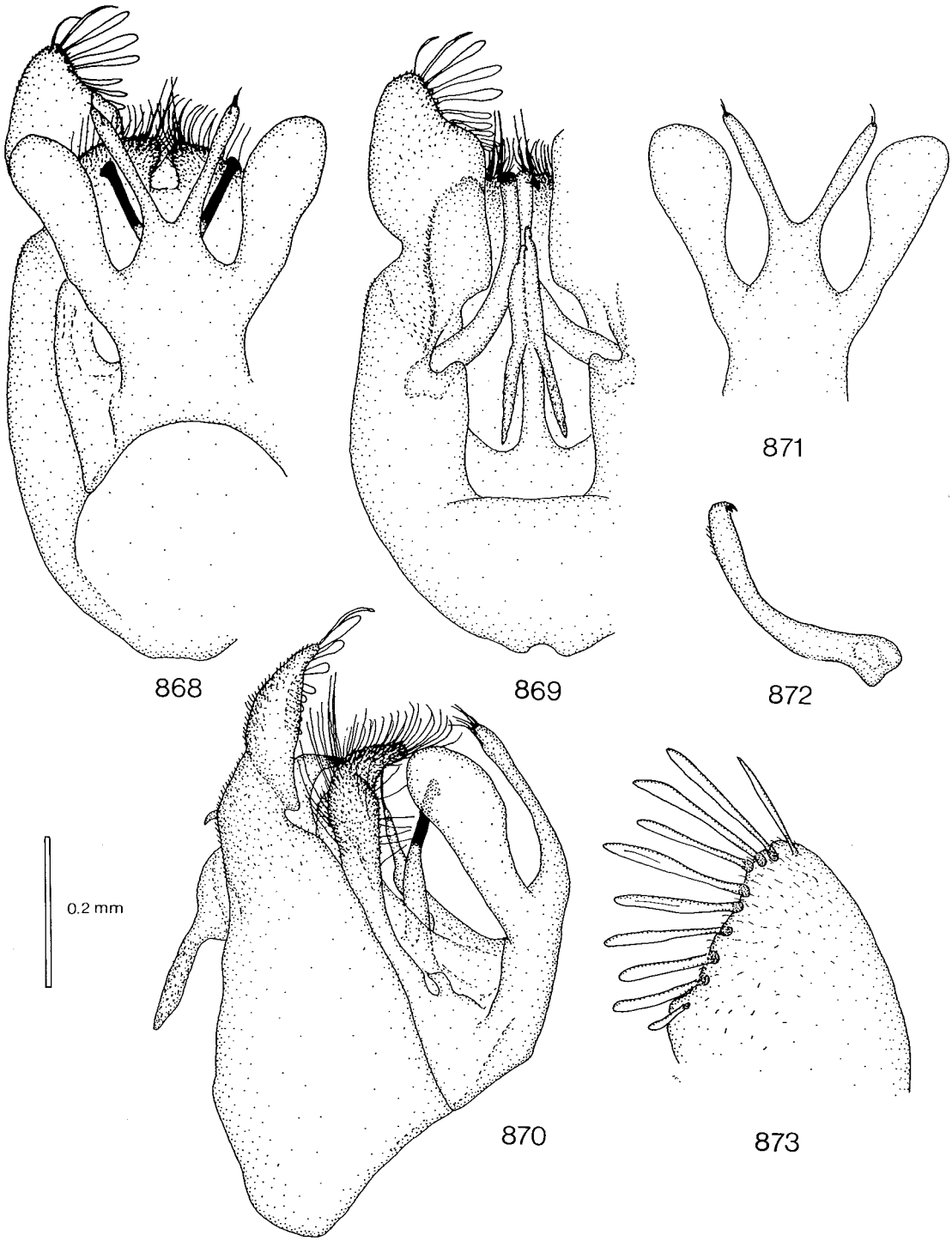
Abdomen. Tergites 1—5 yellow, with narrow dark brown posterior margins and brown dorsomedial line or spots, 6 brown, 7 yellow. Sternites yellow.

Hypopygium. Figs. 862—867, yellow, large. Tergal fork without or with small or occasionally large thin membraneous lateral lobes.

Female. Wing length 4.1—5.6 mm. Abdominal tergites yellow with posterior margins of tergites 1—5 brown and with brown posteromedial spot on each segment, 6 yellow with very broad brown posterior margin, 7 yellow to brownish. Terminalia yellow.

Remarks: Aberrant wing venation: "two Sc2". Shaw (1940, 1947) gives some notes on the wing variation within this taxon.

M. pulchella imitans is very similar to *M. p. pulchella* but usually smaller (wing length of *M. p. imitans* males: mean 4.33 mm, SD 0.25, N=101; *M. p. pulchella* males: mean 4.66 mm, SD 0.20, N=15) and the lateral membraneous lobes of the fork of tergite 9 are usually small or missing (see Table 8). However, large individual variation seems to exist, and some American specimens have even larger lobes than those of the Palaearctic speci-



Figs. 868—873. *Mycomya avala.* — 868: male hypopygium, tergal view. — 869: hypopygium, sternal view. — 870: hypopygium, lateral view. — 871: tergal fork. — 872: gonostylus. — 873: apex of sternal lateral appendage. Scale 0.2 mm for Figs. 868—872, Fig. 873 2 x enlarged.

mens. The specimens from Iowa have peculiar short but comparatively wide lateral lobes. Specimens from southeastern North America usually have no or only small lobes, but northern and northwestern specimens are more similar to the Palaearctic subspecies in this respect. It is possible that the northern, or at least northeastern, part of the Nearctic region is a hybridization zone of these poorly differentiated taxa. However, the possibility cannot be excluded that the southeastern Nearctic specimens represent a species of their own *(M. imitans)*, although this seems unlikely.

Distribution: Nearctic. Alaska. Canada: British Columbia, Alberta, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia. USA: Washington, Minnesota, Iowa, Missouri, Wisconsin, Michigan, Ohio, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Maryland, West Virginia, Virginia, Kentucky, North Carolina, Tennessee, South Carolina, Georgia.

Biology: Several specimens have been caught with Malaise and light traps. The collecting biotopes given are borders of marsh, wooded ravine, *Osmunda* bog, mixed mesophytic forest, etc.

Mycomya avala n. sp.

Figs. 868—873, key p. 39.

Mycomyia pulchella: Lackschewitz 1937:11.

(p. p.) *Mycomyia pulchella:* Ostroverchova & Stackelberg 1969:273.

Type locality: Vihti, Vihtijärvi (Finland).

Type: Holotype (studied): Vihtijärvi 24. 8. 1962, R. Tuomikoski (m MZH).

Material examined: Denmark: Dania, Sjælland, Lyngby Mose, 3.VII. 1964, O. Martin (1 m COPEN). — Finland: *Ab:* Vihti, Vihtijärvi, 24.VIII. 1962, R. Tuomikoski (holotype MZH); *Sb:* Kuopio, 13.VIII. 1957, E. Räsänen (1 m MZH). — USSR: Sortavala, L. Tiensuu (1 m MZH); Kurl., Kalwen, 8.VII. 1934, L. (= Lackschewitz) (1 m MNB); Leningr., Luzhsk., Tolmachevo, 4.VIII. 1937, Stackelberg (1 m LEN); Leningr. obl., Luzh. r-n. d. Volok, 29.VI. 1938, Chernovekij (1 m LEN).

Description:

Head. Palp, other mouthparts and face yellowish, posterior parts of head yellowish to light brownish, ocellar prominence brown. Antenna brownish, basal segments yellow. 1st flagellomere about 3.5 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with indistinct light brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length, with 1 apical tooth. Leg ratios: bt1:t1 = 1.08—1.16, bt2:t2 = 0.72—0.75, bt3:t3 = 0.58—0.64.

Wing. Wing length 4.3—5.2 mm. Wing hyaline or apex and small cell extremely weakly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 slightly distally to middle of small cell. Apical part of Sc bearing 15—17 macrotrichia. Small cell more than twice as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.37—0.43, 0.47—0.57. Cu ratios: 0.73—0.91, 1.11—1.30. Macrotrichia: M petiole 0; M1: +; M2: +; Cu petiole +; Cu1: +; Cu2: +. Halter pale yellowish, knob brownish.

Abdomen. Tergites 1—5 yellow, with posterior margin and dorsomedial line brownish, 6 brown, 7 yellow. Sternites yellow.

Hypopygium. Figs. 868—873, yellow. Tergal fork X-shaped, with short apical setae and relatively long lateral lobes. Sternal lateral appendages with flattened but not very wide setae. Gonostylus long, slender, with dark apical tooth. Aedeagus with 2 spurs.

Female: Unknown.

Distribution: Western Palaearctic. Denmark, Finland. USSR: Karelian ASSR, Leningrad region, Latvian SSR.

Biology: Unknown.

Mycomya altaica n. sp.

Figs. 874—880, key p. 39.

Type locality: Altai, 40 km Iogatsh S (USSR).

Type: Holotype (studied): Altai, 40 km Iogatsh S, 1000—1300 m, 19. 8. 82, K. Mikkola leg. (m MZH).

Material examined: USSR: m. M. Ural i oz. Varchaty, Obdor, 13.VIII. 1925, Fridolin (1 m LEN); Altai, 40 km Iogatsh S, 1000—1300 m, 19.VIII. 1982, K. Mikkola (holotype MZH).

Description:

Head. Palp, other mouthparts and face brownish, posterior parts of head brownish to brown, ocellar prominence brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3.5 times, 2nd about twice as long as wide.

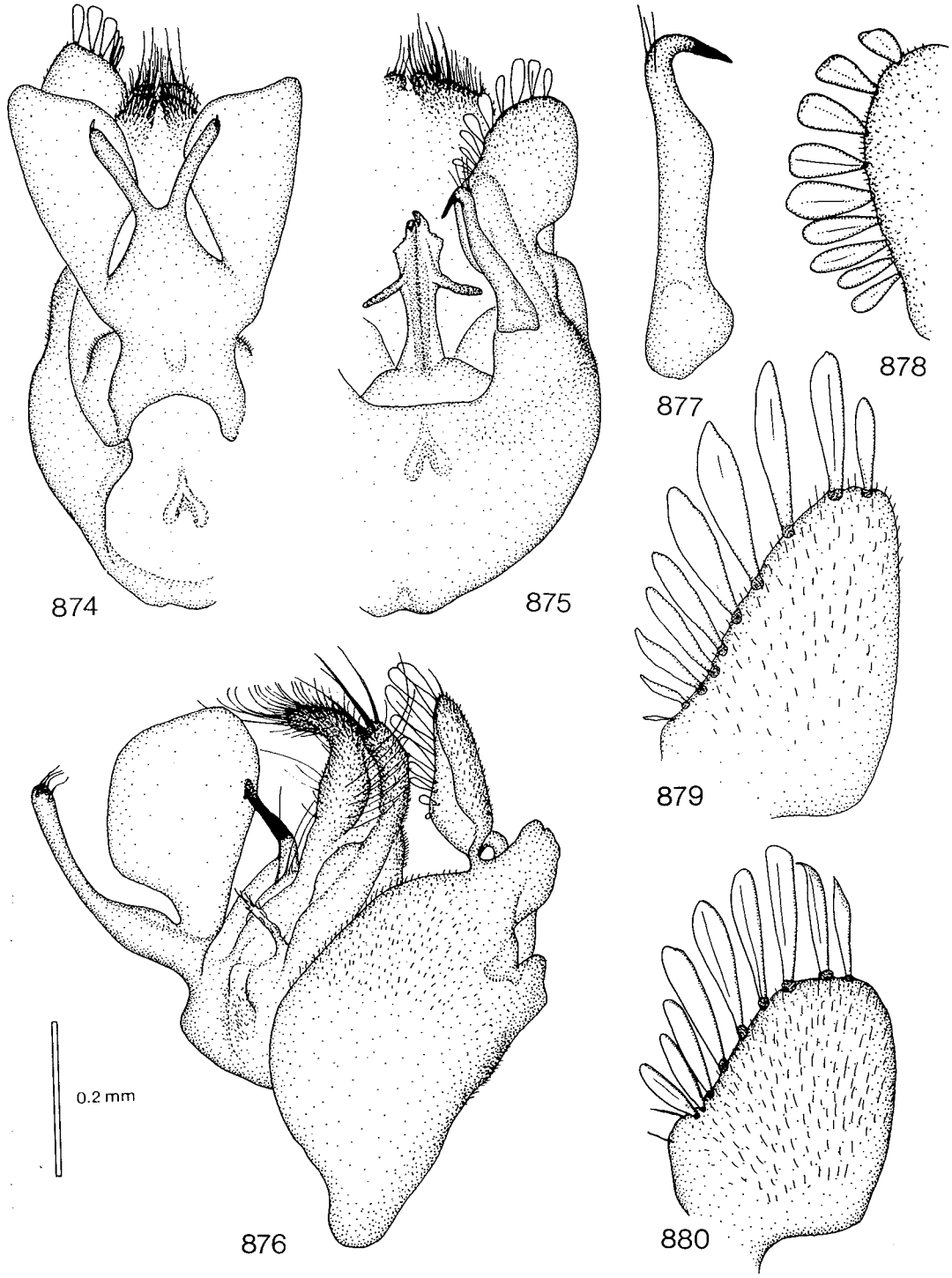
Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow with 3 indistinct brown more or less fused longitudinal stripes. Mesanepisternum light brownish. Mesokatepisternum yellow with ventral half brown. Scutellum brownish with 4 long setae. Laterotergite yellow with ventral part brown. Mediotergite yellow with posterior part brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length, with 1 apical tooth. Leg ratios: bt1:t1 = 1.15, bt2:t2 = ?, bt3:t3 = 0.66.

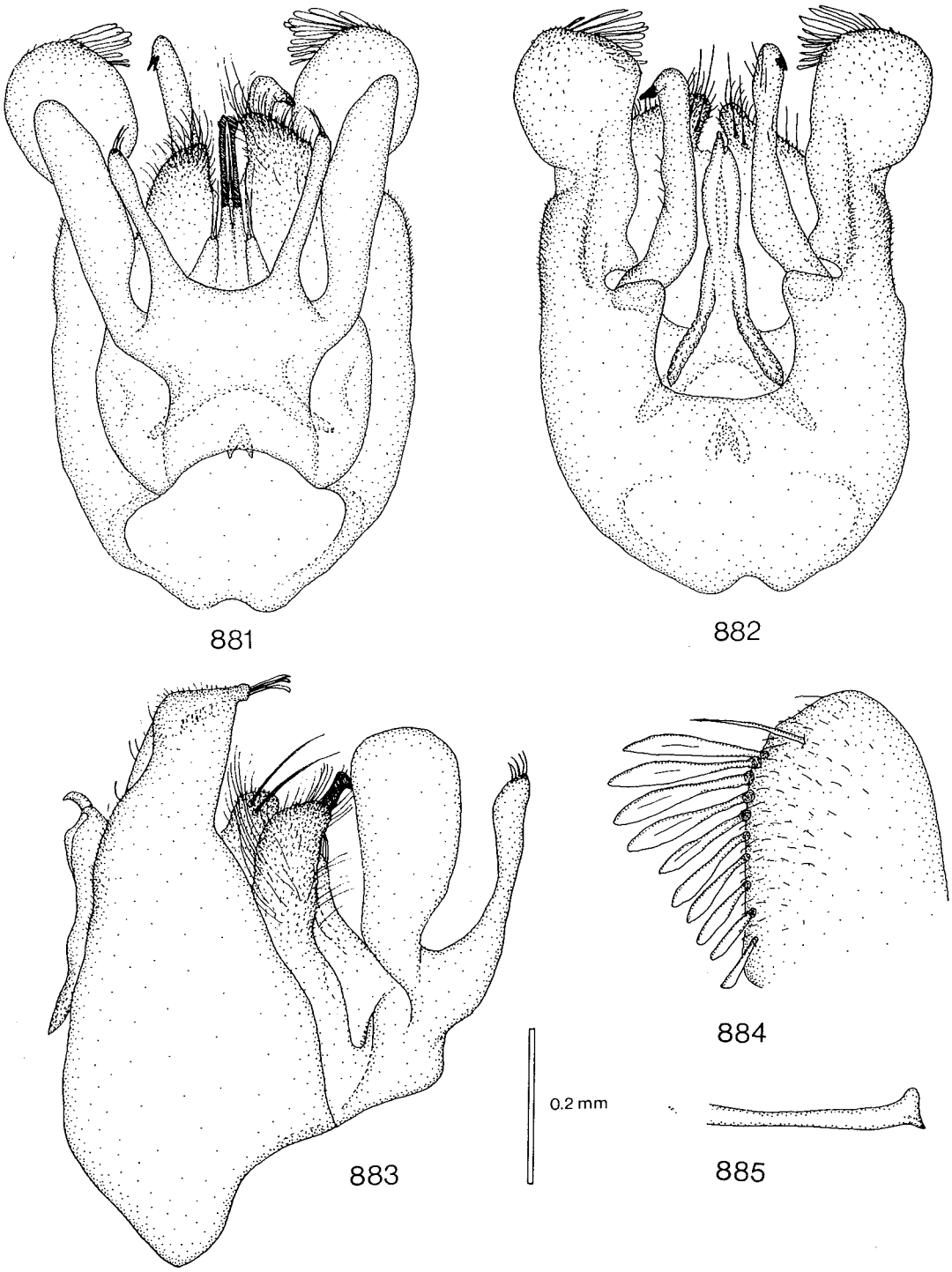
Wing. Wing length 4.5—5.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 11—13 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.40, 0.49. Cu ratios: 0.73, 1.07. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow to yellowish with posterior halves and dorsomedial line brownish, 6 and 7 brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 874—880, yellow. Tergal fork X-shaped, with short apical setae and very large lateral lobes. Sternal lateral appendages with very wide flattened setae. Gonostylus with dark apical tooth. Aedeagus with 2 spurs.



Figs. 874—880. *Mycomya altaica.* — 874: male hypopygium, tergal view. — 875: hypopygium, sternal view. — 876: hypopygium, lateral view. — 877: gonostylus. — 878—880: apex of sternal lateral appendage, different views. Scale 0.2 mm for Figs. 874—876, Figs. 877—880 2 x enlarged.



Figs. 881—885. *Mycomya insulana.* — 881: male hypopygium, tergal view. — 882: hypopygium, sternal view. — 883: hypopygium, lateral view. — 884: apex of sternal lateral appendage. — 885: tergite 8. Scale 0.2 mm. for Figs. 881—883 and 885, Fig. 884 2 x enlarged.

Female. Wing length 5.5 mm. Thorax as in male. Leg ratios: bt1:t1 = 1.05, bt2:t2 = 0.75, bt3:t3 = 0.58. Wing as in male. Sc with 18—20 macrotrichia. Abdominal tergites brown with comparatively small anterolateral spots yellow, 6—7 almost entirely brown. Sternites yellow, 3—4 with posterior margins brown, 5—7 with lateral and posterior margins brown. Terminalia yellow, very similar to those of *M. pulchella* (Dziedzicki) (see Fig. 861).

Remarks: Abdomen without distinct colour pattern in the male from the Ural Mts.

Distribution: Known only from the Central Palaearctic Ural and Altai mountains.

Biology: Unknown.

Mycomya insulana n. sp.
Figs. 881—885, key p. 39.

Type locality: Sakhalin (USSR).

Type: Holotype (studied): Yuzhn. Sakhalinsk, o-v Sakhalin, Violovich 19.VIII. 956 *Mycomyia pulchella* det. A. Zaitzev 1979 (m LEN).

Material examined: USSR: Holotype (LEN).

Description:

Head. Palp and other mouthparts yellowish, face yellow, posterior parts of head brownish. Antenna brownish, basal segments yellow. 1st flagellomere about 3 times, 2nd about 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4 longer setae. Mesoscutum yellow, with 3 brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring less than 1/2 of its length, with 1 curved apical tooth. Leg ratios: bt1:t1 = 1.18, bt2:t2 = 0.74, bt3:t3 = 0.62.

Wing. Wing length 5.0 mm. Wing with apex and small cell weakly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 25 macrotrichia. Small cell about twice as long as wide. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellowish to brownish, with posterior margins and dorsomedial line brownish, markings indistinct, 6—7 brownish. Sternites yellowish.

Hypopygium. Figs. 881—885, yellow. Tergal fork wide H-shaped, with short apical setae and large lateral lobes. Sternal lateral appendage with flattened setae. Gonostylus long, slender, with 1—2 apical teeth. Aedeagus with 2 spurs.

Female. Unknown.

Remarks. See *M. wuorentausi* n. sp. for possible females.

Distribution: Eastern Palaearctic. Soviet Far East: Sakhalin.

Biology: Unknown.

Mycomya wuorentausi n. sp.
Figs. 886—891, key p. 39.

Type locality: Vladivostok (USSR).

Type: Holotype (studied): Vladivostok 30.IX. 1917. Y. Wuorentaus (m MZH).

Material examined: USSR: Vladivostok, 30.IX. 1917, Y. Wuorentaus (holotype MZH); Amur Fl., Nikolajewsk, 1.IX. 1917, Y. Wuorentaus (2 ?ff MZH).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish, ocellar prominence brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow, with 3 indistinct brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 with curved spur measuring about 1/3 of its length or a little more, with 1 apical tooth. Leg ratios: bt1:t1 = 1.12, bt2:t2 = 0.71, bt3:t3 = 0.51.

Wing. Wing length 4.5 mm. Wing hyaline or with extremely faintly infuscate apex and small cell. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing about 8 macrotrichia. Small cell more than twice as long as wide. Cu fork below M fork. M ratios: 0.39, 0.50. Cu ratios: 0.88, 1.33. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with posterior margins and dorsomedial line brown, 6—7 brown. Sternites yellow.

Hypopygium. Figs. 886—891, yellow. Tergal fork wide, H-shaped, with short apical setae and large lateral lobes. Membraneous, setose, sublateral appendages present. Sternal lateral appendage with very wide flattened setae. Gonostylus wide, apically curved, without apical tooth. Aedeagus with 2 spurs.

(?) Female. Wing length 5.2—5.9 mm. Leg ratios: bt1:t1 = 1.08—1.15, bt2:t2 = 0.76, bt3:t3 = 0.60—0.62. M ratios: 0.40—0.41, 0.49—0.51. Cu ratios: 0.70, 0.97—1.00. Cu fork proximal to M fork. Abdomen yellow, tergites 1—5 with posterior margins and dorsomedial line brown, 6 with posterolateral parts also brown, 7 brown with indistinct light brownish spots. Terminalia yellow.

Remarks. The identity of the females is somewhat uncertain. They might belong to *M. insulana* n. sp.

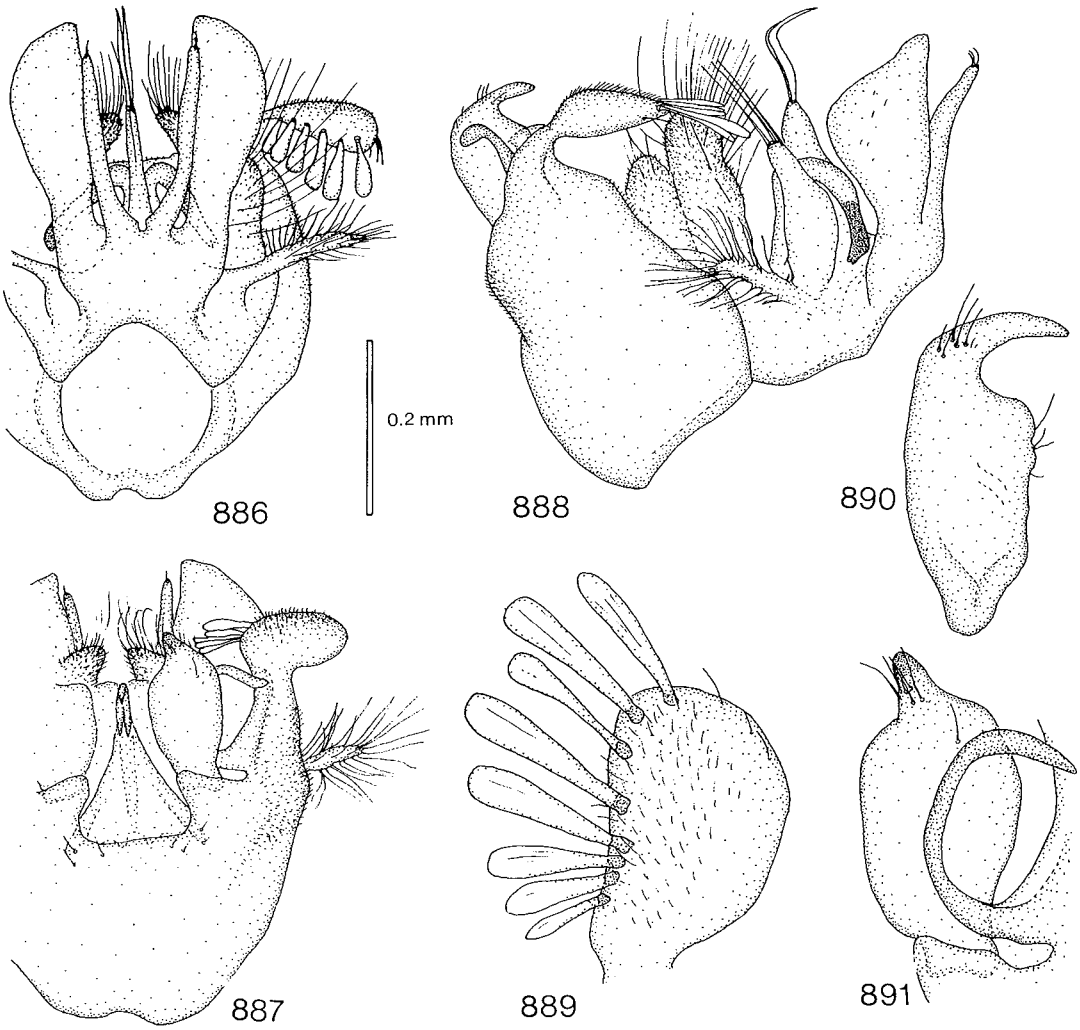
Distribution: Eastern Palaearctic. Soviet Far East: Vladivostok, ? Amur.

Biology: Unknown.

7.4. Subgenus Cymomya n. subg.

Type species: *Sciophila circumdata* Staeger, 1840.

Mediotergite bare. Coxae without special setae or other structures. Coloration vivid yellow and dark brown, abdominal tergites yellow with posterior margins dark. Tergite 8 setose. Tergite 9 with medial comb-bear-



Figs. 886—891. *Mycomya wuorentausi.* — 886: male hypopygium, tergal view. — 887: hypopygium, sternal view. — 888: hypopygium, lateral view. — 889: apex of sternal lateral appendage. — 890—891: gonostyli. Scale 0.2 mm for Figs. 886—888, Figs. 889—891 2 x enlarged.

ing apical structure and pair of strong submedian spurs in inner part, no lateral appendages, basal part of tergite bare. Sternal synsclerite divided into two large lateral lobes and long curved submedial filaments, lateral appendages large, wide, setose.

Distribution: Holarctic. In addition, the following species from other zoogeographic region can be tentatively placed in this subgenus: *M. austrobliqua* Coher, 1959 (Brazil), and *Mycomya* spp. (Nepal; Australia, Tasmania [BMNH]).

One species group is recognized in this subgenus in the Holarctic region.

Species group M. obliqua

Head. Anteclypeus short, triangular, with some setulae. Antenna about 1.5 times as long as head and thorax together. Pedicel with long dorsal seta. Ocellar setae about 3.5 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3 times as long as wide. Basitarsus 1 distinctly shorter than tibia 1. Tibial setae weak, longest hardly longer than tibial diameter.

Wing. C ending in apex of R5, usually almost reaching wing apex, Sc ending in C, R1 or free. Cu fork slightly proximal — slightly distal to M fork. M petiole long to medium. Cu petiole long to medium. Macrotrichiation of veins M and Cu not or slightly reduced.

Abdomen. Tergites yellow with posterior margins dark.

Tergite 8 comparatively wide, medially distinctly narrower, with 3—5 setae along posterior margin of both lateral lobes. Sternite 8 wide, triangular, apically tapered, bare.

Hypopygium. Tergite 9 with apical comb and 2 strong spurs. Sternal lateral appendages large, setose. Sternal synsclerite divided into 2 parts.

Female terminalia. Apical segment of cercus oval. Hypogynal valve apically rounded, with some relatively long setae.

One Palaearctic and three Nearctic (including one Mexican) species are recognized in this species group.

Mycomya circumdata (Staeger, 1840)

Figs. 892—897, key p. 39.

Sciophila circumdata Staeger, 1840. Staeger 1840:273; Zetterstedt 1852:4126, 4363; Winnertz 1863:735; Schiner 1864:445; Kertész 1902:58, 1903:32; Sack 1907:11; Strobl 1909:241; Kröber 1910:9.

(not) *Sciophila circumdata:* Lundström 1909:12 (= *M. branderi* n. sp.).

Mycomyia circumdata: Edwards 1924b:165 (Synon. *M. lucorum* (Winnertz)), 1925a:551; Schmitz 1929:22; Landrock 1926—1927:43, 1930:254; Lackschewitz 1937:11; Karl 1939:53; Landrock 1940:34; Séguy 1940:72; Coe in Kloet & Hincks 1945:345; Mikolajczyk 1967:21; Ostroverchova & Stackelberg 1969:273; Plassmann 1969:24, 1970b:388, 1970c:394; Mikolajczyk 1971:371; Ostroverchova 1971:94; Plassmann 1971b:61, 1977b:8, 1978c:48; Ostroverchova 1979:64.

Mycomya circumdata: Hutson in Kloet & Hincks 1976:24; Chandler 1976:97; Matile 1977:633; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1981d:199, 1982b:38.

(not) *Mycomyia circumdata:* Frey & Storå 1941:46 (= *M. branderi* n. sp.).

Sciophila lucorum Winnertz, 1863. Winnertz 1863:727; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Dziedzicki 1885: Tab. VIII: Figs. 14—16; Strobl 1895:143, 1898a:283, 1901:12; Kertész 1902:61, 1903:33; Strobl 1909:241; Morge 1974:171.

Mycomya lucorum: Landrock 1913:35.

Mycomyia lucorum: Edwards 1913:355, 1921a:61; Landrock 1925a:34.

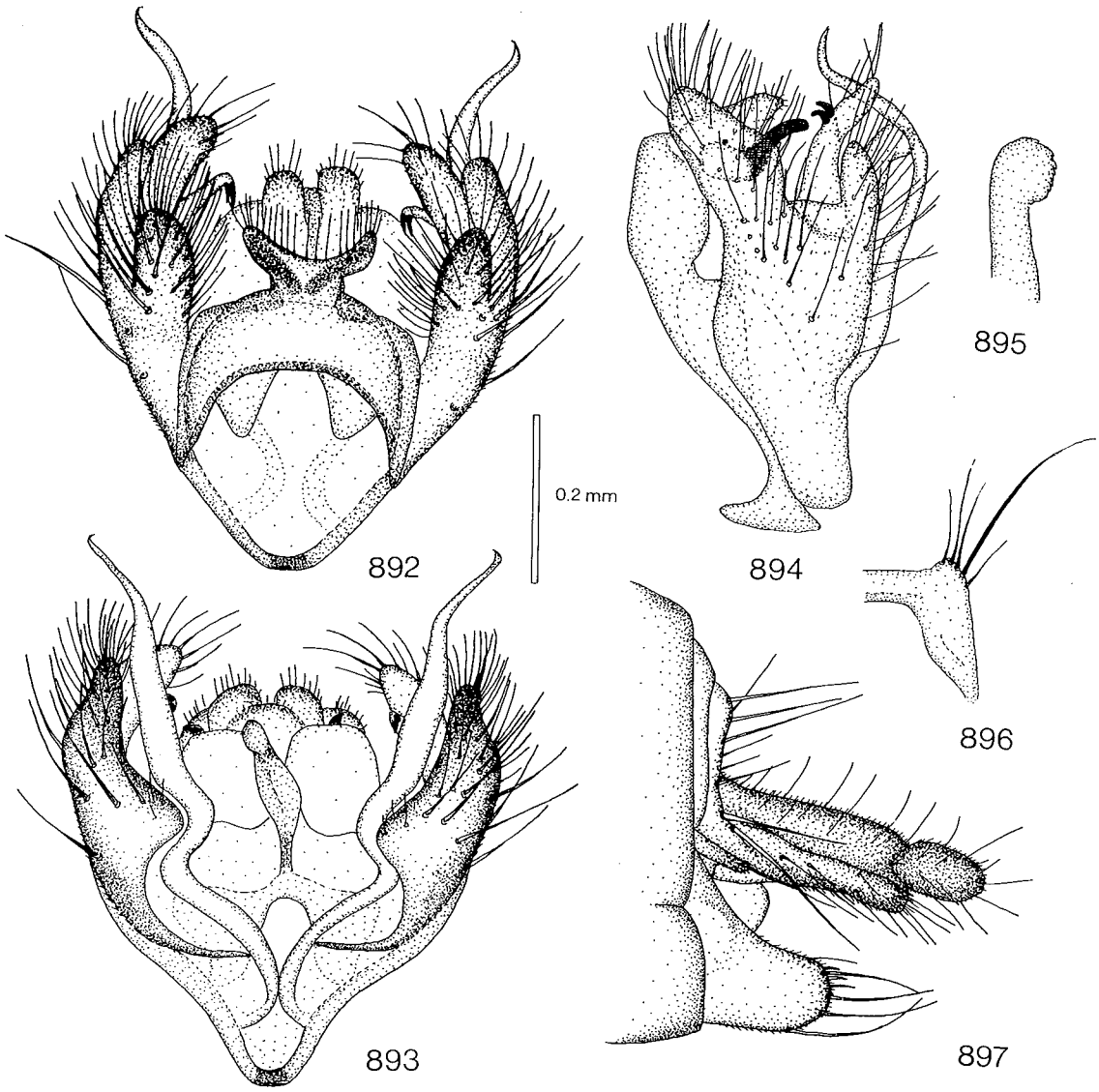
Sciophila lucorum form. *abruptinervis* Strobl 1901. Strobl 1901:11.

Type locality: not stated (Denmark).

Types: — *Sciophila circumdata* Staeger: Lectotype (studied) by present designation: ♂, Denmark, coll. Staeger (m COPEN). — *Sciophila lucorum* Winnertz: (not located, apparently destroyed) ♂. Type locality: not stated (?Germany). — *Sciophila lucorum* form. *abruptinervis* Strobl (not located, apparently destroyed), ♂. Type locality: "Schlesien" ("Freudenthal" [= Bruntal], Czechoslovakia).

Remarks: Note the homonymy of *S. lucorum* form. *abruptinervis* Strobl with *S. pseudocinerascens* var. *abruptinervis* Strobl (= *M. trivittata* Zetterstedt)).

Material examined: Italy: Aosta, Bertolaz (Villeneuve), alt. 800 m, 5.VI. 1980, L. Matile (1 f MNHN). — France: Ft de Lente (Drome), alt. 1400 m, 25.VI. 1970, L. Matile (1 f MNHN); Yonne-Forêt d'Othe 14.VIII. 1971, L. Matile (1 f MNHN); Forêt de Chandelais, Baugé (M. & L.), 12.VII. 1971, J. C. Beaucournu & L. Matile (2 ff MNHN); Gave d Ossoue-Gavarnie (Htes Pyr), alt. 1500 m, 12.VI. 1964, L. Matile (2 ff MNHN); (Ariége) Port de Massat, alt. 1500 m, 17.VI. 1970, D. & L. Matile (1 m MNHN); Alpes Maritimes, Forêt Domaniale de Turini, 1500 m, 19.VI. 1973, L. Matile (1 f MNHN); bords de torrents sous feuillage, St Bonnet-en-Champsaur, Molines (Htes-Alpes), 1400 m, VII. 1975, C. Girard (3 mm MNHN); Beaumontel, (Eure), 20.V. 1973, J. J. Menier (2 ff MNHN). — Switzerland: Jorat, Canton of Vaud, 24.V. 1950, F. Schmid (1 m ISU); (Schaffhausen) Forêt de Steik (Ramsen), 600 m, Hêtraie, 7.VI. 1976, L. Matile. — Austria: Austr. sup., Gallnenkirsch, 22.VI. 1867, Mik (1 m WIEN); Austr. sup., Hammern, 1.IX. 1874, Mik (1 f WIEN); Simony, Donauauen (1 f WIEN); Simony, Schöpfl. (1 f WIEN); Tirolis, Achenthal, 25.VII. 1887, Mik (1 f WIEN); Salzburg, Attelsee, Burgau, 30.VI. 1973, S. J. Chambers & A. M. Hutson (2 ff BMNH). — Hungary: Bakony-hg., Cuha-völgy, 3.IX. 1958, Mihályi (1 f TMB); same data, Zsirko (1 m TMB); Kószegi-hg., Velemi erdó, 11.VII. 1960, Mihályi (4 mm 2 ff TMB); Répáshuta, Pénzpatak, 17.V. 1965, fénycsapda (1 m TMB); Matra-hg., Csatorma-p., 7.VI. 1956, Z.-Sebess (1 f TMB); Budapest, Irhásárok, 4.VII. 1957, Mihályi (1 m TMB); Sátor-hg., Istvánkút, 8—14.VIII. 1957, Zsirko (1 m TMB); same data, Mihályi (1 f TMB); Zempléni-hg., Ördög-v., erdó, 24.VI. 1960, Mihályi (1 f TMB). — Bulgaria: Kom, 800, 23.V. 1982, D. Bechev (1 m coll. Bechev). — Roumania: Olténie, Forêt de Măgura, 15.X. 1968, L. Matile (1 m 1 f MNHN); Olténie, Vallée Lupsa, 16.X. 1968, L. Matile (4 ff MNHN); Olténie, Vallée du Motru-sec, 19.X. 1968, L. Matile (1 m 1 f MNHN); Retezatului Mts., nr. Hobita Cabana, c. 4000′, mature pine forests, B. H. & M. C. Cogan & R. I. & R. Vane-Wright (2 ff BMNH). — Czechoslovakia: Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (2 mm VUPP); Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (2 mm 3 ff VUPP); Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (2 ff VUPP); Slov., Remetske Hamre, 2.VI. 1963, Laštovka (1 f VUPP); Boh., nr. Prague, Voznice, 10.VI. 1973, S. J. Chambers & A. M. Hutson (1 f BMNH). — Britain: Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (1 m 3 ff BMNH); Herts, Felden, 9.V. 1897, 10.?V. 1897, A. Piffard (2 mm BMNH); N. Lancs, Eggarlack Wood, 19.V. 1938, F. W. Edwards, (1 m BMNH); Berks, Windsor Forest, 10.V. 1939, F. W. Edwards (1 m BMNH); Wyre Forest, 14.IX. 1922, F. W. Edwards (1 f BMNH); New Forest, 7.IX. 1901, C. G. Lamb (1 m BMNH); same locality, VI. 1902, D. Sharp (1 f BMNH); same locality, 20.V. 1896, F. C. Adams (1 f BMNH); New Forest, Denny Wood, VI. 1939, F. W. Edwards (1 m BMNH); Arran, Brodick, 22—25.V. 1919, F. W. Edwards (1 m BMNH). — FRG: Murnauer Moos, 30.V. 1979, W. Schacht (2 mm ZSM); S-Deutschland, E. Reutlingen, St. Johann, Albrand, Buchenwald, 27.V. 1978, 29.V. 1978, Schmalfuss (3 mm 5 ff STAAT; S-Deutschland bei Urach, Albrand, Mischwald, 12.VI.



Figs. 892—897. *Mycomya circumdata.* — 892: male hypopygium, tergal view. — 893: hypopygium, sternal view. — 894: hypopygium, lateral view. — 895: apex of aedeagus, lateral view. — 896: tergite 8. — 897: female terminalia, lateral view. Scale 0.2 mm for Figs. 892—895 and 897, Fig. 896 2 x enlarged.

1978, Schmalfuss (1 f STAAT). — Poland: Bieszczady distr. Ustrzyki Dln. Berezki, kolejka, 14.X. 1968, W. Mikolajczyk (1 m WARS). — Denmark: Coll. Staeger, without data *(Sciophila circumdata* lectotype, 2 ff paralectotypes COPEN); Dania, Lolland, Maribo, Engestoffe skov, 30.V. 1967, B. Vest Pedersen (2 ff COPEN); Rudstrup Skov, 17.VI. 1930 (1 f COPEN); Vejen, 14.VI. 1919 (1 m COPEN). — Sweden: Sk., Hallands Väderö 23.V. 1954, O. Ringdahl (1 m LUND); Sk., Hälsingborg, IX. 1920, O. Ringdahl (1 m 1 f LUND); Hall., Enslöv, Årnilt, 13.V. 1972, H. Andersson (1 m coll. Andersson). — Finland: *Ab:* Vihti, Vihtijärvi, 22.VIII. 1962, 24.VIII. 1962, 15.VIII. 1963, 27.VIII. 1963, R. Tuomikoski (11 mm MZH); *N:* Espoo, Bodom 3.IX. 1963, R. Tuomikoski (1 m MZH); Esbo (Espoo), Kolmperä, 6.IX. 1964, 12.IX. 1964, W. Hackman (2 mm MZH); Helsinki, Malminkartano, 27.IX. 1962, R. Tuomikoski & W. Hackman (1 m MZH); Siuntio, Fagervik, IX. 1980, light trap, J. Jalava (2 mm MZH); *Ta:* Lammi, Biol. Station, *Leccinum scabrum,* 1980, I. Hanski (1 f MZH); *Om:* Raahe, IX. 1908, Wuorentaus (1 m MZH); Pietarsaari, Varvet, 10.VIII. 1957, 14.VIII. 1957, R. Storå (2 mm MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski &

K. Mikkola (3 mm MZH); Kuusamo, Kiutaköngäs, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Estonia, st. Peedu, 22.VIII. 1951, Stackelberg (1 m 1 f LEN); Vyritsa Leningr., 4.IX. 1946, Stackelberg (1 m LEN); Leningrad. o., Luzhsk., Tolmachevo, 13.VIII. 1936, 24.VIII. 1936, 11.VIII. 1937, 13.VIII. 1937, 19.VIII. 1937, 22.VIII. 1937, 23.VIII. 1937, 28.VIII. 1937, Stackelberg (11 mm LEN); ? Okr. Uzhgoroda, Neviukoe, les, dolina ruchaya, 30.VIII. 1964, Gorodkov (1 m LEN); Körösmezö, Kertész (1 m MZH).

Description:

Head. Palp and other mouthparts yellow to yellowish, face light brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow to yellowish, with 3 broad, more or less fused brown longitudinal stripes, anterolateral corners widely yellow. Sometimes mesoscutum more or less uniformly brown. Mesanepisternum yellow to brownish. Mesokatepisternum yellow to light brownish, ventral half brown. Scutellum brownish to brown, with 4 long setae. Laterotergite light brownish to brown, ventral part darkest. Mediotergite brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.70—0.84, bt2:t2 = 0.71—0.74, bt3:t3 = 0.60—0.62.

Wing. Wing length 3.7—5.1 mm. Wing hyaline or apex and small cell slightly infuscate. Sc ending in C slightly distally to middle of small cell, Sc2 ending in R1 near or slightly proximally to middle of small cell. Apical part of Sc bearing 15—27 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork below M fork or slightly distal to it. M ratios: 0.70—0.85, 0.90—1.06. Cu ratios: 0.67—1.07, 1.00—1.60. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 1—+; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with posterior margins and narrow dorsomedial stripe dark brown, 6—7 entirely dark brown. Sternites 1–5 yellow, 6 yellow, with lateral and posterior margins brown, 7 brown.

Hypopygium. Figs. 892—896, yellow. Sternal lateral appendage comparatively long. Aedeagus apically rounded in lateral view.

Female. Wing length 4.4—5.5 mm. Usually thorax brownish without distinct markings or brownish with pale yellow mesoscutal stripes. Sometimes mesoscutum yellow to yellowish, with brown mesoscutal stripes as in males. Leg ratios: bt1:t1 = 0.75—0.81, bt2:t2 = 0.70—0.75, bt3:t3 = 0.59—0.61. Abdominal tergites 1—2 brownish to brown or yellow with posterior margins brown, 3—5 yellow with posterior margins broad, dark brown and often with continuous, narrow dark brown dorsomedial line, 6—7 brown. Sternites like tergites, but 3—5 yellow with posterior margins narrow, brown. Terminalia as in Fig. 897, yellow to yellowish.

Remarks. Two entirely different coloration types exist in this species, but the type with light mesoscutal stripes seems to be restricted to the females. However, the continuous variation in the degree of darkness often makes it difficult to say which of the basic morphs is concerned. See also *M. obliqua* (Say).

Distribution: Palaearctic. Italy, France, Switzerland, Austria, Hungary, Bulgaria, Roumania, Czechoslovakia, Britain, Federal Republic of Germany, Poland, Denmark, Sweden, Finland. USSR: Leningrad region, Estonian SSR, Ukrainian SSR. Also reported from the Netherlands (Landrock 1925a), Ireland (Chandler 1979), Latvian SSR (Lackschewitz 1937), ? Lithuanian SSR (Landrock 1930), West and East Siberia (Ostroverchova 1979).

Biology: Two specimens collected with light trap. Finnish specimens taken in sweep net in forests, German specimens collected in beech and mixed forests. One female reared on a sporophore of *Leccinum scabrum* (Fr.) S.F. Gray (Boletaceae) in Finland (Väisänen 1981d).

Mycomya macateei n. ssp.

Figs. 898—904, key p. 39.

Type locality: Georgia, Rabun County, Rabun Bald (USA).

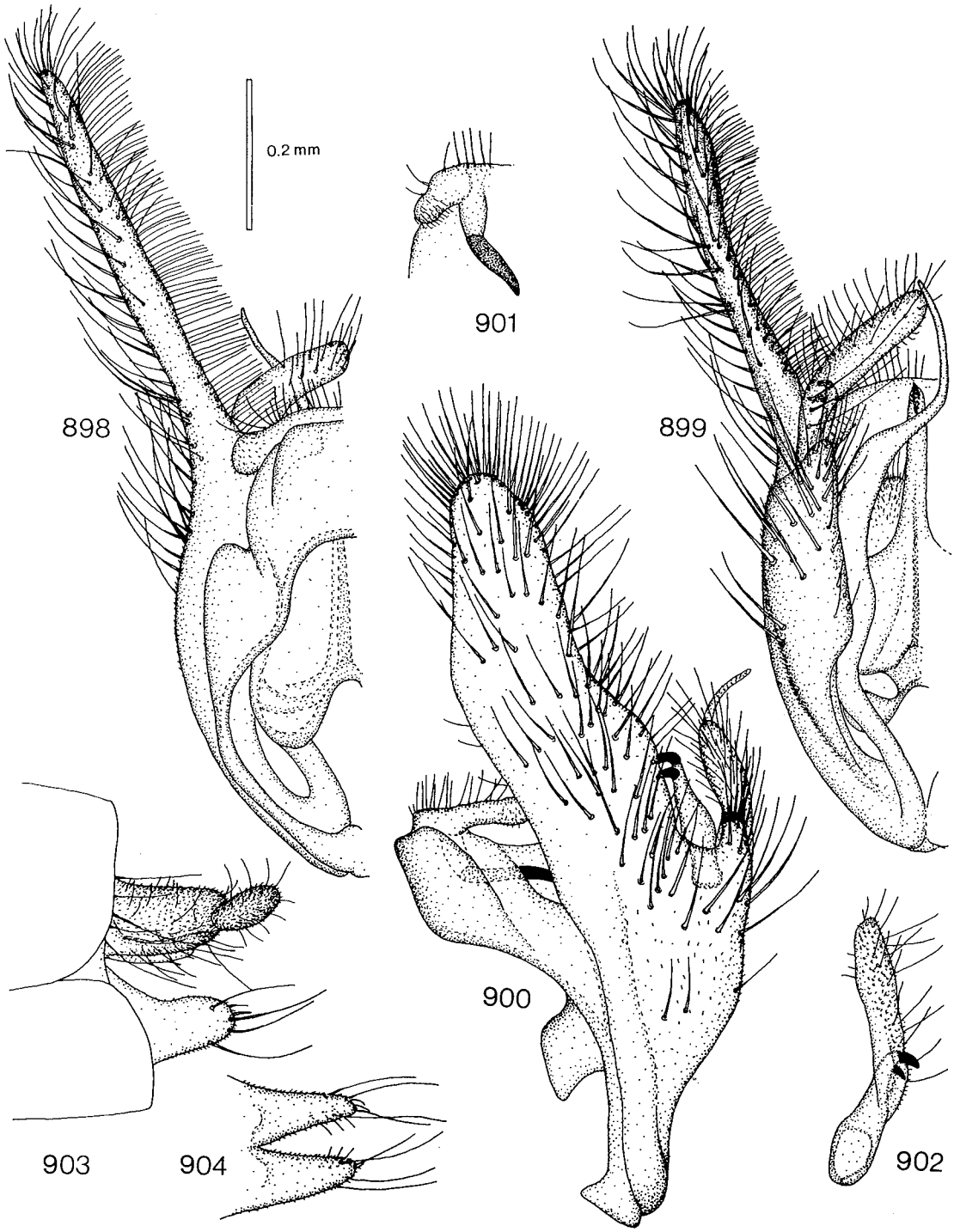
Type: Holotype: Rabun Bald, Ga. Rabun Co. 3000′ 14-VII-1957 J. G. Chillcott (m CNC).

Material examined: Canada: Que., Gatineau Co., Masham Twp., 17.VIII. 1974, D. M. Wood (1 m 1 ?f CNC); Que., Duncan Lake, Nr. Rupert, 6.VIII. 1970, J. F. McAlpine (1 m CNC); Ontario, Mer Bleu, 5 mi. E Ottawa, 2.IX. 1963, Malaise trap, D. D. Munroe (1 m CNC). — USA: Ohio, Jackson, 2.IX. 1940, J. H. Hughes (1 m MINN); Md., Glen Echo, 22.VIII. 1922, W. L. McAtee (1 m USNM); same locality, 25.VI. 1922, 2.VII. 1922, 8.VIII. 1922, J. R. Malloch (3 ?ff 2 ?exx. USNM); C. W. Johnson Collection (1 m MCZ); Kentucky, Koomer Ridge & Red Riv., Daniel Boone Nat. Forest, Natural Bridge area, IX.1973, R. I. Vane-Wright (1 m BMNH); N. C., Macon Co., 3500′, 14.VII. 1957, J. G. Chillcott (1 m CNC); N. C., Wayah Bald, 4100′, 29.VII. 1957, W. R. Richards (1 m CNC); N. C., Highlands, 20.VII. 1957, W. R. Richards (1 m CNC); N. C., Highlands, Skittle Creek, 18.VII. 1957, W. R. Richards (1 m CNC); No. Car., Macon Co., Clear Creek, 1 mile so. Highlands, 35°1.5′N, 83°11.5′W, 18.VII. 1958, J. Laffoon (1 m ISU); N. C. Pisgah Forest, Looking Glass Pk., 19.VII. 1957, W. R. Richards (1 m CNC); N. C., Looking Glass Rock nr. Pisgah Forest, 2500′, 19.VII. 1957, J. G. Chillcott (2 mm CNC); Ga., Pine Mtn., 1 Mi. N., 3000′, 12.VII. 1957, 13.VII. 1957, J. G. Chillcott (6 mm CNC); Ga., Fannin Co., Hurst, 22.VII. 1957, J. G. Chillcott (1 m CNC); Ga., Rabun Co., Rabun Bald, 3000′, 14.VII. 1957, J. G. Chillcott (holotype & 2 mm CNC); Ga., Holcomb Crk., 1.VIII. 1957, W. R. Richards (2 mm CNC); Ga., Rabun Co., Satolah, 2000′, 1.VII. 1957, J. R. Vockeroth (1 m CNC).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum yellow, posteriorly brownish, with 3 light brownish longitudinal stripes or stripes also yellow, with areas between them posteriorly brownish. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum



Figs. 898—904. *Mycomya macateei.* — 898: male hypopygium, tergal view. — 899: hypopygium, sternal view. — 900: hypopygium, lateral view. — 901: apical structures of tergite 9. — 902: gonostylus. — 903: female terminalia, lateral view. — 904: hypogynal valves, sternal view. Scale 0.2 mm.

brown, with 4 long setae. Laterotergite yellow. Mediotergite yellow, bare.

Legs. Coxae and femora yellowish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.74—0.88, bt2:t2 = 0.62—0.72, bt3:t3 = 0.60—0.63.

Wing. Wing length 3.3—4.3 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally to or near middle of small cell. Apical part of Sc bearing 10—15 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork almost below or slightly proximal to M fork. M ratios: 0.85—1.00, 1.05—1.27. Cu ratios: 0.63—0.92, 1.10—1.41. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergite 1 brown, 2—5 yellow, with posterior thirds brown, 6—7 entirely brown. Sternites yellow.

Hypopygium. Figs. 898—902, yellow, very large, about 1/3 of total length of abdomen. Sternal lateral appendage extremely large.

Female. Wing length 3.1—4.0 mm. Very similar to *M. obliqua* female, from which it cannot be distinguished without males. Leg ratios: bt1:t1 = 0.68—0.80, bt2:t2 = 0.65—0.66, bt3:t3 = 0.56—0.60. Terminalia as in Figs. 903—904, yellow.

Remarks. See *M. obliqua* (Say).

Distribution: Eastern Nearctic. Canada: Quebec, Ontario. USA: Ohio, Maryland, Kentucky, North Carolina, Georgia.

Biology: Unknown. One specimen collected with Malaise trap.

Mycomya obliqua (Say, 1824)

Figs. 905—908, key p. 39.

Sciophila obliqua Say, 1824. Say 1824:363; Wiedemann 1828:63; Say in LeConte 1859:247; Osten-Sacken 1878:9; Kertész 1902:62; Aldrich 1905:140.

Mycomya obliqua: Johannsen 1909:49, 1910:174; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:221; Khalaf 1971:17.

Mycomyia obliqua: Shaw 1947:708; Coher 1959:103 (Synon. *M. obtruncata* (Loew)).

Sciophila obtruncata Loew, 1869. Loew 1869:139; Osten-Sacken 1878:9; Kertész 1902:62, Aldrich 1905:140.

Mycomya obtruncata: Johannsen 1909:49, 1910:172.

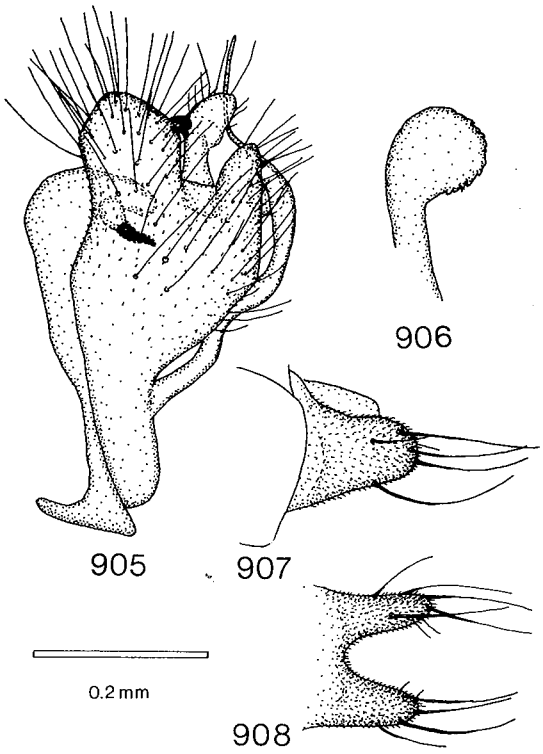
Mycomyia obtruncata: Fisher 1937:391.

Type locality: "North-west Territory" (USA).

Types: — *Sciophila obliqua* Say: Type (not located, apparently destroyed), male. — *Sciophila obtruncata* Loew: Holotype (studied) Loew Coll. Type 1222 *obtruncata* m. (m MCZ). Type locality: District Columbia (Washington, D. C., USA).

Remarks: Johannsen (1910) fixed the identity of this species, and I see no reason to reject his concept.

Material examined: Alaska: Spenard, 12.VIII. 1957, 21.VIII. 1957, 24.VIII. 1957, E. L. Kessel (21 mm 1 ex. 1 f CAS); Wrangell, 1—20.IX. 1951, B. Malkin (1 m CAS). — Canada: B. C., Kimberly, St. Marys Lake, VIII, Garrett (1 m hypop. slide USNM); B. C., Cultus Lake, 20.VII. 1948, H. R. Foxlee (1 m CNC); B. C., Mt. Thornhill nr. Terrace, 30.VII. 1960, W. R. Richards (1 m CNC); B. C., Westminster, 8.VIII. 1917, A. L. Melander (1 m USNM); Sask., Hudson Bay, 13.IX. 1959, 15.IX. 1959, J. R. Vockeroth (3 mm 1 f CNC); Sask., Otosquen, 53°18'N, 102°W, 12.IX. 1959, J. R. Vockeroth (1 m 1 f CNC); Man., Int. Peace Gardens, Turtle Mtn. For. Res., 7.VIII. 1958, J. G. Chillcott (1 m CNC); Ont., Timagami, 6.IX. 1934, 9.IX. 1934, A. W. A. Brown (4 mm 2 ff ROM); Ont., Chatterton, 9.IX. 1955, J. C. Martin (1 m CNC); Ont., Lanark Co., N. Burgess Twp., 19.VII. 1970, D. M. Wood (1 m CNC); Ont., Innisville, 12.VII. 1963, Malaise trap (1 m CNC); Ont., Dundas, 7—11. VII. 1972, D. M. Wood (1 f CNC); Ont., Rockport, 24.VII. 1963, J. R. Vockeroth (1 f CNC); Ont., Maynooth, 5.IX. 1953, J. F. McAlpine (1 f CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 2.IX. 1963, 23.VII. 1966, 25.VII. 1966, 29.VII. 1966, 8.VIII. 1966, 16.VIII. 1966, 2.IX. 1966, Malaise trap, D. D. Munroe (8 mm 3 ?ff CNC); Que., Gatineau Co., Masham Twp., 14.VII. 1974, 15.VII. 1974, 21.VII. 1974, 25—31.VII. 1974, 2.VIII. 1974, 7—14.IX. 1974, D. M. Wood (16 mm, 10 ?ff CNC); Que., Knowlton, 24.VII. 1929, L. J. Milne (1 m CNC); Que., Knowlton Ldg., 17.VII. 1968, J. R. Vockeroth (2 mm 1 f CNC); Que., cage 1—27, Plot III, 36 mi. s. Clova, 27.VIII. 1956, L. A. Lyons (1 f CNC); Que., Old Chelsea, 9.VIII. 1961, 20.IX. 1961, 16.X. 1961, J. R. Vockeroth (21 mm 10 ff CNC); same data, Summit of King Mt.,



Figs. 905—908. *Mycomya obliqua.* — 905: male hypopygium, lateral view. — 906: apex of aedeagus, lateral view. — 907: hypogynal valve, lateral view. — 908: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 905 and 907—908, Fig. 906 2 x enlarged.

1150 feet, 18.IX. 1955, 2.X. 1955, 31.VIII. 1958, 5.XI. 1958, 9.VII. 1959, 21.VII. 1959, 18.VII. 1961, 9.VIII. 1961, 30.VIII. 1961, 20.IX. 1961, 10.X. 1961, 25.VI. 1963, 5.IX. 1963, 1.X. 1963, 26.VIII. 1964, J. R. Vockeroth (36 mm 22 ff CNC); Que., Duncan Lake, Nr. Rupert, 10.VIII. 1969, 6.VIII. 1970, 6.VIII. 1971, J. F. McAlpine (2 mm 1 ?f CNC); Que., 3 La Trappe, VII. 1934, J. Quellet (1 f ISU); Que., Kam. Co., Parke Reserve, 950′, 9.VII. 1957, E. Mason (1 m CNC); Que., Gatineau Pk., Meach L., 20.VII. 1959, J. G. Chillcott (1 m 1 f CNC); Que., Gatineau Hills, King Mt. footbath, 30.VII. 1958, in Park, L. K. Smith (2 mm CNC); Que., La Vendrye Prov. Pk., Mi. 61, Rte. 58, 21.VIII. 1965, D. M. Wood (1 m CNC); Que., La Vendrye Prov. Pk., 6.IX. 1964, D. M. Wood (1 f CNC); Que., Hull, 3.VIII. 1965, 10.VIII. 1965, Malaise trap (2 mm CNC); Que., Beechgrove, 45°39′, 76°8′, 29.VI. 1962, J. R. Vockeroth (1 f CNC); Ile de Montréal, Beaulieu, 14.VII. 1906, lot 291, O. A. Johannsen (1 ex. CORN); N. B., Kouchibouguac N. P., 30.VIII. 1977, G. A. Calderwood (1 m CNC); N. S., Mount Uniacke, 5.VIII. 1958, J. R. Vockeroth (1 m CNC); N. S., Springfield, 6.VIII. 1958, J. R. Vockeroth (1 m 3 ff CNC); N. S., Cranberry I., Lockeport, 25.VII. 1958, 26.VII. 1958, J. R. Vockeroth (1 m 1 f CNC); N. S., Lockeport, 28.VII. 1958, 30.VII. 1958, I.VIII. 1958, J. R. Vockeroth (4 mm CNC); N. S., Shelburne, 10.VIII. 1958, J. R. Vockeroth (7 mm 5 ff CNC). — USA: Wash., Bellington, VII. 1929 (1 m PU); Wn., Granite Falls, 5.VIII. 1917, A. L. Melander (1 m USNM); Wn., Vancouver, 7.VII. 1917, A. L. Melander (1 m USNM); Wn., Lake Chelan, Stehekin, 30.VII. 1919, A. L. Melander (1 m USNM); Wash., Friday Harbor, 25.VII. 1928, M. Shackleford (1 m AMNH); Wash., Clall. Co., Dean Creek, 7 mi. S. Sequim, 4.VIII. 1972, dry ice Malaise trap, W. J. Turner, W. B. Garnett (16 mm WASH); Wash., Pac. Co., 6 mi. E. Francis, Rt. 6, 31.VII. 1972, dry ice Malaise trap, W. J. Turner, W. B. Garnett (4 mm WASH); Washington, Stevens Co., 3 mi. NE Deer Lk., 27—28.VII. 1973, CO_2 Malaise trap, W. J. Turner, D. Corredor (1 m WASH); Mont., Gallatin Co., elevation 5500′, 8.VIII. 1913 (1 ex. PU); Mont., Glacier Park, Lake McDonald 14.VIII. 1916, A. L. Melander (1 m 1 f USNM); MO., Williamsville, X—XI. 1968, Malaise trap, J. T. Becker (2 mm CNC); Ida., Priest Lake, 1.VIII. 1916, A. L. Melander (1 m USNM); Minnesota, Itasca St. Park, IX. 1927, S. Garthside (1 m USNM); same locality, 6.VII. 1952, 24.VII. 1952 (2 mm AMNH); Minn., Itasca St. Pk., Chamber's Creek, 18.VII. 1963, D. L. Deonier (3 mm 3 ff ISU); Minn., Itasca St. Pk., Prof. Green Trail, 25.VII. 1963, D. L. Deonier (14 mm 3 ff ISU); Minn., Itasca St. Pk., 1 mi. E. of Biol. Sta. 22.VII. 1963, D. L. Deonier (2 mm 1 f ISU); Minn., Lake Itasca, Clearwater Co., 1.IX. 1950, 2.IX. 1950, 3.IX. 1950, J. L. Laffoon (18 ff ISU); Minn., Itasca State Park, 1.IX. 1948, 2.IX. 1950, J. L. Laffoon (3 ff ISU); Minnesota, Lake Co., Basswood Lake, Washington Island, 14.VIII. 1950, 16.VIII. 1950, 17.VIII. 1950, 18.VIII. 1950, 23.VIII. 1953, R. Namba (17 mm 7 ff 1 ex. MINN); Minnesota, Lake Co., Basswood Lake, Q-S WRC Sec. 9, Twp. 64N, Rge 10W, 23.VIII. 1953 (3 mm MINN); same locality, Q-S WRC Sec. 4 Twp. 64N Rge. 10W, 15.VII. 1952, E. McConnell (1 m MINN); Minn., Ramsey Co., Oak forest, 5.VII. 1929, 5 P. M., R. E. Wall (2 mm MINN); same locality, 1.VII. 1929, 2:30 P. M., R. N. Chapman (1 f MINN); same locality, 3.VII. 1929, 2:30 P. M., C. T. Schmidt (1 m MINN); Iowa, Sioux City, 15.VII. 1950, J. L. Laffoon (9 ff ISU); Iowa, Dubuque Co., White Pine Hollw, 4.VII. 1949, J. L. Laffoon (2 ff ISU); Iowa, Linn Co., Palisades -Kepler St. Pk., 8.VII. 1950, Laffoon, Slater, Hicks (2 ff ISU); Iowa, Clayton Co., Pike's Peak St. Pk., 4.VII. 1949, J. Laffoon (1 f ISU); Iowa, Boone Co., Ledges State Pk., 30.VII. 1955, 30.VIII. 1955, W. L. Downes (1 m 1 f ISU); Iowa, Van Buren Co., Lacey-Keosauqua St. Pk., 10.IX. 1949, J. Laffoon & J. Slater (2 ff ISU); Iowa, Boone County, Ledges State Park, 10.VI. 1949, 20.VI. 1949, 21.VI. 1950, 25.VI. 1950, 18.IX. 1951, 12.VI. 1952, 4.VII. 1953, 23.VI. 1953, 31.VII. 1955, 3.VIII. 1961, J. Laffoon (5 mm 10 ff ISU, 2 mm 2 ff BMNH); same locality, 3.VII. 1961, 23.VII. 1961, R. J. Gagné (1 m 2 ff ISU); Iowa, Guthrie Co., Springbrook St. Park, w. 1/2 Sec. 33, T81N, R31W, 19.VII. 1960, J. Laffoon (1 m 1 f ISU); Missouri, Lincoln Co., Cuivre River St. Pk., 26.VIII. 1961, J. L. Laffoon (1 f ISU); Wis., Price Co., 13.VIII. 1897, W. W. Wheeler (1 ex. AMNH); Wis., Florence Co., T 40 N, R 16 E S 9, 24.VIII. 1958, J. Kapter (1 m WISC); same locality, T38 R15, 20.VII. 1958, light trap, S. E. Banash (1 m WISC); Wis., Washburn Co., T39 R12W B32, 19.VII. 1951, 10.VII. 1952, 11.VII. 1952, 12.VII. 1952, 14.VII. 1952, 18.VII. 1952, 22.VII. 1952, 3.VIII. 1952, 6.VIII. 1952, 28.VIII. 1952, 29.VIII. 1952, 31.VIII. 1952, 1.IX. 1952, 8.IX. 1952, 11.IX. 1952, 30.VII. 1953, 9.VIII. 1953, 10.VIII. 1953, 31.VIII. 1953, light trap, R. H. Jones (36 mm 6 ff 2 exx. WISC); same locality, T39N R12W B28, 11.VIII. 1952, 2.IX. 1952, 3.IX. 1952, 7.VII. 1953, R. H. Jones (11 mm WISC); same locality, T39N R12W B33, 19.VII. 1953, R. H. Jones (1 f WISC); Ill., Macomb, river-woods, 29.V. 1962, W. W. Wirth (1 m USNM); Mich., Lake Co., Branch, 4—11.IX. 1974, 1.VII. 1976, 14.VII. 1976, ex Malaise trap, R. L. Fischer (16 mm 1 f MICH); Mich., Lake Co., Big Star Lake, 8.IX. 1976, ex Malaise trap, R. L. Fischer (1 m MICH); Mich., Grand Traverse Co., 9.VII. 1960, R. R. Dreisbach (1 m MICH); Mich., Midland Co., 17—27.VII. 1960, R. R. Dreisbach (1 f MICH): Mich., Ka'zoo Co., Kellogg Forest, 10.VII. 1954, 24.VII. 1954, A. D. Dawson (2 mm 1 f MICH); Mich. Cedarwood, 30.VIII. 1954, R. L. Fischer (1 f MICH); Ind., Turkey Run, 27.VI. 1933, A. L. Melander (1 m USNM); Ohio, Ross Co., 4.VII. 1949, R. R. Dreisbach (1 m 1 f MICH); O., Pike Co., Benton Twp., G. A. C., 569, 28—29.VIII. 1976, Malaise trap, G. A. Coovert (1 m CNC); Pa., North Mt., 29.VIII. 1898, C. W. Johnson (1 f MCZ); Pa., Germantown, 10.VII. 1909 (1 f USNM); Pa., Laurelton, 4.VIII., N. Banks (2 ff MCZ); Pa., Spring Br., 24.VI. 1945, DDT Expt. (2 mm USNM); PA., Clarion Co., Cook St. For., trail to "Forest Cathedral" from Toms Run., 11.VIII. 1961, D. L. Deonier (1 m 7 ff ISU); same data, J. L. Laffoon (3 mm 4 ff ISU); same data, R. J. Gagné (1 m 1 f ISU); N. Y., Ithaca, lot 252 (1 ex. MCZ); same locality, 10.VII. 1901, lot 289, 29.VIII. 1901, lot 255, O. A. Johannsen (2 exx. CORN); N. Y., Fulton Co., Woodworth Lake, 22.VIII. 1910 (1 f CORN); lot 291, O. A. Johannsen (wing slide CORN); N. Y., Colden, 9.VII. 1922, M. C. Van Duzee (1 m CAS); New York, Rensselaerville, Ken 356, Hemlock Beech, 19.VII. 1941, Kendeigh (1 m USNM); N. Y., Cld Spr. Harb., 14.VII. 1927, A. L. Melander (1 m USNM); Cld., Sp. Har., L. I., VIII., A. L. Melander (1 m USNM); N. Y., Wilmington, 21.VIII. 1941, A. L. Melander (2 mm USNM); N. Y., Fish Crk Park, 13.VIII. 1941, A. L. Melander (6 mm USNM); N. Y.,

Essex Co., Keene Valley, 1200′, 20.VII. 1962, J. R. Vockeroth (2 mm 1 f CNC); same locality, 20.VII. 1962, J. G. Chillcott (2 mm 1 f CNC); N. Y., Lake Placid, 2000′, 19.VII. 1962, J. R. Vockeroth (1 m 2 ff CNC); N. Y., St. Lawrence Co., Stark, 19.VII. 1962, J. R. Vockeroth (5 mm 3 ff CNC); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12′N, 74°32′W, 1600′, 5.VIII. 1961, J. L. Laffoon (2 mm 5 ff ISU); same data, R. J. Gagné (2 mm 2 ff ISU); same data, D. L. Deonier (5 mm 1 f ISU); N. Y., Cattaraugus Co., Stoddard Hollow, 42°4′N, 78°45.5′W, 1720′—1880′, 10.VIII. 1961, J. L. Laffoon (7 mm 8 ff ISU); same data, R. J. Gagné (6 mm 3 ff ISU); N. Y., Hamilton Co., e. foot of West Notch Mt., 43°20.6′N, 74°37.2′W, 1900′, 6.VIII. 1961, J. L. Laffoon (7 mm 4 ff ISU); same data, D. L. Deonier (1 m 1 f ISU); same data, R. J. Gagné (7 mm 9 ff ISU); New York, Hamilton Co., along Shanty Brook, 43°17.2′N, 74°33.4′W, 1700′, 5.VIII. 1961, R. J. Gagné (1 m 1 f 1 ex. ISU); same data, J. L. Laffoon (1 m ISU); same data, D. L. Deonier (1 m 2 ff ISU); N. Y., Bear Mt., 16.VIII. 1933, A. L. Melander (1 m USNM); Vt., S. Newfane, VII., Bryant (1 f MCZ); VT., Springfield, 15.VII. 1931, A. L. Melander (1 m USNM); Vt., Jacksonville, Laurel Lake, 24.VII. 1939, 9.VIII. 1939, E. D. Pratt (1 m 1 f MINN); VT., Jay Peak, 3400—3800′, 20.VII. 1968, J. R. Vockeroth (2 mm CNC); N. H., White Mts., lot 251 (1 ex. CORN); N. H., Jaffrey, 1-9-X (1 m 1 f MCZ); (N. H.) White Mts., Morrison (4 mm 1 f 1 ex. USNM); N. H., Mt. Wash., Slosson (1 m USNM); N. H., Franconia, Slosson (1 f AMNH); Me., Bar Barber, 3.VII., C. W. Johnson (1 m USNM); ME., Seal Harbor, 29.VII. 1930, A. L. Melander (1 m USNM); Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (13 mm 5 ff BMNH); Mass., Holliston, 26-VII., N. Banks (1 m MCZ); Mass., Brookline, VI. 28, lot 250 (1 ex. CORN); Mass., Woods Hole, 25.VII. 1905, lot 1901, O. A. Johannsen (1 m hypop. slide CORN); Belchertown, 18.IX. 1930, Sept. 25 (2 mm total slides MASS); Mass., Auburndale, VIII. 9. (1 m PU); Mass., Holliston, 11-IX., N. Banks (1 f MCZ); same locality, 20.VII., N. Banks (1 f MCZ); Mass., Newton Falls, 18-VIII., C. W. Johnson (1 f MCZ); Mass., Chester, 4-VII., C. W. Johnson (1 f MCZ); Mass., Auburndale, 20-IX., C. W. Johnson (1 f MCZ); same locality, 2.VIII. (1 f MCZ); Mass., Concord, marshy pond, 27.VII. 1962, W. W. Wirth (1 m USNM); Mass., Woods Hole, A. L. Melander (2 mm USNM); Mass., Forest Hills, 7.IX. 1913, 27.IX. 1913, A. L. Melander (3 mm USNM); Mass., Petersham, 30.VII. 1926, A. L. Melander (1 m USNM); Mass., Brewster, C. Cod, 7.VIII. 1964, J. R. Vockeroth (7 mm CNC); R. I., Kingston, 2.VIII. 1905, R. I. College, lot 25, lot 247 (1 ex. CORN); same locality, 25.VII. 1905, (1 f PU); Conn., Nangatuck(?), 12.VIII. 1933, C. P. A. (1 m total slide MASS); without data (1 m total slide MASS); Conn., Beacon Falls, 12.IX. 1933, C. P. A. (m total slide MASS); Ct., 10 m. s. Danbury, 2.VII. 1931, J. M. Aldrich (1 m USNM); CT., Redding, 27.VII. 1933, Melander (1 m USNM); CT., Colebrook, 28.VIII. 1941, A. L. Melander (2 mm USNM); Conn., Candlewd Lk., 2.IX. 1941, A. L. Melander (1 m USNM); N. J., Del. W. Gap, 12.VII., C. W. Johnson (1 f MCZ); Del. Water Gap, A. T. Slosson (1 f AMNH); Md., Prince George Co., Oxon Run, 6.IX. (1 m hypop. slide USNM); Md., Plummers I., 20.VI. 1912, H. Barber (1 f USNM); Virginia, near Plummers Id., 5.IX. 1915, 29.IX. 1915, W. L. McAtee (1 m 2 ff USNM); Md., Beltsville, 23.VI. 1913, W. L. McAtee (1 f USNM); MD., Laurel, 11.V. 1965, 25.V. 1965, 21.VI. 1965, 28.VI. 1965, Malaise trap (3 mm 1 f CNC); MD., Kahoka, 20.VI. 1951, R. C. Froeschner (2 ff ISU); Washington, D. C., Rockcreek Park, 16.VIII. 1952, J. L. Laffoon (1 f ISU); (Washington, D. C.) Loew Coll (*Sciophila obtruncata* type MCZ); W. Va., Hardy Co., Lost River State Pk., 5.VII. 1940, A. Stone (1 f USNM); Va., Falls Church, 27.VI., N. Banks (1 f MCZ); Va., Passage Cr., 7.VIII., N. Banks (1 f MCZ); Va., Great Falls, 24.IX., Banks (1 f MCZ); Va., Great Run, 26.VI., Banks (1 f MCZ); Va., Falls Church, Holmes Run, 15.VI. 1960, 26.VI. 1960, 4.VII. 1960, 26.VII. 1960, 23.VIII. 1960, 24.VIII. 1960, 30.VIII. 1960, 22.IX. 1960, 19.X. 1960, W. W. Wirth (8 mm 2 ff USNM); Va., Falls Church, 23.VII. 1960, W. W. Wirth (1 f USNM); Va., Little R., 4.VII. 1928, J. M. Aldrich (8 mm 5 ff USNM); VA., Shenandoah, Lewis Falls, 4.VII. 1939, A. L. Melander (1 f USNM); Shenandoah NP, Pinnacles Picnic Ar., 19.VII. 1952, W. W. Wirth (1 m 2 ff USNM); Va., Augusta Co., Mount Solon, 26.VI. 1951, stream margin, W. W. Wirth (2 mm USNM); Va., Occoquan, 19.VIII. 1917, Atoak sap, W. L. McAtee (1 m USNM); VA., Great Falls, 21.VI. 1931, A. L. Melander (1 m USNM); Virginia, Giles Co., Doe Creek, 0.9 mi. SW. Mt. Lake, 3100′, 15.VIII. 1967, G. W. Byers (1 m SNOW); Virginia, Giles Co., Mt. Lake, Biol. Sta., 3900′, 26.VI. 1965, G. W. Byers (1 m SNOW); VA., Madison Co., Whiteoak Canyon, south slope of Stony Man, 38°35′N, 78°22′W, 3500′, 22.VII. 1961, J. L. Laffoon (3 mm 2 ff 1 ex. ISU); same data, O. S. Flint (3 ff ISU); same data, R. J. Gagné (1 m ISU); Virginia, Madison Co., along Hogcamp Branch, 38°31.2′N, 78°25.5′W, 2800′, 22.VII. 1961, D. L. Deonier (1 m 1 f ISU); same data, J. L. Laffoon (2 mm 1 f ISU); Virginia, Fauquier Co., 6 mis. n. New Baltimore, 38°49′N, 77°43′W, 22.VII. 1961, O. S. Flint (1 f ISU); Kentucky, Koomer Ridge & Red Riv., Daniel Boone Nat. Forest, Natural Bridge area, IX.1973, R. I. Vane-Wright (1 m BMNH); Tenn., GSMNP, Gatlinburg, NE Sweeps, Oak-hickory, 15.VII. 1947, R. H. Whittaker (1 f ISU); Tenn., Sevier Co., Great Smoky Mts., Fighting Creek, 35°40.7′N, 83°33.3′W, 7.VII. 1958, J. Laffoon (1 m ISU); Tenn., Gr. Smoky Mt. Nat. Pk., Indian Gap, 5200′, 2.VII. 1957' J. R. Vockeroth (1 f CNC); Tenn., Gr. Sm. Mt. Nat. Park, Collins Gap, 5700′, 22.VIII. 1957, J. G. Chillcott (7 mm 1 f CNC); Tenn., N. C., Gr. Sm. Mt. Nat. Park, Clingman's Dome, 6600′, 22.VIII. 1957, J. G. Chillcott (4 mm CNC); N. C., Lake Toxaway, 12.VII. 1957, J. G. Chillcott (2 mm CNC); N. C., Looking Glass Rock nr. Pisgah Forest, 2500′, 19.VII. 1957, J. G. Chillcott (2 mm CNC); N. C., Haywood Co., Pisgah Nat. Forest, Chestnut Bald, 5900′, 2.VIII. 1957, J. G. Chillcott (3 mm CNC); N. C., Looking Glass Pk., Pisgah Forest, 19.VII. 1957, W. R. Richards (1 m 1 f CNC); N. C., Pisgah Forest, 12.VIII. 1957, W. R. Richards (1 f CNC); N. C., Highlands, 26.VII. 1957, W. R. Richards (1 f CNC); same locality, 3800′, 8.VII. 1957, 25.VII. 1957, J. R. Vockeroth (3 mm CNC); same locality, 3800′, 15.VII. 1957, 18.VII. 1957, J. G. Chillcott (2 mm CNC); same locality, 3800′, 20.VII. 1957, W. R. Richards (1 m 1 f CNC); same locality, Skittle Creek, 18.VII. 1957, W. R. Richards (1 m CNC); same locality, 14.VII. 1957, C. J. Durden (1 f CNC); same locality, 23.VIII. 1957, J. G. Chillcott (1 f CNC); N. C., Wayah Bald, 13.VII. 1957, C. J. Durden (1 m CNC); N. C., Macon Co., Wayah Gap, 3800′, 29.VII. 1957, J. G. Chillcott (1 f CNC); same

locality, 3500′, 14.VII. 1957, J. G. Chillcott (1 f CNC); N. Carolina, Mitchell Co., Roan Mtn., 6200′, 13.VIII. 1957, J. G. Chillcott (1 m CNC); N. C., Macon Co., Wayah Bald, 3500′, 6.VIII. 1957, J. R. Vockeroth (1 ?f CNC); N. C., Devil's Court House, Blue Ridge Parkway, 2.VIII. 1957, W. R. Richards (1 f CNC); No. Car., Macon Co., Robin Branch (near Wayah Bald), 35°10.1′N, 83°35.1′W, 4400′, 13.VII. 1958, J. Laffoon (1 m ISU); N. C., Jackson Co., 3 mis. sw. Glenville, 35°8′N, 83°9′W, 3700′, 19.VI. 1958, J. L. Laffoon (1 m ISU); N. C., Macon Co., Highlands, 35°3.2′N, 83°11.3′W, 3850′, 23.VI. 1958, J. L. Laffoon (1 f ISU); So. Carolina, Spartanburg, 23.XII. 1955, J. L. Laffoon (2 mm ISU); S. C., Oconee Co., Mountain Rest, 1500′, 26.VII. 1957, J. G. Chillcott (2 ff CNC); S. C., Myrtle Beach, 13.IV. 1966, E. G. Munroe (1 m CNC); Ga., Tenesee R., 13.VII. 1957, C. J. Durden (1 m CNC); Ga., Pine Mtn. 1 Mi. N., 3000′, 12.VII. 1957, 13.VII. 1957, J. G. Chillcott (2 mm 6 ?ff CNC); Ga., Rabun Co., 13.VII. 1957, W. R. Richards (2 mm 5 ?ff CNC); Rabun Co., Rabun Bald, 9.VIII. 1957, C. J. Durden (2 mm 1 ?f CNC); same locality, 3000′, 14.VII. 1957, J. G. Chillcott (1 m 7 ?ff CNC); same locality, 4200′, 16.VII. 1957, J. G. Chillcott (2 mm 2 ?ff CNC); same locality, 4600′, 9.VIII. 1957, J. G. Chillcott (1 m CNC); same locality, 4700′, 16.VII. 1957, J. G. Chillcott (1 m CNC); Ala., Huntsville, Monte Sano St. Pk., 23.V. 1965, J. G. Chillcott (3 mm 2 ff CNC); Miss., Gainesville, 15.IV. 1966, (1 m total slide LOYO); LA., Corney Lake, 13.IV. 1966, E. G. Munroe (1 m CNC); La., Eunice, 28.III. 1960, J. G. Chillcott (3 mm CNC); La., Oak Grove, 3 mi. S., 31.III. 1960, J. G. Chillcott (1 m CNC); LA., Bayo Chicot Evangeline Par., 29.IX. 1971, ex Malaise trap, D. Shanek (2 mm CNC); Fla., Jackson Co., Florida Caverns St. Park, 26.V. 1973, Malaise trap, W. W. Wirth (3 mm USNM); Fla., Alachua Co., 10.III. 1955, H. V. Weems, Jr. (1 m FLOR).

Description:

Head. Palp and other mouthparts yellow to yellowish, face yellowish, posterior parts of head brown. Antenna yellowish to light brownish, basal segments slightly lighter. 1st flagellomere 2—2.5 times, 2nd about 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow to yellowish, more seldom brownish, sometimes with lateral margins posteriorly brownish to brown and areas between yellow stripes posteriorly brownish. Sometimes mesoscutum brown, with 3 distinct yellow longitudinal stripes or mesoscutum entirely brown with only anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum brownish to brown, with 4 long setae. Laterotergite yellow. Mediotergite yellowish to light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.78—0.84, bt2:t2 = 0.60—0.73, bt3:t3 = 0.55—0.57.

Wing. Wing length 3.0—4.4 mm. Wing hyaline, apex and small cell often slightly infuscate. Sc ending in R1 or C distally to or near middle of small cell, Sc1 sometimes apically weak or broken, Sc2 ending in R1 proximally — distally to middle of small cell. Apical part of Sc bearing 8—19 macrotrichia. Small cell 1—2 times as long as wide. Cu fork proximal to or almost below M fork. M ratios: 0.67—1.00, 0.86—1.20. Cu ratios: 0.60—0.79, 0.91—1.19. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 0—+; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with posterior half or third brown, often with brown colour extending forewards medially, 6—7 entirely brown. Sternites yellow.

Hypopygium. Figs. 905—906, yellow, not very large, about 1/7 of total length of abdomen. Sternal lateral appendage comparatively short, rounded. Aedeagus apically rounded in lateral view.

Female. Coloration and setosity as in male. Leg ratios: bt1:t1 = 0.75—0.84, bt2:t2 = 0.63—0.72, bt3:t3 = 0.51—0.64. Wing length 3.2—4.4 mm. Terminalia as in Figs. 907—908, yellow.

Remarks: The Alaskan specimens are darker than the southern specimens. The differences from *M. circumdata* (Staeger) and other species of this group can best be seen in the lateral view of the male hypopygium. *M. obliqua* is distinctly smaller (wing length: mean in males 3.66 mm, SD 0.33, N=57; in females 3.80 mm, SD 0.32, N=23) than *M. circumdata* (mean in males: 4.42 mm, SD 0.32, N=34; in females 4.94 mm, SD 0.32, N=26). The colours of *M. obliqua* usually contrast less strongly. The only features that I have found to differentiate *M. obliqua* form *M. macateei* n. sp. are in the male hypopygium. Thus, some females listed above may in fact represent this species.

For the variation in the wing venation, see Shaw (1947).

Distribution: Nearctic, very common species especially in the eastern part. Alaska. Canada: British Columbia, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia. USA: Washington, Montana, Idaho, Minnesota, Iowa, Missouri, Wisconsin, Michigan, Indiana, Ohio, Pennsylvania, New York, Vermont, New Hampshire, Maine, Massachusetts, Connecticut, New Jersey, Delaware, Maryland, Washington, D. C., West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Florida. Coher (1959) reports this species from Rhode Island.

Biology: Several specimens have been collected with light and dry ice or CO_2 Malaise traps.

Mycomya (?) *austrobliqua* Coher, 1959

Figs. 909—910, key p. 39.

Mycomyia austrobliqua Coher, 1959. Coher 1959:73.
Mycomya austrobliqua: Papavero 1978:39.

Type locality: São Paulo, Campos do Jordão (Brazil).

Type: Holotype in São Paulo (m, not studied).

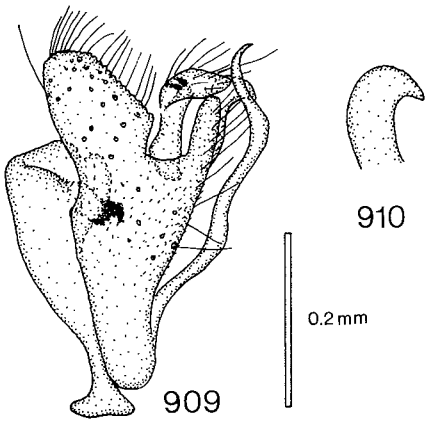
Material examined: Mexico: Sinaloa, 2 mi. S. Ocurahui, Sierra Surutato, 6500 ft., 1.X. 1970, D. E. Breedlove (1 m CAS).

Description:

Very similar to *M. obliqua* (Say), from which it can be separated only by the form of the male hypopygium (Figs. 909—910). Wing length of present specimen 3.7 mm.

Female. Unknown.

Remarks: The present specimen agrees well with Coher's description and although I have not been able



Figs. 909—910. *Mycomya (?) austrobliqua.* — 909: male hypopygium, lateral view. — 910: apex of aedeagus, lateral view. Scale 0.2 mm for Fig. 909, Fig. 910 2 x enlarged.

to examine the holotype, I consider it very probably conspecific.

Distribution: Neotropical, just reaching the southern margin of the Holarctic region. Brazil, Mexico.
Biology: Unknown.

7.5. Subgenus Tlingitmyia n. subg.

Type species: *Mycomya lutealis* n. sp.

Mediotergite bare. Coxa 1 without specialized setae or spines. Coxa 2 without spur. Coloration orange-yellowish, with brown markings. Abdominal tergite 8 setose. Tergite 9 with medial structure bearing very long strong setae, and pair of strong submedial spurs in inner-part. Basal part of tergite 9 bare, no lateral appendages. Sternal synsclerite large, deeply emarginate medially.

Distribution: Nearctic.

One species group is recognized in this subgenus.

Species group M. lutealis

Head. Anteclypeus short, triangular, apically rounded, with some small setulae. Antenna slightly longer than head and thorax together. Pedicel with some comparatively long dorsal setae, longest longer than half of 1st flagellomere. Ocellar setae about 4 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax brownish, comparatively thin. Suture between mesanepisternum and mesokatepisternum declining slightly anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 4 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae moderately strong, longest about twice as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork slightly proximal to M fork. M and Cu petioles of medium length. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Yellow with distinct brown markings. Abdominal setae light brown.

Tergite 8 wide, arcuate, medially narrower, with many setae along posterior margin. Sternite 8 triangular, apically rounded, with 2 very small setulae subapically.

Hypopygium. Tergite 9 with long apical setae and 2 strong dark spurs in inner part. Sternal synsclerite with large lateral appendages, with two lobes, synsclerite deeply emarginate medially.

One Nearctic species is recognized in this species group.

Mycomya lutealis n. sp.
Figs. 911—913, key p. 32.

Type locality: British Columbia, Kleanza Creek, 14 miles east of Terrace (Canada).

Type: Holotype (studied): Kleanza Creek 14 mi. E. Terrace B. C. 30.VI. 1960 J. G. Chillcott. Wet scrub in cut over forest. (m CNC).

Material examined: Canada: Holotype, and 2 m paratypes with the same data (CNC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Entirely yellow, with orange-yellowish shade. Pronotum with 6 longer setae. Mesoscutum slightly shining. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax brownish, thin.

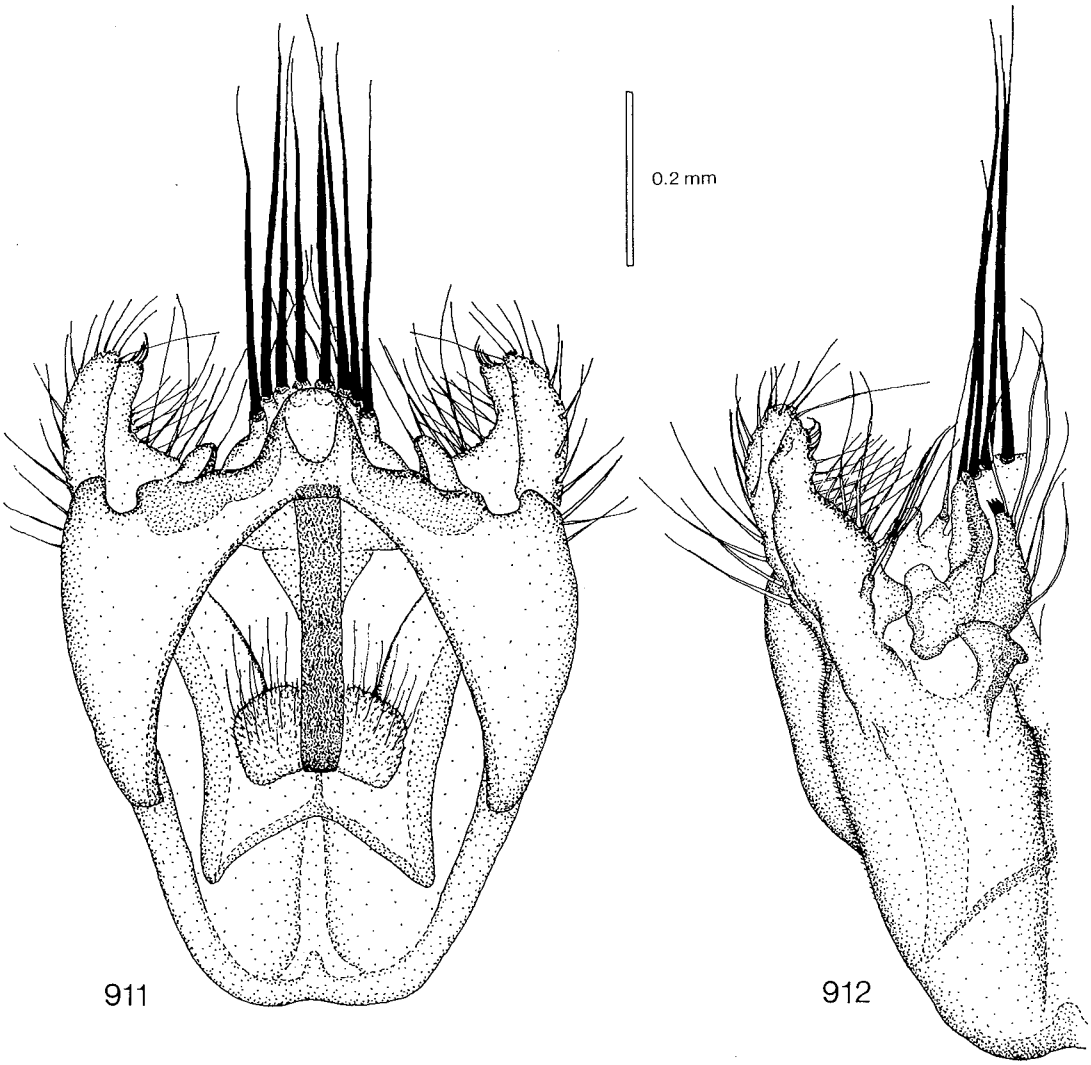
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.71—0.77, bt2:t2 = 0.62—0.71, bt3:t3 = 0.53—0.56.

Wing. Wing length 4.5—4.8 mm. Wing hyaline. Sc ending in C near or distally to middle of small cell, Sc2 ending in R1 distinctly proximally to middle of small cell. Apical part of Sc bearing 18—24 macrotrichia. Small cell 2.5—3 times as long as wide. Cu fork slightly proximal to M fork. M ratios: 0.64—0.71, 0.75—0.91. Cu ratios: 0.62—0.71, 0.92—1.09. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergite 1 entirely yellow, 2 yellow with very narrow brown posterolateral spots, 3 yellow with brown anterolateral spots, connected with posterolateral spots of preceding tergite, and very narrow posterolateral spots, 4 yellowish with brown anterolateral spots connected with spots of preceding tergite or 4 with wide posterior part, i.e. about half, yellow, 5 brown or with posterior fourth yellow, 6—7 brown. Sternites 1—4 yellow, 5—7 yellow with brown anterior margins. Abdominal setae brownish.

Hypopygium. Figs. 911—913, large, yellowish. Tergite 9 with extremely long black setae and 2 strong inner spurs. Sternal lateral appendage with 2 comparatively long, wide, setose lobes. Sternal submedian appendage indistinct short, bare. Gonostylus with 2 branches, medial branch with 3 apical teeth and several long curved setae.

Female: Unknown.



Figs. 911—912. *Mycomya lutealis*. — 911: male hypopygium, tergal view. — 912: hypopygium, sternal view. Scale 0.2 mm.

Distribution: Western Nearctic. Canada: British Columbia.

Biology: Unknown. The specimens caught in wet scrub in cut over forest.

7.6. Subgenus Coheromyia n. subg.

Type species: *Mycomya branderi* n. sp.

Mediotergite bare. Coxae without special setae or other structures. Coloration usually vivid yellow and dark brown, abdominal tergites yellow with dark posterior margins. Abdominal tergite 8 setose. Tergite 9 usually with pair of strong pointed submedial spines and strong lateral spines. Basal part of tergite 9 bare, no lateral appendages. Sternal synsclerite large, deeply emarginate medially.

Distribution: Holarctic. In addition, the following species from the Neotropical region can be tentatively placed in this subgenus (referable to group C of Coher 1952): *M. arethusa* Coher, 1952 (Brazil), *M. brontes* Coher, 1952 (Brazil), *M. dryope* Coher, 1959 (Brazil), *M. hamadryas* Coher, 1952 (Brazil), *M. iphis* Coher, 1952 (Brazil), *M. midas* Coher, 1952 (Brazil), *M. nicothoe* Coher, 1952 (Brazil), *M. cleta* Coher, 1952 (Brazil, Argentina), *M. irene* Coher, 1952 (Brazil, Argentina), *M. tantalos* Coher, 1959 (Brazil), *M. bre-*

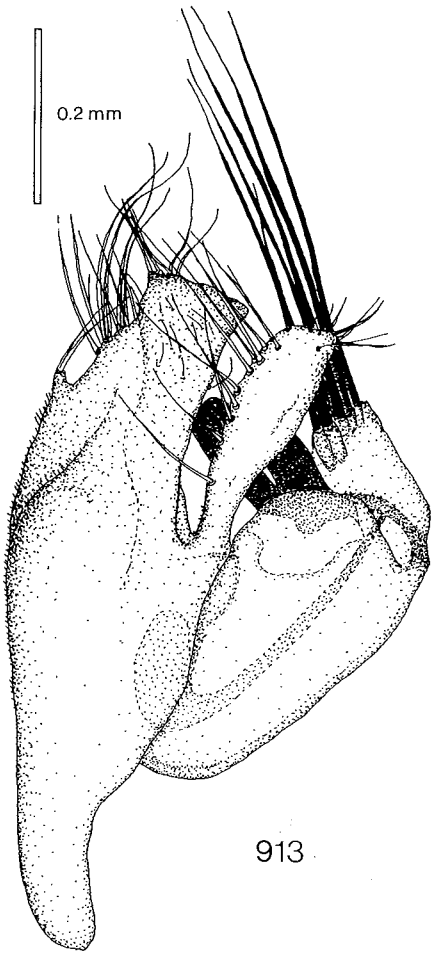


Fig. 913. *Mycomya lutealis,* male hypopygium, lateral view. Scale 0.2 mm.

vifurcata Enderlein, 1911 (Brazil), *M. peruviana* Edwards, 1931 (Peru), and *M. goethalsi* Väisänen, 1981c (Panama).

One species group is recognized in this subgenus in the Holarctic region.

Species group M. tantilla

Head. Anteclypeus comparatively short, triangular, with some small setulae. Antenna about 1.5 times as long as head and thorax together, in females slightly shorter than in males. Pedicel with long dorsal seta. Ocellar setae about twice as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum slightly declining anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 4 times as long as wide. Basitarsus 1 distinctly shorter than tibia 1. Tibial setae weak to relatively weak, longest 1—1.5 times as long as tibial diameter.

Wing. C ending in apex of R5, almost reaching wing apex. Sc ending in C. Cu fork distal to or below M fork. M petiole long. Cu petiole long to medium. Macrotrichiation of veins M and Cu more or less reduced.

Abdomen. Tergites yellow with dark posterior margins, sometimes colour pattern indistinct.

Tergite 8 narrow, arcuate, medially only very slightly narrower, with many setae along whole posterior margin. Sternite 8 triangular, wide, without setae.

Hypopygium. Tergite 9 with 2 groups of submedian spines and lateral spines. Sternal lateral appendages large setose, with strong spines. Sternal synsclerite deeply bilobed.

Female terminalia. Apical segment of cercus small, rounded-oval. Hypogynal valve wide, apically blunt, extensively setose, setae long.

One Palaearctic and four Nearctic species are recognized in this species group in the Holarctic region.

Mycomya branderi n. sp.

Figs. 914—920, key p. 39.

Sciophila circumdata: Lundström 1909:12.
Mycomyia circumdata: Frey & Storå 1941:46.
Mycomya tantilla: Väisänen 1979a:47, in Hackman 1980:31; Väisänen 1982b:41.

Type locality: Karislojo (Karjalohja) (Finland).

Type: Holotype (studied): Karislojo. 507. Hellen (m MZH).

Material examined: Denmark: Farrø, 31.VII. 1918 (1 m COPEN). — Finland: *Al:* Aland, Palmen (1 f labelled as *S. circumdata* by C. Lundström MZH); *Ab:* Karislojo (Karjalohja), Tallnäs-Murto, 22.VII. 1911, W. Hellen (holotype MZH); *Ta:* Jokioinen, 29.VIII. 1965, A. Väre (1 m FLHM).

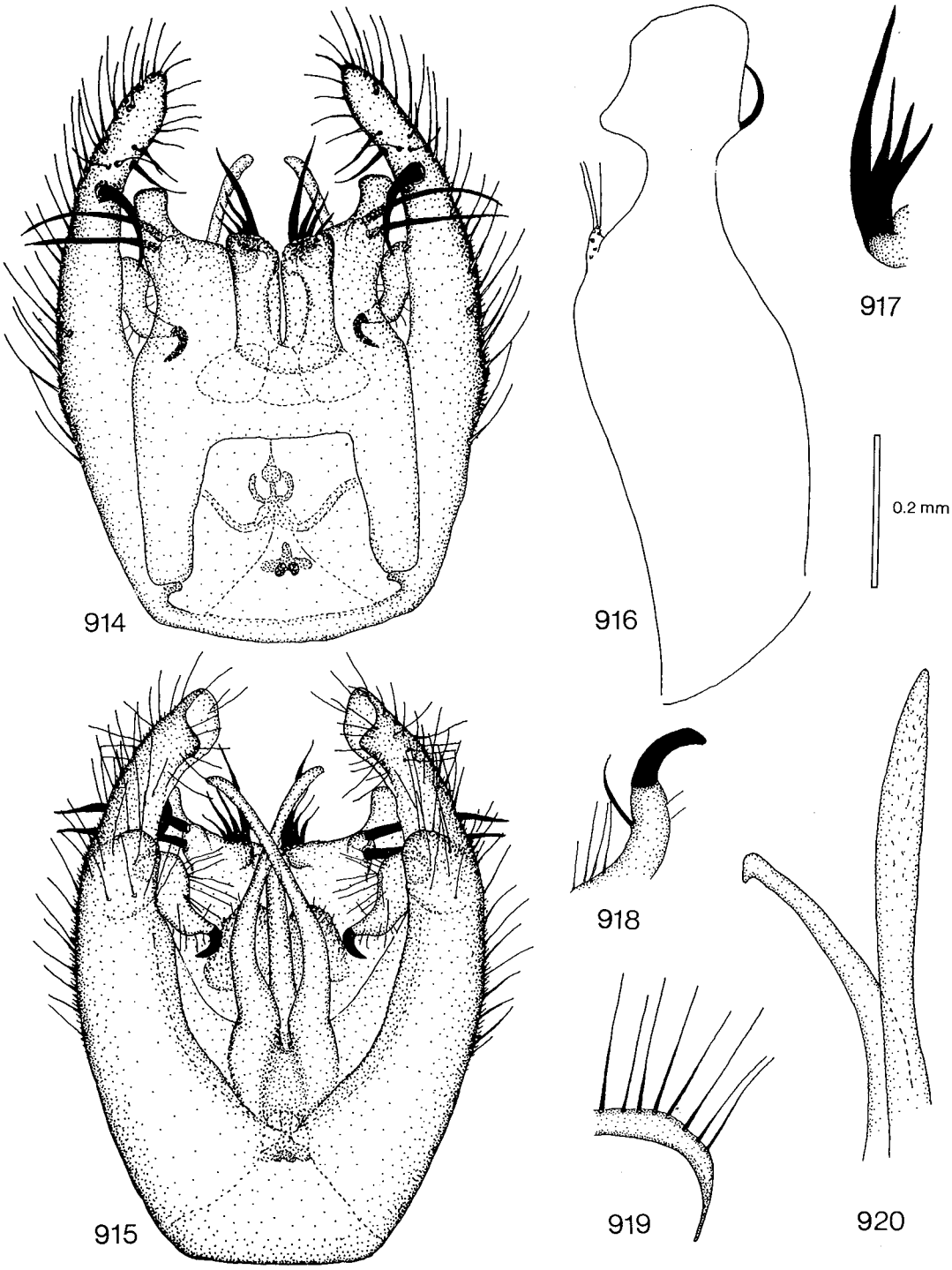
Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 2—2.5 times, 2nd about 1.5 times as long as wide.

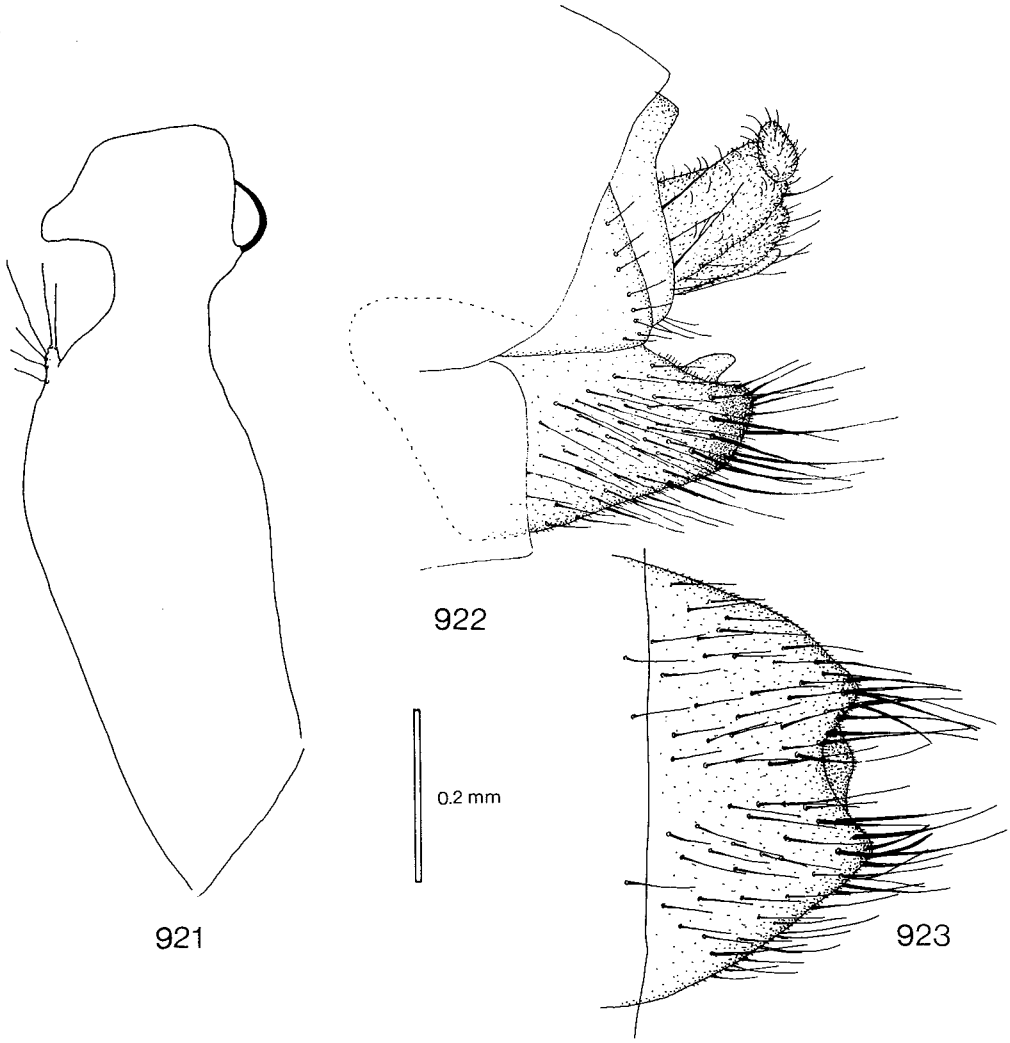
Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum shining, brown, with 3 wide fused longitudinal stripes, only anterolateral corners and lateral margins of mesoscutum yellow, or mesoscutum yellow with distinct brown stripes. Mesanepisternum light brownish. Mesokatepisternum light brownish. Scutellum yellow, with 4 long setae. Laterotergite brownish. Mediotergite brownish, with brown lateral and ventral parts, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.77—0.82, bt2:t2 = 0.64—0.66, bt3:t3 = 0.57—0.60.

Wing. Wing length 3.5—3.8 mm. Wing hyaline. Sc ending in C distally to middle of small cell near apex of R4, Sc2 ending in R1 slightly proximally to or near middle of small cell. Apical part of Sc bearing 7—16 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork below or slightly distal to M fork. M ratios: 0.83, 1.00. Cu ratios: 0.90—0.96, 1.29—1.35. Macrot-



Figs. 914—920. *Mycomya branderi.* — 914: male hypopygium, tergal view. — 915: hypopygium, sternal view. — 916: sternal synsclerite, lateral view. — 917: submedial spines of tergite 9. — 918: apex of gonostylus. — 919: tergite 8. — 920: aedeagus, lateral view. Scale 0.2 mm for Figs. 914—916 and 919—920, Figs. 917—918 2 x enlarged.



Figs. 921—923. *Mycomya tantilla.* — 921: sternal synsclerite of male hypopygium, lateral view. — 922: female terminalia, lateral view. — 923: hypogynal valves, sternal view. Scale 0.2 mm.

richia: M petiole: 0; M1: +; M2: 1—+; Cu petiole: 0—+; Cu1: 0—+; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow with posterior margins brown, 6—7 brown. Sternites 1—5 yellow, 6—7 darker.

Hypopygium. Figs. 914—920, yellow, comparatively large. Sternal lateral appendages apically wide and very long.

Female. Wing length ca. 4.0 mm. Head brown, anteclypeus brownish, palp yellow. Antennae yellowish, scape, pedicel and base of 1st flagellomere yellow. Pronotum yellow. Mesoscutum yellow, with 3 fused wide brown longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part brownish. Mediotergite yellow, medial and posterior parts brownish. Abdominal tergites yellow with brown posterior fourths, sternites yellow. Leg ratios: bt1:t1 = 0.68, bt2:t2 = 0.57. Terminalia very similar to those of *M. tantilla* (Loew), yellow.

Distribution: Western Palaearctic. Finland, Denmark.
Biology: Unknown.

Mycomya tantilla (Loew, 1869)

Figs. 921—923, key p. 39.

Sciophila tantilla Loew, 1869. Loew 1869:140; Osten-Sacken 1878:10; Kertész 1902:64; Aldrich 1905:141.

Mycomya tantilla: Johannsen 1909:50, 1910:175; Shaw & Fisher 1952:191; Cole 1969:121; Laffoon in Stone et al. 1965:221.

Mycomyia tantilla: Fisher 1937:392.

(p. p.) *Mycomyia tantilla:* Coher 1959:106 (? p. p. = *M. oreades* n. sp.).

(? not) *Mycomyia tantilla:* Fisher 1939:228 (? = *Mycomya* sp.).

(not) *Mycomya tantilla:* Väisänen 1979a:47, in Hackman 1980:31; Väisänen 1982b:41 (= *M. branderi* n. sp.).

Mycomya nugatoria Johannsen, 1910 (New synon.). Johannsen 1910:183; Laffoon in Stone et al. 1965:221.

(not) *Mycomyia nugatoria:* Coher 1959:115 (= *Mycomya* sp.).

(?) *Mycomya nigricauda:* Shaw & Fisher 1952:190.

Type locality: Nebraska (USA).

Types: — *Sciophila tantilla* Loew: Holotype (studied): Neb. Loew Coll. Type 1219 *tantilla* M. (f MCZ). — *Mycomya nugatoria* Johannsen: Syntypes not located, apparently destroyed: two females taken by Prof. Wheeler and W. Beutenmuller. Type localities: Wisconsin, Milwaukee County; North Carolina, Black Mountains (USA).

Remarks: I have followed Johannsen's (1910) and Coher's (1959) interpretation of this species, although the type is in very poor condition and cannot be identified with full certainty.

One specimen belonging to *M. tantilla* (from Raleigh) and determined by O. A. Johannsen as a female of *M. nugatoria* was examined. The *M. nugatoria* specimens mentioned by Coher (1959) have not been located. It seems very probable that they do not agree with the Johannsen's original concept of this species.

Material examined: Canada: Manitoba, Ninette, maple-elm floodplain community along stream, 28.VII. 1958, J. G. Chillcott (1 m CNC); Man., 5 mi. SW. Shilo, tamarack, 2.VIII. 1958, J. G. Chillcott (1 m CNC); Ont., Stittsville, 21.IX. 1963, W. R. M. Mason (1 m CNC); Ont., Maynooth, 6.IX. 1953, J. F. McAlpine (1 m CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 2.IX. 1963, Malaise trap, D. D. Munroe (1 m CNC); N. B., St. Andrews, sea shore, 6.VIII. 1957, G. E. Shewell (1 f CNC). — USA: Wyo., Little Wind R., 2.IX. 1895, W. W. Wheeler (1 ?ex. without abd. AMNH); So. Dak., Union Co., 3 miles so. of Jefferson, 13.VIII. 1953, J. L. Laffoon (2 mm ISU); S. Da., Elk Point, June 19, (?Garrett) (m hypop. slide 4749 USNM); SD., Brookings, J. M. Aldrich (1 ex. USNM); Neb. (holotype MCZ); Minn., Wilkin Co., Rothsay Wildlife Area, T135N, R45W, S4+18, 23.VIII. 1971, N. T. Baker (1 m MINN); Minn., Wabasha, 6.IX. 1939, light trap, R. H. Daggy, H. T. Peters (1 m MINN); Iowa, Dickinson Co., Cayler Prairie, 43°24'N, 95°14'W, 19.VI. 1963, J. C. Schaffner (1 m ISU); Iowa, 3 mis. S. E. of Holly Springs, 12.VI. 1949, Slater & Laffoon (5 ff ISU); Iowa, Ames, 16.V. 1949, J. Laffoon (1 f ISU); same locality, 18.VI. 1940, J. U. McGuire (1 f ISU); Ark., Fayetteville, 13.IX. 1906 (1 f PU); Wis., Washburn Co., T39N R12W B32, 9.IX. 1951, 14.VII. 1952, 31.VIII. 1952, light trap, R. H. Jones (2 mm 1 f WISC); same locality, 31.VII. 1953, 5.VIII. 1953, 8.VIII. 1953, R. H. Jones (6 mm WISC); Wis., W. M. Wheeler (1 ex. without hypop. CORN; 1 f AMNH); Mich., Bay Co., 19.VII. 1960, R. R. Dreisbach (1 m MICH); Mich., E. Lansing, 20.VI. 1936, 27.VI. 1936, C. Sabrosky (2 ff MICH); Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (1 m BMNH); Mass., Beverly, 13.VII. 1870 (2 mm USNM); L. I., East Hampton, 2.VIII. 1947, R. Latham (1 m USNM); L. I., Northwest, 8.VIII. 1947, R. Latham (1 m USNM); N. C., Raleigh, 5.VI. 1905 (1 f "*Mycomya nugatoria*" lot 287 CORN).

Description:

Head. Palp and other mouthparts yellow, face brown, posterior parts of head brown. Antenna light brownish, scape, pedicel and base or whole of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 4—5 longer setae. Mesoscutum shining, light brownish to brown, usually dark, without distinct markings, or with more or less fused longitudinal stripes. Anterolateral corners and usually also lateral margins of mesoscutum yellow. Mesanepisternum yellow to yellowish. Mesokatepisternum yellow to yellowish, ventral half brownish to brown. Scutellum yellow with 4 long setae. Laterotergite brownish or yellowish with ventral part brownish. Mediotergite brownish or yellow with lateral and caudal parts brownish to brown, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.67—0.89, bt2:t2 = 0.64—0.67, bt3:t3 = 0.68—0.84.

Wing. Wing length 3.2—3.8 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 7—24 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork slightly distal to or below M fork. M ratios: 0.83—1.00, 1.06—1.33. Cu ratios: 0.70—0.96, 1.11—1.67. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 0—3; Cu1: 0—2; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown, with large yellow anterolateral spots, 6—7 brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Fig. 921, yellow to yellowish, comparatively large, variable in general shape. Sternal lateral appendage very long and very wide. Parameres long, wide. Aedeagus long, narrow, with small apical hook.

Female. Wing length 3.4—4.2 mm. Coloration and setosity as in male. Abdominal tergites yellow with broad brown posterior margins and dorsomedial line. Leg ratios: bt1:t1 = 0.80—0.82; bt2:t2 = 0.67—0.72; bt3:t3 = 0.63—0.67. Terminalia as in Figs. 922—923, yellow.

Distribution: Nearctic. Central and eastern North America. Canada: Manitoba, Ontario, New Brunswick. USA: ?Wyoming, South Dakota, Nebraska, Minnesota, Iowa, Arkansas, Wisconsin, Michigan, Maine, Massachusetts, New York, North Carolina. Coher (1959) also reports this species from Saskatchewan. The records from Costa Rica (Fisher 1939) and New Mexico (Coher 1959; ?= *M. oreades* n. sp.) probably concern other species.

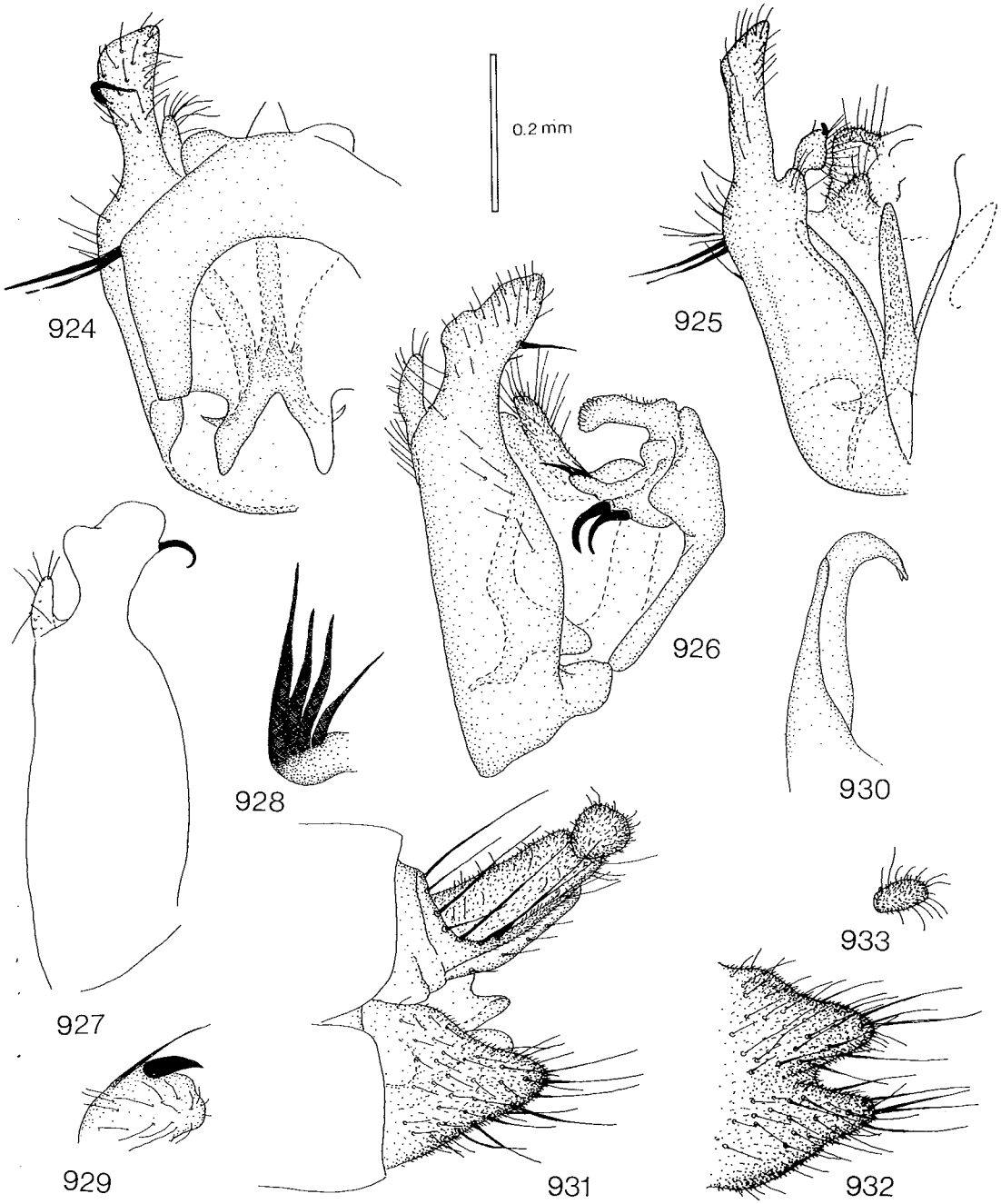
Biology: Some species have been collected with light and Malaise traps. The collecting biotopes given are maple-elm floodplain along a stream, tamarack, and seashore.

Mycomya nigricauda (Adams, 1903)

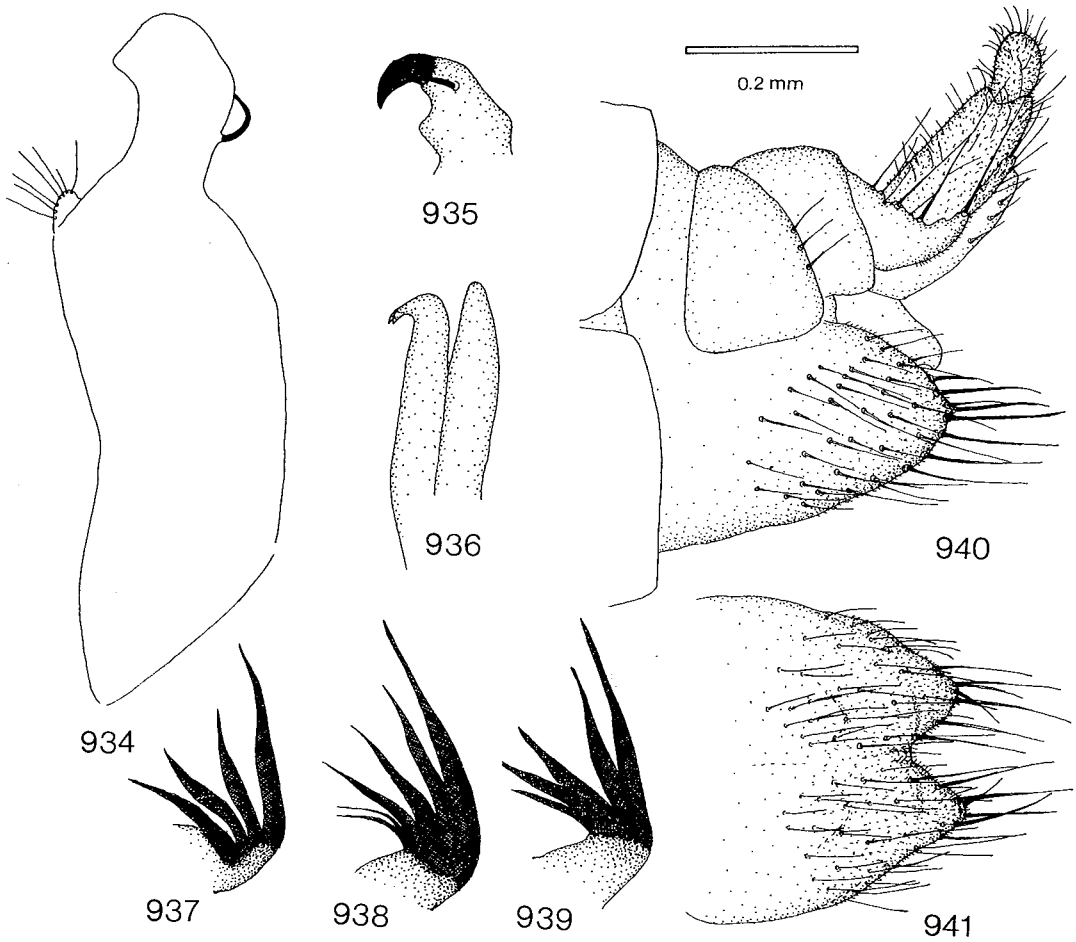
Figs. 924—933, key p. 39.

Sciophila nigricauda Adams, 1903. Adams 1903:23; Aldrich 1905:140.

Mycomya nigricauda: Johannsen 1909:49, 1910:176; Fisher 1937:392; Laffoon in Stone et al. 1965:221; Cole 1969:121.



Figs. 924—933. *Mycomya nigricauda.* — 924: male hypopygium, tergal view. — 925: hypopygium, sternal view. — 926: hypopygium, lateral view. — 927: sternal synsclerite, lateral view. — 928: submedial spines of tergite 9. — 929: apex of gonostylus. — 930: apex of aedeagus, lateral view. — 931: female terminalia, lateral view. — 932: hypogynal valves, sternal view. — 933: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 924—927 and 931—933, Figs. 928—930 2 x enlarged.



Figs. 934—941. *Mycomya oreades.* — 934: sternal synsclerite of male hypopygium, lateral view. — 935: apex of gonostylus. — 936: apex of aedeagus, lateral view. — 937—939: submedial spines of tergite 9. — 940: (?) female terminalia, lateral view. — 941: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 934 and 940—941, Figs. 935—939 2 x enlarged.

Mycomyia nigricauda: Coher 1959:124.

(? not) *Mycomya nigricauda:* Shaw & Fisher 1952:190. (? = *M. tantilla* (Loew)).

Type locality: Colorado, Colorado City (USA).

Type: Holotype (studied): Bear Cr. Canon, Colo. City, Col. E. S. Tucker. July. Type. Type *Sciophila nigracauda* C. F. Adams. (m SNOW).

Material examined: USA: Las Vegas, HS, 14.VIII., NM, H. S. Barber (1 m USNM); same data, 13.VIII. (1 f USNM); Ariz., SW Res. Sta., 5 mi. SW. Portal, 5400 ft., 5—25.IX. 1965, Malaise trap, C. W. Sabrosky (3 ?ff USNM); Ariz., Chiricahua Mts., Cochise Co., Paradise, 5—6000 ft., 22.VIII. 1927, J. A. Kusche (1 m CAS); Ariz., Chiricahua Mts., Cochise Co., Cave Creek, 5—6000 ft., 25.VIII. 1927, J. A. Kusche (1 f CAS); Ariz., Coconino Co., W fk Oak Creek, 5.VIII. 1961, G. C. Eickwort (1 ?m MICH); Col., Colo. City, Bear Cr. Canon, VII., E. S. Tucker (holotype SNOW).

Remarks: The hypopygium of the specimens from Coconino Co. is almost entirely destroyed, and the specimens also has some macrotrichia on veins M and Cu. The possibility thus remains that it belongs to *M. oreades* n. sp.

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base or whole of 1st flagellomere yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Yellow to yellowish, ventral parts of mesokatepisternum, laterotergite and mediotergite slightly brownish. Pronotum with about 4 longer setae. Scutellum with 4 long setae. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.68—0.76, bt2:t2 = 0.63—0.67, bt3:t3 = 0.56.

Wing. Wing length 3.0—3.4 mm. Wing hyaline. Sc ending in C distally to middle of small cell, Sc2 ending

in R1 proximally to middle of small cell. Apical part of Sc bearing 1—5 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork slightly distal to or below M fork. M ratios: 0.95—0.98, 1.18—1.25. Cu ratios: 0.79—1.04, 1.21—1.57. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with posterior margins brown, 6—7 brown. Sternites 1—5 yellow, 6—7 darker.

Hypopygium. Figs. 924—930, yellow. Sternal lateral appendage very long, setose, comparative wide. Paramere comparatively short and apically wide. Aedeagus in lateral view hook-like, long, comparatively broad.

Female. Wing length 3.5—3.6 mm. Thorax yellow to yellowish like male. Head brownish. Abdomen yellow, with posterior margins and dorsomedial line on tergites 1—5 light brownish to brownish, 6—7 brownish; sternites yellow. Leg ratios: bt1:t1 = 0.82, bt2:t2 = 0.63—0.64, bt3:t3 = 0.57. Terminalia as in Figs. 931—933, yellow.

Distribution: Western Nearctic. Nevada, Arizona, Colorado. Shaw & Fisher (1952) report this species from New York, but probably incorrectly.

Biology: Unknown. Some specimens caught with Malaise trap.

Mycomya oreades n. sp.

Figs. 934—941, key p. 39.

(? p. p.) *Mycomyia tantilla:* Coher 1959:106.

Type locality: Colorado, Ward (USA).

Type: Holotype (studied): Ward, Colo. Aug. 8—10, 1919. About 40°4′N, 105°33′W. 10500 ft. (m AMNH).

Material examined: USA: Mont., Gallatin Co., Elevation 5500, 18.VII. 1913 (1 m PU); Colo., Ward, about 40°4′N, 105°33′W, 10500 ft., 8—10.VIII. 1919 (holotype AMNH); Colo., La Plata Co., 20 mi. W. Durango, 14.VIII. 1961, 15.VIII. 1961, G. C. Eickwort (2 mm MICH); Colo., Echo Lake, 12.000′, 15.VIII. 1949, R. R. Dreisbach & R. K. Schwab (1 ?f MICH). — Mexico: Puebla, No. 7, 5 mi. NE. Teziutlán, 6400′, 20.VI. 1961, G. W. Byers (1 m SNOW); Puebla, 5 mi. NE. Teziutlán, 5100′, cloud forest, 20.VI. 1961, G. W. Byers (1 ?f SNOW); Mexico, No. 7, 5.4 mi. W. Tenancingo, 7200′, 5.VII. 1961, G. W. Byers (1 ?m without abdomen SNOW); Mexico, lot 11, 13.4 mi. E. Santa Barbara, 9750 ft., 26.VII. 1963, G. W. Byers (1 ?f SNOW); Morelos, 3 mi. N. Cuernavaca, 6700′, 3.VII. 1961, Univ. Kans. Mex. Exp. (1 ?f SNOW); Puebla, 11.4 mi. NW. San Martin T., 8600′, 26.VII. 1963, G. W. Byers (1 ?f SNOW).

Remarks: Although there is some uncertainty regarding the females, it seem very probable that they belong to this species, their colour pattern being very similar to that in the males.

See also *M. nigricauda* (Adams).

Description:

Head. Palp, other mouthparts and face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Entirely brownish to brown, or yellowish to light brownish with brown more or less fused longitudinal stripes on mesoscutum and anterolateral corners of mesoscutum yellow to yellowish. In light specimens, ventral part of mediotergite, laterotergite and mesokatepisternum brownish. Pronotum with 4—5 longer setae. Scutellum with 4 long setae. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.68—0.81, bt2:t2 = 0.67, bt3:t3 = 0.60.

Wing. Wing length 3.6—4.7 mm. Wing hyaline. Sc ending in C distally to middle of small cell near apex of R4, Sc2 ending in R1 distinctly proximally to middle of small cell. Apical part of Sc bearing 4—9 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distal to M fork. M ratios: 0.83—0.96, 1.00—1.16. Cu ratios: 0.81—0.86, 1.19—1.25. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: 0; Cu1: 0—+; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 brown with small yellow to light brownish anterolateral spots, 6—7 brown. Sternites paler than tergites.

Hypopygium. Figs. 934—939, yellowish, not very light. Sternal lateral appendage apically small, comparatively narrow. Paramere long, comparatively wide. Aedeagus long, slender, apically hooked.

(?) Female. Wing length 4.0—4.3 mm. Thorax lighter than in male, yellowish with dark markings. Abdomen coloured as in male but anterolateral spots yellow. Wing apex and small cell very slightly infuscate. Leg ratios: bt1:t1 = 0.81, bt2:t2 = 0.73, bt3:t3 = 0.57—0.60. Terminalia as in Figs. 940—941, yellow.

Distribution: Western Nearctic. USA: Montana, Colorado. Mexico. The *M. tantilla* specimens reported from New Mexico by Coher (1959) possibly also belong to this species.

Biology. Unknown. Specimens collected at high elevations, at least one female in a cloud forest.

Mycomya kiamichii Shaw, 1940

Figs. 942—945, key p. 39.

Mycomyia kiamichii Shaw, 1940. Shaw 1940:50.
Mycomya kiamichii: Laffoon in Stone et al. 1965:220.
(?) *Mycomyia kiamichii:* Coher 1959:107.

Type locality: Oklahoma, Flint (USA).

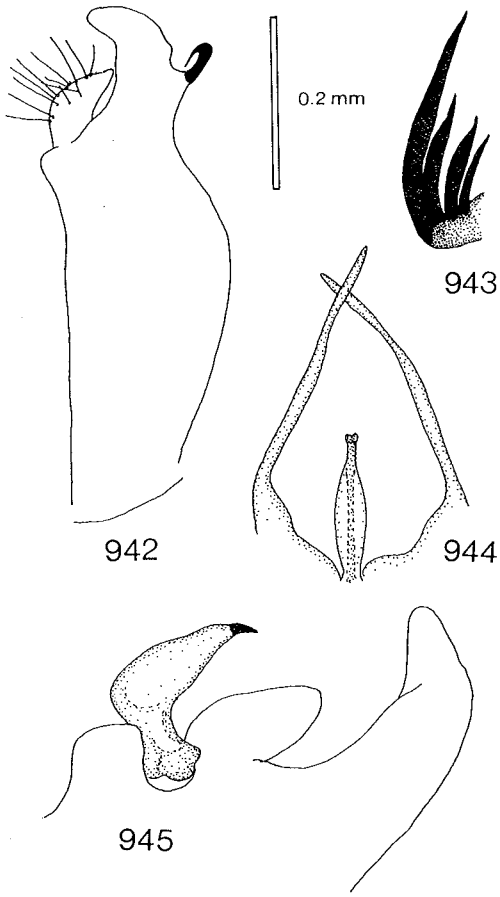
Type: Holotype (studied): Flint, Okla. June 19, 1937, Standisch-Kaiser, *Mycomyia kiamichii* Shaw type (m MASS).

Material examined: USA: Oklahoma, Flint 19.VI. 1937, Standisch-Kaiser (holotype, 1 m paratype MASS).

Description:

Head. Palp and other mouthparts yellow, face brownish, posterior parts of head brown. Antenna brownish, basal segments yellow. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with brown lateral stripes and lighter, reddish brown medial stripe, anterolateral corners and lateral margins yellow. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite yellow. Mediotergite yellow, bare.



Figs. 942—945. *Mycomya kiamichii*. — 942: sternal synsclerite of male hypopygium, lateral view. — 943: submedial spines of tergite 9. — 944: aedeagus, sternal view. — 945: gonostylus. Scale 0.2 mm for Figs. 942 and 944, Figs. 943 and 945 2 x enlarged.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.77, bt3:t3 = 0.60.

Wing. Wing length 2.8—3.0 mm. Wing hyaline. Sc ending in C distally to middle of small cell, near apex of R4, Sc2 ending in R1 proximally to middle of small cell. Apical part of Sc bearing 5—9 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 1.04—1.15, 1.32—1.58. Cu ratios: 0.92—1.03, 1.32—1.48. Macrotrichia: M petiole: 0; M1: +; M2: 0; Cu petiole: +; Cu1: 0; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, with posterior margins brown, with or without narrow brown dorsomedial line, 6—7 brown. Sternites 1—5 yellow, 6—7 brown.

Hypopygium. Figs. 942—945, yellow, comparatively small. Sternal lateral appendage apically very narrow. Paramere long, narrow. Aedeagus narrow, about 1/2 of length of paramere.

Female. Unknown.

Distribution: Nearctic: USA: Oklahoma. Coher (1959) also reports it from Iowa.

Biology unknown.

7.7. Subgenus Myacymo n. subg.

Type species: *Mycomya midea* n. sp.

Mediotergite bare. Coxae without special setae or other structures . Coloration diffuse, yellowish to brownish. Abdominal tergite 8 setose. Tergite 9 basally bare, with pair of apically tapered submedial lobes and strong curved dark spurs in inner part, lateral appendages well-developed. Sternal synsclerite medially emarginate, without lateral appendages or setae, with indistinct very small "submedian appendages".

Distribution: Nearctic.

One species group is recognized in this subgenus.

Remarks: To some degree the subgenus *Myacymo* resembles the Neotropical species group *M. manteri* (see Coher 1950, 1959).

Species group M. midea

Head. Anteclypeus short, triangular, with some small setulae. Antenna about as long as head and thorax together. Pedicel with 1 long dorsal seta. Ocellar setae about twice as long as ocellus. Eye relatively slightly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 4 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae relatively weak, longest about 1.5 times as long as tibial diameter.

Wing. C ending in apex of R5 at wing apex. Sc ending in C. Cu fork distal to M fork. M petiole of medium length. Cu fork long to medium. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Coloration diffuse light brownish.

Tergite 8 narrow, arcuate, with many setae along posterior margin. Sternite 8 wide, triangular, apically rounded, with many (about 15) setae.

Hypopygium. Tergite 9 with wide, apically tapered submedial lobes and strong spur in inner part. Tergal lateral appendage long with specialized apical setae. Sternal synsclerite without lateral appendages.

Female terminalia. Apical segment of cercus long oval. Hypogynal valve relatively wide, with several setae.

One Nearctic species is recognized in this species group.

Mycomya midea n. sp.
Figs. 946—954, key p. 32, 41.

Type locality: North Carolina, Pisgah Forest, Looking Glass Park (USA).

Type: Holotype (studied): Pisgah Forest, N. C., Looking Glass Pk. 19-VII-1957 W. R. Richards (m CNC).

Material examined: Canada: Ont., Lanark Co., N. Burgess Twp., 12.VII. 1970, D. M. Wood (1 m CNC). — USA: New York, Hamilton Co., along Shanty Brook, 43°17.2 'N, 74°33.4'W, 1700', 5.VIII. 1961, J. L. Laffoon (1 m ISU); N. C., Pisgah Forest, Looking Glass Pk., 19.VII. 1957, W. R. Richards (holotype CNC); N. C., Macon Co., Wayah Gap, 3800', 29.VII. 1957, J. C. Chillcott (1 m CNC); No. Car., Macon Co., Clear Creek, 1 mile so. Highlands, 35°1.5'N, 83°11.5', 3000', 2.VII. 1958, J. Laffoon (1 m ISU); same data, 1.VII. 1958, 18.VII. 1958 (2 ff ISU).

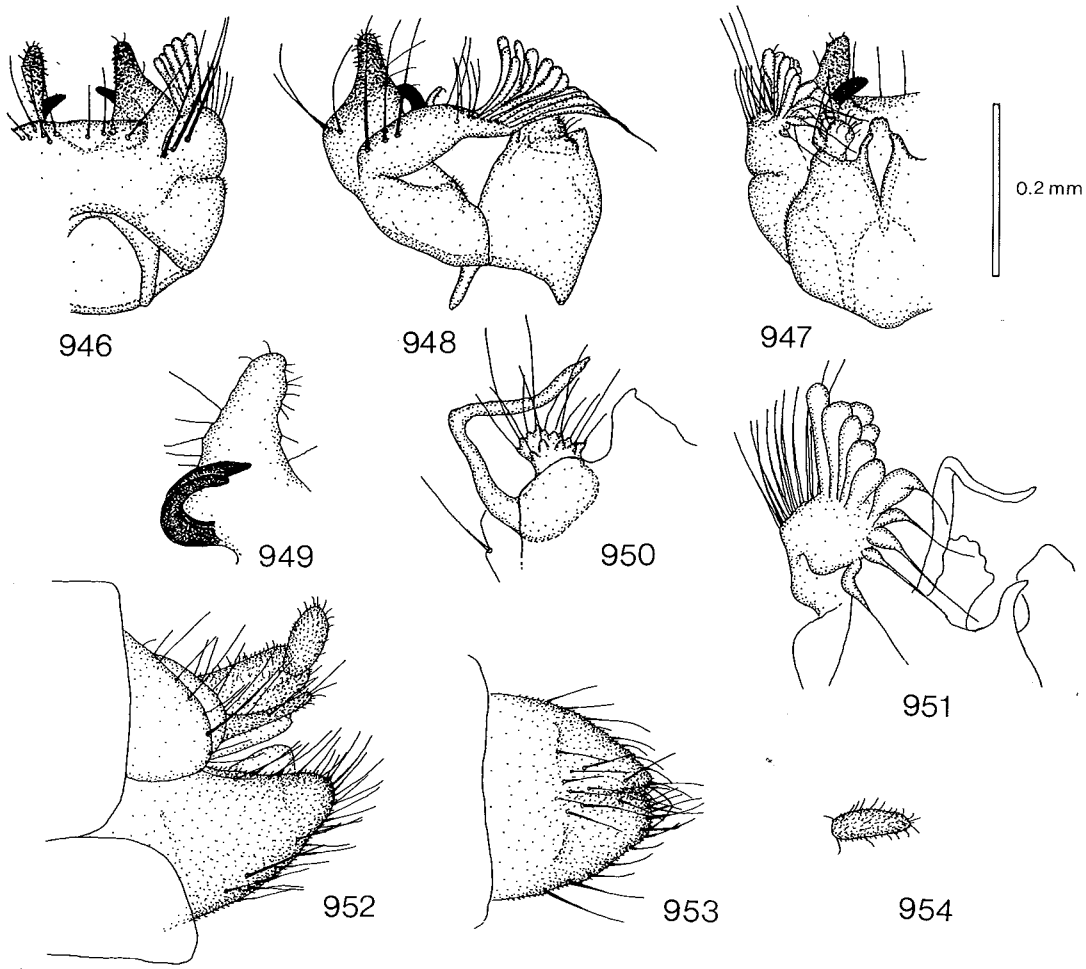
Description:

Head. Palp and other mouthparts yellowish, face yellow, posterior parts of head brownish to brown. Antenna yellowish to brownish, basal segments yellow. 1st flagellomere about 2.5 times, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3—5 longer setae. Mesoscutum yellow to light brownish, without distinct markings, anterolateral corners yellow. Mesanepisternum and mesokatepisternum yellow. Scutellum yellow, with 4 long setae. Laterotergite and mediotergite yellow. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi light brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.73—0.89, bt2:t2 = 0.64—0.70, bt3:t3 = 0.61—0.71.

Wing. Wing length 2.6—3.1 mm. Wing hyaline. Sc ending in C distinctly distally to middle of small cell near apex of R4, Sc2 ending in R1 slightly distally to or near middle of small cell. Apical part of Sc bearing 9—17 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distal to M fork. M ratios: 0.63—0.72, 0.80—0.95. Cu ratios: 0.74—1.00, 1.29—1.71. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.



Figs. 946—954. *Mycomya midea*. — 946: male hypopygium, tergal view. — 947: hypopygium, sternal view. — 948: hypopygium, lateral view. — 949: details of tergite 9. — 950: gonostylus. — 951: tergal lateral appendage, sternal view. — 952: female terminalia, lateral view. — 953: hypogynal valves, sternal view. — 954: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 946—948 and 952—954, Figs. 949—951 2 x enlarged.

Abdomen. Entirely light brownish or tergites 1—5 yellow with light brownish posterior halves, 6—7 brownish.

Hypopygium. Figs. 946—951, yellowish. Tergal lateral appendage long, with many broad, apically thin setae projecting sternally. Tergite 9 with 2 strong spines on both sides. Sternal synsclerite without setae, with indistinct, short, bare submedian appendages.

Female. Wing length 3.2 mm. Thorax yellow. Abdomen short yellow with posterior margins light brownish. Leg ratios: bt1:t1 = 0.84—0.86, bt2:t2 = 0.68, bt3:t3 = 0.56—0.58. Terminalia as in Figs. 952—954, yellow.

Distribution: Eastern Nearctic. Canada: Ontario. USA: New York, North Carolina.

Biology: Unknown.

7.8. Subgenus Neomycomya n. subg.

Type species: *Sciophila fimbriata* Meigen, 1818.

Mediotergite bare. Coxae without special setae or other structures. Coloration usually vivid yellow and dark brown, abdominal tergites yellow with dark posterior margins. Abdominal tergite 8 setose. Tergite 9 basally bare, with large setose submedial lobes and small lateral appendages, dark submedial structures and dark strong spurs. Sternal synsclerite small, deeply emarginate medially.

Distribution: Holarctic. In addition, the following species from other zoogeographic regions can be tentatively placed in this subgenus: [*M. flavithorax* Brunetti, 1912 = *M. fimbriata* (India)], *M. klossi* Edwards, 1931 (Borneo), *Mycomya* sp. sensu Edwards 1931 (Borneo), *M.* sp. (New Caledonia [MNHN; L. Matile, pers. comm.]).The Neotropical species groups *M. citrina, M. samesteri* and *M. manteri* (see Coher 1950, 1959) could possibly also be placed in this subgenus as separate species groups.

One species group is recognized in this subgenus in the Holarctic region.

Species group M. fimbriata

Head. Anteclypeus short, triangular, with a few comparatively long setulae. Antenna slightly longer than head and thorax together, in females about as long as head and thorax together. Pedicel with 1 long dorsal seta. Ocellar setae about 2.5 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 about 3.5 times as long as wide. Basitarsus 1 distinctly shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5 almost reaching wing apex. Sc ending in R1, Sc1 missing.

Cu fork distinctly distal to M fork. M petiole long to medium. Cu fork long. Macrotrichiation of veins M and Cu not distinctly reduced.

Abdomen. Tergites yellow with dark posterior margins.

Tergite 8 comparatively wide arcuate band, medially much narrower, with many setae along whole posterior margin. Sternite 8 wide, slightly triangular, without setae.

Hypopygium. Tergite with large submedial lobes and small lateral appendages. Sternal synsclerite deeply emarginate, with specialized appendages.

Female terminalia. Apical segment of cercus very long. Hypogynal valve wide, apically blunt, widely setose.

One Holarctic species is recognized in this species group.

Mycomya fimbriata (Meigen, 1818)

Figs. 955—961, key p. 32, 40.

Sciophila fimbriata Meigen, 1818. Meigen 1818:247; von Roser 1834:263; Walker 1848:91, 1856:39; Winnertz 1863:736; Schiner 1864:446; Czwalina 1893:2; Kertész 1902:59, 1903:32.

Mycomyia fimbriata: Edwards 1924a:14 *(M. affinis:* Dziedzicki = *M. fimbriata),* 1925a:549; Landrock 1926—1927:45; Schmitz 1929:22; Riedel 1930:74; Lackschewitz 1937:12; Karl 1939:53; Landrock 1940:35; Séguy 1940:73; Coe in Kloet & Hincks 1945:345; Kidd in Kidd & Brindle 1959:72; Mikolajczyk 1967:21; Ostroverchova & Stackelberg 1969:274; Plassmann 1970b:388.

Mycomya fimbriata: Hutson in Kloet & Hincks 1976:24; Chandler 1976:98; Matile 1977:633; Väisänen in Hackman 1980:31; Hutson et al. 1980:45; Väisänen 1982b:39.

Mycomyia fimbriate: Kröber 1956:131 (error)

(?) *Mycomya fimbriata:* Landrock 1913:36.

(?) *Mycomya fimbriata:* Colless & Liepa in Delfinado & Hardy 1973:452 (= *M. flavithorax* Brunetti, see below).

Mycomyia alternata Fisher, 1937 (New synon.). Fisher 1937:396; Coher 1959:114.

Mycomya alternata: Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:219.

(?) *Mycomyia flavithorax* Brunetti, 1912. Brunetti 1912:77; Edwards 1924c:293 (as syn. of *M. fimbriata).*

Sciophila cingulata: Walker 1856:39.

Sciophila ferruginea: Walker 1856:40.

Sciophila nigra: Walker 1856:42.

Sciophila affinis: Dziedzicki 1885:Tab. 9: Figs. 18—19; Czwalina 1893:2; Lundström 1907:9, 1909:12, 1914:11.

Sciophila trilineata: Kowarz 1894:4; Lundström 1907:8.

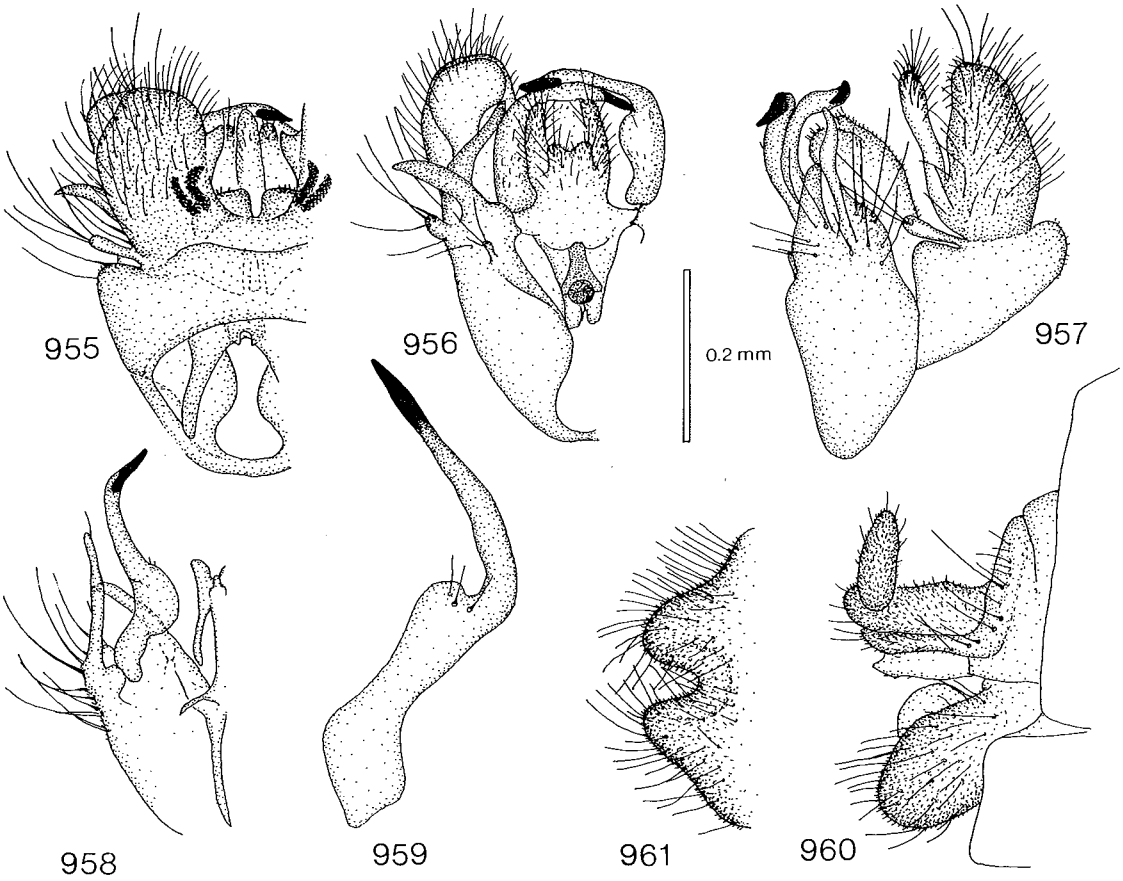
Mycomya trilineata: Grimshaw 1912:3; Chandler 1976:98.

Mycomya affinis: Landrock 1913:36.

(?) *Sciophila affinis:* Winnertz 1863:732.

Type locality: Not stated (? Federal Republic of Germany).

Types: — *Sciophila fimbriata* Meigen: Holotype (studied): *fimbriata* Meigen, ♂. *Mycomyia fimbriata* Mg. = *affinis* Staeg. F. W. Edwards det. 1922 (m MNHN). — *Mycomyia flavithorax* Brunetti (not studied, ♂, ?deposited at Calcutta). Type locality: Darjiling (India). — *Mycomyia alternata* Fisher: Holotype (studied): Holotype *Mycomyia alternata* Fisher, hypopygium in vial



Figs. 955—961. *Mycomya fimbriata.* — 955: male hypopygium, tergal view. — 956: hypopygium, sternal view. — 957: hypopygium, lateral view. — 958: details of sternal synsclerite, tergal view. — 959: gonostylus. — 960: female terminalia, lateral view. — 961: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 955—958 and 960—961, Fig. 959 2 x enlarged.

alc., Holotype Cornell U. No. 1413, Beaver Brook, McLean Res. N. Y. 1. aug. 25 (m CORN).

Remarks: The Indian *M. flavithorax* Brunetti may represent a separate closely related taxon, but I have not been able to obtain the type.

Material examined: Italy: Aosta, Villeneuve, Bertolaz, alt. 800 m, 5—10.IX. 1978, Piège de Malaise, L. Matile (1 m MNHN). — France: Gorges de la Jonte (12), alt. 600 m, 9.IX. 1977, L. Matile (1 f MZH); Forêt de Valbonne (30), 21.IX. 1977, L. Matile (1 m 1 f MNHN); Gorges du Tarn (48), Les Vignes, alt. 400 m, 14.IX. 1977, L. Matile (1 f MNHN); Vallée de Biros (Ariège), bords du Lez, alt. 900—1000, 16.VI. 1970, D. & L. Matile (1 m MNHN); bords de torrents sous feuillage, St. Bonnet-en-Champsaur, Molines (Htes-Alpes), 1.400 m, VII. 1975, C. Girard (1 m MNHN). — Netherlands: Ankavur, 4.VI. 1905, de M. (1 m AMST). — Austria: Salisburg, Böckstein, 25.VII. 1879, Mik (1 m WIEN); Austr. inf., Waldhof. a. Y., 4.IX. 1887, Mik (1 f WIEN); *affinis* det. Schnabel (1 m WIEN); Austr. sup., Linz, 1.VII. 1867, Mik (1 m WIEN); Coll. Winthem (1 m WIEN). — Yugoslavia: Treskavicá, about 43°35′N, 18°20′E, 18.VII. 1955, F. Schmid (1 f ISU); Montenegro, Kolasin, wet gorge in old forest, 5—9.VI. 1958, R. L. Coe (1 m BMNH). — FRG: Breitenau b. Dachau, 18.VI. 1916, C. F. Adams (1 m PU); Frassdorf b. Rosenheim, 28.VI. 1917, C. F. Adams (1 f PU); without data (*Sciophila fimbriata* Meigen holotype MNHN). — GDR: Asch. (? = Aschersleben), 20.VI. 1874, 3.VI. 1875, Kowarz (2 mm LEN). — Poland: Bialowieza Park Narod., kw. 340, Grąd niski, 27.VIII. 1963, W. Mikolajczyk (1 m WARS). — UK: New Forest, 2.IX. 1901, C. G. Lamb (1 m BMNH); same data, IX. 1904 (1 f BMNH); same locality, 13.IX. 1896, F. C. Adams (1 m BMNH); New Forest, Denny Wood, VI. 1939, F. W. Edwards (1 m BMNH); Norwich, Carrow Abbey, 12.VI. 1904, F. Jenkinson (1 m 1 f BMNH); England (1 m 1 ex. "*S. nigra*" BMNH); Frankfield, 15.VI. 1909, J. J. F. X. King (1 f BMNH); Forest Dean, 28.V. 1895, Ricardo (1 f BMNH); St. Kilda, Conachair, 1.VIII. 1931, D. L. Lack (1 m BMNH); Oxford Museum, 25.V. 1923, A. H. Hamm (1 m BMNH); without data (2 mm named "*Sciophila cingulata*" and 1 m named "*S. ferruginea*" by F. Walker BMNH); Merioneth, Brithdir-Isaf

nr. Dolgelly, 25.IX. 1971, A. M. Hutson (1 m BMNH); Llangammarch, Wells, Brecknock, 25.VII. 1913, Yerbury (1 m BMNH); Perth, Aberfoyle, 8.IX. 1905, A. E. G. Carter (1 m BMNH); Pertshire, Killin distr., Glen Lochay, 500—1500 ft., 3—18.VI. 1932, F. W. Edwards (1 m BMNH). — Ireland: Achill, 13.VI. 1909, J. N. H. (= Halbert) (1 m NMI); Ireland, Haliday (2 mm NMI). — Norway: HOi., Måbdalen, 2 km V. Fossli, Eidfjord, 450 moh, 24.VII. 1967, A. Løken (1 m BERG); HOi., Eidfjord, 1.5 km. Hjolmo, 800 moh, 17.VII. 1967, A, Løken (1 m BERG); HOy., Fjell, Sotra, Vindenes, 15.VIII. 1978, T. Andersen (1 m coll. Andersen); HOy., Os, Lundatrae, 24.VIII.—3.IX. 1976, T. Andersen (1 m coll. Andersen). — Sweden: Sm., Bolmen, 1.VII. 1943, O. Ringdahl (1 m LUND). — Finland: *Ab:* Vihti, Vihtijärvi, 2—5.VII. 1959, 16.VI. 1963, 12.VII. 1963, 27.VII. 1963, 30.VII. 1964, 10.VIII. 1964, R. Tuomikoski (8 mm MZH); *N:* Kirkkonummi, Värans, 20.VIII. 1963, at light, K. Mikkola (1 m MZH); *Ta:* Tavastia, Luhtiala, 12.VI. 1862, A. Palmén (1 m MZH); *Kb:* Pielisjärvi, Koli, 15.VII. 1967, R. Tuomikoski (1 m MZH); same locality, 16.VII. 1967, Mihályi (1 m TMB); Tohmajärvi, Hiidenvaara, 14.VIII. 1964, R. Tuomikoski (1 m MZH); Juuka, Tahkovaara, 28.VI. 1968, W. Hackman (1 m MZH); *Om:* Nykarleby (Uusikaarlepyy), 705:25, 7.VIII. 1933, R. Storå (1 f MZH); *Ks:* Kuusamo, Kiutaköngäs, 19—24.VII. 1967, R. Tuomikoski (1 m MZH); Oulanka Biol. Stat., NL 66.3°, 23.VII. 1967, Mihályi (1 m TMB); Kuusamo, Liikanen, 21.VII. 1967, R. Tuomikoski (1 m MZH); Salla, R. Frey (1 m MZH); *LkW:* Muonio, Ylikylä, 11.VII. 1911, R. Frey (2 mm MZH); Kittilä, Pallastunturi, 29.VII. 1967, R. Tuomikoski (1 m MZH). — USSR: Leningrad. g., Yukki, 27.VIII. 1932, 23.VII. 1933, Stackelberg (3 mm LEN); Leningrad. o., Luzhsk., Tolmachevo, 21.VII. 1937, Stackelberg (1 m LEN); without data (Coll. Dziedzicki) (1 m WIEN); Rossia (Dziedzicki), Mik (1 m WIEN, labelled "*Sciophila affinis* Stäg. (Type: Dziedzicki)"). — Canada: NWT, Wholdaia L., 2—4.VII. 1966, J. G. Chillcott (16 mm 3 ff CNC); NWT, Ptarmigan Rap., 61°12N, 103°30W, 10.VII. 1966, J. G. Chillcott (1 m CNC); NWT, Hinde L., 61°12N, 103°40W, 8—9.VII. 1966, J. G. Chillcott (1 f CNC); NWT, Boyd L., outlet 61°39N, 103°40W, 13.VII. 1966, J. G. Chillcott (1 f CNC); B. C., Mt. Thornhill, nr. Terrace, elev. 1500′, 26.VII. 1960, ex wet hollow along trail, B. Heming (1 m CNC); same locality, 30.VII. 1960, W. R. Richards (1 m CNC); B. C., Savary Id., 6.VII. 1917 (1 m PU); B. C., McQueen L., 10 mi. N. Kamloops, 2.VII. 1973, H. J. Teskey (1 m CNC); Alta., Laggan, 16.VII. 1928, O. Bryant (1 m CAS); Alta., Kananaskis, For. Exp. Sta. Seebe, 3.VII. 1968, H. J. Teskey (1 m CNC); Ontario, St. Lawrence Is. National Park, Thwartway Island, 3.VIII. 1976, Malaise trap, W. Reid (1 m CNC); Ontario, Mer Bleu, 5 mi. E. Ottawa, 7.VI. 1966, 11.VI. 1966, 15.VI. 1966, 17.VI. 1966, 23.VI. 1966, 27.VI. 1966, 29.VI. 1966, 29.VII. 1966, Malaise trap, D. D. Munroe (5 mm 8 ff CNC); Ont., Maynooth, 8.VII. 1965, J. F. McAlpine (1 m CNC); Ont., St. Ignace Il., Sturgeon Bay, 2.V. 1959, J. G. Chillcott (1 m CNC); Que., Gatineau Co., Masham Twp., 27—31.V. 1974, 10—20.VII. 1974, 17.VIII. 1974, D. M. Wood (4 mm 3 ff CNC); Que., Duncan Lake, Nr. Rupert, 15.VI. 1969, J. F. McAlpine (1 m CNC); Que., Old Chelsea, 13.VI. 1961, 25.V. 1964, J. R. Vockeroth (1 m 1 f CNC); same locality, King Mt., 16.VI. 1961, J. G. Chillcott (1 m CNC). — USA: Washington, Jefferson County, 6 km. NE, Quinault, Merriman Creek, falls, 28.VI. 1974, P. H. Arnaud, Jr. (1 m CAS); Oregon, Clackamas County, Clear Creek, 10 road km. SW. Estacada, 24.VI. 1974, P. H. Arnaud, Jr. (1 m CAS); Oregon, Marion Co., Silver Falls State Park, 27.VI. 1959, G. W. Byers (1 m SNOW); Iowa, Boone Co., Ledges State Park, 29.V. 1949, 18.IX. 1951, 2.VII. 1963, J. L. Laffoon (1 f 1 f without abd., 1 m ISU); Iowa, Van Buren Co., Lacey-Keosauqua St. Pk. 9.IX. 1949, J. Laffoon & J. Slater (1 f ISU); Iowa, Clayton Co., Pike's Peak St. Pk., 4.VII. 1949, J. Laffoon (1 f ISU); Mich., Gogebic Co., 15.VI. 1960, R. &. K. Dreisbach (3 mm 1 ex. MICH); Mich., Schollcraft Co., 8.VI. 1960, R. & K. Dreisbach (3 mm 1 ex. MICH); N. H., Glen to Halfway H. White Mts., 8.VII. 1891, A. P. Morse (1 m PU); White Mts., Morrison (1 f USNM); CT., Wauramaug, 28.VIII. 1940, A. L. Melander (1 m USNM); N. Y., Bear Mt., 30.V. 1941, A. L. Melander (2 mm USNM); N. Y., Hamilton Co., e. foot of West Notch Mt., 1900′, 43°20.6′N, 74°37.2′W, 6.VIII. 1961, J. L. Laffoon (1 m ISU); N. York, 7 mis. so. town of Long Lake, 26.VIII. 1956, J. L. Laffoon (1 f ISU); New York, Coy Glen, Ithaca, 9.VIII. 1961, J. L. Laffoon (1 ex. ISU); N. Y., Beaver Brook, McLean Res., 1.VIII. 1925 (*M. alternata* Fisher holotype CORN); Washington, D. C., 16.VIII. 1952, J. L. Laffoon (1 f ISU); PA., Tioga Co., Colton Point State Park, 27.VIII. 1956, J. L. Laffoon (4 ff ISU); Tenn., Sevier Co., 35°40.7′N, 83°33.3′W, 7.VII. 1958, J. Laffoon (1 f ISU); Great Smokies, 5500 ft., 9.VI. 1939 (1 m total slide, 1 m hypop. slide MASS); Ga., Rabun Co., Rabun Bald, 4600′, 9.VIII. 1957, J. G. Chillcott (1 m CNC).

Description:

Head. Palp and other mouthparts and face light brownish to brown, posterior parts of head brown to dark brown. Antenna brownish to brown, scape, pedicel and base of 1st flagellomere yellow to yellowish. 1st flagellomere about twice, 2nd 1.5 times as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum yellow to brownish, seldom brown, with or without 3 brownish to dark brown longitudinal stripes, middle stripe sometimes with narrow yellow median line. Mesanepisternum yellow to brownish. Mesokatepisternum yellow to brownish, ventral part darker. Scutellum yellow to brownish with 4 long setae. Laterotergite yellow to brownish, ventral part darker. Mediotergite yellow to brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.76—0.82, bt2:t2 = 0.64—0.68, bt3:t3 = 0.58—0.61.

Wing. Wing length 2.8—4.0 mm. Wing hyaline. Sc ending in R1 distally to or seldom near middle of small cell, Sc1 entirely missing. Apical part of Sc bearing 10—17 macrotrichia. Small cell 2—3 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.58—1.00, 0.77—1.33. Cu ratios: 0.94—1.14, 1.60—2.08. Macrotrichia: M petiole: 0—2; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow, seldom brownish, with posterior 1/2—1/3 brown, sometimes also brown posteromedial stripe, tergite 6 brownish with dark brown posterior half, or entirely brown, 7 brown. Sternites yellow to brownish, 6—7 with brownish posterior margins. Sometimes abdomen almost entirely brown without distinct markings.

Hypopygium. Figs. 955—959, yellow to brownish,

sometimes tergal lobes dark. Tergite 9 with 2 pairs of dark cones.

Female. Coloration and setosity as in male. Leg ratios: bt1:t1 = 0.77—0.85, bt2:t2 = 0.60—0.64, bt3:t3 = 0.50—0.53. Wing length 2.9—4.0 mm. Terminalia as in Figs. 960—961, yellowish to brownish.

Remarks: The American specimens might be considered to represent a separate subspecies, *M. fimbriata alternata*, but I have not found reliable characters differentiating these and the Palaearctic specimens, although some variation can be seen, e.g. in the shape of the gonostylus in the male hypopygium. The wing length of the American specimens (males: 2.8—4.0 mm, mean 3.38 mm, SD 0.37, N=24) differs very slightly from that of the Palaearctic ones (2.9—3.7 mm, mean 3.33 mm, SD 0.19, N=21). The sexes seem to be almost similar in size.

Distribution: Holarctic. Europe: Italy, France, Netherlands, Federal Republic of Germany, GDR, Austria, Yugoslavia, Poland, Britain, Ireland, Norway, Sweden, Finland. USSR: Leningrad region. North America: Canada: North West Territories, British Columbia, Alberta, Ontario, Quebec. USA: Washington, Oregon, Iowa, Michigan, New Hampshire, Connecticut, New York, Pennsylvania, Washington D.C., Tennessee, Georgia. Also reported from the Latvian SSR (Lackschewitz 1937) and Lithuanian SSR (Czwalina 1893). Dziedzicki's (1885) specimen possibly originated from the Byelorussian SSR (or Poland). *"M. flavithorax"* is known from India (Brunetti 1912, Edwards 1924c).

Biology: Some specimens collected with Malaise trap and at least one at light. Finnish specimens have been collected in boreal forests and bogs, also on mountains. One Canadian specimen was found in a wet hollow along a trail. The holotype was collected in June in a grass meadow (Winnertz 1863).

7.9. Subgenus Mycomyopsis n. subg.

Type species: *Sciophila trilineata* Zetterstedt, 1838.

Mediotergite bare. Coxae without special setae or other structures. Coloration varying from diffusely dark or light to strongly contrasted vivid yellow and dark brown, abdominal tergites often yellowish with darker posterior margins. Tergite 8 setose. Tergite 9 basally bare, with setose lateral appendages, submedial apical combs and strong curved dark spur in inner part. Tergite 9 partially fused with sternal synsclerite. Sternal synsclerite divided into two lateral parts and usually with long submedial filaments, without lateral appendages. Gonostylus with subapical teeth and membraneous lateral lobe.

Distribution: Holarctic. In addition, the following species from other zoogeographic regions can be tentatively placed in this subgenus: *M. unipectinata* Edwards, 1927 (Ceylon), *M. flaviventris* Brunetti, 1912 (India, Ceylon), *M. minutata* Edwards, 1931 (Sumatra), *Mycomya* spp. sensu Edwards 1933 (Borneo), *M.* spp. (Nepal, Burma), *M. furcata* Edwards (in Tonnoir & Edwards), 1927 (New Zealand), *M. malkini* Väisänen, 1983 (Cameroon), *M. pontis* Coher, 1959 (Brazil), *M. forcipata* Freeman, 1951 (Chile), *M. longistila* Freeman, 1951 (Chile) and possibly some other Chilean species described by Freeman (1951).

One species group is recognized in this subgenus in the Holarctic region.

Species group M. trilineata

Head. Anteclypeus short, triangular, with some comparatively long setulae in horizontal row and scattered short setulae. Antenna about twice as long as head and thorax together, very thin, in females slightly shorter. Pedicel with 1 long dorsal seta. Ocellar setae 3—4 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae (only one single Finnish specimen of *M. permixta* with 2 setae). Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 usually at least 4 times as long as wide. Basitarsus 1 distinctly shorter than tibia 1. Tibial setae relatively weak, longest about 1.5 times as long as tibial diameter.

Wing. C ending in apex of R5 near apex of wing. Sc ending in R1, Sc1 usually entirely missing. Cu fork distal to M fork. M petiole almost always long (exception: *M. maura)*. Cu petiole usually long. Macrotrichiation of veins M and Cu more or less reduced.

Abdomen. Colour pattern variable.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with many long setae along whole posterior margin, seldom medial portion bare. Sternite 8 wide, triangular, apically tapered, without setae.

Hypopygium. Tergite 9 with 2 pairs of combs and pair of curved dark spurs. Tergal lateral appendages long, usually with specialized setae. Sternal synsclerite without lateral appendages, divided into 2 lateral parts and usually also with submedial filaments (missing in *M. affinis)*. Gonostylus with subapical teeth and membraneous lobe.

Female terminalia. Apical segment of cercus oval. Hypogynal valve apically tapered and pointed, more or less setose.

Three Holarctic, six Palaearctic and five Nearctic species are recognized in this species group in the Holarctic region.

Mycomya penicillata (Dziedzicki, 1885)

Figs. 962—967, key p. 40.

Sciophila penicillata Dziedzicki, 1885. Dziedzicki 1885:15; Kertész 1902:63, 1903:35.

(?) *Sciophila penicillata:* Becker et al. 1915:1.

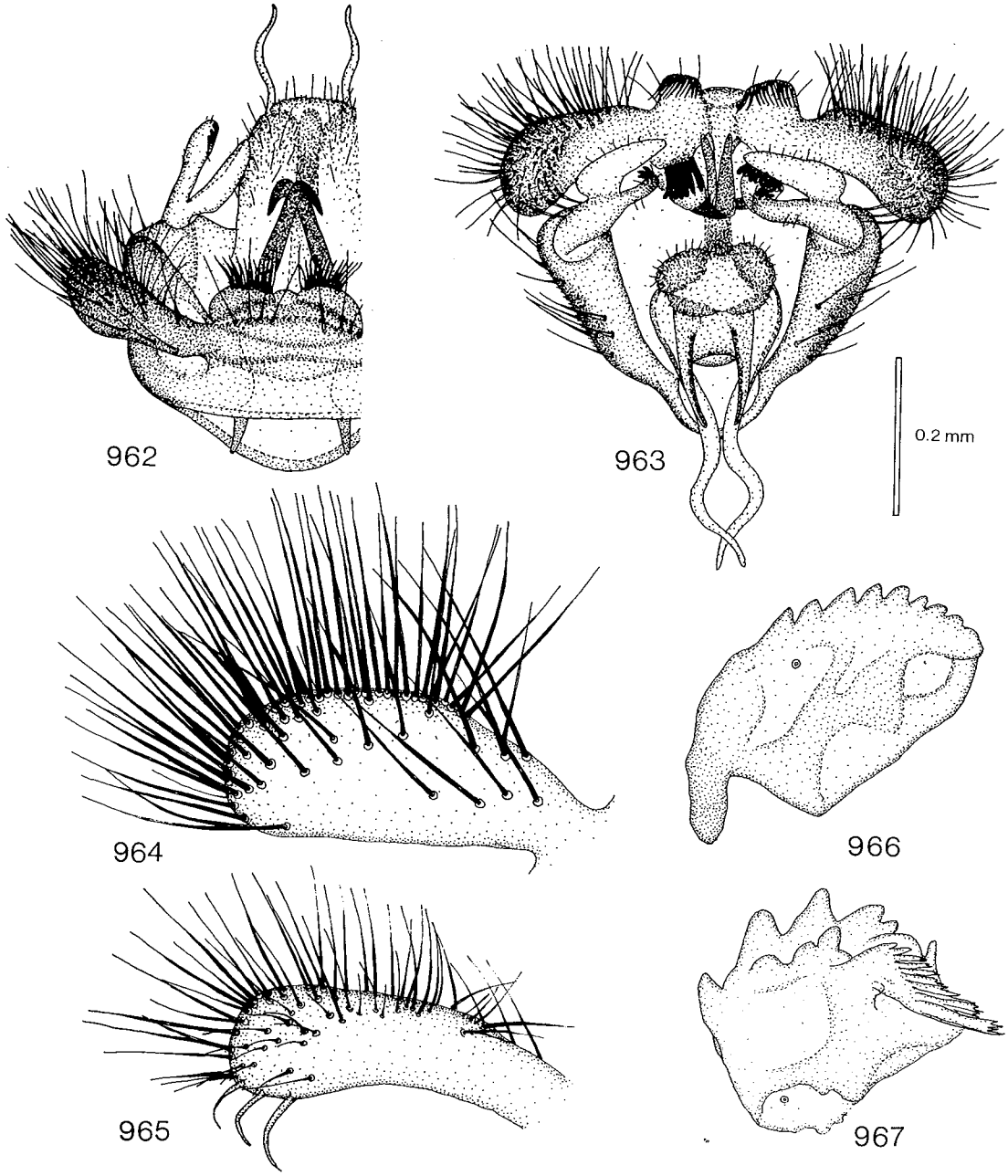
Mycomya penicillata: Dampf 1924:11.

Mycomyia pennicillata: Lackschewitz 1937:12 (error; as synonym of *M. maura* (Walker)).

(?) *Sciophila lugubris* Winnertz, 1863. Winnertz 1863:738; Schiner 1864:445; Nowicki 1873:16; Strobl 1895:144; Kertész 1902:61, 1903:33; Edwards 1913:355 (as synon. for *M. maura* (Walker)); Engel 1915:98; Morge 1974:171.

(?) *Sciophila melania* Winnertz, 1863. Winnertz 1863:737; Strobl 1895:144, 1898:283; Kertész 1902:62, 1903:34; Strobl 1909:241; Morge 1974:171.

Sciophila melania: Lundström 1907:9, 1909:12.



Figs. 962—967. *Mycomya penicillata.* — 962: male hypopygium, tergal view. — 963: hypopygium, sternal view. — 964: tergal lateral appendage, lateral view. — 965: tergal lateral appendage, medial view. — 966: maxilla of larva. — 967: mandible. Scale 0.2 mm for Figs. 962—963, Figs. 964—967 2 x enlarged.

(?) *Mycomyia melania:* Landrock 1926—1927:48.
(?) *Mycomya melania:* Väisänen 1982b:40.
(not) *Mycomyia melania:* Plassmann 1970b:388 (= *M. maura* (Walker)).
Sciophila maura: Lundström 1914:11.

Mycomyia maura: Edwards 1913:355 (uncertain synon.); Landrock 1930:254; Lackschewitz 1937:12; Landrock 1940:34; Frey & Storå 1941:46; Ostroverchova & Stackelberg 1969:274; Mikolajczyk 1971:371.
Mycomya maura: Väisänen in Hackman 1980:31.

(?) *Mycomyia maura:* Karl 1939:53; Plassmann 1977b:9, 1980b:19.

(p. p.) *Sciophila fusca:* Lundström 1907:9, 1909:10 (p. p. = *Mycomya* spp.).

Remarks. Edwards (1913) tentatively synonymized *M. penicillata* with *M. maura* — "may perhaps be synonym or variety", and this opinion has been accepted by other authors. Edwards also synonymized *M. lugubris* with *M. maura,* but it seems better to consider this species a synonym of *M. penicillata.*

Type locality: Galicia (Poland).

Types: — *Sciophila penicillata* Dziedzicki: Holotype (studied): PULAWY. 17, 7. 05, *Sciophila penicillata.* n. sp. ♂. Mus. Zool. H:fors Spec. typ. No 4770, *Mycomyia penicillata* Dziedzicki (m from coll. Dziedzicki, MZH). — *Sciophila lugubris* Winnertz: (not located, apparently destroyed) ♂. Type locality: not stated (? Federal Republic of Germany). — *Sciophila melania* Winnertz: (not located, apparently destroyed) ♂. Type locality: not stated (? Germany).

Remarks: Since the specimen of *Sciophila penicillata* fully agrees with the original description and the figures given by Dziedzicki (1885), and since the history of the specimen clearly shows that it comes from Dziedzicki's collection, I consider it to be the holotype.

Material examined: Poland: Pulawy., 17.VII. 1905 (?) (holotype MZH). — Norway: Bv: Uvdal, Nedre Hein, Lok. KI, 1080 moh, 13.VIII. 1969, Vierkratt, K. E. Jørstad et al. (1 m BERG). — Sweden: Sk., Råå, 1.X. 1941, O. Ringdahl (1 m LUND); Sk., Bökeberg, 20.X. 1968, H. Andersson (3 mm 1 f coll. Andersson); Nb., Råneå, Högsön, Högsöfjärden, 6.IX. 1965, H. Andersson (1 m coll. Andersson). — Finland: *Al:* Saltvik, Hellen (1 m MZH); *Ab:* Karuna, Alholmen, 21.IX. 1932, R. Storå (1 m MZH); Karuna, Kyggholmen, 18.IX. 1932, R. Storå (1 m MZH); Tenhola, Skogby, 24.IX. 1965, A. V. V. Mikkola (1 m MZH); Vihti, Vihtijärvi, 27.VIII. 1963, R. Tuomikoski (4 mm MZH); *Sb:* Tuovilanlaks, Palmen (1 m MZH); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (1 m MZH); Turtola (? Bergroth) (1 m MZH); *LkW:* Muonio, R. Frey (1 m BMNH); *Le:* Lätäseno, 13.VIII. 1970, L. Tiensuu (1 m MZH); *Li:* Inari, Törmänen, 18.VIII. 1960, R. Tuomikoski (1 m MZH). — USSR: Curon., ?Laugen, 10.IX. 1930, P. Lackschewitz (1 m MNB); Petrosawodsk, Günter (1 m prep. MZH); Leningrad. o., Luzhsk., Tolmachevo, 20.VIII. 1935, 11.VIII. 1936, 24.VIII. 1936, Stackelberg (3 mm LEN); Leningrad. obl., Toksovo, 22.IX. 1940, Chernovekij (2 mm LEN); Leningrad. g., Yukki, 15.VIII. 1930, 2.VIII. 1932, 10.VIII. 1932, 21.VIII. 1932, 24.VIII. 1932, 27.VIII. 1933, 12.IX. 1934, 24.VIII. 1935, Stackelberg (11 mm LEN); Leningrad. obl., Luzhsk., Yashchera, 18.VIII. 1965, Stackelberg (1 m LEN); Arkhang. g., Aleksandrovsk, 31.VIII. 1923, 18.IX. 1923, Fridolin (2 mm LEN); Koton-karataj r., Sarymsakty Smp., 9.VIII. 1926, Vereshchagin (1 m LEN); G-ry Kent, Karkaralinnsk Karagang., 25.VII. 1957, Narchuk (1 m LEN); Kirghisia, Sazy-Chelek, 30.V. 1978, lot 76, Zaitzev (1 m 1 f 1 pupa 1 head capsule of larva MOSC).

Description:

Head. Palp and other mouthparts yellowish brown, face brownish, posterior parts of head dark brown. Antenna brownish, base of 1st flagellomere yellowish. 1st flagellomere 3.5—5 times, 2nd 2—4 times as long as wide.

Thorax. Pronotum yellowish to brownish, with 3 longer setae. Mesoscutum entirely brown or brownish with 3 more or less fused dark brown longitudinal stripes. Mesanepisternum yellowish to brownish. Mesokatepisternum yellowish to brownish, ventral half brown. Scutellum yellowish brown, with 4 long setae. Laterotergite yellowish to brownish, ventral part brown. Mediotergite brown, bare.

Legs. Coxae and femora yellow to light brownish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.77—0.84, bt2:t2 = 0.64—0.71, bt3:t3 = 0.54—0.62.

Wing. Wing length 3.7—4.4 mm. Wing hyaline. Sc ending in R1 proximally or slightly distally to middle of small cell, Sc1 missing. Apical part of Sc bearing 5—10 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork distal to M fork. M ratios: 0.84—1.05, 1.11—1.35. Cu ratios: 0.83—1.07, 1.32—1.63. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brownish to brown or tergites 1—5 brown, with lateral margins brownish and posterior margins yellowish, tergites 6—7 brownish to brown. Sternites 1—5 brownish with posterior margins yellowish, sternites 6—7 brownish to brown.

Hypopygium. Figs. 962—965, brownish. Tergal lateral appendage very wide, rounded, with 3—5 preapical broad curved setae on medial side. Sternal submedial filament long, curved. Apex of gonostylus with 3—4 teeth.

Female. Wing length 4.0 mm. Paler than male. Coxae yellow. Abdomen brown with posterior margins widely yellow. Leg ratios: bt1:t1 = 0.76, bt2:t2 = 0.67, bt3:t3 = 0.55. Flagellomeres shorter than in male, 1st about 3 times, 2nd 1.5 times as long as wide. Terminalia yellow.

Larva. Mandible and maxilla as in Figs. 966—967.

Pupa. Length 3.9 mm, light brown.

Remarks: This species is very closely allied with *M. maura* (Walker), from which it can be distinguished by the structure of the male hypopygium, i.e. by the form and setosity of the tergal lateral appendage. The Kirghizian specimens are unusually light with a distinct colour pattern (note also the date).

Distribution: Palaearctic. Poland, Norway, Sweden, Finland. USSR: Latvian SSR, Leningrad region, Arkhangelsk region, Kirghizian SSR. Also reported from ? Faeroes (Engel 1915: *"S. lugubris"),* ? Germany (Landrock 1940), Estonian SSR (Lackschewitz 1937) and ? West Siberia (Becker et al. 1915).

Biology: Unknown. Finnish specimens collected in boreal forest.

Mycomya frequens Johannsen, 1910

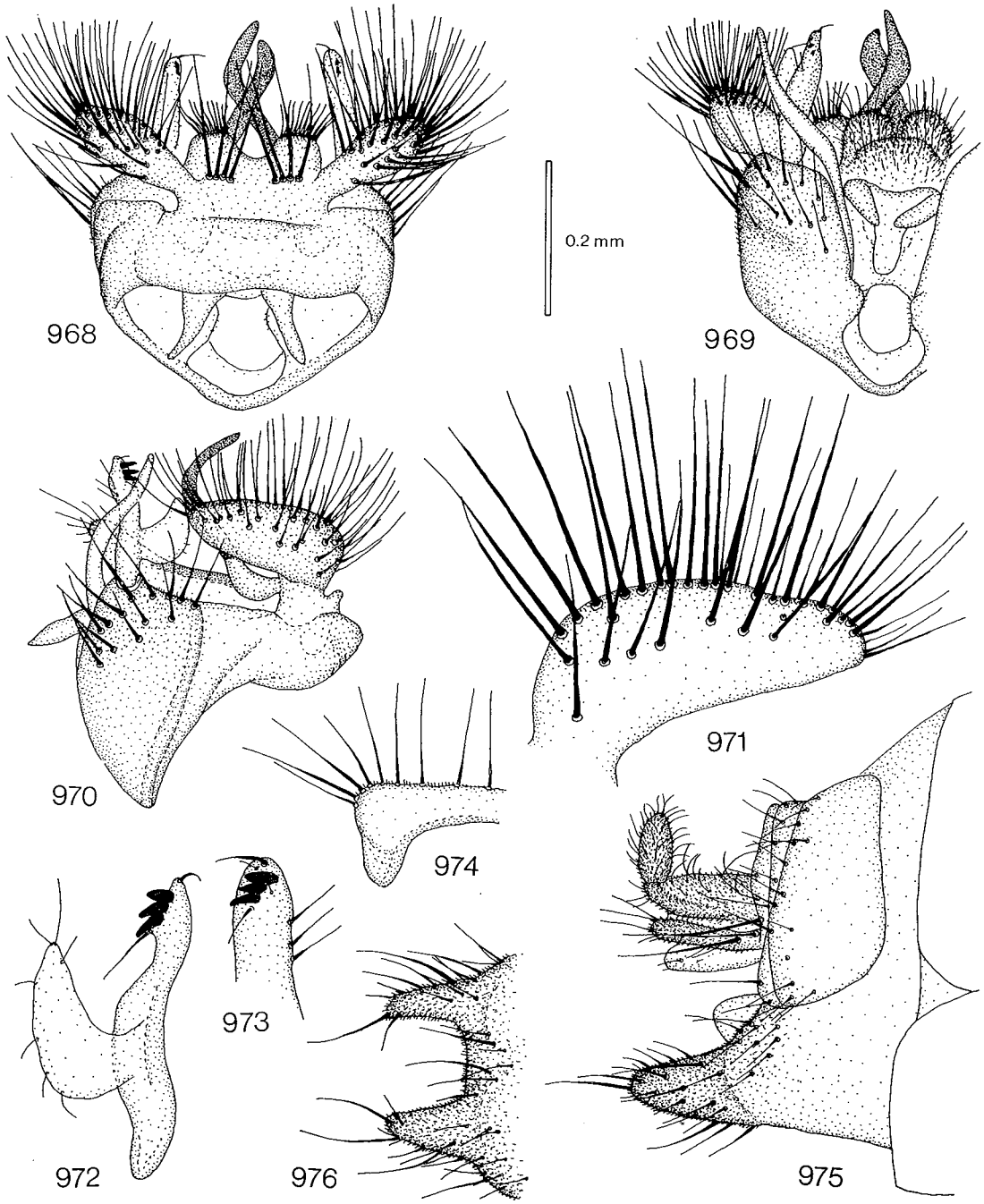
Figs. 968—976, key p. 40, 42.

Mycomya littoralis var. *frequens* Johannsen, 1910. Johannsen 1910:171; Cole 1969:221.

Mycomyia frequens: Coher 1959:111.

Mycomya frequens: Laffoon in Stone et al. 1965:220.

Type localities: Originally: Berkeley; Alum Rock Park, San Jose; Felton, St. Cruz Mts. By present designation: California, Felton, St. Cruz Mts. (USA).



Figs. 968—976. *Mycomya frequens.* — 968: male hypopygium, tergal view. — 969: hypopygium, sternal view. — 970: hypopygium, lateral view. — 971: tergal lateral appendage, lateral view. — 972: gonostylus. — 973: apex of gonostylus. — 974: tergite 8. — 975: female terminalia, lateral view. — 976: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 968—970 and 974—976, Figs. 971—973 2 x enlarged.

Type: Lectotype (studied) by present designation: holotype, *Mycomya littoralis* Johannsen, Felton St Cruz Mts, May 15—19. '07 Cal, 300—500 ft. Bradley, O A Johannsen Lot 234 sub Cornell U., Holotype, Cornell U. No. 1973 (m CORN).

Material examined: USA: Cal., Felton, St. Cruz Mts., 300—500 ft., 15—19.VII. 1907, Bradley (lectotype "holotype", 1 f paralectotype "allotype" CORN); vial. 242 (m gen. CORN); Calif., Marin Co., Alpine Lk., Lily Pond, 1500′, 8—13.IV. 1971, Mal. tr., D. D. Munroe (6 mm 5 ff CNC); same locality, 19—27.IV. 1971 (1 m CNC); same locality, 4—10.IV. 1970 (1 f CNC); Cal., Marin Co., Alpine L., 1500′, 10.IV. 1968, D. D. Munroe (15 mm 3 ff CNC); Cal., Marin Co., Inverness, 10.V. 1968, D. D. Munroe (2 ff CNC); Cal., Yosemite, 14.VI. 1945, A. L. Melander (1 m USNM); Cal., Alum Rock Park, San Jose, 5.IV. 1906, J. M. Aldrich (paralectotypes: 1 m 1 f 2 exx. USNM); Calif., Marin Co., 1 mi. S. Inverness, 400′, 10.V. 1968, dry ice Malaise trap, W. J. Turner (1 m WASH); Calif., Marin Co., Lily Lk. nr. Alpine Lk., 750′, 13.III. 1970 W. J. Turner (2 mm WASH); Calif., Marin Co., 1 mi. SW Fairfax, 3.IV. 1973, J. D. Hansen (1 ex. 1 f WASH); Calif., Sacto. Co., Citrus Heights, 18.III. 1967, G. J. & A. D. Keuter (1 f CAS); Berkeley, 30.IV. 1937, G. Bohart (1 f CAS); California, Tuolumne County, Basin creek Camp-ground, 1.IV. 1963, P. H. Arnaud, Jr. (1 f CAS); Cal., Oakland, 1.V. 1937, E. S. Ross (2 mm 1 f CAS); California, Santa Clara County, Stanford University, 13.III. 1956, P. H. Arnaud, Jr. (32 mm 19 ff CAS); same data but 19.III. 1956 (45 mm 41 ff CAS); California, San Mateo County, Redwood City, 1.IV. 1956, P. H. Arnaud, Jr. (10 mm 7 ff CAS); California, San Francisco, Golden Gate Park, 24.III. 1956, Paul H. Arnaud, Jr. (6 mm CAS); California, Tuolumne County, Lyons Reservoir, 3.VI. 1963, P. H. Arnaud, Jr. (8 ff CAS); Colo., Cameron Pass, 20.VIII. 1940, G. F. Knowlton (1 ?ex. without hypopygium USNM); Ore., Josephine Co., O'Brien, 5.VI. 1965, F. Schmid (1 m 1 f CNC); Oreg., Umatilla, 8.IV. 1959, M. T. James & E. W. LaMar (1 m WASH); Ore., St. Helens, 25.V. 1938, Schuh & Gray (2 mm OREG); Ore., Curry Co., 1 Mi. N. Pistol River, 28.V. 1952, V. Roth (1 m 1 f OREG); Ore., Lane Co., Glenada, 11.VII. 1937, B. Malkin (1 m CAS); Oregon, Marion County, Silver Falls State Park, North Falls, Silver Creek, 24.VI. 1974, P. H. Arnaud, Jr. (1 m CAS); Wash., Clall. Co., Dean Creek, 7 mi. S. Sequim, 4.VIII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (1 m WASH); WA., Jeff. Co., Ft. Worden, nr. F? Port Townsend, 15.VI. 1971, W. J. Turner (3 mm 2 ff WASH); WA., Pacific Co., Ft. Canby St. Prk., 11—13.VI. 1971, Malaise trap, W. J. Turner (1 m WASH); Wash., Tokeland (1 m WASH); Washington, Nahcotta, 7.VI. 1969, R. W. Merritt (1 m WASH); Washington, Clallam County, Olympic National Forest, Klahowya State Park, Soleduck River, 30.VI. 1974, P. H. Arnaud, Jr. (2 mm CAS); Wash., nr. Townsend, V-16, C. F. Adams (1 m PU). — Canada: B. C., Sawmill L., Telegraph Creek, 1100′, *Carex*, grass, *Equisetum*, beside Lake, 28.VIII. 1960, R. Pilfrey (3 mm CNC); B. C., Ketchum L., 131°45′, 58°22′, 3600′, dry sedge grass and moss bogs, 26.VIII. 1960, R. Pilfrey (1 m CNC); same locality, 23.VIII. 1960, W. W. Moss (2 mm CNC); Sask., Hudson Bay, 15.IX. 1959, J. R. Vockeroth (6 mm CNC); Man., Fort Churchill, 11.VIII. 1952, 15.VIII. 1952, 17.VIII. 1952, 21.VIII. 1952, J. G. Chillcott (10 mm CNC); Man., Warkworth Cr. Nr. Churchill, 22.VIII. 1952, J. G. Chillcott (1 m CNC); Y. T., Watson L., 30.VIII. 1960, W. W. Moss (5 mm 1 f CNC); N. W. T., Hay River, 10.IX. 1932, O. Bryant (1 m CAS).

Description:

Head. Palp, other mouthparts and face brownish to brown, posterior parts of head dark brown. Antenna brownish, basal segments paler, yellowish. 1st flagellomere about 4 times, 2nd 3 times as long as wide.

Thorax. Pronotum yellowish to brown with 3—4 longer setae. Mesoscutum entirely dark brown or yellowish with 3 brown longitudinal stripes. Mesanepisternum brownish to brown. Mesokatepisternum brownish to brown. Scutellum yellowish to brown, with 4 long setae. Laterotergite brownish to dark brown. Mediotergite brownish to dark brown, bare.

Legs. Coxae and femora yellow to brownish, tibiae and tarsi brownish. Coxa 1 without special setae, often paler than other coxae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.77—0.85, bt2:t2 = 0.62—0.72, bt3:t3 = 0.53—0.61.

Wing. Wing length 3.8—4.7 mm. Wing hyaline. Sc ending in R1 slightly proximally to or near middle of small cell, Sc1 usually missing, sometimes apically broken. Apical part of Sc bearing 3—11 macrotrichia. Small cell 1—2 times as long as wide. Cu fork distal to M fork. M ratios: 0.78—1.15, 1.05—1.44. Cu ratios: 0.83—1.20, 1.43—2.00. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Entirely brown, brownish to dark brown.

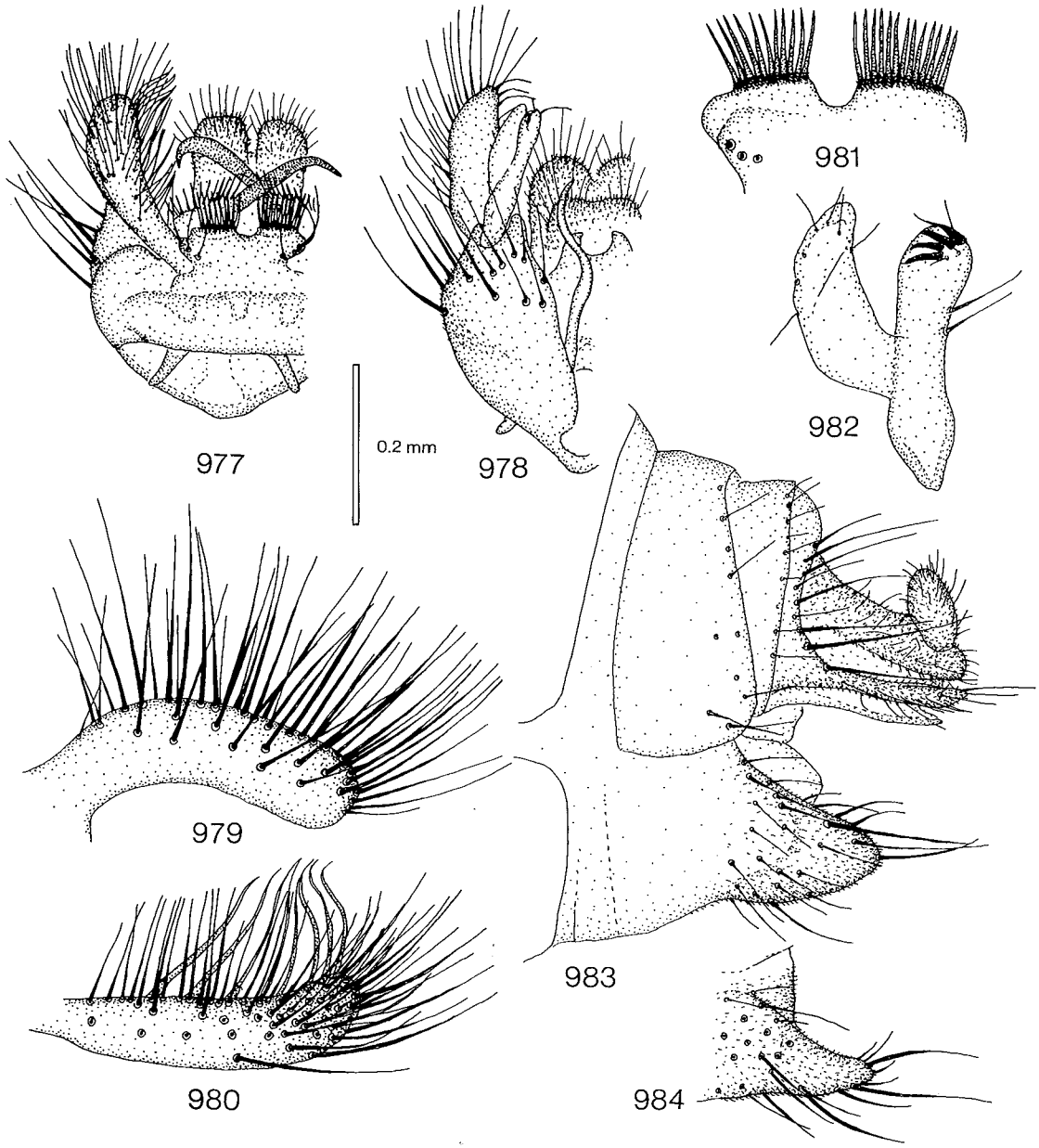
Hypopygium. Figs. 968—974, yellowish. Tergal lateral appendage with very long straight setae and with 4—6 broad, curved preapical setae on medial side. Sternal submedial filament long, curved. Apex of gonostylus comparatively broad, with 3, very seldom only 2, teeth and 1 strong apical seta.

Female. Wing length 4.0—4.7 mm. Paler than male. Mesoscutum often yellowish, with wide brown medial stripe from head to scutellum. Mesanepisternum, mesokatepisternum and laterotergite yellow to brownish, ventral parts brownish to brown. Abdomen brownish or very typically tergites brown with yellow triangular caudally wide dorsomedial spots. Leg ratios: bt1:t1 = 0.70—0.79, bt2:t2 = 0.61—0.66, bt3:t3 = 0.54—0.56. Terminalia as in Figs. 975—976, yellowish.

Remarks: Northern specimens entirely dark, southern (Californian) specimens more brownish, females with characteristic colour pattern. Females usually larger than males: wing length in females: mean 4.45 mm. SD 0.18 (N=26), in males: mean 4.13 mm, SD 0.23 (N=39).

Distribution: Western Nearctic. Canada: North West Territories, Yukon Territory, British Columbia, Saskatchewan, Manitoba. USA: Washington, Oregon, California, ? Colorado.

Biology: Several specimens have been caught with a dry ice Malaise trap. Canadian specimens have been collected on dry sedge grass and moss bogs, and *Carex*, grass and *Equisetum* vegetation beside a lake. In California this species seem to be in flight mainly in March and April, in Canada in August and September.



Figs. 977—984. *Mycomya maura.* — 977: male hypopygium, tergal view. — 978: hypopygium, sternal view. — 979: tergal lateral appendage, lateral view. — 980: tergal lateral appendage, tergal view. — 981: outer combs of tergite 9. — 982: gonostylus. — 983: female terminalia, lateral view. — 984: hypogynal valve, sternal view. Scale 0.2 mm for Figs. 977—978 and 983—984, Figs. 979—982 2 x enlarged.

Mycomya maura (Walker, 1856)
Figs. 977—984, key p. 40.

Sciophila maura Walker, 1856. Walker 1856:42; Kertész 1902:62, 1903:33.

(not) *Sciophila maura:* Lundström 1914:11 (= *M. penicillata* (Dziedzicki)).

Mycomyia maura: Edwards 1913:355 (Synon. *Sciophila lugubris* Winnertz, ?*S. penicillata* Dziedzicki), 1925a:553; Landrock 1926—1927:48; Edwards 1928a:160; Coe in Kloet & Hincks 1945:345; Matile 1967:125; Chandler 1974:15.

Mycomya maura: Hutson in Kloet & Hincks 1976:24; Chandler 1976:98, 1977:15; Matile 1977:633; Russel-Smith 1979:362; Väisänen 1982b:40.

(?) *Mycomyia maura:* Séguy 1940:70.

(p. p.) *Mycomya maura:* Hutson et al. 1980:45 (p. p. = *M. permixta* n. sp.).

(? not) *Mycomyia maura:* Karl 1939:53; Plassmann 1977b:9, 1980b:19 (? = *M. penicillata* (Dziedzicki)).

(not) *Mycomyia maura:* Kidd in Kidd & Brindle (deletion by Kidd 1971:4).

(not) *Mycomyia maura:* Landrock 1930:254; Lackschewitz 1937:12; Landrock 1940:34; Frey & Storå 1941:46; Ostroverchova & Stackelberg 1969:274; Mikolajczyk 1971:371 (= *M. penicillata* (Dziedzicki)).

(not) *Mycomya maura:* Väisänen in Hackman 1980:31 (= *M. penicillata* (Dziedzicki)).

Mycomyia melania: Plassmann 1970b:388.

Type locality: England.

Type: Holotype (studied): *Sciophila maura* Walk. Type *S. maura* Type (m BMNH).

Material examined: Spain: Granada, Rio Lanjaron, 9 km N Orgiva, 1600 m, 22.IV. 1966, Lyneb., Martin, Langem. (16 mm 3 ff COPEN). — France: Corsica, Corte, R. Restonica, 10—25.IV. 1928, F. W. Edwards (2 mm BMNH). — UK: England (holotype BMNH); Kent, Blean Wood, 19—20.V. 1973, A. M. Hutson (7 mm 1 f 1 ex. BMNH); Herts, Knebworth, 29.IV. 1923, F. W. Edwards (1 m BMNH); same data, VI. 1922 (2 mm 5 ff BMNH); same data, 2.V. 1923 (1 f BMNH); Herts, Baldoch, VI. 1918, F. W. Edwards (1 f BMNH); Staffs, Alton, 17.IX. 1950, J. Edwards (1 f BMNH); N. Forest, 16.V. 1897, F. C. Adams (1 m BMNH); same data, 4.VI. 1902 (1 f BMNH); same data, 22.V. 1907 (1 m BMNH); Bagley, 20.V. 1922 (1 m BMNH); Suffolk, Mildenhall, 13.V. 1909, Yerbury (1 m BMNH); without data (1 m named by F. Walker as *Sciophila fasciata* BMNH).

Description:

Head. Palp, other mouthparts and face brown, posterior parts of head dark brown to black. Antenna brown, more than 4 times, 2nd 3 times as long as wide.

Thorax. Pronotum brownish with 3 longer setae. Mesoscutum brown to almost black, with or without indistinct dark longitudinal stripes. Mesanepisternum brown to blackish brown. Mesokatepisternum brown to blackish brown. Scutellum yellowish to brown, with 4 long setae. Laterotergite brown to blackish brown. Mediotergite brown to blackish brown, bare.

Legs. Coxae and femora yellowish to brownish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.68—0.85, bt2:t2 = 0.64—0.69, bt3:t3 = 0.54—0.63.

Wing. Wing length 3.9—5.2 mm. Wing hyaline. Sc ending in R1 distally to middle of small cell, Sc1 usually entirely missing, sometimes broken. Apical part of Sc bearing 4—10 macrotrichia. Small cell 2—3 times as long as wide. Cu fork distal to M fork. M ratios: 0.77—1.00, 0.85—1.15. Cu ratios: 0.81—1.20, 1.38—2.00. Macrotrichia: M petiole: 0—1; M1: +; M2: +; Cu petiole: +; Cu1: 1—+; Cu2: +. Halter pale yellowish.

Abdomen. Brown to dark brown, tergites 1—5 with or without narrow yellowish posterior margins.

Hypopygium. Figs. 977—982, brownish. Tergal lateral appendage wide, with 7—10 broad curved setae along inner side in apical half. Sternal submedial filament long, curved. Apex of gonostylus with 3—4 apical teeth.

Female. Wing length 4.0—4.9 mm. Thorax not as dark as in male, mesoscutum brownish with darker indistinct longitudinal stripes. Leg ratios: bt1:t1 = 0.67—0.77, bt2:t2 = 0.60—0.66, bt3:t3 = 0.55—0.60. Abdomen brown or segments with posterior margins widely yellow. Terminalia as in Figs. 983—984, yellowish.

Remarks. The British specimens distinctly smaller (males: 3.9—4.5 mm, mean 4.20, SD 0.22, N=6; females: 4.0—4.1 mm) than the Corsican (males: 5.0 mm) and the Spanish specimens (males: 4.8—5.2 mm, mean 5.09, SD 0.13, N=16; females: 4.7—4.9 mm). The Spanish and Corsican specimens without paler posterior margins on abdominal tergites.

Specially diagnostic of this species are the shape and setosity of the tergal lateral appendage of the male hypopygium.

Distribution: Western Palaearctic. Spain, Corse, Britain. Also reported from Ireland (Chandler 1976, 1977), and the Pyrenees (Matile 1967, 1977).

Biology: The species often appears early in the year. Chandler (1974) found specimens on box bushes, in chalk woodland and in a lane by a wood-yard.

Mycomya permixta n. sp.

Mycomya permixta permixta

Figs. 985—993, key p. 40.

Sciophila trilineata: Dziedzicki 1885: Tab. VII: Figs. 10—11.

(?) *Sciophila trilineata:* Czwalina 1893:2.

Mycomya trilineata: Landrock 1913:39; Väisänen 1979a:47, in Hackman 1980:31; Väisänen 1981d:199.

Mycomyia trilineata: Landrock 1925a:34, 1926—1927:52, 1940:36; Séguy 1940:78; Mikolajczyk 1967:22; Ostroverchova & Stackelberg 1969:272; Mikolajczyk 1971:372.

(?) *Mycomyia trilineata:* Schmitz 1929:22; Lackschewitz 1937:12; Barendrecht 1938:38; Karl 1939:53; Frey & Storå 1941:46; Kröber 1955:132; Krogerus 1960:64; Hackman 1963a:54; Plassmann 1969:26, 1970b:388, 1971b:62, 1977b:9; Ostroverchova 1979:74; Plassmann 1980b:20.

(p. p.) *Mycomya flava:* Matile 1977:633 (p. p. = *M. paradentata* n. sp.).

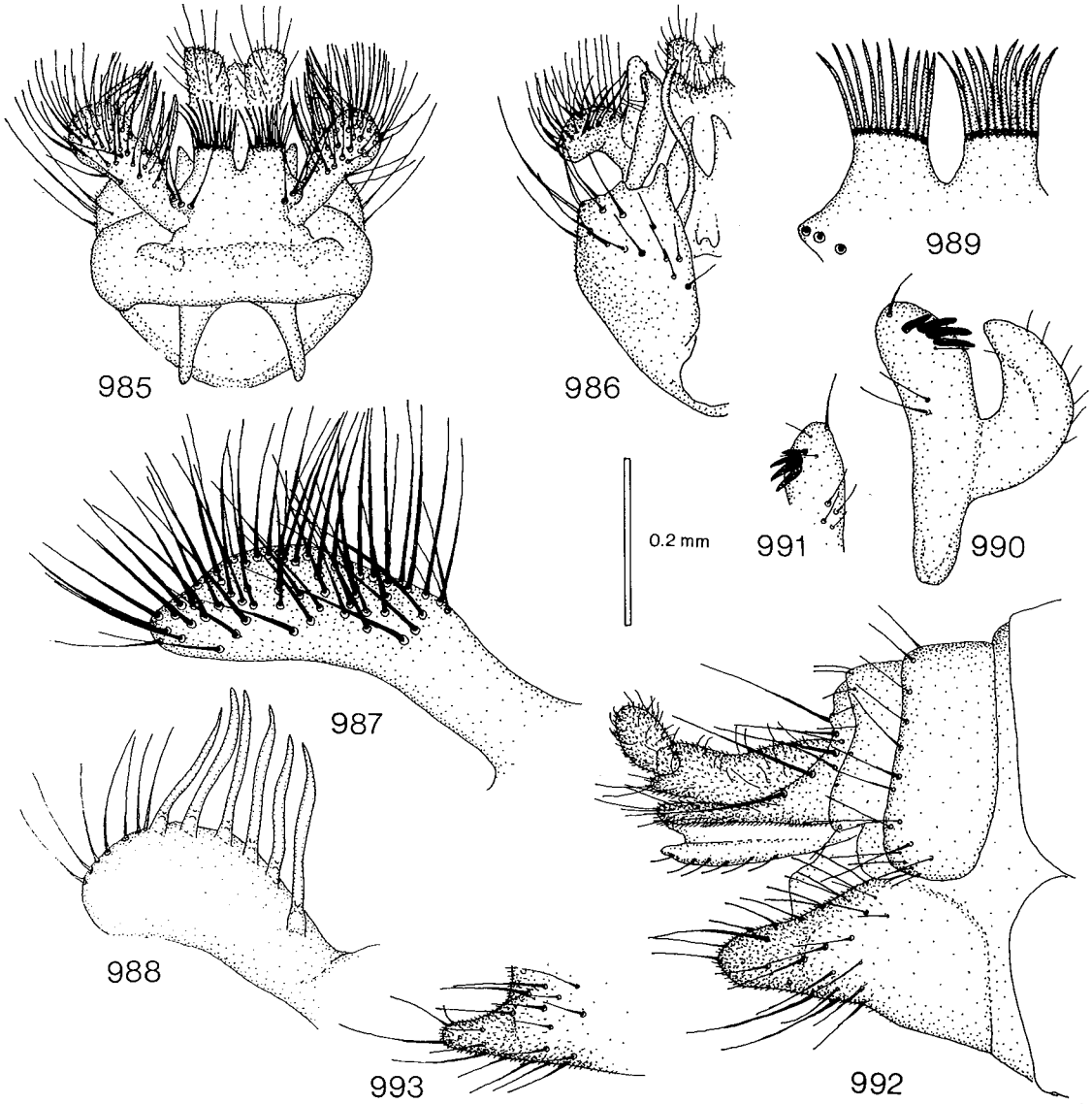
(p. p.) *Mycomya maura:* Hutson et al. 1980:45 (p. p. = *M. maura* (Walker)).

Remarks. Some records of *M. fusca* may belong to this species. See also *M. trilineata.*

Type locality. Lammi, Biological Station (Finland).

Type: Holotype: Finland *Ta* 677:39 Lammi biol. st. 29.8.1977 R. Väisänen leg. (m MZH).

Material examined: France: Verrières, 8.VI. 1924, J. Surcouf (1 m MNHN); Ile de Port-Cros, (Var), 15.X. 1963, L. Matile (1 m MNHN). — Netherlands: Hilversum, 9.X. 1902, 18.IX. 1905, 30.IX. 1906, 24.IX. 1907, 20.IX. 1909, 21.IX. 1909, 26.IX. 1909, 18.IX. 1910, de Meijere (11 mm 2 exx. AMST). — FRG: Dachau, Kultur, 26.IX., C. F. Adams (1 m PU). — Poland: Bieszczady distr. Ustrzyki Dln. Bereźki - Magura Stup., 11.IX. 1969, lasy bukowe, W. Mikolajczyk (2 mm WARS); 187, *Sciophila fusca,* Kowarz det. (1 m LEN); coll. Dziedzicki (1 m "*S. trilineata* Zett." WIEN). — UK: Aberfoyle, Perth, 14.IX. 1905, A. E. G. Carter (1 m BMNH). — Sweden: Sk., Hälsingborg, 18.IX. 1920, O. Ringdahl (1 m LUND); Hall., Enslöv, Ärnilt,



Figs. 985—993. *Mycomya permixta permixta.* — 985: male hypopygium, tergal view. — 986: hypopygium, sternal view. — 987: tergal lateral appendage, lateral view. — 988: tergal lateral appendage, medial view. — 989: outer combs of tergite 9. — 990: gonostylus. — 991: apex of gonostylus. — 992: female terminalia, lateral view. — 993: hypogynal valve, sternal view. Scale 0.2 mm for Figs. 985—986 and 992—993. Figs. 987—991 2 x enlarged.

16.IX. 1972, H. Andersson (1 m coll. Andersson). — Finland: *Ab:* Kuustö (Kaarina, Kuusisto), C. Lundström (1 m MZH); Karislojo (Karjalohja), J. Sahlberg (1 m MZH); Korpo (Korppoo), Jurmo, 4.VIII. 1960, 9.VIII. 1960, 12.VIII. 1960, S. Panelius (11 mm MZH); Karuna, sjögård, 8.X. 1932, R. Storå (1 m MZH); Karuna, Sandö 12.IX. 1932, R. Storå (1 m MZH); Karuna, Kuggholmen, 18.IX. 1932, R. Storå (1 m MZH); Vihti, Vihtijärvi, 3—5.VIII. 1960, 6.VIII. 1960, 26—28. VIII. 1960, 5—7.VIII. 1961, 11—13.VIII. 1961, 23—25.VIII. 1961, 30.VI. 1962, 6.VIII. 1962, 27.VIII. 1963, 15.IX. 1963, 27.IX. 1965, 3.X. 1965, R. Tuomikoski (77 mm MZH); Tenhola, Skogby, 26.VIII. 1965, R. Tuomikoski (3 mm MZH); same locality, 24.IX. 1965, A. V. V. Mikkola (9 mm MZH); *N:* Helsinki, Malminkartano, 27.IX. 1962, R. Tuomikoski & W. Hackman (7 mm MZH); same locality, 16.IX. 1965, R. Tuomikoski (105 mm MZH); Esbo (Espoo), Westend, 15.IX. 1962, W. Hackman (1 m MZH); Esbo, Kolmperä, 12.IX. 1964, 10.X. 1964, 4.IX. 1965, 18.IX. 1965, 20.IX. 1965, W. Hackman (84 mm MZH); Esbo, Hellen (1 m MZH); Helsinki, Nordsjö (Vuosaari), 2.IX. 1963, 22.IX. 1963,

R. Tuomikoski (4 mm MZH); Helsinki, 6680:390, 7.IX. 1978, M. Koponen (1 m AFZ); Helsinki, 6682:382, 11.IX. 1978, 15.IX. 1978, M. Koponen (2 mm AFZ); Tammisaari, Gullö, 16—28.IX. 1967, K. Mikkola (7 mm MZH); Esbo, Småholmen, nest of vole, 11.VIII. 1960, W. Hackman (1 m MZH); Helsinki, Munkkiniemi (1 m MZH); Kirkkonummi 1974, 1981 (2 mm MZH); Pyhtää, Kiviniemi, 15.VIII. 1981, R. Väisänen (1 m MZH); *Ka:* Vehkalahti, 11.IX. 1971, 2.X. 1971, 9.X. 1971, 13.IX. 1973, L. Tiensuu (8 mm 5 ?ff MZH); *Ta:* Vanaja, Suurisuo, 19.VI. 1965, R. Tuomikoski (12 mm MZH); Janakkala, Rastila, 19.VI. 1965, R. Tuomikoski (8 mm MZH); Lammi, Biological Station, 29.VIII. 1977, 30.VIII. 1977, 5.IX. 1977, 8.IX. 1977, R. Väisänen (holotype & 33 mm MZH); same locality, *Leccinum scabrum,* I. Hanski (3 mm MZH); Lammi, Lamminjärvi, 6.IX. 1977, R. Väisänen (16 mm MZH); Jokioinen, 24.VIII. 1965, 26.VIII. 1965, 31.VIII. 1965, 3.IX. 1965, A. Väre (4 mm FLHM); *Sa:* Joutseno, 11.IX. 1951, 28.IX. 1965, E. Thuneberg (2 mm MZH); Valkeala, Utti, 16.IX. 1965, K. Mikkola (137 mm MZH); *Om:* Raahe, Pitkäkari, IX. 1908, Wuorentaus (3 mm 2 ff MZH); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (5 mm MZH): *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (3 mm MZH); Kuusamo, Juuma. Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (27 mm MZH); *Li:* Inari, Törmänen, 18.VIII. 1960, R. Tuomikoski (1 m MZH). — USSR: Viipuri, Pipping (1 ?m MZH); Leningrad. obl., Luzhsk., Tolmachevo, 8.VIII. 1934, 20.VIII. 1935, 22.VIII. 1935, 24.VIII. 1935, 22.VIII. 1936, 24.VIII. 1936, 7.VIII. 1937, 11.VIII. 1937, 13.VIII. 1937, 19.VIII. 1937, 20.VIII. 1937, 23.VIII. 1937, 27.VIII. 1937, 28.VIII. 1937, 2.IX. 1937, 4.IX. 1937, 6.IX. 1937, Stackelberg (44 mm LEN); Leningrad, Udel'naya, 23.IX. 1933, 21.IX. 1937, Stackelberg (2 mm LEN); Leningrad. obl., Toksovo, 22.IX. 1940, Chernovekij (1 m MZH); same locality, 22.IX. 1940, Stackelberg (2 mm LEN); Leningrad. g., Yukki, 30.VII. 1928, 15.VIII. 1930, 18.VIII. 1932, 24.VIII. 1932, 20.VIII. 1933, Stackelberg (7 mm LEN); Leningradsk., Luzhsk., Godzhitsa, 8.VIII. 1934, 21.VIII. 1934, Stackelberg (4 mm LEN); Leningr. o., Yashera, 24.VIII. 1960, 9.IX. 1961, 29.VIII. 1966, Stackelberg (3 mm 1 f LEN); Leningr., o., ? Agaiatovo, 21.IX. 1958, Stackelberg (1 f LEN); Leningr. obl., Zelenogorsk, 25.IX. 1961, Narchuk (2 ff LEN); Arkhan. g., Murman, Aleksandrovsk, 16.IX. 1928, Cheburova (1 m LEN); Curon., ?Ambaten, 31.VIII. 1930, P. Lackschewitz (1 m MNB).

Description:

Head. Palp and other mouthparts yellowish to greyish yellow, face brownish, posterior parts of head brown. Antenna brownish, scape, pedicel and base of 1st flagellomere slightly yellowish. 1st flagellomere about 5 times, 2nd 4 times as long as wide.

Thorax. Pronotum yellowish, with about 4 longer setae. Mesoscutum yellowish to brownish, with 3 brown longitudinal stripes, middle stripe sometimes with narrow yellow medial line. Mesanepisternum light brownish. Mesokatepisternum light brownish to brownish. Scutellum yellowish with 4, very seldom only 2, long setae. Laterotergite light to dark brownish. Mediotergite light to dark brownish, bare.

Legs. Coxae and femora yellow, sometimes brownish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.75—0.86, bt2:t2 = 0.67—0.77, bt3:t3 = 0.55—0.59.

Wing. Wing length 3.5—4.6 mm. Wing hyaline. Sc ending in R1 slightly proximally — slightly distally to middle of small cell, Sc1 apically broken or entirely missing. Apical part of Sc bearing 1—7 macrotrichia. Small cell 1.5—2.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.85—1.00, 1.10—1.25. Cu ratios: 1.03—1.27, 1.82—2.20. Macrotrichia: M petiole: 0—+; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 light brownish to dark brownish, 6—7 slightly darker. Sternites lighter than tergites.

Hypopygium. Figs. 985—991, yellowish. Tergal lateral appendage comparatively broad, with sparse flattened, curved, broad setae along whole medial side. Outer tergal combs narrow, both with 7—13 spines. Base of comb narrow, without lateral extensions. Sternal submedial filament long, curved. Apex of gonostylus with 3—5 teeth and 1 long seta.

Female. Wing length 4.0—4.9 mm. Coloration as in male. Thorax yellowish to brownish. Abdomen yellowish to brownish. Antennae shorter than in male. Leg ratios: bt1:t1 = 0.78—0.80, bt2:t2 = 0.69—0.73, bt3:t3 = 0.53—0.57. Terminalia as in Figs. 992—993, yellow.

Distribution: Holarctic. *M. permixta permixta:* Palearctic. *M. p. breviseta:* Nearctic (see below). France, Netherlands, Federal Republic of Germany, Poland, United Kingdom, Sweden, Finland. USSR: Latvian SSR, Leningrad region, Murmansk region. Probably reported as *M. trilineata* from Siberia (Ostroverchova 1979).

Biology: Three specimens have been reared on *Leccinum scabrum* (Fr.) S. F. Gray (Boletaceae) in Finland (Väisänen 1981d). The Finnish specimens were collected in *Alnus* and *Corylus* woods, birch and other boreal forest, and on bogs. Also found in the nest of a vole.

Mycomya permixta breviseta n. ssp.

Figs. 994—996, key p. 40.

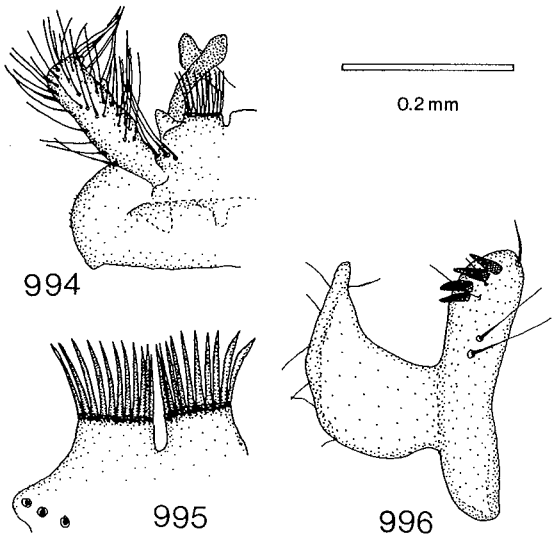
Type locality: Washington, Everett, Lake Stephens (USA).

Type: Holotype (studied): Everett, Wash Lake Stephens Aug. 3, 1917 A. L. Melander. *Mycomyia* ♂ *littoralis* Say det. E. G. Fisher 1940 (m USNM).

Material examined: Canada: B. C., Liard R., Hot Sprgs., 1725′, 24.VIII. 1962, P. J. Skitsko (2 mm CNC); B. C., Liard, Hot Springs, Mile Post 496, Alaska Hwy., 2.IX. 1957, E. L. Kessel (1 m CAS); Alta., Banff, Vermillion L., 4500 ft., 17.VIII. 1925, O. Bryant (1 m CAS); Alta, McMurray, 8.VIII. 1953, G. F. Ball (1 m CNC); Sask., Hudson Bay, 15.IX. 1959, J. R. Vockeroth (13 mm CNC). — USA: Wash., Everett, Lake Stephens, 3.VIII. 1917, A. L. Melander (holotype USNM); Wash., Ilwaco, 27.VIII. 1917, A. L. Melander (1 m USNM); Wash., Quilcene, 24.VII. 1917, A. L. Melander (1 m without abdomen USNM); Wash., Clall. Co., Dean Creek, 7 mi. S. Sequim, 4.VIII. 1972, dry ice Malaise trap, W. J. Turner & W. B. Garnett (5 mm WASH); WA, Pacific Co., Ft. Canby St. Prk., 11—13.VI. 1971, D. N. Ferro (1 m WASH).

Description:

Very similar to *M. permixta permixta* but setae of tergal lateral appendage of male hypopygium distinctly shorter. Hypopygium as in Figs. 994—996, yellow. Leg ratios: bt1:t1 = 0.70—0.85, bt2:t2 = 0.63—0.71, bt3:t3



Figs. 994—996. *Mycomya permixta breviseta.* — 994: tergite 9 of male hypopygium, tergal view. — 995: outer combs of tergite 9. — 996: gonostylus. Scale 0.2 mm for Fig. 994, Figs. 995 and 996 2 x enlarged.

= 0.55—0.61. Wing length 3.7—4.4 mm. M ratios: 0.80—0.88, 1.00—1.17. Cu ratios: 0.96—1.16, 1.69—2.07.

Female. Unknown.

Remarks: Aberrant wing venation: C ending distinctly distally to apex of R5.

Distribution: Nearctic. Canada: British Columbia, Alberta, Saskatchewan. USA: Washington.

Biology: Unknown.

Mycomya affinis (Staeger, 1840)

Figs. 997—1002, key p. 40.

(p. p.) *Sciophila affinis* Staeger, 1840. Staeger 1840:274; Kertész 1902:57, 1903:31 (p. p. = *M. annulata* (Meigen)).

Sciophila affinis: Edwards 1924b:165 (as syn. for *M. trilineata* (Zetterstedt)).

(?) *Sciophila affinis:* Zetterstedt 1852:4127, 1855:4908.

(? not) *Sciophila affinis:* Winnertz 1863:732 (? = *M. fimbriata* (Meigen)).

(not) *Sciophila affinis:* Dziedzicki 1885: Tab. 9: Figs. 18—19; Czwalina 1893:2; Lundström 1907:9, 1909:12, 1914:11 (= *M. fimbriata* (Meigen)).

Mycomyia affinis: Edwards 1913:355 (Synon. *S. flava* Winnertz).

(?) *Mycomyia affinis:* Wahlgren 1921:168.

(not) *Mycomya affinis:* Landrock 1913:38 (= *M. fimbriata* (Meigen)).

Sciophila flava Winnertz, 1863. Winnertz 1863:734; van der Wulp 1877:168; Kowarz 1894:4; Kertész 1902:59, 1903:32.

Mycomyia flava: Edwards 1925a:553; Landrock 1926—1927:46; Lackschewitz 1937:12; Karl 1939:53; Landrock 1940:35; Séguy 1940:74; Coe in Kloet & Hincks 1945:345; Kröber 1956:131; Kidd 1959:72; Mikolajczyk 1967:21; Ostroverchova & Stackelberg 1969:274; Plassmann 1969:24, 1970b:388, 1971b:61, 80; Kidd 1971:4; Plassmann 1979:374; Ostroverchova 1979:67; Ostroverchova & Zaitseva 1979:73.

Mycomya flava: Hutson in Kloet & Hincks 1976:24; Väisänen 1979a:47, in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:39.

(not) *Mycomyia flava:* Matile 1967:125 (= *M. paradentata* n. sp.).

(not) *Mycomyia flava:* Mikolajczyk 1971:367 (= *M. trilineata* (Zetterstedt)).

(not) *Mycomya flava:* Matile 1977:633 (= *M. paradentata* n. sp., *M. permixta* n. sp.).

Sciophila ruficollis: Walker 1856:40.

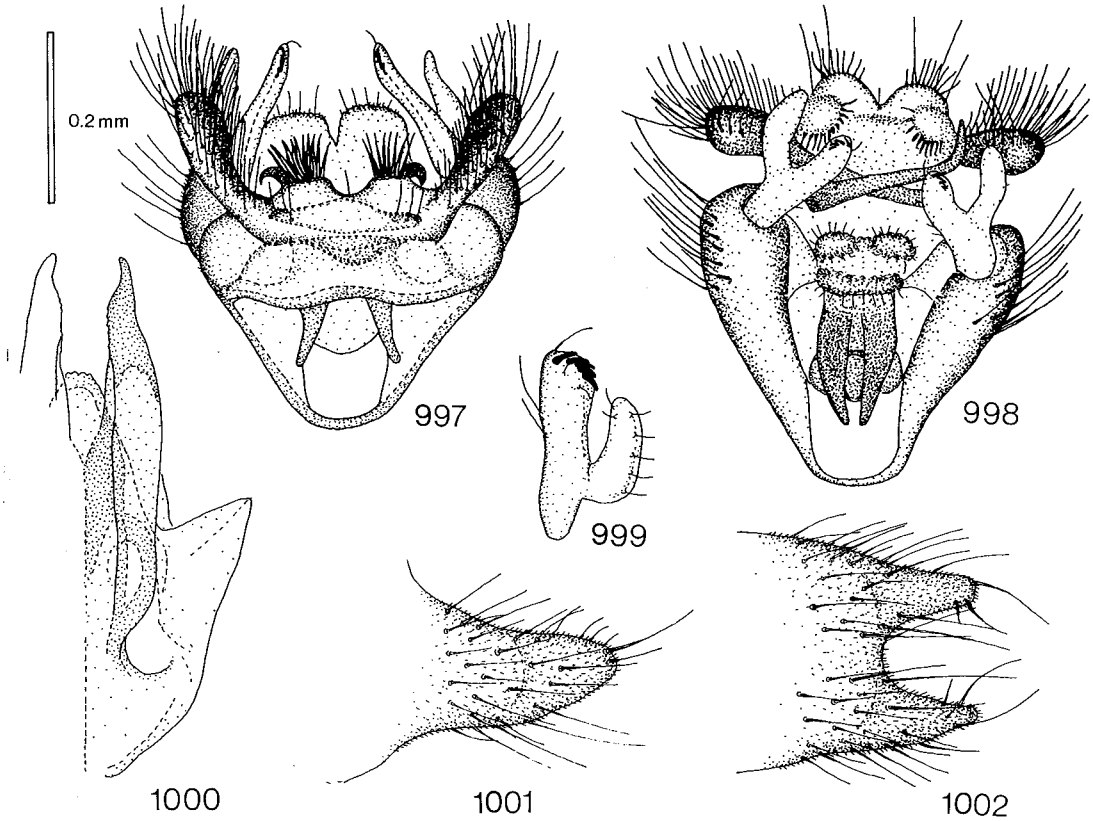
Mycomyia fusca: Mikolajczyk 1971:371.

Type locality: Not stated (Denmark).

Types: — *Sciophila affinis* Staeger: Lectotype (studied) by present designation: ♂. Denmark. coll. Staeger (m COPEN). — *Sciophila flava* Winnertz: Type not located, apparently destroyed, f. Type locality: Not stated (? Germany).

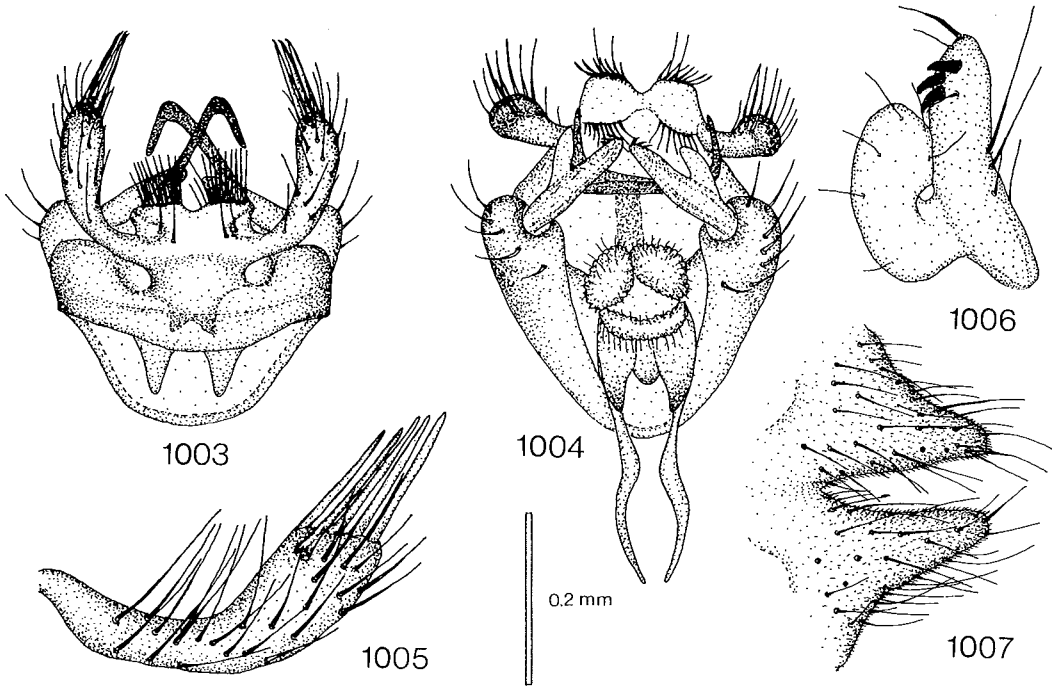
Remarks: Edwards (1913) first tentatively synonymized *S. flava* with *M. affinis* but later type studies (1924b) led him to reject this treatment and he incorrectly considered *M. affinis* to be a junior synonym of *M. trilineata* (Zetterstedt). Thus, *M. flava* was believed to be the valid name for the present taxon, and later this opinion was accepted by most other authors, although some records of *M. flava* possibly belong to other members of the species group *M. trilineata.* In North America some records of *M. littoralis* may include *M. affinis.*

Material examined: Austria: Tyrol, Igls, forêt de Pins, 900—1000 m, 12.VIII. 1964, L. Matile (1 m MNHN); Salisburg, Gastein, 12.VIII. 1867, Mik (1 m WIEN). — Czechoslovakia: Slov. or., Bardejov, 18.VIII. 1962, P. Laštovka (4 mm VUPP). — FRG: Dachau, 10.IX. 1918, C. F. Adams collection (1 m PU). — Poland: Bieszczady, distr. Ustrzyki Dln., Berezki, wąwozy, 14.IX. 1969, W. Mikolajzyk (2 mm WARS). — UK: Sherwood Forest, 22—24.IX. 1922, F. W. Edwards (5 mm 7 ff BMNH); Lancashire, nr. Rufford, Mere Sands Wood, 20.IX. 1970, A. M. Hutson (8 mm 9 ff BMNH); Lancashire, Fresfield, 19.IX. 1970, A. M. Hutson (5 mm 7 ff BMNH); Surrey, Addington Hills, Mid. X. 1962, R. I. Vane-Wright (1 f BMNH); without data (1 ex. named *"Sciophila ruficollis"* by F. Walker BMNH); Bonhill, 17.IX. 1910, J. J. F. X. King (1 m BMNH); Merioneth, Brithdir-isaf nr. Dolgelly, 25.IX. 1971, A. M. Hutson (3 mm ♀ f BMNH); Perth, Aberfoyle, 1.IX. 1906, A. E. G. Carter (1 m BMNH); Logie, IX. 1910, F. J. (2 mm BMNH). — Denmark: Coll. Staeger (lectotype, 3 mm paralectotypes COPEN). — Sweden: Sk. Hälsingborg, 29.VIII. 1922, O. Ringdahl (1 m LUND); Hall. Enslöv, Årnilt, 31.VIII. 1966, H. Andersson (2 mm coll. Andersson); same data, 16.IX. 1972 (4 mm coll. Andersson); Messaure, 25.IX. 1969, W. Tobias (1 m SENCK). — Finland: *Al:* Geta, Bolstaholm, 26.IX. 1942, R. Frey (1 m MZH); *Ab:* Halikko, 670:27, 25.VIII. 1981, O. Siitonen (1 m MZH); Vihti, Vihtijärvi, 3—5.VIII. 1960, 5—7.VIII. 1961, 22—24.VIII. 1961, 23—25.VIII. 1961, 30.VI. 1962, 22.VIII. 1962, 24.VIII. 1962, .VIII. 1962, 3.VIII. 1963, 8.VIII. 1963, 15.VIII.



Figs. 997—1002. *Mycomya affinis.* — 997: male hypopygium, tergal view. — 998: hypopygium, sternal view. — 999: gonostylus. — 1000: aedeagus. — 1001: hypogynal valve of female terminalia, lateral view. — 1002: hypogynal valves, sternal view. Scale 0.2 mm.

1963, 27.VIII. 1963, 15.IX. 1963, R. Tuomikoski (98 mm MZH); Tenhola, Skogby, 26.VIII. 1965, R. Tuomikoski (2 mm MZH); same locality, 24.IX. 1965, A. V. V. Mikkola (1 m MZH); same locality, 15.X. 1965 (1 m MZH); *N:* Tammisaari, Gullö, 16—28.IX. 1967, K. Mikkola (2 mm MZH); Kirkkonummi, Väransin suo 31.VIII. 1963, at light, K. Mikkola (2 mm MZH); Espoo, Bodom, 3.IX. 1963, R. Tuomikoski (4 mm MZH); Esbo (Espoo), Westend, 15.IX. 1962, W. Hackman (1 m MZH); Esbo, Kolmperä, 22.VII. 1963, 6.IX. 1964, 12.IX. 1964, 4.IX. 1965, 18.IX. 1965, 20.IX. 1965, W. Hackman (14 mm MZH); Helsinki, Malminkartano, 27.IX. 1962, R. Tuomikoski & W. Hackman (4 mm MZH); Helsinki, Nordsjö (Vuosaari), 23.X. 1962, W. Hackman (1 m MZH); same locality, 2.IX. 1963, 22.IX. 1963, R. Tuomikoski (6 mm MZH); Pyhtää, Kiviniemi, 11.IX. 1977, R. Väisänen (3 mm MZH); *Ka:* Vehkalahti, 9.VIII. 1971, 13.IX. 1971, 15.IX. 1971, L. Tiensuu (3 mm MZH); Virolahti, 13.IX. 1972, L. Tiensuu (1 m MZH); *Ta:* Vanaja, Suurisuo, 19.IX. 1965, R. Tuomikoski (4 mm MZH); Janakkala, Rastila, 19.IX. 1965, R. Tuomikoski (4 mm MZH); Urjala, 26.VIII. 1964, T. Reilin (FLHM); *Sa:* Valkeala, Utti, 16.IX. 1965, K. Mikkola (6 mm MZH); *Ob:* Rovaniemi, Pisavaara, 26.VIII. 1964, R. Tuomikoski (2 mm MZH); *Ks:* Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (4 mm MZH); Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (7 mm MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (7 mm MZH). — USSR: Leningrad. o., Luzhsk., Tolmachevo, 13.VIII. 1936, 18.VIII. 1936, 20.VIII. 1936, 22.VIII. 1936, 24.VIII. 1936, 17.VI. 1937, 7.VIII. 1937, 19.VIII. 1937, 20.VIII. 1937, 23.VIII. 1937, 4.IX. 1937, Stackelberg (16 mm LEN); Leningrad obl., Tatchina, 14.VIII. 1940, 16.VIII. 1940, Stackelberg (3 mm LEN); Leningrad. o., Luzhsk., Yashera, 24.VIII. 1940, Stackelberg (1 m LEN); Leningrad obl., Toksovo, 22.IX. 1940, Stackelberg (1 m LEN); Leningrad. g., Yukki, 27.VIII. 1932, 27.VIII. 1933, Stackelberg (2 mm LEN); Vyritsa Leningrad, 3.IX. 1936, Stackelberg (1 m LEN); Estonia, St. Peedu, yuzhn., 17.VIII. 1951, 20.VIII. 1951, Stackelberg (2 mm LEN). — Alaska: Ketchikan, 15.IX. 1957, F. Baker (1 m WASH); Mitkof Isl., 8 mi. N. of Ideal Cove, 3.IX. 1951, B. Malkin (1 ?f CAS). — Canada: B. C., Vancouver, oint Grey, 20.VII. 1973, J. R. Vockeroth (1 m CNC); B. C., Cultus Lake, 20.VII. 1948, H. R. Foxlee (1 m 1 ?f CNC); British Columbia, Cultus Lake Provincial Park, Clear Creek Camp-ground, 11.VII. 1974, P. H. Arnaud, Jr. (1 m CAS); B. C.,



Figs. 1003—1007. *Mycomya confusa.* — 1003: male hypopygium, tergal view. — 1004: hypopygium, sternal view. — 1005: tergal lateral appendage, lateral view. — 1006: gonostylus. — 1007: hypogynal valves of (?) female terminalia, sternal view. Scale 0.2 mm for Figs. 1003—1004 and 1007, Figs. 1005—1006 2 x enlarged.

Liard, Hot Springs, Mile Post 496, Alaska Hwy., 2.IX. 1957, A. Kessel (1 m CAS); Alta, Edmonton, 27.IX. 1924, O. Bryant (1 ?f CAS); Sask., Hudson Bay, 15.IX. 1959, J. R. Vockeroth (7 mm CNC); Man., Birtle, 20.VIII. 1928, R. D. Bird (1 m AMNH). — USA: Wash., Stev. Co., 1 mi. N. W. Chewelah, Rt. 395, 6.VII. 1972, W. J. Turner & W. Garnett (1 m WASH); ID, Priest Lake, 4-Mile-Camp, VIII. 1920, A. L. Melander (1 m USNM); Minnesota, Lake Co., Baswood Lake, Q-S WRC Sec. 9, Twp. 64 N. Rge. 10 W, 23.VIII. 1953 (3 mm MINN); Mich., Alger Co., 26.VIII. 1952, R. R. Dreisbach (1 m MICH); (N. Y.) Adinrondach, Fish Creek, 2.VIII. 1929, A. L. Melander (1 m USNM).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 4—5 times, 2nd 3 times as long as wide.

Thorax. Pronotum yellow, with about 3 longer setae. Mesoscutum yellowish, slightly shining, with or without 3 indistinct light brownish longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part slightly darker. Scutellum yellowish, with 4, or very seldom 3, long setae. Laterotergite yellow, ventral part slightly darker. Mediotergite yellowish, lateral and caudal parts light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.71—0.85, bt2:t2 = 0.60—0.72, bt3:t3 = 0.53—0.61.

Wing. Wing length 3.4—4.5 mm. Wing hyaline. Sc ending in R1 near middle of small cell, Sc1 missing. Apical part of Sc bearing 8—11 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.88—1.10, 1.10—1.53. Cu ratios: 0.88—1.08, 1.40—1.87. Macrotrichia: M petiole: 0; M1: 0, seldom 1—2; M2: 0; Cu petiole: 0; Cu1: 0, seldom 1; Cu2: 0. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow to yellowish, with indistinct light brownish anteromedial spots or with medial and posterior margins slightly brownish or sometimes also anterior margins brownish, 6—7 brownish. Sternites yellow.

Hypopygium. Figs. 997—1000, yellow. Tergal lateral appendage broad, without strongly curved flattened apical or subapical setae, a few apical setae slightly curved. Sternal submedial filaments missing. Apex of gonostylus broad, rounded, with 4—5 teeth and 1 or seldom 2 strong setae.

Female. Wing length 3.7—5.0 mm. Pale yellowish, with indistinct markings. Leg ratios: bt1:t1 = 0.73—0.81, bt2:t2 = 0.61—0.69, bt3:t3 = 0.54—0.62. Terminalia as in Figs. 1001—1002, yellow.

Remarks: The Nearctic specimens are slightly smaller (wing length in males: 3.4—4.0 mm, mean 3.76 mm, SD 0.16, N=18) than the Palaearctic ones (3.6—4.5 mm, mean 3.98 mm, SD 0.24, N=26).

Distribution: Holarctic. Austria, Czechoslovakia, Federal Republic of Germany, Poland, United Kingdom, Denmark, Sweden, Finland. USSR: Estonian SSR,

Leningrad region. Alaska. Canada: British Columbia, Alberta, Saskatchewan, Manitoba. USA: Washington, ?Idaho, Michigan, New York. Also reported from Latvian SSR (Lackschewitz 1937), West and East Siberia (Ostroverchova 1979, Ostroverchova & Zaitseva 1979).

Biology: Finnish specimens collected in boreal mixed and coniferous forests and bogs. According to Mikolajczyk (1971: *"M. fusca")*, this species is characteristic of beech forests in Poland. Some specimens collected at light.

Mycomya confusa Väisänen, 1979

Figs. 1003—1007, key p. 40.

Mycomya confusa Väisänen, 1979. Väisänen 1979b:112, in Hackman 1980:31; Väisänen 1982b:38.

Type locality: Kuusamo, Iivaara (Finland).

Type: Holotype (studied): *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski, K. Mikkola (m MZH).

Material examined: Norway: HOy., Fjell, Sotra, Vindenes, 15.VIII. 1978, T. Andersen (1 m coll. Andersen); HOy., Osteröy, Bysheimsvann, törr torvmyr, 21.VIII. 1982, A. Fieldså (1 m coll. Andersen). — Sweden: Nb. Råneå, Högsön, 30.VIII. 1965, H. Andersson (1 m coll. Andersson). — Finland: *Ab:* Vihti, Vihtijärvi, VIII. 1962, 8.VIII. 1963, R. Tuomikoski (2 mm MZH); *Ks:* Kuusamo, Iivaara, 20.VIII. 1964, R. Tuomikoski & K. Mikkola (holotype, 4 mm paratypes MZH); Kuusamo, Kiutaköngäs, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH); Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Säkkijärvi, 27.VIII. 1944, R. Storå (MZH); Leningrad. o., Luzhsk., Tolmachevo, 22.VIII. 1935, 13.VIII. 1936, 17.VIII. 1936, 18.VIII. 1936, 19.VIII. 1936, 24.VIII. 1936, 20.VIII. 1937, 6.IX. 1937, Stackelberg (16 mm LEN); Leningrad. o., Yukki, 21.VIII. 1932, 24.VIII. 1932, 27.VIII. 1933, Stackelberg (4 mm LEN); Leningr. obl., 8.X. 1946, Stackelberg (1 ?f LEN); Vyritsa Leningrad, 3.IX. 1936, 4.IX. 1936, Stackelberg (2 mm LEN).

Description:

Head. Palp, other mouthparts and face light brownish to yellowish, posterior parts of head brownish to brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 4.5 times, 2nd almost 3 times as long as wide.

Thorax. Pronotum light brownish, with 3 longer setae. Mesoscutum brown with 3 indistinct dark longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum brownish, with 4 long setae. Laterotergite brownish. Mediotergite brownish to brown, bare. Some specimens paler in coloration, yellowish, with brownish, more distinct markings.

Legs. Coxae and femora yellowish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.76—0.81, bt2:t2 = 0.65—0.70, bt3:t3 = 0.57—0.58.

Wing. Wing length 3.8—4.3 mm. Wing hyaline. Sc ending in R1 proximally to middle of small cell, Sc1 missing. Apical part of Sc bearing 4—11 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.94—0.96, 1.20—1.27. Cu ratios: 0.97—1.03, 1.50—1.62. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen entirely brownish.

Hypopygium. Figs. 1003—1006, yellowish. Tergal lateral appendage comparatively narrow, with broad, straight apical setae. Sternal submedial filament long but only slightly curved. Apex of gonostylus comparatively broad with 3, seldom 4, teeth and 1 long seta.

(?) Female. Wing length 4.8 mm. Coloration as in male. Leg ratios: bt1:t1 = 0.80, bt2:t2 = 0.66, bt3:t3 = 0.57. Terminalia as in Fig. 1007, yellow.

Remarks. Southern specimens slightly paler than northern ones.

Distribution: Norway, Sweden, Finland. USSR: Leningrad region.

Biology: Finnish specimens collected in boreal forests, one Norwegian specimen in a (moss) bog.

Mycomya trilineata (Zetterstedt, 1838)

Figs. 1008—1014, key p. 40.

Sciophila trilineata Zetterstedt, 1838. Zetterstedt 1838:859, 1852:4117, 4362; Kertész 1902:64, 1903:35.

(?) *Sciophila trilineata:* Walker 1856:40; Winnertz 1863:734; Schiner 1864:445; Grzegorzek 1872:(30); 1873:26; Nowicki 1873:16; Siebke 1877:246; Strobl 1880:45, 1895:144, 1901:12; Sack 1907:11; Lundström 1909:12; Strobl 1909:241; Morge 1974:171.

(? not) *Sciophila trilineata:* Czwalina 1893:2 (? = *M. permixta* n. sp.).

(not) *Sciophila trilineata:* Dziedzicki 1885: Tab. VII: Figs. 10—11 (= *M. permixta* n. sp.).

(not) *Sciophila trilineata:* Kowarz 1894:4; Lundström 1907:8 (= *M. fimbriata* Meigen).

Mycomyia trilineata: Wahlgren 1921:168; Edwards 1924b:162 ("agrees with Dziedzicki's figures"; synon. *M. affinis* Staeger), 1925a:553; Coe in Kloet & Hincks 1945:345; Kidd in Kidd & Brindle 1959:72; Matile 1969:243; Chandler 1974:15.

Mycomya trilineata: Hutson in Kloet & Hincks 1976:24; Cole & Chandler 1979:51; Hutson et al. 1980:45; Väisänen 1982b:41.

(?) *Mycomyia trilineata:* Sasakawa 1961:26.

(? not) *Mycomyia trilineata:* Schmitz 1929:21; Lackschewitz 1937:12; Barendrecht 1938:38; Karl 1939:53; Frey & Storå 1941:46; Kröber 1955:132; Krogerus 1960:64; Hackman 1963a:54; Plassmann 1969:26, 1970b:388, 1971b:62, 1977b:9; Ostroverchova 1979:74; Plassmann 1980b:20 (? = *M. permixta* n. sp.).

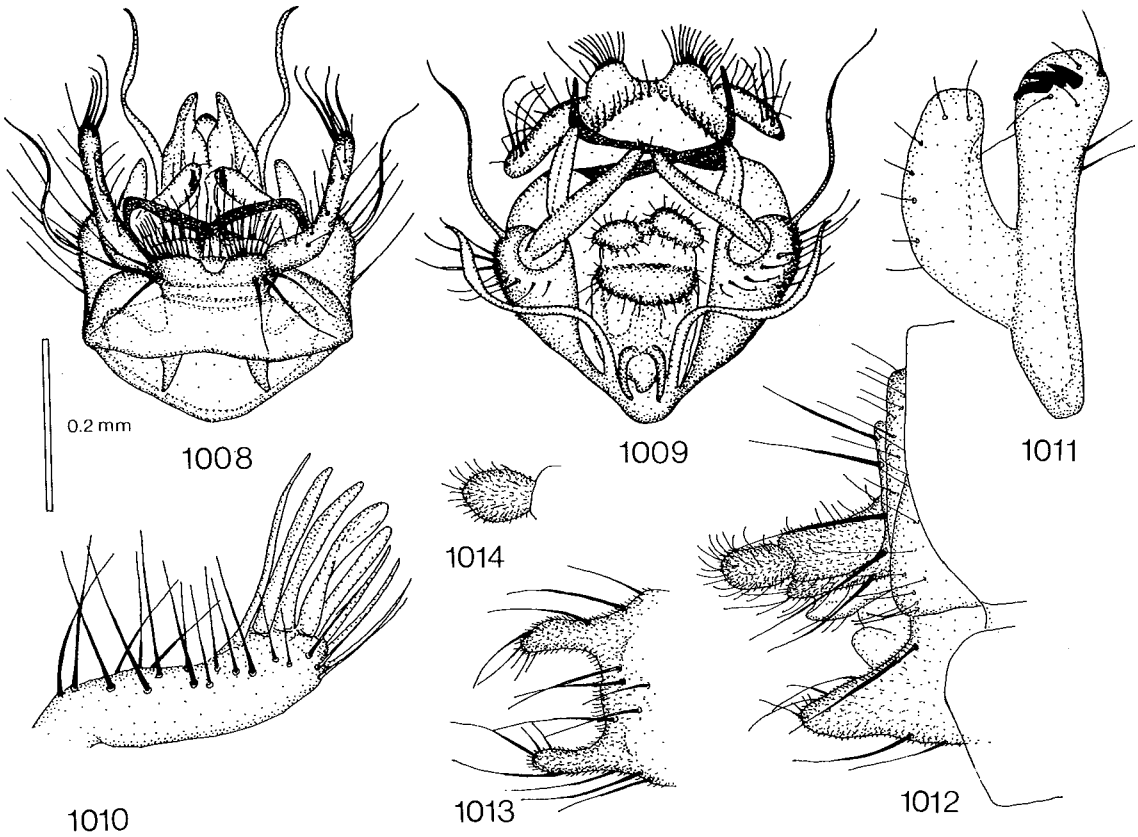
(not) *Mycomya trilineata:* Grimshaw 1912:3; Chandler 1976:98 (= *M. fimbiata* (Meigen)).

(not) *Mycomya trilineata:* Landrock 1913:39; Matile 1964:6, 1977:633; Väisänen 1979a:47, in Hackman 1980:31; Väisänen 1981d:199 (= *M. permixta* n. sp.).

(not) *Mycomyia trilineata:* Landrock 1925a:34, 1926—1927:52, 1940:36; Séguy 1940:78; Mikolajczyk 1967:22; Ostroverchova & Stackelberg 1969:272; Mikolajczyk 1972:372 (= *M. permixta* n. sp.).

(not) *Mycomyia trilineata* Brunetti, 1912 (see *M. winnertzi* (Dziedzicki)).

(?) *Sciophila fusca* Meigen, 1818. Meigen 1818:252; Winnertz 1863:733; Nowicki 1873:16; Kowarz 1894:4; Strobl 1895:144; Kertész 1902:60, 1903:32; Lundström 1912a:9 (Synon. *S. trilineata* Zetterstedt); Morge 1974:171.



Figs. 1008—1014. *Mycomya trilineata.* — 1008: male hypopygium, tergal view. — 1009: hypopygium, sternal view. — 1010: tergal lateral appendage, lateral view. — 1011: gonostylus. — 1012: female terminalia, lateral view. — 1013: hypogynal valves, sternal view. — 1014: apical segment of cercus, sternal view. Scale 0.2 mm for Figs. 1008—1009 and 1012—1014, Figs. 1010—1011 2 x enlarged.

(not) *Sciophila fusca:* Lundström 1907:9, 1909:10 (= *M. penicillata* Dziedzicki, *Mycomya* sp.).

Mycomyia fusca: Mikolajczyk 1967:21.

Mycomya fusca: Väisänen in Hackman 1980:31; Väisänen 1981d:199, 1982b:39.

(?) *Mycomyia fusca:* Edwards 1924a:17; Landrock 1926—1927:46; Karl 1939:52; Landrock 1940:35; Séguy 1940:74; Kröber 1956:131; Hackman 1963a:23, 37, 54; Plassmann 1971b:61; Ostroverchova & Izotov 1974:82; Plassmann 1976b:61, 1977b:9; Ostroverchova 1979:68.

(?) *Mycomya fusca:* Matile 1977:633.

(not) *Mycomya fusca:* Mikolajczyk 1971:371 (= *M. affinis* (Staeger)).

(?) *Sciophila univittata* Zetterstedt, 1838. Zetterstedt 1838:859, 1852:4119; Kertész 1902:64, 1903:35; Edwards 1924b:162 ("may be a variety of *M. trilineata*").

(?) *Mycomyia univittata:* Wahlgren 1921:168.

Sciophila ferruginea: Walker 1856:40.

Mycomyia flava: Mikolajczyk 1971:367.

Type locality: "Lapponia: Ångermannia ad Hernösand" (Sweden).

Types: — *Sciophila trilineata* Zetterstedt: Holotype (studied): 208. *Sc. trilineata* Zett. ♂. Hernösand, Ångerm. (m LUND). — *Sciophila fusca* Meigen: Holotype not located, apparently destroyed. Type locality: Berlin (Germany). — *Sciophila univittata* Zetterstedt: Holotype (studied): 209. *Sc. univittata* Zett. ♂? Lycksele (ex. without abdomen LUND). Type locality: "Lapponia umensi; ad Lycksele" (Sweden).

Remarks: The type of *S. trilineata* does not agree with Dziedzicki's figures of *S. trilineata.* Thus, the widely accepted interpretation of that species has been incorrect, referring to *M. permixta* n. sp. (except in Britain where *M. permixta* has been caught only once). The present species has apparently been called*M. fusca,* at least after Micolajczyk (1967), where figures were given for the male hypopygia. However, Mikolajczyk himself later (1971) changed his opinion regarding this species.

S. trilineata had already been given as a junior synonym of *S. fusca* by Lundström (1912a). Although the type of *S. fusca* is not available, I have resynonymized *S. fusca* tentatively with *M. trilineata,* to clarify the extremely complicated situation, thus accepting Mikolajczyk's first interpretation of *M. fusca.* However, since the type of *S. fusca* is not available, Zetterstedt's name is used.

The synonymization of *S. affinis* (Staeger) with *M.*

trilineata by Edwards (1924b:162) was incorrect (note, however: "or closely allied species").

Homonymy: Brunetti (1912) described *Mycomyia trilineata* from Simla (India). Edwards (1924c:293) synonymized this species with *M. winnertzi* (Dziedzicki) and no replacement name was given for it (see further *M. winnertzi)*.

Material examined: France: Etche-Estia, comm. de Mendive (B. Pyr.), 16.VI. 1964, L. Matile (1 m MNHN); Pont, près Semur (Côte d'Or), 16.VI. 1943, A. Bayard (1 m MNHN); Basses-Alpes, Col. Mars, 17.VIII. 1972, Hebrard (1 m 1 f MNHN); Lachtenweiher, près Niederbruch, Haut-Rhin, 900 m alt. env., C. Couturier (3 mm MNHN). — Austria: Austr. sup., Schanz, 29.VIII. 1883, Mik (2 mm 1 f WIEN). — FRG: Tübingen, Heuberger, Tor, Mischwald, 24.VII. 1979, Schmalfuss (1 m STAAT). — Hungary: Zempléni-hg., Ördög-v., erdó, 24.VI. 1960, Mihályi (5 mm 3 ff TMB); same data, 26.VI. 1960 (2 mm 1 ex. TMB); Kószegi-hg., Velemi erdó, 11.VII. 1960, Zsirkó (1 m TMB); Tatralomnic, patak mellett, 900 m, 4.VIII. 1963, Mihályi (1 m 1 f TMB). — Yugoslavia: Croatia, Plitvice, 4—10.VII. 1958, R. L. Coe (1 m BMNH); Slovenia, Bohinj, Bukowska Dolina, to 1400 m, 1.VIII. 1973, A. E. Stubbs (4 mm BMNH). — Roumania: Herkulesbad (1 m MNB). — Czechoslovakia: Beskydy, Velké Karlovice, 9.VII. 1969, P. Laštovka (1 m VUPP); Slov. or., Bardejov, 18.VIII. 1962, P. Laštovka (14 mm 12 ff VUPP); Boh. or., Potštejn, 26.VII. 1967, P. Laštovka (1 m VUPP); Boh. bor., Potštejn pr. Hradec, 9.VII. 1968, P. Laštovka (2 mm VUPP); Bohemia, Malšice u Tábora, 9.VII. 1960, Laštovka (1 ?f VUPP); Boh. c., Komořany, 28.VI. 1960, Laštovka (1 ?f VUPP). — Poland: Bieszczady distr. Ustrzyki Dln., Berezki, Kolejka, 14.IX. 1969, W. Mikolajczyk (1 m WARS); Bieszczady distr. Ustrzyki Dln., Pszczeliny-Bukowe, Berdo, 30.VII. 1967, lasy bikowe, W. Mikolajczyk (1 ?f WARS); Pangelberg bei Nimptsch (= Niemcza) (1 m 1 f MNB). — UK: S. Devon, ?Dartmouth, 5—12.VI. 1920, F. W. Edwards (1 f BMNH); S. Devon, Stoke Gabriel, 7.VI. 1920, F. W. Edwards (5 mm BMNH); Dorset, Studland, 21.VI. 1907, Yerbury (1 m BMNH); Sussex, Crowborough, 7.VIII. 1906, F. Jenkinson (1 f BMNH); Sussex, Selsey, 3—5.VII. 1967, A. M. Hutson (1 m BMNH); Hereford, Stoke Wood, 11.VII. 1909, G. H. Verrall (1 m BMNH); Oxfordshire, Wormsley Park, 15.VIII. 1907, G. H. Verrall (1 m 2 ff BMNH); Oxfordshire, Stokenhurst, 15.VIII. 1907, G. H. Verrall (1 f BMNH); New Forest, Lyndhurst, 18.VI. 1903, 2.VII. 1904, F. Jenkinson (2 mm BMNH); New Forest, 9.VII. 1907, J. J. F. X. King (1 m BMNH); same locality, 23.VII. 1910, F. C. Adams (1 f BMNH); N. F., Brokenhurst, 11.VII. 1910, 22.VII. 1910, J. J. F. X. King (1 m 1 f BMNH); Coll. J. H. Wood (2 mm BMNH); without data (1 m named *"Sciophila ferruginea"* by F. Walker BMNH). — Norway: TEy., Porsgrunn, Skjelsvik, Østvedtmyra, 10.VIII. 1982, G. E. Ellefsen (2 mm coll. Andersen). — Sweden: Dlr. Rättvik, Österäng, 11.VIII. 1975, T. Tjeder (1 m 1 f LUND); Ångerm., Hernösand *(Sciophila trilineata* holotype LUND); Nb., Råneå, Bergviken, 2.IX. 1965, H. Andersson (1 m coll. Andersson); Lycksele, 17.VIII. 1832 *(S. univittata* holotype LUND). — Finland: *Ab:* Vihti, Vihtijärvi, 3—5.VIII. 1960, 6—7.VIII. 1960, 5.VIII. 1962, 7.VIII. 1962, 18.VIII. 1962, 22.VIII. 1962, 24.VIII. 1962, VIII. 1962, 23.VII. 1963, 3.VIII. 1963, 5.VIII. 1963, 8.VIII. 1963, 27.VIII. 1963, 15.IX. 1963, R. Tuomikoski (60 mm MZH); Karjalohja, Karkali, 6.VIII. 1964, R. Tuomikoski (6 mm MZH); Halikko, 25.VIII. 1981, O. Siitonen (1 ?f MZH); *N:* Esbo (Espoo), Kolmperä, 8.VIII. 1963, 29.VIII. 1963, 6.IX. 1964, 12.IX. 1964, 4.IX. 1965, W. Hackman (6 mm MZH); Esbo, Småholm, 21.VII. 1962, 5.VIII. 1962, 13.VIII. 1962, 14.VIII. 1962, 20.VIII. 1962, 22.VIII. 1962, W. Hackman (22 mm MZH); Esbo, Westend, 20.VIII. 1962, W. Hackman (1 m MZH); Porvoo, R. Frey (1 m MZH); Pyhtää, Kiviniemi 671:48, 15.VIII. 1981, R. Väisänen (1 m MZH); *Ka:* Vehkalahti, 4.VIII. 1971, 22.VIII. 1971, L. Tiensuu (3 mm 1 f MZH); *Ta:* Lammi, Biological Station, *Leccinum scabrum*, I. Hanski (2 mm 1 f MZH); *Sa:* Ristiina, 6826:502, 6.VIII. 1978, M. Koponen (1 m AFZ); Valkeala, Utti, 9.VIII. 1965, K. Mikkola (2 mm MZH); *Kb:* Pielisjärvi, Koli, 15—16.VIII. 1964, R. Tuomikoski (7 mm MZH); Tohmajärvi, Hiidenvaara, 14.VIII. 1964, R. Tuomikoski (5 mm MZH); *Om:* Pietarsaari, Varvet, 18.VIII. 1956, 5.VIII. 1957, R. Storå (2 mm MZH); *Ok:* Sotkamo, Aarreniemi, 5.VIII. 1962, 11.VIII. 1964, A. V. V. Mikkola (2 mm MZH); same locality, 18.VIII. 1964, R. Tuomikoski & K. Mikkola (1 m MZH). — USSR: Kivikoski, Saima-Kanal, 1.VIII. 1902, Adelung (1 m MZH); Leningrad., Luzhsk., Tolmachevo, 13.VIII. 1935, 18.VIII. 1936, Stackelberg (6 mm LEN); Leningrad obl., Tatchina, 14.VIII. 1940, 16.VIII. 1940, Stackelberg (2 mm LEN); Leningrad. g., Yukki, 2.VIII. 1932, Stackelberg (1 m LEN); bass. oz. Vud-yavr, Khibin. g. Kol'sk., 22.VIII. 1936, Fridolin (1 m LEN); Estonia, St. Peedu, 7.VIII. 1951, 22.VIII. 1951, Stackelberg (2 mm LEN); Transcarpathien, Svaljava distr., Uklin, 7.IX. 1977, 8.IX. 1977, N. Krylova (1 m 2 ff MOSC); Altai kr., Teletskoj oz., Artybash, 20.VIII. 1982, K. Mikkola (1 m 1 f MZH). — Iran: Guilan, forêt d'Assalem, 1.VII. 1965, L. Matile (1 m MNHN); same data, 4.VII. 1965 (10 ?ff MNHN).

Description:

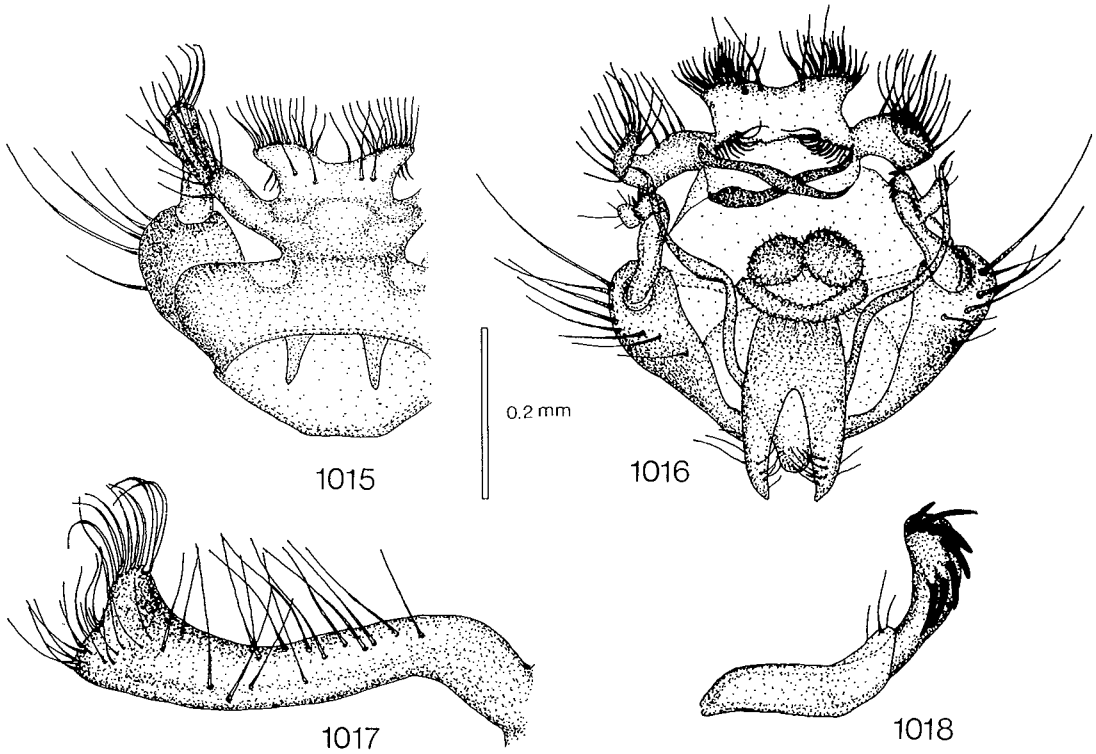
Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna yellowish, scape, pedicel and basal half of 1st flagellomere yellow. 1st flagellomere 3.5—4 times, 2nd twice as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow to yellowish, with 3 indistinct brownish longitudinal stripes very close to each other on median part of mesoscutum, anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part sometimes slightly darker. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part sometimes slightly darker. Mediotergite yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.70—0.82, bt2:t2 = 0.62—0.79, bt3:t3 = 0.53—0.67.

Wing. Wing length 3.4—4.3 mm. Wing hyaline. Sc ending in R1 proximally to, near or distally to middle of small cell, Sc1 usually entirely missing, seldom short remnant present. Apical part of Sc bearing 3—16 macrotrichia, usually about 10. Small cell 1.5—2 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.91—1.05, 1.25—1.53. Cu ratios: 0.92—1.25, 1.47—1.80. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter pale yellowish.

Abdomen. Tergites 1—5 yellowish to yellowish brown, with mid-dorsal line and posterior margins narrowly brownish, tergites 6—7 brownish to brown. Sternites 1—



Figs. 1015—1018. *Mycomya fennica*. — 1015: male hypopygium, tergal view. — 1016: hypopygium, sternal view. — 1017: tergal lateral appendage, lateral view. — 1018: gonostylus. Scale 0.2 mm for Figs. 1015—1016, Figs. 1017—1018 2 x enlarged.

5 lighter than tergites, without markings, sternites 6—7 brownish to brown.

Hypopygium. Figs. 1008—1011, yellow. Tergal lateral appendage narrow, especially apically, with a few flattened, broad, curved apical setae. Sternal submedian filament long, curved. Apex of gonostylus with 3 teeth and 1 strong apical seta.

Female. Wing length 3.9—4.6 mm. Thorax yellow to yellowish, with brownish medial line across mesoscutum from head to scutellum and caudolateral margins of mesoscutum light brownish, or thorax yellow, with 3 pale longitudinal stripes. Abdomen pale yellow without distinct markings, tergites 6—7 slightly darker than others, or yellow to yellowish, with caudal margins and mid-dorsal line indistinctly brownish, sternites yellow, segments 6—7 entirely light brownish. Leg ratios: bt1:t1 = 0.72—0.79, bt2:t2 = 0.63—0.67, bt3:t3 = 0.53—0.56. Terminalia as in Figs. 1012—1014, yellow.

Remarks. A pale species which can be recognized by the structure of the male hypopygium, especially the shape and setosity of the tergal lateral appendage and by the presence of macrotrichia on veins M and Cu.

Distribution. Palaearctic. France, Austria, Federal Republic of Germany, ?GDR, Hungary, Yugoslavia, Roumania, Czechoslovakia, Poland, United Kingdom, Norway, Sweden, Finland. USSR: Ukrainian SSR, Leningrad region, Murmansk region, Altai Mts. Iran. The Japanese and Siberian records need verification.

Biology. Three specimens have been reared on *Leccinum scabrum* (Fr.) S. F. Gray (Boletaceae) sporophores in Finland (Väisänen 1981d). Finnish specimens have been collected in boreal forests; Chandler (1974) reports specimens (not studied) from a wooded stream bank, a ride through carr and from open woodland.

Mycomya fennica Väisänen, 1979

Figs. 1015—1018, key p. 40.

Mycomya fennica Väisänen, 1979. Väisänen 1979b:111, in Hackman 1980:31, Väisänen 1982b:39.

Type locality: Kirkkonummi, Värans (Finland).

Type: Holotype (studied): U: Kirkkonummi, Värans, V, 31.VIII. 1963, K. Mikkola (m MZH).

Material examined: Finland: *Ab:* Karislojo (Karjalohja), träsket vid Pellonkylä, 5.VIII. 1910, J. Sahlberg (1 m MZH); *N:* Kirkkonummi, Värans, at light, 20.VIII. 1963, 31.VIII. 1963, K. Mikkola (holotype, 2 mm paratypes MZH); *Kn:* (Vaala) Säräisniemi, Wuorentaus (1 m MZH). — USSR: Leningrad. obl., Tolmachevo, 8.VIII. 1935, Rohdendorf (1 m LEN); same locality, 19.VIII. 1936, Stackelberg (1 m LEN); Leningr. obl., Luzh. r-n., g. Volok, 13.VIII. 1938, Chernovekij (1 m LEN).

Description:

Head. Palp and other mouthparts yellow, face yellowish, posterior parts of head brown. Antenna brownish, scape and pedicel paler, basal part of 1st flagellomere yellow. 1st flagellomere about 3.5, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellowish, with 3 longer setae. Mesoscutum brown, with 3 indistinct, dark brown longitudinal stripes. Mesanepisternum brownish. Mesokatepisternum brownish. Scutellum brownish, with 4 long setae. Laterotergite brownish. Mediotergite brownish, bare.

Legs. Coxae and femora yellowish, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.75—0.76, bt2:t2 = 0.64—0.66, bt3:t3 = 0.53—0.54.

Wing. Wing length 3.5—4.0 mm. Wing hyaline. Sc ending in R1 near or distally to middle of small cell, Sc1 missing. Apical part of Sc bearing 6—7 macrotrichia. Small cell slightly longer than its width. Cu fork distinctly distal to M fork. M ratios: 0.92—1.10, 1.22—1.53. Cu ratios: 0.91—1.17, 1.12—1.80. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Entirely brownish to brown, without markings.

Hypopygium. Figs. 1015—1018, brownish. Tergal lateral appendage narrow, with broader apex, with several broad, strongly curved setae on inner side forming sparse brush or comb-like row. Sternal submedial filament long, curved. Apex of gonostylus with many, ca. 7, teeth.

Female. Unknown.

Distribution: Western Palaearctic. Finland. USSR: Leningrad region.

Biology: The holotype and paratypes were captured at a light on the same bog as *M. kaurii*.

Mycomya paradentata n. sp.

Figs. 1019—1024, key p. 40.

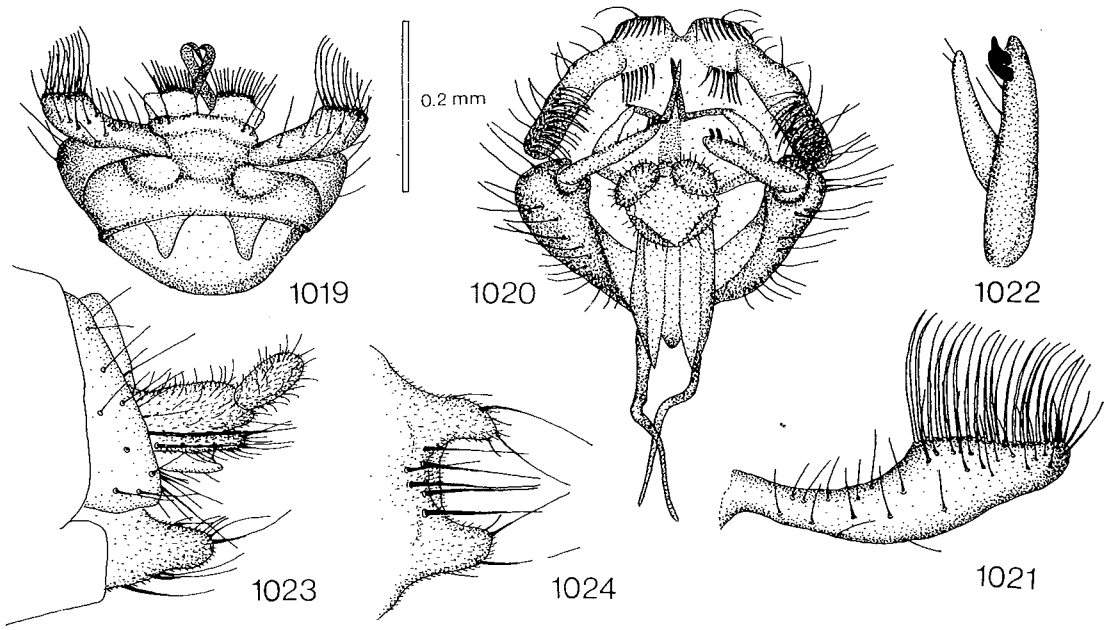
Mycomya flava: Matile 1977:633 (p. p. = *M. permixta* n. sp.).

Mycomya dentata: Väisänen in Hackman 1980:31; Väisänen 1982b:38.

Type locality: Vihti, Vihtijärvi (Finland).

Type: Holotype (studied): Vihtijärvi 6.X. 1963 R. Tuomikoski (m MZH).

Material examined: France: Vieil Armand, 950 m, -68–, 28.VIII. 1972, G. Gouturier (1 m MNHN); Etche-Estis comm. de Mendive (B. Pyr.), 16.VI. 1964, L. Matile (2 mm MNHN). — Poland: Bieszczady distr. Ustrzyki Dln. Berezki, kolejka, 14.IX. 1969, W. Mikolajczyk (2 mm WARS). — Denmark: Slaaens Ö, Silkeborg d., 28.VIII. 1942 (1 m COPEN). — Sweden: Hall., Enslöv, Årnilt, 31.VIII. 1966, H. Andersson (1 m coll. Andersson). — Finland: *Ab:* Vihti, Vihtijärvi, 3—5.VIII. 1960, 22.VIII. 1962, VIII. 1962, 8.VIII. 1964, 27.VIII. 1963, 6.X. 1963, R. Tuomikoski (holotype & 26 mm MZH); *Kb:* Tohmajärvi, Hiidenvaara, 14.VIII. 1964, R. Tuomikoski (2 mm MZH); Tohmajärvi, Hyypiänvaara, 14.VIII. 1964, R. Tuomikoski (2 mm MZH); *Ok:* Sotkamo, Aarreniemi, 14.VIII. 1964,



Figs. 1019—1024. *Mycomya paradentata.* — 1019: male hypopygium, tergal view. — 1020: hypopygium, sternal view. — 1021: tergal lateral appendage, lateral view. — 1022: gonostylus. — 1023: female terminalia, lateral view. — 1024: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 1019—1020 and 1023—1024, Figs. 1021—1022 2 x enlarged.

15.VIII. 1964, A. V. V. Mikkola (2 mm MZH). — USSR: Leningr., Luzhsk., Tolmachevo, 13.VIII. 1935, 19.VIII. 1935, 8.VIII. 1936, 9.VIII. 1936, 13.VIII. 1936, 15.VIII. 1936, 19.VIII. 1936, 28.VIII. 1937, Stackelberg (11 mm LEN); Leningrad obl., Tamrika, 16.VIII. 1940, Stackelberg (3 mm LEN); Vyritsa Leningrad, 3.IX. 1946, Stackelberg (1 m LEN); Transcarpathien, Svaljava reg., Uklin, 7.IX. 1977, 8.IX. 1977, N. Krylova (4 mm 1 f MOSC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere 4—4.5 times, 2nd 2.5—3 times as long as wide.

Thorax. Almost entirely light brownish to brownish. Pronotum yellowish, with 3 longer setae. Mesoscutum with or without 3 usually very indistinct longitudinal stripes. Scutellum with 4 long setae. Mediotergite bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.72—0.82, bt2:t2 = 0.63—0.65, bt3:t3 = 0.50—0.54.

Wing. Wing length 3.5—4.3 mm. Wing hyaline. Sc ending in R1 usually distally, sometimes slightly proximally to middle of small cell, Sc1 missing. Apical part of Sc bearing 8—15 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 1.05—1.20, 1.44—1.71. Cu ratios: 0.96—1.14, 1.53—1.92. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Very seldom single macrotrichia on distal parts of M or Cu branches. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish, with posterior margins slightly paler, 6—7 brownish. Sternites lighter than tergites.

Hypopygium. Figs. 1019—1022, yellowish. Tergal lateral appendage comparatively broad, with dense comb-like row of setae along medial side on distal part. Sternal submedial filament long, curved. Apex of gonostylus with 2 strong teeth.

Female. Mesoscutum yellow, with brown medial stripes from head to scutellum, posterolateral areas slightly brownish. Wing length 4.5 mm. Bt1:t1 = 0.70. Flagellomeres shorter than in male, 1st about 2.5 times, 2nd less than twice as long as broad. Abdomen brownish, sternites yellowish. Terminalia as in Figs. 1023—1024, yellow.

Distribution: Western Palaearctic. France, Poland, Denmark, Sweden, Finland. USSR: Leningrad region, Ukrainian SSR.

Biology: Finnish specimens have been collected in boreal forests.

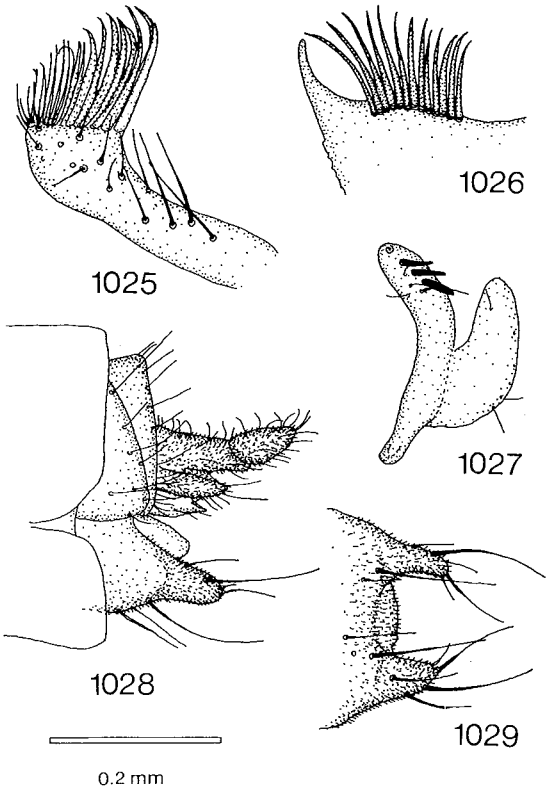
Mycomya dentata Fisher, 1937

Figs. 1025—1029, key p. 40.

Mycomyia dentata Fisher, 1937. Fisher 1937:396; Coher 1959:111.

Mycomya dentata: Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:220.

(not) *Mycomya dentata:* Väisänen in Hackman 1980:31; Väisänen 1982b:38 (= *M. paradentata* n. sp.).



Figs. 1025—1029. *Mycomya dentata.* — 1025: tergal lateral appendage of male hypopygium, lateral view. — 1026: outer comb of tergite 9. — 1027: gonostylus. — 1028: female terminalia, lateral view. — 1029: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 1028—1029, Figs. 1025—1027 2 x enlarged.

Type locality: New Hampshire, Shelburne (USA).

Type: Holotype (studied): Holotype, Cornell U. No. 1416, *Mycomyia dentata,* type, Shelburne N. H. Aug. 26 1932 (m CORN).

Material examined: Canada: Ont., Timagami, 6.IX. 1934, A. W. A. Brown (1 m ROM); Que., Knowlton, 26.VII. 1929, L. J. Milne (1 m CNC); Que., Old Chelsea, 21.VII. 1959, J. R. Vockeroth (1 m CNC). — USA: Minn., Lake Co., Basswood Lake, Q-S WRC, Sec. 9, Twp. 64 N, Rge. 10 W, 15.VIII. 1950, R. Namba (2 mm MINN); same locality, 17.VIII. 1950, R. Namba (2 mm MINN); Minn., Lake Co., Basswood Lake, Washington Island, 16.VIII. 1950, R. Namba (1 m MINN); Iowa, Delaware Co., Backbone State Park, 4.VII. 1949, J. Laffoon (3 ff ISU); Iowa, Jones Co., Wapsipinicon St. Pk., 3.VII. 1949, J. Laffoon (1 f ISU); Iowa, Linn Co., Palisades-Kepler St. Pk., 8.VII. 1950, Laffoon, Slater, Hicks (5 ff ISU); Mich., Alger Co., 26.VIII. 1952, R. R. Dreisbach (1 m 1 f MICH); Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (2 mm 1 f BMNH); N. H., Shelburne, 26.VIII. 1932 (holotype CORN); vial 231 (m gen. CORN); N. Y., Fish Crk Pond, 13.VIII. 1941, A. L. Melander (1 m USNM); New York, Hamilton Co., along Shanty Brook,

43°17.2'N, 74°33.4'W, 1700', 5.VIII. 1961, D. L. Deonier (4 mm 1 f ISU); same data, R. J. Gagné (2 mm ISU); same data, J. L. Laffoon (5 mm 1 f ISU); N. Y., Cattaraugus Co., Stoddard Hollow, 42°4'N, 78°45.5'W, 1720'—1880', 10.VIII. 1961, J. L. Laffoon (28 mm 11 ff ISU); same data, R. J. Gagné (13 mm 1 f ISU); same data, D. L. Deonier (2 mm ISU); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12'N, 74°32'W, 1600', 5.VIII. 1961, D. L. Deonier (11 mm ISU); same data, R. J. Gagné (19 mm 5 ff ISU); same data, J. L. Laffoon (9 mm ISU); N. Y., Hamilton Co., e. foot of West Notch Mt., 43°20.6'N, 74°37.2'W, 1900', 6.VIII. 1961, J. L. Laffoon (1 m ISU); New York, Hamilton Co., vic. Jockeybush Outlet, 43°18'N, 74°34'W, 1700', 5.VIII. 1961, J. L. Laffoon (1 m ISU); New York, Ithaca, vic. Sixmile Creek, 9.VIII. 1961, R. J. Gagné (1 f ISU); CT., Colebrook, 28.VIII. 1941, A. L. Melander (2 mm USNM); W. Va., Durbin, Cheat Range, sl 312, mixed forest, 1.VIII. 1943 (1 m USNM); Virginia, Madison Co., along Hogcamp Branch, 38°31.2'N, 78°25.5'W, 2800', 22.VII. 1961, J. L. Laffoon (11 mm ISU); same data, O. S. Flint (1 m ISU); same data, D. L. Deonier (6 mm 1 f ISU); same data, R. J. Gagné (3 mm ISU); VA., Madison Co., Whiteoak Canyon, south slope of Stony Man, 38°35'N, 78°22'W, 3500', 22.VII. 1961, J. L. Laffoon (1 m ISU); same data, O. S. Flint (1 m 1 f ISU); same data, R. J. Gagné (1 f ISU); Tenn., Sevier Co., Great Smoky Mts., Fighting Creek, 35°40.7'N, 82°33.3'W, 1600', 7.VII. 1958, J. L. Laffoon (2 ff ISU); Tenn., Gatlinburg, GSMNP, N Sweeps, 2700', 21.VII. 1947, R. H. Whittaker (1 f ISU); Tenn., Gr. Sm. Mt. Nat. Park, Indian Gap to Clingman's Dome, 5200—6600', 6.VIII. 1957, J. G. Chillcott (2 mm CNC); Tenn., Indian Gap, 6.VIII. 1957, W. R. Richards (1 m CNC); N. C., Gr. Sm. Mt. Nt. Pk., Indian Gap, 6.VII. 1957, C. J. Durden (2 mm CNC); N. C., Macon Co., Wayah Bald, 5300', 10.VIII. 1957, J. G. Chillcott (1 m CNC); N. C., Highlands, Whiteside Mt., 4900', 21.VIII. 1957, J. G. Chillcott (1 m CNC); N. C., Highlands, 3800', 18.VII. 1957, 29.VIII. 1957, J. G. Chillcott (1 m 1 f CNC); N. C., Highlands, (Horse Cove), 30.VII. 1957, W. R. Richards (1 m 1 f CNC).

Description:

Head. Palp and other mouthparts yellow, face slightly darker, posterior parts of head light brownish. Antenna yellowish to light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3.5—4 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellowish with or without 3 brownish longitudinal stripes. Mesanepisternum yellowish. Mesokatepisternum yellowish. Scutellum yellowish, with 4 long setae. Laterotergite yellowish. Mediotergite yellowish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.75—0.79, bt2:t2 = 0.60—0.67, bt3:t3 = 0.58—0.61.

Wing. Wing length 3.3—3.6 mm. Wing hyaline. Sc ending in R1 proximally to middle of small cell, Sc1 missing. Apical part of Sc bearing 3—10 macrotrichia. Small cell 1—2 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.90—1.13, 1.18—1.92. Cu ratios: 0.97—1.25, 1.58—1.92. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Almost entirely yellowish.

Hypopygium. Figs. 1025—1027, yellow. Tergal lateral appendage comparatively narrow, apically broader, with brush-like comb of broad setae along inner margin. Bases of outer tergal combs with pointed lateral appendages. Sternal submedial filament long, curved. Apex of gonostylus comparatively wide with 3 teeth and 1 apical seta.

Female. Yellowish. Abdomen yellow with tergites apically slightly darker. Wing length 3.3—3.9 mm. Leg ratios: bt1:t1 = 0.69—0.73, bt2:t2 = 0.60—0.63, bt3:t3 = 0.56—0.59. Terminalia as in Figs. 1028—1029, yellow.

Remarks: *M. dentata* Fisher is very closely related to the European *M. paradentata* n. sp.

Distribution: Eastern Nearctic. Canada: Ontario, Quebec. USA: Minnesota, Iowa, Michigan, Maine, New Hampshire, New York, Connecticut, Virginia, Tennessee, North Carolina. Coher (1959) also reports this species from Wisconsin.

Biology: Unknown. Specimens collected in mixed forests and on mountain slopes.

Mycomya neodentata n. sp.

Figs. 1030—1034, key p. 40.

Type locality: Kuril Islands, Kunashir (USSR).

Type: Holotype (studied): USSR 19.IX. 76 Kuril Isls. Kunashir, leg. A. Zaitzev (m in alc. + prep. MOSC).

Material examined: USSR: Holotype (MOSC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 4 times, 2nd 3 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum brownish, with 3 brown longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part brownish. Scutellum brownish, with 4 long setae. Laterotergite brownish. Mediotergite brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.78, bt2:t2 = 0.71, bt3:t3 = 0.60.

Wing. Wing length 4.2 mm. Wing hyaline. Sc ending in R1 distally to middle of small cell, Sc1 missing. Apical part of Sc bearing 7—9 macrotrichia. Small cell about twice as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.85, 1.05. Cu ratios: 1.00, 1.58. Macrotrichia: M petiole: 0; M1: 2—3; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Entirely light brownish without markings, sternites slightly paler than tergites.

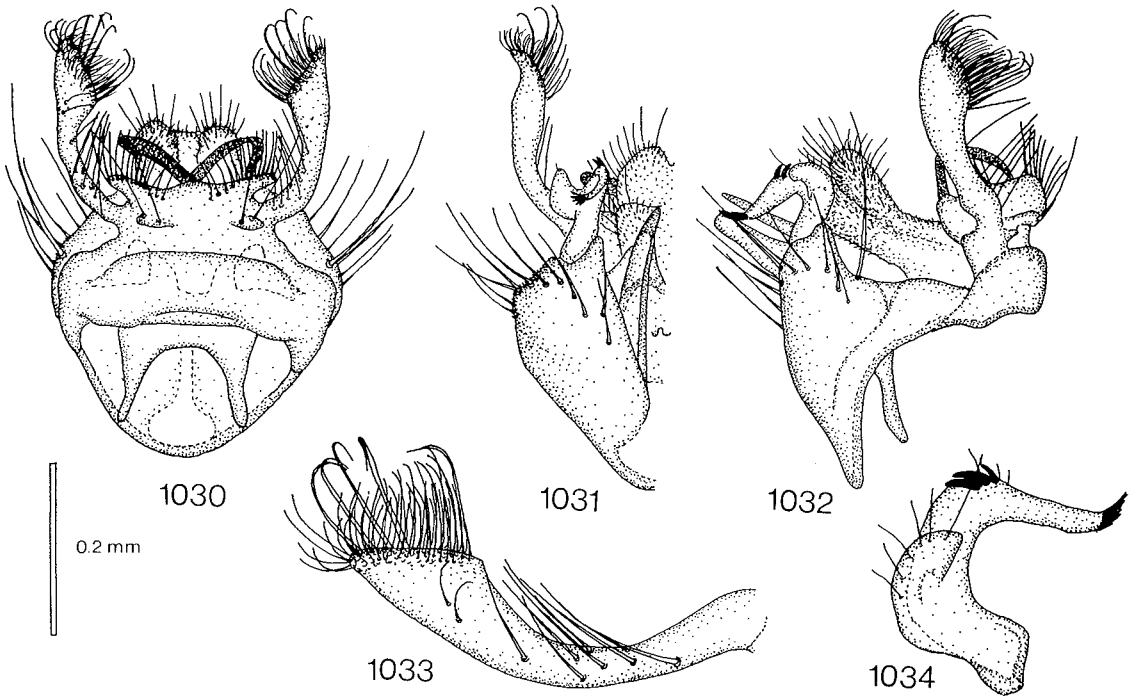
Hypopygium. Figs. 1030—1034, yellow. Tergal lateral appendage long apically broad, with comb-like brush on apical part. Tergite 9 with 2 long setae in front of both outer combs. Sternal submedial filament comparatively short, straight. Middle portion of gonostylus with 2—3 teeth, apex with several teeth very close to each other.

Female. Unknown.

Remarks: The unusual shape of the gonostylus in the male hypopygium is very characteristic.

Distribution: Eastern Palaearctic. USSR: Kuril Islands (Kunashir).

Biology: Unknown.



Figs. 1030—1034. *Mycomya neodentata.* — 1030: male hypopygium, tergal view. — 1031: hypopygium, sternal view. — 1032: hypopygium, lateral view. — 1033: tergal lateral appendage, lateral view. — 1034: gonostylus. Scale 0.2 mm for Figs. 1030—1032, Figs. 1033—1034 2 x enlarged.

Mycomya esox n. sp.
Figs. 1035—1041, key p. 39.

Type locality: Georgia, Rabun County (USA).

Type: Holotype (studied): Rabun Co. Ga. 13-VII-1957 W. R. Richards (m CNC).

Material examined: USA: Virginia, Madison Co., along Hogcamp Branch, 2800′, 38°31.2′N, 78°25.5′W. 22.VII. 1961, D. L. Deonier (1 m ISU); No. Car., Graham Co., J. Kilmer Mem. For., Poplar Cove, 35°21.3′N, 83°56′W, 2500′, 20.VI. 1958, J. Laffoon (2 mm ISU); N. C., Looking Glass Rock nr. Pisgah Forest, 2500′, 19.VII. 1957, J. G. Chillcott (1 m 2 ff CNC); Ga., Rabun Co., 13.VII. 1957, W. R. Richards (holotype, 1 m paratype CNC); O., Pike Co., Benton Twp., G. A. C. 569, 28—29.VIII. 1976, Malaise trap, G. A. Coovert (2 mm 1 f CNC).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 4 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with about 4 longer setae. Mesoscutum yellow, with indistinct yellowish to brownish more or less fused longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellowish, with 4 longer setae. Laterotergite yellow. Mediotergite yellowish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.75—0.80, bt2:t2 = 0.63—0.66, bt3:t3 = 0.56—0.61.

Wing. Wing length 3.2—3.6 mm. Wing hyaline. Sc ending in R1 proximally to, near or distally to middle of small cell, Sc1 missing. Apical part of Sc bearing 3—10 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.90—1.18, 1.27—1.64. Cu ratios: 0.92—1.27, 1.43—2.09. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Tergites light brownish, with posterior margins very slightly darker. Sternites yellow.

Hypopygium. Figs. 1035—1039, yellow. Tergal lateral appendage proximally very broad with long narrow apical part bearing some flattened curved apical setae. Tergite 9 with 2, seldom 3, setae in front of both outer combs. Outer tergal combs sparse, both with 3—7 spines. Sternal submedial filament comparatively short, straight. Apex of gonostylus with 3 teeth and 1 long seta.

Female. Wing length 3.5—3.7 mm. Mesoscutum yellow with brownish dorsomedial stripe from head to scutellum. Abdominal tergites yellowish, with posterior margins and dorsomedial line indistinctly brownish. Leg ratios: bt1:t1 = 0.76—0.82, bt2:t2 = 0.60—0.70, bt3:t3 0.57—0.58. Terminalia as in Figs. 1040—1041, yellow.

Remarks: Closely allied with *M. byersi* n. sp., from which it can be distinguished by the structure of the

male hypopygium. On the average *M. esox* is smaller (wing length in males: mean 3.33 mm, SD 0.13, N=8) than *M. byersi* (mean 3.53 mm, SD 0.19, N=28).

Distribution. Eastern Nearctic. Eastern states of USA: Virginia, North Carolina, Georgia, ? Ohio.

Biology. Unknown. Some specimens collected with Malaise trap.

Mycomya byersi n. sp.
Figs. 1042—1050, key p. 39.

Type locality: Pennsylvania, Berks Co., French Creek Park (USA).

Type: Holotype (studied): Pennsylvania, Berks Co. No. 2, French Creek Pk., 3 July 1958, Byers & party (m SNOW).

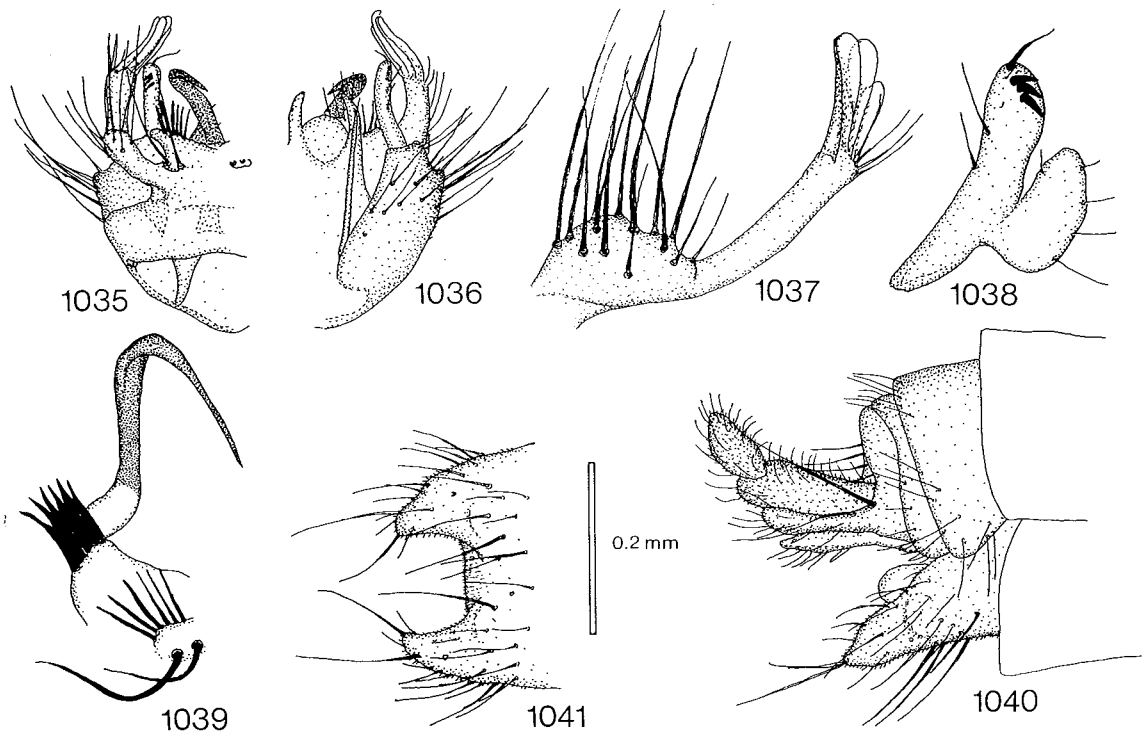
Material examined: Canada: Que., Old Chelsea, 21.VII. 1959, C. H. Mann (2 mm CNC); same locality, 9.VII. 1959, 21.VII. 1959, J. R. Vockeroth (9 mm CNC); same locality, 22.VII. 1968, D. M. Wood (1 m CNC); Que., Old Chelsea, King Mt., 1150 feet, 9.VIII. 1961, 29.VII.—3.VIII. 1965, J. R. Vockeroth (10 mm CNC); Que., Gatineau Co., Masham Twp., 10—20.VII. 1974, 21.VII. 1974, 2.VIII. 1974, 17.VIII. 1974, D. M. Wood (15 mm CNC); N. S., Shelburne, 10.VIII. 1958, J. R. Vockeroth (2 mm CNC). — USA: N. Y., Keene Valley, 20.VII. 1962, J. G. Chillcott (1 m CNC); N. Y., Cattaraugus Co., Stoddard Hollow, 1900′, 42°4′N, 78°45.5′W, 10.VIII. 1961, R. J. Gagné (2 mm ISU); same data, J. L. Laffoon (1 m ISU); New York, Hamilton Co., 43°17.2′N, 74°33.4′W, 5.VIII. 1961, J. L. Laffoon (2 mm ISU); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12′N, 74°32′W, 1600′, 5.VIII. 1961, R. J. Gagné (1 m ISU); Pennsylvania, Berks Co., French Creek Park, 3.VII. 1958, G. W. Byers (1 m SNOW); same data, Byers & party (holotype & 1 ?f SNOW); same data, 350 ft., G. W. Byers (1 m SNOW); Wisconsin, Vilas County, Squaw Lake, 16.VIII. 1954, J. L. Laffoon (1 m ISU).

Description:

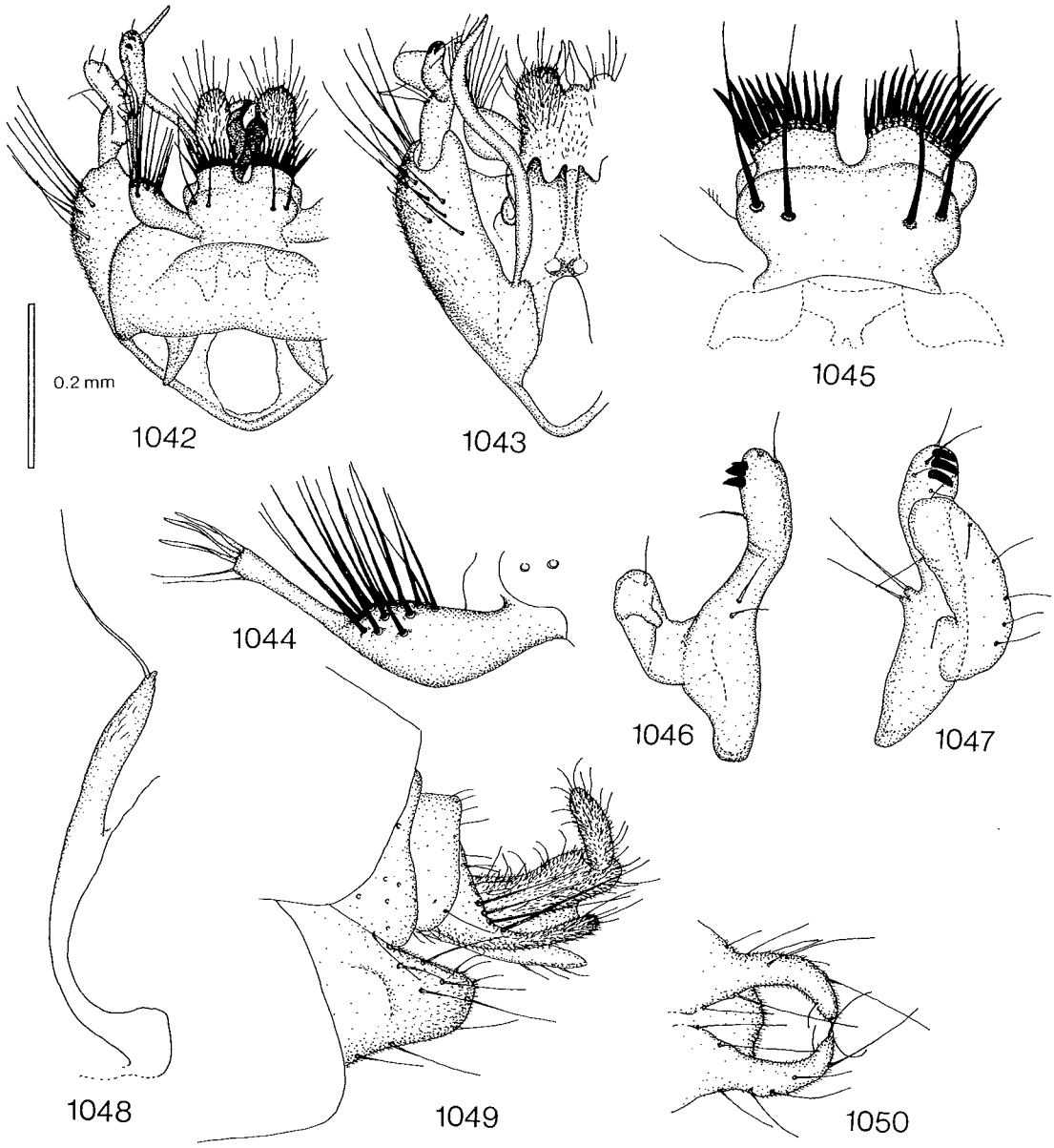
Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, basal segments yellow. 1st flagellomere about 4 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with 3 indistinct light brownish to brown more or less fused longitudinal stripes, anterolateral corners yellow. Mesanepisternum yellow. Mesokatepisternum yellow. Scutellum yellow to yellowish, with 4 long setae. Laterotergite yellow. Mediotergite yellowish, lateral and caudal parts slightly darker, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur.



Figs. 1035—1041. *Mycomya esox*. — 1035: male hypopygium, tergal view. — 1036: hypopygium, sternal view. — 1037: tergal lateral appendage, lateral view. — 1038: gonostylus. — 1039: details of tergite 9. — 1040: female terminalia, lateral view. — 1041: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 1035—1036 and 1040—1041, Figs. 1037—1039 2 x enlarged.



Figs. 1042—1050. *Mycomya byersi.* — 1042: male hypopygium, tergal view. — 1043: hypopygium, sternal view. — 1044: tergal lateral appendage, lateral view. — 1045: outer combs of tergite 9. — 1046—1047: gonostyli. — 1048: lateral structure of aedeagus. — 1049: (?) female terminalia, lateral view. — 1050: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 1042—1043 and 1049—1050, Figs. 1044—1048 2 x enlarged.

Leg ratios: bt1:t1 = 0.72—0.85, bt2:t2 = 0.67—0.70, bt3:t3 = 0.58—0.68.

Wing. Wing length 3.0—4.0 mm. Wing hyaline. Sc ending in R1 proximally to, near or distally to middle of small cell, Sc1 missing. Apical part of Sc bearing 0—10 macrotrichia. Small cell slightly longer than its width. Cu fork distinctly distal to M fork. M ratios: 0.85—1.05, 1.16—1.50. Cu ratios: 0.89—1.15, 1.57—2.08. Macrotrichia: M petiole: 0; M1: 2—7; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Tergites 1—5 yellow to yellowish, with posterior margins narrowly brown, tergites 6—7 brown. Sternites yellow, 6—7 brownish. Sometimes tergites with brown dorsomedial line. Sometimes abdomen yellowish to light brownish, without markings.

Hypopygium. Figs. 1042—1048, yellow. Tergal lateral

appendage proximally broad with very narrow apical part bearing some flattened curved setae. Tergite 9 with 3, more seldom 2, setae in front of both outer combs. Outer tergal combs comparatively dense, both with more than 10 spines. Sternal submedial filament long curved. Apex of gonostylus with 3 teeth and 1 long seta.

(?) Female. Terminalia as in Figs. 1049—1050, yellow.

Distribution: Eastern Nearctic. Canada: Quebec, Nova Scotia. USA: New York, Pennsylvania, Wisconsin.

Biology: Unknown.

Mycomya sublittoralis Shaw, 1941
Figs. 1051—1056, key p. 39.

Mycomyia sublittoralis Shaw, 1941. Shaw 1941:172; Coher 1959:111.

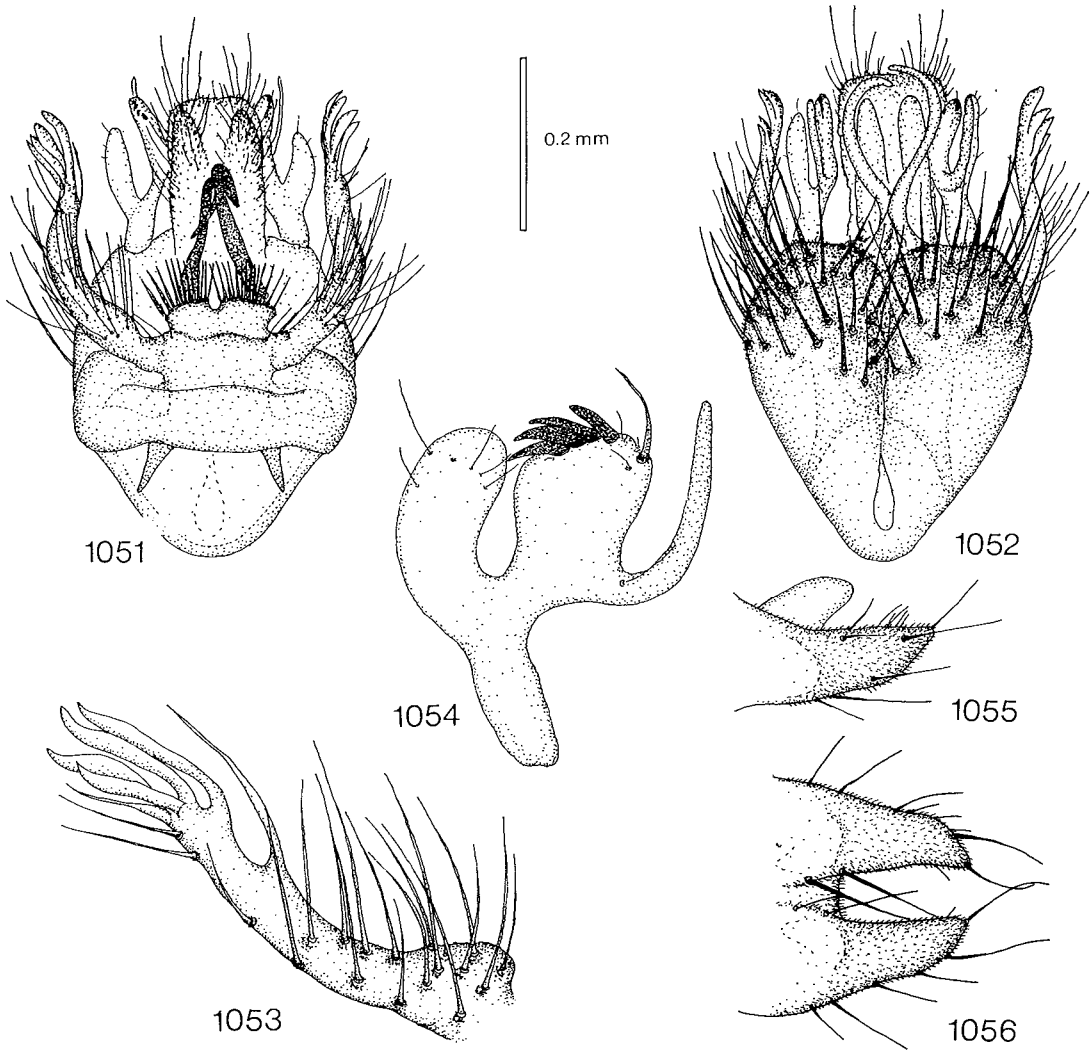
Mycomya sublittoralis: Laffoon in Stone et al. 1965:221; Cole 1969:121.

Remarks: Some references to *M. littoralis* very probably concern this species (see *M. neolittoralis).*

Type locality: North Carolina, Linville Falls (USA).

Type: Holotype (studied): *Mycomyia sublittoralis* Shaw. Type. Linville Falls, N. Car., VI-21-1939 3.200′, C. P. Alexander (m MASS).

Material examined: Canada: B. C., Vancouver, Point Grey, 20.VII. 1973, 15.VIII. 1972, J. R. Vockeroth (2



Figs. 1051—1056. *Mycomya sublittoralis.* — 1051: male hypopygium, tergal view. — 1052: hypopygium, sternal view. — 1053: tergal lateral appendage, lateral view. — 1054: gonostylus. — 1055: hypogynal valve of female terminalia, lateral view. — 1056: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 1051—1052 and 1055—1056, Figs. 1053—1054 2 x enlarged.

mm 1 ?f CNC); B. C., Mt. Thornhill, nr. Terrace, Elev. 700′, 8.VIII. 1960, B. Heming (3 mm 2 ff CNC); same data, 1500′(2 mm CNC); same locality, elev. 700′, along trail, 30.VII. 1960, B. Heming (3 mm CNC); same locality 14.VII. 1960, 29.VII. 1960, 30.VII. 1960, W. R. Richards (6 mm 2 ff CNC); B. C., Terrace, Airport, 3.VIII. 1960, 4.VIII. 1960, B. Heming (2 mm CNC); same locality, 6.VIII. 1960, 11.VIII. 1960, C. H. Mann (1 m 1 f CNC); Ont., Sudbury, 22.VII. 1915, H. S. Parish (1 m USNM); Ont., Stittsville, 19.VIII. 1968, J. R. Vockeroth (1 m CNC); Que., Knowlton, 25.VII. 1929, L. J. Milne (1 m CNC): Que., Knowlton Ldg., 19.VII. 1968, J. R. Vockeroth (1 m CNC); Que., Old Chelsea, 21.VII. 1959, 9.VII. 1961, 18.VII. 1961, 21.VII. 1961, 9.VIII. 1961, 20.IX. 1961, J. R. Vockeroth (13 mm CNC); same locality, 21.VII. 1959, C. H. Mann (1 m CNC); Que., Gatineau Hills, King Mt. footpath, in Park, 30.VII. 1959, L. K. Smith (3 mm CNC); Que., Gatineau Co., Masham Twp., 21.VII. 1974, D. M. Wood (3 mm CNC); Que., Meach Lake, 21.VII. 1959, C. H. Mann (1 m CNC); Labr., Goose Bay, 25.VIII. 1948, W. E. Beckel (1 m CNC); N. S., Cranberry I., Lockeport, 26.VII. 1958, 9.VIII. 1958, J. R. Vockeroth (6 mm CNC). — USA: Wash., Mt. Baker, Nooksack Riv., 11.VIII. 1925, A. L. Melander (1 m USNM); Wash., Bellingham, 29.VII. (1 m PU); Mont., Glacier Park, Lake McDonald, 14.VIII. 1916, A. L. Melander (1 m USNM); Minn., Lake Co., Baswood Lake, Washington Island, 14.VIII. 1950, 16.VIII. 1950, 18.VIII. 1950, R. Namba (9 mm 3 ff MINN); same locality, 17.VII. 1952, E. McConnell (1 m MINN); same locality, 23.VIII. 1953 (1 m MINN); Minn., Lake Co., Basswood Lake, Q-S WRC, Sec. 9, Twp. 64N Rge. 10W, 15.VIII. 1950, 17.VIII. 1950, R. Namba (8 mm 4 ff MINN); same locality, 20—21.VIII. 1953 (1 f MINN); same locality, Sec. 4, 15.VII. 1952 (1 m MINN); Minn., Winona Co., 4 1/2 mi. S. of LaMoille, 12.VII. 1955 (1 f MINN); Minn., Itasca St. Pk., Prof. Green Trail, 25.VII. 1963, D. L. Deonier (1 m ISU); Wisconsin, Vilas County, Squaw Lake, 16.VIII. 1954, J. L. Laffoon (1 m ISU); Ohio, Hocking Co., 4.VII. 1949, R. R. Dreisbach (1 m MICH); N. Y., Colden, 9.VII. 1922, M. C. Van Duzee (1 m CAS); N. Y., Lake Placid, 2000′, 19.VII. 1962, J. R. Vockeroth (1 m CNC); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12′N, 74°32′W, 1600′, 5.VIII. 1961, R. J. Gagné (8 mm ISU); same data, J. L. Laffoon (2 mm ISU); New York, Hamilton Co., along Shanty Brook, 1700′, 43°17.2′N, 74°33.4′W, 5.VIII. 1961, J. L. Laffoon (3 mm ISU), same data, D. L. Deonier (1 m ISU); N. Y., Cattaraugus Co., Stoddard Hollow, 42°4′N, 78°45.5′W, 1720′—1880′, 10.VIII. 1961, J. L. Laffoon (2 mm ISU); N. Y., Hamilton Co., e. foot of West Notch Mt., 43°20.6′N, 74°37.2′W, 1900′, 6.VIII. 1961, R. J. Gagné (1 m ISU); same data, J. L. Laffoon (1 m ISU); New York, Hamilton Co., vic. Jockeybush Outlet, 43°18′N, 74°34′W, 5.VIII. 1961, J. L. Laffoon (1 m ISU); (N. H.) White Mts., Morrison (1 m USNM); Vt., Lyndon, 22.VIII. 1900, A. L. Melander (2 mm USNM); CT., Redding, 27.VII. 1933, A. L. Melander (1 m USNM); W. Va., Duroin, Cheat Range, mixed forest, sl. 321, 1.VIII. 1943 (1 m USNM); VA., Madison Co., Whiteoak Canyon, south slope of Stony Man, 38°34′N, 78°22′W, 3500′, 22.VII. 1961, O. S. Flint (4 mm ISU); same data, R. J. Gagné (6 mm ISU); same data, J. L. Laffoon (6 mm ISU); Virginia, Madison Co., along Hogcamp Branch, 38°31.2′N, 78°25.5′W, 2800′, R. J. Gagné (2 mm ISU); same data, J. L. Laffoon (4 mm ISU); same data, O. S. Flint (1 m ISU); same data, D. L. Deonier (4 mm ISU); VA., Shenandoah, Lewis Falls, 4.VII. 1939, A. L. Melander (2 mm USNM); VA., Shenandoah, Big Meadows, 3.VI. 1939, 1.VII. 1939, A. L. Melander (1 m 1 ex. USNM); Va., Augusta Co., Briery Branch, 2.VII. 1955, W. W. Wirth (1 m USNM); No. Car., Macon Co., Robin Branch near Wayah Bald, 35°10.1′N, 83°35′W, 4400′, 13.VII. 1958, J. Laffoon (1 m ISU); N. C., Macon Co., Highlands, 35°3.2′N, 83°11.3′W, 3850′, 15.VI. 1958, 16.VI. 1958, 21.VI. 1958, 23.VI. 1958, 24.VI. 1958, 27.VI. 1958, 28.VI. 1958, 29.VI. 1958, J. L. Laffoon (26 mm ISU); N. C., Highlands, 14.VII. 1957, C. J. Durden (1 m CNC); N. Car., Linville Falls, 21.VI. 1939, 3200′, C. P. Alexander (holotype MASS); Lake May, 2.VIII. 1930 (1 m hypop. slide MASS); Tenn., GSMN Park, Green Briar Cove, Mount. trail, 12.VI. 1946 (2 mm MICH); Ga., Rabun Co., 13.VII. 1957, W. R. Richards (2 mm CNC).

Description:

Head. Palp and other mouthparts yellow, face yellow to yellowish, posterior parts of head brownish to brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 3.5—4 times, 2nd 2—2.5 times as long as wide.

Thorax. Pronotum yellow, with 3—4 longer setae. Mesoscutum yellow, with indistinct yellowish to light brownish more or less fused longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow to yellowish, sometimes ventral half light brownish. Scutellum yellow, with 4 long setae. Laterotergite yellow to yellowish, sometimes ventral part light brownish. Mediotergite yellow, lateral and caudal parts yellowish to light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.72—0.82, bt2:t2 = 0.65—0.71, bt3:t3 = 0.53—0.59.

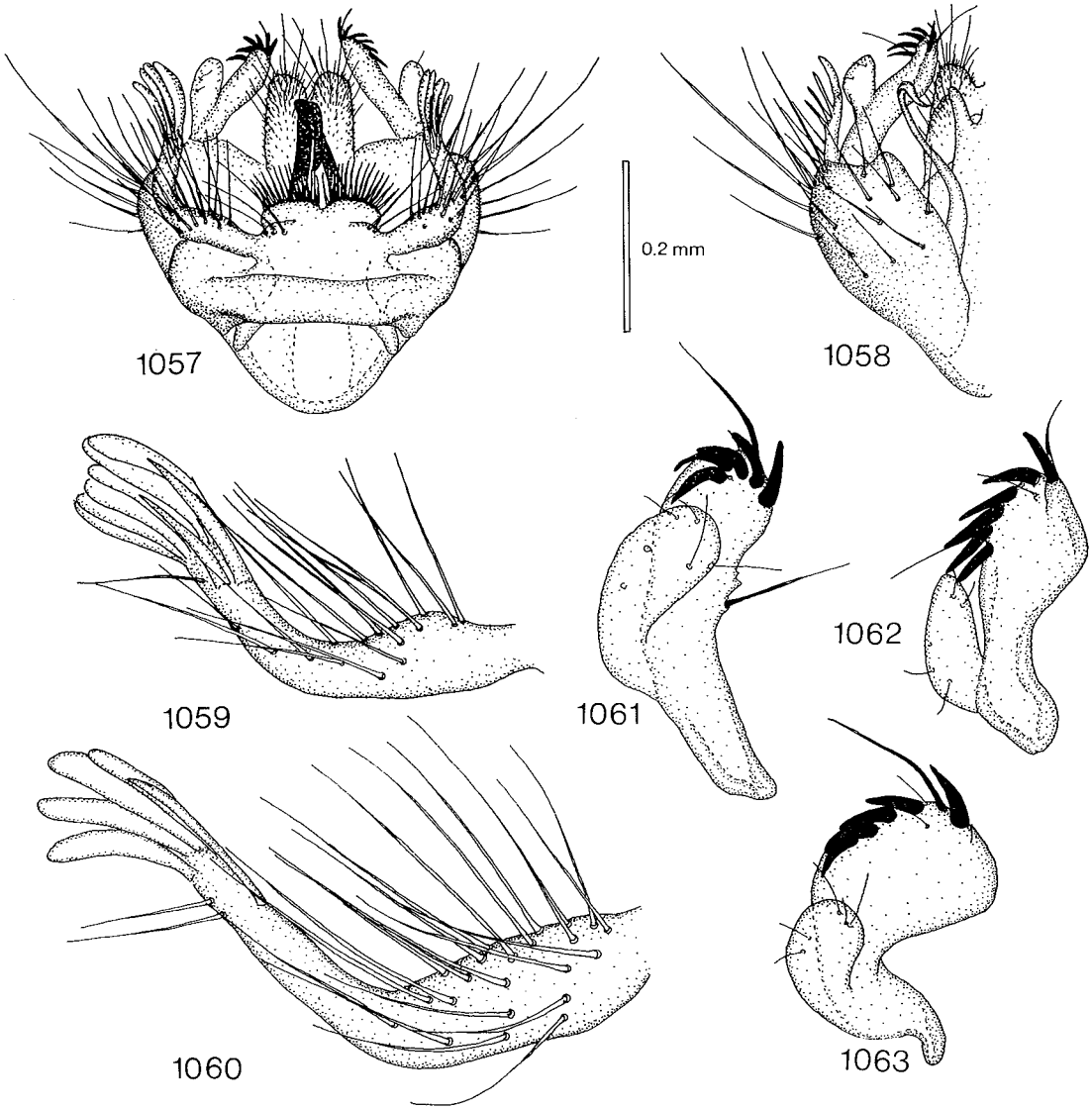
Wing. Wing length 3.3—4.6 mm. Wing hyaline. Sc ending in R1 proximally to middle of small cell, Sc1 missing. Apical part of Sc bearing 0—4 macrotrichia. Small cell 1—1.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.86—1.17, 1.05—1.47. Cu ratios: 1.00—1.17, 1.65—1.88. Macrotrichia: M petiole: 0; M1: +; M2: 0—2; Cu petiole: 0; Cu1: 0; Cu2: 0—5. Halter pale yellowish.

Abdomen. Entirely light brownish to yellowish without distinct markings, or tergites 1—5 yellowish, with dorsomedial line and posterior markings brown, tergites 6—7 brown. Sternites 1—5 yellowish, 6—7 brown.

Hypopygium. Figs. 1051—1054, yellow. Tergal lateral appendage long, narrow, with some broad, flattened, curved apical setae. Sternal submedial filament long, curved. Apex of gonostylus with 4 teeth and 1 long seta, middle portion with conspicuous long curved brownish spur.

Female. Wing length 4.4—5.0 mm. Thorax yellow to yellowish, with light brownish dorsomedial stripe across mesoscutum from head to scutellum. Abdomen yellowish, posterior margins of tergites sometimes indistinctly darker. Leg ratios: bt1:t1 = 0.75—0.83, bt2:t2 = 0.63—0.65, bt3:t3 = 0.53—0.58. Terminalia as in Figs. 1055—1056, yellow.

Remarks: *M. sublittoralis* is very similar to *M. neolittoralis*, the only reliable difference being the presence of the spur in the male hypopygium of *M. sublittoralis*. The apex of the tergal lateral appendage seems to be



Figs. 1057—1063. *Mycomya neolittoralis*. — 1057: male hypopygium, tergal view. — 1058: hypopygium, sternal view. — 1059—1060: tergal lateral appendages, lateral view (1059: Siberia; 1060: Minnesota). — 1061—1063: gonostyli (1061: Minnesota; 1062: Siberia; 1063: Finland). Scale 0.2 mm for Figs. 1057—1058, Figs. 1059—1063 2 x enlarged.

wider, too. *M. sublittoralis* is on the average slightly larger (wing length in males: mean 4.02 mm, SD 0.28, N=69) than *M. neolittoralis* (mean 3.84 mm, SD 0.20, N=61).

Distribution: Nearctic. Canada: British Columbia, Ontario, Quebec, Labrador, Nova Scotia. USA: Washington, Montana, Minnesota, Wisconsin, Ohio, New York, Vermont, New Hampshire, Connecticut, West Virginia, Virginia, North Carolina, Tennessee, Georgia. In addition, Coher (1959) reports this species from Massachusetts and Alberta.

Biology. Unknown. One specimen collected in mixed forest.

Mycomya neolittoralis n. sp.
Figs. 1057—1063, key p. 40.

(?) *Mycomya littoralis:* Fisher 1937; Shaw & Fisher 1952:189.
(?) *Mycomyia littoralis:* Coher 1959:109.

Type locality: Vehkalahti (Finland).

Type: Holotype (studied): 9. 8. —71 (m MZH).

Material examined: Finland: *Ka:* Vehkalahti, 9.VIII. 1971, L. Tiensuu (holotype, 1 m paratype MZH). — USSR: Irk. g., Nizhneudinsk, 23.VII. 1912, Parchevskaya (1 m in poor condition LEN). — Canada: Ont., Innisville, 12.VII. 1963, 16.VII. 1963, Malaise trap (2 mm CNC); same locality, 26.VII. 1963, W. R. M. Mason (1 m CNC); Ont., S. March, 10.VIII. 1968, J. R. Vockeroth (1 m 1 ?f CNC); Que., Beechgrove, 45°39'N, 76°8'W, 2.X. 1964, J. R. Vockeroth (1 m CNC); Que., Ile Jesus, 4 mis. no. Montreal, 19.VIII. 1956, J. L. Laffoon (1 m ISU). — USA: Maine, Mt. Desert I., VIII—IX. 1926, C. P. Alexander (1 m BMNH); Pennsylvania, Berks County, French Creek Park, 3.VII. 1958, G. W. Byers (3 mm 1 ?ex. SNOW); same data, 350 ft. (2 mm SNOW); New York, Hamilton Co., vic. Jockeybush Outlet, 43°18'N, 74°34'W, 1700', 5.VIII. 1961, J. L. Laffoon (1 m ISU); N. Y., Hamilton Co., e. foot of West Notch Mt., 1900', 43°20.6'N, 74°37.2'W, 6.VIII. 1961, R. J. Gagné (3 mm ISU); same data, J. L. Laffoon (1 m ISU); N. York, 7 mis. so. town of Long Lake, 26.VIII. 1956, J. L. Laffoon (1 m ISU); N. Y., Cattaraugus Co., Stoddard Hollow, 1720'—1880', 42°4'N, 78°45.5'W, 10.VIII. 1961, J. L. Laffoon (2 mm ISU); New York, Hamilton Co., along Shanty Brook, 1700', 43°17.2'N, 74°33.4'W, 5.VIII. 1961, J. L. Laffoon (2 mm ISU); same data, R. J. Gagné (1 m ISU); same data, D. L. Deonier (5 mm ISU); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12'N, 74°32'W, 1600', 5.VIII. 1961, J. L. Laffoon (6 mm ISU); same data, R. J. Gagné (3 mm ISU); same data, D. L. Deonier (1 m ISU); VA., Madison Co., Whiteoak Canyon, south slope of Stony Man, 38°35'N, 78°22'W, 3500', 22.VII. 1961, J. L. Laffoon (2 mm ISU); same data, R. J. Gagné (3 mm ISU); same data, O. S. Flint (1 m ISU); Virginia, Madison Co., along Hogcamp Branch, 2800', 38°31.2'N, 78°22.5'W, 22.VII. 1961, R. J. Gagné (1 m ISU); same data, J. L. Laffoon (2 mm ISU); same data, D. L. Deonier (1 m ISU); N. C., Macon Co., Highlands, 3850', 35°3.2'N, 83°11.3'W, 21.VI. 1958, 24.VI. 1958, 27.VI. 1958, 28.VI. 1958, 12.VII. 1958, J. L. Laffoon (8 mm ISU); Bald Knob, Mite Hell Range, 22.VI. 1939, C. P. A. (1 m slide MASS); No. Car., Macon Co., Robin Branch (near Wayah Bald), 4400', 35°10.1'N, 83°35.1'W, 3.VII. 1958, 13.VII. 1958, J. Laffoon (4 mm ISU); N. C., Haywood Co., Pisgah Nat. Forest, Chestnut Bald, 5900', 2.VIII. 1957, J. G. Chillcott (6 mm 6 ?ff CNC); N. C., Bubbling Spring Creek, nr. Tennessee Bald, 5100', 17.VII. 1957, J. G. Chillcott (1 m CNC); N. C., Clingman's Dome, Grt. Sm. Mt. Nat. Park, 6.VIII. 1957, C. J. Durden (13 mm 2 ?ff CNC); same locality, 5.VIII. 1957, W. R. Richards (3 mm CNC); N. C., Gr. Smoky Mt. Nat. Pk., 2.VII. 1957, J. R. Vockeroth (1 ?f CNC); N. C., Gt. Sm. Mt. Nt. Pk., 6.VII. 1957, C. J. Durden (1 m CNC); N. C., Gr. Sm. Mt. Nat. Park, Clingman's Dome, 6600', 22.VIII. 1957, J. G. Chillcott (2 mm CNC); N. C., Tenn., Great Smoky Mt. N. P., Indian Gap, 5200', 8.VII. 1957, W. R. M. Mason (1 m CNC); Tenn., Indian Gap to Clingmans Dome, Gr. Sm. Mt. Nat. Park, 5200—6600', 6.VIII. 1957, J. G. Chillcott (4 mm CNC); Tenn., G. S. M. N. P., Indian Gap, 5200', 3.VII. 1957, C. D. Hines (2 mm 1 ?f CNC); same locality, 2.VII. 1957, J. R. Vockeroth (2 ?ff CNC); Tenn., G. Smoky Mts., elev. 6000', 23.VIII. 1950, G. S. Walley (3 mm CNC); Tenn., Indian Gap, 24.VII. 1957, W. R. Richards (1 m CNC); Tenn., Gr. Sm. Mt. Nat. Park, Collins Gap, 5700', 22.VIII. 1957, J. G. Chillcott (1 m 2 ?ff CNC); Mich., Isle Royale, 3—7.VIII. 1936, C. Sabrosky (1 m MICH); Mich., Midland Co., 30.VI. 1952, R. R. Dreisbach (1 m MICH); Wis., Washburn Co., T39N R12W B32, 30.VII. 1951, 3 VIII. 1951, 6.VII. 1952, 14.VII. 1952, 21.VIII. 1952, 5.IX. 1952, light trap, R. H. Jones (3 mm 3 ?ff WISC); same locality, 6.IX. 1952, 19.VII. 1953, 20.VII. 1953, R. H. Jones (2 mm 1 ?f WISC); Wis., Bruce, 15.VIII. 1951, light trap, R. H. Jones (1 ?f WISC); Wisc., Dane Co., Univ. W. Arboretum, 19.IX. 1953 (1 ?f WISC); Wisconsin, Vilas County, Squaw Lake, 16.VIII. 1954, J. L. Laffoon (1 m ISU); same locality, 18.VIII. 1954, collected in a tamarack bog, J. L. Laffoon (1 m ISU); Minn., Itasca Co., 25.VIII. 1940, D. M. Benjamin (1 m MINN); Minn., Itasca St. Pk., Chamber's Creek, 18.VII. 1963, D. L. Deonier (1 m ISU); Minn., Itasca St. Pk., Prof. Green Trail, 25.VII. 1963, D. L. Deonier (1 m ISU); Iowa, Henry Co., 3 mi. nw. Salem, Sec. 9. T70N, R7W, 16.VI. 1962, J. C. Schaffner (1 m ISU); Wash., Stev. Co., 1 mi. N. W. Chewelah, Rt. 395, 6.VII. 1972, W. B. Garnett (9 mm 3 ?ff WASH).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 4 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow, with 3 longer setae. Mesoscutum with 3 indistinct fused longitudinal brownish stripes, seldom only 1 medial stripe, anterolateral corners of mesoscutum yellow. Mesanepisternum yellowish. Mesokatepisternum yellowish to light brownish. Scutellum yellow to light brownish, with 4 long setae. Laterotergite yellowish. Mediotergite light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.74—0.85, bt2:t2 = 0.61—0.76, bt3:t3 = 0.56—0.64.

Wing. Wing length 3.2—4.4 mm. Wing hyaline. Sc ending in R1 proximally to or near middle of small cell, Sc1 very short or usually missing. Apical part of Sc bearing 0—4 macrotrichia. Small cell about 1.5 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 0.88—1.14, 1.16—1.57. Cu ratios: 1.04—1.26, 1.73—2.23. Macrotrichia: M petiole: 0; M1: +; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Yellowish to brownish, without distinct markings. Sternites yellowish.

Hypopygium. Figs. 1057—1063, yellow to yellowish. Tergal lateral appendage long with slender apical part, with some broad, flattened and curved apical setae. Sternal submedial filament long and curved. Apex of gonostylus with about 5 comparatively long apical teeth and 1 strong seta. Gonostylus without spur.

(?) Female. Wing length 3.8—4.5 mm. Very similar to *M. sublittoralis* female. Head as in male. Thorax yellow to yellowish, with light brownish dorsomedial stripe on mesoscutum. Abdomen yellowish, posterior margins of tergites indistinctly darker. Leg ratios: bt1:t1 = 0.74—0.80, bt2:t2 = 0.59—0.66, bt3:t3 = 0.51—0.57. Terminalia yellow.

Distribution: Holarctic. Finland. USSR: Irkutsk region. Canada: Ontario, Quebec. USA: Washington,

Iowa, Minnesota, Wisconsin, Michigan, Maine, New York, Pennsylvania, Virginia, North Carolina, Tennessee.

Biology: Some specimens have been caught with light and Malaise traps.

7.10. Subgenus Lycomya n. subg.

Type species: *Mycomya praeda* n. sp.

Mediotergite bare. Coxa 1 without specialized setae or spines. Coxa 2 without spur. Coloration diffuse yellowish to brownish. Abdominal tergite 8 setose. Tergite 9 basally bare with long medial comb, setose lateral appendages, strong curved hooks in inner portion. Sternal synsclerite divided into two lateral parts and long submedial filaments. Gonostylus with subapical teeth and membraneous lateral lobe. Cercus of female terminalia without distinct segmentation.

Distribution: Holarctic.

One species group is recognized in this subgenus.

Species group M. pectinifera

Head. Anteclypeus comparatively short, with some comparatively long setulae. Antenna about twice as long as head and thorax together, very thin, in females slightly shorter than in males. Pedicel with 1 long dorsal seta. Ocellar setae 2—3 times as long as ocellus. Eye distinctly emarginate above antennal base.

Thorax. Scutellum usually with 4, sometimes only 2, long setae. Mediotergite bare. Setae of thorax dark. Suture between mesanepisternum and mesokatepisternum distinctly declining anteriorly.

Legs. Coxae without special setae or other structures. Coxa 2 at least 4 times as long as wide. Basitarsus 1 distinctly shorter than tibia 1. Tibial setae weak, longest about as long as tibial diameter.

Wing. C ending in apex of R5, sometimes very slightly beyond it, usually reaching wing apex. Sc ending in R1, C or free, Sc1 usually broken. Cu fork usually distal to M fork, sometimes slightly proximal to or below it. M petiole long. Cu petiole usually long, sometimes of medium length. Macrotrichiation of veins M and Cu reduced, these veins usually bare.

Abdomen. Colour pattern diffuse.

Tergite 8 comparatively narrow, arcuate, medially slightly narrower, with many setae along whole posterior margin. Sternite 8 wide, triangular, apically tapered, without setae.

Female terminalia. Cercus without distinct segmentation. Hypogynal valve rounded apically, short, without distinct setae.

Two Palaearctic and one Nearctic species are recognized in this species group.

Mycomya pectinifera Edwards, 1924

Figs. 1064—1070, key p. 40.

Mycomyia pectinifera Edwards, 1924 ("new name" for *nigricornis:* Dziedzicki). Edwards 1924b:162; Landrock 1926—1927:50; Lackschewitz 1937:12; Karl 1939:53; Landrock 1940:33; Séguy 1940:77; Kröber 1956:132; Mikolajczyk 1971:371; Plassmann 1977b:9, 1978c:48.

Mycomya pectinifera: Hutson & Kidd 1975:236; Hutson in Kloet & Hincks 1976:24; Hutson 1979:132; Väisänen in Hackman 1980:31; Hutson et al. 1980:44; Väisänen 1982b:40.

Sciophila nigricornis: Dziedzicki 1885: Tab. VII: Figs. 7—9 (not Zetterstedt, 1852).

(?) *Sciophila nigricornis:* Becker et al. 1915:1.

Mycomyia nava Plassmann, 1977 (New synon.). Plassmann 1977a:30, 1977b:9, 1980b:19.

Type locality: Not stated (? Eastern Europe).

Types: — *Mycomya pectinifera* Edwards: Dziedzicki's material of this species has apparently been destroyed. — *Mycomya nava* Plassmann: Holotype (studied): Senckenberg-Mus. 8281 Frankfurt/M., *Mycomyia noctivaga* Plassmann, Holotypus, D-Birgsau/Allgäu, 5.—8.9. 1974, Sig. W. Tobias (m SENCK). Type locality: "Birgsau, südlich von Obersdorf, im Stillachtal" (Federal Republic of Germany).

Remarks: Hutson (1979:133) suspected that *M. nava* might be a synonym of *M. pectinifera*. Plassmann's description and figures support this view, and the type study confirmed the synonymy.

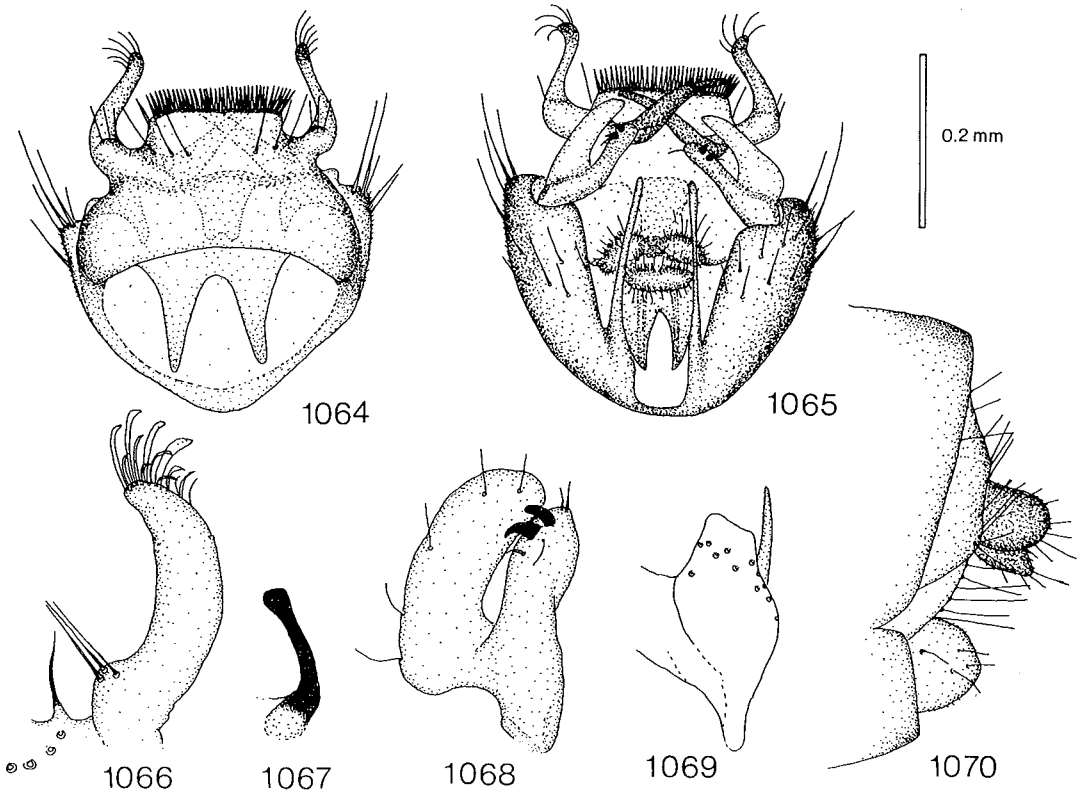
Material examined: Yugoslavia: Slovenia, Bled, Vintgar Gorge, 550 m, 3.VIII. 1973, A. E. Stubbs (9 mm BMNH). — FRG: Tegernsee, Wallberg, 13.VIII. 1912, C. F. Adams (1 m 1 f PU); D-Birgsau/Allgäu, 5—8.IX. 1974, W. Tobias (*Mycomyia nava* holotype SENCK). — Hungary: Tátralomnic, patak mellett, 900 m, 4.VIII. 1963, Mihályi (1 m 1 f TMB). — Norway: TEy., Porsgrunn, Skjelsvik, Østvedtmyra, 10.VIII. 1982, G. E. Ellefsen (1 m coll. Andersen). — Finland: *Ab:* Vihti, Vihtijärvi, 27.VIII. 1963, R. Tuomikoski (1 m MZH); Vihti, Päivölä, 4.VIII. 1945, R. Frey (1 m MZH); *N:* Siuntio, 6668:349, 30.VIII. 1981, M. Koponen (1 m AFZ); *Ob:* Rovaniemen mlk., Pisavaara, 26.VIII. 1964, R. Tuomikoski (32 mm 54 ff MZH); *Ks:* Kuusamo, Juuma, Jäkälävuoma, 21.VIII. 1964, R. Tuomikoski & K. Mikkola (18 mm 25 ff MZH). — USSR: Kur., Kalwen, 16.VIII. 1931, L. (1 m MNB); Leningrad. o., Luzhsk., Tolmachevo, 11.VIII. 1936, 19.VIII. 1936, 3.VIII. 1937, 4.VIII. 1937, Stackelberg (4 mm LEN); Leningr. o., Luzhsk., Yashera, 21.VIII. 1966, Stackelberg (2 mm LEN); Leningrad. g., Yukki, 27.VIII. 1935, Stackelberg (1 m LEN); Leningr. obl., Luzh. r-n., d. Volok, 13.VIII. 1938, Chernovekyj (1 m LEN).

Description:

Head. Palp, other mouthparts and face yellowish, posterior parts of head brownish. Antenna yellowish, basal segments slightly lighter. 1st flagellomere about 6 times, 2nd 3—4 times as long as wide.

Thorax. Pronotum yellow, with 2—3 longer setae. Mesoscutum yellow, with 3 brown, partially fused longitudinal stripes, anterolateral corners yellow. Mesanepisternum light brownish. Mesokatepisternum yellow, ventral part brown. Scutellum brownish with yellow margins, with 4, seldom 2—3, long setae. Laterotergite brownish, ventral part brown. Mediotergite light brownish to brownish, lateral and caudal parts darker, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.73—0.92, bt2:t2 = 0.69—0.71, bt3:t3 = 0.60—0.63.



Figs. 1064—1070. *Mycomya pectinifera.* — 1064: male hypopygium, tergal view. — 1065: hypopygium, sternal view. — 1066: tergal lateral appendage. — 1067: dark spur of tergite 9. — 1068: gonostylus. — 1069: sternal synsclerite, lateral view. — 1070: female terminalia, lateral view. Scale 0.2 mm for Figs. 1064—1065 and 1069—1070, Figs. 1066—1068 2 x enlarged.

Wing. Wing length 3.8—4.4 mm. Wing hyaline. Sc ending in R1 slightly proximally to — slightly distally to middle of small cell, Sc1 apically broken or entirely missing. Apical part of Sc bearing 0—9 macrotrichia, usually 0—2. Small cell 1—1.5 times as long as wide. Cu fork distal to, below or slightly proximal to M fork. M ratios: 0.83—0.91, 1.09—1.43. Cu ratios: 0.78—1.17, 1.00—1.71. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Seldom single macrotrichia on apical parts of M or Cu branches. Halter pale yellowish.

Abdomen. Entirely light brownish. Sternites yellow to yellowish.

Hypopygium. Figs. 1064—1069, yellow. Tergal lateral appendage comparatively narrow, curved. Tergal submedial appendage very short, much shorter than apical spine. Sternal submedial filament comparatively short, straight. Gonostylus with 2 teeth.

Female. Wing length 4.0—5.2 mm. Thorax yellowish with 3 indistinct light brownish mesoscutal stripes and ventral parts of mesokatepisternum and laterotergite brownish. Abdomen light brownish. 1st flagellomere about 4 times, 2nd about 3 times as long as wide. Leg ratios: bt1:t1 = 0.77—0.89, bt2:t2 = 0.69—0.71, bt3:t3 = 0.62—0.67. Terminalia as in Fig. 1070, yellow.

Distribution: Western Palaearctic. Yugoslavia, Hungary, Federal Republic of Germany, Norway, Finland. USSR: Latvian SSR, Leningrad region. One male specimen is reported from the United Kingdom: Cornwall, 24.IX. 1972, by Hutson & Kidd (1975, and Hutson 1979).

Biology: Finnish specimens have been collected in boreal forests. Caught with light trap (Plassmann 1977a).

Mycomya amurensis n. sp.

Figs. 1071—1074, key p. 40.

Type locality: Klimoutsy Amur. obl., 40 km W Svobodnogo (Soviet Far East).

Type: Holotype (studied): Klimoutsy Amur. obl., 40 km W of Svobodnogo, Zinov'ev 25.VIII. 958 dubovolistvennichn. les IIIa1 (in Russian) (m LEN).

Material examined: USSR: Altai Kr., Teletskoj oz., Artybash, 20.VIII. 1982, K. Mikkola (1 m 4 ff MZH); Holotype (LEN).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish. Antenna light brownish,

scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere about 4 times, 2nd 2.5 times as long as wide.

Thorax. Pronotum yellow with about 3 longer setae. Mesoscutum yellow, with 3 indistinct brownish to brown, longitudinal stripes. Mesanepisternum yellow to yellowish. Mesokatepisternum entirely yellowish or yellow with brownish ventral part. Scutellum yellowish to brownish, with 4 long setae. Laterotergite entirely brownish or dorsal part yellow. Mediotergite entirely brownish or upper part yellow, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.78—0.79, bt2:t2 = 0.60—0.66, bt3:t3 = 0.58—0.61.

Wing. Wing length 3.5—4.0 mm. Wing hyaline. Sc ending in R1 proximally to middle of small cell, Sc1 missing. Sc with 0—5 macrotrichia. Small cell 1—2 times as long as wide. Cu fork distal to M fork. M ratios: 0.89—0.94, 1.14—1.15. Cu ratios: 1.02—1.18, 1.76—2.22. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Tergites 1—5 brownish, with or without indistinct yellowish posterior margins. Sternites slightly lighter than tergites.

Hypopygium. Figs. 1071—1074, yellow, resembling that of *M. praeda* n. sp.

Female. Wing length 4.5—4.8 mm. Colour pattern of thorax more distinct than in male. Mesanepisternum yellow. Mesokatepisternum yellow, ventral half brown. Mesoscutum yellow, with 3 brown stripes. Scutellum yellowish. Laterotergite light brownish, ventral part brown. Mediotergite light brownish with brown posterior part. Leg ratios: bt1:t1 = 0.68—0.75, bt2:t2 = 0.71, bt3:t3 = 0.61—0.66. M ratios: 0.88—1.00, 1.15—1.30. Cu ratios: 0.91—1.00, 1.45—1.50. Terminalia brownish, their structure very similar to that of *M. praeda* and *M. pectinifera*.

Distribution: Eastern Palaearctic. USSR: Altai Mts. and Far East.

Biology: Unknown.

Mycomya praeda n. sp.

Figs. 1075—1082, key p. 40.

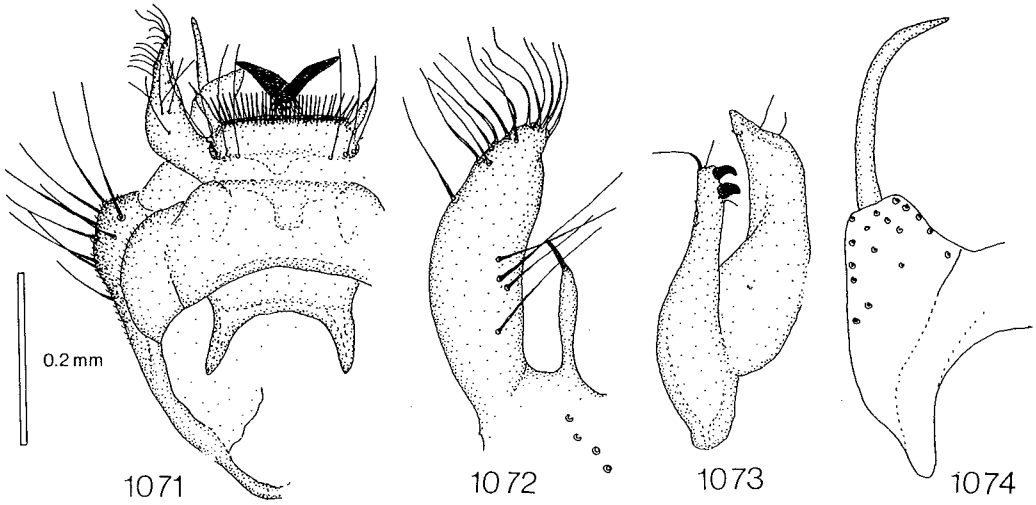
Type locality: New York, Fulton County (USA).

Type: Holotype (studied): 1 m. nw. Pine Lake, Fulton Co., N.Y., 42°12′N, 74°32′W, 1600′, Aug. 5, 1961, R. J. Gagné (m ISU).

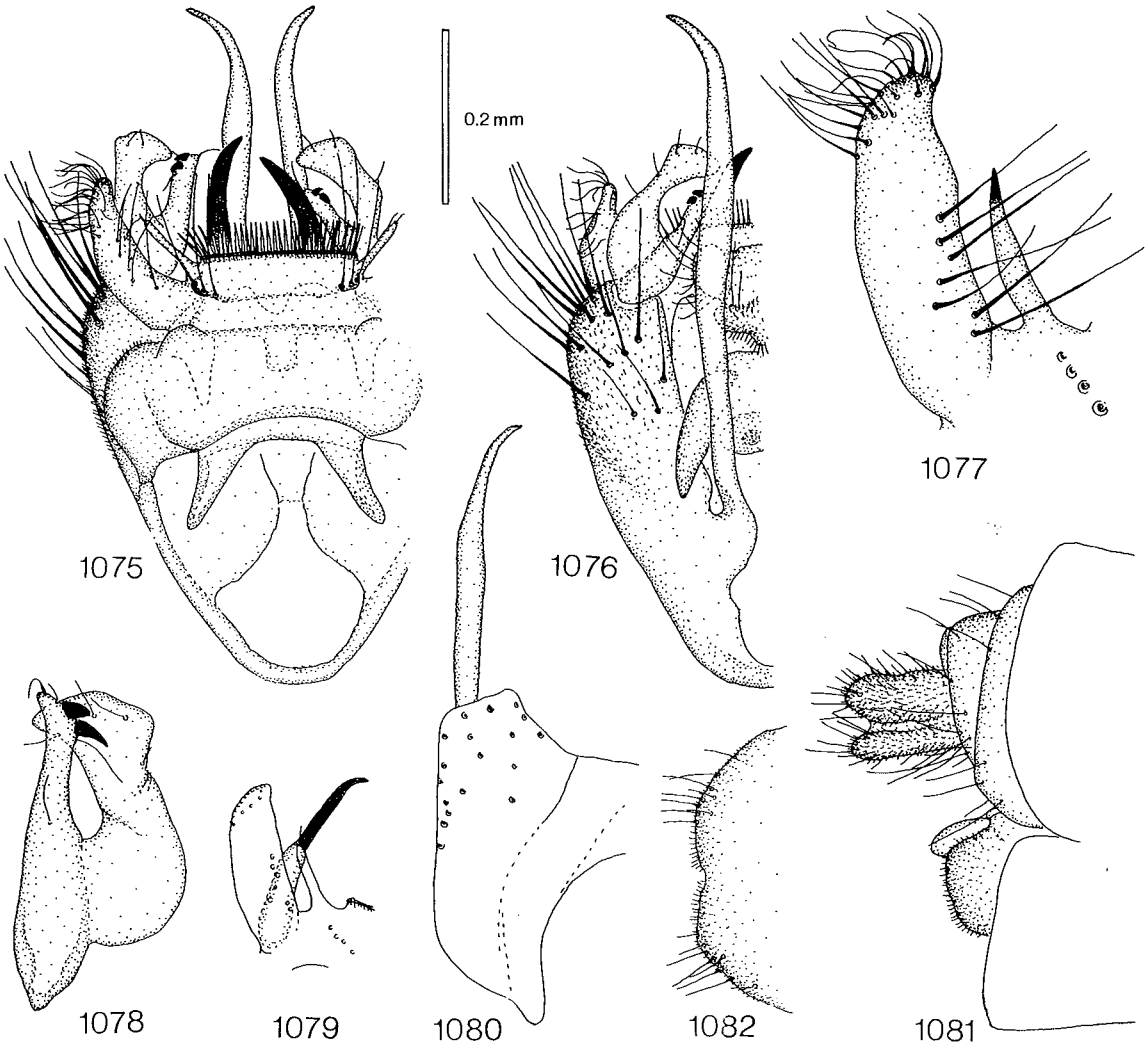
Material examined: Canada: Manitoba, Ninette, 5.VIII. 1958, moist ash woods, J. G. Chillcott (2 mm CNC); Ont., Bell's Cor., 7.VII. 1952, J. F. McAlpine (1 m CNC). — USA: Iowa, Webster Co., Dolliver Mem. St. Park, 30.VI. 1950, J. Laffoon (4 ff ISU); Iowa, Jackson Co., Maquoketa Caves St. Pk., 3.VII. 1949, J. Laffoon (4 ff ISU); Iowa, Dubuque Co., White Pine Hollow, 4.VII. 1949, J. Laffoon (8 ff 1 ex. ISU); Minnesota, Lake Co., Basswood Lake, Q-S WRC Sec. 9, Twp. 64N, Rge. 10W, 23.VIII. 1953 (1 m MINN); Itasca Pk., 25.VII. 1952 (1 m AMNH); same locality, 17.VII. 1938, H. E. Milliron (1 m MINN); Minn., Itasca State Park, 2.IX. 1950, J. Laffoon (1 f ISU); Minn., Clearwater Co., Lake Itasca, 1.IX. 1950, 2.IX. 1950, 3.IX. 1950, J. Laffoon (15 ff ISU); Minn., Itasca St. Pk., Prof. Green Trail, 25.VII. 1963, D. L. Deonier (35 mm 22 ff 3 exx. ISU); N. Y., Fulton Co., 1 m. nw. Pine Lake, 43°12′N, 74°32′W, 1600′, 5.VIII. 1961, D. L. Deonier (1 m ISU); same data, J. L. Laffoon (4 mm ISU); same data, R. J. Gagné (holotype & 22 mm 2 ff ISU); Tenn., Gatlinburg, GSMNP, 2700′, N Sweeps, 21.VII. 1947, R. H. Whittaker (1 ?ex. without abd. ISU).

Description:

Head. Palp, other mouthparts and face yellow, post-



Figs. 1071—1074. *Mycomya amurensis*. — 1071: male hypopygium, tergal view. — 1072: tergal lateral appendage. — 1073: gonostylus. — 1074: sternal synsclerite, lateral view. Scale 0.2 mm for Figs. 1071 and 1074, Figs. 1072—1073 2 x enlarged.



Figs. 1075—1082. *Mycomya praeda.* — 1075: male hypopygium, tergal view. — 1076: hypopygium, sternal view. — 1077: tergal lateral appendage. — 1078: gonostylus. — 1079: details of tergite 9. — 1080: sternal synsclerite, lateral view. — 1081: female terminalia, lateral view. — 1082: hypogynal valves, sternal view. Scale 0.2 mm for Figs. 1075—1076 and 1079—1082, Figs. 1077—1078 2 x enlarged.

crior parts of head light brownish. Antenna light brownish — yellowish. 1st flagellomere 3.5—4 times, 2nd 2.5—3 times as long as wide.

Thorax. Pronotum yellow. Mesoscutum entirely yellowish to light brownish or with 3 indistinct or distinct brownish to brown often fused longitudinal stripes, middle stripe with narrow yellowish medial band. Mesanepisternum and mesokatepisternum yellowish to light brownish. Scutellum yellowish to light brownish, with 3—4 long setae. Laterotergite yellowish to light brownish. Mediotergite yellowish to light brownish, bare.

Legs. Coxae and femora yellow, tibiae and tarsi brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.79—0.81, bt2:t2 = 0.63—0.66, bt3:t3 = 0.56—0.63.

Wing. Wing length 3.3—4.1 mm. Wing hyaline. Sc ending in R1 or C, sometimes Sc1 missing, Sc2 ending in R1 proximally to or near middle of small cell. Apical part of Sc bearing 0—1 macrotrichia. Small cell 1.5—2 times as long as wide. Cu fork distinctly distal to M fork. M ratios: 1.00—1.10, 1.33—1.53. Cu ratios: 0.88—1.09, 1.43—1.67. Macrotrichia: M petiole: 0; M1: 0; M2: 0; Cu petiole: 0; Cu1: 0; Cu2: 0. Halter pale yellowish.

Abdomen. Entirely yellowish to light brownish without distinct markings, or tergites 1—5 yellowish, with dorsomedial line and posterior margins indistinctly light brownish. Sternites lighter than tergites.

Hypopygium. Figs. 1075—1080. Tergal lateral appendage comparatively wide. Tergal submedial appendage longer than their apical setae. Sternal submedial filament comparatively long, apically curved. Gonostylus with 2 teeth.

Female. Wing length 3.7—4.7 mm. Yellowish to light brownish, without distinct markings. Leg ratios: bt1:t1 = 0.80—0.81, bt2:t2 = 0.65—0.70, bt3:t3 = 0.52—0.62. Terminalia as in Figs. 1081—1082, yellow.

Remarks: Very similar to *M. pectinifera*, but smaller (wing length: mean in males 3.78 mm, SD 0.21, N=34; mean in females 4.14 mm, SD 0.24, N=20. — *M. pectinifera:* mean in males 4.15 mm, SD 0.16, N=23; mean in females 4.73 mm, SD 0.29, N=22) and with easily recognizable differences in the male genitalia. The male hypopygium differentiates *M. praeda* less well from *M. amurensis* n. sp., but sufficiently to justify recognizing it as another species.

Distribution: Eastern Nearctic. Canada: Manitoba, Ontario. USA: Iowa, Minnesota, New York, ?Tennessee.

Biology: Unknown. Two specimens collected in moist ash woods.

7.11. Genus Mycoleia n. gen.

Mycoleia n. gen.
Type species: *Leia unicolor* Walker, 1848.
See the references below *Mycoleia unicolor.*

The systematic position of the only species of the new genus has already been the subject of discussion, and it has been placed in *Leia*, *Sciophila* and *Mycomya*. In spite of its hyaline wings, Fisher (1943) then transferred it to *Neoempheria*, on the basis of the comparatively short vein C, the presence of a faint spurious subradial vein and the male hypopygium, which he considered to be of the *Neoempheria* rather than the *Mycomya* type. Shaw & Fisher (1952) replaced it in *Mycomya*, however, and this treatment was followed by Coher (1959) on account of the form of the male hypopygium.

The new genus *Mycoleia* differs from *Mycomya* in having the apex of the antenna slightly rounded, the suture between the mesanepisternum and mesokatepisternum horizontal, the mesokatepisternum very large and rounded, and in the structure of the male hypopygium (see further on p. 12). The large, widely setose hypopygium bears some resemblance to those of the *Echinopodium* species. *Mycoleia* differs from all the other Mycomyinae genera, except *Mycomya*, in having the eyes distinctly emarginate above the antennal bases.

The new genus is known only from the Nearctic region. Its biology is entirely unknown.

Description:

Mouthparts moderately short. Anteclypeus setiferous. Postclypeus bare. Apex of antenna slightly rounded, with small subapical seta. Eyes slightly but distinctly emarginate above antennal bases, elongate ovate. Ocellar prominence not well-developed. Ocellar setae reaching beyond ocellar prominence.

Scutellum with 4 long setae. Suture between mesanepisternum and mesokatepisternum almost horizontal. Mesokatepisternum very wide, rounded. Mediotergite bare. Setae of thorax yellowish.

Males without special coxal structures. Tibial spurs 1-2-2.

Wing hyaline, without markings. C not distinctly produced beyond apex of R5. R5 and C almost reaching wing apex. Sc long. R4 present. Subradial accessory vein present but faint.

Hypopygium long, large, widely setose.

Immature stages: Unknown.

Fossils: Unknown.

Species group M. unicolor

Head. Anteclypeus triangular, apically slightly rounded, with many comparatively long setulae. Antenna about as long as head and thorax together. Pedicel with some very short dorsal setae. Ocellar setae about 4—5 times as long as ocellus, reaching beyond ocellar prominence. Setae of head yellow. Eye distinctly emarginate above antennal base.

Thorax. Scutellum with 4 long setae, and sometimes 2 shorter lateral setae. Mediotergite bare. Setae of thorax yellow.

Legs. Coxa 2 3—3.5 times as long as wide. Basitarsus 1 shorter than tibia 1. Tibial setae moderately strong, longest about twice as long as tibial diameter.

Wing. C ending in apex of R5, very seldom slightly beyond it, almost reaching wing apex. Sc ending in C. Cu fork distinctly proximal to M fork. M petiole short. Cu petiole short. Macrotrichiation of veins M and Cu not reduced.

Abdomen. Orange yellow or anterior parts of segments darker.

Tergite 8 narrow, arcuate band with many setae along posterior margin. Sternite 8 triangular, apically rounded, without setae.

Hypopygium. Very long, about 1/4 of length of abdomen, widely setose.

Female terminalia. Apical segment of cercus oval. Hypogynal valve wide, apically tapered, widely setose.

Mycoleia unicolor (Walker, 1848) n. comb.

Figs. 1083—1088.

Leia unicolor Walker, 1848. Walker 1848:93; Kertész 1902:84; Aldrich 1905:143; Johannsen 1909:80, 1910:285.

Leja unicolor: Osten Sacken 1878:11.

Mycomyia unicolor: Johannsen 1926:51; Coher 1959:127.

Mycomya unicolor: Laffoon in Stone et al. 1965:221.

Sciophila flavohirta Coquillett, 1901 (New synon.). Coquillett 1901:596; Aldrich 1905:140.

Mycomya flavohirta: Johannsen 1909:47, 1910:168; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:220; Cole 1969:121.

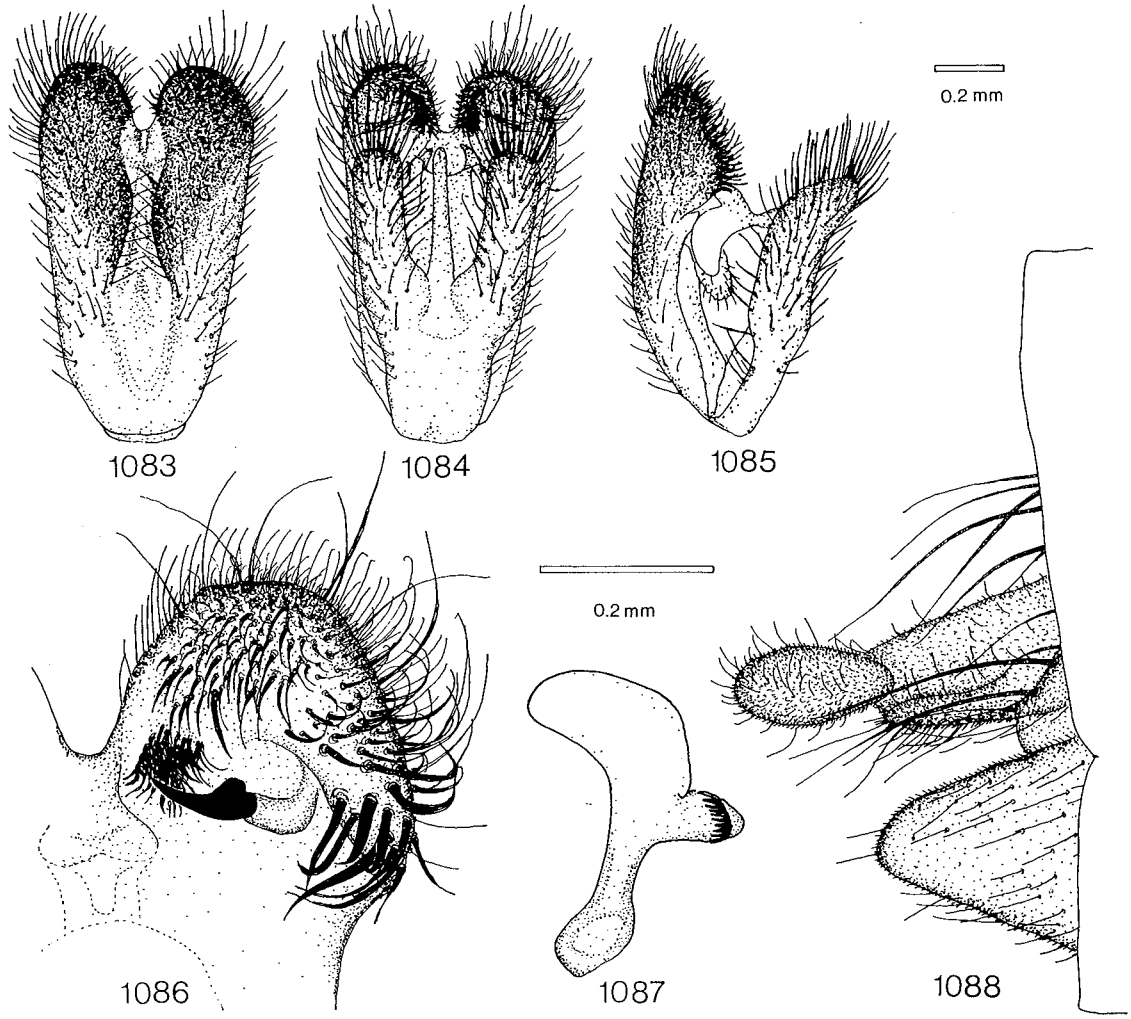
Mycomyia flavohirta: Fisher 1937:392; Coher 1959:116.

Neoempheria flavohirta: Fisher 1943:149.

Sciophila n. sp.: Slosson 1898:252.

Type locality: St. Martin's Falls, Albany River, Hudson's Bay (Canada).

Types: — *Leia unicolor* Walker: Holotype (studied): *unicolor* a. St. Martin's Falls. Hudson's Bay. Type. *Leia unicolor.* Walker. (type). = *Sciophila* — cp. note in



Figs. 1083—1088. *Mycoleia unicolor.* — 1083: male hypopygium, tergal view. — 1084: hypopygium, sternal view. — 1085: hypopygium, lateral view. — 1086: apical structures of tergite 9. — 1087: gonostylus. — 1088: female terminalia, lateral view. Upper scale 0.2 mm for Figs. 1083—1085, lower scale 0.2 mm for Figs. 1086—1088.

Catalogue. E. E. .... A. *Leia unicolor* Walk. One of Walker's series so named Edw. (f BMNH). — *Sciophila flavohirta* Coquillett: Holotype (studied): Franconia, N. H. Mrs Slosson Collector. *Sciophila flavohirta* Coq. Type No 5445 U.S.N.M. (m USNM). Type locality: New Hampshire, Franconia (USA).

Material examined: Canada: B.C., Kaslo, 2.VII., H. G. Dyar (2 ff USNM); Ont., Low Bush, Lake Abitibi, 2.VI. 1925, N. K. Bigelow (3 mm ROM); same data, 8.VIII. 1925 (1 m ROM); St. Martin's Falls, Albany River, Hudson's Bay (*Leia unicolor* holotype BMNH). — USA: Wash., Pullman, A. L. Melander (1 m USNM); Wn., Swauk Creek, 28.VI. 1924, A. L. Melander (1 m USNM); Montana, Belton, VII. 1928, E. H. Nost (1 f CAS); Cal., Mono Co., alt. 7200 ft., Leavitt Meadow, 14.VIII. 1963, flight trap, H. B. Leech (1 m CAS); same data, 13. VIII. 1963 (1 m CAS); N. H., Franconia, Slosson (*Sciophila flavohirta* holotype, 2 ff USNM).

Description:

Head. Palp, other mouthparts and face yellow, posterior parts of head brownish to brown. Antenna light brownish, scape, pedicel and base of 1st flagellomere yellow. 1st flagellomere almost twice, 2nd less than 1.5 times as long as wide.

Thorax. Entirely yellow to orange yellow. Pronotum with 6—10 longer setae. Mesoscutum without distinct markings. Scutellum with 4 long and sometimes 2 shorter setae. Mediotergite bare. Setae of thorax yellowish.

Legs. Coxae and femora yellow, tibiae and tarsi light brownish. Coxa 1 without special setae. Coxa 2 without spur. Leg ratios: bt1:t1 = 0.81—0.90, bt2:t2 = 0.68—0.73, bt3:t3 = 0.59—0.63.

Wing. Wing length 4.6—5.4 mm. Wing hyaline. Sc ending in C slightly distally to or near middle of small cell, Sc2 ending in R1 slightly proximally — slightly distally to middle of small cell. Apical part of Sc bearing 9—41 macrotrichia. Small cell 1.5—3 times as long as wide. Cu fork distinctly proximal to M fork. M ratios: 0.27—0.54, 0.28—0.69. Cu ratios: 0.33—0.58, 0.46—0.80. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter yellowish.

Abdomen. Shining, seldom entirely orange yellow, usually tergites 1—5 brown, with posterior halves yellow, 6 brown, 7 yellow. Sternites yellow.

Hypopygium. Figs. 1083—1087, very long, about 1/4 of length of abdomen, orange yellow with dark brown apex. Tergite 9 densely setose with spine brushes, and very strong spines. Sternal synsclerite very setose, deeply bilobed. Gonostylus with membraneous lobe and comb-like row of preapical-apical teeth. Aedeagus very long, slender.

Female. Wing length 5.7—6.5 mm. Entirely orange yellow. Leg ratios: bt1:t1 = 0.74—0.83, bt2:t2 = 0.67, bt3:t3 = 0.54—0.66. Terminalia as in Fig. 1088, yellow.

Remarks: Wing anomaly: proximal part of Cu1 missing (Cal., Mono).

Distribution: Nearctic. Canada: British Columbia, Ontario. USA: Washington, Montana, California, New Hampshire. Shaw & Fisher (1952) also report this species from Connecticut.

Biology: Unknown. Two specimens collected with flight trap.

7.12. Unrecognized species

Due to the lack or extreme poorness of the types and the insufficiency of the original descriptions, 20 species of *Mycomya* are at present unrecognizable. Probably most, if not all, of them belong to the species treated above.

The most remarkable gap in the type material seems to be the lack of the species described by Ostroverchova (1979). Several efforts were made to include these types in the present study, but they were not available (Dr. Ostroverchova, pers. comm.) and may have been destroyed or lost. Two of Ostroverchova's species *(M. pseudopulchella* and *M. trifida)* are without any doubt synonyms of other species, but in the remaining eight cases examination of the types would be the only method of setting their identity.

In addition, one unclear record is considered to be a pure lapse: "*Mycomyia furcata* Lundström" (Plassmann 1977b:9).

Mycomya aestiva (van der Wulp, 1877)

Sciophila aestiva van der Wulp, 1877. Van der Wulp 1877:169; Kertész 1902:57, 1903:31.

Mycomyia aestiva: Landrock 1926—1927:42; Kröber 1956:131.

Mycomya aestiva: Väisänen 1982b:38.

Type locality: Driebergen (Netherlands).

Type: Holotype (not seen): male from the type locality in June (not located, apparently destroyed; already missing in AMST before 1938, Dr. T. van Leeuwen, pers. comm.).

Remarks: *M. aestiva* cannot be identified on the basis of the insufficient original description.

Mycomya angulata (Adams, 1903)

Sciophila angulata Adams, 1903. Adams 1903:22; Aldrich 1905:140.

Mycomya angulata: Johannsen 1909:46, 1910:186; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia angulata: Coher 1959:127.

Type locality: Colorado, Manitou Park (USA).

Type: Holotype (studied): Manitou Park, Colorado. F. H. Snow. U. & K. Lot 161 Sub. July. in PVA. Type *Sciophila angulata* C. F. Adams (f SNOW).

Remarks: The *Sciophila angulata* type is in very poor condition and the apex of the terminalia is broken, so that this female cannot be identified.

Mycomya biseriata (Loew, 1869)

Sciophila biseriata Loew, 1869. Loew 1869:140; Osten-Sacken 1878:9; Kertész 1902:58; Aldrich 1905:140.

Mycomya biseriata: Johannsen 1909:46, 1910:178; Shaw & Fisher 1952:190; Laffoon in Stone et al. 1965:220; Cole 1969:121.

Mycomyia biseriata: Fisher 1937:391; Coher 1959:125.

Type locality: Red River (Canada).

Type: Holotype (studied): Red R. Loew Coll. *biseriata* m. Type 1220 (f MCZ).

Remarks: Although the type in MCZ is a female, it is considered to be the original type (cf. Coher 1959).

M. biseriata belongs to the species group *M. ornata,* but the female holotype cannot be related to the males of this group. The type is in relatively poor condition: Wing length 5.5 mm. Head missing. Thorax yellow. Pronotum with 6 longer setae. Scutellum with 4 long setae. Mediotergite with 5 setae. Abdominal tergite 1 yellow, tergites 2—4 yellow with brown anterolateral spots, tergites 5—7 yellow with brown anterolateral and anteromedial spots. Coxae yellow. Bt1:t1 = 0.86. Sc ending in C distally to middle of small cell, Sc2 ending in R1 near middle of small cell. Sc with 14—15 macrotrichia. Small cell about twice as long as wide. Cu fork below M fork. M ratios: 0.53, 0.60. Cu ratios: 0.71, 1.07. Terminalia yellow, hypogynal valve triangular, apically tapered, extensively setose.

Mycomya cingulata (Meigen, 1804)

Platyura cingulata Meigen, 1804. Meigen 1804:102.

Sciophila cingulata: Meigen 1818:247; Macquart 1826:99, 1834:137; Gimmerthal 1847:150; Walker 1848:91, 1856:39 (= *M. trilineata* (Zetterstedt)); Neuhaus 1886:28; Kertész 1902:58, 1903:31.

Mycomya cingulata: Matile 1977:633; Väisänen 1982b:38.

Type locality: Not stated (Federal Republic of Germany).
Type: Holotype (not seen): female, in very poor condition, only remnants of thorax left (MNHN, Dr. L. Matile, pers. comm.).
Remarks: This species cannot be identified on the basis of the original insufficient description and the type is in too poor condition for recognition.

Mycomya dilatata Ostroverchova, 1979

Mycomyia dilatata Ostroverchova, 1979. Ostroverchova 1979:65; Ostroverchova & Zaitseva 1979:73.
Mycomya dilatata: Väisänen 1982b:38.
Type locality: "Krasnojarskij kraj, Tungussko-Chunskij r-n, okr. pos. Vanavary" (East Siberia, USSR).
Type: Holotype (not seen): male from the type locality, 29.VII. 1972; prep. 1347 (possibly in Tomsk, if not lost).
Remarks: *M. dilatata* was described as a new species by both Ostroverchova (1979) and Ostroverchova & Zaitseva (1979). It is not known which of these descriptions was published first, but here, as in Väisänen (1982b), the "Fungus-gnats of Siberia" (Ostroverchova 1979) has been considered to have priority. *M. dilatata* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:59: Fig. 13.1.). It belongs to the *M. marginata* group and shows some resemblance to *M. hebrardi* Väisänen & Matile, 1980.

Mycomya diluta (Zetterstedt, 1860)

Sciophila diluta Zetterstedt, 1860. Zetterstedt 1860:6556; Kertész 1902:58, 1903:32; Edwards 1924b:161.
(not) *Sciophila diluta* Williston, 1896 (= *Mycomya meridionalis* Johannsen, 1910) (Neotropical).
Mycomyia diluta: Wahlgren 1921:167; Landrock 1926—1927:44.
Mycomya diluta: Väisänen 1982b:38.

Type locality: "Westrogothia ad Gothoburgum" (Göteborg) (Sweden).
Type: Holotype (not seen): female, captured by D. Malm in 1856 (not located, probably destroyed).
Remarks: *M. diluta* cannot be identified on the basis of the insufficient original description. Edwards (1924b) studied the type at Lund, but without success: no proposals were made on the systematic position of this species.

Mycomya dryophila Ostroverchova, 1979

Mycomyia dryophila Ostroverchova, 1979. Ostroverchova 1979:65.
Mycomya dryophila: Väisänen 1982b:38.

Type locality: "Sikhote-Alinskij zapovednik, oz. Blagodatnoje" (Soviet Far East).
Type: Holotype (not seen): male from the type locality, 17.VII. 1974; prep. 1663 (possibly deposited in Tomsk, if not lost).
Remarks: *M. dryophila* cannot be identified on the basis of the insufficient original description (see Ostroverchova 1979: Fig. 12.8.). It apparently belongs to the subgenus *Calomycomya*.

Mycomya helobia Ostroverchova, 1979

Mycomyia helobia Ostroverchova, 1979. Ostroverchova 1979:68; Ostroverchova & Zaitseva 1979:73.
Mycomya helobia: Väisänen 1982b:39.

Type locality: "Krasnojarskij kraj, Tungussko-Chunskij r-n (okr. pos. Vanavary)" (East Siberia, USSR).
Type: Holotype (not seen): male from the type locality, 28.VII. 1972; prep. 1364 (possibly in Tomsk, if not lost).
Remarks: *M. helobia* was described as a new species by both Ostroverchova (1979) and Ostroverchova & Zaitseva (1979). It is not known which of these descriptions was published first, but here, as in Väisänen (1982b), the "Fungus-gnats of Siberia" (Ostroverchova 1979) has been considered to have priority. *M. helobia* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:59: Fig. 13.6.). It shows some resemblance to *M. trivittata* (Zetterstedt, 1838).

Mycomya inflata Ostroverchova, 1979

Mycomyia inflata Ostroverchova, 1979. Ostroverchova 1979:69; Ostroverchova & Zaitseva 1979:74.
Mycomya inflata: Väisänen 1982b:39.

Type locality: "Krasnojarskij kraj, zapovednik "Stolbi"" (East Siberia, USSR).
Type: Holotype (not seen): male from the type locality, reared on *Lactarius* sp., in August 1962; prep. 392 (possibly in Tomsk, if not lost).
Remarks: *M. inflata* was described as a new species by both Ostroverchova (1979) and Ostroverchova & Zaitseva (1979). It is not known which of these descriptions was published first, but here, as in Väisänen (1982b), the "Fungus-gnats of Siberia" (Ostroverchova 1979) has been considered to have priority. *M. inflata* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:60: Fig. 14.5.). It may be a junior synonym of *M. forestaria* Plassmann, 1978.

Mycomya interposita Ostroverchova, 1979

Mycomyia interposita: Ostroverchova, 1979. Ostroverchova 1979:70; Ostroverchova & Zaitseva 1979:75.
Mycomya interposita: Väisänen 1982b:39.

Type locality: "Krasnojarskij kraj, Tungussko-Chunskij r-n, okr. pos. Vanavary" (East Siberia, USSR).
Type: Holotype (not seen): male from the type local-

ity, 3.VII. 1972; prep. 1194 (possibly in Tomsk, if not lost).

Remarks: *M. interposita* was described as a new species by both Ostroverchova (1979) and Ostroverchova and Zaitseva (1979). It is not known which of these descriptions was published first, but here, as in Väisänen (1982b), the "Fungus-gnats of Siberia" (Ostroverchova 1979) has been considered to have priority. *M. interposita* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:61: Fig. 15.2.). It slightly resembles *M. spinicoxa* Väisänen, 1979.

Mycomya lenticulata Ostroverchova, 1979

Mycomyia lenticulata Ostroverchova, 1979. Ostroverchova 1979:70.
Mycomya lenticulata: Väisänen 1982b:40.

Type locality: "Krasnojarskij kraj, zapovednik "Stolbi (Synžul)" (East Siberia, USSR).

Type: Holotype (not seen): male from the type locality, 22.VII. 1964; prep. 385 (possibly in Tomsk, if not lost).

Remarks: *M. lenticulata* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:62: Fig. 16.5.). It apparently belongs to the species group *M. marginata*.

Mycomya littoralis (Say, 1824)

Sciophila littoralis Say, 1824. Say 1824:361, in LeConte 1859:245; Osten-Sacken 1878:9; Kertész 1902:61; Aldrich 1905:140.
Sciophila litteralis: Wiedemann 1828:64 (error).
Mycomya littoralis: Johannsen 1909:48, 1910:170; Shaw & Fisher 1952:110; Laffoon in Stone et al. 1965:221.
Mycomyia littoralis: Fisher 1937:391; Coher 1959:110.

Type locality: "North-west Territory", "on rocky coast of Lake Superior".

Type: Not located, apparently destroyed.

Remarks: Most North American species of the species group *M. littoralis* have previously been determined as *M. littoralis*, and the references concern various species. However, *M. littoralis* cannot be exactly identified on the basis of the insufficient original description. It probably belongs to the subgenus *Mycomyopsis*.

Mycomya munda (Winnertz, 1863)

Sciophila munda Winnertz, 1863. Winnertz 1863:721; Kertész 1902:62, 1903:34.
Mycomyia munda: Landrock 1926—1927:49.
Mycomya munda: Väisänen 1982b:40.

Type locality: Not stated (?Federal Republic of Germany).

Type: Holotype: not located, apparently destroyed, female.

Remarks: *M. munda* cannot be identified on the basis of the insufficient original description.

Mycomya mutabilis Sherman, 1921

Mycomya mutabilis Sherman, 1921. Sherman 1921:16; Laffoon in Stone et al. 1965:221; Cole 1969:121.
Mycomyia mutabilis: Coher 1959:125.

Type locality: British Columbia, Savary Island (Canada).

Type: Holotype (not seen): male from Savary Island, April, 1917 (destroyed accidentally; Dr. J. R. Vockeroth, pers. comm.).

Remarks: *M. mutabilis* cannot be recognized with certainty on the basis of the original description. It may belong to the species group *M. tenuis* (e.g. *M. terminata* Garrett, 1924), although it was said to lack a mid-coxal spur (cf. Johannsen 1910: *M. sigma* Johannsen, 1910, *M. simplex* (Coquillett, 1905); Dziedzicki 1885: *M. pulchella* (Dziedzicki, 1885)).

Mycomya nigriceps (Loew, 1873)

Sciophila nigriceps Loew, 1873. Loew 1873:36; Thalhammer 1899:13; Kertész 1902:62, 1903:34.
Mycomyia nigriceps: Landrock 1926—1927:49.
Mycomya nigriceps: Väisänen 1982b:40.

Type locality: Not stated ("Pannoniâ inferiori et confinibus Daciae regionibus" (Hungary or Roumania)).

Type: Holotype: not located, apparently destroyed, female.

Remarks: *M. nigriceps* cannot be identified on the basis of the insufficient original description.

Mycomya pallens (Loew, 1873)

Sciophila pallens Loew, 1873. Loew 1873:35; Thalhammer 1899:13; Kertész 1902:63, 1903:34.
Mycomyia pallens: Landrock 1926—1927:50.
Mycomya pallens: Väisänen 1982b:40.

Type locality: Not stated ("Pannoniâ inferiori et confinibus Daciae regionibus" (Hungary or Roumania)).

Type: Holotype: not located, apparently destroyed, female.

Remarks: *M. pallens* cannot be identified on the basis of the insufficient original description.

Mycomya pallida (Winnertz, 1863)

Sciophila pallida Winnertz, 1863. Winnertz 1863:711; Schiner 1864:442; Grzegorzek 1872:(30), 1873:26; Nowicki 1873:16; Strobl 1880:45, 1895:142, 1898a:283; Kertész 1902:63, 1903:34; Strobl 1909:241; Kröber 1910:9; Morge 1974:171.
Mycomyia pallida: Landrock 1926—1927:50; Kröber 1956:132.
Mycomya pallida: Väisänen 1982b:40.

Type locality: Not stated (? Federal Republic of Germany).

Type: Holotype: not located, probably destroyed, female.

Remarks: *M. pallida* cannot be exactly identified on the basis of the insufficient original description. It probably belongs to the species group *M. marginata*.

Mycomya recurva Johannsen, 1910

Mycomya recurva Johannsen, 1910. Johannsen 1910:185; Laffoon in Stone et al. 1965:221.
Mycomyia recurva: Coher 1959:126.
Mycomya recurva var. *chloratica* Johannsen 1910. Johannsen 1910:185; Laffoon in Stone et al. 1965:221.

Type locality: Wisconsin (USA).
Type: Holotype (studied): Wis. W. M. Wheeler Collection. ♀ Holotype *Mycomya recurva* Johannsen. O A Johannsen Lot 268 Sub Cornell U. Holotype Cornell U. No. 1979 (f CORN).
M. recurva var. *chloratica* was described on the basis of a specimen from Milwaukee Co., Wisconsin, which has not been located; it has apparently been destroyed.
Remarks: *M. recurva* belongs to the species group *M. marginata* but at present the female type cannot be related to the males of this group. The type is in relatively poor condition: Wing length 5.0 mm. Palps, other mouthparts and face yellow, posterior parts of head brown. Antennae brownish, 3 basal segments yellow. 1st flagellomere about twice, 2nd about 1.5 times as long as wide. Pronotum yellow, with 5 longer setae. Mesoscutum yellow, posteriorly slightly darker, with 3 brown longitudinal stripes. Pleurae yellowish. Scutellum yellow, with 4 long setae. Mediotergite yellowish, bare. Abdomen brown, with posterior thirds of segments yellow. Coxae yellow. Leg ratios: bt1:t1 = 1.00, bt2:t2 = 0.78. Wing hyaline. Sc ending in C near distal end of small cell, Sc2 ending in R1 slightly distally to middle of small cell. Sc bearing 13—18 macrotrichia. Small cell about twice as long as wide. M ratios: 0.61, 0.73. Cu ratios: 0.70, 0.93. Cu fork almost below M fork. Terminalia yellow, hypogynal valves apically tapered, with some setae.

Mycomya recondita Ostroverchova, 1979

Mycomyia recondita Ostroverchova, 1979. Ostroverchova 1979:73.
Mycomya recondita: Väisänen 1982b:41.

Type locality: "Primorskij kraj, Sikhote-Alinskij zapovednik, Ust'-Serebrjanyj" (Far East of USSR).
Type: Holotype (not seen): male from the type locality, 21.VII. 1974; prep. 1715 (possibly in Tomsk, if not lost).
Remarks: *M. recondita* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:59: Fig. 13.7.). It probably belongs to the species group *M. marginata*.

Mycomya tungusica Ostroverchova, 1979

Mycomyia tungusica Ostroverchova, 1979. Ostroverchova 1979:74.
Mycomya tungusica: Väisänen 1982b:41.

Type locality: "Krasnojarskij kraj, Tungussko-Chunskij r-n, pos. Vanavary" (East Siberia, USSR).
Type: Holotype (not seen): male from the type locality, 22.VII. 1972; prep. 1214 (possibly in Tomsk, if not lost).
Remarks: *M. tungusica* cannot be recognized on the basis of the insufficient original description (see Ostroverchova 1979:62: Fig. 16.2.).

7.13. Species transferred to other genera

Mycomya oviducta Garrett, 1924

Remarks: To *Boletina*, see Garrett 1925. The original placement in *Mycomya* was evidently only a lapse.

Mycomya panorpiformis Matsumura, 1915

Remarks: To *Diomonus* and further to *Leptomorphus*, see e.g. Okada (1939) and Laffoon in Stone et al. (1965).
One female specimen examined: Japan, Kyushu, Fukuoka pref., Mt. Hiko Biol. Sta., 10—18.VIII. 1980, K. Mikkola leg. (MZH).

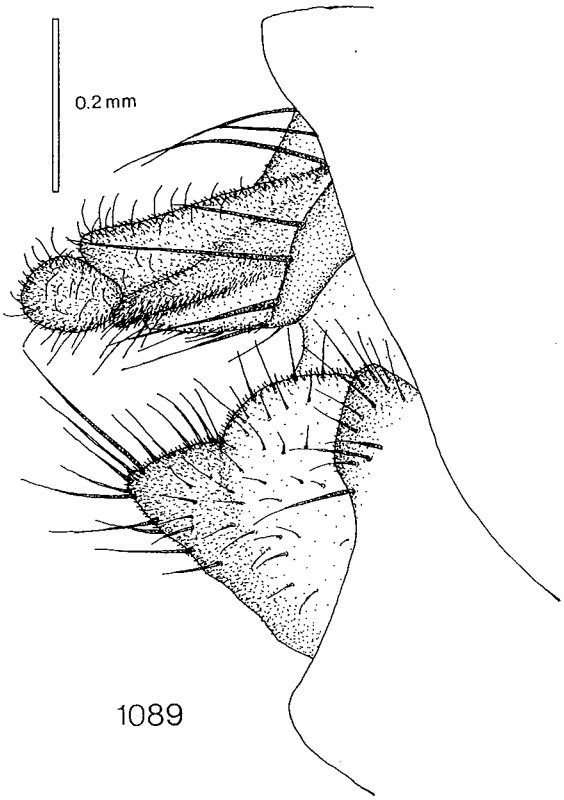


Fig. 1089. *Neoempheria andreinii*, female terminalia, lateral view. Scale 0.2 mm.

[*Mycomya ferruginea* Brunetti, 1912

Remarks: To *Neoempheria*, see Edwards 1924c. An Oriental species.]

Neoempheria andreinii (Bezzi, 1906) n. comb.
Fig. 1089.

Sciophila andreinii Bezzi, 1906. Bezzi 1906:202.
Mycomyia andreinii: Landrock 1926—1927:43.
Mycomya andreinii: Matile in Crosskey 1980:223; Väisänen 1982b:38.

Type locality: Eritrea, "Dintorni di Adi Ugri" (Ethiopia).
Type: Holotype (studied): ♀. Typus. Eritrea Adi-Ugri VII. 1901 Dr. A. Adreini. m 198. *Sciophila Andreinii* n. sp. (f FIR).
Material examined: Ethiopia: Holotype (FIR).

Description:
Head. Palp and other mouthparts brown, face yellow, posterior parts of head brownish. Basal segments of antenna yellow.
Thorax. Pronotum yellow, with 7—8 longer setae. Mesoscutum yellow, with 3 wide brown partially fused longitudinal stripes. Mesanepisternum yellow. Mesokatepisternum yellow, ventral part slightly darker. Scutellum yellow, with 4 long setae. Laterotergite yellow, ventral part slightly darker. Mediotergite yellow, bare.
Legs. Coxae and femora yellow, tibiae and tarsi brownish. Leg ratios: bt1:t1 = ?, bt2:t2 = 0.65, bt3:t3 = 0.57.
Wing. Wing length 6.5 mm. Apex of wing widely infuscate, apex of Sc, Sc2, and both proximal and distal parts of small cell distinctly infuscate, M petiole slightly infuscate. Sc ending in C distally to middle of small cell, Sc2 ending in R1 distally to middle of small cell. Apical part of Sc bearing 22—27 macrotrichia. Small cell about 3 times as long as wide. Cu fork proximal to M fork. M petiole very short, ratios: 0.31, 0.37. Cu petiole comparatively short, ratios: 0.53, 0.74. Macrotrichia: M petiole: 0; M1: +; M2: +; Cu petiole: +; Cu1: +; Cu2: +. Halter yellowish.
Abdomen. Yellow, with brown markings. Tergite 1 with wide dorsomedial stripe, 2—3 with dorsomedial stripe dilated posteriorly, 4—5 with broad dorsomedial stripe and brown posterior margins, 6 brown with yellow anterolateral corners, 7 brown with very narrow yellow anterior margin.
Terminalia. As in Fig. 1089, yellow.
Male. Unknown.

Distribution: North Africa: Ethiopia.
Biology: Unknown.

Remarks: This species is transferred to *Neoempheria* owing to the following characters: Eyes rounded, not emarginate above antennae; C ending distally to apex of R5 but not reaching apex of wing; subradial "vein" present; wing with distinct, although not very dark markings; terminalia as in Fig. 1089. In addition, the wing markings are typical of *Neoempheria* species, e.g. resembling those of *N. striata* (Meigen), *N. lineola* (Meigen) and *N. proxima* (Winnertz). The setosity and coloration of the head and the coloration of the thorax and abdomen also resemble those of other members of *Neoempheria*.

8. Checklist of the Holarctic Mycomya

Genus MYCOMYA Rondani, 1856
= *Sciophila* Meigen, 1818, partim
= *?Cnephaeophila* Philippi, 1865

Subg. MYCOMYA Rondani, 1856

Sp. gr. *M. calcarata*
M. calcarata (Coquillett, 1905)

Sp. gr. *M. fuscipalpis*
M. fuscipalpis Van Duzee, 1928
= *intermedia* Fisher, 1937

Sp. gr. *M. bialorussica*
M. sphagnicola Shaw, 1941
M. bialorussica Landrock, 1925
= *nitida* Dziedzicki, 1885, preocc.

Sp. gr. *M. atus*
M. atus Garrett, 1924

Sp. gr. *M. matrona*
M. matrona n. sp.

Sp. gr. *M. mituda*
M. mituda Väisänen, 1980
M. monosta n. sp.

Sp. gr. *M. ornata*
M. tumida (Winnertz, 1863)
M. prominens (Lundström, 1913)
M. fuscata (Winnertz, 1863)
M. thula n. sp.
M. ornata (Meigen, 1818)
M. lambi Edwards, 1941
M. dura Garrett, 1924
= *armata* Garrett, 1924
M. imperatrix n. sp.
M. novagallica n. sp.
M. n. sp.
M. magnifica n. sp.
M. shewelli n. sp.
M. ostensackeni n. sp.
M. matilei n. sp.
M. mendax Johannsen, 1910
M. karelica Väisänen, 1979
M. kuusamoensis Väisänen, 1979
M. simulans n. sp.
M. denmax Väisänen, 1979
M. pseudoapicalis Landrock, 1925

M. hiisi Väisänen, 1979
M. subarctica Väisänen, 1979

Sp. gr. *M. onusta*
M. insignis (Winnertz, 1863) n. comb.
= *wrzesniowskii* Dziedzicki, 1885
M. onusta (Loew, 1869)
= *brevivitta* Coquillett, 1905
= *turitella* Fisher, 1937

Sp. gr. *M. digitifera*
M. digitifera Edwards, 1925

Sp. gr. *M. parva*
M. parva (Dziedzicki, 1885)

Sp. gr. *M. arnaudi*
M. arnaudi n. sp.

Sp. gr. *M. collini*
M. collini Edwards, 1941

Sp. gr. *M. sieberti*
M. sieberti Landrock, 1930

Sp. gr. *M. vittiventris*
M. vittiventris (Zetterstedt, 1852)
= *melanogaster* Zetterstedt, 1852
= *taurica* Strobl, 1898
= *elegans* Lundström, 1912, preocc.

Sp. gr. *M. nigricornis*
M. nigricornis (Zetterstedt, 1852)
= *melanoceras* Edwards, 1924

Sp. gr. *M. aluco*
M. aluco n. sp.

Sp. gr. *M. ampla*
M. ampla Garrett, 1924

Sp. gr. *M. sigma*
M. sigma Johannsen, 1910
= *trivittata* Dziedzicki, 1885, preocc.
= *duplicata* Edwards, 1925
= *noctivaga* Plassmann, 1972

Sp. gr. *M. tenuis*
M. ultima n. sp.
M. tenuis (Walker, 1856)
= *apicalis* Winnertz, 1863
= *radoszkowskii* Dziedzicki, 1885
M. hackmani n. sp.
M. kurildisa n. sp.
M. disa n. sp.
M. dichaeta Fisher, 1937
M. terminata Garrett, 1924
= *caulfieldi* Garrett, 1924
= *fulvitibia* Van Duzee, 1928
= *longispina* Van Duzee, 1928
M. islandica n. sp.
M. saga n. sp.
M. cranbrooki Garrett, 1924
M. brunnea (Dziedzicki, 1885)
M. safena n. sp.
M. zaitsevi n. sp.
Sp. gr. *M. spinicoxa*
M. spinicoxa Väisänen, 1979

Sp. gr. *M. levis*
M. levis (Dziedzicki, 1885)
= *flabellata* Lackschewitz, 1937
= *?pseudocinerascens* Strobl, 1901

Sp. gr. *M. marginata*
M. storai Väisänen, 1979
= *?notata* Zetterstedt, 1860
= *?decorosa* Winnertz, 1863
M. kaurii Väisänen, 1979
M. triacantha Shaw, 1941
M. woodi n. sp.
M. neohyalinata n. sp.
M. forestaria Plassmann, 1978
M. autumnalis Garrett, 1924
M. echinata Garrett, 1924
= *abbreviata* Van Duzee, 1928
= *californica* Van Duzee, 1928
M. electa n. sp.
M. heydeni Plassmann, 1970
= *trifida* Ostroverchova, 1979
M. egregia (Dziedzicki, 1885)
M. polleni Garrett, 1924
M. aneura n. sp.
M. bryanti n. sp.
M. hebrardi Väisänen & Matile, 1980
= *lindrothi* Plassmann, 1981
M. difficilis Garrett, 1924
M. pygmalion n. sp.
M. muscovita n. sp.
M. wirthi n. sp.
M. hians (Lundström, 1912)
M. rosalba Hutson, 1979
M. abegena n. sp.
M. fornicata (Lundström, 1911)
M. cinerascens (Macquart, 1826)
= *cinerascens* var. *supposita* Strobl, 1900
= *hyalinata* Meigen, 1830
= *inanis* Winnertz, 1863
= *alacris* Winnertz, 1863
= *sequax* Johannsen, 1910
= *incompta* Johannsen, 1910
M. alpina Matile, 1972
M. trivittata (Zetterstedt, 1838)
= *fragilis* Loew, 1869
= *marginata* Dziedzicki, 1885, preocc.
= *pseudocinerascens* var. *abruptinervis* Strobl, 1901
= *nigra* Fisher, 1938
M. shermani Garrett, 1924
= *kingi* Edwards, 1941
M. ruficollis (Zetterstedt, 1852)
M. arcuata n. sp.
M. fasciata (Zetterstedt, 1838)
= *fasciata* Gimmerthal, 1847, preocc.
= *griseovittata* Zetterstedt, 1852
= *clavicera* Lundström, 1912
= *magna* Garrett, 1924

= *gimmerthali* Landrock, 1925
M. simplex (Coquillett, 1905)
= *vulgaris* Garrett, 1924
M. danielae Matile, 1972
M. leporina n. sp.
M. hirticollis (Say, 1824)
= *appendiculata* Loew, 1869
= *hirticauda* Van Duzee, 1928
M. stares n. sp.
M. canoak n. sp.
M. siebecki (Landrock, 1912)
M. montalba n. sp.
M. rivalis Santos Abreu, 1920
M. tridens (Lundström, 1911)
M. tamerlani n. sp.
M. fissa (Lundström, 1911)
M. norna n. sp.
M. dziedzickii Väisänen, 1981
= *fulva* Dziedzicki, 1885, preocc.
M. maculata (Meigen, 1804)
= *platyura* Fabricius, 1805
= *hamata* Garrett, 1924
M. wankowiczii (Dziedzicki, 1885)
= *?ferruginea* Meigen, 1818
= *?notabilis* Staeger, 1840
= *?sororcula* Zetterstedt, 1852
M. britteni Kidd, 1955
M. marginalis Johannsen, 1910
= *nigrihirta* Van Duzee, 1928
M. accrescens n. sp.
M. comesa n. sp.
M. pyriformis n. sp.
M. winnertzi (Dziedzicki, 1885)
M. w. ssp. *winnertzi*
= *parascopula* Fisher, 1937
M. w. ssp. *schmidi* n. ssp.
= *?trilineata* Brunetti, 1912, preocc.
M. bisulca Lackschewitz, 1937
M. bicolor (Dziedzicki, 1885)
= *maxima* Johannsen, 1910
M. scopula Fisher, 1937
M. marginata (Meigen, 1818)
= *limbata* Winnertz, 1863
M. rebellicosa n. sp.
M. punctata (Meigen, 1804)
= *unimaculata* Macquart, 1826
M. livida (Dziedzicki, 1885)
M. lividella n. sp.
M. humida Garrett, 1924
= *curvata* Fisher, 1937
= *frigida* Plassmann, 1978
M. pseudocurvata Väisänen, 1979
M. occultans (Winnertz, 1863)
= *corcyrensis* Lundström, 1912
M. pini n. sp.
M. nitida (Zetterstedt, 1852)
= *exigua* Winnertz, 1863
= *pseudomaxima* Fisher, 1937
M. festivalis n. sp.
M. flavicollis (Zetterstedt, 1852)
= *fraterna* Winnertz, 1863
M. pura n. sp.
M. annulata (Meigen, 1818)
= *incisurata* Zetterstedt, 1838

Subg. CALOMYCOMYA n. subg.

Sp. gr. *M. pulchella*
M. yunga n. sp.
M. tolteca n. sp.
M. amica n. sp.
M. pulchella (Dziedzicki, 1885)
M. p. ssp. *pulchella*
= *pseudopulchella* Ostroverchova, 1979
M. p. ssp. *imitans* Johannsen, 1910, n. status
M. avala n. sp.
M. altaica n. sp.
M. insulana n. sp.
M. wuorentausi n. sp.

Subg. CYMOMYA n. subg.

Sp. gr. *M. obliqua*
M. circumdata (Staeger, 1840)
= *lucorum* Winnertz, 1863
= *lucorum* form. *abruptinervis* Strobl, 1901
M. macateei n. sp.
M. obliqua (Say, 1824)
= *obtruncata* Loew, 1869
M. ?austrobliqua Coher, 1959

Subg. TLINGITMYIA n. subg.

Sp. gr. *M. lutealis*
M. lutealis n. sp.

Subg. COHEROMYIA n. subg.

Sp. gr. *M. tantilla*
M. branderi n. sp.
M. tantilla (Loew, 1869)
= *nugatoria* Johannsen, 1910
M. nigricauda (Adams, 1903)
M. oreades n. sp.
M. kiamichii Shaw, 1940

Subg. MYACYMO n. subg.

Sp. gr. *M. midea*
M. midea n. sp.

Subg. NEOMYCOMYA n. subg.

Sp. gr. *M. fimbriata*
M. fimbriata (Meigen, 1818)
= *alternata* Fisher, 1937
= *?flavithorax* Brunetti, 1912

Subg. MYCOMYOPSIS n. subg.

Sp. gr. *M. trilineata*
M. penicillata (Dziedzicki, 1885)
= *?lugubris* Winnertz, 1863
= *?melania* Winnertz, 1863
M. frequens Johannsen, 1910
= *littoralis* var. *frequens* Johannsen, 1910
M. maura (Walker, 1856)

M. permixta n. sp.
M. p. ssp. *permixta*
M. p. ssp. *breviseta* n. ssp.
M. affinis (Staeger, 1840)
= *flava* Winnertz, 1863
M. confusa Väisänen, 1979
M. trilineata (Zetterstedt, 1838)
= *?fusca* Meigen, 1818
= *?univittata* Zetterstedt, 1838
M. fennica Väisänen, 1979
M. paradentata n. sp.
M. dentata Fisher, 1937
M. neodentata n. sp.
M. esox n. sp.
M. byersi n. sp.
M. sublittoralis Shaw, 1941
M. neolittoralis n. sp.

Subg. LYCOMYA n. subg.

Sp. gr. *M. pectinifera*
M. pectinifera Edwards, 1924
= *nava* Plassmann, 1977
M. amurensis n. sp.
M. praeda n. sp.

Genus MYCOLEIA n. gen.

Sp. gr. *M. unicolor*
M. unicolor (Walker, 1848) n. comb.
= *flavohirta* Coquillett, 1901

Unrecognized species:

M. aestiva (van der Wulp, 1877)
M. angulata (Adams, 1903)
M. biseriata (Loew, 1869)
M. cingulata (Meigen, 1804)
M. dilatata Ostroverchova, 1979
M. diluta (Zetterstedt, 1860)
M. dryophila Ostroverchova, 1979
M. helobia Ostroverchova, 1979
M. inflata Ostroverchova, 1979
M. interposita Ostroverchova, 1979
M. lenticulata Ostroverchova, 1979
M. littoralis (Say, 1824)
M. munda (Winnertz, 1863)
M. mutabilis Sherman, 1921
M. nigriceps (Loew, 1873)
M. pallens (Loew, 1873)
M. pallida (Winnertz, 1863)
M. recurva Johannsen, 1910
= *recurva* var. *chloratica* Johannsen, 1910
M. recondita Ostroverchova, 1979
M. tungusica Ostroverchova, 1979

Species transferred to other genera:

Boletina oviducta (Garrett, 1924)
Leptomorphus panorpiformis (Matsumura, 1915)
[*Neoempheria ferruginea* (Brunetti, 1912)]
Neoempheria andreinii (Bezzi, 1906) n. comb.

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