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## A REVISION OF THE NEARCTIC SPECIES OF FUNGIVORA (DIPTERA, MYCETOPHILIDAE)<sup>1</sup>

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### INTRODUCTION AND REVIEW OF LITERATURE

More than 40 years have passed since Johannsen (1912) provided the only comprehensive treatment of the Nearctic species now included in the genus *Fungivora*. During that time, a number of new species have been described, the number of specimens available for study has increased greatly, and several previously unused identifying characters have been pointed out. As a result, Johannsen's treatise is now of limited use in the identification of species. The present study is an attempt to further the knowledge of the Nearctic species of *Fungivora* by a study of all material available to the author, an evaluation of all previously proposed names for Nearctic species, and the presentation of descriptions, figures, and other pertinent information for all species for which adequate material exists.

The present author has followed Edwards (1925a) quite closely in delimiting *Fungivora* from its close relatives. The following combination of characters will serve to separate the genus from all other *Fungivoridae* with the exception of *Epicypta* Winn. (= *Delopsis* of most authors): *M-Cu* crossvein absent; microtrichia of wing in more or less definite lines, especially apically; subcosta short and ending free; lateral ocellus close to the compound eye; mesoanepisternal bristles present; mesepimeral bristles or smaller setae present (always at least 2 bristles, as well as smaller setae, in Nearctic species); *Cu* forked; *C* not produced beyond apex of *R*<sub>5</sub> (or rarely produced less than its own width beyond *R*<sub>5</sub>). *Epicypta* is poorly defined and further study is needed to determine its limits. For the purpose of the present study it may be separated from *Fungivora* on the following characteristics: *Cu*<sub>1</sub> divergent from *M*<sub>3</sub> apically and parallel with or convergent toward *Cu*<sub>2</sub>, *Fungivora*; *Cu*<sub>1</sub> almost perfectly parallel with *M*<sub>3</sub> for most of its length, but divergent apically from *Cu*<sub>2</sub>, *Epicypta*.

Meigen (1800) erected a large number of genera of Diptera, including *Fungivora*. The same author later (1803) ignored his own earlier work and redescribed most of his 1800 genera under different names. In the second treatment *Fungivora* was called *Mycetophila*. The 1800 paper went almost unnoticed until Hendel (1908) pointed out its existence, attempted to identify the genera and to re-establish them in preference to the 1803 names. In two Opinions, the International Commission on

<sup>1</sup>This publication was made possible by a grant from the Iowa State College Alumni Achievement Fund.

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Zoological Nomenclature (1910, 1944) has confirmed the availability of the 1800 names. In spite of the rulings of the Commission and the priority of *Fungivora* over *Mycetophila*, many workers have continued to use the name *Mycetophila*. It now appears that the Commission will soon render a further Opinion or Opinions which will affect this case. Pending any such further rulings, the present author prefers to follow the past rulings and the International Rules of Zoological Nomenclature. Therefore the name *Fungivora* is used in this paper.

Meigen (1803, 1818, etc.) included in his genus *Mycetophila* species now placed in several different genera of the subfamilies *Sciophilinae* and *Mycetophilinae*. In general, most other workers followed his generic definitions up to the time of Winnertz's (1863) revisionary work. The latter author so defined *Mycetophila* that, when his *Mycothera* is also included, the limits of the genus are approximately the same as those used by Edwards (1925a) and in the present paper.

As already mentioned, Johannsen (1912) wrote the only revisionary treatment of the Nearctic species now included in *Fungivora*. Other work has been sporadic in nature. New names have been introduced by Say (1823, 1829), Loew (1869), Coquillett (1901, 1907), Johannsen (1909, 1912), Guthrie (1917), Johnson (1925b), Curran (1927), Van Duzee (1928), Fisher (1938b), and Shaw (1940, 1951a, 1951b). A few additional papers included species which were described as belonging to *Mycetophila*, but which have since been transferred to other genera. Osten Sacken (1858), Johannsen (1934), and Fisher (1938a) have reported species from North America under names first proposed for European material.

Species of *Fungivora* are known from all the continents. In most parts of the temperate zones it is probably the most abundant genus of the family, both in numbers of individuals and of species. The important recent comprehensive treatments of non-Nearctic species are those of Landrock (1927) for the Palaearctic region, Tonnoir and Edwards (1927) for New Zealand, Lane (1948) for the Neotropical region, and Freeman (1951) for Patagonia and South Chile. Several other papers on European species are very useful in studying Nearctic material, especially those of Dziedzicki (1884, 1915) which contain numerous figures of male terminalia.

#### TERMINOLOGY

In general, the terms employed by Shaw (1952) have been followed in this study. Certain exceptions have been noted below.

**Head.** The preocular setae are situated on a small, somewhat depressed area just anteromedial of the anterior margin of the eye and slightly dorsad of the antennal base.

**Thorax (Fig. 3).** The proepisternum bears a somewhat oblique row of strong bristles and a number of smaller setae. In the species descriptions, only those strong bristles in the row mentioned have been counted. The "anepisternal ratio" is the ratio of the height to the length of the anepisternum. The "height" of the anepisternum was measured from its anterodorsal angle to the most ventral point along the anterior part of the ventral margin. The "length" was measured from the most anterior

point (usually just below the middle of the anterior border) to the posterior border just behind the most ventral of the stout bristles along the posterior margin. The mesepimeron bears (in all Nearctic species of *Fungivora*) both stout bristles and shorter finer setae; only the former are referred to in the numbers given in the species descriptions. The "humeral area" of the mesoscutum is used in the same loose sense employed by most other workers on the family, that is the anterolateral portion of the mesoscutum. In many species the entire mesoscutum is pruinose, that is it bears a dense cover of minute whitish units closely appressed to the integument, giving a dull appearance to the surface. In some species a lateral band of the mesoscutum is pruinose, but the main discal area lacks such a cover, at least as observed with a stereoscopic microscope. The discal area then appears polished. For brevity, the mesoscutum in these cases is said to be "shining".

**Legs.** The hind coxa bears a row of several setae along its distal margin on the posterior side; these are referred to as the posterior preapical bristles. The hind coxa also bears a number of other scattered setae more proximad on its posterior surface; these are termed the posterior setae. The mid and hind tibiae bear a number of stout bristles arranged in longitudinal rows (Figs. 7, 8). Starting with the dorsal row and moving counterclockwise around the left tibia as seen from the distal aspect, these bristles are referred to as the dorsals, anterodorsals, anteriors, ventrals, and posteriors. The latter are weaker than the others. The ventrals are always absent on the hind tibia and are sometimes missing on the mid tibia. The anterodorsals are usually absent on the hind tibia and frequently are lacking on the mid tibia. In general, the most proximad bristle in each row is the smallest of the row, the bristles becoming progressively larger distad in the row. However, in certain species shorter erect bristles of a somewhat different character are interspersed with the longer ones of the dorsal row of the hind tibia. The tibiae bear several strong bristles on the apical margin, but these are not included in the bristle counts. The hind tibia bears numerous very short setulae arranged in more or less definite rows. Since the color of these setulae is of taxonomic value, the setulae groups are given names based on their location. The setulae of the first complete row anterior to the dorsal bristles are referred to as the dorsal setulae. There are several rows of setulae on the anterior surface of the tibia. These are referred to as the anterior setulae. The first complete row adjacent to the anterodorsal bristles is called the first row of anterior setulae, the next the second, etc. The rows are usually nearly regular, but sometimes tend to fuse proximad or fork near the apex of the tibia. The ventral limits of the area occupied by anterior setulae may be recognized by the presence of an anteroventral row of setulae which are somewhat different in nature, generally being longer, finer, and paler than the anterior setulae. The anterior border of the base of the anterior spur is about in line with the end of the anteroventral row of setulae. Since the number of rows of anterior setulae is variable and often somewhat confused, the most ventral row (the one adjacent to the anteroventral setulae) is referred to simply as the last row of anterior setulae. The ventral setulae are those in the area bounded anteriorly by the anteroventral row and posteriorly by an

imaginary line projected proximally from the posterior margin of the base of the posterior spur. The posterior setulae are those in the area bounded dorsally by the dorsal bristles and ventrally by the posterior border of the area of the ventral setulae. The anterior setulae are used taxonomically on the mid tibia as well as on the hind. In the case of the mid tibia only the color of the first two rows, that is the two most dorsal rows, of anterior setulae has been described.

**Wings.** There are several interpretations of the wing venation homologies of the fungus-gnats. At the present, the writer is unable to evaluate the different schemes adequately. Therefore, the terminology of Edwards (1925) is used, since this interpretation seems to have been more widely employed in recent literature than any other (Fig. 1). The wing length is the distance in a straight line from the base of the tegula to the most apical point of the wing membrane. The observed variation of the ratio of the length of r-m to the petiole of M has been given for each species. For computing this ratio the limits of the two vein sectors involved have been arbitrarily chosen as indicated by Fig. 2. R in the descriptions refers only to that part of the radial vein basad of Rs. In counting the number of setulae on the lower side of R and R<sub>1</sub>, the dividing line between these two parts has been taken as the imaginary line which would extend between them if the proximal margin of Rs were continued anteriorly. In deciding whether a given setula near the juncture of r-m and M was to be counted as belonging to r-m or M, the same arbitrary break was used as indicated in Fig. 2 for the length of r-m.

**Terminalia.** The terminalia, as here used, includes abdominal segment VII and all parts posterior to it. The homologies of the parts of the terminalia of *Fungivora* have not been satisfactorily worked out and the terminology used here is somewhat arbitrary and tentative. The male gonocoxopodites (basistyles of many authors) are fused ventrally. The posterior ventral border of the fused gonocoxopodites is usually concave. For brevity, this concavity is referred to as the crotch. The gonostylus is rather complex and is always more or less divided by a membranous area into ventral and dorsal portions. These are termed the ventral stylomere and the dorsal stylomere. The terminology used for other parts of the male terminalia are indicated in Fig. 6, and the terms used for the female terminalia are noted in Fig. 5.

#### MATERIALS AND PROCEDURES

This paper is based on the study of over 10,500 Nearctic specimens of *Fungivora* from all the main political subdivisions in the area except Mexico, North Dakota, Prince Edward Island, and Greenland. Over 500 determined European specimens representing 39 species have also been studied. Of the names based on Nearctic specimens and still considered to belong to this genus, the writer has either examined or received information on the characters of the holotypes, syntypes or paratypes of all but the following species: *F. discoida* (Say) (lost), *F. ichneumonea* (Say) (lost), and *F. mitis* (Joh.). Of Nearctic species first described from European specimens, the lectotype of *F. fungorum* (DeG.) and a syntype of *F. moravica* (Landr.) have been studied, and Dr. Paul

Freeman has compared Nearctic specimens of *F. scotica* (Edw.) with Edwards' holotype and of *F. mitis* (Joh.) with the holotype of *F. jenkinsoni* (Edw.).

The important collections not examined include those of the Boston Society of Natural History and of C. B. D. Garrett of Horseshoe Bay, British Columbia. Through the cooperation of the curators or others listed, it was possible to study the following institutional collections:

University of Alberta, Prof. E.H. Strickland  
 American Museum of Natural History, Dr. C.H. Curran  
 California Academy of Sciences, Dr. E.L. Kessel, Dr. E.S. Ross  
 University of California (Berkeley), Dr. Paul D. Hurd, Jr.  
 University of California (Davis), Mr. A.T. McClay  
 University of California at Los Angeles, Dr. John N. Belkin  
 Canadian National Collection, Mr. J.R. Vockeroth  
 Carnegie Museum, Dr. George Wallace  
 Clemson Agricultural College, Dr. David Dunavan  
 Cornell University, Dr. Henry Dietrich  
 University of Connecticut, Dr. Howard W. Smith  
 Museum of Comparative Zoölogy at Harvard College,  
 Dr. P.J. Darlington, Jr.  
 Illinois Natural History Survey, Dr. Herbert H. Ross  
 University of Illinois, Dr. W.V. Balduf  
 Iowa State College, Dr. H.M. Harris  
 Iowa Wesleyan College, Prof. H.E. Jacques, Prof. D.D. Millspaugh  
 Kansas State College, Dr. Howard E. Evans  
 University of Kansas, Dr. R.H. Beamer  
 University of Massachusetts, Dr. Marion E. Smith,  
 Dr. Charles P. Alexander, Mr. E.I. Coher  
 University of Minnesota, Dr. E.F. Cook  
 University of Missouri, Dr. C.W. Wingo  
 North Carolina Department of Agriculture, Dr. D.L. Wray  
 Ohio State University, Dr. J.N. Knull  
 Oklahoma A. and M. College, Dr. James R. Dogger  
 Oregon State College, Mr. Vincent D. Roth  
 Academy of Natural Sciences of Philadelphia (including the  
 collection of Dr. E.G. Fisher), Dr. James A.G. Rehn  
 Rutgers University, Dr. Elton J. Hansens  
 South Dakota State College, Prof. H.C. Severin  
 Stanford University, Dr. G.F. Ferris  
 University of Tennessee, Dr. Henry F. Howden  
 Texas A. and M. College, Prof. H.J. Reinhard  
 United States National Museum, Dr. Alan Stone  
 Utah State College, Dr. George F. Knowlton  
 Washington State College, Dr. Maurice T. James  
 University of Wisconsin, Dr. C.L. Fluke, Mr. R.H. Jones

In addition to the specimens collected by the author, the following individuals have supplied Nearctic material for study:

Mr. Paul H. Arnaud, Jr., Redwood City, California

Mr. W.C. Bentinck, University of California (Berkeley)  
 Dr. R.M. Bohart, University of California (Davis)  
 Mr. James C. Browning, Clarinda (Iowa) Junior College  
 Mr. G.W. Byers, University of Michigan  
 Dr. S. Camras, Chicago, Illinois  
 Mr. E.I. Coher, University of Massachusetts  
 Mr. W.L. Downes, Iowa State College  
 Dr. R.R. Dreisbach, Midland, Michigan  
 Mr. R.C. Froeschner, Iowa State College  
 Mr. C.P. Hoyt, Stanford University  
 Mr. R. Namba, University of Minnesota  
 Brother Joseph Ouellet, C.S.V., Montreal, Quebec  
 Mr. T. Polhemus, Iowa State College  
 Dr. T.W. Porter, Michigan State University  
 Mr. Joseph C. Schaffner, Iowa State College  
 Mr. E.I. Schlinger, University of California (Davis)  
 Dr. F.R. Shaw, University of Massachusetts  
 Dr. James A. Slater, Iowa State College  
 Dr. Howard W. Smith, University of Connecticut

European specimens of *Fungivora* have been made available by the following institutions and individuals:

Institut Royal des Sciences Naturelles de Belgique, Brussels,  
 Mr. Roger Tollef  
 British Museum (Natural History), London, Dr. Paul Freeman  
 Deutsches Entomologisches Institut, Berlin, Dr. Willi Hennig  
 Moravian Museum, Brno, Czechoslovakia, Dr. Jaroslav Stehlík  
 Naturhistoriska Riksmuseet, Stockholm, Dr. René Malaise  
 Mr. Peder Nielsen, Silkeborg, Denmark  
 Mr. Fernand Schmid, Lausanne, Switzerland  
 Prof. Josef Winkler, Praha, Czechoslovakia

Terminalia were prepared for study in a manner very similar to that employed by many other workers. After the specimen had been relaxed for a few hours in a moist chamber, all or part of the abdomen was removed by means of fine scissors with the aid of a dissecting microscope. The abdomen was then placed in a 5 to 10 per cent solution of potassium hydroxide. This solution was brought to the boiling point and allowed to boil gently for about a minute. The abdomen was then removed with a pipette to distilled water and allowed to remain for a minute or two, then transferred to glacial acetic acid for about another minute, then placed in distilled water for a few minutes before transfer to glycerine. For purposes of identification the specimen was transferred to a drop of glycerine on a depression slide. Metal holders of a type used by watch repairmen served for holding "minuten Nadeln". These holders are about 3 inches long. Such dissecting needles were used for manipulating the terminalia into the positions desired for study. Also, when it was desired to withdraw telescoped parts, this was readily accomplished by gentle traction with a pair of the needles.

The terminalia were permanently stored in glycerine in 4 x 10 mm

glass vials stoppered with tapered corks. In order to confine the glycerine to about the bottom 3 mm of the vials, it was introduced into the vials with a pipette drawn out to a fine point. The terminalia can easily be placed into or removed from the vials by means of the needles described.

Adult specimens were studied with the aid of a stereoscopic microscope with magnifications up to 85. Wing length measurements were made with an ocular micrometer using a magnification at which 1 unit of the micrometer equalled .021 mm. Other measurements were made at a magnification which resulted in a value of .007 mm for each micrometer unit. The terminalia were drawn under a compound microscope, 100 magnifications being used for most purposes, but minute details were added using 430 magnifications. The specimen was placed in a drop of viscid polyvinyl alcohol medium while being drawn. This medium has satisfactory optical qualities and its viscosity tends to prevent drifting of the specimen while it is being drawn. The microscope was fitted with a squared ocular micrometer and the original figures were made on squared drawing paper.

#### DISCUSSION

Ninety-six species of Nearctic *Fungivora* are recognized in this paper. The writer has seen at least five additional species which have not been included since only females or damaged males were available. Seven of the species treated are known from single specimens and only short series of several others are at hand. These facts strongly indicate that additional species remain to be discovered.

Four species of *Fungivora*--*F. caudata* (Staeg.), *F. fungorum* (DeG.), *F. sigmoides* (Loew) (as *Mycetophila fastosa* (Joh.) and *F. sordida* (v.d. Wulp)--have previously been recorded as occurring in both the Nearctic and Palaearctic regions. Seventeen additional species are here reported as being found in both regions. Thus, 21 of the 96 Nearctic species of *Fungivora* are also known from the Palaearctic region. Of the 21, all but *F. sigmoides* are known to be European. It is quite probable that additional species will be found to occur in both areas, as the writer has been unable to obtain many Palaearctic species for comparison.<sup>1</sup> Of the 21 Holarctic species, 20 occur in either Canada or Alaska or both. The exception is *F. finlandica* (Lundst.), of which only 3 Nearctic specimens have been taken.

A study of the Alaskan and eastern Palaearctic species is of particular significance. Twenty-one species of *Fungivora* are reported from Alaska and of these 12 are also European. Unfortunately, the species of *Fungivora* of eastern Siberia are very poorly known, only 3--*F. fungorum*, *F. ruficollis* (Meig.) (as *Mycetophila lineola*) and *F. sigmoides* (as *Mycetophila fastosa*)--having been reported. All of these occur in Alaska and in other parts of the Nearctic region. *F. fungorum*, *F. ruficollis* and six additional species are known from Japan. One of these,

<sup>1</sup>Palaearctic specimens examined are listed in the text under the various species if they are also Nearctic, or in a special list near the end of

F. ocellus (Walk.), is Nearctic. A second, F. stolidus form septemtrionalis Okada, will probably eventually be considered as identical with the European and Nearctic F. stolidus (Walk.), as the deviations from the "typical" F. stolidus mentioned in the original description by Okada also occur in some Nearctic specimens. Another Japanese species, F. asiatica Okada, appears to be very similar to the Holarctic F. signatoides (Dzied.), and is perhaps a synonym of it or of one of the species closely related to F. signatoides. Another of the Japanese species, F. naratakevora Okada is distinct from any Nearctic species known to the writer, though very similar to if not identical with the European F. curviseta (Lundst.). The last two Japanese species, F. maculata Shinji (not Macquart or Marshall) and F. binotata Shinji (not Walker or Brunetti) are so poorly described that no estimate of their relationships can be made at this time.

About 400 species of Fungivora are known. This total does not include the many fossil forms. It would be desirable for convenience and for a better understanding of the genus to place the species in smaller natural units. However, the writer knows of no completely satisfactory character or characters which he feels would accomplish this end for even the Nearctic species. Further, any such "splitting" of the genus into subgenera or genera should take into account species from all regions. Certain characters make it possible to set up "groups" of a somewhat artificial nature. For example, the absence of ventral bristles on the mid tibia of some species may be used as the criterion for a group of "convenience", and in this study one of the artificial groupings used is based on this characteristic. However, in at least one species, F. fatua (Joh.), the mid tibia may either possess or lack ventral bristles. Similar examples could be cited for the other "artificial groups" used here. In some cases, certain species in one group show closer resemblance to species of other groups than to those of their own group.

A check list of the assignments of the Nearctic species to these more or less arbitrary groups of Fungivora follows.

## Group A

F. ruficollis (Meigen)  
F. ichneumonea (Say)  
F. parvimaclata (Van Duzee)  
F. sepulta, n. sp.  
F. fungorum (DeGeer)  
F. fisherae, n. sp.  
F. thioptera (Shaw)  
F. falcata (Johannsen)  
F. illudens, n. sp.  
F. carruthi (Shaw)  
F. lenis (Johannsen)  
F. browningi, n. sp.  
F. vegeta, n. sp.

## Group B

F. caudata (Staeger)  
F. analis (Coquillett)  
F. comata, n. sp.  
F. devia, n. sp.  
F. wirthi, n. sp.  
F. paula (Loew)  
F. fatua (Johannsen)  
F. clavata (Van Duzee)  
F. faceta, n. sp.  
F. ocellus (Walker)  
F. crassiseta, n. sp.  
F. sordida (van der Wulp)  
F. cruciator, n. sp.  
F. cavillator, n. sp.

## Group C

F. vesca, n. sp.  
F. mitis (Johannsen)  
F. scotica (Edwards)  
F. recta (Johannsen)  
F. recula, n. sp.  
F. paxillata, n. sp.  
F. propinqua (Walker)  
F. uncinata, n. sp.  
F. ghanii (Shaw)  
F. arnaudi, n. sp.  
F. capreolata, n. sp.  
F. consonans, n. sp.  
F. hiulca, n. sp.  
F. edura (Johannsen)  
F. caurina, n. sp.  
F. frustrator, n. sp.  
F. sertata, n. sp.  
F. impellans (Johannsen)

## Group D

F. itascae, n. sp.  
F. cingulum (Meigen)  
F. sigmoides (Loew)  
F. seclusa, n. sp.  
F. attonsa, n. sp.  
F. sierrae, n. sp.  
F. concinna, n. sp.  
F. perita (Johannsen)  
F. jucunda (Johannsen)  
F. exstincta (Loew)  
F. procera (Loew)  
F. trinotata (Staeger)  
F. celator, n. sp.  
F. moravica (Landrock)  
F. spleniata, n. sp.

## Group E

F. laeta (Walker)  
F. percursa, n. sp.  
F. foecunda (Johannsen)  
F. dentata (Lundström)  
F. guttata (Dziedzicki)  
F. stricklandi, n. sp.  
F. lenta (Johannsen)  
F. pinguis (Loew)  
F. signatoides (Dziedzicki)  
F. sigillata (Dziedzicki)

## Group F

F. stolidus (Walker)  
F. chamberlini, n. sp.  
F. strigata (Staeger)  
F. limata, n. sp.  
F. unipunctata (Meigen)  
F. discors, n. sp.  
F. alexanderi, n. sp.  
F. bipunctata (Loew)  
F. verecunda, n. sp.  
F. bentincki, n. sp.  
F. alberta (Curran)  
F. fascinator, n. sp.  
F. shawi, n. sp.  
F. scitula, n. sp.  
F. jugata (Johannsen)  
F. bimaculata (Fabricius)  
F. alata (Guthrie)  
F. finlandica (Edwards)  
F. pectita (Johannsen)  
F. subita, n. sp.  
F. contigua (Walker)  
F. byersi, n. sp.  
F. luctuosa (Meigen)  
F. bohartorum, n. sp.  
F. venusta, n. sp.  
F. napaea, n. sp.

Unplaced, probably Group C

F. parva (Walker)

Shaw (1948) considered *Opistholoba* Mik as a distinct genus on the grounds that it has a greater dorsoventral thoracic depression and a more oblique mesepimeron than *Fungivora*. The species of the latter genus, however, show an almost continuous series of development of these two characteristics and some, for example *F. fascinator* n. sp., could probably not be separated from the type species of *Opistholoba* on these features. Also, there is some individual variation within species in regard to the shape of thoracic sclerites, and the writer has been unable to find any one feature of these sclerites which could be used to satisfactorily divide even the Nearctic species of *Fungivora* into two or more nonoverlapping groups. Since the author has not found characters aside from the male terminalia which will sharply separate *F. caudata* from other species of *Fungivora*, it is thought best to retain it in *Fungivora* for the present.

The biology of the species of *Fungivora* is very poorly known. Apparently the larvae are always associated with fungi, especially Agaricaceae and Polyporaceae. Some species have been reared from many different fungi, while others are known from only one fungus. Since relatively few rearing records are available, any claims of host specificity would probably be premature. The immature forms of only a few species of *Fungivora* have been described, so the present classification must be based on the morphology of the adults.

All forms considered in this paper are given full specific standing. However, it may eventually be desirable to treat certain of the forms as subspecies. Such action has been avoided for several reasons including the inadequate information on distribution, biology, immature stages, and possible intergradation of species. Also, certain sympatric species show about the same degree of difference seen in some allopatric species that might be considered as geographic races. Thus, certain pairs of sympatric species, for example *F. ichneumonea* (Say) and *F. sepulta* n. sp., and *F. impellans* (Joh.) and *F. sertata* n. sp., are perhaps as closely related as are such pairs of allopatric species as *F. recta* (Joh.) and *F. stylata* (Dzied.), and *F. pectita* (Joh.) and *F. obscura* (Dzied.). It is, of course, quite likely that more intensive future work may indicate that some of the forms here considered as one species, especially those with a Holarctic distribution, are actually composed of two or more species or subspecies. The primary criterion used in making decisions as to whether European and Nearctic specimens should be considered conspecific has been the male terminalia. When no feature of the terminalia could be found that seemed to show significant difference, the specimens have been considered to be conspecific.

#### GENERIC SYNONYMY AND DESCRIPTION

##### *Fungivora* Meigen

1800 *Fungivora* Meigen, pp.16-17. (Facsimile ed.: 1945, pp.136-137).

Type species: *Tipula agarici* de Villers, 1789 (by subsequent designation of Coquillett, 1910, who incorrectly cited the species as "*Mycetophila agarici* Olivier").

- 1803 *Mycetophila* Meigen, p.263. Type species: *Tipula agarici* de Villers, 1789 (by subsequent designation of Johannsen, 1909a, who incorrectly cited the species as "*M. agarici*, Meigen").
- 1863 *Mycetophila*, Winnertz, pp.665,915; pl.21, fig.36 (wing).
- 1863 *Mycothera* Winnertz, pp.664,913; pl.21, fig.35 (wing). Type species: *Mycetophila dimidiata* Staeger, 1840 (not Meigen, 1804) (by subsequent designation of Johannsen, 1909a).
- 1891 *Opistholoba* Mik, p.5. Type species: *Mycetophila caudata* Staeger, 1840 (by monotypy and original designation).
- 1908 *Fungivora*, Hendel, p.48.
- 1909a *Mycetophila*, Johannsen, pp.115-116; pl.1, fig.6 (antenna); pl.6, figs.23,24 (wings).
- 1909a *Mycothera*, Johannsen, pp.110-111; pl.6, fig.22 (wing).
- 1909a *Opistholoba*, Johannsen, p.125.
- 1910 *Fungivora*, Coquillett, p.545.
- 1913a *Mycetophila*, Edwards, pp.339,343,372-373,379.
- 1925a *Mycetophila*, Edwards, pp.586,631-632.
- 1941 *Fungivora*, Stone, p.410.
- 1948 *Mycetophila*, Shaw, pp.196,198; 197, fig.18 (thorax).
- 1948 *Opistholoba*, Shaw, pp.196,198; 197, fig.19 (thorax).

Antenna 16-segmented. Palpus 4-segmented, basal segment much smaller than others. Two or 3 ocelli; lateral ocelli close to eye margins; median ocellus, if present, smaller than lateral ocelli.

Mesoscutum nearly uniformly provided with short setae, longer bristles present along margins and usually centrally. Scutellum with 4 strong bristles on margin and with shorter setae above. Pronotum with several strong bristles, distinctly separated from proepisternum by a groove. Proepisternum with at least 2 strong bristles and with several short setae. Katepisternum bare except for a small anterodorsal patch of very minute setae. Anepisternum with a row of strong bristles subparallel with posterior margin, usually with several additional bristles on dorsal half, always with numerous short setae over most of surface, especially dorsally. Mesepimeron with setae near dorsal border. Pleurotergite with several fairly long setae posterodorsally and with finer setae near the insertions of the longer ones. Metepisternum with several strong setae posteriorly. Mediotergite with several very fine setae laterally.

Mid and hind coxae and femora each with a dark brown spot laterally near apex. Hind coxa with a row of preapical bristles posteriorly. Mid and hind tibiae always with long bristles. Fore tibia with one apical spur and an apical, depressed, more or less semicircular (?sensory) area. Mid and hind tibiae each with two strong apical spurs.

Wing with C not produced beyond tip of  $R_1$  (or rarely produced less than width of C). Sc short and ending free. C, Sc,  $R_1$  and  $R_5$  always with setulae above and below. R before  $R_s$  with setulae above nearly to base, at least part of R bare below toward base. Branches of M and Cu bare below, nearly always sparsely setulose above, at least apically.  $Cu_1$  somewhat divergent apically from  $M_3$ , but somewhat convergent toward  $Cu_2$ .

Abdomen with six well-developed segments, seventh fairly large in

female. Male gonocoxopodites fused ventrally. Female cercus 1- or 2-segmented.

The above description applies to all known Nearctic species, and, as far as the knowledge of the writer goes, to all other species of Fungivora. In the Nearctic species there are a few macrotrichia on the membrane near the posterior angle of the wing, but they are absent on other parts of the membrane. Freeman (1951) has recently described several species from Patagonia and South Chile which have some macrotrichia on the membrane near the apex of the wing. The mesepimeron of Nearctic species always bears a number of short setae and two or more strong bristles near the dorsal border. Tonnoir and Edwards (1927) described a number of species from New Zealand which have setae but no distinct bristles on the mesepimeron, and Freeman (1951) has found this same characteristic in several species from southern South America. It may be noted that the hind tibia bears a row of dark brown dorsal setulae in all Nearctic species except F. cingulum (Meig.), F. itasca n.sp., and F. seclusa n.sp.

The true identity of Tipula agarici de Villers<sup>1</sup> is in doubt and it is quite possible that it belongs to some genus other than Fungivora or Mycetophila of authors. If this conclusion is reached, it might be desirable to seek plenary action from the International Commission on Zoological Nomenclature to insure that neither of these generic names be used for some entirely different genus.

Johannsen (1909a) considered Mycetina Rondani (1856) and Mycozetaea Rondani (1861) as questionable synonyms of Mycetophila. Mycozetaea was proposed as a replacement name for Mycetina, which had been preoccupied by a mammalian name. The type species for Mycozetaea and Mycetina is Mycetophila flavipes Macquart (1826). Mycetina was described only in a key. According to the characteristics given in the key, Mycetina has: "Vena longitudinalis prima non rudimentalis et costalem attingens," while Mycetophila was keyed through a couplet which reads: "Vena longitudinalis prima rudimentalis, vel vix distinguenda, numquam costali producta." The present writer interprets these statements to mean that Mycozetaea has a subcostal vein which reaches the costal. If such were the case, Rondani certainly was not basing his description on specimens of Fungivora. However, since he made Mycetophila flavipes Macq. the type species, it is Macquart's original name on which the genera are actually based. It is quite probable that Rondani misdetermined M. flavipes, so that his description of the genus is of but little importance unless the case were to be taken to the International Commission.

Apparently no authors have given descriptive information on Mycetophila flavipes except Rondani and Macquart. Landrock (1927) includes it only in a list of "fragliche Fungivora-Arten." The type specimen or specimens of M. flavipes were from Lille, France. Macquart (1826) indicates that the wings are hyaline and that the fore tibia has a ventral black line. The present author knows of no Palaeartic species of

Fungivora with this combination of characters. Therefore, it is probably fair to conclude that neither the M. flavipes of Rondani nor Macquart belong to Fungivora and therefore that Rondani's generic names can not be considered as synonyms of Fungivora.

#### REMARKS ON THE KEYS AND DESCRIPTIONS

An attempt has been made to list all references to species of Fungivora which have been based on Nearctic specimens except those in textbooks and in catalogs (Osten Sacken, 1859, 1878; Kertész, 1902; Aldrich, 1905; Johannsen, 1909a). A few catalog references have been cited where they are of particular importance. In other cases the catalog references may be placed readily by comparing them with the appropriate synonyms in this paper. It is probable that a few Nearctic references have been overlooked.

In the case of the 20 Nearctic species which also occur in Europe, only selected Palaeartic references have been cited. An attempt has been made to include all citations which are of importance because of the introduction of new names, biological information, establishment of synonymy, figures, or exceptional extension of known range.

Some individual locality records have been the basis of several separate reports in the literature, later authors often merely having repeated earlier published data. If the specimens on which such records were based have been examined, this fact is noted in the appropriate place, usually under "material examined", but ordinarily only the earliest published records based on such specimens have been noted. Likewise, if the material has not been seen, the earliest record is cited under "additional previous records" following the species to which it is felt the record pertains. The author has not been able to determine to his own satisfaction the proper placement of some published records. Such reports are here considered only as "Fungivora sp." and are listed separately. Certain published reports have been found to have been based on specimens of genera other than Fungivora. These records and their proper placement are also allocated to a special section. Some Nearctic species which were originally described as belonging to Mycetophila actually belong to genera other than Fungivora. These species and indications of their status are included in a list on page 296.

In the bibliographical synonymies of the species, commas have been inserted between the specific names and names of the authors in all cases except those representing proposals of new species. This scheme (in principle) is discussed by Mayr, Linsley and Usinger (1953, pp. 184-185). The use of terms such as "not Meigen" following the author of a misdetermination has been avoided in this paper, since the use of commas makes these terms unnecessary except in the case of the first appearance of a homonym.

The "groups" indicated in the following key should be considered as groups of "convenience" and not necessarily as natural units within the genus. In the cases of species represented by short series, all or most of the specimens examined have been utilized in the preparation of the descriptions. Descriptions and key placement of species represented

<sup>1</sup>Dr. René Malaise has informed the writer that DeGeer's specimens of this species are not in the Naturhistoriska Museum, Stockholm. They are therefore presumed to be lost.

by long series have been based primarily on a series of about 10 specimens per species. After preparation of a preliminary description and key placement, numerous additional specimens were examined and the descriptions and keys modified to include variations noted. It is to be expected that further variation will be found, especially in those species of which only short series were at hand.

The International Commission on Zoological Nomenclature (1950, pp. 234-235) ruled that when a name in common use is found to be a junior synonym or junior homonym, the case should be submitted to the Commission for action and that pending its action no worker should substitute a name for the one in common use. In the opinion of the present author, this ruling might or might not apply to certain of the cases treated in this paper, depending on one's individual opinion as to whether any of the names in this paper are in "common" use. Since this decision must be completely subjective, the present writer chooses to consider that none of the specific names used here are in "common" use in the sense of the Commission's ruling. Therefore, the rules of zoological nomenclature have been strictly applied.

The standard abbreviations have been employed for the wing veins. Other abbreviations used include: a for anterior tibial bristles; a-d, anterodorsal tibial bristles; d, dorsal tibial bristles; p, posterior tibial bristles; v, ventral tibial bristles; f, female(s); m, male(s); Co., County; N.F., National Forest; N.P., National Park; S.F., State Forest; S.P., State Park; CPA, Charles P. Alexander; JL, Jean Laffoon.

#### KEYS TO THE GROUPS OF NEARCTIC SPECIES OF FUNGIVORA<sup>1,2</sup>

1. Mid tibia without ventral or anterodorsal bristles; hind tibia without anterodorsal bristles. . . . . Group A  
Mid tibia with ventral bristles; mid and hind tibiae with or without anterodorsals . . . . . 2
2. Mid and hind tibiae without anterodorsals . . . . . 3  
Mid tibia with anterodorsals; hind tibia with or without anterodorsals. . . . . 4
3. M before r-m with 0-2 setulae below. . . . . Group B  
M before r-m with 3 or more setulae below . . . . . Group C
4. Hind tibia with 1 or more anterodorsals . . . . . Group D  
Hind tibia without anterodorsals. . . . . 5
5. Hind tibia with second row of anterior setulae (second longitudinal row ventrad from anterior bristles) all yellow or with dark brown ones on not more than apical 1/4 of tibia. . . . . Group E  
Hind tibia with second row of anterior setulae dark brown on at least apical 1/3 of tibia (in a few species, this row entirely dark brown except for about 3 yellow setulae at apex) . . . . . Group F

<sup>1</sup>For a discussion of the nature of these groups, see pp. 153-154.

<sup>2</sup>*F. parva* (Walk.) is not included in the keys; it would run to Group C.

#### Key to the Species of Group A<sup>1</sup>

1. M before r-m with 10 or more setulae below. . . . . 2  
M before r-m with 0-2 setulae below (nearly always 0). . . . . 5
2. Wing with a preapical spot before tip of R<sub>1</sub>; hind coxa with a posterior brown spot; hind tibia brown apically. . . . .  
. . . . . *F. parvimaclata*, p. 173  
Preapical wing spot entirely absent; hind coxa and tibia yellow. . . . . 3
3. Wing unspotted (occasionally base of Rs slightly infuscated, but spot never extending into cell R<sub>5</sub>). . . . . *F. sepulta*, p. 175  
Wing with a central spot which always enters base of cell R<sub>5</sub>. . . . . 4
4. At least some of the posterior preapicals of hind coxa distinctly bent before their tips. . . . . *F. ichneumonea*, p. 171  
Hind coxa with posterior preapicals straight or nearly so. . . . .  
. . . . . *F. ruficollis*, p. 168
5. Wing without spots. . . . . 6  
Wing with at least a central spot. . . . . 9
6. R with 1-3 setulae below; hind tibia with 0-1 posterior bristles. . . . . *F. browningi*, p. 191  
R with 7 or more setulae below; hind tibia with 7 or more posteriors. . . . . 7
7. Hind coxa with posterior preapicals long and bent (usually downward) about one-fourth distance from tip; last segment of female cercus oval (Fig. 11); ventral stylomere of male with 2 prominent, S-shaped setae (Fig. 34). *F. fisherae*, p. 180  
Hind coxa with posterior preapicals nearly straight; ventral stylomere of male without S-shaped setae. . . . . 8
8. Female with apical segment of cercus long and slender (Fig. 12); ventral stylomere of male with a group of 3 closely placed stout setae near apical median angle (Fig. 36). *F. thioptera*, p. 184  
Female with apical segment of cercus shorter and broader (Fig. 10); ventral stylomere with several strong setae near apical median angle, but not with 3 set very close together (Fig. 38). . . . . *F. fungorum*, p. 176
9. R with 16 or more setulae below; distinct preapical wing spot present, reaching M<sub>1+2</sub>. . . . . 10  
R with 12 or fewer setulae below; preapical wing spot absent (except in *F. vegeta* where it ends before M<sub>1+2</sub>) . . . . . 11

<sup>1</sup>*F. fatua* of Group B is included in this key.



10. Central wing spot extending to C, longest in costal cell  
 . . . . . *F. lenis*, p. 190  
 Central wing spot not extending into costal cell. . . . . *F. fatua*, p. 200
11. Preapical wing spot present; hind tibia without  
 posterior bristles. . . . . *F. vegeta*, p. 192  
 Preapical wing spot absent; hind tibia with 3 or  
 more posterior bristles. . . . . 12
12. Pleurotergite with fine short setae almost to anterior  
 margin. . . . . *F. illudens*, p. 188  
 Pleurotergite without fine setae anteriorly except for  
 a few close to the long bristles. . . . . 13
13. Male dorsal stylomere with a slender lobe arising near  
 basal end, directed posteriorly and medially (Fig. 41);  
 postgenital plate of female without enlarged apical  
 setae;  $R_1$  with 33-48 setulae below. . . . . *F. carruthi*, p. 189  
 Male dorsal stylomere without such a lobe (Fig. 45);  
 postgenital plate of female with about 4 enlarged setae  
 near apex, distinctly differentiated from the numerous  
 fine setae;  $R_1$  with 24-34 setulae below . . . . . *F. falcata*, p. 186

Key to the Species of Group B<sup>1</sup>

1. Anterior setulae of hind tibia yellow (a few black ones  
 distally); mesoscutum shining. . . . . *F. caudata*, p. 193  
 Anterior setulae of hind tibia dark brown; mesoscutum  
 pruinose. . . . . 2
2. Wing without a central spot; ratio of r-m: M petiole  
 0.7 or less. . . . . 3  
 Wing with a distinct central spot; ratio of r-m: M petiole  
 0.6 or more, usually over 1 (except in *F. sordida* and  
*F. alexanderi*). . . . . 6
3. Wing with a preapical spot; abdominal tergite III yellow;  
 abdominal sternites II and III each with a pair of long  
 median apical bristles. . . . . *F. analis*, p. 195  
 Wing without preapical spot; abdominal tergite III  
 entirely brown. . . . . 4
4. Abdominal sternites without long apical bristles; r-m  
 with setulae below. . . . . *F. comata*, p. 196  
 Abdominal sternites II and III each with a pair of long  
 medial apical bristles; r-m bare below or with  
 1 setula. . . . . 5

<sup>1</sup>*F. alata* and *F. alexanderi* of Group F are also included in this key.

5. Male fused gonocoxopodites with convex posterior ventral  
 margin (Fig. 58). . . . . *F. devia*, p. 197  
 Male fused gonocoxopodites with concave posterior ventral  
 margin (Fig. 60). . . . . *F. wirthi*, p. 197
6. Cu fork far beyond fork of M; cell  $Cu_1$  about one-third as  
 long as cell  $M_2$  or even shorter. . . . . *F. paula*, p. 198  
 Cu fork before, under, or just beyond fork of M. . . . . 7
7. R with 16-30 setulae below; wing at least 4.04 mm long.  
 . . . . . *F. fatua*, p. 200  
 R with 15 or less setulae below (12 or less except in  
*F. alata*). . . . . 8
8. Preapical wing spot distinct, its contact with C almost  
 entirely or entirely beyond tip of  $R_1$ . . . . . 9  
 Preapical wing spot absent or rather diffuse with ill-defined  
 margins, if present, spot includes apical portion of costal  
 cell. . . . . 11
9. Hind coxa with at least some posterior setae about as long  
 as posterior preapicals; hind tibia with 2-9 posteriors.  
 . . . . . *F. clavata*, p. 202  
 Hind coxa with all posterior setae extremely short;  
 hind tibia without posteriors. . . . . 10
10. Abdominal sternites II and III without median apical bristles  
 much longer than the others; male terminalia (Figs. 190,  
 191). . . . . *F. alata*, p. 278  
 Abdominal sternites II and III each with a pair of median  
 apical bristles distinctly longer than the others; male  
 terminalia (Figs. 78, 79). . . . . *F. faceta*, p. 203
11. Preocular setae absent; mid tibia with 2 anteriors;  
 preapical wing spot absent. . . . . *F. alexanderi*, p. 267  
 Preocular setae present; mid tibia usually with 3, rarely  
 with 2 or 4 anteriors; preapical wing spot present or  
 absent. . . . . 12
12. R-m with at least one setula on half closest to M, usually  
 setulae in series to juncture of r-m and M, often with 1  
 or 2 setulae on M before r-m; preapical wing spot nearly  
 always present, frequently enclosing a rectangular  
 hyaline spot in anterior half of cell  $R_5$ . . . . . *F. ocellus*, p. 204  
 R-m with setae only on half closest to  $R_1$ , or bare;  
 preapical wing spot not enclosing a hyaline spot. . . . . 13
13. Male ventral stylomere bearing an extremely broad seta  
 apically (Fig. 68). . . . . *F. crassiseta*, p. 209  
 Male ventral stylomere not bearing a seta on the apical  
 margin which is several times broader than any other  
 seta on this structure. . . . . 14

14. Posterior margin of ventral stylomere of male almost straight (Fig. 70). . . . . *F. sordida*, p. 210  
 Posterior margin of ventral stylomere of male distinctly emarginate. . . . . 15
15. Posterolateral corner of ventral stylomere of male bearing 1 or 2 prominent setae (Fig. 72). . . . . *F. cruciator*, p. 212  
 Posterolateral corner of ventral stylomere of male with numerous setae of about the same magnitude (Fig. 74) . . . . . *F. cavillator*, p. 212

Key to the Species of Group C<sup>1</sup>

1. Basal half of hind femur no darker above than on sides. . . . . 2  
 Hind femur with a distinct dark line above on all or nearly or nearly all its length. . . . . 6
2. Wing without spots; ratio of r-m : M petiole about 0.3. . . . . *F. vesca*, p. 213  
 Wing with at least a central spot; ratio of r-m : M petiole 0.75 or more. . . . . 3
3. At least some posterior setae of the hind coxa as long or longer than the posterior preapicals. . . . . *F. clavata*, p. 202  
 None of the posterior setae of the hind coxa more than about half as long as the posterior preapicals. . . . . 4
4. Preapical wing spot usually absent, if present contacting C far beyond tip of R<sub>1</sub>; M before r-m with 8-14 setulae below. . . . . *F. mitis*, p. 213  
 Preapical wing spot present, contacting or almost contacting tip of R<sub>1</sub>; M before r-m with 10 or less setulae below. . . . . 5
5. Posterior ventral margin of fused gonocoxopodites of male with a rounded crotch (Fig. 190); M before r-m with 1-4 setulae below; segments 2, 3 and 4 of female fore tarsus distinctly thicker than 1. . . . . *F. alata*, p. 278  
 Posterior ventral margin of fused gonocoxopodites of male nearly straight (Fig. 84); M before r-m with 4-10 setulae below; female unknown. . . . . *F. scotica*, p. 215
6. R with 14 or more setulae below; wing 4.46 mm or longer; mid tibia with 4-5 anteriors. . . . . *F. propinqua*, p. 219  
 R with 11 or less setulae below; male wing 4.27 mm or shorter; mid tibia usually with 3 anteriors. . . . . 7

7. Anepisternal ratio 0.97 or less; preapical wing spot with rather poorly defined margins. . . . . 8  
 Anepisternal ratio 0.98 or more (almost always 1.00 or more). . . . . 10
8. Male ventral stylomere with 3 strong broad setae near the posterolateral corner (Fig. 89). . . . . *F. recta*, p. 216  
 Ventral stylomere with only 1 or 2 strong broad setae near the posterolateral corner. . . . . 9
9. Ventral stylomere with 2 strong broad setae near the posterolateral corner (Fig. 88). (California) *F. recula*, p. 217  
 Ventral stylomere with 1 strong broad seta near the posterolateral corner (Fig. 86). (Oregon to Alberta) . . . . . *F. paxillata*, p. 218
10. Dorsal stylomere (as viewed laterally) with 2 lobes projecting dorsally, the more apical very long and slender and about as long as the more basal lobe (Figs. 95, 97, 99). . . . . 11  
 Dorsal stylomere with a dorsally projecting lobe near base but without another near apex which is nearly equal to basal lobe. . . . . 13
11. Posteroventral corner of dorsal stylomere (as seen laterally) produced beyond the base of the apical dorsally projecting lobe (Fig. 95). . . . . *F. uncinata*, p. 221  
 This corner not produced beyond base of apical dorsally projecting lobe. . . . . 12
12. Apical dorsally projecting lobe of dorsal stylomere S-shaped in lateral view (Fig. 97). . . . . *F. ghanii*, p. 222  
 Apical dorsally projecting lobe of dorsal stylomere not S-shaped (Fig. 99). . . . . *F. arnaudi*, p. 222
13. Ventral stylomere (ventral view) with a distinct apical emargination (Fig. 100); dorsal stylomere with caudal portion long and slender (Fig. 101). . . . . *F. capreolata*, p. 223  
 Ventral stylomere without a distinct apical emargination. . . . . 14
14. Crotch of gonocoxopodites relatively shallow and narrow (Fig. 102); dorsal stylomere with posterodorsal angle extending much more caudad than the posteroventral angle (Fig. 103). . . . . *F. consonans*, p. 223  
 Crotch of gonocoxopodites relatively deeper and broader; dorsal stylomere with posterodorsal angle not produced far caudad of the posteroventral angle. . . . . 15
15. Sides of ventral margin of crotch of gonocoxopodites almost parallel (Fig. 104); dorsally directed lobe of dorsal stylomere with numerous fine setulae over most of the lateral surface (Fig. 105). . . . . *F. hiulca*, p. 223

<sup>1</sup>*F. clavata* of Group B and *F. alata* of Group F are also included in this key.

- Sides of ventral margin of crotch converging basad; dorsally directed lobe of dorsal stylomere without fine setulae on surface. . . . . 16
16. Dorsal stylomere with a deep rounded notch posteroventrally (Fig. 91). . . . . *F. edura*, p. 224
- Dorsal stylomere without a posteroventral notch or with only a shallow one. . . . . 17
17. Ventral stylomere with the most median seta of the apical row somewhat isolated from the others (Fig. 106); dorsal stylomere with a group of short modified setulae near the posteroventral corner (Fig. 107). . . . . *F. caurina*, p. 224
- Ventral stylomere with intervals between last 3 apical setae mediad about equal. . . . . 18
18. Dorsal stylomere with a patch of fine setulae on median surface near the ventral edge somewhat before posterior end; dorsally directed lobe quite narrow (Fig. 109). . . . . *F. frustrator*, p. 225
- Dorsal stylomere without such a patch of fine setulae; dorsally directed lobe relatively broader. . . . . 19
19. Dorsal stylomere with a long strong seta laterally near base of dorsally directed lobe, this seta stronger than any others ventral or posterior to it on dorsal stylomere (Fig. 111). . . . . *F. sertata*, p. 225
- Dorsal stylomere without a seta near the base of dorsally directed lobe distinctly larger than any others ventral or posterior to it (occasionally setae may be present in about this position, but if so they are about the same size as those more caudad) (Fig. 113). . . . . *F. impellans*, p. 226

## Key to the Species of Group D

1. Hind tibia with dorsal setulae yellow to dingy yellow, or with only a few dark brown ones near base and apex, not forming a complete row. . . . . 2
- Hind tibia with a distinct dorsal row of dark brown setulae just posterior to anterodorsal bristles (row may be interrupted near each anterodorsal bristle). . . . . 4
2. M before r-m with 10-14 setulae below; segments of fore tarsus subequal in thickness in both sexes. . . . . *F. itascae*, p. 228
- M before r-m with 0-1 setulae below; segments 2, 3 and 4 of fore tarsus distinctly thicker than 1, at least in female. . . . . 3
3. Hind tibia with 0-1 posteriors; tarsal claws each with a single tooth. . . . . *F. seclusa*, p. 232

- Hind tibia with 7-15 posteriors; tarsal claws each with 4 close-set teeth. . . . . *F. cingulum*, p. 229
4. Anterior and ventral setulae of hind tibia yellow except for a few dark brown ones near apex. . . . . 5
- Anterior setulae of hind tibia dark brown (some species with a few yellow or dingy yellow ones near apex); ventral setulae of hind tibia dark brown. . . . . 8
5. M before r-m with 4-9 setulae below; mesoscutum pruinose; segments of fore tarsus subequal in thickness in both sexes. . . . . *F. attonsa*, p. 233
- M before r-m with 0-2 setulae below; mesoscutum shining. . . . . 6
6. Hind tibia with 4-10 posteriors; segments of fore tarsus subequal in thickness in both sexes. . . . . *F. sigmoides*, p. 230
- Hind tibia with 1-2 posteriors; segments 2 and 3 of fore tarsus broader than segment 1 in both sexes. . . . . 7
7. Apex of scutellum yellow or reddish-yellow. *F. sierrae*, p. 234
- Scutellum dark brown. . . . . *F. concinna*, p. 235
8. Wing without a definite preapical spot. . . . . 9
- Wing with a preapical spot. . . . . 11
9. M before r-m with 2-9 setulae below (rarely 2); abdominal sternites II and III without long pairs of median apicals. . . . . *F. perita*, p. 236
- M before r-m with 0-1 setulae below; abdominal sternites II and III each with a pair of long median apicals. . . . . 10
10. Wing without spots; mesoscutum shining, dark brown except for a narrow yellow anterior margin; segments 2, 3 and 4 of female fore tarsus much thicker than 1. *F. jucunda*, p. 237
- Wing with at least a faint central spot; mesoscutum pruinose, mostly dark brown but with a large yellow humeral area; segments of female fore tarsus subequal in thickness. . . . . *F. exstincta*, p. 238
11. R with numerous setulae below (26-28 in holotype). . . . . *F. procera*, p. 239
- R with relatively few setulae below (not more than 16 except in *F. moravica*, latter with up to 19). . . . . 12
12. Abdominal sternites II and III without long pairs of median apicals; hind tibia usually without short bristles interspersed with longer ones of dorsal row; mid tibia with 1-2 anterodorsals. . . . . 13
- Abdominal sternites II and III each with a pair of long median apicals; hind tibia usually with short bristles interspersed with longer ones of dorsal row. . . . . 14

13. Hind tibia with 3-7 posteriors; mesoscutum pruinose; scutellum with median yellow line. . . . . *F. trinotata*, p. 240  
Hind tibia with 0-1 posteriors; mesoscutum shining; scutellum dark brown. . . . . *F. celator*, p. 242
14. Ratio of r-m: M petiole 1.5-3.1; anepisternal ratio 0.75-0.83; mesoscutum shining; tip of R<sub>1</sub> broadly involved in preapical spot. . . . . *F. moravica*, p. 243  
Ratio of r-m: M petiole 1.1 or less; anepisternal ratio 0.87 or more; mesoscutum at least slightly pruinose. . . . . 15
15. Preapical wing spot weak or absent, always well separated from tip of R<sub>1</sub>; mid tibia with 2 anterodorsals; scutellum dark brown. . . . . *F. extincta*, p. 238  
Preapical wing spot touching or almost touching tip of R<sub>1</sub>; mid tibia with 3-4 anterodorsals; scutellum yellow laterally. . . . . *F. spleniata*, p. 244

Key to the Species of Group E<sup>1</sup>

1. M before r-m with 7-9 setulae below; R with 26-27 below. . . . . *F. laeta*, p. 245  
M before r-m with 0-1 setulae below; R with 20 or fewer below. . . . . 2
2. Mid tibia with first two rows of anterior setulae dark brown (sometimes a few dingy yellow ones basally); mesoscutum pruinose or shining. . . . . 3  
Mid tibia with first row of anterior setulae dark brown, second row yellow, sometimes with a few dark brown setulae basally and/or apically. . . . . 6
3. Mesoscutum shining; R with 14 or more setulae below; hind coxa with minute posterior setae. . . . . 4  
Mesoscutum pruinose; R with 15 or less setulae below; hind coxa with some posterior setae at least half as long as the longest posterior preapical. . . . . 5
4. Male ventral stylomere with a prominent posterolateral lobe (Fig. 144); female fore tarsal segments 2, 3 and 4 distinctly thicker than 1. . . . . *F. foecunda*, p. 246  
Ventral stylomere without a prominent posterolateral lobe (Fig. 142); female unknown. . . . . *F. percursa*, p. 245
5. Hind tibia with second row of anterior setulae yellow (occasionally with 1-2 black setulae apically). . . . . *F. dentata*, p. 247

- Hind tibia with second row of anterior setulae dark brown on at least the apical fourth of the tibia, third row also with several black setulae apically. . . . . *F. luctuosa*, p. 287
6. Hind tibia with first row of anterior setulae yellow or with up to 4 dark brown setulae (rarely 4). . . . . *F. guttata*, p. 249  
Hind tibia with first row of anterior setulae with at least 7 dark brown setulae (only 4 in one European *F. sigillata*). . . . . 7
7. Hind tibia with first anterior row of setulae with 35-43 dark brown setulae and a few yellow ones. . . . . *F. stricklandi*, p. 251  
Hind tibia with not more than 28 dark brown setulae in first row, the others of this row yellow. . . . . 8
8. Hind tibia with the apical setulae of the most anterior row of the ventral setulae dark brown (also the apical part of the most ventral row of anterior setulae), and with at least 12 additional dark brown setulae ventrally near apex in the next rows; abdomen without median yellow line on tergites II-IV. . . . . *F. lenta*, p. 252  
Hind tibia with the same apical setulae of the most anterior row of the ventral setulae dark brown (also the apical part of the most ventral row of anterior setulae), but with only 0-6 additional dark brown ventral setulae near apex; abdomen usually with a median yellow line on at least tergite II, and often on III and IV. . . . . 9
9. Hind tibia with 1-4 short bristles interspersed with longer ones of dorsal row; hind coxa with several of the posterior setae distinctly longer than the longest posterior preapical; female fore tarsal segments 2, 3 and 4 distinctly thicker than 1. . . . . *F. pinguis*, p. 254  
Hind tibia with 4-7 short bristles interspersed with longer ones of dorsal row; hind coxa with few or no posterior setae as long or slightly longer than the longest posterior preapical; female fore tarsal segments subequal in thickness or 2, 3 and 4 slightly thicker than 1. . . . . 10
10. R with 7-12 setulae below; female fore tarsal segments subequal in thickness; apical segment of female cercus relatively short and broad (Fig. 20); posterolateral lobe of male ventral stylomere not extending as far caudad as remainder of stylomere (Fig. 158). . . . . *F. signatoidea*, p. 256  
R with 12-17 setulae below; female fore tarsal segments 2, 3 and 4 slightly thicker than 1; apical segment of female cercus relatively longer and more slender (Fig. 17); posterolateral lobe of male ventral stylomere extending more caudad than remainder of stylomere (Fig. 156). . . . . *F. sigillata*, p. 257

<sup>1</sup>*F. luctuosa* of Group F is also included in this key.

Key to the Species of Group F<sup>1</sup>

1. Hind coxa with a large brown posterior spot; hind tibia with 7 or more short posterior bristles. . . . . 2  
Hind coxa without a large brown posterior spot (although occasionally entirely dark brown); hind tibia usually with 6 or less short posterior bristles. . . . . 3
2. R with 9-10 setulae below; M basad of r-m bare. . . . .  
. . . . . *F. bohartorum*, p. 289  
R with 21-27 setulae below; M basad of r-m with 2-6 setulae below. . . . . *F. byersi*, p. 286
- 3.<sup>2</sup> M before r-m with 6 or more setulae below. . . . . 4  
M before r-m with 4 or less setulae below . . . . . 8
4. Hind tibia with at least 2 ventral rows of dark brown setulae nearly to base. . . . . 5  
Hind tibia with dark brown ventral setulae confined to 2-3 short rows on about apical fifth of tibia (more basal setulae in these rows yellow or pale brown, distinctly contrasting with the apical dark brown ones). . . . . 6
5. Preapical wing spot weak or absent, not contacting apex of R<sub>1</sub>; M before r-m with 6-13 setulae below. . . . . *F. stolidi*, p. 259  
Preapical wing spot distinct, covering apex of R<sub>1</sub>; M before r-m with 4-6 setulae below. . . . . *F. chamberlini*, p. 260
6. Preapical wing spot present; hind coxa with several posterior setae longer than longest posterior preapical. *F. strigata*, p. 261  
Preapical wing spot absent; hind coxa with posterior setae very short. . . . . 7
7. Hind tibia with first row of posterior setulae ventral to dorsal bristles dark brown, contrasting with pale brown setulae of next few rows. . . . . *F. limata*, p. 262  
Hind tibia with all posterior setulae pale brown. . . . .  
. . . . . *F. unipunctata*, p. 263
8. Preapical wing spot absent. . . . . 9  
Preapical wing spot present . . . . . 14
9. Hind coxa with posterior setae extremely fine and short, always less than half as long as the longest posterior preapical. . . . . 10  
Hind coxa with some of the posterior setae as long as, or

- well over half as long as the longest posterior preapical. . . . . 12
10. Abdominal sternites II and III each with a pair of median apical bristles much longer than the others; mesoscutum shining. . . . . *F. discors*, p. 265  
Abdominal sternites II and III without especially long pairs of apicals; mesoscutum pruinose. . . . . 11
  11. Mid tibia with 2 anterior bristles; a rather large yellow humeral area on mesoscutum. . . . . *F. alexanderi*, p. 267  
Mid tibia with 3 anteriors; mesoscutum without a distinct yellow humeral area, though sometimes with a narrow yellowish border. . . . . *F. alberta*, p. 271
  12. M before r-m bare and r-m without a setula closer to M than the width of r-m; female fore tarsal segments subequal in thickness. . . . . *F. fascinator*, p. 272  
M before r-m usually with 1, sometimes with 2 setulae below (if none present, 1 setula on r-m much closer to M than width of r-m). . . . . 13
  13. Male ventral stylocere about one-half as long as gonocoxopodites (Fig. 172); female fore tarsal segments subequal in thickness; mesoscutum distinctly pruinose. . . . .  
. . . . . *F. bipunctata*, p. 269  
Male ventral stylocere about as long as gonocoxopodites (Fig. 176); female fore tarsal segments 2, 3 and 4 distinctly thicker than 1. . . . . *F. verecunda*, p. 270
  - 14.<sup>1</sup> Hind coxa with posterior setae short, always much less than half as long as the longest posterior preapical; ventral setulae of hind tibia dark brown. . . . . 15  
Hind coxa with at least some of the posterior setae distinctly over half as long as the longest posterior preapical, usually longer than the latter; ventral setulae of hind tibia sometimes all dark brown, sometimes pale brown to yellow except for those near apex. . . . . 22
  15. Mesoscutum shining; fore tarsal segments 2, 3 and 4 distinctly thicker than 1 in both sexes; anepisternal ratio 0.89-1.02. . . . . *F. venusta*, p. 290  
Mesoscutum pruinose or shining (shining in *F. scitula* only, anepisternal ratio 0.82-0.84 in 2 known specimens); male fore tarsal segments subequal in thickness (2, 3 and 4 distinctly thicker than 1 in known females). . . . . 16
  16. Preapical wing spot contacting C well beyond tip of R<sub>1</sub>. . . . . 17  
Preapical wing spot contacting R<sub>1</sub> or (some *F. jugata*)

<sup>1</sup>*F. clavata* of Group B is also included in this key.<sup>2</sup>The unique holotype of *F. chamberlini* has 4-6 setulae below on M before r-m, keyed on both sides of couplet 3.<sup>1</sup>*F. venusta* keyed to both side of this couplet.

- contacting C very slightly past tip of  $R_1$  (edge of spot not farther than width of C from  $R_1$  tip). . . . . 19
17. Abdominal sternites II and III each with a pair of very long median apical bristles. . . . . *F. shawi*, p. 273  
Abdominal sternites II and III with apical bristles not much longer than the others. . . . . 18
18. M before r-m with 2 setulae below; mesoscutum shining. . . . . *F. scitula*, p. 275  
M before r-m bare below; mesoscutum pruinose. . . . . *F. alberta*, p. 271
19. Central wing spot usually extending forward to C; M before r-m with 0-1 setulae below; posterior ventral border of fused male gonocoxopodites with only a very shallow emargination (Fig. 186). . . . . *F. jugata*, p. 276  
Central wing spot not entering costal cell; posterior ventral border of male gonocoxopodites with a broader and deeper emargination. . . . . 20
20. M before r-m bare below; ventral stylomere of male sub-ovoid in ventral view (Fig. 188). . . . . *F. bimaculata*, p. 277  
M before r-m with 1 or more setulae below; male stylomere more irregular in outline. . . . . 21
21. M before r-m with 4-6 setulae below; male ventral stylomere with 3 prominent setae near posterolateral corner (Fig. 160). . . . . *F. chamberlini*, p. 260  
M before r-m with 1-4 setulae below; male ventral stylomere lacking especially prominent setae near posterolateral corner. . . . . *F. alata*, p. 278
22. Anepisternal ratio 0.64-0.81; mesoscutum shining. . . . . *F. fascinator*, p. 272  
Anepisternal ratio 0.89 or more; mesoscutum pruinose (except in *F. venusta*). . . . . 23
23. Mesoscutum shining; M before r-m with 1-2 setulae below. . . . . *F. venusta*, p. 290  
Mesoscutum pruinose; M before r-m nearly always bare below (except in *F. clavata*). . . . . 24
24. Hind tibia without short bristles interspersed with longer ones of dorsal row; second row of setulae ventral to anterior bristles of hind tibia yellow or dingy yellow on at least basal three-fifths of tibia. . . . . *F. luctuosa*, p. 287  
Hind tibia usually with 1 or more short bristles irregularly interspersed with longer ones of dorsal row (if 0, second row of anterior setulae of hind tibia dark brown on at least apical half of tibia). . . . . 25

25. Wing length 2.94 mm or less; ratio of r-m: M petiole 0.7-1.0. . . . . *F. bentincki*, p. 271  
Wing length 3.08 mm or more; ratio of r-m: M petiole 1.1 or more (nearly always at least 1.2). . . . . 26
26. Hind tibia with ventral setulae dark brown on well over apical half of tibia; anepisternal ratio 1.07-1.20. *F. napaea*, p. 292  
Hind tibia with dark brown setulae of ventral rows confined to much less than the apical half of tibia, usually about one-fourth, remaining ventral setulae dingy yellow to pale brown, contrasting with the more apical dark brown ones; anepisternal ratio 1.14 or less, usually less than 1.07. 27
- 27.<sup>1</sup> Males. . . . . 28  
Females. . . . . 32
28. Ventral stylomere without a dorsolateral lobe with a row of very stout spines. . . . . 29  
Ventral stylomere with a dorsolateral lobe bearing a row of 5 or more closely set stout spines (Figs. 193, 196, 199). . . . . 30
29. Ventral stylomere with a distinct broad apical emargination as seen in ventral view (Fig. 64). . . . . *F. clavata*, p. 202  
Ventral stylomere with apical border entire as seen in ventral view (Fig. 203). . . . . *F. finlandica*, p. 280
30. Ventral stylomere with main (most ventral) lobe without large spine-like setae on dorsal surface (Fig. 198). *F. subita*, p. 283  
Ventral stylomere with main lobe bearing several prominent spine-like setae on dorsal surface (Figs. 195, 192). . . . . 31
31. Dorsolateral lobe of ventral stylomere bearing a strong seta apically, this seta bent at nearly right angle about midway (Fig. 196). . . . . *F. pectita*, p. 281  
Dorsolateral lobe of ventral stylomere bearing a strong seta apically, this seta only gently curved (Fig. 193). . . . . *F. contigua*, p. 284
32. Fore tarsal segments 2 and 3 slightly thicker than 1. . . . . 33  
Fore tarsal segments subequal in thickness. . . . . 34
33. Anterior and posterior margins of dorsal portion of tergite IX subparallel in lateral view (Fig. 23). . . . . *F. subita*, p. 283  
Anterior and posterior margins of dorsal portion of tergite IX divergent ventrally in lateral view (Fig. 25). *F. pectita*, p. 281
- 34.<sup>2</sup> Tergite IX with an acute posterior lobe; first cercal segment

<sup>1</sup>The characters used in couplets 28-34 are usually visible without special preparation of the terminalia.

<sup>2</sup>*F. finlandica* presumably would key to this couplet.

only a little longer than wide in lateral view (Fig. 24).

- ..... *F. contigua*, p. 284  
Tergite IX with a rounded posterior lobe; first cercal segment about 3 times as long as wide (Fig. 21). *F. clavata*, p. 202

#### DESCRIPTIONS AND NOTES

##### Species of Group A

##### *Fungivora ruficollis* (Meigen), new combination (Figs. 1-3, 26, 27)

- 1818 *Mycetophila ruficollis* Meigen, p. 262 (1851 ed., p. 205).  
1818 *Mycetophila lurida* Meigen, p. 263 (1851 ed., p. 205).  
1818 *Mycetophila monostigma* Meigen, p. 272 (1851 ed., p. 213).  
1818 *Mycetophila monostigma*, Wiedemann in Meigen, p. 272 (1851 ed. p. 213).  
1830 *Mycetophila centralis* Meigen, pp. 297, 300.  
1830 *Mycetophila pusilla* Meigen, pp. 297, 300.  
1840 *Mycetophila centralis* ?, Staeger, pp. 244-245.  
1852 *Mycetophila ruficollis*, Zetterstedt, pp. 4171-4172, 4182-4184.  
1852 *Mycetophila uninotata* (p. 4172) and *Mycetophila uni-notata* (p. 4199) Zetterstedt, pp. 4172, 4199-4200.  
1856 *Mycetophila lineola*, Walker, pp. 14-15.  
1863 *Mycetophila lineola*, Winnertz, pp. 919-920.  
1884 *Mycetophila lineola*, Dziedzicki, pl. 6, figs. 14-16 (male term.).  
1895 *Mycetophila lineola* var. *lurida*, Strobl, p. 171.  
1895 *Mycetophila lineola* var. *ruficollis*, Strobl, p. 171.  
1912 *Mycetophila mutica*, Johannsen, p. 93. (in part, B.C., Wyo., female of "var. a." from Wash.).  
1913a *Mycetophila linda* (sic!), (p. 339) and *Mycetophila lineola*, (p. 373) Edwards, pp. 339, 373.  
1914 *Mycetophila lineola*, Edwards, pp. 48, 58.  
1915 *Mycetophila centralis* Matsumura, p. 54.  
1917 *Mycetophila mutica*, Guthrie, pp. 317-318.  
1920 *Mycetophila lineola*, Morley, p. 85.  
1920 *Mycetophila mutica*, Sherman, p. 14.  
1921 *Mycetophila mutica*, Cole and Lovett, p. 222 (including "var. A")  
1924a *Mycetophila lineola*, Edwards, line 21 on p. 16.  
1924b *Mycetophila lineola*, Edwards, p. 165.  
1925a *Mycetophila lineola*, Edwards, pp. 632, 636, 656.  
1925b *Mycetophila lineola*, Edwards, p. 612.  
1932 *Mycetophila lineola*, Edwards, p. 139.  
1934 *Fungivora centralis*, Okada, pp. 208-212, fig. 1 (entire insect).  
1937 *Fungivora lineola*, Okada, p. 38.  
1938b *Fungivora lineola*, Okada, p. 141.  
1939 *Mycetophila lineola*, Leruth, pp. 90, 293.  
1939 *Fungivora lineola*, Okada, pp. 273, 282-283, 285, 312, 324, 335-336.  
1943 *Fungivora mutica*, Foster, p. 33.  
1946 *Mycetophila mutica* var. a, Strickland, p. 161.  
1952 *Fungivora mutica*, Hoyt, pp. 75-76, 81; 113, fig. 60a; 114, fig. 61b. (figs. of head with muscles and mouthparts).

Length of male wing: 3.08-4.83 mm. Female wing: 3.37-5.14 mm. Mesoscutum pruinose, entirely yellow, entirely brown, or yellow with three brown stripes more or less distinctly indicated; scutellum yellow, sometimes with a basal brown area; legs yellow; abdominal tergites I-VI sometimes almost entirely yellow, sometimes brown with yellow apical margins on tergites II-VI. Proepisternum with 3-5 bristles; mesepimeron with 4-6. Anepisternal ratio 0.90-1.16. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d, 2-5 a, 0 v, 4-7 p; first two rows of anterior setulae dark brown. Hind coxa with short fine posterior setae, posterior preapicals nearly straight, never with a distinct bend near apex. Hind tibia with 4-5 strong d (and without shorter bristles interspersed with longer ones); 0 a-d, 4-7 a, 5-13 p. Hind tibial dorsal, anterior and ventral setulae dark brown. Wing with a central spot, no indication of a preapical spot. R with 9-18 setulae below, R<sub>1</sub> with 36-56 below, M before r-m with 11-25 below. Ratio of r-m: M petiole 1.05-1.79. Abdominal sternites II and III with apical bristles not much longer than the others. Male terminalia (Figs. 26, 27): ventral border of dorsal stylomere prominently sinuate. Female cercus 2-segmented.

##### Types.

- F. ruficollis* (Meig.). Probable type or types in Paris Museum. Type locality: Austria (of 1818).  
*F. lurida* (Meig.). Type or types apparently lost. Type locality: Austria (of 1818).  
*F. monostigma* (Meig.). Holotype female said by Wiedemann in Meigen (1818) to be in collection of von Hoffmannsegg, but Edwards (1924) indicates that probable type is in Paris Museum. Type locality: Berlin, Germany.  
*F. pusilla* (Meig.). Two probable syntypes in Paris Museum. Type locality: region of Berlin, Germany.  
*F. centralis* (Meig.). Type or types apparently lost. Type locality: not specified, Europe.  
*F. uninotata* (Zett.). Holotype, male (not female) in University Museum, Lund. Type locality: "ad Töien prope Christianen", Norway.  
*F. centralis* (Matsumura). (Present writer has not seen this reference and is not certain whether this name was proposed as a new species or not).  
**Material examined.** 254 specimens from the following localities:  
ALASKA. Anchorage, Fish Creek Flats; Fairbanks, Birch Hill; Ft. Davis; Matanuska; Mt. McKinley N.P.; Palmer; Reindeer Camp, Golovin; St. Paul Island.  
ALBERTA. Jasper; Jasper N.P., Edith Cavell, 6000'; Waterton (reported as *M. mutica* var. a by Strickland, 1946).  
BRITISH COLUMBIA. Cultus Lake; Fort Nelson; Keremeos; Robson; Selkirk Mts. (recorded as *M. mutica* by Johannsen, 1912); Yoho N.P., Kicking Horse Camp, 4500'.  
QUEBEC. Great Whale River.  
SASKATCHEWAN. Saskatoon.  
YUKON. Dawson.  
ARIZONA. White Mts., Alpine, 8400'.

CALIFORNIA. Alma; "Big Basin, Santa Cruz Co." (on label) (reported as *M. mutica* by Guthrie, 1917, as being from California Redwood Park and Stanford Univ.); Bonny Doon; Corte Madera Creek; Dodge Ridge, near Pinecrest, Tuolumne Co.; Dyerville; Glendale; Hills back of Oakland; Inverness, Marin Co.; Leavitt Meadow, Mono Co.; Los Gatos-Santa Cruz Highway, redwood area; Memorial Park, San Mateo Co.; Mill Valley, Marin Co., "reared from larvae in fungus"; Oakland; Orlick; Prairie Creek Camp, Humboldt Forest; Prairie Creek S.P.; Redwood Canon, Marin Co.; Saratoga; Waddell Creek, Santa Cruz Co.; Wildcat Creek, Tilden Park, Contra Costa Co.

COLORADO. Cameron Pass; San Isabel N.F., Collegiate Peaks Camp, 10 miles west of Buena Vista.

IDAHO. Avon; Chatcolet; Coeur d'Alene N.F., Cedar Canyon; Gold Hill, Latah Co.; Moose Creek, 6200'; Moscow Mt.; Waha.

MONTANA. Glacier N.P., Avalanche Creek, 3500'.

NEW HAMPSHIRE. White Mts., Presidential Range, Mt. Franklin, 4600'.

NEW MEXICO. Mogollon Mts., Catron Co.

OREGON. Crater Lake, 5900'; Forest Grove (reported as *M. mutica* and *M. mutica* var. A by Cole and Lovett, 1921); McMinville, Peavine Ridge; Mt. Hood, Tilly Jane Creek, 5600'; Mt. Sander, Beaver Creek; Myers Creek at Route 101; Odell Lake, Cascade Summit, 5700'; Wahkeena Falls; Wallowa Mts., 4650'; Wallowa Mts., Wallowa Spr., 4670'.

UTAH. Dixie N.F., Duck Creek Camp, 8600'; Logan Canyon.

WASHINGTON. Brinnion; Friday Harbor (recorded as *M. mutica* by Johannsen, 1912); Glacier; Ilwaco; Mt. Adams, Mirror Lake, 5250'; Mt. Constitution; Mt. Rainier (recorded as *M. mutica* var. a by Johannsen, 1912); Tacoma; Walla Walla; Wenatchee N.F., Park Camp, 2900'. Mt. Rainier N.P.: Eagle Peak; stream, east side, 3900'; Summerland Trail; White River.

WYOMING. Dinwiddie Creek (recorded as *M. mutica* by Johannsen); Grand Tetons, Hidden Falls, 7000'; Yellowstone N.P., Spring Creek.

European material examined. 81 specimens from the following countries:

BELGIUM. 1 locality.

BRITAIN. 4 localities.

CZECHOSLOVAKIA. 2 localities.

DENMARK. 2 localities.

SPAIN. 1 locality.

SWITZERLAND. 5 localities.

Additional previous records. Recorded as *M. mutica* from Vancouver, British Columbia, by Sherman (1920) and Foster (1943). It has been reported from British East Africa (Edwards, 1914); area of Cape Town, Union of South Africa (Edwards, 1925b); Java (Edwards, 1932); Japan (Matsumura, 1915, and Okada, 1934); South Kuriles (Okada, 1937); and Manchuria (Okada, 1938). Known from many localities in Europe.

Remarks. Closely allied to *F. ichneumonea* (Say), *F. parvimaclulata* (V.D.) and *F. sepulta* n.sp. This species has been called *F. lineola* by

recent European authors, but Edwards (1924) indicates that he believes the one remaining probable syntype of *F. lineola*, a female, is the same as *F. guttata* (Dzied.). In the same paper he indicates by inference that the probable type or types of *F. ruficollis* is the *F. lineola* of authors. Meigen's (1818) description and figures of *F. lineola* support the suggestion that Meigen had *F. guttata* (Dzied.), or at least a closely allied species, rather than *F. ruficollis*. Speiser (1910) indicates that *Fungi-vora collineola* Speiser is closely related to *F. ruficollis*. This species was described from one female from Mt. Kilimanjaro. Speiser states that it differs from *F. ruficollis* only in the thoracic markings. As *F. ruficollis* is known from Africa, it is quite possible that *F. collineola* is a synonym, since slight differences in thoracic markings are of limited taxonomic value in this genus.

*Fungivora ichneumonea* (Say), new combination (Figs. 5, 28, 29)

1823 *Mycetophila ichneumonea* Say, p. 16. (1883 ed., pp. 43-44).

1828 *Mycetophila ichneumonea*, Wiedemann, p. 67.

1869 *Mycetophila mutica* Loew, pp. 152-153. (reprint, pp. 190-191).

New synonymy.

1890 *Mycetophila ichneumonea*, Smith, p. 362.

1902 *Mycetophila ichneumonea*, Slosson, p. 320.

1907 *Mycetophila ichneumonea*, Banta, p. 36.

1912 *Mycetophila ichneumonea*, Johannsen, pp. 89, 106-107.

1912 *Mycetophila mutica*, Johannsen, pp. 85, 93; fig. 74 (male term.). (in part, N.C., N.Y., Wisc. only).

1925a *Mycetophila ichneumon* (sic!), Johnson, p. 88.

1927 *Mycetophila mutica*, Johnson, p. 176.

1928 *Mycetophila ichneumon* (sic!), Leonard, p. 746.

1928 *Mycetophila mutica*, Leonard, p. 746.

1938 *Mycetophila mutica*, Brimley, p. 327.

1938 *Mycetophila ichneumonea*, Procter, p. 312.

1938 *Mycetophila mutica*, Procter, p. 311.

1940 *Mycetophila mutica*, Jaques and Berger, p. 421.

1941 *Mycetophila mutica*, Shaw, p. 24.

1946 *Mycetophila ichneumon* (sic!), Procter, p. 362.

1946 *Mycetophila mutica*, Procter, pp. 361, 362. (including "var. a").

1946 *Mycetophila mutica*, Strickland, p. 161. (not including "var. a").

1952 *Mycetophila mutica*, Shaw and Fisher, pp. 206, 208.

Length of male wing: 2.54-3.79 mm. Female wing: 2.83-4.08 mm. Mesoscutum pruinose, entirely yellow, or entirely brown, or yellow with three brown stripes more or less distinctly indicated; scutellum yellow, sometimes brown basally; legs yellow; abdominal tergites I-VI entirely yellow, or entirely brown, or with various patterns of yellow and brown. Proepisternum with 3-4 bristles; mesepimeron with 4-7. Anepisternal ratio 0.88-1.03. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d, 3-5 a, 0 v, 4-8 p; first two rows of anterior setulae dark brown. Hind coxa with short fine posterior setae, posterior preapicals long and slender, at least some of them distinctly



bent before their tips. Hind tibia with 4-6 strong d (and without shorter erect bristles interspersed with longer ones), 0 a-d, 5-7 a, 7-13 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot, no indication of a preapical spot. R with 8-16 setulae below, R<sub>1</sub> with 31-44 below, M before r-m with 15-21 below. Ratio of r-m: M petiole 0.88-1.63. Abdominal sternites II and III with apical bristles not much longer than the others. Male terminalia (Figs. 28, 29): dorsal stylomere with dorsal border fairly straight; anterolateral corner of ventral stylomere as seen in ventral view not as prominent as in allied species; ventral stylomere with two close-set setae at posteromedian corner. Female cercus (Fig. 5) 2-segmented.

#### Types.

*F. ichneumonea* (Say). Type or types lost. Type locality: Pennsylvania.

*F. mutica* (Loew). Holotype, female, in Museum of Comparative Zoölogy at Harvard University, No. 1193. Type locality: "Middle States" (according to Loew, 1869. There is no locality label on the specimen).

Material examined. 292 specimens from the following localities: "Middle States". (female holotype of *F. mutica*).

ALBERTA. Edmonton (reported as *M. mutica* by Strickland, 1946); Jasper, Beaver Lake.

BRITISH COLUMBIA. Cultus Lake; Robson; Vernon.

NEW BRUNSWICK. Taymouth.

NEWFOUNDLAND. Goose Bay, Labrador.

NOVA SCOTIA (Cape Breton Island). Frizzleton, Hatchery Brook;

Intervale Margaree; Lake of Law Brook, Margaree; Wycocomagh.

ONTARIO. Mer Bleue; Merivale; Ottawa; Simcoe.

QUEBEC. Aylmer; Meach Lake; Montreal; Percé, Gaspé; Perkins Mills; St. Jean River, Gaspé.

SASKATCHEWAN. Waskesiu Lake.

CONNECTICUT. Redding.

IOWA. Ledges S.P., Boone Co.; White Pine Hollow, Dubuque Co.

MAINE. Jonesboro; Mt. Desert, Duck Brook (reported as *M. mutica* var. A by Procter, 1946); Round Mt.

MARYLAND. Baltimore; Cabin John Bridge; Chevy Chase, "bred from *Collybia dryophila*", C.H. Popenoe; Chevy Chase, "bred from *Lenzites* sp.", C.H. Popenoe.

MASSACHUSETTS. Amethyst Br., Pelham; Amherst; Chester; Cohasset; Holliston; Sunderland.

MINNESOTA. Lake Itasca; 5 miles west of Walker.

MONTANA. Glacier N.P., Lake McDonald.

NEW HAMPSHIRE. Franconia; Glen House; Keene; White Mts.

(recorded as *M. ichneumon* by Johnson, 1925). White Mts.: Ammonoosuc Ravine, 2700', 3000' and 3800'; Appalachia, Mt. Adams, 1280'; Dolly Copp Camp, 1400'; Galehead Trail, 3000'; Huntington Ravine, Mt. Washington, 3000', 3300', 3400' and 4300'; King's Ravine Trail, 7 altitudes from 1500' to 3000'; Mt. Washington, Carriage Road; Tuckerman's Ravine Trail, 2500'; Twinway-Zealand Peak.

NEW YORK. Bear Mts.; Beaverkill, Sullivan Co.; Coy Glen, Ithaca

(reported as *M. mutica* by Johannsen, 1912); Lewey Lake, Hamilton Co.; Lick Brook; McLean Bogs Reserve; McLean Reserve, Beaver Brook; Niagara Falls (recorded as *M. ichneumon* by Leonard, 1928); Old Forge; Slide Mt., 4200'; Taughanick Falls; Tuxedo. NORTH CAROLINA. Black Mts.; Great Smoky Mts., New Found Gap, 4000'; Mt. Mitchell, 5000'; near Mt. Mitchell; Pisgah N.F., South Toe River, Carolina Hemlock Camp; Valley of Black Mts. (reported as *M. mutica* by Johannsen, 1912).

PENNSYLVANIA. North Mt.; Pittsburgh.

TENNESSEE. Great Smoky Mts., LeConte Trace, 1/2 mile 1st stream; Great Smoky Mts. N.P., Gatlinburg, 2700'; Great Smoky Mts. N.P., Gatlinburg, Hemlock Forest, 4000'.

VERMONT. Lake Willoughby, 2800'; Long Trail at Grout Job, Stratton, 2500'.

VIRGINIA. Dead Run, Fairfax Co.

WISCONSIN. "Wis." (reported as *M. mutica* by Johannsen, 1912); Price Co.; T34N, R8W, B24, Rusk Co.; T39N, R12W, Washburn Co.; White Fish Bay.

Additional previous records. Reported as *Mycetophila mutica* from New Jersey (Smith, 1890); several "areas" of Maine, Massachusetts, New Hampshire and Vermont (Johnson, 1925); Mt. Desert, Maine (Johnson, 1927); Wells and Erie Co., New York (Leonard, 1928); and Iowa (Jaques and Berger, 1940). Recorded as *M. ichneumonea* from New Jersey (Smith, 1890); alpine region of Mt. Washington, New Hampshire (Slosson, 1902); Mayfield's Cave, Indiana (Banta, 1907) and Mt. Desert Island, Maine (Procter, 1938). Reported as *M. ichneumon* from Mt. Greylock and N. Adams, Massachusetts by Johnson (1925). For certain other records which have been based on misdeterminations see *F. falcata* (Joh.) and *F. ruficollis* (Meig.). Johnson (1903) reported the species from New Mexico, but this record is here considered only as *Fungivora* sp.

Remarks. Closely allied to *F. sepulta* n.sp., *F. ruficollis* (Meig.) and *F. parvimaclata* (V.D.). This species seems to replace *F. ruficollis* in most of southern Canada and in the eastern United States. Perhaps it has relatively recently arisen from *F. ruficollis* or their common ancestor. None of the specimens seen appear to be definitely intermediate between *F. ichneumonea* and *F. ruficollis*.

*Fungivora parvimaclata* (Van Duzee), new combination (Figs. 9, 30, 31)

1917 *Mycetophila maculosa* Guthrie (junior primary homonym of *M. maculosa* Meigen, 1818, p. 265), pp. 314, 317; 320, pl. 25, figs. 1a (wing), A, 1, 2, 3, 4 (male term.). New synonymy.

1928 *Mycetophila parvimaclata* Van Duzee, p. 59; p. 65, fig. 30 (male term.).

1943 *Mycetophila maculosa*, Foster, p. 33.

Length of male wing: 3.23-4.12 mm. Female wing: 3.27-4.52 mm. Mesoscutum pruinose, brown with paler brown or yellow sides, three longitudinal lines sometimes more or less distinctly indicated; scutellum

yellow with brown basally; legs mostly yellow, mid and hind coxae each usually with a brownish spot laterally, hind coxa with a brown spot posteriorly, femora usually somewhat dusky below, mid and hind femora each with a narrow apical brown ring, mid and hind tibiae each with brown apex; abdominal tergites I-VI mostly brown, II-VI usually with yellow apical margins, sometimes other yellow areas present, especially laterally. Proepisternum with 3-5 bristles; mesepimeron with 4-7. Anepisternal ratio 0.96-1.10. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 0 a-d, 3-4 a, 0 v, 3-7 p; first two rows of anterior setulae dark brown. Hind coxa with short, fine posterior setae; posterior preapicals straight or nearly so. Hind tibia with 5-6 d, 0 a-d, 6-7 a, 8-13 p. Hind tibial dorsal, anterior, and ventral setulae dark brown. Wing with a central spot; preapical spot starting at  $R_1$ , crossing  $R_5$ , extending nearly to  $M_{1+2}$ , entire spot basad to tip of  $R_1$ , sometimes extending forward to C. R with 9-15 setulae below,  $R_1$  with 30-39 below, M before r-m with 16-25 below. Ratio of r-m: M petiole 0.96-1.73. Abdominal sternites II and III with apical bristles not much longer than the others. Male terminalia (Figs. 30, 31): most anterior prominent seta of ventral stylomere relatively far from the next of the four prominent setae; ventral border of dorsal stylomere relatively straight. Female cercus (Fig. 9) 2-segmented.

#### Types.

*F. maculosa* (Guthrie). Holotype, male in California Academy of Sciences. Type locality: California Redwood Park, California (X-1915).

*F. parvimaclata* (V.D.). Holotype, male in California Academy of Sciences. Type locality: Mill Valley, Marin County, California (III-13-1926, M.C. Van Duzee).

Material examined. 98 specimens from the following localities:

BRITISH COLUMBIA. "U.B.C. Forest" (reported as *M. maculosa* by Foster, 1943).

ARIZONA. Tonto Creek, Fish Hatchery, 6000'.

CALIFORNIA. Alma, "ex mushroom on dead wood, pupa under bark"; Berkeley; Big Basin, Santa Cruz Co. (5 paratypes of *F. maculosa*); Dodge Ridge, near Pinecrest, Tuolumne Co.; Hills back of Oakland; Lagunitas Canon, Marin Co.; Memorial Park, San Mateo Co.; Mesa Grenda, Sonoma Co.; Mt. Home Canyon, San Bernardino Co.; Oakland; Palomar Mt., 4700'; Pasadena; Redwood Canon, Marin Co.; Saratoga; Smith River; Strawberry, Tuolumne Co.

OREGON. Corvallis; Forest Grove.

Remarks. Closely allied to *F. ruficollis* (Meig.), *F. ichneumonea* (Say) and *F. sepulta* n.sp. Several specimens bear the same collection data as specimens of *F. ruficollis*, but none of the specimens seen have been considered as intermediate between the two species. Dr. E. L. Kessel has kindly compared some paratypes of *F. maculosa* (Guthrie) with the holotype of *F. parvimaclata* and has confirmed the belief of the writer that the species are identical.

#### *Fungivora sepulta*, new species (Fig. 6, 32, 33)

Length of male wing: 3.02-4.06 mm. Female wing: 3.08-4.29 mm. Mesoscutum pruinose, yellow, sometimes with a reddish cast, or sometimes brown; scutellum yellow, sometimes with a basal brown area; legs yellow; abdominal tergites I-VI entirely yellow, or with various patterns of brown and yellow. Proepisternum with 4-5 bristles; mesepimeron with 4-5. Anepisternal ratio 0.96-1.33. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 3-4 a, 0 v, 1-5 p; first two rows of anterior setulae dark brown. Hind coxa with short, fine posterior setae; posterior preapicals straight or nearly so. Hind tibia with 4-5 d, 0 a-d, 5-6 a, 3-8 p. Hind tibial dorsal, anterior and ventral setulae dark brown. Wing without spots, or sometimes  $R_s$  barely infuscated, infuscation never extending into cell  $R_5$ . R with 7-12 setulae below,  $R_1$  with 39-52 below, M before r-m with 10-24 below. Ratio of r-m: M petiole 0.95-1.61. Abdominal sternites II and III with apical bristles not much longer than the others. Male terminalia (Figs. 6, 32, 33): fused gonocoxopodites with a more definite median produced point on posterior ventral margin than in closely allied species; ventral stylomere with 2 prominent setae on median border set some distance from each other. Female cercus 2-segmented.

Holotype. Male, 3 miles southeast of Holly Springs, Woodbury Co., Iowa, VI-12-1949, J.A. Slater and Jean Laffoon (U.S. National Museum No. 62461).

Allotype. Female, Sioux City, Iowa, IX-5-1949, Jean Laffoon (U.S. National Museum).

Paratypes. 59 males, 79 females from the following localities:

ALASKA. 1m, 2f, Matanuska, V-31-1944, J.C. Chamberlin.

ALBERTA. 1m, 1f, Medicine Hat, X-1911, J.R. Malloch.

MANITOBA. 1m, Dauphin Lake, IV-3-1919, Mrs. W. Hippisley.

NEW BRUNSWICK. 1m, Lepreaux Harbor Brook, VIII-31-1951, J.F. Hanson.

QUEBEC. 1m, Great Whale River, VIII-2-1949, J.R. Vockeroth.

SASKATCHEWAN. 1f, Christopher Lake, IX-3-1948, A.R. Brooks.

CALIFORNIA. 1f, Berkeley, V-20-1940, G.E. Bohart. 1f, Wood Lake,

Tulare Co., III-18-1947, rotary trap, Norman W. Frazier. 1m,

Wood Lake, Tulare Co., V-12-1947, rotary trap, Norman W. Frazier.

CONNECTICUT. East River: 1m, VII-24-1910; 2f, VIII-5-1910; 1f, VIII-25-1910; 1f, VIII-28-1910; 1f IX.

INDIANA. 1f, Hammond, VI-24-1915, J.M. Aldrich.

IOWA. 1f, Ames, VI-25-1947, A.R. Brooks. 1m, 4f, Ames, 4 dates

from V-10 to VII-6 in 1950 and 1951, light trap, J.C. Browning.

1f, Ames, IV-14-1949, J.L. 1f, Boone, VII-23-1948, J.L. 1f,

Pike's Peak S.P., Clayton Co., VII-4-1949, J.L. 1f, Sioux City,

IX-8-1951, J.L.

MASSACHUSETTS. 5m, 3f, Sunderland, 5 dates from VII-23 to X-2 in 1951, light trap, E.I. Coher.

MINNESOTA. 1f, Crookston, VII-15-1936, light trap, D.G. Denning.

1m, Itasca Park, VI-16-1938, H.E. Milliron. 1f, Itasca Park,

VII-1-1937, H.R. Dodge. 1f, St. Paul, U. Farm, V-10-1936, at

- light, A. A. Granovsky. 3m, Wabasha, VIII and IX-15 in 1941, H. T. Peters. 1m, Yellow Medicine Co., IX-15-1938, C. E. Mickel.
- OREGON. 1f, Cornelius, V-6-1938, mech. trap, Schuh and Gray. 1m, Cornelius, V-9-1938, mech. trap, Schuh and Gray.
- PENNSYLVANIA. Hazleton, Dr. Dietz: 1m, VI-28-1911; 1m, VII-28-1910; 1m, VIII-4-1910; 1f, VIII-20-1910; 1f, VIII-4-1910; 1m, X-19-1910.
- TEXAS. 6m, 2f, San Antonio, 3 dates from IV-9 to IV-20 in 1945, light trap, D. E. Hardy.
- WISCONSIN. 2m, 1f, Rusk Co., VII-27 and VIII-12-1953, light trap, R. H. Roberts. 24m, 40f, T39N, R12W, B32, Washburn Co., 25 dates between V-9 and IX-11 in 1951, 1952, and 1953, light trap, R. H. Jones. 3m, 3f, Univ. Wisconsin Arboretum, X-3-1951, light trap, R. J. Dicke. 2m, 2f, Dane Co., Univ. Wisconsin Arboretum, IX-19-1953, R. H. Jones.
- Additional specimens. 17 specimens from the following localities:
- CALIFORNIA. 1m, Elk Grove, Sacramento Co., IV-5-1954, Jack Fowler. 1f, Eureka, Humboldt Co., VII-27-1937, T. G. H. Aitken. 1f, Fairfield, IX-10-1954, E. Mezger. 1m, Woodland, V-17-1949, Jack Fowler.
- MASSACHUSETTS. 1f, Holliston, N. Banks. 1f, Holliston, X-20, N. Banks.
- MINNESOTA. 2f, St. Paul, V-3-1937 and V-15-1936, light, A. A. Granovsky.
- NEW YORK. 1m, Riverhead, Long Island, VI-29-1951, Roy Latham.
- PENNSYLVANIA. 1 without abdomen, Hazleton, VI-27-1910, Dietz.
- WASHINGTON. 1f, Yakima, Naches, VII-12-1941, Reeves and Brookman.
- WISCONSIN. 2m, 2f, 2 without abdomen, Washburn Co., R. H. Jones.
- Remarks. Closely allied to *F. ichneumonea* (Say), *F. ruficollis* (Meig.) and *F. parvimaculata* (V. D.). Collection records in Iowa seem to indicate that this species usually occurs in relatively dry and open woods, while the similar *F. ichneumonea* is ordinarily found in moister, more densely shaded woods.

*Fungivora fungorum* (DeGeer) (Figs. 10, 38, 39)

- 1776 *Tipula fungorum* DeGeer, p. 361; pl. 22, figs. 4-5 (entire insect), 6 (antenna), 7 (leg), 8-10 (male term.), 11-13 (female term.). (Goeze translation, 1782, pp. 142-143; plate repeated). (in part, adult only).
- 1803 *Mycetophila fungorum*, Meigen, p. 263.
- 1804 *Mycetophila punctata* Meigen, p. 91.
- 1804 *Mycetophila fusca*, Meigen, p. 91. (in part, citation of *fungorum* as synonym only).
- 1805 *Sciara striata* Fabricius, p. 58.
- 1811 *Mycetophila punctata*, Olivier, p. 76.
- 1817 *Mycetophila cunctans* Wiedemann, p. 68.
- 1818 *Mycetophila semicincta* Meigen, p. 264. (1851 ed., p. 206).
- 1826 *Mycetophila rufa* Macquart, p. 94.

- 1830 *Mycetophila trivialis* Meigen, pp. 297, 301.
- 1830 *Mycetophila punctata*, Stannius, pp. 755-756.
- 1831 *Mycetophila punctata*, Stannius, p. 21.
- 1834 *Mycetophila cunctans*, Macquart, p. 130.
- 1838 *Mycetophila unicolor* Meigen, p. 43.
- 1838 *Mycetophila cunctans*, Zetterstedt, p. 864.
- 1852 *Mycetophila punctata*, Zetterstedt, pp. 4172-4173, 4200-4203.
- 1852 *Mycetophila grisea* Zetterstedt, pp. 4173, 4208-4209.
- 1863 *Mycetophila punctata*, Winnertz, pp. 916-918.
- 1864 *Mycetophila punctata*, Schiner, pp. 484-485.
- 1884 *Mycetophila punctata*, Dziedzicki, p. 299; pl. 5, figs. 1 (male reproductive system), 2-3 (female reproductive system), 4-7 (aedeagus); pl. 2, figs. 10-13 (male term.).
- 1898 *Mycetophila punctata*, Lundbeck, pp. 262-263.
- 1900 *Mycetophila punctata*, Lundbeck, p. 314.
- 1909a *Mycetophila punctata*, Johannsen, p. 123. (in part, not figures).
- 1912 *Mycetophila punctata*, Johannsen, pp. 92-93. (in part, Idaho and Wyoming records).
- 1916 *Mycetophila fungorum*, Edwards, pp. 60-61.
- 1917 *Mycetophila punctata*, Guthrie, pp. 317-318.
- 1917 *Mycetophila punctata*, Henriksen and Lundbeck, p. 571.
- 1920 *Mycetophila punctata*, Sherman, p. 15.
- 1921 *Mycetophila punctata*, Cole and Lovett, p. 222.
- 1922 *Mycetophila khasiensis* Senior-White, pp. 85, 124-125.
- 1924a *Mycetophila fungorum*, Edwards, p. 14.
- 1924b *Mycetophila fungorum*, Edwards, p. 164.
- 1925a *Mycetophila fungorum*, Edwards, pp. 632, 636, 656.
- 1927 *Mycetophila punctata*, Cole, p. 417; 465, figs. 41-43 (male term.).
- 1927 *Fungivora fungorum*, Landrock, pp. 157, 167; pl. 12, fig. 54 (male term.). (in part, not fig. 55).
- 1928a *Mycetophila fungorum*, Edwards, p. 9.
- 1931 *Mycetophila fungorum*, Edwards, p. 617.
- 1936 *Fungivora fungorum*, Okada, pp. 94-98.
- 1937 *Mycetophila fungorum*, Madwar, pp. 92-93; p. 91, figs. 363-367 (larval parts).
- 1937 *Fungivora fungorum*, Okada, p. 37.
- 1938a *Fungivora fungorum*, Okada, p. 98.
- 1938b *Fungivora fungorum*, Okada, p. 141.
- 1938 *Mycetophila punctata*, Strickland, p. 191.
- 1939 *Fungivora fungorum*, Okada, p. 271, figs. 3b-3b' (larva).
- 1943 *Mycetophila fungorum*, Foster, p. 33.

Length of male wing: 3.25-6.66 mm. Female wing: 3.52-6.83 mm. Mesoscutum pruinose, yellow with three pale brown vittae to entirely brown; scutellum brown with yellow apex; pleuron yellow to brown; legs yellow, coxae sometimes brownish; abdominal tergites I-VI brown with yellow markings, or entirely brown. Proepisternum with 4-6 bristles; mesepimeron with 4-8. Anepisternal ratio 1.03-1.22. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 3-5 a, 0 v, 4-9 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae; posterior preapicals straight or only

gently curved most of length, never distinctly bent at tip. Hind tibia with 4-6 strong d (shorter erect bristles between larger ones nearly always absent, sometimes 1-2 present), 0 a-d, 5-8 a, 7-20 p. Hind tibial anterior and ventral setulae dark brown. Wing without spots. R with 9-23 setulae below, R<sub>1</sub> with 33-73 below, M before r-m with 0 below and above. Ratio of r-m: M petiole 1.21-2.22. Some of the abdominal sternites each with several apical bristles stronger than other bristles present, but never with one median pair distinctly longer than the others. Male terminalia (Figs. 38, 39): ventral stylomere with several prominent setae, the most dorsolateral one strong and long, followed medially by two subequal, shorter, nearly straight setae. Female cercus (Fig. 10) 2-segmented.

#### Types.

- F. fungorum (DeG.). Lectotype (female) here selected from the remaining two syntypes, in Naturhistoriska Museum, Stockholm, Sweden. Type locality: not specified, Scandinavia.
- F. punctata (Meig.). Holotype apparently lost. Type locality: not specified, Europe.
- F. striata (Fabr.). Type or types probably lost. Type locality: not specified. Fabricius considered F. punctata a synonym of F. striata and cites Meigen as recording it from Germany.
- F. cunctans (Wied.). Apparent type or types in Paris Museum, according to Edwards (1924). type locality: ?
- F. semicincta (Meig.). Probable type or types in Paris Museum. Type locality: not specified, Europe.
- F. rufa (Macq.). Location of types unknown to present author. Type locality: not specified, northern France.
- F. trivialis (Meig.). Probable type or types in Paris Museum. Type locality: not specified, Europe.
- F. unicolor (Meig.). One or more probable syntypes in Paris Museum. Type locality: Europe, original series "aus Baiern, auch aus der Lütticher und hiesiger Gegend."
- F. grisea (Zett.). Holotype (male, not female as stated by Zetterstedt) in Lund Univ. Museum, Sweden. Type locality: "alpem Mulfjellet, Jemtlandia", Scandinavia.
- F. khasiensis (Senior-White). Holotype (female) in British Museum. Type locality: Shillong, India (X-11-1920, on window).
- Material examined. 1221 specimens from following localities:  
 ALASKA. Matanuska; Miller House, Steese Highway; Rampart House.  
 ALBERTA. Cameron Lake; Edmonton; Lethbridge; Morrin.  
 BRITISH COLUMBIA. Cranbrook; Cultus Lake; Fort Nelson; Kaslo; Keremeos; Robson; Terrace.  
 MANITOBA. Aweme.  
 QUEBEC. Great Whale River; Norway Bay; Ungava Bay.  
 SASKATCHEWAN. Christopher Lake; Saskatoon.  
 YUKON. Mile 36 west of Dawson, 3000'.  
 ARIZONA. Graham Mt., 9600'; Grand Canyon, Kaibab Plateau, 7500'; Mormon Lake; Tonto Creek Fish Hatchery, 6000'.  
 CALIFORNIA. Alameda; Alhambra; Barton Flats, San Bernardino Co.; Berkeley; Berkeley Hills; Black Point, Marin Co.; Claremont;

- Corte Madera, Marin Co.; Davis; Dodge River, near Pinecrest, Tuolumne Co.; Elk Valley, Del Norte Co.; Fair Oaks; Fairfax; Garbo; Glendale; Hatchet Pass, 4200'; Idyllwild, San Jacinto Mts.; Inverness, Marin Co.; Jewel Lake, Alameda Co.; Kentfield, Marin Co.; Laguna Mts.; Lagunitas; Lake Merced, San Francisco; Los Angeles; Los Banos; Los Gatos-Santa Cruz Highway, redwood area; Mill Valley, Marin Co., "reared from larvae in fungus"; Mt. Hermon, Santa Cruz Co.; Mt. View; Oakland; Oakland Hills; Palo Alto, some "reared from Pleurotus ostreatus", E.P. Van Duzee; Palomar Mt., 4700'; Pinnacles National Monument; Prairie Creek S.P.; Putah Canon, Yolo Co.; Redding; Redwood Canon, Marin Co.; Rio Vista; Ross, Marin Co.; Mendocino Co.; San Antonio Val., Santa Clara Co.; San Anselmo, Marin Co.; San Francisco, "ex Armillaria mellea", E.P. Van Duzee; San Rafael, Marin Co.; Santa Cruz; Santa Paula; Sausalito, Marin Co.; Sequoia N.P., 6300' and 6500'; Siberian Outpost, 9500'-10,500', Tulare Co.; 5 miles south of Sierraville, Sierra Co.; Sonora Pass, 9000', Tuolumne Co.; Spreckels, Monterey Co.; Stanford Univ.; Strawberry, Tuolumne Co.; Strawberry Canyon, Alameda Co.; Tamalpais; Trinita, Sonoma Co.; Waddell Creek, Santa Cruz Co.; Winters; Wood Lake, Tulare Co.; Wooden Valley, Napa Co.; Woodland; Yosemite.
- COLORADO. Lake Agnew, near Cameron Pass; Pingree Park; Rocky Mt. N.P., Glacier Creek.
- IDAHO. Avon; Moscow (reported as M. punctata by Johannsen, 1912); Moscow Mt.; Priest Lake.
- MONTANA. Georgetown Lake; Glacier N.P., Lake McDonald; Helena; Silver Lake.
- NEVADA. Charleston Mt., Kyle Canyon.
- NEW MEXICO. Cloudcroft; Jemez Springs; Red River; Santa Fe N.F., Gallinas River; White Mts., Rio Ruidosa, about 6500'; White Mts., South Fork Eagle Creek, about 8000'.
- OREGON. Forest Grove (reported as M. punctata by Cole and Lovett, 1921); McMinnville, Peavine Ridge; Rogue River N.F., Wrangle Gap, 6500'; Tillamook (reported as M. punctata by Cole and Lovett, 1921); Wallowa Mts., 4650'.
- SOUTH DAKOTA. Black Hills, Harney Peak, 6700'; Black Hills, Sylvan Lake, 6250'; Custer; Spearfish.
- UTAH. Cedar Breaks; Logan; Logan Canyon; Mt. Timpanogos; Uinta Mts., Soapstone Camp.
- WASHINGTON. Asotin; Camp Lawton, Seattle; Fort Lewis, Pierce Co.; Lind; Mt. Rainier N.P., Berkeley Park; Mt. Rainier N.P., White River; Pullman; Yakima, Moxee.
- WISCONSIN. T39N, R12W, B32, Washburn Co. (4 males, 1 female).
- WYOMING. Dinwiddie Creek (reported as M. punctata from "Wyo." by Johannsen, 1912); Grand Tetons, Jenny Lake, 6800'; Yellowstone N.P., Clematis Creek; Yellowstone N.P., Emerald Pool, 7400' and 8000'.
- European material examined. 56 specimens from the following localities:  
 AUSTRIA. 1 locality.

BELGIUM. 2 localities.

BRITAIN. 3 localities.

CZECHOSLOVAKIA. 4 localities.

DENMARK. 1 locality.

SCANDINAVIA. (lectotype of *F. fungorum*).

SPAIN. 1 locality.

SWITZERLAND. 4 localities.

Additional previous records. Reported as *M. punctata* from Greenland (Lundbeck, 1898, 1900; Henriksen and Lundbeck, 1918); Milbrae and Stanford University, California (Guthrie, 1917); Vancouver and Victoria, British Columbia (Sherman, 1920); Peace River region of Alberta (Strickland, 1938). Recorded as *M. fungorum* from Kugssuk, Godthaab Fjord, West Greenland (Edwards, 1931; Henriksen, 1939) and Vancouver, British Columbia (Foster, 1943). This species is also known from numerous localities in Europe and has been reported as *M. punctata* from Kamchatka (Dziedzicki, 1884), as *M. khasiensis* from India (Senior-White, 1922), as *M. fungorum* from Siam (Edwards, 1928), and as *F. fungorum* from Japan (Okada, 1936), South Kuriles (Okada, 1937) and Manchuria (Okada, 1938). North American records of "*M. fungorum*" and "*M. punctata*" not listed in the synonymy of *F. fungorum* will be found under *F. fisherae* n. sp., *F. thioptera* (Shaw), or *Fungivora* sp. (list of unplaced references).

**Remarks.** Closely allied to *F. fisherae* and *F. thioptera*. This species, in addition to being widespread in Europe and Asia, is common in North America from the Rockies west and in much of northern Canada. Perhaps the most interesting record is from Washburn County in northwestern Wisconsin. It may eventually be possible to satisfactorily divide this species into subspecies, but at present the writer is unable to see any satisfactory divisions. Many specimens from the southwestern U.S. have the apical setae of the ventral stylomere spaced and shaped somewhat differently than in specimens from farther north and from Europe. The lectotype was kindly loaned by Dr. René Malaise. As has been shown by Edwards (1916), many early records of "*M. fungorum*" referred to a species of *Exechia*.

*Fungivora fisherae*, new species (Figs. 11, 34, 35)

- 1878 *Mycetophila punctata*, Osten Sacken, p. 12. (in part, Pa. record).  
 1900 *Mycetophila punctata*, Smith, p. 624.  
 1900 *Mycetophila punctata*, Slosson, p. 320.  
 1901 *Mycetophila punctata*, Chagnon, p. 5.  
 1903 *Mycetophila punctata*, MacGillivray and Houghton, p. 12.  
 1905 *Mycetophila punctata*, Washburn, p. 56.  
 1909a *Mycetophila punctata*, Johannsen, p. 123; pl. 1, figs. 10 (mouthparts), 11 (entire insect). (in part, figures).  
 1909b *Mycetophila punctata*, Johannsen, pl. [1], figs. 55 (mouthparts), 56 (entire insect).  
 1910 *Mycetophila punctata*, Smith, p. 724.  
 1912 *Mycetophila punctata*, Johannsen, pp. 85, 92-93; fig. 72 (male term.) (in part, all U.S. records except those from Ala., Ida., Wyo.).

- 1915 *Mycetophila punctata*, Winn and Beaulieu, p. 119.  
 1916 *Mycetophila punctata*, Peterson, pp. 10, 17, 23, 28, 47, 48; pl. 1, fig. 11; pl. 5, fig. 87 (head and mouthparts).  
 1925a *Mycetophila punctata*, Johnson, p. 86.  
 1926b *Mycetophila punctata*, Johannsen, p. 151.  
 1927 *Mycetophila punctata*, Johnson, p. 176.  
 1928 *Mycetophila punctata*, Leonard, p. 746.  
 1938 *Mycetophila punctata*, Brimley, p. 327. (In part, some Raleigh specimens).  
 1938 *Mycetophila punctata*, Procter, p. 311.  
 1940 *Mycetophila punctata*, Jaques and Berger, p. 421.  
 1940 *Mycetophila fungorum*, Jaques and Berger, p. 421.  
 1942 *Mycetophila fungorum*, Brimley, p. 24. (in part).  
 1943 *Mycetophila punctata*, Procter, p. 362.  
 1949 *Mycetophila punctata*, Judd, p. 227.  
 1952 *Fungivora fungorum*, Shaw and Fisher, pp. 206, 208.

Length of male wing: 3.08-5.60 mm. Female wing: 3.35-5.87 mm. Mesoscutum pruinose, entirely yellow or yellow with 3 pale brown vittae or entirely brownish; scutellum yellow or brownish with yellow apex; pleuron yellow to brownish; legs yellow, coxae sometimes brownish; abdominal tergites I-VI yellow or brown or patterned with yellow and brown. Proepisternum with 4-6 bristles, mesepimeron with 4-7. Anepisternal ratio 1.03-1.19. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d, 2-4 a, 0 v, 1-7 p; first two rows of anterior setulae dark brown. Hind coxa with posterior setae minute, at least some of the posterior preapicals distinctly bent (usually ventrad) before apex. Hind tibia with 4-6 strong d (and without shorter erect bristles between the larger ones), 0 a-d, 5-6 a, 8-13 p. Hind tibial anterior and ventral setulae dark brown. Wing without spots. R with 9-19 setulae below, R<sub>1</sub> with 33-61 below, M before r-m with 0 below and above. Ratio of r-m: M petiole 1.00-1.82. Some of the abdominal sternites each with several apical bristles stronger than the others, but never with one median pair distinctly longer than the others. Male terminalia (Figs. 34, 35): ventral stylomere with several prominent setae, the most dorsolateral a long strong one, followed medially by two subequal distinctly S-shaped ones. Female cercus (Fig. 11) 2-segmented.

**Holotype.** Male, Ledges State Park, Boone County, Iowa, V-4-1952, Jean Laffoon (U.S. National Museum No. 62450).

**Allotype.** Female, same collection data and depository.

**Paratypes.** 284 males, 375 females from the following localities:

BRITISH COLUMBIA. 12m, 5f, Robson; Selkirk Mts.

NEW BRUNSWICK. Lepreaux Harbor Brook.

ONTARIO. Orillia; Ottawa; Vineland Station.

QUEBEC. Abbotsford; Lanie; LaTrappe; Meach Lake; Montreal; Montreal Island (reported as *punctata* by Chagnon, 1901); Norway Bay.

CONNECTICUT. East River; Redding; So. Meriden.

DISTRICT OF COLUMBIA. Eastern Branch, near Benning.

GEORGIA. College Park.

ILLINOIS. Algonquin; Dongola; Elizabeth; Mahomet; Muncie; Urbana; White Heath.

INDIANA. Lafayette.

IOWA. Ames; Backbone S.P., Delaware Co.; Boone; "County 88" (Henry Co.); Dolliver Memorial S.P., Webster Co.; 3 miles southeast of Holly Springs, Woodbury Co.; Ledges S.P., Boone Co.; Mt. Pleasant; 2 miles southwest of Polk City, Polk Co.; Shenandoah; Sioux City. (certain of these reported as M. fungorum and M. punctata from "Iowa" by Jaques and Berger, 1940).

KANSAS. Douglas Co.; Manhattan; Riley Co.

MARYLAND. Cabin John Bridge; Caves, Eccleston; 2m, 3f, Chevy Chase, IX-30-1912, "bred from Armillaria mellea", X-17-1912, C.H. Popenoe; Glen Echo; Plummers Island; near Plummers Island; Rock Run; Takoma Park.

MASSACHUSETTS. Amherst; Cambridge; Cummington; Dedham; Holliston; Naushon; N. Adams; Sunderland; Tynsbro.

MICHIGAN. Ingham Co.

MINNESOTA. Anoka Co.; Dakota Co.; Fridley Sand Dunes, Anoka Co.; Hennepin Co.; Lake Itasca; Mille Lacs Co.; Olmstead Co.; St. Paul; Two Harbors; Wabasha; Washington Co.

MISSISSIPPI. 9 miles north of Biloxi.

NEW HAMPSHIRE. Jaffray. White Mts.: Dolly Copp Camp, 1400'; King's Ravine, Mt. Adams, 1800'; Mt. Washington.

NEW JERSEY. Forest Hill.

NEW YORK. Adirondack Mts., Axton (reported as M. punctata by MacGillivray and Houghton, 1903); Brooklyn; Cold Spring Harbor, Long Island; Ithaca (reported as M. punctata by Johannsen, 1912); Greene Co.; McLean. McLean Reserve: Argus Brook; Grass Bog 1; Hemlock Ridge; Sphaerium Brook. Milford Center; Pinnacle; Shandaken; Woodworth's Lake.

NORTH CAROLINA. Black Mts. (reported as M. punctata from "N.C." by Johannsen, 1912); Raleigh (reported as M. punctata by Brimley, 1928).

OHIO. Columbus; Gypsum; Lorain.

PENNSYLVANIA. "Pennsylvania" ("Pa." on label, reported as M. punctata by Osten Sacken, 1878). Ashley; Carnegie Museum (Pittsburgh); E. Charleston, Tioga Co.; Hazleton; New Florence; Ohio Pyle; Pittsburg; Slippery River Creek; Tinicum; Valley Green, Fairmont Park, Philadelphia Co.; York Furnace, York Co.

RHODE ISLAND. Kingston (reported as M. punctata by Johannsen, 1912).

SOUTH CAROLINA. Clemson.

SOUTH DAKOTA. Brookings.

TENNESSEE. Chilhowee Mts., Sevier Co.; Great-Smoky Mts. N.P., Cove Forest, Gatlinburg, 3000'; Greenbriar Cove, Smoky Mts., Gatlinburg, 2000'.

TEXAS. Dallas (reported as M. punctata by Johannsen, 1912); San Antonio.

VERMONT. Dummerston.

VIRGINIA. Dead Run, Fairfax Co.; Deadhead Creek, Fairfax Co.; Falls Church; Great Falls; 1m Great Falls, X-3-1911, "bred from Armillaria sp.", XI-1911, C.H. Popenoe; Lee Co.; Prospect; Rockville.

WEST VIRGINIA. Cheat Mts.; Milville.

WISCONSIN. Price Co. (M. punctata record from "Wisc." by Johannsen,

1912, apparently based on these); Squaw Lake, Vilas Co.; Town Franklin, Milwaukee; Univ. Wisconsin Arboretum; T34N, R8W, B24, Rusk Co.; T39N, R12W, B32, Washburn Co.

Additional specimens. 779 specimens, many of which are from localities already listed under paratypes. These further localities are also represented.

ALBERTA. Nordegg.

NEWFOUNDLAND. Sandy Lake.

NOVA SCOTIA (Cape Breton Island). Big Intervale Margaree, Frizzleton; Wycocomagh.

ONTARIO. Charlton; Toronto.

QUEBEC. Hull.

COLORADO. "Colo."

DELAWARE. Odessa.

DISTRICT OF COLUMBIA. Washington.

GEORGIA. Atlanta; Decatur; DeKalb Co.; Emory Univ. Field Station, Newton; Macon.

ILLINOIS. Champaign.

INDIANA. Bev. Shores; Pine Creek.

IOWA. Des Moines; Lacey-Keosauqua S.P., Van Buren Co.; Mt. Pleasant.

KENTUCKY. Kentucky Ridge S.F., 1200'.

LOUISIANA. Hammond; Monroe.

MAINE. Jonesboro.

MARYLAND. Beaver Dam, Cockeysville; 2m, 2f, Chevy Chase, X-30-1912, "bred from Hypholoma lachrymabundum", X-17-1912, C.H. Popenoe; Forest Glen; Glen Echo, XI-5-1911, "bred from Tricholoma equestre", XII-6-1911, C.H. Popenoe; Glenburnie; Gunpowder River, Baltimore Co.; Lock Raven.

MASSACHUSETTS. Beverly; Boston; Brookline; Newton U. Falls. (The "Mass." record of M. punctata of Johannsen, 1912, apparently at least partly based on some of these).

MICHIGAN. Douglas Lake; Washtenaw Co.

MINNESOTA. Crookston; Houston Co.; Taylors Falls.

MISSOURI. Meramec S.F.

NEBRASKA. Ponca S.P.

NEW HAMPSHIRE (White Mts.). Ammonoosuc Ravine, 4000'; Dolly Copp Camp, 1400'; Mt. Washington: Great Gulf Trail, Peabody River, 1500', Huntington Ravine, 4300', Tuckerman's Ravine, 3800'; Mt. Adams: King's Ravine House, 1280', King's Ravine, 2000'; King's Ravine Trail, 2500', 2600' and 2800'.

NEW JERSEY. Dover; Lakehurst; Merchantville (reported as M. punctata by Smith, 1910); Riverton (reported as M. punctata by Smith, 1900); Trenton. (The "N.J." record of M. punctata of Johannsen, 1912, at least partly based on some of these).

NEW YORK. Beaverville, Sullivan Co.; Fillmore Glen; N. Fairhaven; Oneonta; Orient, Long Island; Riverhead, Long Island; Sea Cliffs, Long Island; Wilmington Notch, Adirondacks.

NORTH CAROLINA. Southern Pines.

PENNSYLVANIA. "Penn., Loew coll." (reported as M. punctata by Osten Sacken, 1858); Germantown; North Mt.; Philadelphia.

RHODE ISLAND. Westerly.

TENNESSEE. Knoxville (reported as *M. punctata* by Johannsen, 1912);  
Neubert's Springs, Neubert Station; Tusculum College, Greene Co.

TEXAS. Cresson.

WEST VIRGINIA. Pendleton Co.

VERMONT. Lake Willoughby, 2200'; Long Trail near Stratton Lake,  
Stratton, 2600'.

VIRGINIA. 1m, 1f, Clarendon, XI-23-1911, "bred from *Russula*  
*roseipes*", C.H. Popenoe; 2 without abdomens, Great Falls,  
X-23-1911, "bred from *Boletus* sp." XI-23-1911, C.H. Popenoe;  
near Plummers Island, Maryland.

WISCONSIN. Jackson Co.; Madison.

Additional previous records. Reported as *M. punctata* from Mt.  
Washington, New Hampshire (Slosson, 1900); Minnesota (Washburn, 1905);  
Maine (Johannsen, 1912); several "areas" in Maine, Massachusetts, New  
Hampshire, Rhode Island and Vermont (Johnson, 1925); Lloyd-Cornell  
Reservation, New York (Johannsen in Sibley et al., 1926); Bar Harbor,  
Maine (Johnson, 1927); Erie Co., New York (Leonard, 1928); and Hamilton,  
Ontario (Judd, 1949). North American records of "*M. fungorum*"  
and "*M. punctata*" not listed in the synonymy of *F. fisherae* will be found  
under *F. fungorum* (DeG.), *F. thioptera* (Shaw) and *Fungivora* sp. (list  
of unplaced references).

Remarks. Closely related to *F. fungorum* and *F. thioptera*. This  
species abounds in the northeastern United States, southeastern Canada,  
and along the eastern mountains to Georgia. It is relatively sparsely  
distributed in other parts of the southeastern United States and appar-  
ently is locally distributed in southwestern Canada.

*Fungivora thioptera* (Shaw), new combination (Figs. 12, 36, 37)

1938 *Mycetophila punctata*, Brimley, p. 327. (in part, Tarboro and  
some Raleigh specimens).

1940 *Mycetophila thioptera* Shaw, pp. 48, 50; 49, fig. 3 (male term.).

1942 *Mycetophila fungorum*, Brimley, p. 24. (in part, Tarboro and  
some Raleigh specimens).

Length of male wing: 3.12-5.48 mm. Female wing: 3.60-5.19 mm.  
Mesoscutum pruinose, usually yellow with 3 pale brown vittae, some-  
times almost uniformly yellow or brown; scutellum usually light brown,  
sometimes brown with paler margin; pleuron yellow to brown; legs  
yellow, coxae sometimes brownish; abdominal tergites I-VI yellow to  
brown, or patterned with yellow and brown. Proepisternum with 4-6  
bristles, mesepimeron with 4-7. Anepisternal ratio 0.94-1.17. Seg-  
ments of fore tarsus subequal in thickness in both sexes. Mid tibia with  
4-6 d, 0 a-d, 4-5 a, 0 v, 4-8 p; first two rows of anterior setulae dark  
brown. Hind coxa with posterior setae minute, at least some of the  
posterior preapicals somewhat bent at tip. Hind tibia with 4-7 strong  
d (nearly always lacking shorter erect bristles between larger ones,  
sometimes 1 or 2), 0 a-d, 5-6 a, 7-15 p. Hind tibial anterior and ventral  
setulae dark brown. Wing without spots. R with 7-15 setulae below, R<sub>1</sub>  
with 41-62 below, M before r-m with 0 below and above. Ratio of r-m:

M petiole 0.83-1.28. Some abdominal sternites with several apical  
bristles stronger than the others, but never with one median pair dis-  
tinctly longer than the others. Male terminalia (Figs. 36, 37): ventral  
stylomere with several prominent setae, the most dorsolateral a long  
strong one, followed medially by a group of three stout, closely set, nearly  
straight setae. Female cercus (Fig. 12) 2-segmented.

Type.

*F. thioptera* (Shaw). Holotype, male in F. R. Shaw collection. Type  
locality: Page or Sherwood, Oklahoma (not specified) (VI-1937,  
Standish and Kaiser). Page is in Leflore Co., Sherwood in  
McCurtain Co.).

Material examined. 221 specimens from the following localities:

ALABAMA. LaPlace.

CONNECTICUT. East River.

DELAWARE. Smyrna.

DISTRICT OF COLUMBIA. Washington, "bred from mushroom".

FLORIDA. Montbrook; Morrison Field, W. Palm Beach; 3 miles east of  
Orlando, "reared from mushrooms".

GEORGIA. Atlanta; College Park; Decatur; DeKalb Co.; Emory Univ.  
Field Station, Newton; Thomasville.

ILLINOIS. White Heath.

IOWA. Ames; Mt. Pleasant.

LOUISIANA. Hammond; Ruston.

MARYLAND. Baltimore; Cabin John Bridge; Chevy Chase, "from  
*Boletus* sp."; Plummers Island; Scientists Cliffs, Calvert Co.

MASSACHUSETTS. Amherst; Holliston; Martha's Vineyard.

MICHIGAN. E. Lansing.

MISSISSIPPI. 9 miles north of Biloxi.

MISSOURI. Meramec S.F.; Noel; Shrewsbury.

NEW JERSEY. Riverton; Wenonah.

NEW YORK. Fillmore Glen; Lick Brook, Ithaca.

NORTH CAROLINA. Fayetteville, "pitcher *S. flava*"; Raleigh (including  
one labelled "pitcher *S. flava*" and several reported as *M. punctata*  
by Brimley, 1938); Tarboro (reported as *M. punctata* by Brimley,  
1938).

PENNSYLVANIA. Fountain Dale; Hazleton; Philadelphia.

SOUTH CAROLINA. Clemson, "reared edible mushroom"; Myrtle Beach.

TEXAS. Laguna Madre, 25 miles southeast of Harlingen; San Antonio;  
Victoria.

VIRGINIA. Dead Run, Fairfax Co.; Great Falls.

WISCONSIN. T39N, R12W, B32, Washburn Co.

Remarks. Closely allied to *F. fungorum* (DeG.) and *F. fisherae* n. sp.  
Dr. F.R. Shaw has supplied the writer with notes on the types which  
have enabled him to recognize the species. Common in the southeastern  
United States; fairly common along the Atlantic coast north to Massa-  
chusetts; sparsely distributed over other parts of the northern United  
States as far north as Fillmore Glen, New York; East Lansing, Michigan;  
Washburn Co., Wisconsin; and Ames, Iowa.

Fungivora falcata (Johannsen) (Figs. 4, 14, 44, 45)

- 1912 Mycetophila falcata Johannsen, pp. 85, 93; figs. 73 (male term.), 197 (wing).  
 1912 Mycetophila mutica, Johannsen, pp. 85, 93-94; fig. 75 (male term.). (in part, male of "var. a" only).  
 1920 Mycetophila falcata, Sherman, p. 15.  
 1921 Mycetophila falcata, Cole and Lovett, p. 221.  
 1928 Mycetophila falcata, Leonard, p. 746.  
 1936 Mycetophila falcata, Shaw and Townes, p. 207.  
 1941 Mycetophila mutica, Shaw, p. 24. (in part, "var. a").  
 1952 Fungivora falcata, Shaw and Fisher, p. 208.

Length of male wing: 2.27-3.44 mm. Female wing: 2.46-3.54 mm. Mesoscutum pruinose, usually dark brown except for narrow anterior yellow border, sometimes mostly yellow with 3 faint brown vittae; scutellum sometimes entirely dark brown, sometimes mostly yellow with brown basal area; legs mostly yellow, hind femur with narrow brown tip; abdominal tergites I-VI entirely brown or some with yellow posterior borders. Proepisternum with 3-5 (usually 3, rarely 5) bristles; anepisternum (Fig. 4) with 3-4 (usually 3) in a row subparallel with posterior margin, additional scattered bristles also present; mesepimeron with 3-6. Anepisternal ratio 0.94-1.09. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 3-5 d, 0 a-d, 2-3, (usually 3) a, 0 v, 1-4 p; first two rows of anterior setulae dark brown. Hind coxa with short posterior setae, posterior preapicals nearly straight. Hind tibia with 4-5 (usually 4) strong d (nearly always lacking smaller erect bristles interspersed with larger ones, one present on one leg of one specimen), 0 a-d, 5 a, 3-5 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot, preapical spot absent (area around tip of  $R_1$  somewhat dusky in some Pacific coast specimens). R with 4-9 setulae below,  $R_1$  with 25-33 below, M before r-m with 0-1 below. Ratio of r-m : M petiole 0.88-1.08. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 44, 45): posterior ventral border of fused gonocoxopodites with shallow, rounded crotch; ventral stylomere with a prominent median seta. Female terminalia (Fig. 14): cercus 2-segmented; postgenital plate with 1-2 setae on each side near apex distinctly stronger than the numerous minute setae of the plate.

Type.

F. falcata (Joh.). Holotype, male at Cornell University, No. 2061. Type locality: Ithaca, New York (V-16-1900).

Material examined. 954 specimens from the following localities:

- ALBERTA. Jasper Park, Pyramid Lake.  
 BRITISH COLUMBIA. Robson; Sentinel Mt., Brilliant; Yoho N.P., Kicking Horse Camp, 4500'.  
 MANITOBA. Gillam.  
 NOVA SCOTIA. Frizzleton, Capt Breton Island.  
 SASKATCHEWAN. Christopher Lake.

- ARIZONA. Grand Canyon, Kaibab Plateau, 7500'; Tonto Creek Fish Hatchery, 6000'.  
 CALIFORNIA. Alpine Lake, Marin Co.; Big Basin, Santa Cruz Co.; Blue Canyon, Nevada Co.; Bonny Doon; 3 miles south of Camino, Eldorado Co.; Castle Crags S.P.; Dodge Ridge, near Pinecrest, Tuolumne Co.; Echo Portals, 7300', Eldorado Co.; Elk Valley, Del Norte Co.; 7 miles west of Fairfax, Marin Co.; Fairfax; Glendale; Great Basin Redwoods; Hat Creek R.S., Shasta Co.; Hatchet Pass, 4200'; Hills back of Oakland; Inverness; Lake Tahoe, 6000'; Mammoth Lakes; N. Fork Big River, 14 miles west of Willits, Mendocino Co.; Moose Camp, Shasta Co.; Oakhurst, Madera Co.; Pacific Grove; Pinecrest, Tuolumne Co.; Saratoga; Snowline Camp, Eldorado Co.; Sonora Pass, 9000', Tuolumne Co.; Stillwater Cove, Sonoma Co.; Strawberry, Tuolumne Co.; Waddell Creek, Santa Cruz Co.; 6 miles west of Willits, Mendocino Co.; Yosemite, 3880'-4000'; Yosemite N.P.; Glacier Pt. Bog, 8000'; Yosemite N.P., Tuolumne Meadows; Yosemite Valley.  
 COLORADO. Cameron Pass; Rocky Mt. N.P., Chasm Lake, 10,000'; Rocky Mt. N.P., Glacier Creek; San Isabel N.F., Collegiate Peaks Camp, 10 miles west of Buena Vista.  
 FLORIDA. Orlando.  
 GEORGIA. Atlanta; DeKalb Co.; Emory Univ. Field Station, Newton.  
 IDAHO. Coeur d'Alene N.F., Cedar Canyon; Moscow Mts.; Priest Lake.  
 ILLINOIS. Algonquin; Dongola; Urbana.  
 INDIANA. Lafayette.  
 IOWA. Ames; Ledges S.P., Boone Co.; Mt. Pleasant.  
 MARYLAND. Baltimore; Chase, Baltimore Co.; Lake Roland, Baltimore Co.; Octoraro Creek, Cecil Co.; Plummers Island.  
 MASSACHUSETTS. Amethyst Br., Pelham; Amherst.  
 MINNESOTA. Lake Itasca; 5 miles west of Walker.  
 MISSISSIPPI. 7 and 9 miles north of Biloxi.  
 MONTANA. Helena.  
 NEVADA. Toiyoh N.F., Tamarack Flats, Mount Rose, 8100', Washoe Co.  
 NEW HAMPSHIRE. Keene.  
 NEW MEXICO. Mogollon Mts., Catron Co.; Red River.  
 NEW YORK. Ithaca (including holotype of F. falcata); Oneonta.  
 NORTH CAROLINA. Fayetteville; Great Smoky Mts., Andrews Bald; Raleigh.  
 OKLAHOMA. Page.  
 OREGON. Corvallis; Deschutes N.F., Metolius R.; Dutchman's Flats, 6300', near South Sister; Elk Lake, 4900'; Forest Grove (recorded as falcata by Cole and Lovett, 1921); Goble; Hood River; Humburg Mt., north, sea level; McMinnville, Peavine Ridge; Mt. Hood, Bear Springs; Mt. Hood, Horsetail Falls; Mt. Hood, Horsethief Meadows; Mt. Hood, N. Fork Iron Creek, 4400'; Mt. Hood, Oneonta Gorge; Myrtle Grove S.P., 100'; Ochoco Mts.; Odell Lake, 5100' and 5700'; Rogue River N.F., Beaver Sulphur Camp, 1750'; Salt Creek Falls, 4000'; Summit Prairie; Wallowa Mts., Lostine Guard Station, 4900'; Wallowa Mts., Lostine Valley, 5500'; Wallowa Mts., Wallowa Springs, 4670'; Willamette Pass, 5000'.



PENNSYLVANIA. Hazleton; Ohio Pyle; Pittsburgh.

SOUTH CAROLINA. Clemson.

SOUTH DAKOTA. Black Hills, Harney Peak, 6700'; Black Hills, Sylvan Lake, 6250'; Brookings.

TENNESSEE. Great Smoky Mts. N.P., Beech Gap, Gatlinburg, 5500'; Marion Co.

UTAH. Big Cottonwood, Spruces Camp; Jensen.

VERMONT. Manchester.

VIRGINIA. Dead Run, Fairfax Co.

WASHINGTON. "Wash." (reported as *M. mutica* var. a by Johannsen, 1912); Columbia N.F., La Wis Wis, 1300'; Friday Harbor; Glacier; Glenwood; Mt. Constitution, Orcas Island (paratype of *F. falcata*; Johannsen incorrectly indicated this locality to be in Idaho); Olympic Forest, Jefferson Co.; Olympic N.P., Boulder Lake Trail, 2300' and 3500'; Olympic N.P., Deer Park, 5400'; Tacoma; Toppenish; Wenatchee N.F., Blewett, 2300'; Wenatchee N.F., Park Camp, 2900'. Mt. Rainier N.P.: Elbe; Longmire Springs, 2800'; Mesqually Glacier, 4000'; Ohanapekosh, 1900'; Wonderland Trail.

WISCONSIN. Univ. Wisc. Arboretum, Dane Co.; Washburn Co.

WYOMING. Yellowstone N.P., Emerald Pool, 7400'.

Previous additional records. Reported as *M. falcata* from Savary Island and Vancouver, British Columbia (Sherman, 1920) and from Greenville, South Carolina (Shaw and Townes, 1936).

Remarks. Closely related to *F. illudens* n. sp. and *F. carruthi* (Shaw). There are apparently no Palaearctic species with the following combination of characters: M bare or nearly bare before r-m, mid tibia without ventrals, and only a central wing spot present. Therefore, it may be of some significance that *F. falcata*, *F. illudens* and *F. carruthi* are all unknown from Alaska.

*Fungivora illudens*, new species (Figs. 46, 47)

Length of male wing: 2.27-2.83 mm. Female wing: 2.65-3.17 mm. Mesoscutum pruinose, usually mostly yellow with vittae faintly indicated, sometimes light brown; scutellum brownish at base, yellow apically; legs yellow; abdominal tergites I-VI brown, II-VI with yellow apical and sometimes lateral borders. Proepisternum with 4-5 bristles, mesepimeron with 4-8 (usually 4-5). Anepisternal ratio 0.97-1.08. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 3-4 (usually 3) a, 0 v, 4-5 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae, posterior preapicals nearly straight. Hind tibia with 4-5 strong d (without smaller erect bristles between them), 0 a-d, 4-6 a, 4-7 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, preapical spot absent. R with 6-10 setulae below, R<sub>1</sub> with 31-38 below, M before r-m with 0-2 below. Ratio of r-m: M petiole 0.69-1.36. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 46, 47): posterior ventral border of fused gonocoxopodites only slightly concave; ventral stylomere with an apical, medially directed

fingerlike lobe when seen in ventral view. Female cercus 2-segmented.

Holotype. Male, Ledges State Park, Boone Co., Iowa, VII-29-1950, Jean Laffoon (U.S. National Museum No. 62453).

Allotype. Female, type locality, X-11-1949, Jean Laffoon (U.S. National Museum).

Paratypes. 12 males, 13 females from the following localities:

ILLINOIS. 1f, Monticello, Sangamon River, VI-28-1914. 1f, White Heath, VII-11-1915.

INDIANA. 1m, Lafayette, VI-18-1915, Collection J.M. Aldrich.

IOWA. 1m, Ames, 1950, W.L. Downes. Ledges S.P.: 1m, VII-29-1950, JL; 1m, 1f, VII-29-1955, JL; 1f, VII-30-1955, W.L. Downes; 1m, 1f, VII-31-1955, JL. 1m, 1f, Pike's Peak S.P., Clayton Co., VII-4-1949, JL. 1m, Sioux City, VII-15-1950, JL.

MASSACHUSETTS. 1f, Holliston, X, N. Banks.

MISSOURI. 1f, Webster Groves, X-1926.

NEW YORK. 1f, Ithaca. 2f, Oneonta, Swamp, 1900', VIII-18-1935, H.K. Townes.

PENNSYLVANIA. 1m, Hazleton, VII-26-1910, Dietz col. 1f, Carn.

Mus. (Pittsburgh), VII-13-1912, on window, H. Kahl Coll'n. 3m, Ohio Pyle, VIII-7 and 11-1905; VIII-1907.

VERMONT. 1m, Long Trail near Grout Job, Stratton, 2500', XI-11-1949, J.F. Hanson.

WISCONSIN. 1f, T35N, R7W, B30, Rusk Co., VIII-8-1953, R.H. Roberts.

Additional specimen. One lacking terminalia from Hazleton, Pennsylvania, X-8-1910.

Remarks. See *F. falcata* (Joh.). Apparently limited to the north-eastern quarter of the United States.

*Fungivora carruthi* (Shaw), new combination (Figs. 15, 40, 41)

1951b *Mycetophila carruthi* Shaw, p.276; p.278, fig. 2 (male term.).

Length of male wing: 2.65-3.67 mm. Female wing: 2.77-4.19 mm. Mesoscutum pruinose, usually dark brown except for narrow anterior yellow border, sometimes with more yellow, occasionally yellow except for faint brown vittae; scutellum usually dark brown with yellow margin, sometimes almost entirely yellow; legs mostly yellow; abdominal tergites I-VI brown except for yellow hind borders on II-VI. Proepisternum with 3-5 (usually 4) bristles; anepisternum with 3-5 (nearly always 4-5) bristles in row subparallel with posterior margin, a few additional scattered bristles present; mesepimeron with 3-5. Anepisternal ratio 0.89-1.00. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d, 3 a, 0 v, 2-6 p; first two rows of anterior setulae dark brown. Hind coxa with short posterior setae, posterior preapicals nearly straight. Hind tibia with 4-6 d (without smaller erect bristles between them), 0 a-d, 5-6 (usually 5) a, 3-9 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot, preapical spot absent. R with 5-8 setulae below, R<sub>1</sub> with 33-48 below, M

before r-m with 0-1 below. Ratio of r-m : M petiole 0.64-1.50. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 40, 41): posterior ventral border of fused gonocoxopodites evenly concave; dorsal stylomere with a prominent slender lobe arising on median side and extending posteriorly and medially. Female terminalia (Fig. 15): cercus 2-segmented; postgenital plate with numerous fine setae, but without larger, differentiated setae along margins apically.

Type.

F. carruthi (Shaw). Holotype, male in F.R. Shaw Collection. Type locality: "junction of Elkhorn Creek and Poudre River, Colorado" (Larimer County) (VIII-16-1947, D.G. Denning).

Material examined. 33 specimens from the following localities:

BRITISH COLUMBIA. Robson.

ARIZONA. Grand Canyon N.P. (north rim); S. Catalina Mts., Mt. Lemon.

CALIFORNIA. Huntington Lake, Fresno Co.; Leevining Canyon, 7000'.

NEW MEXICO. Cloudcroft; Ruidoso; Tajique.

OREGON. Camp Abbot, Deschutes Co.

SOUTH DAKOTA. Wind Cave.

WASHINGTON. Mt. Baker, Silver Fir Camp, 1975'.

Remarks. See F. falcata (Joh.). Apparently confined to the mountainous areas of the western United States and southwestern Canada. Dr. F.R. Shaw has compared the holotype of F. carruthi with a specimen sent and has confirmed the determination of the latter.

Fungivora lenis (Johannsen) (Figs. 42, 43)

1912 Mycetophila lenis Johannsen, pp. 85, 94; figs. 76 (male term.), 198 (wing).

1925a Mycetophila lenis, Johnson, p. 87.

1952 Fungivora lenis, Shaw and Fisher, pp. 206, 208.

Male. Length 4 mm (teste Johannsen). Mesoscutum pruinose, yellow with 3 brown vittae; scutellum yellow with brownish base; legs yellow; abdominal tergites I-VI light brown with apical yellow margins. Proepisternum with 3 bristles; mesepimeron with 4. Segments of fore tarsus subequal in thickness. Mid tibia with 0 a-d, 3 a, 0 v, first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia without a-d bristles. Hind tibial anterior and ventral setulae dark brown. Wing with a large distinct central spot extending to C, longest in costal cell; preapical spot distinct, starting at C before tip of R<sub>1</sub>, filling apex of cell R<sub>1</sub>, extending somewhat obliquely back across R<sub>2</sub> to just beyond M<sub>1+2</sub>. Branches of Cu divergent for their entire length. R with 25 setulae below, M before r-m with 0 below and above. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 42, 43): ventral stylomere with numerous long setae on ventral surface of most ventral portion; a dorsolateral lobe of the ventral stylomere extends medially about as far as the ventral lobe.

Type.

F. lenis (Joh.). Holotype, male at Cornell University, No. 2062. Type locality: Eastport, Maine (VII-16).

Material examined. Holotype.

Fungivora browningi, new species (Figs. 48, 49)

Length of male wing: 2.52-3.12 mm. Female wing: 2.67-3.29 mm. Mesoscutum pruinose, dark brown; scutellum dark brown, apical margin yellowish-brown; pleuron dark brown; legs yellow; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles; mesepimeron with 2-3. Anepisternal ratio 1.18-1.32. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 3-4 d (usually 3), 0 a-d, 2 a, 0 v, 2-4 p, one specimen with a very small bristle in a posteroventral position just before the middle of each mid tibia; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae; posterior preapicals nearly straight. Hind tibia with 3-5 strong d (and 0-1, usually 0, smaller erect bristle between larger ones); 0 a-d, 4 a, 0-1 (usually 1) p. Anterior and ventral setulae of hind tibia dark brown. Wing without spots. R with 1-3 setulae below, R<sub>1</sub> with 32-44 below, M before r-m with 0 above and below. Ratio of r-m : M petiole 0.79-1.07. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 48, 49): posterior ventral border of fused gonocoxopodites slightly convex; dorsal stylomere in lateral view subovoid, with numerous setae. Female cercus 2-segmented.

Holotype. Male, Ames, Iowa, V-2-1951, light trap, J. C. Browning (U.S. National Museum No. 62436).

Allotype. Female, Ames, Iowa, V-15-1951, light trap, J. C. Browning (U.S. National Museum).

Paratypes. 9 males, 6 females from the following localities:

IOWA. 1f, Ames, IV-27-1951, light trap, J. C. Browning. 1m, Boone, V-17-1952, J.L. 1m, Ledges S.P., V-4-1952, J.L.

MARYLAND. 1m, Lock Raven, Baltimore, V-8-1938, E.G. Fisher.

MASSACHUSETTS. 1f, Beverly, IX-8-1871.

MICHIGAN. 1m, East Lansing, V-20-1937, Hansens.

MISSOURI. 1m, Summersville, V-12-1951, C. Wingo.

NORTH CAROLINA. 1f, Neel's Creek, Mt. Mitchell Game Refuge, V-30-1946, John F. Hanson.

TENNESSEE. 1f, Knoxville, V-25, Collection J.M. Aldrich.

VIRGINIA. 1m, near Plummerville, Maryland, V-20-1914, R.C. Shannon Coll.

WISCONSIN. 3m, 2f, T39N, R12W, B32, Washburn Co., light trap, R.H. Jones, 3 dates between V-10 and V-28-1953.

Additional specimen. 1 female from Atlanta, Georgia, IV-22-1949, light trap, H.D. Pratt.

Fungivora vegeta, new species (Figs. 50, 51)

Length of male wing: 2.37-3.21 mm. Female wing: 2.54-3.44 mm. Mesoscutum pruinose, dark brown, humeral area and posterolateral corners yellow; scutellum dark brown; legs yellow, hind femur with broad apical dark brown band; abdominal tergites I-VI brown, II-V (sometimes VI) with yellow apical and lateral margins. Proepisternum with 3-5 bristles; mesepimeron with 3-6. Anepisternal ratio 0.70-1.00. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d (one leg of one specimen with a bristle in this row near base of leg), 3-4 (usually 3) a, 0 v, 1-3 p, 0-2 posteroventrals (small, on apical half of leg, in line with posterior spur); first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae, posterior preapicals nearly straight. Hind tibia with 4-6 d (without smaller erect bristles between them), 0 a-d, 5-7 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot with rather indefinite margins, sometimes very weak, usually confined to a part of the anterior half of cell  $R_5$ , base at a point well basad of  $R_1$ , ending beyond  $R_1$ , sometimes extending forward to C and distad in cell  $R_1$  to apex of the cell. R with 6-12 setulae below,  $R_1$  with 20-27 below; M before r-m with 0 above and below. Ratio of r-m : M petiole 0.64-1.00. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 50, 51): fused gonocoxopodites with a pair of long, stout apical setae on the posterior ventral margin. Female cercus 2-segmented.

Holotype. Male, Ledges State Park, Boone County, Iowa, V-6-1950, Jean Laffoon (U.S. National Museum No. 62469).

Allotype. Female, same data and depository.

Paratypes. 242 males, 187 females from the following localities:

ARIZONA. 1f, Grand Canyon N.P. (north rim), VII-15-1954, W.L.

Downes.

CALIFORNIA. 1m, 1f, Bonny Doon, V-14-1948, C.P. Hoyt. 1m, hills back of Oakland, V-25-1951, W.C. Bentinck. 1m, Oakland, III-12-1951, W.C. Bentinck. 4m, Saratoga, III-22-1948, C.P. Hoyt. 1m, Wild Cat Creek, Tilden Park, Contra Costa Co., III-20-1951, W.C. Bentinck.

ILLINOIS. 1m, Algonquin, X-17-1911, Nason. 1m, Algonquin, X-29-1896. 1m, 1f, Urbana, XI-7-1913, on window.

IOWA. 1m, Dolliver Memorial S.P., Webster Co., VI-30-1950, J.L. 4m, 5f, "County 88" (Henry Co.), IX-3-1939, Bernard Berger. 1f, Lacey-Keosauqua S.P., Van Buren Co., IX-10-1949, J.A. Slater and J.L. 218m, 174f, type locality, on 23 dates from III-26 to XI-11 in 1947-1952 (none from VI-26 to VII-31), J.L. 2f, type locality, V-26-1946, D.E. Hardy. 1m, Sioux City, IX-8-1951, J.L.

MARYLAND. 1m, Bladensburg, IX-23-1915, R.C. Shannon.

PENNSYLVANIA. 1f, Pittsburgh, X-5-1911, H. Kahl Coll. 2m, 1f, Pittsburgh, X-20-1910, Hugo Kahl. 1m, Pittsburgh, X-21-1910, H. Kahl Coll. 1m, Pittsburgh, Carnegie Mus., X-26-1910, on window, Hugo Kahl.

SOUTH CAROLINA. 1m, 1f, Clemson, I-20-1952, David Dunavan.

Additional specimens. 225 specimens, of which 217 are from the type locality, and 5 are from other localities listed above. The following additional localities are represented:

CALIFORNIA. 1m, Felton, I-11-1948, C.P. Hoyt. 2f, Los Gatos-Santa Cruz Highway, redwood area, II-24-1948, C.P. Hoyt.

Remarks. Over 600 specimens have been taken at the type locality, nearly all of them on the rock walls of heavily shaded, deep ravines.

## Species of Group B

Fungivora caudata (Staeger) (Figs. 13, 54, 55)

- 1840 Mycetophila caudata Staeger, p.243.  
 1863 Mycetophila gibba Winnertz, pp.946-947. New synonymy.  
 1869 Mycetophila polita Loew, pp.158-159. (reprint, p.196). New synonymy.  
 1874 Mycetophila caudata, Mik, pp.347-348; pl.7, figs.6 (entire male) 7 (male term.).  
 1891 Opistholoba caudata, Mik, p.5.  
 1895 Mycetophila caudata, Strobl, pp.174-175.  
 1909a Opistholoba ocellata Johannsen, p.126; pl.7, fig.18 (male term.).  
 1912 Opistholoba ocellata, Johannsen, p.77.  
 1912 Mycetophila polita, Johannsen, pp.87,100.  
 1912 Mycothera impellans, Johannsen, p.84. (in part, Pa. and N.J. only).  
 1915 Mycothera impellans, Weiss, p.106.  
 1920 Opistholoba (sic!) ocellata, Sherman, p.15.  
 1920 Mycetophila polita, Sherman, p.15.  
 1924b Mycetophila caudata, Edwards, p.166.  
 1926 Mycothera impellans, Hallock and Parker, p.4.  
 1928 Opistholoba ocellata, Leonard, p.745.  
 1928 Mycetophila polita, Leonard, p.746.  
 1932 Fungivora caudata, Landrock, pp.452-453, figs.11 (wing), 12 (male term.), 13 (female term.).  
 1934 Mycetophila caudata, Johannsen, p.140.  
 1952 Fungivora caudata, Shaw and Fisher, pp.207,208.  
 1952 Fungivora polita, Shaw and Fisher, pp.207,208.

Length of male wing: 2.37-3.48 mm. Female wing: 2.42-3.25 mm. Mesoscutum shining, very dark brown, narrow anterior margin, large humeral area, small posterolateral corner yellow; scutellum dark brown; legs mostly yellow, hind femur with dark apex and a distinct brown line above from base to apex; abdominal tergites I-VI of male brown, II-VI of female often with lateral yellow margins, V and VI of female usually yellow. Proepisternum with 3-4 bristles, mesepimeron with 3-4. Anepisternal ratio 0.76-0.85. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 3-4 a, 2-3 v, 1-2 p; first two rows of anterior setulae dark brown except for a few yellow or pale brown setulae apically. Hind coxa with posterior setae moderate in length, longest never as long as the longest posterior preapical. Hind

tibia with 5-6 d (without shorter erect bristles between them), 0 a-d, 7-8 a, 0-2 p. Setulae of hind tibia: anterior setulae yellow except for a few brown setulae apically and several dark brown apical setulae in the last row, ventral setulae yellow except for a group of dark brown setulae apically. Wing with a distinct central spot; preapical spot starting at C well before tip of  $R_1$ , extending distally to just before or just beyond tip of  $R_1$ , extending back to  $M_{1+2}$  or just beyond, sometimes apex of cell  $R_1$  dusky, sometimes clouds present on branches of M and  $Cu_1$  directly behind the spot. R with 8-15 setulae below,  $R_1$  with 19-27 below; M before r-m with 0-2 (usually 1) below. Ratio of r-m : M petiole 0.47-1.09. Apical bristles of abdominal sternites II and III not much longer than the others. Male terminalia (Figs. 54, 55): cercus (not illustrated) very large and "husklike", bent ventrally and anteriorly to enclose remaining parts; gonostylus dark brown, with only one seta. Female cercus (Fig. 13) 2-segmented.

#### Types.

*F. caudata* (Staeg.). Holotype, male in Copenhagen University Zoological Museum. Type locality: Denmark.

*F. gibba* (Winn.). Type or types (probably female, though originally stated to be male) originally in Osten Sacken collection at "St. Petersburg". Type locality: not specified, Europe.

*F. polita* (Loew). Holotype (originally stated to be a male, probably is a female, abdomen now missing) in Museum of Comparative Zoology at Harvard College, No. 1185. Type locality: New York.

*F. ocellata* (Joh.). Holotype, male in Cornell University, No. 2053. Type locality: Ithaca, New York (VIII-29-1901).

Material examined. 135 specimens from the following localities:

ALBERTA. Morrin.

BRITISH COLUMBIA. Robson.

NOVA SCOTIA. Baddeck, Cape Breton Island.

ONTARIO. Ottawa; Simco; Minets B.; Bell's Corner.

QUEBEC. Aylmer; Perci, Gaspé Pen.; LaTrappe.

SASKATCHEWAN. Christopher Lake.

ARIZONA. Alpine; Greer.

CALIFORNIA. 3 miles south of Camino; Hatchet Pass; Oakhurst; Pinecrest.

GEORGIA. College Park.

IDAHO. Cedar Canyon, Coeur d'Alene N.F.

ILLINOIS. Homer; Urbana.

IOWA. Boone; Dolliver Memorial S.P., Webster Co.; Ledges S.P., Boone Co.; Palisades-Kepler S.P., Linn Co.; Pike's Peak S.P., Clayton Co.; Sioux City.

MARYLAND. Cockeysville.

MASSACHUSETTS. Beverly; Cambridge.

MICHIGAN. Cheboygan Co.

MINNESOTA. Lake Itasca.

MISSOURI. Kahoka; Meramec S.F.

NEW HAMPSHIRE. White Mts.: Ammonoosuc Ravine; Dolly Copp Camp; Galehead Trail; Mt. Washington.

NEW JERSEY. Lavellette (paratype of *F. impellans*); Riverton.

NEW YORK. "N.Y." (holotype of *F. polita*); Au Sable Chasm; Hagaman; Hancock; Ithaca (including holotype of *F. ocellata* and female reported as *M. polita* by Johannsen, 1912); McLean Reserve; Oneonta; Tuxedo.

OHIO. Wauseon.

OREGON. Cornelius; Peavine Ridge, McMinnville; Vernonia.

PENNSYLVANIA. Hazleton; Jack Run, Allegheny Co.; North Mt. (paratype of *F. impellans*).

TENNESSEE. Cove Forest, Gatlinburg, Great Smoky Mts. N.P., 3000'.

VIRGINIA. Vienna; Dead Run, Fairfax Co.

WASHINGTON. Everett; Mt. Rainier; Winlock.

European material examined. 4 specimens from 4 localities in Czechoslovakia.

Additional previous records. Reported as *Opistholoba* (sic!) *ocellata* from Caulfields and Lynn Creek, British Columbia (Sherman, 1920) and as *Opistholoba ocellata* from Wells, New York (Leonard, 1928). Recorded as *M. polita* from Caulfields, British Columbia (Sherman, 1920) and Colden, New York (Leonard, 1928). Also known from many localities in Europe.

Remarks. According to the original descriptions, the names *F. gibba* and *F. polita* are based on males. Tergite VI of the female of *F. caudata* bears unusually long bristles, especially along its lateral margins (actually ventral in position on the insect) and the following segments are often more retracted than is usual in the genus, giving the females a superficial resemblance to the males of some species. Therefore, the present writer believes that the original specimens of *F. gibba* and *F. polita* were actually females, accounting for the absence of any mention of the peculiarities of the unusual male terminalia in the original descriptions. The present writer believes that the figures of "*M. gibba*" in Dziedzicki (1915) were drawn from a specimen of *F. sordida* (v.d. Wulp). Edwards (1925) has already pointed out that Dziedzicki's earlier (1884) figures of "*M. gibba*" were of a different species, *F. gibbula* (Edw.), from that of Winnertz.

*Fungivora analis* (Coquillett), new combination (Figs. 52, 53)

1901 *Exechia analis* Coquillett, p. 598.

1909a *Mycothera analis*, Johannsen, p. 11.

1912 *Mycothera analis*, Johannsen, pp. 80, 81.

Length of male wing: 2.1 mm. Female wing: 2.13 mm. Mesoscutum pruinose, dark brown, narrow anterior margin yellowish; scutellum dark brown; legs mostly yellow, hind femur with about apical one-third dark brown; abdominal tergites III and IV of male mostly yellow, others mostly brown; abdominal tergites III, VI and VII mostly (IV basally) yellow, others mostly brown. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 1.0. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 2 v, 1-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 strong d (without shorter erect bristles

between them), 0 a-d, 6 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing without a central spot; preapical spot rather diffuse, starting at C somewhat before apex of  $R_1$ , filling apex of cell  $R_1$ , ending in cell  $R_5$  or at  $M_{1+2}$ . R with 8-9 setulae below,  $R_1$  with 18-25, M before r-m bare above and below. Ratio of r-m: M petiole about 0.7. Abdominal sternites II and III each with a pair of long median apical bristles. Male terminalia (Figs. 52, 53) with 3 prominent apical setae on ventral stylomere; dorsal lobe of ventral stylomere with a slender, pointed, dorsally directed process. Female cercus 2-segmented.

Type.

F. analis (Coq.). Holotype, male in U.S. National Museum, No. 5453.

Type locality: Delaware Water Gap (Warren Co.), New Jersey (VII-8, C. W. Johnson).

Material examined. 2 specimens from the following localities:

NEW JERSEY. 1m, Delaware Water Gap (Warren Co.), VII-8 (holotype of F. analis).

WISCONSIN. 1f, T39N, R12W, B29, VI-30-1952, R. H. Jones.

Remarks. This is the only known Nearctic Fungivora which has a preapical wing spot but lacks a central spot. It should be noted that this is neither the "Mycetophila analis" of Adams, which has been transferred to Exechia nor the "Mycetophila analis" of Meigen, which has been transferred to Allodia.

Fungivora comata, new species (Figs. 56, 57)

Length of male wing: 2.37-2.85 mm. Female wing: 2.81 mm. Mesoscutum pruinose, yellow with 3 fused reddish-brown vittae or reddish-brown with yellow humeral area and posterolateral corner; scutellum brown; legs mostly yellow, hind femur with small brown apical area; abdominal tergites I-VI brown, II-VI usually with yellow apical and lateral margins. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 0.79-0.83. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 2 a, 1 v (a second minute bristle on one tibia of one specimen), 2 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5-6 d (without smaller erect bristles between them), 0 a-d, 5-7 a, 1 p. Hind tibial anterior and ventral setulae dark brown. Wing without spots. R with 10-12 setulae below,  $R_1$  with 23-32 below, M before r-m with 0-1 below. Ratio of r-m: M petiole 0.38-0.53. Apical bristles of abdominal sternites not much longer than others. Male terminalia (Figs. 56, 57): gonostylus with a lateral process bearing very long setae, some distinctly bent apically. Female cercus 2-segmented.

Holotype. Male, Elizabeth (Jo Daviess County), Illinois, VII-7-1917 (Illinois State Natural History Survey Collection).

Allotype. Female, District of Columbia, VI-II-1926, J. M. Aldrich Coll. (U.S. National Museum).

Paratypes. 4 males, 1 female from the following localities:

ILLINOIS. 1m, Muncie, Salt Fork, XII-13-1913. 1m, White Heath, VII-11-1915.

IOWA. 1f, Ledges S.P., Boone Co., X-9-1949, J.L.

MARYLAND. 1m, Plummers Island, IX-27-1949, G.E. Shewell.

NEW YORK. 1m, Shandaken, VIII-3, N. Banks.

Additional specimen. 1m from Dover, Delaware, IV-22 to V-24-1949, N. J. Light trap.

Fungivora devia, new species (Figs. 58, 59)

Male. Length of wing: 2.29 mm. Mesoscutum pruinose, dark reddish-brown, humeral area yellow, posterolateral corner yellow; scutellum brown; legs mostly yellow, hind femur somewhat dusky above; abdominal tergites I-VI brown. Proepisternum with 2 bristles, mesepimeron with 2. Anepisternal ratio 0.97. Segments of fore tarsus subequal in thickness. Mid tibia with 4 d, 0 a-d, 2 a, 1 v, 1 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5-6 strong d (and 0-1 smaller erect bristle irregularly interspersed with larger ones), 0 a-d, 6 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing without spots. R with 7 setulae below,  $R_1$  with 17 below, M before r-m with 0 above and below. Ratio of r-m: M petiole 0.32. Abdominal sternites II and III each with a pair of long median apical bristles. Terminalia (Figs. 58, 59): ventral stylomere very long but relatively shorter than in F. wirthi n.sp.; most posterior lobe of dorsal stylomere bent dorsad.

Holotype. Male, Lake Itasca, Clearwater County, Minnesota, IX-3-1950, Jean Laffoon (U.S. National Museum No. 62446).

Remarks. Closely related to F. wirthi n.sp.

Fungivora wirthi, new species (Figs. 60, 61)

Male. Wing length: 2.13 mm. Mesoscutum pruinose, dark brown with small yellow humeral and posterolateral areas; scutellum dark brown; legs mostly yellow, hind femur with apical dark area; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 1.00. Segments of fore tarsus subequal in thickness. Mid tibia with 4-5 d, 0 a-d, 2 a, 1 v, 1 p; first two rows of anterior setulae dark brown. Hind coxa with short posterior setae. Hind tibia with 5-6 strong d (and with 0-1 shorter erect bristle interspersed with longer ones), 0 a-d, 6 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing without spots. R with 7-8 setulae below,  $R_1$  with 16-17 below, M before r-m with 0 below, r-m with 0-1 below. Ratio of r-m: M petiole 0.4-0.5. Abdominal sternites II and III each with a pair of long median apical bristles. Terminalia (Figs. 60, 61): ventral stylomere relatively longer than in any other Nearctic species of Fungivora; most posterior lobe of dorsal stylomere nearly straight.

Holotype. Male, Arlington, Virginia, VI-14-1951, W. W. Wirth (U.S. National Museum No. 62472).

Remarks. Closely allied to F. devia n.sp., the only observed differences being in the male terminalia.

Fungivora paula (Loew) (Figs. 22, 76, 77)

- 1869 Mycothera paula Loew, p.151. (reprint, p.189).  
 1904 Mycetophila trifasciata Coquillett pp.18-19.  
 1912 Mycothera paula, Johannsen, pp.80,81; figs. 62 (male term.), 187 (wing).  
 1920 Mycothera paula, Sherman, p.14.  
 1925a Mycothera paula, Johnson, p.86.  
 1928 Mycothera paula, Leonard, p.746.  
 1952 Fungivora paula, Shaw and Fisher, p.208.

Length of male wing: 2.29-3.08 mm. Female wing: 2.25-3.31 mm. Mesoscutum pruinose, entirely brown, entirely yellow, or with pattern of yellow and brown; scutellum entirely yellow, entirely brown, or with base brown and apex yellow; legs mostly yellow, hind femur and tibia with brown apices; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 2-4. Anepisternal ratio 1.00-1.26. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5 d, 0 a-d, 2-3 (usually 2) a, 1-3 v, 1-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 strong d (and with 6-12 shorter erect bristles interspersed with larger ones), 0 a-d, 5-7 a, 1-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, sometimes reaching C; usually two preapical spots present (more distal sometimes absent), proximal one starting at C proximad of tip of  $R_1$ , extending at least to  $M_{1+2}$ , sometimes to Cu, distal spot starting at C beyond tip of  $R_1$ , sometimes covering most of apex of wing, sometimes joining the other posteriorly. R with 5-9 setulae below,  $R_1$  with 18-35 below, M before r-m with 0-1 below. Ratio of r-m : M petiole 0.76-1.33. Abdominal sternites II and III each with 2-4 apical bristles much longer than the others (most eastern specimens), or with apical bristles not much longer than the others (most western specimens). Male terminalia (Figs. 76, 77): ventral stylomere with 2 prominent apical setae (only 1 in the only 3 males from Arizona, Nevada and South Dakota); dorsal stylomere with a group of very short, modified setae at end of posterior lobe, several slender setae present close to them. Female cercus (Fig. 22) 2-segmented, first segment much broader than second in western specimens, difference much less pronounced in eastern specimens.

Types.

- F. paula (Loew). Lectotype, male, here designated from 2 syntypes, in Museum of Comparative Zoölogy at Harvard College, No. 1196. Type locality: "Middle States", according to Loew (1869). (syntypes bear no locality labels).  
F. trifasciata (Coq.). Lectotype, male, here designated from 5 syntypes, in U.S. National Museum, No. 7665. Type locality: "Stanford University, California", according to Coquillett in Baker (1904). (The syntypes are labelled "San Mateo Co., Cal., Baker").  
Material examined. 368 specimens from the following localities: "Middle States." (lectotype and one other syntype of F. paula).

- ALASKA. Matanuska.  
 ALBERTA. Jasper N.P.; Edith Cavell, 6000'.  
 BRITISH COLUMBIA. Cultus Lake; Keremeos; Robson.  
 NEWFOUNDLAND. Goose Bay, Labrador.  
 NOVA SCOTIA. Baddeck, Cape Breton Island; Frizzleton, Cape Breton Island.  
 ONTARIO. Simcoe.  
 QUEBEC. Great Whale River; Laniel; Old Chelsea.  
 ARIZONA. Chiricahua Mts., 7000', VI-5-1942, CPA.  
 CALIFORNIA. Alpine; Berkeley; Berkeley Hills, Alameda Co.; Bonny Doon; Dodge Ridge, near Pinecrest, Tuolumne Co.; Elk Valley, Del Norte Co.; Eureka; Gasquet; Great Basin Redwoods; Half Moon Bay; Hatchet Pass, 4200'; hills back of Oakland; Inverness, Marin Co.; Lagunitas Canon, Marin Co.; Lake Tahoe, 6000'; 6 miles south of Livermore, Alameda Co.; Los Gatos-Santa Cruz Highway, redwood area; Memorial Park, San Mateo Co.; Mill Valley, Marin Co.; Monrovia; Mt. View; Muir Woods; N. Fork of Big River, 14 miles west of Willits; Oakhurst, Madera Co.; Oakland; Palomar Mt., 4700'; Pinecrest, Tuolumne Co.; Prairie Creek Camp, Humboldt Forest; Prairie Creek S.P.; Redwood Canon, Marin Co.; Ryan Creek, Mendocino Co.; San Mateo Co. (lectotype and 4 other syntypes of F. trifasciata); San Francisco; Saratoga; Sausalito, Marin Co.; Sequoia N.P., 6300' and 6500'; Smith River; Stanford Univ.; Stinson Beach; Strawberry, Tuolumne Co.; Strawberry Canyon, Alameda Co.; Waddell Creek, Santa Cruz Co.; Wildcat Creek, Tilden Park, Contra Costa Co.; Yosemite N.P., Bridal Veil Creek, 7050'; Yosemite N.P., Glacier Pt. Bog., 8000'.  
 DELAWARE. Odessa.  
 GEORGIA. Atlanta; College Park; DeKalb Co.  
 IDAHO. Moscow Mt.; Priest Lake, Soldier Park; Summit Creek, Bitterroot Mts.  
 ILLINOIS. Clear Valley; Dubois.  
 IOWA. Lacey-Keosauqua S.P., Van Buren Co.; Ledges S.P., Boone Co.; Palisades-Kepler S.P., Linn Co.; White Pine Hollow, Dubuque Co.  
 MARYLAND. Baltimore; Caves, Eccleston, Baltimore Co.  
 MASSACHUSETTS. Amherst; Essex; Montague; N. Adams.  
 MISSOURI. Kahoka; Summersville.  
 NEVADA. Taiyohe N.F., Tamarack Flats, Mount Rose, 8100', Washoe Co.  
 NEW HAMPSHIRE. Keene; White Mts., Dolly Copp Camp, 1400'; White Mts., Great Gulf Trail, Peabody River, Mt. Washington, 1500'; Winchester.  
 NEW JERSEY. Brookside, Morris Co. (reported as Mycothera paula by Johannsen, 1912); Delaware Water Gap; Riverton.  
 NEW MEXICO. Jemez Springs; Las Vegas H.S., VIII-8, H.S. Barber.  
 NEW YORK. Ithaca.  
 NORTH CAROLINA. Great Smoky Mts., Newfound Gap, 4000'; Neel's Creek, Mt. Mitchell Game Refuge; Pisgah N.F., Allison Creek, Swannanoa Gap.

OREGON. Corvallis, Peoria Road; Forest Grove; Humbug Mt. S.P.; McMinnville, High Heavens; McMinnville, Peavine Ridge; Mt. Hood, Bear Springs; Mt. Hood, Horsetail Falls; Siskiyou N.F., Grayback Forest Camp on Sucker Creek, 820'; Vernonia; Wallowa Mts., Lostine Valley, 5500'; Wallowa Mts., Wallowa Lake, 4410'.

PENNSYLVANIA. Hazleton; Pittsburgh.

SOUTH CAROLINA. Clemson.

SOUTH DAKOTA. Black Hills, Harney Peak, 6700', VII-15-1942, CPA.

TENNESSEE. Great Smoky Mts. N.P., Gatlinburg, 2700'; Great Smoky Mts. N.P., Gatlinburg, Cove Forest, 3000'; Knoxville.

TEXAS. San Antonio.

VIRGINIA. Glencarlyn; Great Falls, "bred from mushroom", C.H. Popenoe.

WASHINGTON. Brinnon Forest Res.; Chehalis; Friday Harbor; Mt. Rainier N.P., Longmire Springs, 2800'; Forest near Olympia; Olympic N.P.: Boulder Lake Trail, 3500'; Hurricane Ridge. Sequim Bay; Shelton, Walkers Park; Wenatchee N.F., Park Camp, 2900'.

Additional previous records. Reported as Mycothera paula from New Jersey (Smith, 1890); Carbondale Landing, Columbia River, British Columbia and Ithaca, New York (Johannsen, 1912); coast of British Columbia (Sherman, 1920); Mt. Monadnock, New Hampshire and Chester, Massachusetts (Johnson, 1925); Wells and Albany, New York (Leonard, 1928).

Remarks. The status of this species needs further investigation. It is closely allied to F. semifusca (Meig.) of Europe. The writer has seen only one male of the latter, the only possible difference noted being the lack in F. semifusca of slender setae close to the group of short modified setae of the posterior lobe of the male dorsal stylomere. This difference may not be constant. The shape of the posterior lobe of the male dorsal stylomere of at least most western specimens (including the lectotype of F. trifasciata) differs from most eastern specimens in being longer and broader. However, some specimens appear to be intermediate. A difference in female cercus proportions between eastern and western specimens has already been indicated. As mentioned previously, the venation of F. paula and F. semifusca approaches that of the genus Zygomyia Winn. The male terminalia are very similar to the Nearctic Zygomyia ornata Loew, suggesting the desirability of a reappraisal of the generic limits.

Fungivora fatua (Johannsen), new combination (Figs. 62, 63)

1912 Mycetophila fatua Johannsen, pp. 87, 103; figs. 87 (male term.), 206 (wing).

1920 Mycetophila fatua, Sherman, p. 15.

1921 Mycetophila fatua, Cole and Lovett, p. 221.

1943 Mycetophila fatua, Foster, p. 33.

Length of male wing: 4.04-5.35 mm. Female wing: 4.81-5.96 mm. Mesoscutum pruinose, yellow with 3 more or less fused brown vittae, sometimes mostly brown except for yellow humeral and posterolateral areas; scutellum brown basally, yellow apically; legs mostly yellow,

coxae sometimes brownish laterally, hind coxa with dark brown spot posteriorly, femora usually dusky below, hind femur with brown apex, hind tibia with brownish apex; abdominal tergites I-VI mostly brown, II-VI with yellow apical and lateral margins, II-IV sometimes with yellow median basal spots. Proepisternum with 3-4 bristles, mesepimeron with 3-4. Anepisternal ratio 1.11-1.25. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d, 2-4 a, 0-3 v, 3-7 p; first two rows of anterior setulae dark brown. Hind coxa with longest posterior seta moderate in length, never longer than the longest posterior preapicals. Hind tibia with 5-6 strong d (and with 1-4 shorter erect bristles irregularly interspersed with longer ones), 0 a-d, 6-9 a, 7-15 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot and a preapical spot starting at R<sub>1</sub> somewhat before its tip, extending along C to tip of R<sub>5</sub>, extending back to behind Cu<sub>1</sub>, often broken in cell M<sub>2</sub>; tips of branches of M usually clouded. R with 16-30 setulae below, R<sub>1</sub> with 39-57 below, M before r-m with 0-2 below. Ratio of r-m: M petiole 1.39-2.04. Apical bristles of abdominal sternites not much longer than others. Male terminalia (Figs. 62, 63): ventral stylomere with numerous stout setae on dorsal surface; dorsal stylomere with a rather slender median process and with dorsal portion shallowly bifid, each fork with 1-2 stout apical setae. Female cercus 2-segmented.

Type.

F. fatua (Joh.). Holotype, male at Cornell University, No. 2070. Type locality: Moscow, Idaho (IV-4-1896).

Material examined. 79 specimens from following localities:

BRITISH COLUMBIA. Caulfields (recorded as M. fatua by Sherman, 1920); Cultus Lake; Metlakatla; "U.B.C. Forest" (recorded as M. fatua by Foster, 1943).

CALIFORNIA. Elkhorn Ferry, Yoho Co.; Prairie Creek Camp, Humboldt Forest; Saratoga; Sequoia N.P., 6300' and 6500'; Smith River; Sunol, Calaveras Creek, Alameda Co.; Yosemite, Bridal Veil Creek; Yosemite Valley, Mariposa Co.

IDAHO. Gold Hill, Latah Co.; Lake Waha; Moscow (holotype of F. fatua); Moscow Mt.; Vollmer (paratype of F. fatua); Waha.

MONTANA. "St. Regle Pass".

OREGON. Mt. Hood, No. Fork of Iron Creek, 4400'; Mt. Sander, Beaver Creek; Wallowa Mts., Lostine Valley, 5500'.

UTAH. Logan Canyon.

WASHINGTON. Everett; Ilwaco; Lake Keechelus; Mt. Constitution; Mt. Rainier, Fryingpan Trail; Mt. Rainier, Longmire; Mt. Rainier, White River; Olga; Olympia; Olympic Forest, Jefferson Co.

WYOMING. Grand Tetons, Leigh Lake, 7000'.

Additional previous records. Reported as M. fatua from Stanley Park, British Columbia (Sherman, 1920) and Forest Grove, Oregon (Cole and Lovett, 1921).

Remarks. The male terminalia appear to indicate relationship with F. cingulum (Meig.), F. sigmoides (Loew), F. byersi n. sp. and F. venusta n. sp. All these species have a mid tibial anterodorsal bristle, but this bristle is absent in F. fatua.

Fungivora clavata (Van Duzee), new combination (Figs. 21, 64, 65)

- 1928 Mycetophila bispina, Van Duzee, p. 58. (in part, not holotype).  
 1928 Mycetophila clavata Van Duzee, pp. 58-59; 65, fig. 29 (male term.)  
 (in part, holotype only).  
 1928 Mycetophila spiniger Van Duzee, pp. 61; 65, figs. 33-34 (male  
 term.) New synonymy.  
 1938b Mycetophila pacifica Fisher, p. 199; pl. 9, fig. 9 (male term.).  
 New synonymy.  
 1951a Mycetophila denningi Shaw, p. 67, fig. 69 (male term.).  
 New synonymy.

Length of male wing: 3.08-4.37 mm. Female wing: 3.79-4.47 mm. Mesoscutum pruinose, yellow or brownish-yellow with 3 more or less fused brown vittae, sometimes only humeral area yellow; scutellum brown basally, yellow apically; legs mostly yellow, femora sometimes somewhat dusky below, hind femur with small brown area apically; abdominal tergites I-VI brown, II-VI sometimes with yellow apical margins. Proepisternum with 3 bristles, mesepimeron with 2-6. Anepisternal ratio 0.96-1.12. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0-1 (usually 0) a-d, 3-4 a, 1-4 v, 1-4 p; first two rows of anterior setulae dark brown. Hind coxa with several of the posterior setae longer than the longest posterior preapical. Hind tibia with 5-6 d (and 0-5 smaller erect bristles irregularly interspersed with longer ones), 0 a-d, 6-8 a, 2-9 p. Setulae of hind tibia: anterior setulae mostly dark brown, sometimes with dingy yellow setulae on about apical one-third of tibia in third and more ventral rows; ventral setulae mostly dingy yellow to pale brown except for an extensive apical group of dark brown ones. Wing with a distinct central spot and a preapical spot which starts at C just before or just beyond tip of  $R_1$ , extending along C to  $R_5$  and back at least to  $M_{1+2}$ , sometimes to  $Cu_1$ . R with 5-10 setulae below,  $R_1$  with 26-36 below, M before r-m with 0-3 below. Ratio of r-m: M petiole 1.21-2.73. Apical bristles of abdominal sternites not much longer than others. Male terminalia (Figs. 64, 65): ventral stylomere distinctly emarginate, lateral lobe bearing 1-3 (usually 2) stout apical setae; dorsal stylomere with an elongate tapering dorsal lobe with a long stout apical seta. Female cercus (Fig. 21) 2-segmented; female tergite IX with a rounded setose apical lobe.

#### Types.

- F. clavata (V.D.). Holotype, male in California Academy of Sciences.  
 Type locality: Mill Valley, Marin County, California (III-5-1926, M.C. Van Duzee).  
F. spiniger (V.D.). Holotype, male in California Academy of Sciences.  
 Type locality: Mill Valley, Marin County, California (V-16-1926, M.C. Van Duzee).  
F. pacifica (Fisher). Holotype, male in Academy of Natural Sciences of Philadelphia, No. 6548. Type locality: Terrace, British Columbia (IV-1-7-1933, Mrs. M.E. Hippiisley).  
F. denningi (Shaw). Holotype, male in F.R. Shaw collection. Type

locality: Grand Canyon, Arizona (VI-18-1949, D.G. Denning).

Material examined. 123 specimens from the following localities: BRITISH COLUMBIA. Cranbrook; Terrace (including holotype of F. pacifica).

ARIZONA. Grand Canyon N.P. (north rim).

CALIFORNIA. Alpine Lake, Marin Co.; Berkeley; Blue Canyon, Nevada Co.; Elk Valley, Del Norte Co.; Fairfield; Felton; hills back of Oakland; Inverness, Marin Co.; Lagunitas Canon, Marin Co.; Los Angeles Co.; Merced; Mill Valley, Marin Co. (including holotypes of F. clavata and F. spiniger, 29 paratypes of F. spiniger, and 2 paratypes of F. bispina); Palo Alto; Prairie Creek Camp, Humboldt Forest; Redwood Canon, Marin Co.; Sequoia N.P.; Smith River, Rowdy Creek; Sonoma Co.; Strawberry Canyon, Alameda Co.; Sunol, Alameda Co.; Waddell Creek, Santa Cruz Co.; Wildcat Creek, Tilden Park, Contra Costa Co.

COLORADO. Custer Co.

DISTRICT OF COLUMBIA. Washington.

IDAHO. Moscow.

ILLINOIS. Savoy; Urbana.

MASSACHUSETTS. Tyngsboro.

MONTANA. Silver Lake.

NEVADA. Reno.

NEW HAMPSHIRE. Ammonoosuc Ravine, White Mts., 2700'.

NORTH CAROLINA. Highlands, 4000'; Mt. Mitchell, 5000'.

OREGON. Corvallis; Mt. Hood, Bear Creek, 1300'.

PENNSYLVANIA. Carnegie Museum (Pittsburgh), on window.

SOUTH DAKOTA. Black Hills, Needles, 5000'; Custer.

VIRGINIA. near Plummers Island, Md.

WASHINGTON. Ilwaco; Mt. Rainier N.P.; Olga; Olympic N.P., Lake Crescent, Marymere Falls; Seattle; Soap Lake.

Additional previous records. Van Duzee's "female" "allotype" of F. clavata is a male of F. pectita (Joh.).

Remarks. Of the 119 specimens studied, only 12 are from east of the Great Plains. Dr. F.R. Shaw has compared the holotype of F. denningi with a specimen sent and considered the specimen sent as conspecific with F. denningi. See further remarks under F. bohartorum n.sp.

#### Fungivora faceta, new species (Figs. 78, 79)

Male. Wing length: 3.35-3.54 mm. Mesoscutum pruinose, dingy yellow with 3 fused brown lines; scutellum brown basally, yellow apically; legs mostly yellow, hind femur with brown apex and somewhat dusky above on apical half; hind tibia with brown apex; abdominal tergites I-VI brown. Proepisternum with 4 bristles, mesepimeron with 3-4. Anepisternal ratio 1.00-1.02. Segments of fore tarsus subequal in thickness. Mid tibia with 5 d, 0 a-d, 3 a, 3 v, 1-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 4-5 strong d (and 4-6 shorter erect bristles interspersed with longer ones), 0 a-d, 7 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot and a preapical spot starting



at C just beyond tip of  $R_1$ , extending to tip of  $R_5$ , extending back across  $R_5$  over halfway to  $M_{1+2}$ . R with 8-12 setulae below,  $R_1$  with 24-28 below, M before r-m with 0-1 below. Ratio of r-m: M petiole 1.00-1.25. Abdominal sternites II and III each with a pair of median apical bristles distinctly longer than the others. Terminalia (Figs. 78, 79): ventral stylomere subcircular as seen in ventral view, notched posteromedially; dorsal stylomere with a tuft of numerous fine setae on a posteromedial lobe.

Holotype. Male, Mt. Baker, Baker Lake, 650', Washington, VII-15-1948, C.P. Alexander (U.S. National Museum No. 62448).

Paratype. Male, Snowline Camp, Eldorado Co., California, VII-3-1948, L.W. Quate (University of California).

Remarks. Similar to *F. shawi* n.sp., but lacking a mid tibial anterodorsal bristle and the posteromedial processes of the male ventral stylomere present in *F. shawi*.

*Fungivora ocellus* (Walker) (Figs. 66, 67)

- 1840 *Mycetophila dimidiata* Staeger (junior primary homonym of *M. dimidiata* Meigen, 1804, p. 91), p. 247.  
 1848 *Mycetophila ocellus* Walker, p. 95.  
 1852 *Mycetophila cinerea* Zetterstedt, pp. 4172, 4193-4194.  
 1869 *Mycetophila monochaeta* Loew, pp. 158-159. (reprint, pp. 196-197)  
New synonymy.  
 1884. *Mycothera van der Wulp* Dziedzicki, pp. 303-304; pl. 8, figs. 11-14 (male term.).  
 1886 *Mycothera dimidiata*, Dziedzicki, p. 190.  
 1892 *Mycetophila dimidiata*, Theobald, p. 123.  
 1904 *Mycetophila fenestrata* Coquillett, p. 19. New synonymy.  
 1905 *Mycetophila monochaeta*, Washburn, p. 56.  
 1906 *Mycothera dimidiata*, Lundström, pp. 36-37.  
 1912 *Mycetophila monochaeta*, Johannsen, pp. 85, 94.  
 1912 *Mycothera fenestrata*, Johannsen, pp. 81, 83, 94; figs. 66 (male term.), 191 (wing).  
 1912 *Mycothera fenestrata* var. *praenubila* Johannsen, p. 83. (in part, all but Wisc. record). New synonymy.  
 1912 *Mycetophila exusta* Johannsen, pp. 88, 104; figs. 89 (male term.), 208 (wing). (in part, all but specimens from California). New synonymy.  
 1913a *Mycothera dimidiata*, Edwards, pp. 338, 372-376.  
 1913 *Mycothera dimidiata*, Lundström, p. 318.  
 1915 *Mycetophila dimidiata*, Dziedzicki, p. 16; pl. 21, figs. 332-335 (male term.).  
 1915 *Mycothera fenestrata* var. *praenubila*, Weiss, p. 106.  
 1920 *Mycetophila fenestrata*, Sherman, p. 14.  
 1920 *Mycetophila monochaeta*, Sherman, p. 15.  
 1920 *Mycetophila exusta*, Sherman, p. 15.  
 1921 *Mycothera fenestrata*, Cole and Lovett, p. 221.  
 1921 *Mycetophila monochaeta*, Cole and Lovett, p. 222.  
 1924b *Mycetophila dimidiata*, Edwards, p. 163.

- 1924b *Mycetophila ocellus*, Edwards, pp. 166, 168.  
 1925a *Mycetophila ocellus*, Edwards, pp. 633, 636-637, 656.  
 1925a *Mycetophila monochaeta*, Johnson, p. 87.  
 1925a *Mycetophila exusta*, Johnson, p. 87.  
 1926 *Mycothera fenestrata* var. *praenubila*, Hallock and Parker, p. 4.  
 1927 *Fungivora ocellus* (sic!), Landrock, pp. 157, 173; pl. 13, fig. 18. (male term.).  
 1928 *Mycothera fenestrata*, Leonard, p. 746.  
 1928 *Mycothera fenestrata* var. *praenubila*, Leonard, p. 746.  
 1928 *Mycetophila exusta*, Leonard, p. 746.  
 1928 *Mycetophila monochaeta*, Leonard, p. 746.  
 1928 *Mycetophila fusca* Van Duzee (junior primary homonym of *M. fusca* Meigen, 1804, p. 91), pp. 60-61; 65, fig. 32 (male term.).  
New synonymy.  
 1932 *Fungivora ocellus*, Landrock, p. 447, fig. 5 (wing); p. 450.  
 1936 *Mycetophila monochaeta*, Shaw and Townes, p. 207.  
 1938a *Mycetophila fenestrata*, Fisher, p. 222.  
 1939 *Fungivora ocellus*, Okada, pp. 283, 325-326, 336.  
 1940 *Fungivora ocellus*, Okada, pp. 41-42.  
 1943 *Mycetophila fenestrata*, Foster, p. 33.  
 1946 *Mycetophila edentula*, Procter, p. 361.  
 1946 *Mycetophila exusta*, Procter, p. 361.  
 1952 *Fungivora monochaeta*, Shaw and Fisher, pp. 207, 208.  
 1952 *Fungivora fenestrata*, Shaw and Fisher, pp. 207, 208.  
 1952 *Fungivora exusta*, Shaw and Fisher, pp. 207, 208.  
 1952 *Fungivora fenestrata* var. *praenubila*, Shaw and Fisher, pp. 207, 208.

Length of male wing: 2.42-3.50 mm. Female wing: 2.79-4.10 mm. Mesoscutum pruinose, usually mostly brown with humeral area and anterior margin narrowly yellow, yellow sometimes more extensive, sometimes mostly yellow with faint indications of brown lines; scutellum with base brown, apex yellow; legs mostly yellow, hind femur sometimes dusky below, apex brownish; abdominal tergites I-VI brown. Proepisternum with 3-4 (usually 3) bristles; mesepimeron with 2-4. Anepisternal ratio 1.07-1.22. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 0 a-d, 2-4 a, 1-3 v, 1-6 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5-6 strong d (with 0-8 shorter erect bristles interspersed with longer ones), 0 a-d, 5-7 a, 1-5 (usually 1-2) p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, pre-apical spot rarely entirely lacking, usually rather ill-defined, starting at C well before tip of  $R_1$ , filling apex of cell  $R_1$ , extending back across  $R_5$ , usually fading behind  $M_{1+2}$ , often a more hyaline spot in anterior part of cell  $R_5$  enclosed by dark spot. R with 7-10 setulae below;  $R_1$  with 29-42 below; M before r-m with 0-2 below; r-m usually entirely setulose below, never lacking setulae on the portion closest to M for a distance greater than the width of r-m. Ratio of r-m: M petiole 0.69-1.61. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 66, 67): ventral stylomere with 3-5 prominent setae near the posterolateral corner, the most median the strongest; dorsal stylomere with 2 lobes directed posteriorly, separated from each

other by a broad, deep notch. Female cercus 2-segmented.

Types.

- F. dimidiata (Staeg.). Many probable syntypes in University Museum, Copenhagen. Type locality: Charlottenlund, Denmark.
- F. ocellus (Walk.). Type or types in British Museum. Type locality: England.
- F. cinerea (Zett.). One syntype in University Museum, Lund. Type locality: "ad Toien," Norway.
- F. monochaeta (Loew). Lectotype (male) here designated from three syntypes in Museum of Comparative Zoology at Harvard College. Type locality: District of Columbia.
- F. vanderwulpai (Dzied.). Location of the two male syntypes unknown. Type locality: Warsaw, Poland.
- F. fenestrata (Coq.). Holotype, female in U.S. National Museum, No. 7666. Type locality: "Stanford University, California" (according to Coquillett, but the holotype is labelled "San Mateo Co., Calif.")
- F. fenestrata var. praenubila (Joh.). Holotype, male at Cornell University, No. 2056. Type locality: Forest Hill, New Jersey (IV).
- F. exusta (Joh.). Holotype, male at Cornell University, No. 2072. Type locality: Mt. Greylock, Massachusetts (VI-15-1906, C. W. Johnson).
- F. fusca (V. D.). Holotype, male in California Academy of Sciences, No. 2527. Type locality: Mill Valley, Marin County, California (III-20-1926, M. C. Van Duzee).

Material examined. 1,095 specimens from the following localities:

- ALASKA. Douglas; Matanuska.
- ALBERTA. Banff; Edmonton.
- BRITISH COLUMBIA. Cultus Lake; Kaslo; Robson; Selkirk Mts.; Terrace; "U. B. C. Forest" (recorded as Mycetophila fenestrata by Foster, 1943).
- NEW BRUNSWICK. Taymouth.
- NORTHWEST TERRITORIES. Reindeer Depot, Mackenzie Delta.
- NOVA SCOTIA. Frizzleton, Cape Breton Island; Intervale Margaree, Cape Breton Island.
- ONTARIO. Ottawa.
- QUEBEC. LaTrappe.
- SASKATCHEWAN. Christopher Lake.
- ARIZONA. Grand Canyon N.P. (north rim).
- CALIFORNIA. Alameda; Alpine Dam and Lake, Marin Co.; Berkeley; Blue Canyon, Nevada Co.; Bonny Doon; 3 miles south of Camino, Eldorado Co.; Dodge Ridge, near Pinecrest, Tuolumne Co.; Elk Valley, Del Norte Co.; 7 miles west of Fairfax; Felton; Great Basin Redwoods; Hat Creek R.S., Shasta Co.; hills back of Oakland; Kentfield, Marin Co.; Laguna Mts.; Lagunitas Canon, Marin Co.; Lake Tahoe, 6000'; 6 miles south of Livermore, Alameda Co. Los Gatos-Santa Cruz Highway, redwood area; Memorial Park, San Mateo Co.; Mill Valley, Marin Co. (several paratypes of F. fusca); Moraga; Mt. St. Helena; N. Fork Big River, 14 miles west of Willits; Oakland; Pasadena; Pinecrest, Tuolumne Co.; Pinnacles National Monument; Prairie Creek Camp, Humboldt Forest; Prairie Creek S.P.; Redwood Canon, Marin Co.; Rio Vista; San

Mateo Co. (holotype of F. fenestrata); San Francisco; Saratoga; Sausalito, Marin Co.; Sequoia N.P., 6300'; 5 miles south of Sierraville, Sierra Co.; Smith River, Rowdy Creek; Sonoma Co.; Sonora Pass, 9000', Tuolumne Co.; Tapia Park, Los Angeles Co.; Waddell Creek, Santa Cruz Co.; Wildcat Creek, Tilden Park, Contra Costa Co.; Wood Lake, Tulare Co.; Yosemite, 3800-4000'; Yosemite Valley, Mariposa Co.

COLORADO. Monarch Pass, Garfield Camp, 10,000'.

DELAWARE. "Del."

DISTRICT OF COLUMBIA. Washington; "D.C." (lectotype and another syntype of F. monochaeta, a third lacks locality label); Rock Creek.

GEORGIA. Atlanta; Decatur.

IDAHO. Coeur d'Alene N.F., Cedar Canyon; Moscow; Moscow Mt.; Vollmer (paratype of F. exusta).

ILLINOIS. Algonquin; Dubois; Glencoe; Grand Tower; Homer; Muncie; Parker; Urbana.

IOWA. Ames; Boone; Garner; Lacey-Keosauqua S.P., Van Buren Co.; Ledges S.P., Boone Co.; Sioux City.

KANSAS. Manhattan; Topeka.

MAINE. Capens; Mt. Desert Island, Duck Brook (reported as Mycetophila edentula by Procter, 1946).

MARYLAND. Baltimore; Beaver Dam, Cockeysville; Cabin John Bridge; Chase, Baltimore Co.; Eccleston, Baltimore Co.; Lock Raven, Towson; Plummers Island.

MASSACHUSETTS. Amherst; Beverly; Mt. Greylock (holotype of F. exusta).

MICHIGAN. Cheboygan Co.; Douglas Lake.

MINNESOTA. Fridley Sand Dunes, Anoka Co.; Hennepin Co.; Olmstead Co.; Jay Cooke S.P.; Lake Itasca; Plummer, XI-20-1933, "collected alive off snow", D. Denning (2 males).

MISSOURI. Kansas City; Meramec S.F.

MONTANA. Belton.

NEW HAMPSHIRE. White Mts.: Ammonoosuc Ravine, 2700'; Dolly Copp Camp, 1400'; Galehead Trail, 3000'; King's Ravine, Mt. Adams, 2000'; King's Ravine Trail, 5 altitudes from 1500' to 2000'; Tuckerman's Ravine, Mt. Washington, 2500'.

NEW MEXICO. Cloudcroft; Las Vegas.

NEW JERSEY. Forest Hill (including holotype of F. fenestrata var. praenubila); New Brunswick; Riverton.

NEW YORK. Beaverkill; Ithaca (paratype of F. fenestrata var. praenubila); Lick Brook; Lockport; McLean Bogs Reserve; Taughanick Falls.

OHIO. Georgesville; Sand Run Park.

OREGON. Blue Mts., Spring Creek, 3900'; Corvallis (reported as Mycetophila monochaeta by Cole and Lovett, 1921); Dutchman's Flats, near South Sister; Forest Grove (reported as M. monochaeta by Cole and Lovett, 1921); Hazel Creek, near Dexter; McMinnville, Peavine Ridge; Mt. Hood, Bear Springs; Mt. Hood, Tilly Jane Creek, 5600'; Mt. Sander, Beaver Creek; Myrtle Grove S.P.; Odell Lake, 5100'; Salt Creek Gorge; Tillamook; Wallowa Mts., Lostine

- PENNSYLVANIA. Arendtsville; Hazleton; Pittsburgh; Swarthmore; Valley Green, Fairmont Park, Philadelphia Co.  
 SOUTH CAROLINA. Clemson.  
 SOUTH DAKOTA. Black Hills, Sylvan Lake, 6250'; Brookings.  
 TENNESSEE. Knoxville; LeConte Trace, 1/2 mile 1st stream, Great Smoky Mts.  
 TEXAS. Anahuac, "ex *Irpex lacteus*".  
 UTAH. Beaver, 8000'; Dixie N.F., Duck Creek Camp; Logan.  
 VERMONT. Lake Willoughby, 1200'; Long Trail, near Grout Job, Stratton.  
 VIRGINIA. Dead Run, Fairfax Co.; Fort Belvoir; Widewater.  
 WASHINGTON. Chehalis; Fort Lewis, Pierce Co.; Friday Harbor (paratype of *F. fenestrata* var. *praenubila*); Glacier; Ilwaco; Keyport; Mt. Baker, Baker L., 650'; Mt. Constitution; Mt. Rainier, Elbe; Mt. Rainier N.P.; Olga; Olympic N.P., Marymere Falls, Lake Crescent; Port Madison; Pullman; Tacoma; Vashon.  
 WISCONSIN. Univ. Wisconsin Arboretum; T39W, R12W, B32, Washburn Co.  
 WYOMING. Yellowstone N.P., Canyon Camp.

European material examined. 42 specimens from the following countries:

- BRITAIN. 1 locality.  
 CZECHOSLOVAKIA. 2 localities.  
 DENMARK. 1 locality.  
 SWITZERLAND. 4 localities.

Additional previous records. Reported as *Mycetophila monochaeta* from Minnesota (Washburn, 1905); Vancouver, British Columbia (Sherman, 1920); Colden, New York (Leonard, 1928) and Old Indian Mt., Greenville, 900-1200', South Carolina (Shaw and Townes, 1936). Recorded as *M. exusta* from Vancouver, British Columbia (Sherman, 1920) and Colden, New York (Leonard, 1928). At least one paratype of *F. fenestrata* var. *praenubila* was from Alabama. Reported as *Mycothera fenestrata* from Buffalo, New York and Moscow, Idaho (Johannsen, 1912) and Forest Grove, Oregon (Cole and Lovett, 1921). Recorded as *Mycetophila fenestrata* from British Columbia (Sherman, 1920). Johannsen's paratype of *F. fenestrata* var. *praenubila* from Price County, Wisconsin, is a *Platurocypta* sp. *F. ocellus* has been recorded from many places in Europe and has been reported from Japan by Okada (1939, 1940).

Remarks. Allied to *F. sordida* (v. d. Wulp), *F. crassiseta* n. sp., *F. cruciator* n. sp. and *F. cavillator* n. sp. It also shows much resemblance to *F. impellans* (Joh.) and related forms, but differs from them in having only 0-2 setulae on M before r-m.

The author has examined several paratypes of *F. fusca* and the holotypes of *F. monochaeta*, *F. fenestrata*, *F. fenestrata* var. *praenubila*, and *F. exusta* and has seen no difference in them thought worthy of specific or even varietal standing. The Nearctic specimens agree very well with European specimens of *F. ocellus*. Johannsen established *F. fenestrata* var. *praenubila* as a variety on the basis of reduced size of wing spot, but the present author has seen many degrees in the extent of this spot in specimens from many localities and does not believe there is anything to be gained by perpetuating this name as a valid form. The species

apparently occurs in all parts of the United States with the possible exception of the Great Plains and parts of the southeastern states.

Johannsen (1912) indicated the type locality of his new species by means of an exclamation point after the locality. Accordingly, California would be considered the type locality of *F. exusta*. Two females in the original series of *F. exusta* are from California, but from different localities, and neither is marked as being the holotype. However, the specimen from Mt. Greylock, Massachusetts, bears a holotype label. Johannsen indicated that the "type" of *F. exusta* was in his collection and that paratypes were in the Aldrich collection and at Cornell University. Therefore, the holotype should be a specimen which was originally in the Johannsen collection. At present, that collection is incorporated into the Cornell collection. However, J. C. Bradley was the collector of both the specimens from California and most of the material collected by Bradley was deposited by Johannsen in the Cornell collection. In all of his other new species of *Fungivora*, Johannsen designated a male as the holotype if one was available. Since the Massachusetts specimen was labelled as the holotype, since it is a male, and since the California females were probably originally deposited in the Cornell collection, the present author believes that the exclamation point after "Cal." was a lapsus, and that the Mt. Greylock specimen must be considered to be the holotype. The Mt. Greylock male is a specimen of *F. ocellus*, so that *F. exusta* can be considered a synonym of *F. ocellus*. The present author examined the two females from California, but was unable to identify them except as *Fungivora* sp., not *F. ocellus*.

#### *Fungivora crassiseta*, new species (Figs. 68, 69)

Male. Length of wing: 3.23-3.75 mm. Mesoscutum pruinose, mostly reddish-brown, humeral area yellow; scutellum brown, apex brownish-yellow; legs mostly yellow, femora dusky below, hind femur somewhat dusky above; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 1.16-1.23. Segments of fore tarsus subequal in thickness. Mid tibia with 5 d, 0 a-d, 3 a, 3 v, 5-6 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 strong d (with 9-12 shorter erect bristles interspersed with longer ones), 0 a-d, 5-6 a, 0-1 p. Hind tibial anterior and ventral setulae dark brown. Wing with a faint central spot, preapical spot lacking. R with 8-9 setulae below, R<sub>1</sub> with 30-42 below, M before r-m with 0 above and below, r-m without setulae on the half closest to M. Ratio of r-m: M petiole 1.05-1.36. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 68, 69): ventral stylomere with a very broad seta on posterior margin.

Holotype. Male, Cloudcroft, New Mexico, VI-27-1940, R. H. Beamer (Kansas University).

Paratypes. 4 males from the following localities:  
 BRITISH COLUMBIA. 1m Robson, IX-25-1948, H. R. Foxlee.  
 NEW MEXICO. 1m, same data as holotype. 1m, Jemez Springs, X-7-1914, J. Westgate.  
 WASHINGTON. 1m, Pullman.

Remarks. Closely allied to *F. ocellus* (Walk.), *F. sordida* (v.d.Wulp), *F. cavillator* n.sp. and *F. cruciator* n.sp.

*Fungivora sordida* (van der Wulp) (Figs. 70, 71)

- 1874 *Mycetophila sordida* van der Wulp, pp.120,125-126; pl.8, fig.8 (wing).  
 1909 *Mycetophila sordida*, Lundström, p.57; pl.12, figs.134-136 (male term.).  
 1913a *Mycetophila czižekii*, Edwards, pp.374,375.  
 1915 *Mycetophila gibba*, Dziedzicki, pl.20, figs.307-309 (male term.), 310 (wing).  
 1921 *Mycetophila czizeki*, Edwards, p.89.  
 1925a *Mycetophila czižekii*, Edwards, pp.633-638.  
 1938 *Fungivora sordida*, Barendrecht, pp.52-53.  
 1938a *Mycetophila sordida*, Fisher, p.222.

Length of male wing: 2.13-3.21 mm. Female wing: 2.42-3.35 mm. Mesoscutum pruinose, yellow with 3 distinct brown longitudinal vittae, brown sometimes more extensive, sometimes entirely brown; scutellum with base brown, apex yellow, sometimes entirely brown; legs mostly yellow, hind femur sometimes somewhat dusky above, especially apically; abdominal tergites I-VI brown. Proepisternum with 2-3 bristles, mesepimeron with 2-4. Anepisternal ratio 0.97-1.08. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 0 a-d, 2-3 (usually 3) a, 2-3 v, 3-5 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5-6 strong d (with 3-10 shorter erect bristles interspersed with longer ones), 0 a-d, 6-8 a, 0-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, preapical spot ill-defined or absent, when present starting at C well before tip of  $R_1$ , extending to tip of  $R_5$ , back across  $R_5$ , posterior limits indefinite (entire wing somewhat dusky), R with 1-9 setulae below,  $R_1$  with 19-32 below, M before r-m with 0 above and below, r-m never with a setula closer to M than the width of the vein r-m. Ratio of r-m: M petiole 0.63-1.27. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 70, 71): ventral stylomere with several prominent setae along posterior margin; posterior ventral margin of fused gonocoxopodites nearly straight. Female cercus 2-segmented.

Types.

*F. sordida* (v.d. Wulp). Two female syntypes originally designated, a specimen in the Amsterdam Museum as of 1938 is probably one of these. Type locality: The Netherlands (one syntype from "Haag", other from "Amsterdam").

Material examined. 58 specimens from the following localities:

ALASKA. Matanuska.

ALBERTA. Edmonton.

NOVA SCOTIA. Frizzleton, Cape Breton Island; Wycocomagh, Cape Breton Island. (reported as *M. sordida* by Fisher, 1938a).

ONTARIO. Ottawa.

SASKATCHEWAN. Christopher Lake; Saskatoon.

CALIFORNIA. Prairie Creek Camp, Humboldt Forest.

IOWA. Ames; Ledges S.P., Boone Co.

MASSACHUSETTS. Amherst; Sunderland.

MINNESOTA. Lake Itasca.

NEW HAMPSHIRE. White Mts., Dolly Copp Camp, 1400'.

NEW YORK. Coy Glen, Ithaca; Taughanick Falls. (reported as *M. sordida* by Fisher, 1938a).

PENNSYLVANIA. State College.

WASHINGTON. Olympic N.P., Boulder Lake Trail, 2300'.

WISCONSIN. Univ. of Wisconsin Arboretum.

European material examined. 112 specimens from the following localities:

BRITAIN. Hexton, Herts.; Logie, Elgin.

SWITZERLAND. Jorat, Vaud; Crans, Valais; Tanay, Valais.

SPAIN. San Rafael, Segovia.

Additional previous records. Known from several localities in Europe.

Remarks. Closely related to *F. ocellus* (Walk.), *F. crassiseta* n.sp., *F. cruciator* n.sp., and *F. cavillator* n.sp. No character was found to distinguish the females of the latter three species from the females of *F. sordida*. A few females have been determined as *F. sordida* on the basis of having been collected with *F. sordida* males in localities from which the three allied species are unknown.

This species is also similar to *F. czižekii* (Landr.) of Europe, from which it differs in details of the male terminalia. In *F. czižekii* the fingerlike lobe on the ventral margin of the dorsal stylomere is much shorter and smaller than in *F. sordida*, and the dorsal margin of the main caudal lobe of the dorsal stylomere is more elongate and narrowed toward its apex in *F. czižekii*. Edwards (1913, 1921, 1925) recorded *F. czižekii* from Britain, but the present writer examined some of Edwards' specimens and considers them to be *F. sordida*. Dr. Paul Freeman has examined the remaining British specimens which Edwards determined as *F. czižekii* and has informed the writer that he believes these are also *F. sordida*. Accordingly, *F. czižekii* (Landr.) must be removed from the British list and *F. sordida* added.

Dziedzicki (1915) figured this species as "*M. gibba* Winn.", supposedly from a type in the Winnertz collection. However, as explained under *F. caudata* (Staeg.), it is believed that Winnertz's type of *F. gibba* was a female and that it is identical with *F. caudata*. Further, Winnertz (1863) stated that the type was in Osten Sacken's collection at St. Petersburg, so it is improbable that Dziedzicki actually had type material of *F. gibba*.

The author feels that the European and Nearctic forms are conspecific. However, at least some European males have a deeper notch at the distal end of the dorsal stylomere.

Fungivora cruciator, new species (Figs. 72, 73)

Male. Length of wing: 2.56-2.98 mm. Mesoscutum pruinose, mostly reddish-brown, sides dingy yellow; scutellum brown, apex paler; legs mostly yellow, hind femur brownish apically, somewhat dusky above on about apical half; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 2-3. Anepisternal ratio 1.03-1.15. Segments of fore tarsus subequal in thickness. Mid tibia with 4-5 d, 0 a-d, 2-3 a, 1-3 v, 2-4 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 strong d (with 5-8 shorter erect bristles interspersed with larger ones), 0 a-d, 6 a, 1-3 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, preapical spot absent, R with 4-6 setulae below, R<sub>1</sub> with 21-27 below, M before r-m with 0 above and below, r-m lacking setulae on the half closest to M. Ratio of r-m: M petiole 0.83-1.31. Apical bristles of abdominal sternites not much longer than others. Terminalia (Figs. 72, 73): ventral stylomere with 1 or 2 strong setae near posterolateral corner; dorsal stylomere with a bare, fingerlike lobe on ventral border.

Holotype. Male, Mono Lake, California, VII-21-1911, Collection J.M. Aldrich (U.S. National Museum No. 62445).

Paratypes. 3 males from the following localities:

ONTARIO. 2m, Ottawa, X-17-1951 and X-25-1950, J.R. Vockeroth.

NEW MEXICO. 1m, Mogollon Mts., Catron Co., VI-23-1947, A.T. McClay

Remarks. Related to F. ocellus (Walk.), F. sordida (v.d. Wulp), F. crassiseta n.sp., and F. cavillator n.sp.

Fungivora cavillator, new species (Figs. 74, 75)

Male. Length of wing: 2.81-3.06 mm. Mesoscutum pruinose, brown with narrow yellow margin in humeral area; scutellum brown basally, yellow apically; legs mostly yellow, femora dusky below, hind femur somewhat dusky above, at least apically; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 1.03-1.11. Segments of fore tarsus subequal in thickness. Mid tibia with 4-5 d, 0 a-d, 3-4 a, 2-3 v, 1-4 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 d (with 5-9 shorter bristles interspersed with longer ones), 0 a-d, 6 a, 1-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a rather faint central spot, preapical spot absent (although the anterior portion of wing may be somewhat darkened). R with 5-8 setulae below, R<sub>1</sub> with 24-31 below, M before r-m with 0 above and below, r-m lacking setulae on at least the half closest to M. Ratio of r-m: M petiole 0.95-1.36. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 74, 75): posterior margin of ventral stylomere slightly concave, with numerous subequal setae, some more mediad stronger than the others; posterior ventral margin of fused gonocoxopodites broadly and almost evenly concave.

Holotype. Male, Jasper National Park, Edith Cavell, 6000', Alberta VII-25-1949, C.P. Alexander (U.S. National Museum No. 62440).

Paratypes: 5 males from the following localities:

CALIFORNIA. 1m, Pinecrest, Tuolumne Co., VIII-13-1948, P.H.

Arnaud, Jr. 1m, Sequoia N.P., VII-19-1946, CPA. 1m, Sequoia N.P., 6500', VII-20-1946, CPA.

UTAH. 1m, Beaver, 8000', VI-25-1942, CPA. 1m, Logan, VII-22-

1938, at light, G.F. Knowlton, D.E. Hardy.

Remarks. Closely allied to F. ocellus (Walk.), F. sordida (v.d. Wulp), F. crassiseta n.sp., and F. cruciator n.sp.

## Species of Group C

Fungivora vesca, new species (Figs. 80, 81)

Male. Wing length: 2.08-2.54 mm. Mesoscutum pruinose, dark reddish-brown with very narrow anterior margin, small humeral area and small posterolateral area, yellow; scutellum dark brown, hind border yellow; legs mostly yellow, hind femur with brown apical area; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles, mesepimeron with 2. Anepisternal ratio 0.77-0.90. Segments of fore tarsus subequal in thickness. Mid tibia with 4-6 d, 0 a-d, 1-3 a, 1-2 v, 1 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 4-5 strong d (without shorter erect bristles between them), 0 a-d, 6-7 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing without spots. R with 9-15 setulae below, R<sub>1</sub> with 17-20 below, M before r-m with 3-6 below. Ratio of r-m: M petiole 0.3. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 80, 81): posterior ventral margin of fused gonocoxopodites distinctly emarginate; ventral stylomere with numerous long, subequal setae along posterior margin and a transverse irregular row on the ventral side.

Holotype. Male, Ithaca, New York, V-23-1936, H.K. Townes (Academy of Natural Sciences of Philadelphia No. 6699).

Paratypes. 3 specimens from the following localities:

MARYLAND. 1m, Lock Raven, Baltimore, V-8-1938, E.G. Fisher.

NEW YORK. 1 specimen, genitalia not seen by writer, apparently a male, Ithaca, VI-6-1935, H.K. Townes.

TENNESSEE. 1m, Great Smoky Mts. N.P., Cove Forest, Gatlinburg, 3000', VI-13-1947, R.H. Whittaker.

Fungivora mitis (Johannsen), new combination (Figs. 82, 83)

1912 Mycophila mitis Johannsen, pp. 80, 82; figs. 64 (male term.), 189 (wing).

1940 Mycetophila mitis, Jaques and Berger, p. 421.

1941 Mycetophila jenkinsoni Edwards, pp. 79, 81; 80, fig. 9h-9i (male term.). New synonymy.

Length of male wing: 2.77-3.27 mm. Female wing: 2.62-3.75 mm. Mesoscutum pruinose, mostly dark brown, humeral area and sides sometimes yellowish; scutellum dark brown; legs mostly yellow, hind femur with narrow dark apex; abdominal tergites I-VI brown, II-VI with yellow apical bands, lateral margins also usually yellow. Proepisternum with 3-4 bristles, mesepimeron with 3-4. Anepisternal ratio 0.97-1.08. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 0 a-d, 2-3 (usually 2) a, 1-2 (usually 1) v, 1-2 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 4-5 strong d (without shorter erect bristles between them), 0 a-d, 5-8 a, 1-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot, preapical spot usually absent, when present starting at C well beyond tip of  $R_1$  and not extending to  $M_{1+2}$ . R with 8-12 setulae below,  $R_1$  with 22-30 below, M before r-m with 8-14 below. Ratio of r-m: M petiole 0.75-1.08. Abdominal sternites II-VI each with several apical bristles somewhat longer than the others on the sternites. Male terminalia (Figs. 82, 83): ventral stylo-mere subovoid in ventral view, about posterior third very thin, a row of about 6 stout setae on dorsal surface. Female cercus 2-segmented.

#### Types.

- F. mitis (Joh.). Holotype, male in American Museum of Natural History. Type locality: Wisconsin (VII).  
F. jenkinsoni (Edw.). Holotype, male in British Museum. Type locality: Logie, Elgin (County) (Scotland) (IX-04, Jenkinson).  
 Material examined. 226 specimens from the following localities:  
 NOVA SCOTIA. Frizzleton, Cape Breton Island.  
 ONTARIO. Orillia; Ottawa.  
 QUEBEC. Meach Lake.  
 ILLINOIS. Algonquin; Cobden; Cook Co.; Dubois; Grand Tower; Mississippi River near Foster; Murphysboro; Oregon; St. Joseph; Urbana.  
 INDIANA. Lafayette.  
 IOWA. Ames; Backbone S.P., Delaware Co.; Boone; Dolliver Memorial S.P.; Henry Co.; Ledges S.P., Boone Co.; Maquoketa Caves S.P., Jackson Co.; Palisades-Keplar S.P., Linn Co.; Washington Co.; White Pine Hollow, Dubuque Co. (report of M. mitis by Jaques and Berger, 1940, based on certain of these).  
 KANSAS. Lawrence.  
 MARYLAND. Lake Roland, Baltimore Co.; Lock Raven, Baltimore; Plummers Island.  
 MASSACHUSETTS. Beverly; Holliston.  
 MINNESOTA. Hastings.  
 MISSOURI. Atherton; Eagle Rock, Bary Co.; Kahoka; Meramec S.F.; Roaring River S.P.; Summersville.  
 NEW YORK. Ithaca.  
 NORTH CAROLINA. Neel's Creek, Mt. Mitchell Game Refuge.  
 OHIO. Georgesville.  
 PENNSYLVANIA. Hazleton.  
 SOUTH CAROLINA. Clemson.  
 TEXAS. San Antonio.

VIRGINIA. near Plummers Island, Maryland.

WEST VIRGINIA. Cheat Mts.

WISCONSIN. Madison Co.; Squaw Lake, Vilas Co.; T39N, R12W, B32, Washburn Co.

Remarks. The male terminalia are similar to those of F. bimaculata (Fabr.) and its allies, but the mid tibial anterodorsal bristle is absent in F. mitis. Dr. Paul Freeman has compared Nearctic specimens of F. mitis with the holotype of F. jenkinsoni and has supplied the author with notes which indicate the synonymy of the names.

#### Fungivora scotica (Edwards), new combination (Figs. 84, 85)

1941 Mycetophila scotica Edwards, pp. 79-80, figs. 9e-9g (male term.).

Male. Length of wing: 3.08-3.42 mm. Mesoscutum pruinose, mostly dark brown or light reddish, humeral area yellow, sides somewhat yellowish; scutellum dark brown, margins dull yellow (scutellum of holotype "pale" according to Edwards, 1941); legs mostly yellow, hind femur with dorsal brown line on about distal third; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 0.88-0.93. Segments of fore tarsus subequal in thickness. Mid tibia with 4-5 d, 0 a-d, 2 a, 2-3 v, 3-6 p; first two rows of anterior setulae dark brown. Hind coxa with longest posterior setae moderate in length, less than half as long as longest posterior preapicals. Hind tibia with 4-6 strong d (with 0-2 shorter erect bristles interspersed with longer ones), 0 a-d, 5-6 a, 3-5 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well before  $R_1$ , extending along C to tip of  $R_5$ , proximal portion extending across  $R_5$  about halfway to  $M_{1+2}$  or reaching  $M_{1+2}$ , margins of spot rather poorly defined. R with 13-15 setulae below,  $R_1$  with 26-29 below, M before r-m with 4-10 below. Ratio of r-m: M petiole 0.80-0.95. Apical bristles of abdominal sternites not much longer than others. Terminalia (Figs. 84, 85): ventral stylo-mere deeply emarginate posteriorly; posterior ventral margin of fused gonocoxopodites nearly straight.

#### Type.

F. scotica (Edw.). Holotype, male in British Museum. Type locality: Dingwall, Comarty (County) (Scotland).

Material examined. 4 males from the following localities:

ALASKA. 3m, Matanuska, VI-1944, VI-4-1944 and VI-6-1944, rotary trap, J.C. Chamberlin.

CALIFORNIA. 1m, 3 miles south of Camino, Eldorado Co., VI-26-1948, L.W. Quate.

Remarks. Dr. Paul Freeman has compared one of the specimens from Alaska with the holotype of F. scotica. He has supplied the author with information that would indicate the specimens to be conspecific.

Fungivora recta (Johannsen) (Fig. 89)

- 1912 Mycothera recta Johannsen, pp. 81, 82-83; figs. 65 (male term.), 190 (wing). (in part, male only).  
 1912 Mycothera paradoxa Johannsen, pp. 80, 82; figs. 63 (female term.), 188 (wing). New synonymy.  
 1928 Mycothera paradoxa, Leonard, p. 746.  
 1928 Mycothera recta, Leonard, p. 746.  
 1952 Fungivora paradoxa, Shaw and Fisher, pp. 207, 208.  
 1952 Fungivora recta, Shaw and Fisher, p. 208.

Length of male wing: 2.37-2.71 mm. Female wing: 2.46-2.96 mm. Mesoscutum pruinose, sometimes dull reddish-yellow with 3 more or less fused dark brown vittae, brown areas often more extensive, at least humeral area yellowish in all specimens seen; scutellum dark brown, margins paler; legs mostly yellow, hind femur with a distinct dorsal dark brown line from base to apex, dark brown apical band present, mid femur sometimes with a dark brown line above; abdominal tergites I-VI sometimes entirely dark brown, tergites II-V sometimes partially or completely yellow. Proepisternum with 3 bristles, mesepimeron with 2-5. Anepisternal ratio 0.86-0.95. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5 d, 0 a-d, 3 a, 2-3 (usually 3) v, 1-3 p; first two rows of anterior setulae dark brown, these rows fused into one for at least a short distance about midway on tibia. Hind coxa with posterior setae moderate in length, shorter than the posterior preapicals. Hind tibia with 5-6 d (without shorter erect bristles between them), 0 a-d, 6-7 a, 0-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well before R<sub>1</sub>, extending along C to tip of R<sub>5</sub>, proximal part extending across R<sub>5</sub> nearly to M<sub>1</sub>, margins of spot ill-defined, sometimes most of wing apex darkened. R with 6-11 setulae below, R<sub>1</sub> with 16-20 below, M before r-m with 9-15 below. Ratio of r-m: M petiole 0.53-1.00. Apical bristles of abdominal sternites not much longer than the others. Female cercus 2-segmented.

Types.

F. recta Joh. Holotype, male at Cornell University, No. 2055. Type locality: Ithaca, New York (VIII-28-1894).

F. paradoxa Joh. Holotype, female at Cornell University, No. 2054. Type locality: Ithaca, New York.

Material examined. 183 specimens, all males except holotype of F. paradoxa and females from Lake Itasca, Minnesota, latter from a series of 125 males and females. From the following localities:

ALBERTA. Edmonton.

NEW BRUNSWICK. Near Lepreaux, St. John Co.; Taymouth.

NOVA SCOTIA. Frizzleton, Cape Breton Island; Lake of Law Brook,

N.E. Margaree, Cape Breton Island.

ONTARIO. Ottawa.

SASKATCHEWAN. Christopher Lake.

CALIFORNIA. Great Basin Redwoods; N. Fork Big River, 14 miles west of Willits, Mendocino Co.

COLORADO. Rocky Mt. N.P., Glacier Creek.

IDAHO. Coeur d'Alene N.F., Cedar Canyon; Twin Creek Camp, Bitterroot Mts.

MASSACHUSETTS. Cummington.

MINNESOTA. Lake Itasca.

NEW HAMPSHIRE. Enfield; Franconia; White Mts., Dolly Copp Camp, 1400'; White Mts., Ellis R., Jackson, 1500'.

NEW YORK. Beaverkill, Sullivan Co.; Ithaca (holotypes of F. paradoxa and F. recta).

NORTH CAROLINA. "Rt. 221", Caldwell Co.

OREGON. Blue Mts., Spring Creek, 3900'; Forest Grove; Wallowa Mts., Lostine Valley, 5500'; Wallowa Mts., Wallowa Spr., 4650'.

PENNSYLVANIA. Hazleton.

TENNESSEE. Great Smoky Mts. N.P., Beech Gap, Gatlinburg, 5500'.

WASHINGTON. Glacier; Mt. Baker, Baker L., 650'.

Additional previous records. Reported as Mycothera paradoxa and M. recta from Wells, New York (Leonard, 1928). The female recorded as M. recta by Johannsen (1912) is a Fungivora sp., not F. recta. The specimen recorded from Alberta by Strickland (1946) as Mycetophila necta (sic!) var. is a specimen of F. paxillata n. sp.

Remarks. No reliable morphological differences have been found to distinguish the females of this species from those of F. recula n. sp. and F. paxillata n. sp. The writer has examined the female holotype of F. paradoxa and the male holotype of F. recta and believes them to be conspecific. This decision has been made partially on the grounds of distribution, as F. recula and F. paxillata have not been taken in the eastern United States. The European F. stylata (Dzied.) is also similar to these species. The lateral part of the aedeagal complex of F. recta bears a lobe which is broadened on its apical half and extends well past the remaining parts of the aedeagus, while in F. stylata this structure is not broadened apically and does not extend well beyond the rest of the aedeagus. Johannsen's (1912) figure of the female terminalia appears to indicate a 1-segmented cercus, but an examination of the holotype has shown that the apical segment has been accidentally detached.

Fungivora recula, new species (Fig. 88)

Male. Wing length: 2.52-3.00 mm. Mesoscutum pruinose, mostly dark brown with yellowish humeral area, sides sometimes yellowish; scutellum brown, margins somewhat paler; legs mostly yellow, hind femur with a dark brown apex and a dark brown dorsal line from base to apex; other femora sometimes with brownish areas dorsally or ventrally; abdominal tergites I-VI dark brown, sometimes with faint yellowish apical margins. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 0.85-0.93. Segments of fore tarsus subequal in thickness. Mid tibia with 5 d, 0 a-d, 3 a, 2-3 v, 1-2 p; first two rows of anterior setulae dark brown, these rows fused into one for at least a short distance about midway on tibia. Hind coxa with longest

posterior preapical, sometimes a little longer. Hind tibia with 5 d (without shorter erect bristles between them), 0 a-d, 6-7 a, 1-3 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well before tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back across  $R_5$  nearly to  $M_{1+2}$ , margins of spot ill-defined, sometimes most of wing apex darkened. R with 7-11 setulae below,  $R_1$  with 17-23 below, M before r-m with 10-13 below. Ratio of r-m: M petiole 0.67-1.27. Apical bristles of abdominal sternites not much longer than the others.

Holotype. Male, Pinecrest, Tuolumne County, California, VIII-13-1948, P.H. Arnaud, Jr. (U.S. National Museum No. 62459).

Paratypes. 91 males from the following localities:

CALIFORNIA. 32m, same data as holotype. 3m, Blue Canyon, Nevada Co., VIII-20-1953, E.I. Schlinger. 1m, 3 miles south of Camino, Eldorado Co., VI-26-1948, L.W. Quate. 1m, Fallen Leaf, Lake Tahoe, VI-11-1916, H.G. Dyar. 11m, Glendale, VII-20-1950, E. I. Schlinger. 7m, Hatchet Pass, 4200', VII-9-1947, CPA. 2m, Lake Tahoe, 6000', VII-2-1947, CPA. 8m, Sequoia N.P., 6300' and 6500', VII-20-1946, CPA. 5m, Sequoia N.P., VIII-6-1940, R.H. Beamer. 5m, Sequoia N.P., VII-19-1946, CPA. 4m, Strawberry, Tuolumne Co., VII-20-1951, W.C. Bentinck. 12m, Yosemite N.P., Glacier Pt. Bog, 8000', VII-29-1946, CPA.

Remarks. This species is closely related to *F. paxillata* n.sp. Further study may indicate that the two would be best considered as one form or as subspecies. No differences have been observed in the gonocoxopodites or dorsal stylomere, but the ventral stylomeres differ slightly in shape and that of *F. recula* bears one more strong seta as shown in the figure and indicated in the key. See also remarks under *F. recta* (Joh.).

Fungivora paxillata, new species (Figs. 86, 87)

1946 *Mycetophila necta* (sic!) var., Strickland, p.161.

Male. Wing length: 2.37-2.83 mm. Mesoscutum pruinose, mostly dark brown with yellowish humeral area, sometimes sides yellowish; scutellum brown, margins somewhat paler; legs mostly yellow, hind femur with a dark brown apex and a dark brown dorsal line from base to apex; other femora sometimes with brownish areas dorsally or ventrally; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles, mesepimeron with 2-4. Anepisternal ratio 0.85-0.97. Segments of fore tarsus subequal in thickness. Mid tibia with 4-5 d, 0 a-d, 3 a, 2-3 (usually 3) v, 1-3 p; first two rows of anterior setulae dark brown, these rows fused into one for at least a short distance about midway on tibia. Hind coxa with longest posterior setae moderate in length, shorter than the longest posterior preapicals. Hind tibia with 5-7 d (without shorter erect bristles between them), 0 a-d, 6-7 a, 1-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well before tip of  $R_1$ , filling tip of cell  $R_1$ ,

proximal part extending across  $R_5$  nearly to  $M_{1+2}$ , margins of spot ill-defined, sometimes most of wing apex darkened. R with 5-9 setulae below,  $R_1$  with 16-22 below, M before r-m with 10-14 below. Ratio of r-m: M petiole 0.59-1.09. Apical bristles of abdominal sternites not much longer than the others.

Holotype. Male, Cedar Canyon, Coeur d'Alene National Forest (Kootenai Co.), Idaho, VIII-14-1946, C.P. Alexander (U.S. National Museum No. 62457).

Paratypes. 39 males from the following localities:

ALBERTA. 1m, Waterton, VIII-18-1939, E.H. Strickland (reported as *M. necta* (sic!) var. by Strickland, 1946).

IDAHO. 1m, same data as holotype.

OREGON. 1m, Goble, V-22-1938, K. Gray, J. Schuh. 1m, Mt. Hood, Hood River Meadows, 3500', VII-17-1947, CPA. 1m, Mt. Sander, Beaver Creek, VII-16-1947, K.M. Fender. 2m, Odell Lake, 5100' VII-13-1947, CPA. 1m, Salt Creek Gorge, VII-14-1947, CPA.

WASHINGTON. 1m, Mt. Rainier, Longmire Springs, 2800', VIII-10-1946, CPA. 28m, Mt. Rainier N.P., VIII-10-1941, L.J. Lipovsky. 1m, Wenatchee N.F., Baker Creek Camp, 2600', VII-7-1948, CPA. 1m, Wenatchee N.F., Park Camp, 2900', VII-7-1948, CPA.

Remarks. See *F. recta* (Joh.) and *F. recula* n.sp.

Fungivora propinqua (Walker) (Figs. 92, 93)

1848 *Mycetophila propinqua* Walker, p.96.

1912 *Mycetophila perlonga* Johannsen, pp.87, 100; figs.83 (male term.), 202 (wing). New synonymy.

1912 *Mycetophila propinqua*, Johannsen, pp.87, 89, 102.

1920 *Mycetophila perlonga*, Sherman, p.15.

1925a *Mycetophila perlonga*, Johnson, p.87.

1926a *Mycetophila propinqua*, Johannsen, p.52.

1927 *Mycetophila perlonga*, Johnson, p.176.

1928 *Mycetophila propinqua*, Leonard, p.746.

1938 *Mycetophila perlonga*, Procter, p.311.

1938 *Mycetophila perlonga*, Brimley, p.327.

1946 *Mycetophila perlonga*, Procter, p.362.

1952 *Fungivora propinqua*, Shaw and Fisher, p.208.

1952 *Fungivora perlonga*, Shaw and Fisher, pp.207, 208.

Length of male wing: 4.46-5.14 mm. Female wing: 4.14-5.19 mm. Proepisternum with 3 bristles, mesepimeron with 4-6. Anepisternal ratio 0.98-1.06. Mid tibia with 5-7 d, 0 a-d, 4-5 a, 3-4 v, 2-5 p. Hind tibia with 5-8 d, 0 a-d, 6-8 a, 4-6 p. R with 14-19 setulae below,  $R_1$  with 35-46 below, M before r-m with 12-24 below. Ratio of r-m: M petiole 1.06-1.38. Female cercus 2-segmented.

Types.

*F. propinqua* Walk. Holotype (sex unknown, tip of abdomen missing) in British Museum. Type locality: Nova Scotia ("from Lieut. Redman's collection").



*F. perlonga* Joh. Holotype, male at Cornell University, No. 2066. Type locality: Woodworth Lake, Fulton County, New York (VIII-22-1910, C. P. Alexander).

Material examined. 109 specimens from the following localities:  
 NEW BRUNSWICK. Taymouth.  
 NOVA SCOTIA. South of Antigonish.  
 IDAHO. Chatcolet; Moscow Mt.  
 MAINE. Mt. Desert Island: Bar Harbor (reported as *M. perlonga* by Johnson, 1925, 1927); Breakneck Brook; Bubble Pond; Duck Brook; Witch Hole.  
 MASSACHUSETTS. Amherst; Chester (reported as *M. perlonga* from "Berkshire area" by Johnson, 1925).  
 MICHIGAN. Cheboygan Co.  
 MINNESOTA. Lake Itasca.  
 NEW HAMPSHIRE. Jaffrey; White Mts., King's Ravine Trail, 1800'; White Mts., King's Ravine Trail, Coldbrook Falls, Mt. Adams.  
 NEW YORK. Adirondacks, Avalanche Trail; Coy Glen, Ithaca; Fillmore Glen; Ithaca; Old Forge (reported as *M. propinqua* by Johannsen, 1912); Woodworth Lake, Fulton Co. (holotype of *perlonga*).  
 OREGON. Mt. Hood, Hood Rapids.  
 VERMONT. Smuggler's Notch; Stratton.  
 WASHINGTON. Mt. Rainier N.P.; Olga; Saxon.

Additional previous records. Reported as *M. perlonga* from Caulfields, British Columbia (Sherman, 1920); New Hampshire (Johnson, 1925); Wells and Albany, New York (Leonard, 1928); several localities on Mt. Desert Island, Maine (Johnson, 1927); and Pineola, North Carolina (Brimley, 1938).

Remarks. Dr. Paul Freeman has sent the author notes on the holotype of *F. propinqua* which have made it possible to establish the synonymy of *F. perlonga*. *F. propinqua* is very similar in many respects to the following Nearctic species: *F. uncinata* n. sp., *F. ghanii*, n. sp., *F. arnaudi* n. sp., *F. capreolata* n. sp., *F. consonans* n. sp., *F. hiulca* n. sp., *F. edura* (Joh.), *F. caurina* n. sp., *F. frustrator* n. sp., *F. sertata* n. sp., and *F. impellans* (Joh.).<sup>1</sup> There is considerable variation in the coloration in each of the species mentioned. Since long series have been studied in the case of several of the species, and as it seems unlikely that color characteristics will be found to separate these species from each other, a description follows which applies to all the species. These characteristics are not repeated in the individual descriptions of the species of this complex. It should be understood that not all of the variations mentioned have been observed in all of the species listed above.

Mesoscutum always pruinose, sometimes yellow with 3 distinct brown vittae, grading to completely dark brown, most commonly dark brown except for dull yellow humeral area. Scutellum usually dark brown with yellowish-brown margins, sometimes scutellum entirely dull yellow. Pleuron usually dark brown, propleuron frequently yellowish. Coxae usually yellowish, sometimes brown. Hind femur always with a distinct

<sup>1</sup>*F. parva* (Walk.) probably is a member of this complex, but the writer has not been able to recognize the species.

brown dorsal line from base to apex, apex with at least a narrow brown band. Fore and hind femur frequently with dorsal or ventral brown lines or marks. Abdomen usually entirely brown, tergites sometimes with narrow apical or lateral pale bands. Mid tibia with first two rows of anterior setulae dark brown. Hind tibia with anterior and ventral setulae dark brown. Hind coxa with posterior setae usually moderate in size, none ever longer than the longest posterior preapical. The segments of the fore tarsus always subequal in thickness in the male. Hind tibia without short erect bristles interspersed with longer bristles of the dorsal row, or rarely with 1. Wing with a central spot, not distinctly extending into costal cell; preapical spot present, starting at C well before tip of  $R_1$ , extending into and filling apex of cell  $R_1$ , proximal part continued back at least to midway between  $R_5$  and  $M_{1+2}$ , often to  $M_{1+2}$ , in some of the species the entire apex of the wing dusky. Abdominal sternites II and III without median apical bristles longer than the others. Male terminalia: posterior ventral border of gonocoxopodites distinctly emarginate, usually deeply, posterior border of "crotch" often projecting considerably more caudad than the ventral margin. Posterior margin of ventral stylomere with several strong setae in a more or less regular row, often with one or more strong setae close to the apical row, but arising from the dorsal surface. Dorsal stylomere with at least two lobes arising from basal portion, one extending posteriorly, the other dorsally.

No special remarks concerning the terminalia are made in connection with the descriptions of most species of this complex, since the distinguishing features are pointed out in the key. The following European species belong to this complex: *F. zetterstedti* (Lundst.), *F. gibbula* (Edw.), *F. vittipes* (Zett.), and *F. schnabli* (Dzied.). All of them differ from the Nearctic species in characteristics of the male terminalia.

*Fungivora uncinata*, new species (Figs. 94, 95)

Male. Wing length: 3.37-4.08 mm. Proepisternum with 3 bristles, mesepimeron with 2-4. Anepisternal ratio 1.17-1.25. Mid tibia with 4-5 d, 0 a-d, 3 a, 1-2 v, 2-4 p. Hind tibia with 4-5 d, 0 a-d, 6 a, 2-5 p. R with 3-8 setulae below,  $R_1$  with 22-31 below, M before r-m with 9-13 below. Ratio of r-m: M petiole 0.84-1.08.

Holotype. Male, Grand Tetons, Leigh Lake, 7000', Wyoming, VII-12-1941, C. P. Alexander (U.S. National Museum No. 62468).

Paratypes. 4 males from the following localities:  
 MONTANA. 1m, Urbana, 6000', below Gibbons Pass, Bitterroot Mts., VI-29-1949, CPA.  
 UTAH. 1m, Beaver, 8000', VI-25-1942, CPA.  
 WYOMING. 1m, same data as holotype. 1m, Grand Tetons, Jenny Lake, 6800', VII-6-1941, CPA.

Remarks. See remarks under *F. propinqua* (Walk.).

Fungivora ghanii (Shaw), new combination (Figs. 96, 97)

1951b Mycetophila ghanii Shaw, pp. 276-277; 278, fig. 3 (male term.).

Male. Wing length: 3.71-4.04 mm. Proepisternum with 2-3 bristles, mesepimeron with 3-4. Anepisternal ratio 1.11-1.25. Mid tibia with 4-5 d, 0 a-d, 3-4 a, 1-2 v, 2-5 p. Hind tibia with 5-6 d, 0 a-d, 6-9 a, 3-8 p. R with 6-8 setulae below,  $R_1$  with 23-28 below; M before r-m with 8-14 below. Ratio of r-m: M petiole 1.26-1.65.

Type.

F. ghanii (Shaw). Holotype, male in F.R. Shaw collection. Type locality: Snowy Range Mountains, Albany, Wyoming (IX-25-1947, D.G. Denning).

Material examined. 6 males from the following localities:

OREGON. 1m, Blue Mts., Langdon Lake, 4970', VIII-17-1948, CPA.  
2m, Mt. Hood, Tilly Jane Creek, 5600', VII-29 and 30-1948, CPA.  
WASHINGTON. 2m, Mt. Rainier N.P., VIII-10-1941, L. J. Lipovsky.  
1m, Wenatchee N.F., Park Camp, 2900', VII-7-1948, CPA.

Additional previous record. A paratype of F. ghanii was from Centennial, Wyoming.

Remarks. See remarks under F. propinqua (Walk.). Dr. F. R. Shaw has provided notes on the type series of F. ghanii which have enabled the writer to recognize this species.

Fungivora arnaudi, new species (Figs. 98, 99)

Male. Wing length: 3.08-3.75 mm. Proepisternum with 2-3 bristles, mesepimeron with 3-4. Anepisternal ratio 1.04-1.25. Mid tibia with 4-6 d, 0 a-d, 2-3 a, 1-2 v, 2-3 p. Hind tibia with 4-6 d, 0 a-d, 5-6 a, 1-4 p. R with 5-9 setulae below,  $R_1$  with 23-30 below, M before r-m with 11-15 below. Ratio of r-m: M petiole 0.82-1.39. Female cercus 2-segmented.

Holotype. Male, Tuolumne Meadows, Yosemite National Park, Tuolumne County, California, VIII-30-1949, P.H. Arnaud, Jr. (U. S. National Museum No. 62433).

Allotype. Female, same collection data and depository.

Paratypes. 52 males, 84 females from the following localities:

CALIFORNIA. 36m, 84f, same collection data as holotype. 1m, Strawberry (Tuolumne Co.), VIII-8-1929, P.W. Oman.  
OREGON. 10m, Crater Lake, 5900', VIII-3-1946, CPA. 1m, Crater Lake, Castle Gardens, 6800', VII-12-1947, CPA. 1m, Mt. Hood, Tilly Jane Creek, 5600', VII-30-1948, CPA. 1m, Odell Lake, 5100', VII-13-1947, CPA. 1m, Rogue River N.F., Wrangle Gap, 6500', VIII-11-1950, CPA.  
WASHINGTON. 1m, Mt. Rainier N.P., Fryingpan Trail, VIII-29-1934, A.L. Melander.

Remarks. See remarks under F. propinqua (Walk.). Although no certain characters have been found to distinguish the females from certain closely allied species, the 84 females from the type locality have been designated as paratypes since they were taken with a long series of males and since they appear to be of this species.

Fungivora capreolata, new species (Figs. 100, 101)

Male. Wing length: 3.60 mm. Proepisternum with 3 bristles, mesepimeron with 4-5. Anepisternal ratio 1.18. Mid tibia with 5-6 d, 0 a-d, 3 a, 2-3 v, 2-4 p. Hind tibia with 5 d, 0 a-d, 6 a, 4-6 p. R with 7-10 setulae below,  $R_1$  with 27-30 below, M before r-m with 10-11 below. Ratio of r-m: M petiole 0.91-1.00.

Holotype. Male, Lake Itasca, Clearwater County, Minnesota, IX-3-1950, Jean Laffoon (U.S. National Museum No. 62438).

Paratype. 1 male from White Mts., New Hampshire, Morrison.

Remarks. See remarks under F. propinqua (Walk.).

Fungivora consonans, new species (Figs. 102, 103)

Male. Wing length: 3.31-3.54 mm. Proepisternum with 3 bristles, mesepimeron with 4-5. Anepisternal ratio 1.07-1.09. Mid tibia with 4-5 d, 0 a-d, 3 a, 2-4 v, 2-4 p. Hind tibia with 5 d, 0 a-d, 6-7 a, 1-3 p. R with 8-11 setulae below,  $R_1$  with 20-25 below, M before r-m with 16-20 below. Ratio of r-m: M petiole 1.00-1.17.

Holotype. Male, Longmire Springs (Mt. Rainier National Park), Washington, VI-12-1917, H.G. Dyar (U.S. National Museum No. 62444)

Paratypes. 2 males from the following localities:

CALIFORNIA. 1m, Ryan Creek, Mendocino Co., IV-9-1939, G.F. Hardman.

OREGON. 1m, McMinnville, High Heavens, V-4-1943, K.M. Fender.

Remarks. See remarks under F. propinqua (Walk.).

Fungivora hiulca, new species (Figs. 104, 105)

Male. Wing length: 3.54-4.25 mm. Proepisternum with 3 bristles, mesepimeron with 4-5. Anepisternal ratio 1.06-1.15. Mid tibia with 5-7 d, 0 a-d, 3 a, 1-2 v, 3-5 p. Hind tibia with 6-7 d, 0 a-d, 6-7 a, 4-5 p. R with 7-9 setulae below,  $R_1$  with 32-33 below, M before r-m with 9-14 below. Ratio of r-m: M petiole 1.03-1.20.

Holotype. Male, White Mountains (New Hampshire), Morrison (U.S. National Museum No. 62452).

Paratypes. 2 males from the following localities:

BRITISH COLUMBIA. 1m, Yoho N.P., Kicking Horse Camp, 4500', VII-17-1949, CPA.

NEW HAMPSHIRE. 1m, White Mts., Morrison.

Remarks. See remarks under *F. propinqua* (Walk.).

*Fungivora edura* (Johannsen) (Figs. 90, 91)

- 1912 *Mycetophila edura* Johannsen, pp. 88, 103-104; figs. 88 (male term.), 207 (wing). (in part, not Wisc. record).  
 1928 *Mycetophila edura*, Leonard, p. 746.  
 1952 *Fungivora edura*, Shaw and Fisher, pp. 207-208.

Male. Wing length: 2.54-3.00 mm. Proepisternum with 2-3 bristles, mesepimeron with 3-4. Anepisternal ratio 1.00-1.10. Mid tibia with 5 d, 0 a-d, 3 a, 1-3 v, 2-3 p. Hind tibia with 5 d, 0 a-d, 6-7 a, 2-4 p. R with 4-9 setulae below, R<sub>1</sub> with 19-25 below, M before r-m with 9-14 below. Ratio of r-m: M petiole 1.14-1.50.

Type.

*F. edura* Joh. Holotype, male at Cornell University, No. 2071. Type locality: Ithaca, New York (VIII-28-1894).

Material examined. 11 males from the following localities:

- ONTARIO. Ottawa: 1m, X-7-1947, G.E. Shewell; 1m, X-17-1951, J.R. Vockeroth; 1m, X-30-1950, J.R. Vockeroth.  
 IOWA. 1m, Ledges S.P., Boone Co., V-4-1952, J.L.  
 MICHIGAN. 1m, Douglas Lake, VIII-1951, Wayne Porter.  
 MINNESOTA. 1m, Lake Itasca, IX-2-1950, J.L.  
 NEW HAMPSHIRE. 1m, White Mts., King's Ravine Trail, Coldbrook Falls, X-12-1945, J.F. Hanson. 1m, White Mts., Osgood Ridge, VI-26-1935, CPA.  
 NEW YORK. 1m, Ithaca, VIII-28-1894 (holotype of *F. edura*). 1m, Slide Mt., 4200', VIII-25-1935, H. and C. Townes.  
 PENNSYLVANIA. 1m, Shawville, Clearfield Co., V-25-1941, John Bayer.

Additional previous record. Johannsen (1912) recorded "*Mycetophila edura*" from Wisconsin, but the present writer believes this specimen belongs to another species.

Remarks. See remarks under *F. propinqua* (Walk.).

*Fungivora caurina*, new species (Figs. 106, 107)

Male. Wing length: 3.85-4.27 mm. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 1.31-1.34. Mid tibia with 5 d, 0 a-d, 3 a, 2 v, 3-5 p. Hind tibia with 5 d, 0 a-d, 6-7 a, 4-6 p. R with 6-7 setulae below, R<sub>1</sub> with 32-34 below, M before r-m with 11-19 below. Ratio of r-m: M petiole 0.89-1.45.

Holotype. Male, Twogmotee Pass, 9650', Grand Tetons, Wyoming, VII-9-1942, C.P. Alexander (U.S. National Museum No. 62439).

Paratypes. 2 males from the following localities:

- BRITISH COLUMBIA. 1m, Cultus Lake, X-23-1938, J.K. Jacob.

WASHINGTON. 1m, Mt. Rainier N.P., Fryingpan Trail, VIII-29-1934, A.L. Melander.

Remarks. See remarks under *F. propinqua* (Walk.).

*Fungivora frustrator*, new species (Figs. 108, 109)

Male. Wing length: 2.73-3.04 mm. Proepisternum with 2-3 bristles, mesepimeron with 3-5. Anepisternal ratio 1.03-1.14. Mid tibia with 4-5 d, 0 a-d, 3 a, 2-3 v, 1-3 p. Hind tibia with 4-6 d, 0 a-d, 6-7 a, 1-2 p. R with 4-6 setulae below, R<sub>1</sub> with 20-25 below, M before r-m with 7-13 below. Ratio of r-m: M petiole 0.88-1.22.

Holotype. Male, Eureka, California, V-22, H. S. Barber (U. S. National Museum No. 62451).

Paratypes. 12 males from the following localities.

- ALBERTA. 1m, Jasper, VII-22, E. B. Bryant. 1m, Jasper N.P., Edith Cavell, 6000', VII-22-1949, CPA.  
 CALIFORNIA. 1m, Dodge Ridge, near Pinecrest, Tuolumne Co., VII-20-1951, W.C. Bentineck. 1m, Pinecrest, Tuolumne Co., VII-13-1948, P.H. Arnaud, Jr.  
 IDAHO. 1m, Moose Creek, 6200', VI-29-1949, CPA. 1m, Twin Creek Camp, 5400', VI-29-1949, CPA.  
 MONTANA. 1m, Urbana, below Gibbon's Pass, 6000', Bitterroot N.F., VI-29-1949, CPA.  
 OREGON. 2m, Wallowa Mts., Lostine Valley, 5500', VIII-10-1948, CPA.  
 WASHINGTON. 1m, Mt. Baker, Galena Camp, 4000', VIII-10-1947, CPA. 1m, Mt. Rainier N.P., VIII-10-1941, L.J. Lipovsky. 1m, Wenatchee N.F., Park Camp, 2900', VII-7-1948, CPA.  
 Remarks. See remarks under *F. propinqua* (Walk.).

*Fungivora sertata*, new species (Figs. 110, 111)

Male. Wing length: 3.04-4.42 mm. Proepisternum with 2-3 bristles, mesepimeron with 3-5. Anepisternal ratio 1.06-1.28. Mid tibia with 4-6 d, 0 a-d, 2-3 a, 1-3 v, 1-4 p. Hind tibia with 4-6 d, 0 a-d, 5-6 a, 2-5 p. R with 3-10 setulae below, R<sub>1</sub> with 22-37 below, M before r-m with 9-18 below. Ratio of r-m: M petiole 0.90-1.48.

Holotype. Male, Crater Lake, 5900', Oregon, VIII-3-1946, C. P. Alexander (U.S. National Museum No. 62462).

Paratypes. 23 males from the following localities:

- CALIFORNIA. 1m, Sonora Pass, 8000', Tuolumne Co., VII-21-1951, W.C. Bentineck. 1m, Sonora Pass, 9000', Tuolumne Co., VII-22-1951, W.C. Bentineck. 1m, Tuolumne Meadows, Yosemite N.P., Tuolumne Co., VIII-30-1949, P.H. Arnaud, Jr.  
 IDAHO. 1m, Moose Creek, 6200', VI-29-1949, CPA. 1m, Moscow Mts., VII-9, R.C. Shannon. 1m, Mt. Moscow, VI-10-1930, J.M. Aldrich Coll.

OREGON. 3m, same collection data as holotype. 1m, Crater Lake, Pale Creek Meadows, 5800', VII-11-1947, CPA. 1m, Mt. Hood, Horse Thief Meadows, VII-19-1947, CPA. 1m, Rogue River N.F., Wrangle Gap, 6500', VIII-11-1950, CPA. 1m, Salt Creek Gorge, VII-14-1947, CPA.

UTAH. 6m, Beaver, 8000', VI-25-1942, CPA. 1m, Card Canyon, Logan Canyon, VII-24-1938, W.P. Nye.

WASHINGTON. 1m, Mt. Rainier, Paradise Park, VIII-1917, A.L. Melander. 1m, Olympic N.P., Deer Park, 5400', VII-17-1948, CPA.

WYOMING. 1m, Grand Tetons, Leigh Lake, 7000', VII-12-1941, CPA. Additional specimens. 7 males from the following localities:

NEW HAMPSHIRE. 1m, White Mts., VIII-26-1935, CPA. 1m, White Mts., Ammonoosuc Ravine, 2700', IX-5-1940, J.F. Hanson. 2m, White Mts., King's Ravine Trail, 2950', X-12-1940, J.F. Hanson.

UTAH. 1m, Hooper, IX-1-1937, D.E. Hardy. 1m, Logan, X-28-1933, T.O. Thatcher. 1m, Logan Canyon, VII-25-1935, G.F. Knowlton, F.C. Smith, F.C. Harmston.

Remarks. The male terminalia are similar to those of a specimen from Sannox, Arran, Britain, determined as *F. vittipes* (Zett.) by F.W. Edwards. However, in *F. sertata* the notch between the posterior and dorsal lobes of the dorsal stylomere as seen in lateral view is nearly uniformly concave, while in the British specimen this notch is shallower and less regular. This character may not be constant and the British specimen and *F. sertata* may be conspecific. However, the present author chooses not to call the Nearctic specimens *F. vittipes* since the character mentioned (or others) may prove to be a constant difference and since Edwards' identification of the specimen from Arran may be incorrect. The only known existing syntype of *F. vittipes* is a female, and the name may well apply to some species other than the one from Arran. At least two species have been confused under this name by recent European authors, as the writer has two males determined as *F. vittipes* by Landrock which are not conspecific with the British specimen. See remarks under *F. impellans* (Joh.) and *F. propinqua* (Walk.).

*Fungivora impellans* (Johannsen) (Figs. 112, 113)

- 1912 *Mycothera impellans* Johannsen, pp. 81, 83-84; figs. 67 (male term), 192 (wing). (in part, not Pa. and N.J. specimens).  
 1912 *Mycetophila edentula* Johannsen, pp. 88, 105; figs. 93 (male term.), 211 (wing). (in part, male). New synonymy.  
 1920 *Mycetophila edentula*, Sherman, p. 15. (in part, Rogers Pass record).  
 1928 *Mycetophila edentula*, Leonard, p. 746.  
 1928 *Mycothera impellans*, Leonard, p. 746.  
 1928 *Mycetophila pectoralis* Van Duzee, p. 62. New synonymy.  
 1946 *Mycetophila edentula*, Strickland, p. 161.  
 1952 *Fungivora edentula*, Shaw and Fisher, pp. 207, 208.  
 1952 *Fungivora impellans*, Shaw and Fisher, pp. 207, 208.

Male. Wing length: 2.42-3.27 mm. Proepisternum with 3 bristles, mesepimeron with 3-5. Anepisternal ratio 0.98-1.22. Mid tibia with 4-5 d, 0 a-d, 2-3 a, 1-3 v, 2-4 p. Hind tibia with 5-6 d, 0 a-d, 5-6 a, 1-4 p. R with 3-9 setulae below, R<sub>1</sub> with 20-25 below, M before r-m with 7-13 below. Ratio of r-m: M petiole 0.94-1.54.

Types.

*F. impellans* (Joh.). Holotype, male at Cornell University, No. 2057. Type locality: Ithaca, New York (VIII).

*F. edentula* (Joh.). Holotype, male at Cornell University, No. 2075. Type locality: Selkirk Mts., Roger's Pass, British Columbia (VII-31-1908, J.C. Bradley).

*F. pectoralis* (V.D.). Holotype, male in California Academy of Sciences, No. 2531. Type locality: Santa Cruz, California (VI-1-1919, E.P. Van Duzee).

Material examined. 71 males from the following localities:

ALASKA. Katmai; Matanuska.

ALBERTA. Jasper; Jasper, Beaver Lake; Jasper N.P., Miette Hot Springs, 4400'.

BRITISH COLUMBIA. Selkirk Mts., Roger's Pass (holotype of *F. edentula*); Cultus Lake.

NORTHWEST TERRITORIES. Reindeer Depot, Mackenzie Delta.

NOVA SCOTIA. Frizzleton.

ONTARIO. Ottawa; Port Hope.

QUEBEC. Wakefield.

CALIFORNIA. Big Basin, Santa Cruz Co.; Bonny Doon; Dodge Ridge, near Pinecrest, Tuolumne Co.; Redwood Canon, Marin Co.; Santa Cruz (paratype of *F. pectoralis*); Saratoga.

IOWA. Ames.

MAINE. S. Poland.

MASSACHUSETTS. Amherst; Mt. Toby.

MINNESOTA. Lake Itasca.

MONTANA. Glacier N.P.: Avalanche Lake, 3900'; Many Glaciers.

NEW HAMPSHIRE. White Mts.: Ammonoosuc Ravine, 2700' and 3000'; Dolly Copp Camp, 1400'; Galehead Trail, 2000'; Huntington Ravine, 3400'; King's Ravine Trail, 2000'.

NEW YORK. Ithaca (holotype and paratype of *F. impellans*).

NORTH CAROLINA. Mitchell Range, Game Refuge, 3200'.

OREGON. Beaver Sulphur Camp, Rogue River N.F.; Blue Mts., Langdon Lake, 4970'; Elk Lake, 4900'; Goble; Mt. Hood, Bear Springs; Mt. Hood, No. Fork of Iron Creek, 4400'; Mt. Hood, Tilly Jane Creek, 5600'; Odell Lake, 5100'.

UTAH. Logan Canyon.

WASHINGTON. Longmire's Springs, Mt. Rainier (paratype of *F. impellans*); Mt. Rainier N.P.; Glacier.

WYOMING. Grand Tetons, Leigh Lake, 7000'; Yellowstone N.P., Thumb.

Additional previous records. Records of "*Mycetophila edentula*", "*Mycothera impellans*" and "*Mycetophila impellans*" not listed above have been considered unreliable by the present author and are listed here only as *Fungivora* sp. Procter (1946) recorded "*M. edentula*" from

Maine, but the report was based on a specimen of *F. ocellus* (Walker).

Remarks. See remarks under *F. propinqua* (Walk.). The concept of the present author of *F. impellans* may actually include several closely related forms, as there is some variation in the male terminalia, especially in the number of setae on the dorsal stylomere and in the shape of this part. However, the writer has not been able to find constant differences between any such forms, if such differences exist. The terminalia of the holotypes of *F. impellans* and *F. edentula* are almost identical, including the shape of the dorsal stylomere. The dorsal lobe of the dorsal stylomere of *F. pectoralis* is distinctly broader near the apex than toward the base, and this may be an indication of a possible difference. But other specimens seem to show intermediate conditions in this respect, so that for the present it is thought best to consider *F. pectoralis* as a synonym of *F. impellans*. No specimens have been observed to lack the mid ocellus, including the types mentioned.

This species or a close relative also occurs in Europe, as the writer has seen two males from Moravia which might be considered to fall within the range of variation of *F. impellans*. These specimens were determined as *F. vittipes* (Zett.) by Landrock, but the status of that species is in doubt (see discussion under *F. sertata*). Another close relative is *F. gibbula* (Edw.). A specimen from Crowborough, Sussex (probably the one mentioned in the original description) differs from *F. impellans* in that the ventral side of the ventral stylomere bears three prominent setae distinctly anterior to those of the main posterior row.

#### Species of Group D

##### *Fungivora itascae*, new species (Figs. 16, 114, 115)

Length of male wing: 2.94 mm. Female wing: 3.46-3.87 mm. Mesoscutum shining, mostly yellow, with 3 more or less fused brown vittae, sometimes brownish above wing base, middle vitta sometimes abbreviated anteriorly; scutellum yellow, sometimes brownish basally; legs mostly yellow, hind femur with narrow apical dark brown ring; abdominal tergites I-VI mostly brown, II-VI with apical and lateral yellow margins, II-III sometimes yellow basally and in median line. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 0.81-0.93. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 3-4 a-d, 3 a, 3-4 v, 2-3 p; first two rows of anterior setulae mostly dark brown, each with 2-7 yellow setulae apically. Hind coxa with minute posterior setulae. Hind tibia with 5-6 strong d (with 2-5 shorter erect bristles interspersed with longer ones), 4-5 a-d, 6-8 a, 0-1 p. Setulae of hind tibia: dorsal setulae mostly yellow to dingy yellow, without a complete definite row, a few brown to dark brown ones near base and near apex; anterior setulae mostly dark brown, up to 5 yellow ones apically in each row; ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C somewhat before tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back almost to

$M_{1+2}$ . R with 9-15 setulae below,  $R_1$  with 20-25 below, M before r-m with 10-14 below. Ratio of r-m: M petiole 1.1-1.6. Abdominal sternites without a pair of median bristles much longer than the others. Male terminalia (Figs. 114, 115): a nearly square, shallow crotch present; ventral stylomere irregular and with only a few setae. Female cercus (Fig. 16) 1-segmented.

Holotype. Male, Lake Itasca, Clearwater County, Minnesota, IX-2-1950, Jean Laffoon (U. S. National Museum No. 62454).

Allotype. Female, same collection data and depository.

Paratype. 1 female, same collection data.

##### *Fungivora cingulum* (Meigen) (Figs. 116, 117)

- 1830 *Mycetophila cingulum* Meigen, pp.297, 299.  
 1831 *Mycetophila cingulum*, Stannius, pp.11-12.  
 1834 *Mycetophila lunulata* Macquart, p.129.  
 1840 *Leia bifasciata* von Roser, p.51. (in part, including lectotype).  
 1856 *Mycetophila cingulum*?, Walker, p.13; pl.21, figs.2 (entire female), 2a (head).  
 1892 *Mycetophila cingulum*, Theobald, p.116, fig.23 (entire female).  
 1909a *Mycetophila cingulum*, Johannsen, p.118.  
 1911 *Mycetophila cingulum*, Lundström, p.416; pl.15, figs.11-12 (male term.).  
 1915 *Mycetophila cingulum*, Dziedzicki, pl.21, figs.328-331 (male term.).  
 1917 *Mycetophila cingulum*, Landrock, pp.38-39.  
 1924a *Mycetophila cingulum*, Edwards, p.14.  
 1925a *Mycetophila cingulum*, Edwards, pp.635, 636, 642.  
 1927 *Fungivora cingulum*, Landrock, pp.159, 163; pl.12, fig.40 (male term.).  
 1937 *Mycetophila cingulum*, Madwar, pp.87, 89; 88, figs.327-333 (larval parts).

Length of male wing: 3.79-4.54 mm. Female wing: 3.62-4.83 mm. Mesoscutum shining, yellow with 3 more or less fused brown vittae, latter sometimes very faint; scutellum all yellow or with 2 brown basal spots; legs mostly yellow, hind femur with a brownish to dark brown narrow apical band, hind tibia with brown apex; abdominal tergites I-VI patterned with yellow and brown, often almost entirely yellow. Proepisternum with 3-4 bristles, mesepimeron with 3-5. Anepisternal ratio 0.95-1.07. Segments 2, 3 and 4 of fore tarsus distinctly broader than 1 in both sexes. Claws of all legs in both sexes with 4 teeth. Mid tibia with 5-9 d, 1-3 a-d, 3-5 a, 1-2 v, 2-4 p; first two rows of anterior setulae rather irregular, first row mostly light brown to brown, next row light brown, sometimes with brown setulae basally and apically. Hind coxa with minute posterior setulae. Hind tibia with 7-8 strong d (with 0-1, usually 0, shorter erect bristles between larger ones), 5-6 a-d, 7-11 a, 7-15 p. Setulae of hind tibia: no distinct dorsal row, all dorsal setulae dingy yellow or yellow; anterior setulae dingy yellow or

yellow; ventral setulae dingy yellow, those near apex somewhat darker, sometimes brown. Wing with a distinct central spot; preapical spot starting at C past tip of  $R_1$ , extending to just past  $M_3$ , branches of Cu sometimes clouded. R with 19-24 setulae below,  $R_1$  with 24-34 below, M before r-m with 0-1 below. Ratio of r-m: M petiole 1.1-1.6. Apical bristles of abdominal tergites not much longer than the others. Male terminalia (Figs. 116, 117): ventral stylomere with a row of about 8 strong setae along median margin; dorsal stylomere deeply bifid. Female cercus 2-segmented.

#### Types.

*F. cingulum* (Meig.). Probable syntype, male in Paris Museum. Type locality: not specified, Europe (received by Meigen from Wintem, thus was probably from Germany).

*F. lunulata* (Macq.). No information on present location of types. Type locality: Northern France.

*F. bifasciata* (von Roser). Lectotype, male (by action of Landrock, 1917) in collection of Verein für vaterländische Naturkunde in Württemberg (as of 1917).

Material examined. 3 males, 1 female from the following localities: ALASKA. Matanuska: 1f, V-21-1944, and 1m, VI-4-1944, rotary trap, J.C. Chamberlin.

NEW HAMPSHIRE. 2m, Dolly Copp Camp, White Mts., 1400', IX-4-1940, J.F. Hanson.

European material examined. 28 specimens from the environs of Prague, Czechoslovakia, J. Winkler.

Additional previous records. Known from several places in Europe.

#### *Fungivora sigmoides* (Loew) (Figs. 118, 119)

- 1869 *Mycetophila sigmoides* Loew, pp.156-157. (reprint, 2:194-195).  
 1890 *Mycetophila sigmoides*, Smith, p.362.  
 1900 *Mycetophila sigmoides*, Smith, p.624.  
 1910 *Mycetophila sigmoides*, Smith, p.724.  
 1912 *Mycetophila fastosa* Johannsen, pp.85, 91-92; figs.71 (male term.) 196 (wing). New synonymy.  
 1912 *Mycetophila sigmoides*, Johannsen, pp.86, 102-103.  
 1915 *Mycetophila fastosa*, Weiss, p.106.  
 1925a *Mycetophila fastosa*, Johnson, p.87.  
 1925a *Mycetophila sigmoides*, Johnson, p.87. (in part, Hampton, N.H.).  
 1926 *Mycetophila fastosa*, Hallock and Parker, p.4.  
 1927 *Mycetophila fastosa*, Johnson, p.176.  
 1928b *Mycetophila fastosa*, Edwards, pp.1-2.  
 1928 *Mycetophila fastosa*, Leonard, p.746.  
 1938 *Mycetophila fastosa*, Procter, p.311.  
 1940 *Mycetophila fastosa*, Jaques and Berger, p.421.  
 1946 *Mycetophila fastosa*, Procter, p.361.  
 1952 *Fungivora fastosa*, Shaw and Fisher, pp.207, 208.  
 1952 *Fungivora sigmoides*, Shaw and Fisher, pp.206, 208.

Length of male wing: 3.48-4.71 mm. Female wing: 3.02-4.31 mm. Mesoscutum shining, usually yellow with 3 more or less fused dark brown lines, sometimes dark laterally also; scutellum yellow with a pair of dark brown basal spots; legs mostly yellow, hind femur with a broad dark brown band apically, hind tibia brown apically, all femora with a brown spot on ventral side before middle; abdominal tergites I-VI sometimes dark brown except for posterior yellow margins on II-VI, often yellow more extensive laterally, II-III often, IV-V sometimes with median yellow band. Proepisternum with 3-5 bristles, mesepimeron with 3-5. Anepisternal ratio 0.91-1.04. Segments of fore tarsus subequal in thickness to both sexes. Mid tibia with 5-6 d, 1-2 (usually 1) a-d, 2-3 (nearly always 3) a, 2-4 v, 1-3 p; first two rows of anterior setulae sometimes dark brown, a partial row between them apically, second row frequently with some yellow setulae on basal two-thirds of the tibia. Hind coxa with minute posterior setae. Hind tibia with 5-7 d (without shorter erect bristles between them), 3-5 a-d, 5-7 a, 4-10 p. Setulae of hind tibia: dorsal setulae black, row broadly interrupted near each anterodorsal bristle; anterior setulae all yellow or with only a few dark ones near apex; ventral setulae yellow to dingy yellow except for a few darker ones near apex; posterior setulae yellow. Wing with a central spot; preapical spot more or less S-shaped, starting at C just beyond tip of  $R_1$ , filling tip of cell  $R_1$ , proximal part extending back at least to just beyond  $M_{1+2}$ , usually to  $M_3$ ,  $Cu_1$  and often  $Cu_2$  with a spot, latter two spots often united and always more proximal on wing than the end of the preapical spot. R with 12-23 setulae below,  $R_1$  with 24-36 below, M before r-m with 0-2 below. Ratio of r-m: M petiole 1.1-2.5. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 118, 119): ventral stylomere subovoid in ventral view, with a row of about 7 stout short setae on dorsal side; dorsal stylomere with dorsal lobe deeply bifid. Female cercus 2-segmented.

#### Types.

*F. sigmoides* (Loew). Holotype, male in Museum of Comparative Zoölogy at Harvard College, No. 1187. Type locality: "Middle States" (according to Loew, 1869) (holotype bears no locality label).

*F. fastosa* (Joh.). Holotype, male at Cornell University, No. 2060. Type locality: Ithaca, New York.

Material examined. 76 specimens from the following localities: "Middle States". (holotype of *F. sigmoides*)

ALBERTA. Edmonton.

BRITISH COLUMBIA. Oliver.

ONTARIO. Low Bush, Lake Abitibi; Ottawa; Simcoe; Waubarnic, Parry Sound.

QUEBEC. Abbotsford; Aylmer; LaTrappe.

CONNECTICUT. Storrs.

DELAWARE. "Del".

DISTRICT OF COLUMBIA. Washington.

GEORGIA. Atlanta.

ILLINOIS. Algonquin; Hopedale; Muncie; Urbana.

IOWA. Ames; Ledges S.P., Boone Co.

MAINE. Princeton; Round Mt.

- MARYLAND. Baltimore; Plummers Island.  
 MASSACHUSETTS. Amherst; Beverly; Mt. Greylock; Tyngsboro; Winchendon.  
 MINNESOTA. Isle; Lake Itasca; Meriden.  
 MISSOURI. Ozark Mts., Roaring River S.P.  
 NEBRASKA. Extreme northwest corner of Brown Co.  
 NEW JERSEY. Delaware Water Gap; Riverton. (paratypes of *F. fastosa* from both localities; recorded from both localities as *M. sigmoides* by Smith, 1900).  
 NEW YORK. Albany; Ithaca (including holotype of *F. fastosa*); McLean Reserve, Hemlock Ridge; Otsego Lake; Pratt's Falls, Apulla; Sport Island, Sacandaga River; Trenton Falls.  
 OHIO. Geesville.  
 PENNSYLVANIA. Glenside; Pittsburgh.  
 VIRGINIA. Falls Church, 1-23-1947, "on fresh snow in woods", J. W. Gurney.  
 WASHINGTON. Everett, Lake Stephens.  
 WISCONSIN. T39N, R12W, B32, Washburn Co.

Additional previous records. Reported as *M. fastosa* from Kamchatka (Edwards, 1928); several localities in Connecticut, Maine, Massachusetts, New Hampshire and Vermont (Johnson, 1925); Mt. Desert Island, Maine (Johnson, 1927); and Iowa (Jaques and Berger, 1940). Slosson (1898) reported *F. sigmoides* from Mt. Washington, but the record was based on a specimen of *Leia winthermi* (Lehman). The "White Mts." locality records of Aldrich (1905) and Johnson (1925) were probably based on her report.

Remarks. The male terminalia are similar to those of *F. cingulum* (Meig.) but differ in details, especially in the shape of the dorsal portion of the dorsal stylomere.

*Fungivora seclusa*, new species (Figs. 132, 133)

Length of male wing: 2.94 mm. Female wing: 3.15 mm. Mesoscutum shining, mostly dark brown, large humeral area and posterolateral area yellow; legs mostly yellow, hind femur with a broad dark brown apical band, hind tibia brownish apically, scutellum mostly dark brown, apical margin yellow; abdominal tergites I-VI mostly brown, II-VI with yellow posterior and lateral margins. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 0.87-0.88. Segments 2, 3 and 4 of female fore tarsus much broader than 1 (fore tarsi lost in only male specimen). Mid tibia with 5 d, 1 a-d, 3 a, 3 v, 2 p; first two rows of anterior setulae mostly dark brown, each with about 2-4 yellowish ones apically, second with a few other yellow ones interspersed with dark brown setulae. Hind coxa with posterior setae short, never as long as longest posterior preapical. Hind tibia with 5-7 strong d (without shorter erect bristles between them), 4-5 a-d, 6-7 a, 0-1 p. Setulae of hind tibia: dorsal setulae mostly yellow, a few dark brown ones at base and apex, setulae not in a definite row; anterior setulae yellow except for about 4 dark brown ones apically in most ventral row; ventral setulae yellow to dingy yellow except for about 8-10 dark brown ones apically;

posterior setulae yellow. Wing with a distinct central spot; preapical spot starting at C just beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back at least to  $M_{1+2}$ , sometimes to middle of cell  $M_3$ . R with 13-15 setulae below,  $R_1$  with 21-25 below, M before r-m with 0 above and below. Ratio of r-m: M petiole 1.2-1.5. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 132, 133): gonocoxopodites with but few setae; crotch distinct, although very shallow dorsally; ventral stylomere deeply bifid, lateral lobe with a strong apical seta. Female cercus 2-segmented.

Holotype. Male, La Wis Wis, 1300', Columbia National Forest, Washington, VIII-2-1947, C.P. Alexander (U.S. National Museum No. 62460). (The type locality is in Lewis Co., about 5 miles south of Mt. Rainier National Park).

Allotype. Female, Rocky Mountain National Park, 8600', Colorado, VI-15-1948, C.P. Alexander. (Laffoon collection).

Remarks. The terminalia greatly resemble those of *F. morosa* (Winn.) as figured by Lundström (1911), and it is possible that *F. seclusa* is a synonym of that species. However, the writer has seen no European specimens of *F. morosa* and the Washington specimen shows some minor differences from Lundström's figures. Both the dorsal and ventral stylomeres of *F. seclusa* bear a few fine setae not shown by Lundström, the distribution of the setae of the gonocoxopodites of *F. seclusa* does not agree with Lundström's figure, and the shape of the crotch of *F. morosa* as shown by Lundström differs from that of *F. seclusa*.

*Fungivora attonsa*, new species (Figs. 135, 137)

1912 *Mycetophila* sp. 8, Johannsen, p. 92. (in part, Wash.).

Length of male wing: 3.81 mm. Female wing: 3.60-4.19 mm. Mesoscutum pruinose, dark brown with narrow anterior border and posterior margin yellow, yellow sometimes more extensive along sides; scutellum mostly yellow, brownish basally; legs mostly yellow, hind femur with a broad dark apical ring, hind tibia brown apically; abdominal tergites I-VI mostly brown, II-VI with yellow hind borders, proepisternum with 3-4 bristles, mesepimeron with 3-4. Anepisternal ratio 0.71-0.78. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5 d, 1-2 a-d, 3 a, 3 v, 2-3 p; first two rows of anterior setulae usually mostly brown, with a partial row between them apically, second row sometimes mostly yellow. Hind coxa with short posterior setae, longest never as long as the longest posterior preapical. Hind tibia with 6 strong d (without shorter erect bristles between them), 3 a-d, 6-7 a, 1-2 p. Setulae of hind tibia: anterior setulae yellow except about 7-11 dark brown ones apically in most ventral row, other rows sometimes with a few brown ones apically; ventral setulae yellow except for a few brown ones apically; posterior setulae yellow. Wing with a distinct central spot; preapical spot starting at C beyond  $R_1$  tip, filling tip of cell  $R_1$ , proximal part extending back almost to  $M_{1+2}$ , or sometimes as far as  $M_3$ . R with 13-24 setulae below,  $R_1$  with 20-32 below, M before r-m with 4-9

below. Ratio of r-m: M petiole 1.3-2.1. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 136, 137: gonocoxopodites with unusually short setae; crotch distinct, its ventral border closer to the anterior than to the posterior end of the gonocoxopodite; ventral stylomere with a prominent posteromedial seta. Female cercus 2-segmented.

Holotype. Male, Moscow Mt. (Idaho), VIII-28-1916, A.L. Melander (Academy of Natural Sciences of Philadelphia No. 6697).

Allotype. Female, Moscow Mt. (Idaho), VIII-28-1916, A.L. Melander (Personal collection of A.L. Melander)

Paratypes. 3 females from the following localities:

IDAHO. 1f, Lake Waha, VI-9-1928, A.L. Melander.

WASHINGTON. 2f, Mt. Constitution, Orcas Island, VII-7-1905 (reported as sp. 8 by Johannsen, 1912).

Fungivora sierrae, new species (Figs. 138, 139)

Length of male wing: 3.29-3.71 mm. Female wing: 3.06 mm. Mesoscutum shining, dark brown, very narrow anterior border and posterolateral corners yellowish; scutellum mostly dark brown, apex yellow; legs yellow, hind femur with a broad apical dark brown band, hind tibia sometimes brownish apically; abdominal tergites I-VI mostly dark brown, II-VI with yellow posterior margins, sometimes with yellow anterior and lateral margins, II and III often with yellow median line. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 0.75-0.81. Segments 2 and 3 of fore tarsus distinctly, 4 slightly, broader than segment 1 in both sexes. Mid tibia with 5-6 d, 1-2 a-d, 3 a, 3-4 v, 1-2 p; first two rows of anterior setulae dark brown basally, an extra row between them on about apical half of tibia, setulae of extra row yellow on at least apical fifth of tibia, second complete row with 2-5 yellow setulae apically. Hind coxa with posterior setae short, never as long as the longest posterior preapical. Hind tibia with 5-7 strong d (without shorter erect bristles between them), 2-3 a-d, 5-6 a, 1 p. Setulae of hind tibia: anterior setulae yellow except about 5-8 dark brown setulae apically in most ventral row; ventral setulae yellow except about 7-13 dark brown setulae apically, posterior setulae yellow. Wing with a distinct central spot; preapical spot starting at C beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending at least to middle of cell  $R_5$ , sometimes to cell  $M_3$ . R with 16-22 setulae below,  $R_1$  with 18-29 below, M before r-m with 0-1 below. Ratio of r-m: M petiole 1.2-1.7. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 138, 139): gonocoxopodites with unusually short and sparse setae; crotch distinct, with acute anterior apex; ventral stylomere with a broad posterolateral lobe as seen in ventral view. Female cercus 2-segmented.

Holotype. Male, Pinecrest, Tuolumne County, California, VII-13-1948, P.H. Arnaud, Jr. (U. S. National Museum No. 62464).

Allotype. Female, 3 miles south of Camino, Eldorado County, California, VI-26-1948, L. W. Quate (University of California).

Paratypes. 4 males from the following localities:

CALIFORNIA. 1m, same data as allotype. 1m, Hatchet Pass, 4200', VIII-12-1948, CPA. 1m, Oakhurst, Madera Co., VII-4-1951, H.L. Hansen. 1m, Yosemite, VI-14-1935, A.L. Melander.

Remarks. Terminalia very similar to those of *F. concinna* n.sp. and *F. percursa* n.sp., but the posterolateral lobe of the ventral stylomere is much broader and the posterior margin of the ventral stylomere less emarginate than in either of these species.

Fungivora concinna, new species (Figs. 140, 141)

Length of male wing: 2.62-3.12 mm. Female wing: 2.92-3.31 mm. Mesoscutum shining, dark brown, very narrow anterior border and posterolateral corners yellow; scutellum dark brown; legs mostly yellow, hind femur with very broad dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI (and VII in female) with apical yellow margins, sometimes yellow laterally. Proepisternum with 3-4 bristles, mesepimeron with 2-4. Anepisternal ratio 0.77-0.95. Segments of 2 and 3 of male fore tarsus slightly thicker than 1; 2, 3 and 4 of female distinctly broader than 1. Mid tibia with 5 d, 1-2 a-d, 3-4 a, 2-3 v, 1-2 p; first two rows of anterior setulae mostly dark brown, always some yellow setulae at ends of rows, yellow setulae sometimes starting at just beyond middle of tibia, sometimes an extra row of setulae between the regular two on the apical half of the tibia. Hind coxa with posterior setae short, always much shorter than longest posterior preapical. Hind tibia with 5-7 strong d (without shorter erect bristles interspersed with them), 3-4 a-d, 5-8 a, 1-2 p. Setulae of hind tibia: anterior setulae yellow except for 5-9 dark brown ones apically in most ventral row; ventral setulae yellow except a few dark ones near apex of tibia; posterior setulae yellow. Wing with a distinct central spot; preapical spot starting at C beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part usually ending behind in cell  $R_5$ , sometimes entering cell  $M_2$ . R with 13-20 setulae below, R with 16-22 below, M before r-m with 0-1 (usually 0) below. Ratio of r-m: M petiole 1.0-2.1. Abdominal sternites without a pair of median apical bristles much longer than the others. Male terminalia (Figs. 140, 141): gonocoxopodites with unusually short, sparse setae; crotch distinct, with acute anterior apex; ventral stylomere with a fingerlike posterolateral lobe as seen in ventral view; dorsal stylomere with a setose posterodorsal lobe. Female cercus 2-segmented.

Holotype. Male, Ames, Iowa, IV-25-1947, Jean Laffoon (U. S. National Museum No. 62443).

Allotype. Female, Ledges State Park, Boone County, Iowa, VII-29-1950, Jean Laffoon (U.S. National Museum).

Paratypes. 5 males, 5 females from the following localities: SASKATCHEWAN. 1m, Christopher Lake, VIII-10-1948, A.R. Brooks. DISTRICT OF COLUMBIA. 1m, 2f, Washington. INDIANA. 1m, Cedar Lake, VII-17-1914. IOWA. 1m, Dolliver Memorial S.P., Webster Co., VI-30-1950, J.L. 1f, Lacey-Keosauqua S.P., Van Buren Co., IX-9-1949, J.A. Slater and J.L.



MICHIGAN. 1m, Douglas Lake, VII-7-1949, Wayne Porter.  
 MISSOURI. 1f, Shrewsbury, VI-4-1940, W.L. Downes.  
 NEW YORK. 1f, Ithaca, VII-13-1894.

Remarks. The male terminalia are quite similar to those of *F. sier-rae* n.sp. and *F. percursa* n.sp., but differ especially in the shape of the ventral stylomere, as figured.

*Fungivora perita* (Johannsen) (Figs. 134, 135)

- 1912 *Mycetophila perita* Johannsen, pp. 84, 90; figs. 70 (male term.), 195 (wing).  
 1921 *Mycetophila perita*, Cole and Lovett, p. 222.  
 1928 *Mycetophila perita*, Leonard, p. 746.  
 1936 *Mycetophila perita*, Shaw and Townes, p. 207.  
 1940 *Mycetophila perita*, Jaques and Berger, p. 421.  
 1952 *Fungivora perita*, Shaw and Fisher, p. 208.

Length of male wing: 2.56-3.50 mm. Female wing: 2.37-3.83 mm. Mesoscutum pruinose, yellow with 3 more or less fused dark brown stripes, sometimes dark brown except for yellow humeral area and posterolateral corner; scutellum brown; legs mostly yellow, hind femur with brown apical band; abdominal tergites I-VI entirely brown, or often some segments with yellow lateral margins, sometimes with yellow posterior margins. Proepisternum with 3-4 bristles, mesepimeron with 2-4. Anepisternal ratio 0.87-1.08. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 3-6 d, 1-2 (usually 1) a-d, 2-3 a, 2-3 v, 1-2 p; first 2 rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 4-6 d (without shorter erect bristles interspersed with them), 2-4 a-d, 6-7 a, 1-3 p. Setulae of hind tibia: anterior setulae dark brown except about 2-3 dingy yellow setulae apically in the first 2 rows; ventral setulae dark brown. Wing with a distinct central spot, preapical spot absent. R with 7-15 setulae below, R<sub>1</sub> with 24-40 below, M before r-m with 2-9 below. Ratio of r-m: M petiole 0.7-1.5. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 134, 135): ventral stylomere with 2 characteristic lobes extending mediad; cerci (not illustrated) unusually long. Female cercus 2-segmented.

Type.

*F. perita* (Joh.). Holotype, male at Cornell University, No. 2059. Type locality: Ithaca, New York (VII-9-1904).

Material examined. 175 specimens from the following localities:

- BRITISH COLUMBIA. Robson.  
 ONTARIO. Simco.  
 ARKANSAS. Hot Springs; Marble Falls.  
 CALIFORNIA. Ash Creek, Mendocino Co.; Berkeley; Berkeley Hills, Alameda Co.; Davis; Mill Valley, Marin Co.; San Rafael, Marin Co.; Ventura; Waddell Creek, Santa Cruz Co.; Wild Cat Canyon, San Pablo, Contra Costa Co. (paratype of *F. perita*); Wood Lake, Tulare Co.

- GEORGIA. Atlanta; College Park; Emory Univ. Field Station.  
 ILLINOIS. Algonquin; Carbondale; Freeport; Grand Tower; Havana; Meredosia; Mississippi River near Foster; Oregon; Urbana; White Heath.  
 INDIANA. Lafayette; Pine Creek.  
 IOWA. Ackley; Ames; Backbone S.P., Delaware Co.; Boone; DeWitt; Henry Co. (reported as *M. perita* from Iowa by Jaques and Berger, 1940); 3 miles southeast of Holly Springs, Woodbury Co.; Ledges S.P., Boone Co.; Madrid; Mt. Pleasant; White Pine Hollow, Dubuque Co.  
 KANSAS. Douglas Co.  
 MARYLAND. Chesapeake Biol. Lab., Solomon Island; Plummers Island.  
 MISSISSIPPI. 9 miles north of Biloxi.  
 MISSOURI. Summersville.  
 NEW YORK. Ithaca (holotype of *F. perita*).  
 NORTH CAROLINA. Near Mt. Mitchell, 3500'.  
 OKLAHOMA. Grove; Muse.  
 OREGON. Benson Park; Forest Grove (reported as *M. perita* by Cole and Lovett, 1921); Goble; Myrtle Grove S.P.  
 PENNSYLVANIA. Hazleton; Ohio Pyle; Pittsburgh.  
 SOUTH CAROLINA. Clemson.  
 TENNESSEE. Clarksville.  
 TEXAS. College Station; Laguna Madre, 25 miles southeast of Harlingen; San Antonio.  
 Additional previous records. Reported as *M. perita* from Milwaukee, Wisconsin (paratype) and Greenville, 900', South Carolina (Shaw and Townes, 1936).

*Fungivora jucunda* (Johannsen) (Figs. 120, 121)

- 1912 *Mycetophila jucunda* Johannsen, pp. 84, 90; figs. 69 (male term.), 194 (wing).  
 1928 *Mycetophila jucunda*, Leonard, p. 746.  
 1952 *Fungivora jucunda*, Shaw and Fisher, pp. 206, 208.

Length of male wing: 2.40-2.71 mm. Female wing: 2.49-2.67 mm. Mesoscutum shining, dark brown except for very narrow yellow anterior border and posterolateral corners, scutellum dark brown; abdominal tergites I-VI brown to dark brown. Proepisternum with 3-4 bristles, mesepimeron with 3-5. Anepisternal ratio 0.88-1.10. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 much broader than segment 1 in female. Mid tibia with 4-5 d, 1-2 a-d, 2-3 a, 2-4 v, 1-2 p; first two rows of anterior setulae dark brown, usually fused into only one row basad. Hind coxae with minute posterior setae. Hind tibia with 5-6 d (with 0-1, usually 0, shorter erect bristles interspersed with the longer ones), 3-4 a-d, 5-7 a, 0 p. Anterior setulae dark brown, at least beyond middle of tibia except for about 2-3 yellow to dingy yellow ones apically in most of the rows, anterior setulae on basal half of tibia dingy yellow to brown or dark brown; ventral setulae dark brown; poste-

rior setulae yellow. Wing without spots. R with 7-10 setulae below, R<sub>1</sub> with 18-24 below, M before r-m with 0-1 below. Ratio of r-m: M petiole 0.9-1.2. Abdominal sternites II and III each with a pair of median apical bristles distinctly longer than the others. Male terminalia (Figs. 120, 121): ventral stylomere with 2 strong setae arising medially and directed posteriorly; broad deep crotch present. Female cercus 2-segmented.

Type.

F. jucunda (Joh.). Holotype, male at Cornell University, No. 2058.

Type locality: Ithaca, New York (VIII-29-1901).

Material examined. 5 males, 4 females from the following localities: QUEBEC. 3m, 1f, Perkins Mills, VIII-25-1949, G.E. Shewell. MINNESOTA. 1m, Lake Itasca, IX-2-1950, J.L. NEW YORK. 1m, Ithaca, VIII-29-1901 (holotype of F. jucunda). WISCONSIN. 3f, T39N, R12W, B32, Washburn Co., R.H. Jones, 1f on each of the following dates: VI-28-1953, VIII-28-1953, VIII-29-1952.

Remarks. This species may be identical with F. immaculata (Dzied.) as it agrees fairly closely with Dziedzicki's original description and figures. However, if his figures are correct, there are minor points of difference in the male terminalia. Dziedzicki indicates most of the ventral portion of the dorsal stylomere to be bare in F. immaculata, while in F. jucunda there are about a dozen short setae on the central part of the ventral portion of this stylomere. There are other possible differences, so that for the present the two species are left separate.

Fungivora exstincta (Loew) (Figs. 130, 131)

- 1869 Mycetophila exstincta Loew, p.152 (reprint, p.190).  
 1878 Mycetophila exstincta (sic!), Osten Sacken, p.12.  
 1905 Mycetophila exstincta (sic!), Aldrich, p.146.  
 1912 Mycetophila exstincta, Johannsen, pp.84, 89-90; figs.68 (male term.), 193 (wing).  
 1925a Mycetophila exstincta, Johnson, p.86.  
 1952 Fungivora exstincta, Shaw and Fisher, p.208.

Length of male wing: 2.27-2.92 mm. Female wing: 2.33-3.04 mm. Mesoscutum pruinose, dark brown except for yellow humeral area and posterolateral corner; scutellum dark brown; legs mostly yellow, hind femur with broad brownish to dark brown apical band; abdominal tergites I-VI dark brown, apex of VI and all of VII yellow in female. Proepisternum with 3-4 bristles, mesepimeron with 2-3. Anepisternal ratio 0.88-1.00. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 1 a-d, 2 a, 3 v, 2-3 p; first two rows of anterior bristles dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 strong d (with 1-3 shorter erect bristles interspersed with longer ones); 3 a-d, 6-8 a, 1-3 p. Setulae of hind tibia: anterior setulae dark brown except for about 2 dingy yellow apical ones in each row; ventral setulae dark brown; posterior setulae dingy yellow. Wing with a central spot, sometimes only a trace present on M petiole; preapical spot absent

or rather faint, when present starting at C well beyond tip of R<sub>1</sub>, usually ending posteriorly in cell R<sub>5</sub>, rarely entering cell M<sub>1+2</sub>. R with 8-15 setulae below, R<sub>1</sub> with 21-30 below, M before r-m with 0-1 (usually 1) below. Ratio of r-m: M petiole 0.7-1.1. Abdominal sternites II and III each with a pair of median apical bristles distinctly longer than the others. Male terminalia (Figs. 130, 131): ventral stylomere with fine longitudinal striae on dorsal surface of main lobe; dorsal stylomere with a peculiar reticulate surface (? very short modified setae) on much of median surface of most ventral lobe; cerci unusually long. Female cercus 2-segmented.

Type.

F. exstincta (Loew). Holotype, female in Museum of Comparative Zoölogy at Harvard College. Type locality: "Middle States" (according to Loew). (Holotype bears no locality label).

Material examined. 107 specimens from the following localities: "Middle States". (holotype of F. exstincta).

ONTARIO. Orillia; Ottawa.

QUEBEC. LaTrappe; Norway Bay.

IOWA. Ames; Ledges S.P., Boone Co.

MAINE. Near Bethel; Round Mt.

MASSACHUSETTS. Amherst; Auburndale (recorded as M. exstincta by Johannsen, 1912); Cummington.

NEW HAMPSHIRE. White Mts.: Dolly Copp Camp, 1400'; King's Ravine Trail, several altitudes from 1800' to 2950'; Mt. Adams, King's Ravine, 3000'; Mt. Washington, 1500'; Mt. Washington, Base Station; Mt. Washington, Summit.

NEW YORK. Oneonta; Slide Mt., 1500'.

NORTH CAROLINA. Neel's Creek, Mt. Mitchell Game Refuge.

PENNSYLVANIA. Hazleton.

VERMONT. Long Trail near Grout Job, Stratton, 2500'.

WISCONSIN. T39N, R12W, B28 and B32, Washburn Co.

Additional previous records. Johannsen (1912) recorded M. exstincta from N. Adams, Massachusetts. Smith (1890) recorded it from New Jersey, but the record is probably an error, since the species was not included in Smith's later lists.

Remarks. This species is quite close to, or perhaps identical with, F. miki (Dzied.) on the basis of Dziedzicki's figures and description. The writer has seen no specimens of F. miki. A possible point of difference (judging from Dziedzicki's figures) is in the shape and size of a posterior dorsal lobe of the ventral stylomere. In F. exstincta this lobe is long, slender and curved, while Dziedzicki's figure seems to indicate that the narrow part of the lobe in F. miki is very short and hooklike.

Fungivora procera (Loew)

- 1869 Mycetophila procera Loew, pp.159-160. (reprint, pp.197-198).  
 1912 Mycetophila procera, Johannsen, pp.85, 91.  
 1928 Mycetophila procera, Leonard, p.746.  
 1952 Fungivora procera, Shaw and Fisher, pp.207-208.

Female. Wing length about 5.5 mm. Mesoscutum pruinose, yellow with 3 light brown vittae; scutellum dark brown basally and laterally, paler centrally, yellow apically; legs mostly yellow, hind femur with brown apical band; abdominal tergites I-VI mostly brown, II-VI with yellow apical and lateral borders, VII all yellow, II and III with broad yellow median line. Proepisternum with 4 bristles, mesepimeron with 8-9. Anepisternal ratio over 1.0. Segments of fore tarsus subequal in thickness. Mid tibia with 6 d, 2 a-d, 4 a, 3 v, 6 p; first two rows of anterior setulae dark brown. Hind coxa with short posterior setae. Hind tibia with 6-7 strong d (with shorter erect bristles interspersed with the longer ones), 3-4 a-d, 7-8 a, 5-6 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well beyond apex of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back to  $Cu_1$ , interrupted in cell  $M_2$ ; apices of branches of M and Cu clouded. R with 26-28 setulae below,  $R_1$  with 52-54 below, M before r-m with 4-5 below. Ratio of r-m: M petiole over 2.0. Apical bristles of abdominal sternites not much longer than the others. Cercus 2-segmented.

Type.

F. procera (Loew). Holotype, female in Museum of Comparative Zoölogy at Harvard College, No. 1183. Type locality: New York.

Material examined. Holotype.

Additional previous records. Smith (1890) reported F. procera from New Jersey, but omitted the species from his later New Jersey lists (1900, 1910). Therefore, this record is considered only as Fungivora sp.

Fungivora trinotata (Staeger) (Figs. 122, 123)

- 1840 Mycetophila trinotata Staeger, p. 242.  
 1869 Mycetophila quatuornotata Loew, pp. 157-158. (reprint pp. 195-196). New synonymy.  
 1884 Mycetophila russata Dziedzicki, pp. 307-308; pl. 6, figs. 5-7 (male term.).  
 1912 Mycetophila quatuornotata, Johannsen, pp. 85, 94-95.  
 1913a Mycetophila russata, Edwards, pp. 375, 378.  
 1916 Mycetophila Ujhelyii Lundström, pp. 76-77; pl. 2, figs. 16-17 (male term.).  
 1924b Mycetophila trinotata, Edwards, pp. 167, 168.  
 1925a Mycetophila trinotata, Edwards, pp. 635, 642, 656.  
 1928 Fungivora trinotata, Landrock, pp. 159, 178; pl. 13, figs. 44-45 (male term.).  
 1928 Mycetophila quatuornotata, Leonard, p. 746.  
 1940 Mycetophila quatuornotata, Jaques and Berger, p. 421.  
 1940 Mycetophila subquatuornotata Shaw, pp. 48-49, fig. 2 (male term.). New synonymy.  
 1952 Fungivora quatuornotata, Shaw and Fisher, p. 208.

Length of male wing: 2.77-3.77 mm. Female wing: 2.46-4.33 mm. Mesoscutum pruinose, usually yellow with 3 dark brown vittae, some-

times dark brown except for yellow humeral area and posterolateral corner; scutellum brown with median yellow line, broadest apically; legs mostly yellow, hind femur with a dark brown apical band, hind tibia with brown apical band; abdominal tergites I-VI mostly brown, tergites II-VI with apical yellow bands, yellow sometimes more extensive, tergites II-VI often yellow laterally, II-III often with a median yellow line. Proepisternum with 3-4 bristles, mesepimeron with 3-5. Anepisternal ratio 0.88-1.10. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 1 a-d, 2-3 (usually 3) a, 1-2 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 4-6 strong d (without shorter erect bristles interspersed with them), 1-2 (nearly always 1) a-d, 5-8 a, 3-7 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot; preapical spot starting at C either just before tip of  $R_1$  or beyond tip of  $R_1$ , filling tip of cell  $R_1$ , proximal part extending back at least to  $M_{1+2}$ ,  $M_2$  clouded. R with 11-19 setulae below,  $R_1$  with 20-40 below, M before r-m with 0-1 (usually 0) below. Ratio of r-m: M petiole 1.6-2.5. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 122, 123): posterior ventral border of fused gonocoxopodites convex medially; ventral stylomere with a row of 4-9 stout setae on dorsomedial aspect. Female cercus 2-segmented.

Types.

- F. trinotata (Staeg.). Holotype, male (not female) in University Museum Copenhagen. Type locality: Denmark.  
F. quatuornotata (Loew). Holotype, female in Museum of Comparative Zoölogy at Harvard University, No. 1186. Type locality: Maryland.  
F. russata (Dzied.). Present location of the three male syntypes unknown. Type locality: Zaczernie (or Satschernie), White Russia.  
F. ujhelyii (Lundst.). Male type or types in Hungarian Museum, Budapest. Type locality: Kovácspatak, Hungary (of 1916) (now Kovásna or Covasna, Romania).  
F. subquatuornotata (Shaw). Holotype, male in F.R. Shaw collection. Type locality: Sherwood (McCurtain County), Oklahoma (VI-1937, Standish and Kaiser).

Material examined. 185 specimens from the following localities:

- ALASKA. Matanuska.  
 NOVA SCOTIA. Frizzleton, Cape Breton Island.  
 ONTARIO. Kelly Lake; Ottawa.  
 QUEBEC. LaTrappe; Megantic; Montreal.  
 SASKATCHEWAN. Christopher Lake.  
 CALIFORNIA. Saratoga; Waddell Creek, Santa Cruz Co.  
 ILLINOIS. Algonquin; Cobden; Fountain Bluff; Homer; Muncie; Savanna.  
 IOWA. Ames; Dolliver Memorial S.P., Webster Co.; Ledges S.P., Boone Co.; Mt. Pleasant; Muscatine Co.; Pike's Peak S.P., Clayton Co.; Stone S.P., Woodbury Co.; White Pine Hollow, Dubuque Co.  
 KANSAS. Lawrence.  
 MARYLAND. "Md." (holotype of F. quatuornotata); Beaver Dam, Cockeysville; Cabin John Bridge; Caves, Eccleston, Baltimore Co.; Glen Echo; Lake Roland, Baltimore; Lock Raven, Baltimore;

MICHIGAN. Douglas Lake; Gogebic Co.  
 MINNESOTA. Houston Co.; Jay Cooke S.P.; Lake Itasca; Preston.  
 MISSOURI. Kahoka; Ozark Mts., Roaring River S.P.; Summersville.  
 NEW JERSEY. Hemlock Falls (reported as *M. quatuornotata* by Johannsen, 1912).  
 NEW YORK. Ithaca; McLean Bogs Reserve; Mecklenburg.  
 OHIO. Columbus.  
 PENNSYLVANIA. Hazleton; Pittsburgh; Westmoreland Co.  
 SOUTH CAROLINA. Myrtle Beach.  
 TENNESSEE. Gatlinburg.  
 VIRGINIA. Dead Run, Fairfax Co.

European material examined. 1 male, 1 female, from Old Warden Beds., Britain.

Additional previous records. Reported as *M. quatuornotata* from Erie Co., New York (Leonard, 1928) and Iowa (Jaques and Berger, 1940). Known from several localities in Europe.

Remarks. The writer has been unable to find any significant difference between Nearctic specimens of this species and two British specimens of *F. trinotata* determined by F.W. Edwards. Dr. F.R. Shaw has furnished notes on the holotype of *F. subquatuornotata* which indicate that it must be placed as a synonym of *F. trinotata*.

The description of *F. flavolineata* Bukowski fits *F. trinotata* very well. However, the figure of this Crimean species shows a broad deep crotch and setae almost to the anterior border of the median ventral area of the gonocoxopodite. In the latter respect, Bukowski (like some other authors) appears to distribute short setae rather uniformly over the entire surface of his figures of the gonocoxopodites of *Fungivora* with little regard to their actual size or distribution, so that the setal distribution on this part of his figure of *F. flavolineata* probably may be discounted. The posterior median portion of the gonocoxopodites of *F. trinotata* lacks setae and has a somewhat different appearance from the remainder of the surface of the gonocoxopodites. Possibly Bukowski may have been misled by the setal distribution and differences in surface qualities and thus indicated the posterior border incorrectly. Bukowski's figure of the ventral stylomere of *F. flavolineata* appears somewhat different from the figure of *F. trinotata* given here, but by a slight rotation of this part of *F. trinotata*, it is possible to almost duplicate the shape shown by Bukowski for *F. flavolineata*. Efforts to obtain additional information on the characteristics of the syntypes of *F. flavolineata* (said by Bukowski to have been placed in the Leningrad Academy of Sciences) have thus far been fruitless.

*Fungivora celator*, new species (Figs. 124, 125)

Male. Length of wing: 1.87-2.37 mm. Mesoscutum shining, mostly dark brown, small posterolateral corner yellowish; scutellum dark brown; legs yellow, hind femur with broad dark brown apical band; abdominal tergites I-VI dark brown. Proepisternum with 2-3 bristles, mesepimeron with 2-5. Anepisternal ratio 0.77-0.82. Segments of fore tarsus subequal in thickness. Mid tibia with 5 d, 1 a-d, 2 a, 2 v, 2p;

first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 4-5 strong d (with 0-1 smaller erect bristles interspersed with longer ones), 2 a-d, 5-6 a, 0-1 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot; pre-apical spot rather faint, starting at C beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending into cell  $R_5$ , ending before  $M_{1+2}$ . R with 6-9 setulae below,  $R_1$  with 12-16 below, M before r-m with 1-2 below. Ratio of r-m : M petiole 0.9-1.2. Abdominal sternites with apical bristles not much longer than the others. Terminalia (Figs. 124, 125): gonocoxopodites with several setae near posterior margin distinctly stronger than the others; crotch broad and rather shallow.

Holotype. Male, Ledges State Park, Boone County, Iowa, VII-10-1949, Jean Laffoon (U.S. National Museum No. 62441).

Paratypes. 3 males from the following localities:  
 GEORGIA. 1m, Black Rock Mt., Rabun Co., 3500', V-20-1911.  
 IOWA. Ledges S.P., Boone Co., JL: 1m, VII-29-1950; 1m, VII-31-1955.

*Fungivora moravica* (Landrock) (Figs. 126, 127)

- 1925 *Mycetophila moravica* Landrock, pp.38,39, figs.5 (wing), 6-7 (male term.).  
 1927 *Fungivora moravica*, Landrock, pp.158,172; pl.13, fig.11 (male term.).  
 1932 *Fungivora moravica*, Landrock, p.466, fig.29 (apex of wing).

Length of male wing: 3.00-3.27 mm. Female wing: 3.10-3.56 mm. Mesoscutum shining, mostly dark brown, very narrow anterior margin and posterolateral corner yellowish; scutellum dark brown; legs mostly yellow, hind femur with broad dark brown apical band, hind tibia sometimes brownish apically; abdominal tergites I-VI dark brown; tergite VII of female yellow. Proepisternum with 3-4 bristles, mesepimeron with 3-7. Anepisternal ratio 0.75-0.83. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 of female distinctly broader than segment 1. Mid tibia with 5-6 d, 1 a-d, 3 a, 3 v, 2-3 p; first two rows of anterior setulae dark brown except for 2-5 yellow setulae apically in each row. Hind coxa with posterior setae rather short, always shorter than the longest posterior preapical. Hind tibia with 5-6 strong d (with 0-6 shorter erect bristles interspersed with the longer ones), 2-5 a-d, 6-7 a, 0-2 p. Setulae of hind tibia: anterior setulae dark brown except for 1-5 yellow ones apically in each row; ventral setulae dark brown; posterior setulae yellow. Wing with a distinct central spot; pre-apical spot starting at C well before tip of  $R_1$ , sometimes filling apex of cell  $R_1$ , sometimes ending well before tip of  $R_5$ , leaving apex of cell  $R_1$  clear, proximal part extending back across  $R_5$ , ending in cell  $R_5$ . R with 10-16 setulae below,  $R_1$  with 19-33 below, M before r-m with 0-1 below. Ratio of r-m : M petiole 1.5-3.1. Abdominal sternites II and III each with a pair of median apical bristles distinctly longer than the others. Male terminalia (Figs. 126, 127): dorsal stylomere with a dorsal lobe with numerous long setae. Female cercus 2-segmented.

Types.

F. moravica (Landr.). 3 syntypes in Moravian Museum, Brno; 1 female syntype in Laffoon collection. Type locality: Moravia, not specified. The syntypes are from two localities: "Mohratal bei Gersdorf und Lobnigtal bei Hof".

Material examined. 11 specimens from the following localities:

ALASKA. 1f, Matanuska, V-25-1944, rotary trap, J.C. Chamberlin.  
ALBERTA. 1f, Waterton N.P., VII-24-1946, G.F. Knowlton.  
SASKATCHEWAN. 1m, Christopher Lake, VIII-10-1948, A.R. Brooks.  
ARIZONA. 1f, Grand Canyon N.P. (north rim), VII-15-1954, W.L. Downes.  
IDAHO. 1m, Coeur d'Alene, Echo Bay, VIII-3-1924, A.L. Melander.  
MINNESOTA. 1f, Lake Itasca, IX-2-1950, J.L.  
NEW YORK. 1m, Whiteface Mt., Adirondacks, about 3600'.  
TENNESSEE. 1f, Smoky Mts., 4000', VI-5-1939, CPA.  
UTAH. 1m, 1f, Salt Lake City, VIII-23-1942, F. Harmston and S. Camras.  
WYOMING. 1m, Yellowstone N.P., Firehole River, 1600', VII-21-1928, J.M. McDunnough.

European specimens examined. One female syntype of F. moravica from Gersdorf, Czechoslovakia.

Remarks. The syntype of F. moravica was made available by Dr. J. L. Stehlík of the Moravian Museum.

Fungivora spleniata, new species (Figs. 128, 129)

Male. Wing length: 2.81-3.42 mm. Mesoscutum slightly pruinose, yellow with brown longitudinal vittae; scutellum usually light brown with yellow lateral areas, sometimes mostly yellow; legs mostly yellow, hind femur with a brown apical band; abdominal tergites I-VI mostly brown, at least some tergites with posterior and lateral borders yellow, tergites II and III sometimes yellow basally. Proepisternum with 3-4 bristles, mesepimeron with 4-5. Anepisternal ratio 0.87-0.98. Segments of fore tarsus subequal in thickness. Mid tibia with 5-6 d, 1-2 a-d, 3-4 a, 2-3 v, 2-6 p; first two rows of anterior setulae dark brown, each row with about 2-3 dingy yellow to light brown setulae at apex. Hind coxa with minute posterior setae. Hind tibia with 5-6 d (with 3-7 shorter erect bristles interspersed with longer ones), 2-5 a-d, 7-9 a, 0-2 p. Setulae of hind tibia: anterior setulae dark brown except for about 2-4 dingy yellow to brown setulae at apex of each row; ventral setulae dark brown. Wing with a central spot, preapical spot distinct, starting at C just before or just beyond apex of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending into cell  $R_5$ . R with 12-15 setulae below,  $R_1$  with 22-27 below, M before r-m with 0-1 below. Ratio of r-m : M petiole 0.8-1.1. Abdominal sternites II and III each with a pair of long median apical bristles. Terminalia (Figs. 128, 129): ventral stylomere with a very dark brown area on dorsal side (limits indicated by dashes on figure); posterior ventral margin of fused gonocoxopodites almost straight.

Holotype. Male, Amherst, Massachusetts, V-6-1951, E. I. Coher (U.S. National Museum No. 62465).

Paratypes. 9 males from the following localities:  
NEW BRUNSWICK. 1m, Taymouth, VII-5-1931, CPA.  
MASSACHUSETTS. 1m, Granby, VI-7-1951, E.I. Coher. 1m, Montague, VI-18-1951, E.I. Coher.  
NEW YORK. 6m, Ithaca, V-3-1913.

## Species of Group E

Fungivora laeta (Walker), new combination

- 1848 Mycetophila laeta Walker, p. 97.  
1912 Mycetophila laeta, Johannsen, pp. 89, 107.  
1926a Mycetophila laeta, Johannsen, pp. 51-52.

Male. Wing length: 4.0 mm. Mesoscutum shining, yellow with 3 brown vittae; scutellum brown with broad median yellow line; legs mostly yellow, hind femur with narrow apical dark band; abdominal tergites brown with apical pale margins. Segments of fore tarsus subequal in thickness. Mid tibia with 1 a-d, 3 a, 2 v. Hind coxa with posterior setae short and fine, much shorter than the longest posterior preapical. Hind tibia without short erect bristles interspersed with longer ones of dorsal row, 0 a-d. Hind tibial anterior setulae all yellow. Wing with a central spot; preapical spot starting at C beyond tip of  $R_1$ , extending back to  $M_{1+2}$ ,  $M_3$  with a cloud. R with 26-27 setulae below, M before r-m with 7-9 below. Apical bristles of abdominal sternites not much longer than the others.

Type.

F. laeta (Walk.). Holotype, male in British Museum. Type locality: Nova Scotia (Lieut. Redman's Collection).

Remarks. Dr. Paul Freeman has supplied most of the information contained in the present description. The combination of numerous setulae below on R, M with several setulae below before r-m, and anterior setulae of hind tibia all yellow, sets this species apart from all other described Nearctic species of Fungivora.

Fungivora percursa, new species (Figs. 142, 143)

Male. Wing length: 2.87 mm. Mesoscutum shining, mostly dark brown, humeral area and posterolateral corner yellow; scutellum dull yellow with a pair of basal brown spots; legs mostly yellow, hind femur with broad dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI paler apically. Proepisternum with 3 bristles, mesepimeron with 2. Anepisternal ratio 0.9. Segments of fore tarsus subequal in thickness. Mid tibia with 4-5 d, 1 a-d, 2-3 a, 3 v, 2 p; first two rows

of anterior setulae dark brown. Hind coxa with short posterior setae. Hind tibia with 6 strong d (without shorter erect bristles interspersed with them), 0 a-d, 7 a, 1-2 p. Setulae of hind tibia: first row of anterior setulae dark brown except basally, next few rows of anterior setulae dingy yellow except a few dark setulae in apical one-fourth of each row, last anterior row with dark brown setulae on apical one-third of tibia; ventral setulae dingy yellow basally, the usual dark brown group present apically; posterior setulae pale brown. Wing with a distinct central spot; preapical spot distinct, starting at C beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back to  $M_{1+2}$ , faintly indicated behind  $M_{1+2}$ . R with 15-17 setulae below,  $R_1$  with 21-22 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 1.33. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 142, 143): gonocoxopodites with unusually short and sparse setae; ventral stylomere with a broad apical emargination and a fingerlike dorsolateral lobe as seen in ventral view.

Holotype. Male, Hazel Creek, near Dexter, 800', (Lane County), Oregon, VII-15-1947, CPA (U.S. National Museum No. 62458).

Remarks. The male terminalia are quite similar to those of *F. sierrae* n.sp. and *F. concinna* n.sp., both of which have anterodorsal bristles on the hind tibia. The emargination of the posterior margin of the ventral stylomere of *F. percursa* is much deeper than in either *F. concinna* or *F. sierrae*.

*Fungivora foecunda* (Johannsen) (Figs. 144, 145)

- 1912 *Mycetophila foecunda* Johannsen, pp.86, 99; figs.81 (male term.), 200 (wing).  
 1920 *Mycetophila foecunda*, Sherman, p.15.  
 1921 *Mycetophila foecunda*, Weiss, p.86.  
 1925a *Mycetophila foecunda*, Johnson, p.87.  
 1926b *Mycetophila foecunda*, Johannsen, p.151.  
 1928 *Mycetophila foecunda*, Leonard, p.746.  
 1952 *Fungivora foecunda*, Shaw and Fisher, pp.207, 208.

Length of male wing: 2.91-3.52 mm. Female wing: 3.12-3.46 mm. Mesoscutum shining, mostly dark brown, posterolateral angle yellow; scutellum yellow apically, brown basally; legs mostly yellow, hind femur with about apical one-fourth dark brown, mid and hind tibiae brown apically; abdominal tergites I-VI mostly dark brown, II-VI yellow apically, Proepisternum with 3-4 bristles, mesepimeron with 2-4. Anepisternal ratio 0.86-0.98. Segments of fore tarsus subequal in thickness in male; 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5-6 d, 1 a-d, 3-4 (usually 3) a, 2-4 (usually 3) v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with short posterior setae. Hind tibia with 5-6 strong d (without shorter erect bristles interspersed with longer ones), 0 a-d, 7-8 a, 2-3 p. Setulae of hind tibia: anterior setulae with first row dark brown except basally, next few rows with up to 4 scattered dark brown setulae near apex, last anterior row with several dark brown

setulae, sometimes extending basad to middle of tibia, other anterior setulae yellow or dingy yellow; ventral setulae yellow to dingy yellow except for the usual apical dark brown group. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back into cell  $R_5$ , sometimes reaching  $M_{1+2}$ , occasionally reaching  $M_3$ . R with 14-20 setulae below,  $R_1$  with 19-26 below, M before r-m with 0-1 below,  $Cu_1$  with 2-9 (usually 4 or less) above. Ratio of r-m : M petiole 1.21-2.00. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 144, 145): ventral stylomere with two short, stout posterior setae and one stout seta on lateral, another on median margin near apex.

Type.

*F. foecunda* (Joh.). Holotype, male at Cornell University, No. 2064.

Type locality: Ithaca, New York (XI).

Material examined. 18 specimens from the following localities: ALASKA. 1f, Matanuska, IX-15-1945, rotary trap, J.C. Chamberlin. IDAHO. 1m, 1f, Julietta (paratypes of *F. foecunda*). MASSACHUSETTS. 1m, Cambridge, X-30. NEW YORK. 7m, 5f, Ithaca, XI (including holotype and 10 paratypes of *F. foecunda*).

OREGON. 1f, Willamette Valley, II-5-1931, "hibernating in *Usnea plicata* on oak trees near all the peá fields", A.O. Larson.

VERMONT. 1m, Lake Willoughby, 2800', VI-17-29-1945, CPA.

Additional previous records. Reported as *M. foecunda* from Orono, Maine, (Johannsen, 1912); Seymour Creek, British Columbia (Sherman, 1920); and Argus Brook, Lloyd-Cornell Reserve, New York (Johannsen in Sibley, et al, 1926).

*Fungivora dentata* (Lundström) (Figs. 146, 147)

- 1913 *Mycetophila dentata* Lundström, pp.319-320; pl.16, figs.30-31 (male term.).  
 1917 *Mycetophila permata* Guthrie, pp.314-315, 317; 320, pl.25, figs. 1b (wing), B, 5, 6, 7, 8 (all male term.). (in part, including holotype). New synonymy.  
 1927 *Fungivora dentata*, Landrock, pp.160, 164; pl.12, fig.45 (male term.).

Length of male wing: 2.91-3.81 mm. Female wing: 3.35-3.96 mm. Mesoscutum pruinose, mostly dark brown, humeral area and posterolateral corner yellow; scutellum brown basally, yellow apically; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI with yellow posterior margins. Proepisternum with 3-4 bristles, mesepimeron with 3-5. Anepisternal ratio 0.95-1.07. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 1 a-d, 2-3 (usually 3) a, 3-4 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with at least 1, usually several, posterior seta longer than the longest posterior pre-apical. Hind tibia with 5-6 strong d (with 1-3 shorter erect bristles

interspersed with longer ones), 0 a-d, 6-7 a, 0-4 p. Setulae of hind tibia: first anterior row dark brown except basally and sometimes apically well beyond last anterior bristle, next few anterior rows yellow or occasionally with 1-2 black setulae apically, last anterior row with several dark brown setulae apically; ventral setulae dingy yellow or yellow except for the usual dark brown apical group. Wing with a distinct central spot; preapical spot starting at C just beyond or well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back to  $M_{1+2}$ , sometimes reaching  $M_3$ . R with 6-12 setulae below,  $R_1$  with 21-27 below, M before r-m with 0-1 below,  $Cu_1$  with 5-25 above. Ratio of r-m : M petiole 0.94-1.39. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 145, 146): ventral stylomere with several prominent setae along median margin, the most anterior somewhat separated from others, the latter broader and somewhat flattened, 2-4 in number; a row of 5-14 strong prominent setae along posterolateral margin of ventral stylomere, of which the most dorsal is distinctly the strongest. Female cercus 2-segmented.

#### Types.

F. dentata (Lundst.). Holotype, male in Hungarian National Museum.  
Type locality: Felsöbánya, Hungary (of 1913) (now Baia-Sprie, Romania).

F. permata (Guthrie). Holotype, male in California Academy of Sciences. Type locality: California Redwood Park (Santa Cruz County), California.

Material examined. 46 specimens from the following localities:

ALASKA. Matanuska.

BRITISH COLUMBIA. Cultus Lake; Robson.

CALIFORNIA. Berkeley; Dodge Ridge, near Pinecrest, Tuolumne Co.; Donner Pass, 7200'; Glacier Pt. Bog, Yosemite N.P., 8000'; Hatchet Pass, 4200'; hills back of Oakland; Lake Tahoe, 6000'; Los Gatos-Santa Cruz Highway, redwood area; Redwood Canon, Marin Co.; Santa Cruz Mts.; Sequoia N.P., 6300'.

IOWA. Ledges S.P., Boone Co.; Mt. Pleasant.

MARYLAND. Baltimore.

MINNESOTA. Lake Itasca.

NEW HAMPSHIRE. Mt. Washington, Tuckerman's Ravine.

PENNSYLVANIA. Natrona.

UTAH. Cedar Breaks, 10,000'.

WASHINGTON. Glacier.

WISCONSIN. Dane Co.

European material examined. One male from Logie, Scotland.

Additional previous records. Known from several European localities. The four paratypes of F. permata studied are all specimens of F. alata (Guthrie).

Remarks. The author has examined a specimen from Britain and believes it to be conspecific with the Nearctic specimens. Assuming the holotype of F. permata to be the species figured as F. permata by Guthrie, it is thought best to consider that species as a synonym of F. dentata. However, there is some variation in the shape of the posterior

border of the ventral stylomere and in the placement of the prominent setae along the posterolateral margin of that part, and further work may show that more than one species is involved.

#### Fungivora guttata (Dziedzicki) (Figs. 18, 148, 149)

1863 Mycetophila signata, Winnertz, pp. 929-930. (in part).

1869 Mycetophila scalaris, Loew, pp. 154-155. (reprint, 2:192-193).  
(in part, not lectotype).

1884 Mycetophila guttata Dziedzicki (junior primary homonym of M. guttata Hutton, 1881, p. 11), pp. 298, 309-310; pl. 7, figs. 25-28  
(male term.).

1886 Mycetophila guttata, Dziedzicki, pp. 153, 326.

1912 Mycetophila scalaris, Johannsen, p. 98; fig. 82 (male term.). (in part, some N. Y. specimens).

1925a Mycetophila guttata, Edwards, pp. 635, 641-642, 656.

1927 Fungivora guttata, Lindner, pp. 109-110, figs. 6-9 (male term.).

1927 Fungivora guttata, Landrock, pp. 160, 168; pl. 12, fig. 58 (male term.).

1937 Mycetophila guttata, Madwar, pp. 92, 107; 91, figs. 355-362  
(larval parts).

Length of male wing: 2.62-3.21 mm. Female wing: 3.06-4.06 mm. Mesoscutum shining, mostly yellow, with 3 brown vittae more or less fused behind, the middle one sometimes faint; scutellum yellow with a pair of basal brown spots; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly brown, II-VI with apical yellow margins, I-IV usually yellow basally and laterally, II-IV usually with yellow median line. Proepisternum with 3-4 bristles, mesepimeron with 3-5. Anepisternal ratio 0.80-0.96. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-8 d, 1 a-d, 3-4 (usually 3) a, 3-4 v, 2-3 p; first row of anterior setulae dark brown except apically, second row yellow. Hind coxa with rather short posterior setae, longest never as long as the longest posterior preapical. Hind tibia with 4-6 strong d (with 2-6 shorter erect bristles interspersed with longer ones), 0 a-d, 6-8 a, 1-3 p. Setulae of hind tibia: first row of anterior setulae with 0-4 (usually 0) dark brown setulae, remainder in this row and others yellow except for several dark brown ones apically in last row; ventral setulae yellow except for a few dark brown ones apically, most of these in a definite row with up to 4 extra scattered dark brown ones not in the dark row; posterior setulae dingy yellow to yellow. Wing with a distinct central spot; preapical spot faint to distinct, starting at C well beyond tip of  $R_1$ , extending somewhat obliquely back across  $R_5$ , ending about midway in cell  $R_5$ ,  $M_{1+2}$  sometimes with a faint cloud behind the spot. R with 9-12 setulae below,  $R_1$  with 23-30 below, M before r-m with 0 below and above,  $Cu_1$  with 20-32 above. Ratio of r-m : M petiole 1.06-1.64. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 148, 149): gonocoxopodites with a simple, median, ventral, tapering, apically truncate process projecting posteriorly from the crotch; ventral stylomere lacking a prominent posterolateral seta. Female cercus (Fig. 18) 2-segmented.

Types.

F. guttata (Dzied.). 10 syntypes, presumably in Winnertz collection at Bonn. Type locality: not specified, Europe.

Material examined. 149 specimens from the following localities: "Middle States". (no locality label, 1 male syntype of F. scalaris).

- ALASKA. Matanuska.  
 BRITISH COLUMBIA. Texas Creek, Lillooet.  
 NEW BRUNSWICK. near Lepreaux, St. John Co.  
 NOVA SCOTIA. Baddeck, Cape Breton Island; Truro; Wycocomagh.  
 ONTARIO. Orillia; Ottawa; Simcoe.  
 CALIFORNIA. Huntington Lake, Fresno Co.; Mill Valley, Marin Co.; Oakhurst, Madera Co.  
 COLORADO. Cameron Pass.  
 IDAHO. Potlatch; Twin Creek Camp, Bitterroot Mts., 5300'; Viola.  
 ILLINOIS. Algonquin.  
 IOWA. Ames; Lacey-Keosauqua S.P., Van Buren Co.; Ledges S.P., Boone Co.  
 MAINE. Mt. Desert, S.W. Harbor.  
 MARYLAND. Glen Echo; Lock Raven, Baltimore.  
 MASSACHUSETTS. Amherst; Auburndale; Beverly; Newton U. Falls.  
 MINNESOTA. Lake Itasca.  
 NEW HAMPSHIRE. White Mts., Great Gulf Trail, Mt. Washington, 1500'.  
 NEW YORK. Canajoharie; Hemlock Ridge, McLean Reserve; Ithaca; Oneonta, Swamp, 1900'; Sacandaga; Slaterville; Troy.  
 NORTH CAROLINA. Fayetteville; Neel's Creek, Mt. Mitchell Game Refuge.  
 OREGON. Forest Grove; 5 miles west of Sisters; 8 miles northwest of Sisters.  
 PENNSYLVANIA. Arendtsville; North Mt.  
 SOUTH DAKOTA. Black Hills, Needles, 5000'.  
 VERMONT. Burlington.  
 WISCONSIN. T39N, R12W, B32, Washburn Co.  
 WYOMING. Yellowstone N.P., Tower Falls, 6400'.

European material examined. 15 specimens from the following localities:

- BRITAIN. Stanmore Common, Mx.  
 SWITZERLAND. Crans, Valais; Jorat, Vaud; Solalex, Vaud.

Remarks. Edwards (1924) reported that the female which is apparently the only remaining syntype of F. lineola (Meig.) is a specimen of F. guttata (Dzied.). However, he declined to sink F. guttata (Dzied.) as a synonym on the grounds that "as this was described from both sexes the ♂ of the original series may have been the species we know as M. lineola, and the name may therefore be allowed to stand, although Meigen notes black tips to the hind femora, which do not occur in our M. lineola". The present writer feels that the original description of F. lineola definitely indicates that Meigen had F. guttata (Dzied.) or a closely allied species, and not F. ruficollis (Meig.) (= Mycetophila lineola of most authors). As the one remaining syntype of F. lineola is not F. ruficollis, the latter name must be used for the F. lineola of most authors.

If Edwards' determination of the specimen at Paris is correct, then

F. guttata (Dzied.) would become a synonym of F. lineola (Meig.). However, since the determination of the female of the species closely allied to F. guttata (Dzied.) has been very difficult in the past, it is thought best to use Dziedzicki's name pending a restudy of the F. lineola syntype. In the year following his paper on the Meigen types, Edwards (1925) himself failed to mention or figure any differences for the separation of the females of F. guttata (Dzied.) from F. signata (Meig.), F. sigillata (Dzied.) and F. signatoides (Dzied.). Therefore, the author hesitates to accept the synonymy of F. lineola and F. guttata (Dzied.) without further confirmation, as it would be unfortunate to misapply the name F. lineola for a second time.

If F. lineola should prove to be some species other than F. guttata (Dzied.), some other name must be substituted for F. guttata (Dzied.), since the latter is a junior primary homonym of the combination Mycetophila guttata Hutton. Should this be the case, the status of F. asiatica Okada should be investigated, as there is nothing in the original description of that species which would serve to separate it from F. guttata (Dzied.) (as well as from certain other allied species).

The following species are closely related, being separated on minor external characters and on differences in the terminalia, the latter exhibiting similar basic form in the species: F. signatoides (Dzied.), F. guttata (Dzied.), F. sigillata (Dzied.), F. pinguis (Loew), F. stricklandi n.sp., F. lenta (Joh.), F. blanda (Winn.), and F. signata (Meig.). In addition, two species which the author has not seen, F. lucidithorax Bukowski and F. asiatica Okada, also appear to be similar to the others mentioned, on the basis of their descriptions and figures. Perhaps re-examination of the latter two species may show that they are synonyms of other species in the group. The first six species mentioned occur in the Nearctic region, and of these the first three also occur in Europe. The Nearctic species may be separated from each other and from the European species by characters mentioned in the descriptions of the terminalia.

Fungivora stricklandi, new species (Figs. 150, 151)

Length of male wing: 3.06-3.21 mm. Female wing: 2.92-3.42 mm. Mesoscutum shining, mostly dark brown, humeral area, posterolateral corner, median prescutellar spot yellow; scutellum dark brown with a median yellow line or apical yellow spot; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI with apical yellow margins, II-IV sometimes with lateral yellow margins. Proepisternum with 3-4 bristles, mesepimeron with 4-5. Anepisternal ratio 0.88-1.00. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 1 a-d, 2-3 (usually 3) a, 2-3 v, 1-3 p; first row of anterior setulae dark brown, second row yellow except for some dark brown basal setulae and sometimes some dark brown apical setulae. Hind coxa with short posterior setae. Hind tibia with 5-6 strong d (with 3-6 shorter erect bristles interspersed with longer ones), 0 a-d, 6-7 a, 2-5 p. Setulae of hind tibia: 34-43 dark brown setulae, some yellow basal setulae and sometimes a few yellow



apical setulae in the first anterior row, other anterior setulae yellow or dingy yellow except for several dark brown ones apically in last row: ventral setulae dingy yellow or yellow except for usual dark brown apical group, occasionally dark brown apical group extending basad as far as middle of tibia; posterior setulae yellow or dingy yellow. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , extending back across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ . R with 10-14 setulae below,  $R_1$  with 19-30 below, M before r-m with 0 below and above,  $Cu_1$  with 7-17 above. Ratio of r-m : M petiole 0.94-1.13. Apical bristles of abdominal sternites II-IV not much longer than the others. Male terminalia (Figs. 150, 151): ventral stylomere with a stout posterolateral seta; process projecting posteriorly from base of crotch broad, with an acute apex and two lateral points. Female cercus 2-segmented.

Holotype. Male, Matanuska, Alaska, V-31-1944, rotary trap, J. C. Chamberlin (U.S. National Museum No. 62466).

Allotype. Female, Christopher Lake, Saskatchewan, VIII-10-1948, A. R. Brooks (Canadian National Collection).

Paratypes. 3 males, 6 females from the following localities:

ALBERTA. 2m, Banff, VI-12-1948 and V-13-1948, E. H. Strickland.

1f, Wabamun, IX-2-1936, E. H. Strickland.

MINNESOTA. 1m, Duluth, VII-6-8-1912, Witmer Stone. 1f, Itasca Park, VI-23-1937, H. R. Dodge.

OREGON. 1f, Cornelius, V-9-1938, mech. trap, Schuh and Gray. 1f, Forest Grove, V-14-1938, mech. trap, K. Gray and J. Schuh.

WISCONSIN. 1f, Madison, X-16-1951, R. H. Jones. 1f, T39N, R12W, B32, Washburn Co., VI-11-1952, light trap, R. H. Jones.

Fungivora lenta (Johannsen) (Figs. 152, 153)

1912 Mycetophila lenta Johannsen, pp. 87, 102; figs. 86 (male term.), 205 (wing). (in part, Maine and Wisc.).

1921 Mycetophila lenta, Weiss, p. 86.

1925a Mycetophila lenta, Johnson, p. 87.

1928 Mycetophila lenta, Leonard, p. 746.

1952 Fungivora lenta, Shaw and Fisher, pp. 207, 208.

Length of male wing: 3.23-3.44 mm. Female wing: 3.25-3.81 mm. Mesoscutum shining, usually mostly dark brown except for yellow humeral area, posterolateral corner and median prescutellar spot, sometimes yellowish with 3 reddish-brown longitudinal vittae more or less indicated; scutellum brown with yellow median line and yellowish margin; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI with pale apical borders. Proepisternum with 4 bristles, mesepimeron with 4-5. Anepisternal ratio 0.91-0.96. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-7 d, 1 a-d, 2-4 (usually 3) a, 3-4 (usually 3) v, 2-3 p; first row of anterior setulae dark brown except for a few apical yellowish setulae, second row yellowish, sometimes with up to 8 dark brown setu-

lae basally. Hind coxa with posterior setae moderate in length, longest always shorter than longest posterior preapicals. Hind tibia with 5-6 strong d (with 3-5 shorter erect bristles interspersed with longer ones), 0 a-d, 6 a, 2-6 p. Setulae of hind tibia: 15-28 dark brown setulae in first anterior row, others in this row and in other anterior rows yellow except for several dark brown ones in most ventral group; ventral setulae yellow or dingy yellow except for the usual dark brown group apically, latter usually in 3 definite rows, always at least 12 dark brown ones in rows other than the most anterior; posterior setulae dingy yellow to yellow. Wing with a distinct central spot; preapical spot faint to distinct, starting at C well beyond tip of  $R_1$ , extending back across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ , the latter and  $M_3$  sometimes with faint clouds in line with the preapical spot. R with 10-13 setulae below,  $R_1$  with 21-29 below, M before r-m with 0 below and above;  $Cu_1$  with 20-31 above. Ratio of r-m : M petiole 1.22-1.85. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 152, 153): gonocoxopodites with a median, ventral, tapering, apically emarginate lobe extending posteriorly from the crotch, this lobe giving rise centrally to a secondary, flattened process; ventral stylomere bearing a prominent posterolateral seta. Female cercus 2-segmented.

Type.

F. lenta (Joh.). Holotype, male at Cornell University, No. 2069. Type locality: Orono, Maine (X-4-1909, bred from mushrooms).

Material examined. 21 specimens from the following localities:

ALBERTA. 6m, 9f, 1 without abdomen, Banff, on 5 dates from VIII-26 to IX-17-1912, N. B. Sanson. 1m, Edmonton, VII-8-1945, E. H. Strickland.

NEW BRUNSWICK. 1m, Lepreaux Harbor Brook, VIII-31-1951, J. F. Hanson.

NOVA SCOTIA. 1m, Intervale Margaree, Cape Breton Island, VIII-31-1936.

QUEBEC. 1m, Great Whale River, VIII-13-1949, J. R. Vockeroth.

MAINE. 1m, Orono, X-4-1909 (holotype of lenta).

Additional previous records. Reported as F. lenta from Price Co., Wisconsin (Johannsen, 1912); Capens, Maine (Johnson, 1925); and Wells and Albany, New York (Leonard, 1928). Other records of "Mycetophila lenta" have been based on misdetermined specimens of F. luctuosa (Meig.), F. bimaculata (Fabr.), F. pectita (Joh.), F. shawi n. sp. and F. sigillata (Dzied.).

Remarks. This species is closely allied to F. blanda (Winn.). The only difference observed is in the shape of the posterior border of the ventral stylomere. In a long series of males of F. blanda from Switzerland and Czechoslovakia this border is deeply emarginate just anteroventral to the prominent posterolateral seta, while in F. lenta the posterior border is only slightly emarginate at this point. Perhaps it may eventually be desirable to consider F. lenta as a subspecies of F. blanda. F. lucidithorax Bukowski probably cannot be distinguished from F. blanda on the basis of Bukowski's description and figure, but a study of the syntypes of F. lucidithorax would be desirable before sinking the name into synonymy.

Fungivora pinguis (Loew) (Figs. 19, 154, 155)

- 1869 Mycetophila pinguis Loew, pp. 153-154. (reprint, pp. 191-192).  
 1869 Mycetophila scalaris Loew, pp. 154-155. (reprint, pp. 192-193).  
 (in part, including lectotype). New synonymy.  
 1890 Mycetophila scalaris, Smith, p. 362.  
 1896 Dynatosoma pinguis, Slosson, p. 263.  
 1900 Mycetophila scalaris, Smith, p. 624.  
 1910 Dynatosoma scalaris, Smith, p. 724.  
 1912 Mycetophila scalaris, Johannsen, p. 98. (in part, N. J. and Mass.).  
 1912 Mycetophila pinguis, Johannsen, pp. 86, 98-99.  
 1925a Mycetophila pinguis, Johnson, p. 87.  
 1952 Fungivora pinguis, Shaw and Fisher, p. 208.

Length of male wing: 2.92-3.92 mm. Female wing: 3.02-3.79 mm. Mesoscutum shining, usually mostly yellow with 3 brown more or less fused longitudinal vittae, middle vitta sometimes faint, mesoscutum sometimes mostly dark brown with humeral area, posterolateral corner and median prescutellar spot yellow; scutellum yellow with 2 dark brown basal lateral spots; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, I-IV yellow basally and laterally, II-IV yellow apically and with yellow median line, V-VI yellow apically and sometimes laterally, V sometimes yellow basally. Proepisternum with 4 bristles, mesepimeron with 4-5. Anepisternal ratio 0.75-0.89. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 of female distinctly thicker than 1. Mid tibia with 5-6 d, 1 a-d, 2-4 (usually 3) a, 2-4 (usually 3) v, 1-3 p; first row of anterior setulae dark brown except apically, second row yellow, hind coxa with several posterior setae longer than the longest posterior preapical. Hind tibia with 5 strong d (with 1-3 shorter erect bristles interspersed with the longer ones), 0 a-d, 6-7 a, 0-2 p. Setulae of hind tibia: 10-21 dark brown setulae in first anterior row, others in this row and in other anterior rows yellow except for several dark brown ones apically in last row; ventral setulae yellow to dingy yellow except for some dark brown ones apically, most of latter in the most anterior of the ventral rows, with up to 6 extra scattered dark brown setulae in the other rows; posterior setulae dingy yellow to yellow. Wing with a distinct central spot; preapical spot sometimes absent, usually faint to distinct, starting at C well beyond tip of  $R_1$ , extending back across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ , latter sometimes with a faint cloud behind preapical spot. R with 11-14 setulae below,  $R_1$  with 23-27 below, M before r-m with 0 below and above,  $Cu_1$  with 24-33 above. Ratio of r-m : M petiole 1.06-1.50. Apical bristles of abdominal sternites not much longer than the others, or, if somewhat longer, several subequal apical setae present on each sternite. Male terminalia (Figs. 154, 155): gonocoxopodites with a median projection from inner surface of crotch, this projection bearing posteriorly a slender, apically bifid process; ventral stylomere bearing a prominent posterolateral seta. Female cercus (Fig. 19) 2-segmented.

Types.

- F. pinguis (Loew). Lectotype here designated, female in Museum of Comparative Zoology at Harvard College, No. 1191. Type locality: English River (western Ontario) (Kennicott). The original series was from 2 localities.  
F. scalaris (Loew). Lectotype here designated from remaining series of 3 male syntypes, in Museum of Comparative Zoology at Harvard College, No. 1190. Type locality: "Middle States" according to Loew (1865). The types bear no locality labels.  
 Material examined. 66 specimens from the following localities: "Middle States". (lectotype male and another male syntype of F. scalaris).  
 SASKATCHEWAN. Christopher Lake; Saskatoon.  
 ONTARIO. English River (lectotype of F. pinguis).  
 ARKANSAS. Hot Springs.  
 CONNECTICUT. Canterbury.  
 DISTRICT OF COLUMBIA. Washington; Rock Creek Park.  
 ILLINOIS. Algonquin.  
 IOWA. Ledges S.P., Boone Co.; Mt. Pleasant; White Pine Hollow, Dubuque Co.  
 MAINE. "Me., Loew coll." (possibly one of the original syntypes of F. pinguis).  
 MARYLAND. College Park; Lock Raven; Plummers Island.  
 MASSACHUSETTS. Amherst; Beverly; Boston; Cambridge; Dedham; Newton U. Falls; Woods Holl (reported as M. scalaris by Johannsen, 1912).  
 MINNESOTA. Lake Itasca; Watkins Lake.  
 NEW HAMPSHIRE. Hanover.  
 NEW JERSEY. Brookside, Morris Co. (reported as M. scalaris by Johannsen, 1912); Clementon; Riverton (reported from last two localities as M. scalaris by Smith, 1900).  
 NEW YORK. Ithaca; Niagara Falls; Oneonta, swamp, 1900'.  
 NORTH CAROLINA. Pisgah N.F., Allison Creek, Swannanoa Gap.  
 PENNSYLVANIA. Hazleton; Ohio Pyle.  
 RHODE ISLAND. Buttonwoods.  
 TENNESSEE. Great Smoky Mts., Middle Prong, Little Pigeon River, 2500'.  
 VERMONT. Burlington; Dummerston.  
 VIRGINIA. Dead Run, Fairfax Co.  
 WISCONSIN. Pine Lake (reported as M. pinguis from "Wisc." by Johannsen, 1912); T39N, R12W, B32, Washburn Co.  
 Additional previous records. Reported as Dynatosoma pinguis from the alpine region of Mt. Washington, New Hampshire (Slosson, 1896). Certain other records of "Mycetophila scalaris" have been based on misdetermined specimens of F. sigillata (Dzied.) and F. signatoides (Dzied.). The writer has not been able to learn the true identify of some specimens which have been recorded as "Mycetophila scalaris", and such records are here listed under Fungivora sp.

Fungivora signatoides (Dziedzicki) (Figs. 20, 158, 159)

- 1863 Mycetophila signata, Winnertz, pp. 929-930. (in part).  
 1884 Mycetophila signatoides Dziedzicki, pp. 298, 310; pl. 8, figs. 9-10 (male term.).  
 1886 Mycetophila signatoides, Dziedzicki, pp. 153, 326.  
 1912 Mycetophila scalaris, Johannsen, p. 98; fig. 80 (male term.). (in part, some Ithaca, N. Y. specimens).  
 1921 Mycetophila scalaris, Cole and Lovett, p. 222.  
 1925a Mycetophila signatoides, Edwards, pp. 632, 635, 641, 656.  
 1927 Fungivora signatoides, Landrock, pp. 160, 176; pl. 13, figs. 29-30 (male term.).

Length of male wing: 2.50-3.48 mm. Female wing: 2.67-3.48 mm. Mesoscutum shining, mostly yellow, with 3 dark brown vittae more or less fused behind; scutellum yellow with a pair of basal dark brown spots; legs mostly yellow, hind femur with a dark brown apical band; abdominal tergites I-VI mostly brown, I-IV usually yellow basally and laterally, II-IV yellow apically and usually with yellow median line, V-VI yellow apically and laterally. Proepisternum with 2-4 bristles, mesepimeron with 3-4. Anepisternal ratio 0.84-1.03. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 1 a-d, 3 a, 3-4 v, 2-4 p; first row of anterior setulae brown to dark brown except apically, second row yellow except basally. Hind coxa with a few of the posterior setae about as long as the longest posterior preapicals. Hind tibia with 5 strong d (with 4-7 shorter erect bristles interspersed with longer ones), 0 a-d, 7-10 a, 2-3 p. Setulae of hind tibia: 7-23 dark brown setulae in first anterior row, others in this row and in other anterior rows yellow except for several dark brown ones apically in last row; ventral setulae yellow except for some dark brown ones apically, most of latter in the most anterior of the ventral rows with up to 4 extra scattered dark brown setulae in other rows; posterior setulae yellow. Wing with a distinct central spot; preapical spot faint to distinct, starting at C well beyond tip of  $R_1$ , extending back across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ , latter sometimes with a faint cloud behind preapical spot. R with 9-12 setulae below,  $R_1$  with 20-26 below, M before r-m with 0 below and above,  $Cu_1$  with 12-23 above. Ratio of r-m : M petiole 0.93-1.43. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 158, 159): gonocoxopodites with a simple, truncate, median, ventral process projecting posteriorly from crotch; ventral stylomere with a prominent posterolateral seta. Female cercus (Fig. 20) 2-segmented.

Types.

F. signatoides (Dzied.). Type or types presumably in Winnertz collection at Bonn. Type locality: not specified, Europe.

Material examined. 173 specimens from the following localities:

BRITISH COLUMBIA. Cultus Lake.  
 NEW BRUNSWICK. Taymouth.

- NOVA SCOTIA. Cape Breton Island: Frizzleton; Lake of Law Brook, N. E. Margaree; Wycocomagh.  
 QUEBEC. LaTrappe; Perkins Mills.  
 CONNECTICUT. So. Meriden.  
 ILLINOIS. Urbana.  
 IOWA. Ames; Decorah; Lacey-Keosauqua S. P., Van Buren Co.; Ledges S. P., Boone Co.; Sioux City; White Pine Hollow, Dubuque Co.  
 MAINE. Mt. Desert Island.  
 MARYLAND. Baltimore; Glen Echo.  
 MASSACHUSETTS. Amherst; Beverly; Cambridge; Holliston; Mt. Greylock.  
 MINNESOTA. Ramsey Co.  
 MISSOURI. Kahoka.  
 NEW HAMPSHIRE. Hanover. Following all in White Mts.: Ammonoosuc Ravine, 2700'; Dolly Copp Camp, 1400'; Galehead Trail, 2000'; Huntington Ravine, Mt. Washington, 3000' and 3400'; King's Ravine Trail, 1500' and 2950'; Osgood Ridge; Tuckerman's Ravine Trail, 2100' and 3500'; Presidential Range, Crystal Cascade, Pinkham Notch, 2100'.  
 NEW JERSEY. Ridgewood.  
 NEW YORK. Canajoharie; Caroline-Harford; Fillmore Glen; Hancock; Ithaca (reported as M. scalaris by Johannsen, 1912); Niagara Falls; Oneonta; Poughkeepsie; Rome; Slide Mt., 2800-4000' and 4200'.  
 NORTH CAROLINA. Neel's Creek, Mt. Mitchell Game Refuge.  
 OREGON. Hood River (reported as M. scalaris by Cole and Lovett, 1921).  
 PENNSYLVANIA. Hazleton; Ohio Pyle.  
 TENNESSEE. Great Smoky Mts. N. P., Gatlinburg, 2700'.  
 VIRGINIA. Clarendon, X-1911, "bred from Boletus felleus".  
 WISCONSIN. Madison Town, near Madison City; T39N, R12W, B32, Washburn Co.  
 WYOMING. Grand Tetons, 6800'.  
European material examined. 14 specimens from the following countries:  
 BRITAIN. 3 localities.  
 CZECHOSLOVAKIA. 3 localities.  
 DENMARK. 2 localities.  
 SWITZERLAND. 1 locality.

Fungivora sigillata (Dziedzicki) (Figs. 17, 156, 157)

- 1863 Mycetophila signata, Winnertz, pp. 929-930. (in part).  
 1884 Mycetophila sigillata Dziedzicki, pp. 298, 308-309; pl. 8, figs. 1-4 (male term.).  
 1886 Mycetophila sigillata, Dziedzicki, pp. 265-266.  
 1912 Mycetophila scalaris, Johannsen, p. 98. (in part, B. C.).  
 1920 Mycetophila scalaris, Sherman, p. 14.  
 1921 Mycetophila lenta, Cole and Lovett, p. 221.  
 1927 Fungivora sigillata, Landrock, pp. 160, 175; pl. 13, figs. 25-27 (male term.).

Length of male wing: 3.29-3.81 mm. Female wing: 3.54-3.83 mm. Mesoscutum shining, mostly yellow, with 3 more or less fused brown vittae; scutellum yellow with 2 dark brown basal lateral spots; legs mostly yellow, hind femur with a dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI with apical yellow bands, II-IV sometimes yellow laterally and basally, II-IV sometimes with a pale median line. Proepisternum with 4 bristles, mesepimeron with 4. Anepisternal ratio 0.81-0.92. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 of female somewhat thicker than 1. Mid tibia with 5-6 d, 1 a-d, 3 a, 3-4 (usually 3) v, 3 p; first row of anterior setulae dark brown except for some apical dingy yellow to yellow setulae, second row entirely yellow or with up to 4 dark brown setulae. Hind coxa with posterior setae short to about as long as the posterior preapicals. Hind tibia with 5 strong d (with 5-6 shorter erect bristles interspersed with longer ones), 0 a-d, 6 a, 0-2 p. Setulae of hind tibia: 4-20 dark brown setulae in first anterior row, others in this row and in other anterior rows yellow except for several dark brown ones apically in last row; ventral setulae yellow or dingy yellow except for some dark brown ones apically, latter mostly in the most anterior of the ventral rows with up to 5 scattered dark brown setulae in other rows; posterior setulae yellow or dingy yellow. Wing with a distinct central spot; preapical spot faint to distinct, starting at C well beyond tip of  $R_1$ , extending back across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ , the latter sometimes with a faint cloud behind preapical spot. R with 12-17 setulae below,  $R_1$  with 23-31 below, M before r-m with 0-1 below,  $Cu_1$  with 16-29 above. Ratio of r-m : M petiole 1.05-1.46. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 156, 157): gonocoxopodites with a median ventral lobe projecting posteriorly from the crotch, giving rise apically to a slender, slightly clavate, median process; ventral stylomere with a prominent posterolateral seta. Female cercus (Fig. 17) 2-segmented.

#### Types.

*F. sigillata* (Dzied.). Types presumably in Winnertz collection at Bonn.

Type locality: not specified, Europe.

Material examined. 13 specimens from the following localities:

BRITISH COLUMBIA. 1m, Selkirk Mts., J.C. Bradley (reported as *M. scalaris* by Johannsen, 1912).

NOVA SCOTIA. 1m, Cape North, Cape Breton Island, VI-24.

QUEBEC. 1f, Gaspé, VII-9-1939, J. Ouellet.

IDAHO. 2f, Mt. Moscow, VI-24. 4m, 2f, Twin Creek Camp, Bitterroot Mts., 5300' and 5400', VI-27, 28 and 29-1949, CPA.

OREGON. 1m, Tillamook, III-26-1919, A.O. Burrill (reported as *lenta* by Cole and Lovett, 1921).

WYOMING. 1m, Grand Tetons, Jenny Lake, 6800', VII-6-1941, CPA.

European material examined. 6 specimens from the following

localities:

BRITAIN. Nethy Bridge.

CZECHOSLOVAKIA. Adamstal; Bilowitz; Schreibwald.

SWITZERLAND. Jorat, Vaud.

#### Species of Group F

##### *Fungivora stolidata* (Walker) (Figs. 168, 169)

- 1856 *Mycetophila stolidata* Walker, p.15.  
 1863 *Mycetophila stolidata* ?, Winnertz, pp.921-922.  
 1912 *Mycetophila socia* Johannsen, p.106; figs.95 (male term.), 212 (wing). New synonymy.  
 1913a *Mycetophila stolidata*, Edwards, pp.338, 373, 376-377.  
 1915 *Mycetophila stolidata* ?, Dziedzicki, p.16; pl.20, figs.316-318 (male term.).  
 1925a *Mycetophila stolidata*, Edwards, pp.633, 637, 656. (in part, all but Inverness record).  
 1925a *Mycetophila socia*, Johnson, p.88.  
 1927 *Mycetophila socia*, Johnson, p.176.  
 1927 *Fungivora stolidata*, Landrock, pp.159, 163, 176; pl.13, fig.34 (male term.).  
 1928 *Mycetophila socia*, Leonard, p.746.  
 1932 *Fungivora stolidata*, Landrock, pp.448, fig.6 (wing); 449, 457.  
 1938 *Mycetophila socia*, Procter, p.312.  
 1940 *Mycetophila socia*, Jaques and Berger, p.421.  
 1941 *Mycetophila stolidata*, Edwards, p.81.  
 1946 *Mycetophila socia*, Procter, p.362.  
 1952 *Fungivora socia*, Shaw and Fisher, p.208.

Length of male wing: 2.95-3.33 mm. Female wing: 3.33-3.54 mm. Mesoscutum shining, mostly dark brown, humeral area and posterolateral corner yellow; legs mostly yellow, hind femur with narrow dark brown apical band; abdominal tergites I-VI usually mostly brown with yellow apical bands on II-VI, yellow sometimes more extensive with brown confined to incomplete broken basal band. Proepisternum with 4 bristles, mesepimeron with 3-4. Anepisternal ratio 0.71-0.87. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-5 d, 1 a-d, 2-4 (usually 3) a, 1-2 v, 1-2 p. Hind coxa with minute posterior setae. Hind tibia with 4-5 strong d (with 1-2 shorter erect bristles interspersed with longer ones), 0 a-d, 5-8 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot absent or faint, when present starting at C well beyond tip of  $R_1$ , extending across  $R_5$ , not reaching  $M_{1+2}$ . R with 6-13 setulae below,  $R_1$  with 21-33 below, M before r-m with 10-15 below. Ratio of r-m : M petiole 0.80-1.06. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 168, 169): ventral stylomere broader than long, without spinose setae; dorsal stylomere with a broad dorsal lobe bearing 13-20 setae. Female cercus 2-segmented.

#### Types.

*F. stolidata* (Walk.). Holotype, male in British Museum. Type locality: England.

*F. socia* (Joh.). Holotype, male at Cornell University, No. 2076. Type locality: Ithaca, New York (VIII).

Material examined. 33 specimens from the following localities:

ALASKA. Matanuska.

ILLINOIS. Algonquin; Urbana.

INDIANA. Lafayette.

IOWA. Ames; Ledges S.P., Boone Co.; Mt. Pleasant; Muscatine Co.

(reported as *M. socia* from Iowa by Jaques and Berger, 1940).

KANSAS. Miami Co.

MICHIGAN. E. Lansing.

MISSOURI. Shrewsbury.

NEW HAMPSHIRE. White Mts., Dolly Copp Camp, 1400'; Tuckerman's Ravine Trail, 2500'.

NEW YORK. Ithaca (holotype and paratype of *F. socia*).

NORTH CAROLINA. Mt. Mitchell, 5000'.

SOUTH DAKOTA. Brookings; Canton.

VIRGINIA. Dead Run, Fairfax Co.; Falls Church.

European material examined. One male from New Forest, Britain.

Additional previous records. Reported as *M. socia* from Mt. Desert, Maine (Johnson, 1925) and Albany, New York (Leonard, 1928). The record of "*Mycetophila socia* (var.)" from Lynn Creek, British Columbia, by Sherman (1920) is considered only as *Fungivora* sp. in this paper.

Remarks. Edwards (1941) has pointed out that this species is very similar to *F. freyi* (Lundst.). They differ in that *F. stolidata* nearly always has 3 anteriors (rarely 2) on the mid tibia, while in *F. freyi* there are usually only 2, occasionally 3; a mid tibial anterodorsal is present in *F. stolidata* but absent in *F. freyi*; and in small differences in the male terminalia, including the presence of 13-20 setae on a broad dorsal lobe of the dorsal stylomere in *F. stolidata*, while in *F. freyi* about 25 setae are present on this lobe.

*Fungivora chamberlini*, new species (Figs. 160, 161)

Male. Wing length: 3.52 mm. Mesoscutum pruinose, brownish-yellow with 3 more or less fused dark brown vittae; scutellum brown, apical margin yellowish-brown; legs mostly yellow, fore and mid femora somewhat dusky below, hind femur with narrow dark brown apical band; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 1.07. Segments 1 and 2 of fore tarsus subequal in thickness (others missing from holotype). Mid tibia with 5 d, 1 a-d, 2-3 a, 2 v, 3 p. Hind coxa with minute posterior setae. Hind tibia (only one present on holotype) with 5 strong d (with 1 shorter erect bristle interspersed with longer ones), 0 a-d, 7 a, apparently 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot well-defined, starting at C somewhat basad of tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back to  $M_{1+2}$ ,  $M_3$  and  $Cu_1$  clouded behind preapical spot. R with 11-12 setulae below,  $R_1$  with 26-27 below, M before r-m with 4-6 scattered setulae below and with 1-2 above close to r-m. Ratio of r-m : M petiole 1.38. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 160, 161): ventral stylomere with 3 fairly long stout setae in a close-set row near posterior margin; ventral stylomere without

ventral setulae over most of surface, but with numerous setae near posterior margin and about 50-60 short stout setae on dorsal side in a more or less oval patch.

Holotype. Male, Matanuska, Alaska, V-30-1944, rotary trap, J. C. Chamberlin (U.S. National Museum No. 62442).

Remarks. This species is similar to *F. quadra* (Lundst.) on the basis of Lundström's description and figures. If the latter are accurate, *F. quadra* differs from *F. chamberlini* in that it has a number of short setae scattered over the central part of the ventral side of the ventral stylomere, while this area is bare in *F. chamberlini*. Further, *F. quadra* bears a dorsal oval patch of stout short setae on a dorsal lobe of the ventral stylomere, this lobe being separated from the main portion of the stylomere for much of its length as seen in lateral view, while in *F. chamberlini* there is no separation of such a setose process, the setae being inserted directly onto the main lobe of the ventral stylomere.

*Fungivora strigata* (Staeger) (Figs. 162, 163)

1840 *Mycetophila strigata* Staeger, p. 242.

1869 *Mycetophila trichonota* Loew, pp. 155-156. (reprint, pp. 193-194).

New synonymy.

1884 *Mycetophila fuliginosa* Dziedzicki, pp. 313-314; pl. 7, figs. 13-16 (male term.).

1887 *Mycetophila fuliginosa*, Dziedzicki, p. 38.

1912 *Mycetophila trichonota*, Johannsen, pp. 88, 105-106. (in part, D. C.).

1925a *Mycetophila strigata*, Edwards, pp. 167-168.

1927 *Fungivora strigata*, Landrock, pp. 160, 176-177; pl. 13, fig. 35 (male term.).

Length of male wing: 3.25-3.52 mm. Female wing: 3.33-3.58 mm. Mesoscutum pruinose, mostly dark brown, humeral area and postero-lateral corner yellow; scutellum dark brown basally, median stripe and apex yellowish or yellow; legs mostly yellow, hind femur with narrow apical dark brown band; abdominal tergites I-VI mostly dark brown, II-VI yellow apically. Proepisternum with 3 bristles, mesepimeron with 4. Anepisternal ratio 0.92-1.08. Segments of fore tarsus subequal in thickness in male; 2 and 3 somewhat thicker than 1 in female. Mid tibia with 5 d, 1 a-d, 3 a, 2-3 v, 2-4 p. Hind coxa with many long posterior setae, many much longer than longest posterior preapical. Hind tibia with 5-6 strong d (with 1-4 shorter erect bristles interspersed with longer ones), 0 a-d, 6-7 a, 0-4 p. Setulae of hind tibia; first anterior row dark brown, second row dark brown on about apical half, remaining setulae yellow except for a few additional dark brown ones apically; ventral setulae yellow except for the usual dark brown apical group; posterior setulae yellow. Wing with a distinct central spot; preapical spot faint, starting at C well beyond tip of  $R_1$ , proximal part extending into cell  $R_5$ , not reaching  $M_{1+2}$ . R with 9-11 setulae below,  $R_1$  with 22-31 below, M before r-m with 7-12 below. Ratio of r-m : M petiole 1.25-

2.20. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 162, 163): ventral stylomere with several prominent setae along posterolateral border and with a dense group of rather short setae dorsally near posterior end; dorsal stylomere mostly very darkly pigmented. Female cercus 2-segmented.

Types.

F. strigata (Staeg.). Probable syntype, female, in University Museum, Copenhagen. Type locality: Denmark.

F. trichonota (Loew). Holotype, male in Museum of Comparative Zoology at Harvard College, No. 1189. Type locality: District of Columbia (Osten Sacken) according to Loew (1869). The holotype does not bear a locality label.

F. fuliginosa (Dzied.). Holotype, male, location not known. Type locality: "Ciechocinku" (now Ciechocinek or Tsekhotsinek, Poland, 12 miles southeast of Torun).

Material examined. 18 specimens from the following localities:

QUEBEC. Cape Bon Ami, Gaspé; Hull.

DISTRICT OF COLUMBIA. "District Columbia" (holotype of F. trichonota).

IOWA. Ledges S.P., Boone Co.

MAINE. Mt. Desert Island, Breakneck Brook.

MARYLAND. Cabin John Bridge.

MASSACHUSETTS. Amherst.

NEW JERSEY. Riverton.

NEW YORK. Ithaca; Rome.

OREGON. Goble.

WASHINGTON. Mt. Baker, 9-mile Camp, 1825'; Tenino.

European material examined. One male from Shefford, Beds., Britain.

Additional previous records. Certain previous records of "Mycetophila trichonota" and "Mycetophila trichonota var. a" have been based on specimens of F. shawi n.sp. and F. venusta n.sp. Other previous references are cited here only as Fungivora sp.

Fungivora limata, new species (Figs. 164, 165)

Length of male wing: 3.37-5.21 mm. Female wing: 4.62-5.75 mm. Mesoscutum shining, mostly light brown to brown, humeral area yellow, sides sometimes yellow; scutellum brown, yellowish medially; legs mostly yellow, hind femur with narrow brown apical band; abdominal tergites I-VI mostly brown, lateral margins and sometimes ill-defined dorsal areas yellow. Proepisternum with 5-6 bristles, mesepimeron with 4. Anepisternal ratio 0.74-0.92. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 6 d, 1 a-d, 3 a, 2 v, 4-7 p. Hind coxa with short posterior setae. Hind tibia with 4-6 strong d (with 1-4 shorter erect bristles interspersed with longer ones), 0 a-d, 5-6 a, 6-10 p. Setulae of hind tibia: first anterior row dark brown, second row dark brown for most of its length, third row dark brown apically, other anterior setulae pale brown; ventral setulae pale brown except for usual

dark brown apical group; posterior setulae pale brown except for the dark brown first (most dorsal) row. Wing with a distinct central spot; preapical spot absent. R with 10-13 setulae below, R<sub>1</sub> with 43-52 below, M before r-m with 17-23 below. Ratio of r-m : M petiole 1.50-1.76. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 164, 165): posterior border of ventral stylomere distinctly emarginate, several subequal prominent setae present near border. Female cercus 2-segmented.

Holotype. Male, Bossier City, Louisiana, X-20-1942, light trap, F. Anders (U.S. National Museum No. 62445).

Allotype. Female, New River, North Carolina, IV and V-1942, G.E. Bohart (Bohart collection).

Paratypes. 5 males, 1 female, from the following localities:

IOWA. If, "County 75" (Washington Co.), Iowa, III-25-1931, J. Smith.

NORTH CAROLINA. 1m, Southern Pines, IV-14-1910, A.H. Manee.

SOUTH CAROLINA. 1m, Myrtle Beach, IV-13-1943, C.T. Parsons.

WISCONSIN. 3m, T39N, R12W, B32, Washburn Co., light trap, R.H.

Jones; 1 male on each of following dates: IX-1-1952, IX-6-1951, IX-8-1952.

Remarks. Closely related to F. unipunctata (Meig.), but differing in respect to the character mentioned in the key and in minor differences in the male terminalia. Apparently also closely related to F. confusa (Dzied.) and Fungivora affluctata (Edwards) (new combination), but these differ (if the original figures of those species are accurate) in having 2 short, stout setae on the posterior border of the dorsal stylomere directly posterior of the point of attachment of the stylomere. The figures of F. confusa and F. affluctata are strikingly similar, and since Edwards made no mention of F. confusa when describing F. affluctata, it is quite possible that the two are synonymous. However, since no specimens have been examined, it is thought best not to propose the synonymy at present.

Fungivora unipunctata (Meigen) (Figs. 166, 167)

- 1818 Mycetophila unipunctata Meigen, p.272. (1851 ed., p.212).  
 1818. Mycetophila unipunctata, Wiedemann in Meigen, p.272. (1851 ed., p.212).  
 1829 Mycetophila discoida Say, p.153. (1883, "LeConte edition", Mycetophila discoid/a (sic!), p.351). New synonymy.  
 1858 Mycetophila discoidea (sic!), Osten Sacken, p.10.  
 1869 Mycetophila inculta Loew, p.153. (reprint, p.191). New synonymy.  
 1890 Mycetophila inculta, Smith, p.362.  
 1906 Mycetophila unipunctata, Lundström, p.38; pl.2, figs.28-30 (male term.).  
 1912 Mycetophila inculta, Johannsen, pp.86, 97-98; fig.79 (male term.). (in part, all but Illinois specimen).  
 1912 Mycetophila discoidea, Johannsen, pp.89, 106.  
 1925a Mycetophila inculta, Johnson, p.87.

- 1925b *Mycetophila discoidea*, Johnson, p.64.  
 1927 *Fungivora unipunctata*, Landrock, pp.157,179; pl.13, fig.49 (male term.).  
 1928 *Mycetophila inculta*, Leonard, p.746.  
 1936 *Mycetophila inculta*, Shaw and Townes, p.207.  
 1940 *Mycetophila inculta*, Jaques and Berger, p.421.  
 1941 *Mycetophila unipunctata*, Edwards, pp.79; 80, figs. 9e-9g (male term.).  
 1952 *Fungivora inculta*, Shaw and Fisher, pp.206-208.  
 1952 *Fungivora discoidea*, Shaw and Fisher, p.208.

Length of male wing: 3.08-4.14 mm. Female wing: 3.33-4.27 mm. Mesoscutum shining, mostly dark brown, humeral area, posterolateral corner and sometimes sides yellow; scutellum mostly dark brown, median stripe yellow or yellowish; legs mostly yellow, hind femur with narrow brown apical band; abdominal tergites I-VI mostly brown, II-VI yellow apically and laterally, tergites sometimes with ill-defined dorsal yellowish areas. Proepisternum with 3-5 bristles, mesepimeron with 3-5. Anepisternal ratio 0.79-0.90. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 1 a-d (sometimes lacking according to Edwards, 1941), 3 a, 2-3 (nearly always 2) v, 4-6 p. Hind coxa with minute posterior setae; at least some posterior pre-apicals distinctly bent near tip. Hind tibia with 4-5 strong d (with 3-8 shorter erect bristles interspersed with longer ones), 0 a-d, 6 a, 6-8 p. Setulae of hind tibia: first anterior row dark brown, second anterior row dark brown on at least apical half of tibia, remaining anterior setulae pale brown except for several dark brown ones apically; ventral setulae pale brown except for the usual dark brown apical group; posterior setulae pale brown. Wing with a distinct central spot, preapical spot absent. R with 7-10 setulae below, R<sub>1</sub> with 33-46 below, M before r-m with 13-20 below. Ratio of r-m : M petiole 1.14-1.41. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 166, 167): posterolateral border of ventral stylomere bearing 1-2 (nearly always 2) strong setae. Female cercus 2-segmented.

#### Types.

- F. unipunctata* (Meig.). Holotype, female, originally in von Hoffmann-segg Collection, present location unknown. Type locality: Berlin, Germany.  
*F. discoida* (Say). Type or types lost. Type locality: Indiana.  
*F. inculta* (Loew). Lectotype, female, here designated from 2 remaining syntypes, in Museum of Comparative Zoology at Harvard College, No. 1192. Type locality: District of Columbia ("Middle States" according to Loew, 1869, but types are labelled "D.C.").  
 Material examined. 185 specimens from the following localities:  
 ? locality. (one specimen from Harris collection, recorded as *M. discoidea* by Johnson, 1925).  
 ONTARIO. Ottawa.  
 QUEBEC. Farmers Rapid; LaTrappe; Meach Lake.  
 ARKANSAS. Marble Falls.  
 CONNECTICUT. East River; Middletown.

- DISTRICT OF COLUMBIA. "D.C." (female lectotype and another syntype of *F. inculta*).  
 ILLINOIS. Algonquin; Mississippi River near Foster; Oregon; Urbana; White Heath.  
 IOWA. Ames; Boone; Henry Co.; Ledges S.P., Boone Co.; Mt. Pleasant; Muscatine Co. (Iowa record of *M. inculta* by Jaques and Berger, 1940, at least partly based on preceding 3); Palisades-Kepler S.P., Linn Co.; Sioux City.  
 KANSAS. Riley Co.  
 LOUISIANA. Monroe.  
 MAINE. So. Poland.  
 MARYLAND. Baltimore; Cabin John Bridge; Priest Bridge, Anne Arundel Co.  
 MASSACHUSETTS. Amherst; Cambridge; Holliston.  
 MICHIGAN. Detroit.  
 MINNESOTA. Coon Creek, Anoka Co.; Pine Co.  
 MISSOURI. Summersville.  
 NEW YORK. Ithaca (recorded as *M. inculta* by Johannsen, 1912); Orient; Long Island; Slaterville; Taughanick Falls.  
 NORTH CAROLINA. Black Mts., N. Fork Swannanoa; Mt. Mitchell, 5000'.  
 OHIO. Jackson.  
 PENNSYLVANIA. Hazleton; Ohio Pyle; Pittsburgh; Swarthmore.  
 SOUTH CAROLINA. Clemson.  
 WISCONSIN. Univ. Wisconsin Arboretum, Dane Co.; T34N, R8W, B24, Rusk Co.; T39N, R12W, B32, Washburn Co.; "Wis." (recorded as *M. inculta* by Johannsen, 1912).  
 European material examined. 3 specimens from the following localities:  
 BRITAIN. Corrie, Arran; Bonhill.  
 SWITZERLAND. Jorat, Vaud.  
 Additional previous records. Reported as *M. inculta* from New Jersey (Smith, 1890); Rhode Island (Johannsen, 1912); and Greenville, 900', South Carolina (Shaw and Townes, 1936). Known from several European localities. Johannsen (1912) recorded "*Mycetophila inculta*" from Chicago, Illinois, but the specimen on which the record was based was misdetermined. Records of "*Mycetophila discoidea*" based on specimens not determined by Say have been listed only as *Fungivora* sp. in this paper.  
 Remarks. Closely related to *F. limata* n.sp. Since Say determined the specimen of *F. unipunctata* in the Harris collection as *F. discoida*, the latter name is considered a synonym of *F. unipunctata*.  
*Fungivora discors*, new species (Figs. 178, 179)  
 1912 *Mycetophila bipunctata*, Johannsen, p.97; fig.78 (male term.). (in part, Ithaca, N.Y. and Orono, Me.).  
 1925a *Mycetophila bipunctata*, Johnson, p.87 (in part, Me.).  
 1928 *Mycetophila bipunctata*, Leonard, p.746. (in part, Ithaca, N.Y.).  
 1952 *Fungivora bipunctata*, Shaw and Fisher, pp.206,208. (in part, (Me., N.Y.).

Length of male wing: 2.08-2.60 mm. Female wing: 2.44-2.87 mm. Mesoscutum shining, mostly dark brown, posterolateral corners sometimes yellow; scutellum dark brown; legs mostly yellow, hind femur with dark band apically; abdominal tergites I-VI mostly dark brown, VI sometimes with yellow apical margin. Proepisternum with 3 bristles, mesepimeron with 2-3. Anepisternal ratio 0.77-0.91. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5-6 d, 1a-d, 3 a, 3 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 6-7 d, 0 a-d, 6 a, 0-1 p. Setulae of hind tibia: anterior setulae dark brown except for about 4 apical yellow setulae in each of at least the first 3 rows; ventral setulae mostly dark brown, paler basad; posterior setulae yellow. Wing with a distinct central spot, preapical spot absent. R with 8-10 setulae below,  $R_1$  with 15-22 below, M before r-m with 0-1 below and above. Ratio of r-m: M petiole 0.82-1.21. Abdominal sternites II and III each with a pair of median apical bristles about as long as the following segment. Male terminalia (Figs. 178, 179): ventral and dorsal stylomeres each with a long, prominent seta; much of the ventral stylomere hidden by the produced posterior ventral border of the gonocoxopodites when seen in ventral view; a shallow median concavity at the apex of the produced gonocoxopodites. Female cercus 2-segmented.

Holotype. Male, Ledges State Park, Boone County, Iowa, V-31-1950, Jean Laffoon (U.S. National Museum No. 62447).

Allotype. Female, same collection data and depository.

Paratypes. 25 males, 25 females from the following localities:

- ONTARIO. 2f, Bells Corners, IX-21-1951, J.F. McAlpine. 1m, Simcoe, VI-23-1939, G.E. Shewell.
- ILLINOIS. 1m, Urbana, IX-23-1938, B. Berger.
- IOWA. 1m, same data as holotype. 8m, 10f, at type locality on 9 dates from VI-12 to X-20 in 1949-1955, J.L. 2m, 2f, Ames, 4 dates from V-29 to VI-10 in 1951-1952, W.L. Downes. 2f, Ames, VIII-13-1949, J.L. 1m, "County 77" (Muscatine Co.), VIII-28-1938. 1m, "County 88" (Henry Co.), IX-3-1939, B. Berger. 2m, Dolliver Memorial S.P., Webster Co., VI-30-1950, J.L. 1f, Sioux City, VI-12-1950, J.A. Slater and J.L. 1m, Stone S.P., Woodbury Co., VII-4-1955, J.L.
- MAINE. Orono: 1m, XI-3-1909; 1m, XI-14-1909 (recorded as M. bipunctata by Johannsen, 1912).
- MASSACHUSETTS. 1f, Beverly, IX-28-1875, Burgess.
- MINNESOTA. 1f, Lake Itasca, IX-2-1950, J.L. 1f, New Richland, VIII-29-1949, M. Bacon.
- NEW YORK. 1m, Adirondacks, Fish Creek, VIII-2-1929, A.L. Melander. 1m, Canajoharie, VII-1-1934, H.K. Townes. 1m, Oneonta, swamp, 1900', VIII-18-1935, H.K. Townes. 1m, Ithaca, VI-26-1901 (recorded as M. bipunctata by Johannsen, 1912).
- PENNSYLVANIA. 1m, Carnegie Museum (Pittsburgh), IX-17-1912, on window, H. Kahl coll'n. 1f, Hazleton, VIII-1-1910, Dietz.
- WISCONSIN. 1f, Squaw Lake, Vilas Co., VIII-18-1954, J.L.

Additional specimens. 3 males, 3 specimens without abdomens, from the following localities:

INDIANA. 1 without abdomen, Lafayette, VII-18, Collection of J. M. Aldrich.

IOWA. 1m, same data as holotype. 1m, at type locality, VII-29-1950, J.L. 1m, Dolliver Memorial S.P., Webster Co., VI-30-1950, J.L.

NEW YORK. 1 without abdomen, Ithaca, VII-10-1901 (recorded as M. bipunctata by Johannsen, 1912). 1 without abdomen, Poughkeepsie, VIII-2-1936, H.K. Townes.

Remarks. This species resembles F. alberta (Curran) and F. occultans (Lundst.)<sup>1</sup> (= M. tarsata Winn. not Staeg.). However, the male terminalia of this species differ in several respects, including the lack of the very long prominent setae on the stylomeres and in having a short median ventral projection at the apex of the gonocoxopodites.

Fungivora alexanderi, new species (Figs. 170, 171)

Length of male wing: 2.02-2.71 mm. Female wing: 2.60-2.98 mm. Mesoscutum rather pruinose, mostly dark brown, humeral area yellow, scutellum brown; legs mostly yellow, hind femur with dark band apically; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 2-3. Anepisternal ratio 0.85-1.00. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5 d, 1 a-d, 2 a, 2-3 (rarely 3) v, 2 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5 strong d (with 1-2 shorter erect bristles interspersed with longer ones), 0 a-d, 6-7 d, 1-3 p. Setulae of hind tibia: anterior and ventral setulae dark brown, somewhat paler basad on tibia; posterior setulae dingy yellow. Wing with a distinct central spot, preapical spot absent. R with 6-13 setulae below,  $R_1$  with 17-23 below, M before r-m with 0-2 below and 0-1 above. Ratio of r-m: M petiole 0.77-0.93. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 170, 171): crotch broad and rather deep; ventral stylomere subovoid in ventral view; dorsal stylomere with a ventral process bearing 2 setae; dorsal stylomere with a lobe near point of attachment with several long setae. Female cercus 2-segmented.

Holotype. Male, Ledges State Park, Boone County, Iowa, V-31-1950, Jean Laffoon (U.S. National Museum No. 62432).

Allotype. Female, at type locality, IX-18-1951, Jean Laffoon (U.S. National Museum).

Paratypes. 39 males, 30 females from the following localities: BRITISH COLUMBIA. 2f, Cultus Lake, X-20-1938 and X-22-1938, J. K. Jacob.

<sup>1</sup>Edwards (1941) referred to this species as M. tarsata (Winn.) and made M. occultans a junior synonym. However, the original combination of Mycetophila tarsata Winnertz (1863) is a junior primary homonym of the combination Mycetophila tarsata Staeger (1840) (now considered a Phronia), hence F. occultans must be used.



- ONTARIO. 1f, Merivale, V-22-1947, G.E. Shewell. 1m, Ottawa, X-7-1947, G.E. Shewell.
- QUEBEC. 1m, Cape Bon Ami, Gaspé, VIII-19-1936.
- ARIZONA. 1m, 1f, White Mts., Alpine, 8400', VI-23-1947, CPA.
- CALIFORNIA. 2f, Berkeley, V-20-1940, G.E. Bohart. 1m, Bonny Doon, V-4-1948, C.P. Hoyt. 1m, 7 miles west of Fairfax, Marin Co., VI-23-1951, W.C. Bentinck. 1m, Felton, XI-1947, C.P. Hoyt. 1m, 2f, Great Basin Redwoods, VIII. 1m, Lagunitas, Marin Co., VIII-7-1921, E.P. Van Duzee. 1f, Pinecrest, Tuolumne Co., VII-15-1947, P.H. Arnaud. 2m, Redwood Canon, Marin Co., V-17-1908. 1m, Santa Cruz, VIII-17-1940. 1m, Saratoga, III-22-1948, C.P. Hoyt. 1m, 1f, Waddell Creek, Santa Cruz Co., 4/10/30, Fred Bianchi. 1m, 14 miles west of Willits, Mendocino Co., VI-30-1951, W.C. Bentinck.
- IOWA. 1f, Ames, X-15-1950, W.L. Downes.
- MASSACHUSETTS. 1m, Amherst, V-6-1951, T. Farr. 1m, Amherst, light trap, IX-5-1951, E.I. Coher.
- NEW HAMPSHIRE. White Mts.: 1m, Ammonoosuc Ravine, 3000', IX-5-1940, M. Hanson; 1m, Galehead Trail, 2000', VIII-31-1951, O. S. Flint; 1m, King's Ravine Trail, 1300', IX-6-1940, J.F. Hanson; 1f, King's Ravine Trail, X-12-1940, J.F. Hanson.
- NEW YORK. 1m, Canajoharie, VIII-13-1934, H.K. Townes.
- OREGON. 1f, Blue Mts., Spring Creek, 3900', VI-26-1948, CPA. 2m, 1f, McMinnville, High Heavens, V-4-1943, K.M. Fender. 2f, McMinnville, Peavine Ridge, V-7-1947, K.M. Fender. 1m, Mt. Hood, Oneonata Gorge, VIII-9-1946, CPA. 1m, 3f, Mt. Sander, Beaver Creek, VII-16-1947, K.M. Fender. 8m, 10f, Myrtle Grove S.P., 100' (Curry Co.), VIII-5-1950, CPA. 1m, Peavine Ridge, VIII-6-1946, CPA.
- PENNSYLVANIA. 1f, Guyastuta Run (Allegheny Co.), IX, H. Kahl coll'n. 1m, Hazleton, VII-23-1910, Dietz. 1m, Ohio Pyle, VIII-2-1905.
- WASHINGTON. 1m, Fort Lewis, Pierce Co., III-30-1946, P.H. Arnaud. 2m, Glacier, VI-4-1917, H.G. Dyar. 1m, Mt. Rainier N. P., Longmire Springs, 2800', VIII-10-1946, CPA.

Remarks. Related to *F. bipunctata* (Loew), *F. bentincki* n.sp., *F. verecunda* n.sp., and *F. pumila* (Winn.). It differs from all of these except *F. bipunctata* in the possession of a setose lobe near the base of the dorsal stylomere, and may be distinguished from *F. bipunctata* by the presence of minute posterior setae on the hind coxa, the deeper and broader crotch, the longer and more slender posteroventral pair of setae on the dorsal stylomere, and by other details of the male terminalia, including differences in the lateral portion of the aedeagus. On the basis of the original description and figure, *F. unimaculata* Bukowski (1934) (not *Mycetophila unimaculata* Zetterstedt, now considered an *Exechia*) is also allied to *F. alexanderi*. It apparently lacks a setose lobe near the base of the dorsal stylomere, has an ovoid ventral stylomere and a faint subapical wing spot. These features indicate close relationship with *F. bentincki*, from which it apparently differs in having a somewhat broader ventral stylomere and in having more setae on the basal half of the ventral stylomere.

*Fungivora bipunctata* (Loew) (Figs. 172, 173)

- 1869 *Mycetophila bipunctata* Loew, p.152. (reprint, p.190).  
1912 *Mycetophila bipunctata*, Johannsen, p.97. (in part, Wisc.).

Length of male wing: 2.27-2.52 mm. Female wing: 2.25-2.73 mm. Mesoscutum rather pruinose, mostly dark brown, humeral area yellow; scutellum brown; legs mostly yellow, hind femur with dark brown band apically; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 2-3. Anepisternal ratio 0.85-0.94. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5 d, 1 a-d, 2 a, 2 v, 1-2 p; first two rows of anterior setulae dark brown. Hind coxa with some of the posterior setae as long or nearly as long as the longest posterior preapical. Hind tibia with 5-6 strong d (with 1-3 shorter erect bristles interspersed with longer ones), 0 a-d, 6 a, 1-4 p. Setulae of hind tibia: anterior and ventral setulae dark brown, somewhat paler basad on tibia; posterior setulae dingy yellow, most dorsal row somewhat darker than the others. Wing with a distinct central spot; preapical spot absent, R with 8-10 setulae below, R<sub>1</sub> with 17-20 below, M before r-m with 0-2 (usually 1) below (if 0, r-m always with a setula closer to M than the width of r-m). Ratio of r-m : M petiole 0.73-1.18. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 172, 173): crotch rather shallow and not very wide; dorsal stylomere with a ventral process bearing two rather short, stout setae; dorsal stylomere with a lobe near point of attachment with several long setae. Female cercus 2-segmented.

Type.

*F. bipunctata* (Loew). Holotype, female, in Museum of Comparative Zoölogy at Harvard College, No. 1194. Type locality: Wisconsin.

Material examined. 23 specimens from the following localities:

- NEW BRUNSWICK. Lepreaux Harbor Brook.
- ONTARIO. Orillia.
- QUEBEC. Perkins Mills.
- MASSACHUSETTS. Amherst, Shannon trap.
- MINNESOTA. Lake Itasca.
- NORTH CAROLINA. "Rt. 221", Caldwell Co.
- NEW HAMPSHIRE. White Mts.: Dolly Copp Camp, 1400'; Great Gulf Trail, Peabody R., Mt. Washington, 1500'; King's Ravine Trail, 1800'; Tuckerman's Ravine, Mt. Washington, 2500'.
- TENNESSEE. Hemlock Forest, Gatlinburg, Great Smoky Mts. N.P., 4000'; Beech Gap, Gatlinburg, Great Smoky Mts. N.P., 5500'.
- WISCONSIN. "Wisc." (holotype of *F. bipunctata*); T39N, R12W, B28, Washburn Co.

Additional previous records. Most of the earlier records of this species are treated here only as *Fungivora* sp. The Maine and New York specimens recorded as *M. bipunctata* by Johannsen (1912) are *F. discors* n.sp.

Remarks. See remarks under *F. alexanderi* n.sp.

Fungivora verecunda, new species (Figs. 176, 177)

Length of male wing: 2.25-2.79 mm. Female wing: 2.23-2.75 mm. Mesoscutum shining or slightly pruinose, mostly dark brown, large humeral area and small posterolateral area yellowish; scutellum dark brown; legs mostly yellow, hind femur with dark band apically; abdominal tergites I-VI brown, sometimes yellowish laterally, VI sometimes yellowish on hind margin. Proepisternum with 3 bristles, mesepimeron with 2-3. Anepisternal ratio 0.82-0.96. Segments of fore tarsus subequal in thickness in male; segments 2 and 3 distinctly, 4 slightly thicker than 1 in female. Mid tibia with 5 d, 1 a-d, 2 a, 2 v, 1-2 p; first two rows of anterior setulae dark brown. Hind coxa with some of the posterior setae at least half as long, usually about as long, as the longest posterior preapical. Hind tibia with 5 strong d (with 0-2 shorter erect bristles interspersed with the longer ones), 0 a-d, 6 a, 2-3 p. Setulae of hind tibia: anterior and ventral setulae dark brown; posterior setulae dingy yellow except for most dorsal row, latter brown. Wing with a distinct central spot, preapical spot absent. R with 5-9 setulae below,  $R_1$  with 17-22 below, M before r-m with 0-1 below and 0-2 above. Ratio of r-m : M petiole 0.73-0.94. Apical bristles of abdominal sternites sometimes somewhat longer than the others, but without a median pair much longer than the other apical bristles. Male terminalia (Figs. 176, 177): ventral stylomere unusually long and slender for a species of Fungivora, bearing numerous long setae; dorsal stylomere with a ventral process bearing 2 stout setae. Female cercus 2-segmented.

Holotype. Male, Ledges State Park, Boone County, Iowa, VIII-27-1951, Jean Laffoon (U.S. National Museum No. 62471).

Allotype. Female, at type locality, IX-18-1951, Jean Laffoon (U.S. National Museum).

Paratypes. 41 males, 24 females from the following localities:

IOWA. 1m, Boone, VII-23-1949, JL. 1f, "County 88" (Henry Co.), IX-3-1939, Bernard Berger. 1m, Lacey-Keosauqua S.P., Van Buren Co., IX-10-1949, J.A. Slater and JL. Ledges S.P.: 3m, VII-10-1949, JL; 1m, VII-29-1950, JL; 13m, 7f, VII-29-1955, JL; 1m, VII-30-1949, JL; 7m, 8f, VII-30-1955, W.L. Downes; 4m, 2f, VII-31-1955, JL; 3m, 1f, IX-6-1950, JL; 1f, IX-9-1952, J.A. Slater; 3m, 2f, IX-18-1951, JL; 1f, X-13-1950, JL. 1f, White Pine Hollow, Dubuque Co., VII-4-1949, JL.

MASSACHUSETTS. 1m, Amherst, V-6-1951, T. Farr.

MINNESOTA. Lake Itasca, Clearwater Co.: 1m, IX-1-1948, JL; 1m, IX-3-1950, JL.

NEW YORK. 1m, Coy Glen, near Ithaca, V-16-1937, Collection of E. G. Fisher.

Additional specimens. 1 male, 2 females from the following localities:

ILLINOIS. 1m, Mississippi River near Foster, IX-9-1939, B. Berger.

IOWA. 2f, Henry Co., IX-3-1939, B. Berger.

Remarks. This species differs from its close relatives by the much longer ventral stylomere. See discussion under F. alexanderi n. sp.

Fungivora bentincki, new species (Figs. 174, 175)

Length of male wing: 2.42-2.94 mm. Female wing: 2.71-2.74 mm. Mesoscutum pruinose, mostly dark brown, large humeral area and small posterolateral area yellow; scutellum dark brown, somewhat paler below; legs mostly yellow, hind femur with broad dark brown band apically; abdominal tergites I-VI brown. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 0.93-1.03. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5 d, 1 a-d, 2 a, 2-3 v, 1-2 p; first two rows of anterior setulae dark brown. Hind coxa with several posterior setae, about as long as the posterior preapicals. Hind tibia with 5 strong d (with 1-2 shorter erect bristles interspersed with the longer ones), 0 a-d, 5-6 a, 2-3 p. Setulae of hind tibia: anterior and ventral setulae dark brown; posterior setulae dingy yellow except for the dark brown most dorsal row. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , proximal part extending to about midway between  $R_5$  and  $M_{1+2}$ . R with 9-11 setulae below,  $R_1$  with 22-24 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 0.70-1.00. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 174, 175): ventral stylomere subovoid, with a small flattened process dorsally near posterior margin; dorsal stylomere with a ventral process bearing 2-4 rather stout setae. Female cercus 2-segmented.

Holotype. Male, Sequoia National Park, California, VII-19-1946, C. P. Alexander (U.S. National Museum No. 62434).

Allotype. Female, Hatchet Pass (Shasta Co.), 4200', California, VII-9-1947, C. P. Alexander (U.S. National Museum).

Paratypes. 7 males, 2 females from the following localities:

CALIFORNIA. 2m, 1f, 7 miles west of Fairfax, Marin Co., VI-23-1951, W.C. Bentinck. 1m, Great Basin Redwoods, VIII-7-1940. 1m, Saratoga, III-22-1948, C.P. Hoyt. 1f, Waddell Creek, Santa Cruz Co., XI-26-1929, Fred Bianchi. 1m, 6 miles west of Willits, Mendocino Co., VI-30-1951, W.C. Bentinck. 2m, Yosemite, 3880-4000', VI-2-1938, N.F. Hardman.

Remarks. Most similar to the European F. pumila (Winn.) which differs in lacking the small flattened dorsal projection near the posterior margin of the ventral stylomere, in having the most dorsal of the posterior processes of the dorsal stylomere somewhat smaller and slightly different in shape, and in other minor details of the male terminalia. F. unimaculata Bukowski (not Zetterstedt) also appears to be closely related; see remarks under F. alexanderi n. sp.

Fungivora alberta (Curran), new combination (Figs. 180, 181)

1927 Mycetophila alberta Curran, p. 79.

1938 Mycetophila alberta, Strickland, p. 191.

Length of male wing: 2.73-3.23 mm. Female wing: 3.71-3.81 mm.

Mesoscutum pruinose, dark brown; scutellum dark brown; legs mostly yellow, hind femur with dark brown band apically; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles, mesepimeron with 3-4. Anepisternal ratio 0.82-0.91. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5-6 d, 1 a-d, 3 a, 2-3 v, 1-2 p; first two rows of anterior setulae dark brown except for about 3 or 4 dingy yellow setulae at apex of each row. Hind coxa with minute posterior setae. Hind tibia with 4-6 strong d (with 1-2 shorter erect bristles interspersed with longer ones), 0 a-d, 6-7 a, 0-1 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot sometimes barely indicated, sometimes fairly definite, when present starting at C well past tip of  $R_1$ , proximal part extending to about midway between  $R_2$  and  $M_{1+2}$ . R with 10-14 setulae below,  $R_1$  with 20-24 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 0.88-1.21. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 180, 181): gonocoxopodites with a produced posterior ventral border, especially prominent medially; central portion of dorsal stylomere with a patch of about 12 irregularly placed setae. Female cercus 2-segmented.

Type.

F. alberta Curran. Holotype, female, in Canadian National Collection.

Type locality: Edmonton, Alberta (V-5-1925, E. H. Strickland).

Material examined. 17 specimens from the following localities:

ALASKA. Camp 334, Alaska Eng. Comm.; Matanuska.

BRITISH COLUMBIA. Cultus Lake.

CALIFORNIA. 3 miles south of Camino, Eldorado Co.; 7 miles west of Fairfax, Marin Co.

OREGON. McMinnville, Peavine Ridge; Wallowa Mts., Lostine Guard Station, 4900'.

WASHINGTON. Kalama R.; Mt. Rainer, Nesqually Glacier.

Remarks. Mr. J. R. Vockeroth has supplied information on the holotype of F. alberta which has made it possible for the writer to recognize the species. Closely related to F. occultans (Lundst.), but in that species the posterior border of the gonocoxopodites is more caudad and the central portion of the dorsal stylomere bears a regular row of about 6 setae (at least in the one male seen).

Fungivora fascinator, new species (Figs. 184, 185)

Length of male wing: 2.71-3.10 mm. Female wing: 2.50-3.17 mm. Mesoscutum shining; mostly brown to dark brown, yellow humeral spot sometimes present; scutellum dark brown, lower side brownish-yellow; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI dark brown. Proepisternum with 3 bristles, mesepimeron with 3-5. Anepisternal ratio 0.64-0.81. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5 d, 1 a-d, 2-4 (usually 3) a, 2-3 v, 0-1 p; first two rows of anterior setulae dark brown. Hind coxa with some of the posterior setae longer than the longest posterior

preapicals. Hind tibia with 6 strong d (without shorter erect bristles interspersed with them), 0 a-d, 7 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; no distinct preapical spot present, but area around tip of  $R_1$  sometimes darker than rest of wing. R with 6-10 setulae below,  $R_1$  with 22-28 below, M before r-m with 0 below and above, r-m without setulae below closer to M than width of r-m. Ratio of r-m : M petiole 1.09-1.36. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 184, 185): crotch deep; ventral stylomere with a row of prominent setae along median and posterior margins and a row of 3 short stout setae dorsally distinctly before posterior margin. Female cercus 2-segmented.

Holotype. Male, Lake Itasca, Clearwater County, Minnesota, IX-2-1950, Jean Laffoon (U. S. National Museum No. 62449).

Allotype. Female, same collection data and depository.

Paratypes. 9 males, 4 females from the following localities:

QUEBEC. 1m, Montreal, V-21-1919, J. Ouellet.

CALIFORNIA. 1m, 1f, Pinecrest, Tuolumne Co., VIII-13-1948, P. H. Arnaud, Jr.

MINNESOTA. 3m, 2f, same data as holotype. 1m, at type locality, IX-1-1950, JL.

NEW HAMPSHIRE. 1m, Dolly Copp Camp, White Mts., 1400', IX-4-1940, J. Hanson.

PENNSYLVANIA. 1m, 1f, Pittsburgh, X-21-22-1910, H. Kahl Coll'n.

WASHINGTON. 1m, Mt. Rainier N.P., VIII-10-1941, L. J. Lipovsky.

Remarks. This species is closely allied to the European F. adumbrata (Mik), which differs (in the one specimen seen) in having 2 short dorsal setae on the ventral stylomere comparable to the 3 mentioned in F. fascinator, but in F. adumbrata they are close to the posterior margin and slightly laterad of the longer marginal setae of the stylomere. Also the crotch is quite shallow in F. adumbrata (as figured by Lundström, 1908).

Fungivora shawi, new species (Figs. 182, 183)

1927 Mycetophila trichonota, Johnson, p. 176.

1938 Mycetophila trichonota, Procter, p. 312.

1946 Mycetophila trichonota, Procter, p. 362.

1946 Mycetophila lenta, Procter, p. 361.

Length of male wing: 2.79-3.25 mm. Female wing: 2.71-4.19 mm. Mesoscutum rather pruinose, sometimes dark brown, sometimes yellow with 3 dark brown more or less fused vittae; scutellum brown, usually yellowish along margin; legs mostly yellow, hind femur with dark brown band apically; abdominal tergites I-VI mostly brown, II-VI with narrow apical yellow bands. Proepisternum with 4 bristles, mesepimeron with 4-5. Anepisternal ratio 0.89-1.10. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5 d, 1 a-d, 3 a, 1-3 (usually 3) v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior

setae. Hind tibia with 5 strong d (with 3-5 shorter erect bristles interspersed with longer ones), 0 a-d, 7 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , proximal part extending across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ . R with 12-19 setulae below,  $R_1$  with 21-26 below, M before r-m with 0-1 below and 0-1 above. Ratio of r-m : M petiole 0.88-1.06. Abdominal sternites II and III each with a pair of long median apical bristles. Male terminalia (Figs. 182, 183): ventral stylocere more or less circular in ventral view, with irregularities along median margin, including a prominent, slender, posteromedially directed, apically pigmented process and a conspicuous tuft of about 15 short setae; dorsal stylocere with a dense tuft of fine setae arising from a posterior lobe and directed posteromedially. Female cercus 1-segmented.

Holotype. Male, Cabin John Bridge (Montgomery County), Maryland, XI-28-1912, Knab and Malloch Coll. (U.S. National Museum No. 62463).

Allotype. Female, Mt. Desert (Island), Duck Brook, Maine, VI-24-1934, C.P. Alexander (U.S. National Museum).

Paratypes. 39 males, 41 females from the following localities:

BRITISH COLUMBIA. 1m, 1f, Cultus Lake, X-21 and 22-1938, J.K.

Jacob.

NOVA SCOTIA. 1m, 1f, Wycocomagh, Cape Breton Island, IX-3-1935, E.G. Fisher.

QUEBEC. 1f, Meach Lake, X-17-1938, G.E. Shewell.

CONNECTICUT. 2f, Middletown, VI-17, C.W. Johnson.

ILLINOIS. 1m, Stratford, VI-22-1917. 1m, Grand Tower, IV-21-1914.

IOWA. 1m, Ames, X-15-1950, W.L. Downes. 1m, Ledges S.P., Boone Co., V-29-1949, J.L.

MAINE. Mt. Desert Island: 1m, Bar Harbor, IX-11 (reported as M. trichonota by Johnson, 1927); 1m, No. 5096 (bears an M. lenta determination label, presumably the specimen recorded as M. lenta by Procter, 1946); 10m, 14f, from several localities on the island, VI-14 to 24-1935, CPA.

MARYLAND. 1m, same data as holotype. 1f, type locality, IV-23-1914. 1f, Baltimore, IV-25-1938. 1f, Chase, Baltimore Co., V-7-1939, E.G. Fisher. 1m, 1f, Lock Raven, Baltimore Co., XI-18-1939, E.G. Fisher. 1f, Lock Raven, Baltimore, V-8-1938, E.G. Fisher. 2m, 2f, Octoraro Creek, Cecil Co., V-13-1939, E.G. Fisher. 1f, near Plummers Island, V-5-1915, R.C. Shannon.

MASSACHUSETTS. 1m, 1f, Amherst, V-6-1951, T.H. Farr. 1f, Amherst, X-15-1951, Shannon trap, E.I. Coher. 1m, Amherst, XI-8-1934, Coll. IW. 1f, Beverly, VI-2-1876. 1m, Holliston, VI-9, N. Banks. 2m, Montague, V-14-1951, Farr. 1m, N. Adams, VI-19, C.W. Johnson.

MINNESOTA. 1f, Jay Cooke S.P., VI-21-1936.

MISSOURI. 1f, Meramec S.F., V-7.

NEW HAMPSHIRE. 1m, Hanover, VII-5, C.W. Johnson. 1m, Jaffrey, VI-20. 1m, Keene, X-27-1951, T. Farr. 1f, Mt. Monadnock, VI-21. 2m, White Mts., VIII-14 and 18-1935, CPA. 1m, White

Mts., Great Gulf Trail, Peabody River, Mt. Washington, 1500', VI-11-1940, J.F. Hanson. 1m, White Mts., Tuckerman's Ravine, Mt. Washington, 2500', IX-4-1940, V.A. Lafleur.

NEW YORK. 1f, Coy Glen, Ithaca, V-16-1937. 1f, Coy Glen, Thomkins, VI-5-1938, E.G. Fisher. 1m, 1f, Ithaca, VI-8-1938. 1f, McLean Reserve, Hemlock Ridge, VIII-31-1925.

PENNSYLVANIA. 1f, Allegheny Co., VI. 1m, Hazleton, VI-11-1911, Dietz. 1f, Shawville, Clearfield Co., V-25-1941, John Beaver. 1f, York Furnace, York Co., V-4-1940, E.G. Fisher.

VERMONT. 1m, Burlington, VI-23, C.W. Johnson.

VIRGINIA. 1f, Chain Bridge, VIII-20-1922, J.R. Malloch. 1m, Dead Run, Fairfax Co., IV-3-1925, R.C. Shannon.

Additional specimens. 4 from localities mentioned above, and 1 male from Cockeysville, Beaver Dam Brook, Maryland.

Remarks. This species is closely related to F. mohilevensis (Dzied.) on the basis of Dziedzicki's descriptions and figures. However, in F. mohilevensis the ventral stylocere is much broader, its long slender posteromedial process is longer and more slender, and there are other minor differences. The male terminalia also indicate relationship with F. faceta n.sp.

Fungivora scitula, new species (Figs. 201, 202)

Male. Wing length: 3.48-3.54 mm. Mesoscutum shining, mostly dark brown, anterior border and humeral margin reddish-yellow, posterolateral corner yellow; scutellum dark brown; legs mostly yellow, hind femur with about apical one-third dark brown; abdominal tergites I-VI dark brown. Proepisternum with 3-4 bristles, mesepimeron with 3. Anepisternal ratio 0.82-0.84. Segments of fore tarsus subequal in thickness. Mid tibia with 5-6 d, 1 a-d, 2-3 a, 3 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 6 strong d (with 0-1 shorter erect bristles interspersed with longer ones), 0 a-d, 4-6 a, 2-3 p. Hind tibial anterior and ventral setulae dark brown. Wing with a central spot; preapical spot starting at C beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending across  $R_5$ , ending about midway between  $R_5$  and  $M_{1+2}$ . R with 14-18 setulae below,  $R_1$  with 22-26 below, M before r-m with 2 below. Ratio of r-m : M petiole 1.0-1.1. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 201, 202): ventral stylocere with a row of 5 stout posterolateral setae and a distinct posterior process at about the middle of the posterior margin as seen ventrally.

Holotype. Male, Milford Center, New York, VIII-13-1935, H. K. Townes (Academy of Natural Sciences of Philadelphia No. 6698).

Paratype. One specimen, presumably a male, from the following locality: Oneonta, New York, VIII-24-1935, H.K. Townes. (terminalia not seen by author).

Fungivora jugata (Johannsen), new combination (Figs. 186, 187)

- 1912 Mycetophila jugata Johannsen, pp. 88, 104; figs. 90 (male term.), 209 (wing).  
 1920 Mycetophila jugata, Sherman, p. 15.

Length of male wing: 3.25-4.02 mm. Female wing: 3.44-4.56 mm. Mesoscutum pruinose, dark brown medially, yellow laterally, 3 dark brown longitudinal vittae sometimes indistinctly indicated; scutellum yellow with a pair of basal brown spots; legs mostly yellow, femora each with an indistinct brown area below near base, hind femur with dark brown apical band, hind tibia brownish apically; abdominal tergites I-VI dark brown, II-VI sometimes with narrow yellowish apical bands. Proepisternum with 3 bristles, mesepimeron with 3. Anepisternal ratio 0.96-1.13. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5-6 d, 1 a-d, 3 a, 2 v, 1-2 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 7-8 d (some somewhat shorter than the others), 0 a-d, 6-8 a, 0-1 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, usually extending forward to C, usually longest in costal cell; preapical spot starting at C, somewhat before to just beyond tip of R<sub>1</sub>, filling apex of cell R<sub>1</sub>, proximal part extending across R<sub>5</sub>, sometimes ending about midway between R<sub>5</sub> and M<sub>1+2</sub>, sometimes extending as far as Cu<sub>1</sub>. R with 10-16 setulae below, R<sub>1</sub> with 20-27 below, M before r-m with 0-1 (usually 0) below and 0 above. Ratio of r-m : M petiole 0.89-1.13. Apical bristles of abdominal sternites not much longer than the others, or sometimes a median apical pair slightly longer than the others. Male terminalia (Figs. 186, 187): gonocoxopodites with shallow crotch; dorsal stylomere with about 15 close-set, short setae at posterior apex, posterior portion of stylomere set off from remainder of stylomere by a transverse groove. Female cercus 1-segmented.

Type.

F. jugata (Joh.). Holotype, male, at Cornell University, No. 2073.

Type locality: Felton, Santa Cruz Mts., 300-500', California (V-20-25-1907, Bradley).

Material examined. 50 specimens from the following localities:

BRITISH COLUMBIA. Terrace.

CALIFORNIA. Berkeley; Bonny Doon; Dodge Ridge, near Pinecrest, Tuolumne Co.; Elk Valley, Del Norte Co.; Felton, Santa Cruz Mts., 300-500' (holotype of F. jugata); Hatchet Pass, 4200'; Palomar Mt., 4700'; Pinecrest, Tuolumne Co.; Prairie Creek Camp, Humboldt Forest; Redwood Canon, Marin Co.; Ryan Creek, Mendocino Co.; Sequoia N.P., 6300'; Sonoma Co.; Strawberry, Tuolumne Co.; Wildcat Creek, Tilden Park, Contra Costa Co.

IDAHO. Moscow.

OREGON. Corvallis; Forest Grove; Hazel Creek, near Dexter, 800'; Peavine Ridge.

WASHINGTON. Pullman.

Additional previous record. Reported as M. jugata from Vancouver, British Columbia (Sherman, 1920).

Fungivora bimaculata (Fabricius) (Figs. 188, 189)

- 1805 Sciara bimaculata Fabricius (junior secondary homonym of Mycetophila bimaculata Meigen, 1804, p. 92. As bimaculata Meigen is now treated as a Leia, the Fabrician name is available either as a Mycetophila or a Fungivora), p. 57.  
 1830 Mycetophila pictula Meigen, pp. 297, 299.  
 1838 Mycetophila arcuata, Zetterstedt, pp. 863-864.  
 1840 Mycetophila bimaculata, Staeger, pp. 240-241.  
 1852 Mycetophila bimaculata, Zetterstedt, pp. 4172, 4184-4186.  
 1863 Mycetophila bimaculata, Winnertz, pp. 924-925.  
 1884 Mycetophila xanthopyga, Dziedzicki, p. 323; pl. 8, figs. 27-29 (male term.).  
 1887 Mycetophila bimaculata, Dziedzicki, p. 43.  
 1912 Mycetophila imitator Johannsen, pp. 86-87, 99-100; figs. 91 (male term.), 201 (wing). New synonymy.  
 1915 Mycetophila bimaculata, Dziedzicki, pl. 18, figs. 280-282 (male term.).  
 1925a Mycetophila bimaculata, Edwards, pp. 634, 639, 656.  
 1925a Mycetophila imitator, Johnson, p. 87.  
 1925b Mycetophila lenta, Johnson, p. 64. (in part, 1 specimen from Mass.).  
 1927 Fungivora bimaculata, Landrock, pp. 158, 161-162; pl. 12, fig. 33 (male term.).  
 1928 Mycetophila imitator, Leonard, p. 746.  
 1936 Mycetophila imitator, Shaw and Townes, p. 207.  
 1952 Fungivora imitator, Shaw and Fisher, p. 208.

Length of male wing: 2.79-3.64 mm. Female wing: 3.12-3.87 mm. Mesoscutum pruinose, usually dark brown, often with reddish tint, humeral area and posterolateral area yellow, sometimes mesoscutum dull yellow with 3 reddish-brown vittae more or less indicated; scutellum reddish-brown, margin dull yellow, legs mostly yellow, femora brownish below basally, hind femur with brown apex; abdominal tergites I-VI brown, II-VI sometimes with yellowish apical bands. Proepisternum with 3-4 bristles, mesepimeron with 3-4. Anepisternal ratio 1.00-1.13. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 5-6 d, 1 a-d, 2-3 (usually 3) a, 2-4 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 9-12 d (some somewhat shorter than others), 0 a-d, 7-8 a, 0-2 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C just before or well before tip of R<sub>1</sub>, filling apex of cell R<sub>1</sub>, proximal part extending across R<sub>5</sub>, ending midway between R<sub>5</sub> and M<sub>1+2</sub>. R with 10-15 setulae below, R<sub>1</sub> with 20-30 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 0.76-1.20. Apical bristles of abdominal sternites not much longer than the

others. Male terminalia (Figs. 188, 189): ventral stylomere with a thin dorsomedial lobe projecting farther mediad than the border of the main ventral lobe as seen in ventral view; dorsal lobe of dorsal stylomere with about 6 subequal setae. Female cercus 1-segmented.

#### Types.

- F. bimaculata Fabr. Type or types originally in Lund Museum. Type locality: "Dania" (Denmark of 1805).  
F. pictula Meig. Probable type or types in Paris Museum. Type locality: not specified, Europe. (received from Winthem, therefore probably from northwestern Germany).  
F. imitator Joh. Holotype, male at Cornell University, No. 2065. Type locality: Ithaca, New York  
 Material examined. 35 specimens from the following localities:  
 ONTARIO. Toronto.  
 QUEBEC. Aylmer.  
 DISTRICT OF COLUMBIA. Washington.  
 ILLINOIS. Algonquin.  
 MAINE. Portland.  
 MASSACHUSETTS. Boston; Cambridge; Holliston; Milton (reported as M. lenta by Johnson, 1925b).  
 NEW HAMPSHIRE. White Mts.  
 NEW YORK. Ithaca (including holotype and paratype of M. imitator); Oswego.  
 OHIO. Columbus.  
 PENNSYLVANIA. Natrona; Pittsburgh.  
 VIRGINIA. Falls Church.

European material examined. 4 specimens from the following localities:

- GERMANY. vicinity of Berlin.  
 CZECHOSLOVAKIA. Brno (Brünn).

Additional previous records. Reported as M. imitator from Orono, Maine (Johannsen, 1912); Hamburg, New York (Leonard, 1928); Greenville, Old Indian Mt., 900-1200' (Shaw and Townes, 1936). Sherman (1920) recorded M. imitator from British Columbia, but the record is considered only as Fungivora sp. in the present study. Also known from several localities in Europe.

Remarks. Similar to F. alata (Guthrie) and F. jugata (Joh.). The 3 species agree in regard to characters indicated in the key, in having somewhat similar male terminalia, and in females having 1-segmented cerci and some swollen fore tarsal segments.

#### Fungivora alata (Guthrie), new combination (Figs. 190, 191)

- 1917 Mycetophila alata Guthrie, pp. 315, 317; 321, pl. 26, figs. 2a (wing), A1-A3 (male term.).  
 1917 Mycetophila permata, Guthrie, pp. 314-315, 317. (in part, not holotype).  
 1928 Mycetophila singularis Van Duzee, pp. 62-63. New synonymy.

Length of male wing: 3.39-4.08 mm. Female wing: 3.23-4.27 mm. Mesoscutum pruinose, usually reddish-yellow with 3 indistinct brown vittae, sometimes mostly reddish-brown with yellowish humeral area; scutellum brown, margins yellowish; legs mostly yellow, hind femur with dark brown apical band, hind tibia with brownish apex; abdominal tergites I-VI mostly dark brown, II-VI sometimes with yellowish apical and lateral borders. Proepisternum with 3 bristles, mesepimeron with 3-6. Anepisternal ratio 0.92-1.13. Segments of fore tarsus subequal in thickness in male; segments 2, 3 and 4 distinctly thicker than 1 in female. Mid tibia with 4-6 d, 0-1 (usually 1) a-d, 2-4 a, 2-4 v, 1-3 p; first two rows of anterior setulae dark brown. Hind coxa with minute posterior setae. Hind tibia with 5-6 strong d (with 2-4 shorter erect bristles interspersed with the longer ones; one specimen with only 5-6 d, all rather weak), 0 a-d, 6-8 a, 0 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot, usually entirely behind R and R<sub>1</sub>, extending to C in one specimen (holotype of F. singularis), but faint in costal cell; preapical spot starting at C somewhat before or at tip of R<sub>1</sub>, filling apex of cell R<sub>1</sub>, proximal part extending across R<sub>5</sub> at least to about midway between R<sub>5</sub> and M<sub>1+2</sub>, sometimes as far as Cu<sub>2</sub>. R with 9-15 setulae below, R<sub>1</sub> with 25-32 below, M before r-m with 1-4 below and 0-3 above. Ratio of r-m : M petiole 1.10-1.60. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 190, 191): ventral stylomere with a lateral process of main lobe tapering rather evenly from base to apex as seen in ventral view; dorsal stylomere with a slender curved posterior process bent toward a short posterior lobe bearing about 16 fine setae, dorsal lobe with about 3 strong and 2 distinctly weaker setae. Female cercus 1-segmented.

#### Types.

- F. alata (Guthrie). Holotype, male, in California Academy of Sciences. Type locality: Stanford University (California) according to Guthrie (1917, p. 315). Paratypes seen by present writer bear label "Stan U Cal". However, Guthrie (1917, p. 317) indicates she reared specimens collected in fungi at California Redwood Park. Perhaps this is the type locality, and the specimens merely were reared at Stanford.  
F. singularis (V.D.). Holotype, female not male as incorrectly stated by Van Duzee, in California Academy of Sciences. Type locality: Santa Cruz, California.  
 Material examined. 11 specimens from the following localities:  
 CALIFORNIA. 1m, 4f, 1 without abdomen, Big Basin, Santa Cruz Co. (paratypes of F. permata); 3m, 1f, Stanford Univ., I-1916 (paratypes of F. alata); Santa Cruz, 1f, VI-1-1919, E.P. Van Duzee (holotype of F. singularis).

Fungivora finlandica (Edwards) (Figs. 203, 204)

- 1906 Mycetophila lunata, Lundström, p.38; pl.3, figs.35-37 (male term.).  
 1913a Mycetophila finlandica Edwards, pp.375,377.  
 1927 Fungivora finlandica, Landrock, pp.160,165; pl.12, fig.48 (male term.).

Male. Length of wing: 3.48-4.17 mm. Mesoscutum pruinose, mostly yellow, with 3 more or less fused dark brown vittae; scutellum mostly yellow, with a pair of brown basal spots; legs mostly yellow, hind femur with dark brown band apically, hind tibia brownish apically; abdominal tergites I-VI mostly dark brown, II-VI with apical yellow margins and sometimes yellow lateral margins. Proepisternum with 3-4 bristles, mesepimeron with 4-5. Anepisternal ratio 0.94-1.02. Segments of fore tarsus subequal in thickness in male. Mid tibia with 5-6 d, 1 a-d, 3 a, 3 v, 2-5 p; first two rows of anterior setulae dark brown. Hind coxa with several of the posterior setae as long or longer than the longest posterior preapical. Hind tibia with 5-6 strong d (with 1-7 shorter erect bristles interspersed with the longer ones), 0 a-d, 6-7 a, 3-5 p. Setulae of hind tibia: first two anterior rows dark brown except for a few basal paler ones, third row dark brown on a little less than apical half of tibia, remaining anterior rows with black setulae apically from a point basad at least to opposite the last anterior bristle, remaining anterior setulae pale brown; ventral setulae dingy yellow to pale brown except for the usual apical dark brown group. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending into cell  $R_5$ , sometimes reaching  $M_{1+2}$ . R with 7-12 setulae below,  $R_1$  with 30-32 below, M before r-m with 0-1 below and 0 above. Ratio of r-m : M petiole 1.16-1.53. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 203, 204): ventral stylomere with a number of rather stout setae dorsally near posterior margin; dorsal lobe of dorsal stylomere bent posteriad, bearing about 4 stout setae.

Types.

F. finlandica (Edw.). Type series would presumably include as syntypes all specimens recorded as M. lunata by Lundström (1906) and as M. finlandica by Edwards (1913), some syntypes in British Museum. Type locality: not designated, syntypes are from Britain, Finland and U.S.S.R. (of 1956).

Material examined. 3 males from the following localities:

MAINE. 1m, Mt. Desert Island, Break Neck Brook, VI-16-1935, CPA.  
 NEW YORK. 1m, Canajoharie, VIII-3-1934, H.K. Townes.  
 TENNESSEE. 1m, LeConte Trace, 1/2 mile 1st str., Great Smoky Mts., V-25-1946, J.F. Hanson.

European specimens examined. 2 males from the following localities:

BRITAIN. 1m, Nethy Bridge.  
 SWITZERLAND. 1m, Jorat, Canton of Vaud.

Additional previous records. Known from several localities in Europe. Remarks. No females have been studied, but that sex presumably has the fore tarsal segments subequal in thickness, since none of the European authors have written anything to the contrary.

Fungivora pectita (Johannsen), new combination (Figs. 25, 195-197)

- 1912 Mycetophila pectita Johannsen, pp.87,101; figs.84 (male term.), 203 (wing).  
 1920 Mycetophila pectita, Sherman, p.15.  
 1925b Mycetophila lenta, Johnson, p.64. (in part, 1 Mass. specimen).  
 1928 Mycetophila clavata, Van Duzee, pp.58-59. (in part, "allotype" only).  
 1928 Mycetophila ovata Van Duzee, pp.59-60; p.65, fig.31 (male term.).  
 New synonymy.  
 1928 Mycetophila bispina Van Duzee, p.58; p.65, fig.28 (male term.).  
 New synonymy.

Length of male wing: 3.35-3.96 mm. Female wing: 3.39-4.10 mm. Mesoscutum pruinose, mostly brown, humeral area and small posterolateral area yellow, sides sometimes yellow, sometimes mesoscutum yellow except for 3 brownish vittae indistinctly indicated; scutellum yellow with a pair of brown spots basally; legs mostly yellow, hind femur with narrow dark brown apical band; abdominal tergites I-VI mostly brown, II-VI with yellow apical margins. Proepisternum with 3-5 bristles, mesepimeron with 4. Anepisternal ratio 0.92-1.02. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 6 d, 1 a-d, 3 a, 2-3 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with several of the posterior setae longer than the longest posterior preapicals. Hind tibia with 4-6 strong d (with 2-4 shorter erect bristles interspersed with the longer ones), 0 a-d, 6-7 a, 2-4 p. Setulae of hind tibia: first anterior row dark brown except basally, second row dark brown for at least apical one-third of row, sometimes for apical two-thirds, third row with dark brown setulae in about apical one-third of row, remaining anterior rows each with several dark brown setulae apically, remaining anterior setulae yellow; ventral setulae yellow to pale brown except for usual dark brown apical group. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending across  $R_5$ , usually ending about midway between  $R_5$  and  $M_{1+2}$ , sometimes continued to  $M_{1+2}$ ,  $M_3$  sometimes with a cloud behind preapical spot. R with 8-14 setulae below,  $R_1$  with 24-31 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 1.11-1.46. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 195-197): ventral stylomere with several prominent setae dorsally on main ventral lobe near posterior margin; ventral stylomere with a dorsolateral lobe with several very strong setae in a row, the most dorsal seta somewhat removed from the others, especially long, curved at about midlength at nearly a right angle; ventral stylomere with a dorsomedial, apically rounded lobe. Female terminalia (Fig. 25): cercus 2-segmented; ante-

rior and posterior margins of dorsal portion of tergite IX divergent ventrally in lateral view.

Types.

- F. pectita (Joh.). Holotype, male, at Cornell University, No. 2067. Type locality: Selkirk Mts., British Columbia (J.C. Bradley).  
F. bispina (V.D.). Holotype, male, in California Academy of Sciences, No. 2522. Type locality: Mill Valley, Marin County, California (II-25-1926, M.C. Van Duzee).  
F. ovata (V.D.). Holotype, male, in California Academy of Sciences, No. 2525. Type locality: Mill Valley, Marin County, California (IV-1-1926, M.C. Van Duzee).

Material examined. 86 specimens from the following localities:

- ALASKA. Matanuska.  
 ALBERTA. Banff; Beaver Lake, Jasper.  
 BRITISH COLUMBIA. Cultus Lake; Keremeos; Selkirk Mts. (holotype of F. pectita).  
 NOVA SCOTIA. Big Intervale Margaree, Cape Breton Island.  
 SASKATCHEWAN. Saskatoon.  
 CALIFORNIA. Carrville, Trinity Co.; Castle Crags S.P.; Dodge Ridge, near Pinecrest, Tuolumne Co.; Mill Valley, Marin Co. (including 17 paratypes of F. bispina, 18 paratypes of F. ovata, Van Duzee's "allotype" of F. clavata); Strawberry.  
 IDAHO. Coeur d'Alene N.F., Cedar Canyon.  
 MASSACHUSETTS. Milford (reported as M. lenta by Johnson, 1925b); Montague; Williamsburg.  
 MINNESOTA. Lake Itasca.  
 NEW HAMPSHIRE. White Mts.: Franconia; Huntington Ravine, Mt. Washington, at 3300', 3600' and 4300'; Tuckerman's Ravine Trail, Mt. Washington, at 2600', 3000', 3200' and 3500'.  
 NEW YORK. Hemlock Ridge, McLean Reserve; Ithaca.  
 OREGON. Forest Grove; McMinnville, High Heavens; McMinnville, Peavine Ridge; Rogue River N.F., Beaver Sulphur Camp, 1750'.  
 PENNSYLVANIA. 2f, Shawville, Clearfield Co., V-25-1941, John Beaver.  
 WYOMING. Yellowstone N.P., Emerald Pool, 7400'.

Additional previous records. Recorded as M. pectita from Friday Harbor, Washington. See also Fungivora sp., unplaced records.

Remarks. This species is closely allied to F. contigua (Walk.), F. subita n.sp., and F. obscura (Dzied.). The latter name is a junior primary homonym of the combination Mycetophila obscura Walker. Dziedziński's F. obscura differs from F. pectita in minor features of the male terminalia. In F. obscura (Dzied.) the most dorsal seta of the posterolateral lobe of the ventral stylomere is only gently curved. Both species bear two dorsally directed processes on the posterior lobe of the dorsal stylomere, but in F. obscura (Dzied.) the more proximal process is hardly more than a projection of the more distal setose process, while in F. pectita the processes are well separated.

Fungivora subita, new species (Figs. 198-200)

Length of male wing: 3.33-4.19 mm. Female wing: 3.54-4.39 mm. Mesoscutum pruinose, yellow, with 3 dark brown more or less fused vittae and with some brown along sides; scutellum brown basally, apical area yellow, yellow sometimes extending to base medially; legs mostly yellow, hind femur with dark brown apical band, hind tibia narrowly brownish at both ends; abdominal tergites I-VI brown, II-VI sometimes with faint apical yellowish bands. Proepisternum with 3 bristles, mesepimeron with 4-5. Anepisternal ratio 1.02-1.14. Segments of fore tarsus subequal in thickness in male; segments 2 and 3 slightly thicker than 1 in female. Mid tibia with 6 d, 1 a-d, 3 a, 2-3 v, 1-3 p; first two rows of anterior setulae dark brown. Hind coxa with some of the posterior setae longer than the longest posterior preapical. Hind tibia with 5 strong d (with 1-4 shorter erect bristles interspersed with the longer ones), 0 a-d, 5-6 a, 2-4 p. Setulae of hind tibia: first two anterior rows dark brown, next two rows dark brown in at least apical half of the rows, any remaining anterior rows with some dark brown setulae apically, remaining anterior setulae dingy yellow; ventral setulae dingy yellow to pale brown on about basal three-fourths of tibia, apical setulae dark brown. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back at least to  $M_{1+2}$ , sometimes extending as far as  $Cu_1$ ; a faint cloud present behind  $Cu_2$ . R with 10-11 setulae below,  $R_1$  with 24-29 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 1.35-2.07. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 198-200): ventral stylomere without stout setae on dorsal side of main ventral lobe; ventral stylomere with a dorsolateral lobe bearing several very strong setae in a row, also with a dorsomedial lobe slightly bifid posteriorly. Female terminalia (Fig. 23): cercus 2-segmented; anterior and posterior margins of dorsal portion of tergite IX subparallel in lateral view.

Holotype. Male, Gold Hill, Latah County, Idaho, VII-27-1927, J.M. Aldrich Coll. (U.S. National Museum No. 62467).

Allotype. Female, Pinecrest, Tuolumne County, California, VIII-13-1948, P.H. Arnaud, Jr. (U.S. National Museum).

Paratypes. 8 males, 1 female from the following localities:

- CALIFORNIA. 1m, same data as allotype. 1m, Glendale, VII-20-1950, E.I. Schlinger. 1m, Saratoga, III-22-1948, C.P. Hoyt. 1m, Sequoia N.P., VII-19-1946, CPA. 1m, Sequoia N.P., 6300', VII-20-1946, CPA. 1m, Sequoia N.P., VIII-6-1940, R.H. Beamer.  
 IDAHO. 1m, same data as holotype.

WASHINGTON. 1m, 1f, Mt. Rainier N.P., VIII-10-1941, L.J. Lipovsky.

Additional specimens. 2 males from the following localities:

- OREGON. 1m, McMinnville, High Heavens, V-4-1943, K.M. Fender.  
 WASHINGTON. 1m, Olga, V-17-1910.

Remarks. The cubital vein is simple in the specimen from Olga, Washington. This characteristic is ordinarily used to distinguish Zygomya from Fungivora.



Fungivora contigua (Walker), new combination (Figs. 24, 192-194)

- 1848 Mycetophila contigua Walker, pp. 96-97.  
 1869 Mycetophila fallax Loew, p. 156. (reprint, p. 194). New synonymy.  
 1912 Mycetophila fallax, Johannsen, pp. 87, 101. (in part, not Calif. record).  
 1912 Mycetophila lassata Johannsen, pp. 87, 101; fig. 85 (male term.); fig. 204 (wing). New synonymy.  
 1912 Mycetophila contigua, Johannsen, pp. 89, 107.  
 1920 Mycetophila lassata, Sherman, p. 15.  
 1926a Mycetophila contigua, Johannsen, p. 51.  
 1943 Mycetophila lassata, Foster, p. 33.

Length of male wing: 3.23-4.29 mm. Female wing: 3.29-4.46 mm. Mesoscutum pruinose, mostly dark brown, humeral area and postero-lateral area yellow, lateral margin usually yellowish; scutellum mostly yellow, with a pair of basal brown spots; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI sometimes with yellowish apical bands. Proepisternum with 3-4 bristles, mesepimeron with 3-5. Anepisternal ratio 0.92-1.05. Segments of fore tarsus subequal in thickness in male; segment 2 slightly thicker than 1, especially beyond middle, segments 3 and 4 slightly thicker than 1, in female. Mid tibia with 6 d, 1 a-d, 3 a, 3-4 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa with several of the posterior setae longer than the longest posterior preapical. Hind tibia with 5 strong d (with 1-3 shorter erect bristles interspersed with the longer ones), 0 a-d, 6-8 a, 3-4 p. Setulae of hind tibia: first anterior row dark brown almost to base, second row dark brown on at least the apical third of the tibia, sometimes nearly to base, next few rows each with at least a few dark brown setulae apically, third row sometimes dark brown as far basad as penultimate anterior bristle; ventral setulae dingy yellow to pale brown except for the usual dark brown apical group. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending across  $R_5$ , sometimes ending midway between  $R_5$  and  $M_{1+2}$ , sometimes extending as far as  $Cu_1$ . R with 6-12 setulae below,  $R_1$  with 22-26 below, M before r-m with 0 below and 0-1 (usually 0) above. Ratio of r-m : M petiole 1.35-1.83. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 192-194): ventral stylo-mere with several prominent setae dorsally on main ventral lobe near posterior margin; ventral stylomere with a dorsolateral lobe with several strong stout setae in a row, also with a dorsomedial lobe deeply notched apically. Female terminalia (Fig. 24): cercus 2-segmented, tergite IX with an acute terminal lobe.

Types.

- F. contigua (Walk.). Holotype, female, in British Museum. Type locality: Nova Scotia (Lieut. Redman's collection).  
F. fallax (Loew). Holotype, male, in Museum of Comparative Zoology

at Harvard College, No. 1188. Type locality: Maryland (holotype is labelled "Md."; Loew (1869) stated it was from the "Middle States").

- F. lassata (Joh.). Holotype, male, at Cornell University, No. 2068. Type locality: Felton, Santa Cruz Mts., 300-500 feet (Santa Cruz County), California. (V-20-25-1907, Bradley).  
 Material examined. 89 specimens from the following localities:  
 BRITISH COLUMBIA. Robson.  
 NOVA SCOTIA. So. of Centigonish.  
 ONTARIO. Bell's Corner; Ottawa.  
 QUEBEC. LaTrappe.  
 CALIFORNIA. Berkeley; Felton, Santa Cruz Mts., 300-500' (holotype of F. lassata); Mill Valley, Marin Co.; Oakhurst, Madera Co.; Mill Valley, Marin Co.; Oakhurst, Madera Co.; Pinecrest, Tuolumne Co.; Prairie Creek Camp, Humboldt Forest.  
 ILLINOIS. Algonquin.  
 IOWA. Ledges S.P., Boone Co.; White Pine Hollow, Dubuque Co.  
 MAINE. Mt. Desert Island: Break Neck Brook; Bubble Pond; Duck Brook.  
 MARYLAND. "Md." (holotype of F. fallax); Baltimore, Lock Raven.  
 MASSACHUSETTS. Beverly; Sunderland.  
 MICHIGAN. Douglas Lake; Mackinac Co.  
 MINNESOTA. Lake Itasca.  
 NEW HAMPSHIRE. White Mts.: Dolly Copp Camp, 1400'; Huntington Ravine, Mt. Washington, 3300' and 3500'; Tuckerman's Ravine Trail, 3100'.  
 NEW YORK. Coy Glen, near Ithaca; Ithaca; Niagara Falls; Oneonta; Taughanick Falls.  
 OREGON. Rogue River N.F., Beaver Sulphur Camp, 1750'.  
 PENNSYLVANIA. Hazleton.  
 SOUTH DAKOTA. Black Hills, Needles, 5000'.  
 UTAH. Zion N.P.

Additional previous records. Recorded as M. lassata from Vancouver, British Columbia (Sherman, 1920; Foster, 1943). The records of M. contigua of Smith (1900) and Washburn (1905) were based on specimens of F. venusta n.sp. The present writer has not been able to place certain reports of M. contigua, M. lassata and M. fallax "var. a" and these have been listed here only as Fungivora sp. The specimen recorded as M. lassata by Cole and Lovett (1921) from Oregon is not F. contigua, but the writer has not been able to determine the specimen beyond Fungivora sp. Smith (1890) recorded M. fallax from New Jersey but as he did not include this name on his later list, it is presumed that the determination was an error.

Remarks. Dr. Paul Freeman has provided information on the holotype of F. contigua which has made it possible to recognize the species.

Fungivora byersi, new species (Figs. 211, 212)

Length of male wing: 5.60-6.02 mm. Female wing: 5.56-6.59 mm. Mesoscutum dull yellow with 3 brown vittae; scutellum brown with yellowish median line and apex, sometimes mostly yellowish with brown areas basally; legs mostly yellow, femora with faint brown ventral mark apically, mid femur with narrow dark brown band apically, hind coxa with dark brown spot covering most of apical half of posterior side, hind femur with dark brown apical band, hind tibia with brown apical band; abdominal tergites I-VI mostly brown, tergites II-VI with yellow apical bands, II-III with yellow basal bands, II and sometimes III with yellow median line. Proepisternum with 4-5 (usually 5) bristles, mesepimeron with 4-8 (rarely 4). Anepisternal ratio 0.85-0.99. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 6-7 d, 1-3 (usually 1) a-d, 3-5 a, 3-5 v, 3-6 p; first two rows of anterior setulae dark brown. Hind coxa with short posterior setae. Hind tibia with 6-7 strong d (with 1-5 shorter erect bristles interspersed with the longer ones), 0 a-d, 8-9 a, 8-15 p (sometimes in 2 irregular rows). Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting slightly before, at, or slightly beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending back to  $Cu_2$ , band sometimes discontinuous; areas around tips of branches of M and Cu clouded, clouds sometimes connected; a cloud sometimes present behind  $Cu_2$ . R with 21-27 setulae below,  $R_1$  with 42-57 below, M before r-m with 2-6 below and 0-4 above. Ratio of r-m : M petiole 1.16-1.96. Apical bristles of abdominal sternites II-VI not much longer than the others. Male terminalia (Figs. 211, 212): ventral stylomere with about 20 short, stout, dorsal setae; dorsal stylomere with a long, tapering, bent process extending posteromedially from posterior margin. Female cercus 2-segmented.

Holotype. Male, White Pine Hollow, Dubuque County, Iowa, VII-4-1949, Jean Laffoon (U.S. National Museum No. 62437).

Allotype. Female, Cheboygan County, Michigan, VII-16-1943, Wayne Porter (U.S. National Museum).

Paratypes. 9 males, 17 females from the following localities:

MANITOBA. 3f, W. Hawk Lake, VIII-7-1950, G.W. Byers.

KENTUCKY. 3m, 5f, Bates Furnace, Edmonson Co., VI-19-1874, Sanborn.

MASSACHUSETTS. 1m, 1f, Chester, VIII-7.

MICHIGAN. 1m, 3f, The Gorge, UBS, Cheboygan Co., VIII-8-1950, G.W. Byers. 1m, 1f, same data as allotype.

NEW HAMPSHIRE. 1f, White Mts., Dolly Copp Camp, 1400', IX-1-1940, V. Lafleur.

NEW YORK. 1f, Ithaca, Spring 1934, E.G. Fisher. 1m, McLean Bogs, Tompkins Co., VI-30-1921. 1f, McLean Bogs, Tompkins Co., VII-9-1921. 1m, Pratt's Falls, Apulia, VIII-1-1935.

SOUTH DAKOTA. 1m, Harney N.F., Harney Trail, VII-12-1950, G.W. Byers.

VERMONT. 1f, Lake Willoughby, 1400', VI-17-29-1945, CPA.

Additional specimens. 2 specimens without abdomens from Chester, Massachusetts, VIII-7.

Remarks. The male terminalia show some similarity to those of F. cingulum (Meig.), F. sigmoides (Loew), F. venusta n. sp., F. strigatoides Landrock (= M. strygata<sup>1</sup> (sic!) Dziedzicki, 1884, not M. strygata Staeg.), F. pseudoquadra Bukowski, and F. bialorussica (Dzied.). F. byersi differs from all of these except F. bialorussica in that the dorsally projecting lobe of the dorsal stylomere is not bifid. F. bialorussica has a shorter, straighter, posteromedially directed lobe of the dorsal stylomere. Some of the species discussed under F. bohartorum are also somewhat similar, but none of them have short, stout setae dorsally on the ventral stylomere (except F. luctuosa in which said setae are marginal).

Fungivora luctuosa (Meigen) (Figs. 207, 208)

- 1830 Mycetophila luctuosa Meigen, pp. 297, 299.  
 1831 Mycetophila luctuosa, Stannius, pp. 13-14.  
 1863 Mycetophila modesta Winnertz, p. 942.  
 1863 Mycetophila luctuosa, Winnertz, pp. 942-944.  
 1884 Mycetophila modesta, Dziedzicki, pl. 7, figs. 5-8 (male term.).  
 1887 Mycetophila luctuosa, Dziedzicki, p. 43.  
 1912 Mycetophila lenta, Johannsen, p. 102. (in part, No. Car. only).  
 1912 Mycetophila extenta Johannsen, pp. 88, 105; figs. 92 (male term.), 210 (wing). New synonymy.  
 1915 Mycetophila luctuosa, Dziedzicki, p. 16; pl. 21, figs. 320-322 (male term.).  
 1920 Mycetophila extenta, Sherman, p. 15.  
 1925a Mycetophila luctuosa, Edwards, pp. 634, 640-641, 656.  
 1927 Fungivora luctuosa, Lindner, p. 108, figs. 4-5 (male term.).  
 1927 Fungivora luctuosa, Landrock, pp. 160, 170; pl. 13, fig. 3 (male term.).  
 1928 Mycetophila extenta, Leonard, p. 746.  
 1936 Mycetophila lenta, Shaw and Townes, p. 208.  
 1937 Mycetophila luctuosa, Madwar, p. 89; p. 90, figs. 340-346 (larval parts).  
 1938 Fungivora luctuosa, Barendrecht, p. 52.  
 1938 Mycetophila lenta, Brimley, p. 327.  
 1952 Fungivora extenta, Shaw and Fisher, pp. 207, 208.

Length of male wing: 2.54-3.58 mm. Female wing: 3.29-4.02 mm. Mesoscutum at least partially pruinose, mostly dark brown, humeral area, posterolateral area and prescutellar spot yellow; scutellum brown with median yellow line and yellow margin; legs mostly yellow, femora sometimes with brown lines below basally, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, II-VI sometimes with yellow apical and lateral margins. Proepisternum with 3-4

<sup>1</sup>The use of M. strygata was a lapsus in spelling of M. strigata and a misdetermination of the latter, not a proposal of a new species.

bristles, mesepimeron with 3-4. Anepisternal ratio 0.98-1.10. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 5-6 d, 1 a-d, 3-4 a, 2-3 v, 2-3 p; first two rows of anterior setulae dark brown. Hind coxa usually with several posterior setae as long or longer than the longest posterior preapical. Hind tibia with 5 strong d (without shorter erect bristles interspersed with them), 0 a-d, 6-8 a, 2-5 p. Setulae of hind tibia: first anterior row dark brown almost to base, second row dark brown on apical one-fourth to two-fifths of tibia, remaining anterior rows with dark brown setulae apically from about opposite last anterior bristle, remaining anterior setulae yellow to dingy yellow; ventral setulae yellow to dingy yellow except for usual dark brown apical group; most dorsal row of posterior setulae dark brown except near base, remaining posterior setulae dingy yellow. Wing with a distinct central spot; preapical spot starting at C well beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending across  $R_5$ , usually ending midway between  $R_5$  and  $M_{1+2}$ , sometimes extending back to behind  $M_3$ , sometimes branches of M each with a faint cloud behind preapical spot. R with 7-11 setulae below,  $R_1$  with 21-34 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 0.87-1.54. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 207, 208): ventral stylomere elongate-ovoid, bearing several stout marginal setae on the posterior half; dorsal stylomere with an elongate dorsal lobe with a stout apical seta. Female cercus 2-segmented.

#### Types.

*F. luctuosa* (Meig.). Type or types apparently lost. Type locality: not specified, Europe.

*F. modesta* (Winn.). Syntypes in Osten-Sacken collection at St. Petersburg (as of 1863) and Winnertz collection at Bonn. Type locality: not specified, Europe.

*F. extenta* (Joh.). Holotype, male, at Cornell University, No. 2074. Type locality: Ithaca, New York (IV-6-1909).

Material examined. 222 specimens from the following localities:

ALASKA. Matanuska; Nenana.

ALBERTA. Banff.

BRITISH COLUMBIA. Cultus Lake; Keremeos; Robson; Terrace.

NOVA SCOTIA. Cape Breton Island: Frizzleton; Wycocomagh.

ONTARIO. Ottawa; Simcoe; Trenton.

QUEBEC. Beech Grove; Great Whale River; LaTrappe.

SASKATCHEWAN. Saskatoon.

CALIFORNIA. Elk Valley, Del Norte Co.; Oakhurst, Madera Co.; Strawberry, Tuolumne Co.

DISTRICT OF COLUMBIA. Washington.

ILLINOIS. Algonquin; Savanna; Urbana; White Heath.

IOWA. Ames; Boone; Lacey-Keosauqua S.P., Van Buren Co.; Ledges S.P., Boone Co.; Sioux City.

KANSAS. Topeka.

MARYLAND. Baltimore; Lock Raven; Plummers Island.

MASSACHUSETTS. Amherst; Cambridge; Cummington; Sunderland.

MICHIGAN. Douglas Lake.

MINNESOTA. Jay Cooke S.P.; Olmstead Co.; St. Paul.

MONTANA. Glacier N.P., Many Glaciers.

NEW HAMPSHIRE. White Mts.: Franconia; King's Ravine Trail, 1800'; King's Ravine, Mt. Adams, 1280'.

NEW YORK. Ithaca (holotype of *F. extenta*); Long Island; New York, Postoffice; Taughanick Falls.

NORTH CAROLINA. "N.C." (paratype of *F. lenta*).

OREGON. Wallowa Mts., Wallowa Spr., 4670'.

PENNSYLVANIA. Arendtsville; Hazleton; Pittsburgh; Woolrich, Clinton Co.

SOUTH CAROLINA. Clemson; Myrtle Beach.

TEXAS. San Antonio.

WASHINGTON. Pullman.

WISCONSIN. Dane Co.; T39N, R12W, B32, Washburn Co.

WYOMING. Grand Tetons, Leigh Lake, 7000'.

European specimens examined. 9 specimens from the following localities:

CZECHOSLOVAKIA. Bilowitz; Hobitschau.

DENMARK. Rudstrup, Skov.

SWITZERLAND. Jorat, Canton of Vaud.

Additional previous records. Reported as *M. extenta* from Vancouver, British Columbia (Sherman, 1920) and Ithaca, New York (Leonard, 1928). Known from many localities in Europe.

Remarks. See remarks under *F. bohartorum* n. sp.

#### *Fungivora bohartorum*, new species (Figs. 209, 210)

Male. Wing length: 4.44-4.56 mm. Mesoscutum pruinose, yellow with 3 brown more or less fused vittae; scutellum light brown with yellowish median line and margin; legs mostly yellow, femora brownish below basally, hind femur and hind tibia with dark brown apical bands, hind coxa with dark brown mark on most of apical half behind; abdominal tergites I-VI mostly reddish-brown, II-VI with narrow apical yellow bands. Proepisternum with 4 bristles, mesepimeron with 4. Anepisternal ratio 1.10. Segments of fore tarsus subequal in thickness. Mid tibia with 6 d, 1 a-d, 3 a, 2-3 v, 4-5 p; first two rows of anterior setulae dark brown. Hind coxa with numerous posterior setae, some as long as posterior preapicals. Hind tibia with 5-6 strong d (with 5-7 shorter erect bristles interspersed with the longer ones), 0 a-d, 7 a, 7-9 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting at C just beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending to just past  $M_3$ ; a faint cloud present behind  $Cu_2$ . R with 9-10 setulae below,  $R_1$  with 32-37 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 1.57-1.66. Apical bristles of abdominal sternites not much longer than the others. Terminalia (Figs. 209, 210): ventral stylomere deeply emarginate apically, neither of the posterior lobes bearing especially stout setae; dorsal stylomere with an elongate, tapering, dorsal lobe with a long stout apical seta.

Holotype. Male, Berkeley, California, V-20-1940, G. E. Bohart (U.S. National Museum No. 62435).

Paratype. 1 male, same collection data (Bohart collection).

Remarks. The male terminalia, as well as external characters, indicate rather close affinities with *F. clavata* (V.D.), *F. luctuosa* (Meig.), *F. napaea* n.sp., *F. fraterna* (Winn.), *F. ornata* (Winn.) and *F. quadrimaculata* Bukowski. These species may all be recognized by the shape and chaetotaxy of the ventral stylomere as seen in ventral view. The European *F. fraterna*, *F. ornata* and *F. quadrimaculata* differ from the Nearctic species in having a posteriorly emarginate ventral stylomere with several long prominent setae apically on the lateral lobe. The Nearctic species may be distinguished by characters mentioned in the descriptions of their terminalia. It is quite likely that *F. quadrimaculata* is a synonym of *F. ornata* as Bukowski's (1934) description and figure agree closely with specimens of *F. ornata*.

This species is named for the collector, Dr. G. E. Bohart, and his brother, Dr. R. M. Bohart, who made the specimens available for study.

*Fungivora venusta*, new species (Figs. 213, 214).

- 1900 *Mycetophila contigua*, Smith, p. 624.  
 1905 *Mycetophila* ? *contigua*, Washburn, p. 56.  
 1910 *Mycetophila contigua*, Smith, p. 724.  
 1912 *Mycetophila trichonota*, Johannsen, pp. 88, 106; fig. 94 (male term.). (in part, "var. a" only, N.Y.)  
 1928 *Mycetophila trichonota*, Leonard, p. 746.

Length of male wing: 2.04-3.81 mm. Female wing: 2.25-4.73 mm. Mesoscutum shining, mostly dark brown, humeral area and posterolateral area yellow; scutellum dark brown, somewhat paler below; legs mostly yellow, hind femur with dark brown apical band; abdominal tergites I-VI mostly dark brown, pale brown to yellow laterally. Proepisternum with 3-5 bristles, mesepimeron with 2-4. Anepisternal ratio 0.89-1.02. Segments 2, 3 and 4 of fore tarsus distinctly thicker than 1 in both sexes. Mid tibia with 4-5 d, 1 a-d, 3 a, 2-3 (usually 2) v, 2-4 p; first two rows of anterior setulae dark brown. Hind coxa usually with some posterior setulae nearly as long as the posterior preapicals, posterior setae sometimes rather short. Hind tibia with 5-6 strong d (in one specimen with 1 shorter erect bristle between the larger ones), 0 a-d, 5-7 a, 3-5 p. Hind tibial anterior and ventral setulae dark brown. Wing with a distinct central spot; preapical spot starting just before, at, or somewhat past tip of  $R_1$ , proximal part extending at least to  $M_{1+2}$ , sometimes as far as  $Cu_1$ . R with 12-17 setulae below,  $R_1$  with 22-30 below, M before r-m with 1-2 below and 0 above. Ratio of r-m : M petiole 1.42-2.37. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 213, 214): ventral stylomere with several short stout dorsal setae posteromedially and with a row of stout setae along the posterolateral margin (best seen in lateral or dorsal view); dorsal stylomere with distal portion deeply bifid apically; basal portion of dorsal stylomere bearing a flattened, apically expanded,

posteromedially directed process on its posteromedian border. Female cercus 2-segmented.

Holotype. Male, Matanuska, Alaska, V-15-1944, rotary trap, J. C. Chamberlin (U. S. National Museum No. 62470).

Allotype. Female, same data and depository as holotype.

Paratypes. 56 males, 92 females from the following localities:

- ALASKA. 11m, 22f, Matanuska, 8 dates from IV-28 to V-25 in 1944, rotary trap, J. C. Chamberlin.  
 ALBERTA. Edmonton, E.H. Strickland: 1f, VII-12-1948; 1m, VII-25-1945; 1m, VIII-2-1948.  
 NOVA SCOTIA. 2m, Frizzleton, Cape Breton Island, VIII-30-1946.  
 ONTARIO. Ottawa, G.E. Shewell: 1m, VI-5-1946; 1m, 1f, VI-17-1946; 1f, X-7-1947. 1m, Simcoe, VI-8-1938, G.E. Shewell. 1m, Waubamic, Parry Sound, VI-7.  
 QUEBEC. 1f, LaTrappe, V-30-1936, J. Ouellet.  
 SASKATCHEWAN. 2m, Christopher Lake, VIII-10-1948, A. Brooks.  
 ARKANSAS. 1f, Marble Falls, V-12-1936.  
 ILLINOIS. 1f, Havana, river shore, XI-16-1913. 1m, 4f, Oregon, VI-19-1917. 1f, St. Joseph, Salt Fork, V-17-1914. 1f, Urbana, VI-1-1916. 1f, Urbana, VII-23-1915, window. 17m, 19f, White Heath, near Sangamon River, IX-24-1939, Ross and Riegel.  
 IOWA. 1f, Ames, V-16-1951, light trap, J.C. Browning. 1m, Ames, VI-10-1952, W.L. Downes. 1f, Ames, X-3-1953, JL. 1f, "Co. 77" (Muscatine Co.), VI-22-1937, B. Berger. 1m, 1f, Dolliver Memorial S.P., Webster Co., VI-30-1950, JL. 1f, Sioux City, VI-10-1949, J.A. Slater and JL. Ledges S.P., Boone Co., JL: 1m, 1f, V-4-1952; 1f, V-18-1949; 1m, IX-29-1949; 1f, IX-25-1950.  
 MAINE. 1f, Kellyland, VII.  
 MARYLAND. 1f, Plummers Island, VII-11-1915, at light, R.C. Shannon Coll.  
 MASSACHUSETTS. 1f, Amherst, X-1-1951, light trap, E.I. Coher. 1m, Beverly, IX-28-1870. 1f, Blue Hill, X-8, N. Banks. 2f, Cambridge, Osten Sacken Coll.  
 MICHIGAN. 2m, "Ag. Coll.", XII-15-1923.  
 MINNESOTA. 1f, Carver Co., V-9-1939, P.M. Schroeder. 1f, Crookston, VII-3-1937, light trap, D.G. Denning. 1f, Hennepin Co., O.W. Oestlund. 1f, Jay Cooke S.P., VI-21-1936. 1f, Lake Itasca, IX-1-1948, JL. 1f, Lake Itasca, IX-3-1950, JL. 1f, Mille Lacs Co., X-2-1938, H.T. Peters. 1m, Olmstead Co., C.N. Ainslie.  
 NEW HAMPSHIRE. 1f, Exeter, VIII. 1f, Glen House, VII-23. 1f, Gorham, VII-4-1933, CPA. 1m, 1f, White Mts., King's Ravine Trail, X-12-1940, E.W. King, J. Hanson. 1f, White Mts., Tuckerman's Ravine Trail, 2500', IX-4-1940, V. Lafleur.  
 NEW YORK. 1f, Beaverkill, Sullivan Co., VIII-4. 2f, Beaverkill, Sullivan Co., VIII-10. 1m, Ithaca, V-10-1936, H.K. Townes. 1f, Ithaca, VI-11-1935, H.K. Townes.  
 PENNSYLVANIA. 1f, Hazleton, V-24-1910, Dietz. 1f, Hazleton, IX-21-1910, Dietz. 1m, Swarthmore, VI-6-1909, E.T. Cresson, Jr.  
 SOUTH DAKOTA. 1m, Brookings, V-3-1912, H.C. Severin.

TEXAS. San Antonio, light trap, D.E. Hardy: 1m, IV-9-1945; 1m, IV-20-1945.

VERMONT. 1m, Norwich, VII-7, C.W. Johnson.

WISCONSIN. 1f, Madison, VI-16-1953, L.K. Smith. 1f, Squaw Lake, Vilas Co., J.L. T39N, R12W, B32, Washburn Co., light trap, R.H. Jones: 1m, V-6-1953; 1f, VII-6-1952; 1f, VII-19-1953; IX-10-1952; 1f, IX-11-1952; 1f, IX-19-1953.

Additional specimens. 4 males, 1 female, and 1 specimen without abdomen, from the following localities:

NEW JERSEY. 1m, 1 without abdomen, Riverton, III-6-1898 and III-8-1898 (reported as M. contigua by Smith, 1900).

NEW YORK. 3m, Ithaca, VII and VIII (reported as M. trichonota var. a by Johannsen, 1912). 1f, Lick Brook, IV-14-1935.

Previous additional records. Reported as M. trichonota var. a from Albany, New York (Leonard, 1928).

Remarks. The male terminalia somewhat resemble the species mentioned in the remarks under F. byersi n. sp. and F. bohartorum n. sp., differing from all except F. cingulum (Meig.), F. sigmoides (Loew), F. strigatoides Landrock and F. pseudoquadra Bukowski by the presence of the bifid distal portion of the dorsal stylomere. F. cingulum and F. sigmoides both have anterodorsals on the hind tibia and differ from F. venusta in several respects in the male terminalia. In proposing F. strigatoides, Landrock (1927) based the species solely on Dziedzicki's (1884) figures of "Mycetophila strygata". If those figures are accurate, F. strigatoides differs from F. venusta in not having a basally constricted process extending from the posteromedian margin of the dorsal stylomere. Likewise, F. pseudoquadra and F. venusta would differ in the same manner. Also, both species apparently differ from F. venusta on the distribution of setae on the dorsal stylomere, especially near the point of attachment of the stylomere. However, a restudy of these European species is desirable, as they may be identical with each other, or one or both may possibly be the same as F. venusta. The latter possibility is thought unlikely because of the probable differences mentioned.

#### Fungivora napaea, new species (Figs. 205, 206)

Length of male wing: 3.54-3.64 mm. Female wing: 3.81 mm. Mesoscutum pruinose, usually nearly entirely dark brown with faint yellowish areas just before scutellum, sometimes dingy yellow with 3 dark brown vittae more or less fused behind; scutellum mostly dark brown with somewhat paler median apical area; legs mostly yellowish, femora brownish below near base, coxae often brownish outwardly, hind femur with dark brown apical band, hind tibia brownish apically; abdominal tergites I-VI dark brown, II-VI sometimes with faint yellowish apical bands. Proepisternum with 3-4 bristles, mesepimeron with 4. Anepisternal ratio 1.07-1.20. Segments of fore tarsus subequal in thickness in both sexes. Mid tibia with 4-6 d, 1 a-d, 2-3 a, 2-4 (usually 2) v, 3-4 p; first two rows of anterior setulae dark brown. Hind coxa with at least a few of the posterior setae over half as long, or sometimes as long, as the posterior preapicals. Hind tibia with 5 strong d (with 1-3 shorter

erect bristles interspersed with longer ones), 0 a-d, 6-7 a, 1-3 p. Setulae of hind tibia: anterior setulae dark brown; most ventral setulae dark brown, with some dull yellow setulae on basal third. Wing with a distinct central spot; preapical spot starting at C well past tip of  $R_1$ , filling apex of cell  $R_1$ , proximal part extending at least to  $M_{1+2}$ , sometimes to just beyond  $M_3$ . R with 8-10 setulae below,  $R_1$  with 23-27 below, M before r-m with 0 below and above. Ratio of r-m : M petiole 1.17-1.26. Apical bristles of abdominal sternites not much longer than the others. Male terminalia (Figs. 205, 206): ventral stylomere not distinctly emarginate posteriorly, posterolaterally with several setae distinctly more prominent than the others; dorsal stylomere with an elongate tapering dorsal lobe with a long stout apical seta.

Holotype. Male, Lake Itasca, Clearwater County, Minnesota, IX-1-1948, Jean Laffoon (U. S. National Museum No. 62456).

Allotype. Female, type locality, IX-2-1950, Jean Laffoon.

Paratypes. 3 males, 2 females from the following localities:

NEW BRUNSWICK. 1m, 2f, Taymouth, VII-5-1931, CPA.

MINNESOTA. 2m, type locality, IX-2-1950, J.L.

Remarks. See remarks under F. bohartorum n. sp.

#### Fungivora parva (Walker), new combination

1848 Mycetophila parva Walker, p. 97.

1912 Mycetophila parva, Johannsen, pp. 89, 107.

1926a Mycetophila parva, Johannsen, p. 52.

Female. Wing length: about 3.5 mm. Hind femur with a dark line above from near base to apex. Segments of fore tarsus subequal in thickness. Mid tibia with 0 a-d, 3 a, at least 3 v; first two rows of anterior setulae dark brown. Hind coxa with posterior setae moderate in length, shorter than posterior preapicals. Hind tibia without shorter erect bristles interspersed with longer ones of dorsal row, 0 a-d. Anterior setulae of hind tibia all dark brown. Wing with a central spot; preapical spot starting at C well before tip of  $R_1$ , proximal part extending back to about  $M_{1+2}$ . R with 9 setulae below, M before r-m with at least 10 below. Apical bristles of abdominal sternites not much longer than the others. Cercus 2-segmented.

#### Type.

F. parva Walk. Holotype female in British Museum. Type locality: St. Martin's Falls, Albany River, Hudson's Bay (Western Ontario) ("Presented by G. Barnston, Esq.").

Remarks. The above description is based mainly on notes on the holotype supplied by Dr. Paul Freeman. The combination of characters indicates that the species would almost certainly fall into the complex of species discussed under F. propinqua (Walk.) earlier in this paper. It is quite possible that it is identical with one of the species listed there. As those species are, for the most part, recognizable only in the male sex at present, proper placement of F. parva will probably have to await further studies on the characteristics of the females of these species.

## UNPLACED CITATIONS OF NEARCTIC SPECIES

The writer has been unable to settle to his own satisfaction the identifications of the specimens represented by the following references. It is felt that most of them probably do not belong to the species indicated by the authors. Therefore, they are here designated only as "Fungivora species". Records originally cited as "sp. 40" or the like are ignored.

- 1925b Mycetophila biplagiata Johnson, p. 64. Nude name in compliance with ruling of International Commission on Zoological Nomenclature (1953, p. 63).
- 1897 Mycetophila bipunctata, Slosson, p. 239.
- 1912 Mycetophila bipunctata, Johannsen, p. 97. (in part, N. J.).
- 1920 Mycetophila bipunctata, Sherman, p. 15.
- 1925a Mycetophila bipunctata, Johnson, p. 87. (in part, N. H.).
- 1928 Mycetophila bipunctata, Leonard, p. 746. (in part, Erie Co. and Niagara Falls, N. Y.).
- 1936 Mycetophila bipunctata, Shaw and Townes, p. 206.
- 1938 Mycetophila bipunctata, Brimley, p. 327.
- 1952 Fungivora bipunctata, Shaw and Fisher, p. 208. (in part, N. H.).
- 1920 Mycetophila contigua, Britton, p. 168.
- 1907 Mycetophila discoidea, Banta, p. 36.
- 1910 Mycetophila discoidea, Smith, p. 724.
- 1915 Mycetophila discoidea, Winn and Beaulieu, p. 119.
- 1920 Mycetophila discoidea, Britton, p. 168.
- 1925a Mycetophila discoidae (sic!), Johnson, p. 88.
- 1952 Fungivora discoidea, Shaw and Fisher, p. 208.
- 1912 Mycetophila edentula, Johannsen, p. 105 (in part, N. H.).
- 1920 Mycetophila edentula, Sherman, p. 15. (in part, Vancouver and Agassiz, B. C.).
- 1925a Mycetophila edentula, Johnson, p. 87.
- 1912 Mycetophila edura, Johannsen, pp. 103-104. (in part, Wisc.).
- 1890 Mycetophila extincta (sic!), Smith, p. 362.
- 1912 Mycetophila falcata, Johannsen, p. 87. (in part, female only).
- 1890 Mycetophila fallax, Smith, p. 362.
- 1912 Mycetophila fallax, Johannsen, p. 101. (in part, "var. a" only).
- 1936 Mycetophila fungorum, Shaw and Townes, p. 207.
- 1943 Mycetophila fungorum, McClure, p. 16.
- 1946 Mycetophila fungorum, Strickland, p. 160.
- 1903 Mycetophila ichneumonea, Johnson, p. 104.

- 1920 Mycetophila imitator, Sherman, p. 15.
- 1912 Mycothera impellans, Johannsen, p. 84. (in part, female of "var. a").
- 1920 Mycothera impellans, Sherman, p. 14.
- 1925a Mycothera impellans, Johnson, p. 86.
- 1927 Mycothera impellans, Johnson, p. 176.
- 1938 Mycetophila impellans, Procter, p. 312.
- 1946 Mycetophila impellans, Procter, p. 362.
- 1952 Fungivora impellans, Shaw and Fisher, p. 208. (in part, all except N. Y.).
- 1912 Mycetophila inculca, Johannsen, pp. 97-98. (in part, Ill. only).
- 1921 Mycetophila lassata, Cole and Lovett, p. 221.
- 1946 Mycetophila lassata?, Strickland, p. 161.
- 1940 Mycetophila fungorum var. obscura Shaw<sup>1</sup> (not Walker, 1848, or Dziedzicki, 1884), p. 50. Nude name.
- 1890 Mycetophila pectita?, Strickland, p. 161.
- 1890 Mycetophila polita, Smith, p. 362.
- 1890 Mycetophila procera, Smith, p. 362.
- 1912 Mycetophila punctata, Johannsen, pp. 92-93. (in part, Alabama).
- 1897 Dynastosoma (sic!) scalaris, Slosson, p. 239.
- 1912 Mycetophila scalaris, Johannsen, p. 98. (in part, Kans., Vt., Wisc.).
- 1920 Mycetophila scalaris, Britton, p. 168.
- 1921 Mycetophila scalaris, Weiss, p. 86.
- 1925a Mycetophila scalaris, Johnson, p. 87.
- 1927 Mycetophila scalaris, Johnson, p. 176.
- 1928 Mycetophila scalaris, Leonard, p. 746.
- 1938 Mycetophila scalaris, Procter, p. 311.
- 1940 Mycetophila scalaris, Jaques and Berger, p. 421.
- 1943 Mycetophila scalaris, McClure, p. 16.
- 1946 Mycetophila scalaris, Procter, p. 362.
- 1952 Fungivora scalaris, Shaw and Fisher, pp. 207, 208.
- 1920 Mycetophila socia var., Sherman, p. 15.
- 1925a Mycetophila trichonota, Johnson, p. 87.
- 1952 Fungivora trichonota, Shaw and Fisher, p. 207, 208.

<sup>1</sup>Shaw attributed this name to Fisher, but Fisher has never proposed in publication an obscura in Mycetophila.

## RECORDS OF NEARCTIC SPECIES REFERRED TO OTHER GENERA

Platurocypta sp.

1912 Mycothera fenestrata var. praenubila, Johannsen, p. 83. (in part, Wisconsin paratype only).

Phronia sp.

1897 Mycetophila n. sp. Slosson, p. 239.

Leia winthemii (Lehman)

1898 Mycetophila sigmoides, Slosson, p. 252.

1925a Mycetophila sigmoides, Johnson, p. 87. (in part, White Mts. record).

NEARCTIC SPECIES ORIGINALLY ASSIGNED TO  
MYCETOPHILA BUT BELONGING TO OTHER GENERA

Mycetophila analis Adams (Junior primary homonym of M. analis Meigen, 1818), in Banta, 1907, p. 37.

Johannsen (1912) transferred this species to Exechia.

Mycetophila anomala Johannsen, 1912, pp. 86, 96; figs. 77 and 199.

Johannsen (1926b) transferred this species to Delopsis. The present writer has examined the holotype and finds that the name should be treated as a synonym of Epicrypta scatophora (Perris) (New synonymy).

Mycetophila bifasciata Walker, 1848, p. 97.

Edwards (1913b) transferred this species to Dynatosoma. This move was confirmed by Johannsen (1926a).

Mycetophila despecta Walker, 1848, p. 101.

Edwards (1913b) transferred this species to Phronia and his action was confirmed by Johannsen (1926a).

Mycetophila Hopkinsii Coquillett, 1895, p. 200.

Coquillett (1901) referred this species to Leia (as Leja), but Johannsen (1909a) placed it in Boletina. The present writer has examined the holotype and confirms Johannsen's action.

Mycetophila incerta Adams, in Banta, 1907, p. 37.

Johannsen (1912) transferred this species to Phronia.

Mycetophila maculipennis Say, in Keating, 1825, p. 94.

Osten Sacken (1878) made this name a synonym of Leia winthemii (Lehman) (as Neoglaphyroptera Winthemii).

Mycetophila nubila Say, 1829, p. 153.

No writer since Say has claimed to recognize this species. Johannsen (1909a) suggested that it might "perhaps" belong to Allodia. Say stated that it belongs to "Meigen's fifth division", that is Meigen's group "E", based on wing venation. This group originally included only what is now considered to be Rhymosia domestica (Meig.). Say also stated that the "capitulum" (knob of halter) is "dusky before the tip". Since the Nearctic species of Fungivora without wing spots all have the knob of the halter pale, it seems clear that M. nubila is not a species of Fungivora. It probably belongs to one of the genera of Exechini.

Mycetophila obscura Walker, 1848, p. 101.

Johannsen (1926a) states: "All that remains of the single type specimen are fragments consisting of wings and legs gummed on cards. It is apparently a Phronia."

Mycetophila persicae Riley, 1867, p. 397.

Johannsen (1909a) placed this species in Mycetobia.

Mycetophila plebeia Walker, 1848, p. 100.

Edwards (1913b) transferred this species to Exechia and Johannsen (1926a) confirmed Edwards' action.

Mycetophila sericea Say, in Keating, 1825, p. 93.

Johannsen (1909a) first suggested that this species might belong to Allodia or Rhymosia, and later (1912) stated it might be an Allodia. Say's original description indicates that the wing venation is like that of Rhymosia fasciata (Meigen), but that it has "three abbreviated nervures" as in Exechia lateralis (Meigen). Say almost undoubtedly came to this conclusion after studying pl. 9, figs. 20-21 of Meigen (1818). Meigen's text indicated that the wing of E. lateralis was of the type shown by fig. 20 and R. fasciata of the type shown by fig. 21. Since in fig. 21 the cubital fork is well before the fork of M (and even before r-m), we may conclude that such is also the case in M. sericea. In fig. 20, three posterior lines indicate a short, well-defined cubital fold, a short well-developed anal vein and another more posterior short vein or fold. Thus, if Say's description is correct, it seems fair to conclude that the venation

of M. sericea is of the type found in Rhymosia. No other characters mentioned by Say would indicate that M. sericea does not belong to this genus. Therefore, the species is here transferred as Rhymosia sericea (Say), new combination.

Mycetophila vitrea Coquillett, 1905, pp. 68-69.

The author has seen the two syntypes and finds that this species is not a Fungivora but should be placed as a synonym of Epicrypta scatophora (Perris) (new synonymy).

PALAEARCTIC SPECIES EXAMINED  
NOT KNOWN IN NEARCTIC REGION

- F. adumbrata (Mik) (1 male).  
BRITAIN. Banchory.
- F. bialorussica (Dzied.) (1 male).  
BRITAIN. Logie, Elgin.
- F. blanda (Winn.) (34 males, 23 females).  
CZECHOSLOVAKIA. 4 localities.  
SWITZERLAND. 4 localities.
- F. curviseta (Lundst.) (2 males).  
BRITAIN. Sidmouth, S. Devon.  
HUNGARY. Locality name illegible.
- F. czižekii (Landrock) (2 males).  
CZECHOSLOVAKIA. Bilowitz.
- F. forcipata (Lundst.) (1 male).  
CZECHOSLOVAKIA. Mohratal, Moravia.
- F. formosana (Lundst.) (2 males).  
SWITZERLAND. Crans, Valais Canton; Vallorbe, Vaud Canton.
- F. fraterna (Winn.) (3 males).  
BRITAIN. Sannox, Arran.  
SWITZERLAND. Jorat, Vaud Canton.
- F. freyi (Lundst.) (1 male).  
BRITAIN. Logie.
- F. gibbula (Edwards) (2 males).  
BRITAIN. Crowborough, Sussex; Dingwall.
- F. magnicauda (Strobl) (1 female).  
SWITZERLAND. Crans, Valais Canton.

- F. marginata (Winn.) (15 males, 15 females).  
BRITAIN. 3 localities.  
CZECHOSLOVAKIA. 3 localities.  
DENMARK. Silkeborg.  
SPAIN. San Rafael, Prov. of Segovia.  
SWITZERLAND. 4 localities.
- F. obscura (Dzied.) (not Walker) (5 males, 2 females).  
CZECHOSLOVAKIA. 4 localities.  
SWITZERLAND. Crans, Valais Canton.
- F. occultans (Lundst.) (1 male).  
CZECHOSLOVAKIA. Bilowitz.
- F. ornata (Stephens) (4 males, 7 females).  
BRITAIN. 4 localities.  
CZECHOSLOVAKIA. 3 localities.  
DENMARK. Silkeborg.  
SWITZERLAND. Les Pleiades, Vaud Canton.
- F. pumila (Winn.) (1 male, 1 female).  
BRITAIN. Strelley, Notts.
- F. semifusca (Meigen) (1 male).  
BRITAIN. Shevioc, Cornwall.
- F. spectabilis (Winnertz) (3 males, 1 female).  
CZECHOSLOVAKIA. Brno.
- F. stylata (Dzied.) (18 males).  
CZECHOSLOVAKIA. 2 localities.  
SWITZERLAND. 3 localities.
- F. v-nigrum (Lundst.) (1 male, 1 female).  
CZECHOSLOVAKIA. Adamstal.
- F. zetterstedtii (Lundst.) (1 male).  
FINLAND. Syntype of F. zetterstedtii, labelled "H:Fors."  
Presumably from Kuustö, as all males of the original series came from that locality.

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#### REMARKS ON ILLUSTRATIONS

All figures of the female cerci are lateral views of the left side. The male terminalia of all described Nearctic species of *Fungivora* are figured except *F. laeta* (Walk.), *F. parva* (Walk.) and *F. procera* (Loew). In nearly all cases two figures of the male terminalia are included for each species. Unless otherwise specified, the first one in each instance is a ventral view of the left ventral stylomere and the left half of the fused gonocoxopodites, and the second is of the dorsal stylomere. In some cases a portion of the right half of the fused gonocoxopodites is shown on the first figure.

It is difficult to determine the normal position of the dorsal stylomere, and its position may be changed by slight pressure with a needle. In view of this, no statement is made as to the views drawn of the dorsal stylomeres. An attempt was made to choose views which most clearly convey the shapes of the individual species. In most cases closely related species were drawn from nearly identical views. A portion of the border of the gonocoxopodite is shown in each figure for purposes of orientation and a portion of the dorsal margin of the ventral stylomere is included in some. Comparisons of specimens with the figures should be made with care and it will frequently be necessary to turn the specimen to several different angles before obtaining a view comparable to that figured.

The scale of magnification in all figures on Plates II-XII is 106x with the exception of the figures of *F. analis* (Coq.), on which the magnification is now known. Nearly all specimens figured have been labelled "specimen illustrated". The locality for each specimen is indicated after the figure number.

## PLATE I

Fig. 1. *Fungivora ruficollis* (Meig.). Wing, ventral view, 16x. Setulae of costal vein omitted. Veins: An, anal; Cu<sub>1</sub>, cubitus-one; Cu<sub>2</sub>, cubitus-two; Cu<sub>f</sub>, cubital furrow; h, humeral cross-vein; M, medius; M<sub>1+2</sub>, medius-one-plus-two; M<sub>3</sub>, medius-three; M<sub>p</sub>, medial petiole; R, radius; R<sub>1</sub>, radius-one; R<sub>5</sub>, radius-five; Rs, radial sector; r-m, radial-medial cross-vein. (San Rafael, Spain).

Fig. 2. *F. ruficollis* (Meig.). Veins of central part of wing, 41x. Setulae omitted. Abbreviations as in Fig. 1. Broken lines indicate extents of r-m and M<sub>p</sub> as arbitrarily used in this paper. (San Rafael, Spain).

Fig. 3. *F. ruficollis* (Meig.). Thorax, lateral view, 41x. Setae omitted on mesoscutum and scutellum. AES<sub>2</sub>, anepisternum (of mesothorax); C<sub>1</sub>, fore coxa; C<sub>2</sub>, mid coxa; C<sub>3</sub>, hind coxa; EM<sub>1</sub>, proepisternum (episternum of prothorax); EM<sub>2</sub>, mesepimeron (epimeron of mesothorax); KES, katepisternum (of mesothorax); MT, mediotergite; PLT, pleurotergite; PN, pronotum; T I, abdominal tergite I. (Saratoga, Calif.).

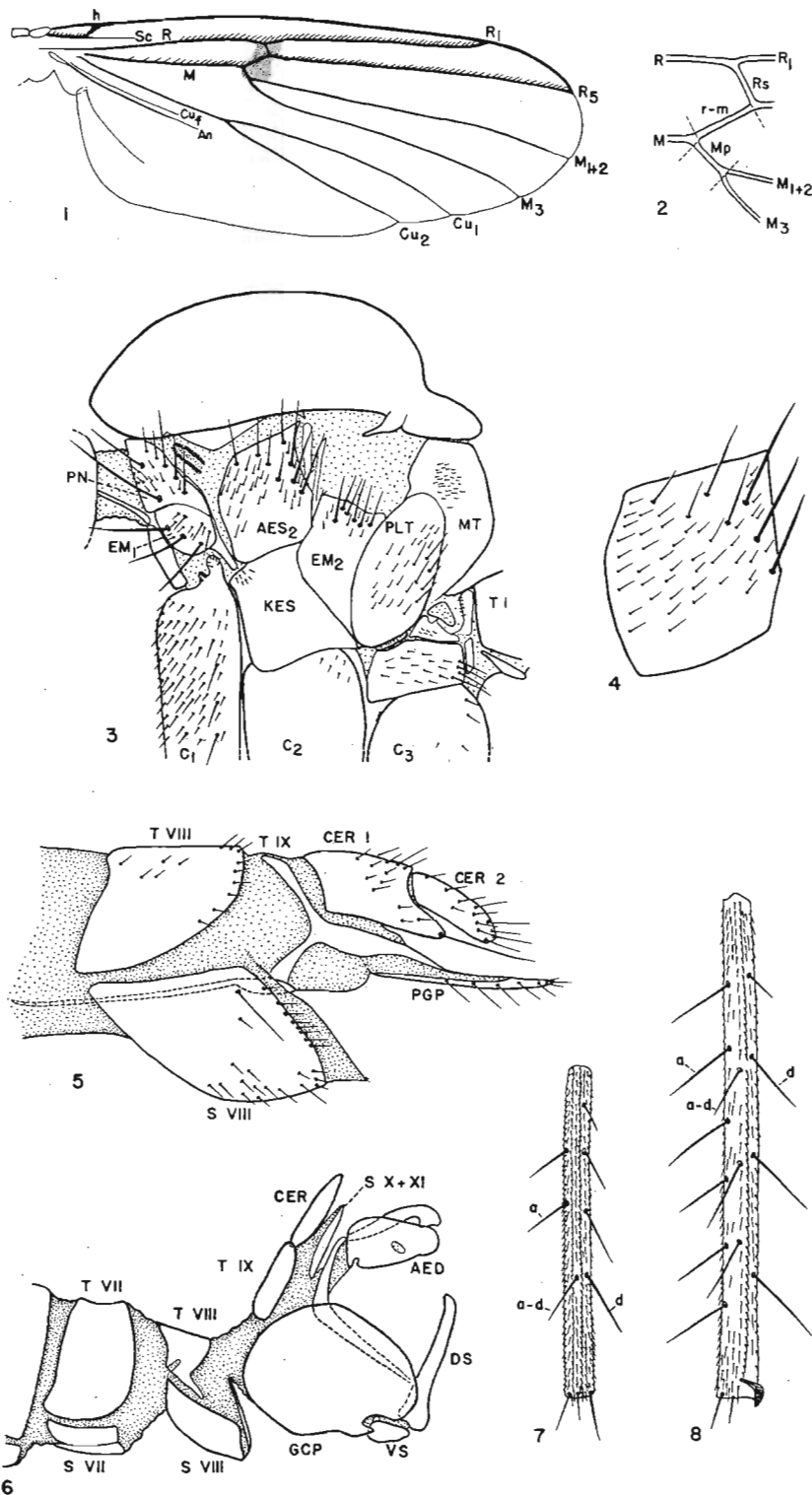
Fig. 4. *F. falcata* (Joh.). Anepisternum, 106x. (Bonny Doon, Calif.).

Fig. 5. *F. ichneumonea* (Say). Female terminalia, lateral view, 106x. CER 1 and 2, first and second segments of cercus; PGP, postgenital plate (sternites X and XI); S VIII, sternite VIII; T VIII and IX, tergites VIII and IX. (Ledges S.P., Iowa).

Fig. 6. *F. sepulta* n.sp. Male terminalia, lateral view, 64x. Setae omitted. AED, aedeagus; CER, cercus; DS, dorsal stylo-mere (of gonostylus); GCP, gonocoxopodite; S VII, VIII and X+XI, sternites VII, VIII and X-plus-XI; T VII, VIII and IX, tergites VII, VIII and IX; VS, ventral stylo-mere (of gonostylus). (Holotype).

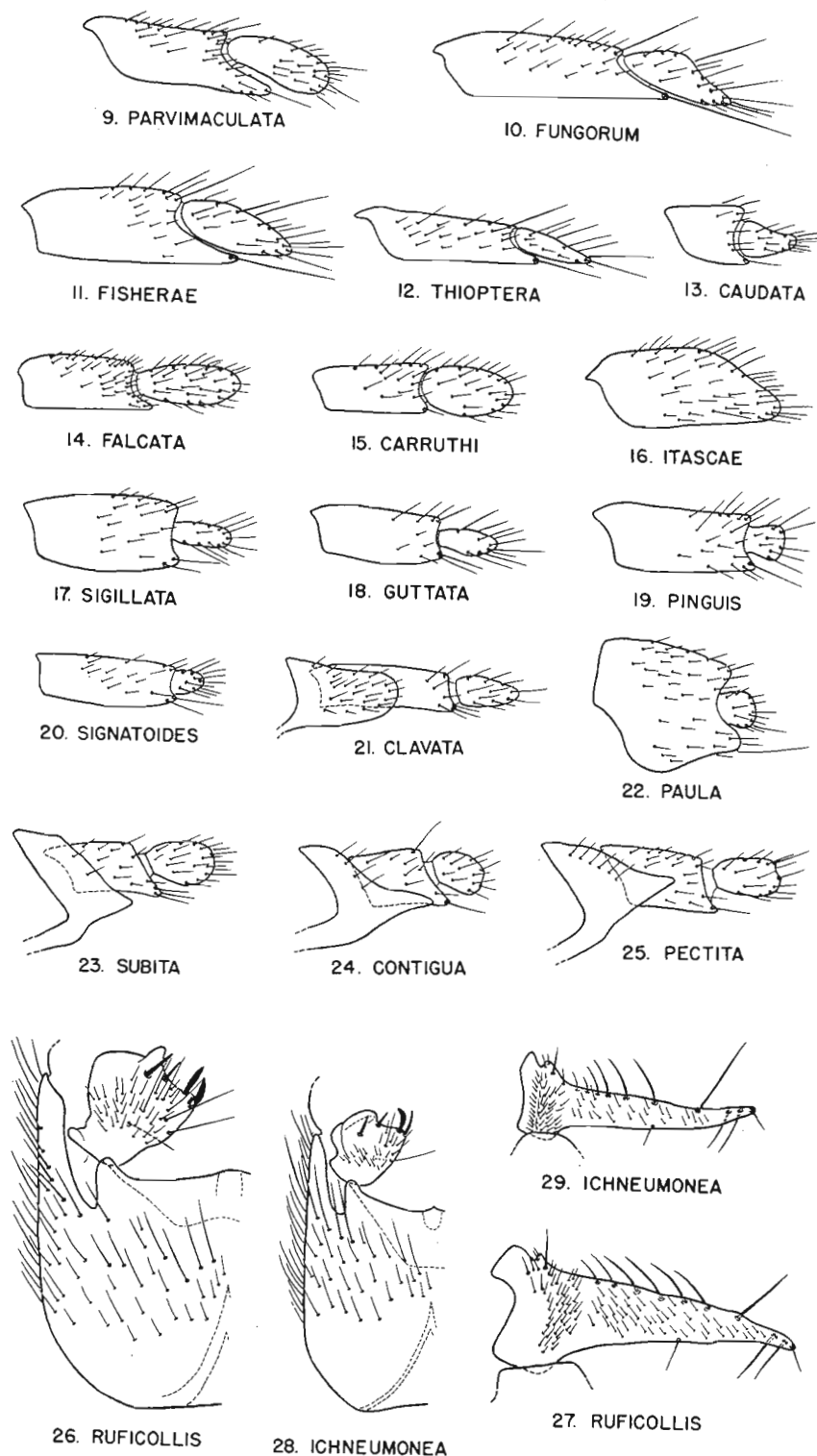
Fig. 7. *F. perita* (Joh.). Left mid tibia, dorsal view, turned slightly anteriorad, 50x. a, anterior bristle; a-d, anterodorsal bristle; d, dorsal bristle. (Ledges S.P., Iowa).

Fig. 8. *F. perita* (Joh.). Left hind tibia, dorsal view, turned slightly anteriorad, 50x. Abbreviations as in Fig. 7. (Ledges S.P., Iowa).



## PLATE II

- Fig. 9. *F. parvamaculata* (V.D.). Female cercus (San Mateo Co., Calif.).
- Fig. 10. *F. fungorum* (DeG.). Female cercus (Fort Lewis, Wash.).
- Fig. 11. *F. fisherae* n.sp. Female cercus (LaTrappe, Quebec).
- Fig. 12. *F. thioptera* (Shaw). Female cercus (3 miles east of Orlando, Florida).
- Fig. 13. *F. caudata* (Staeg.). Female cercus (Sioux City, Iowa).
- Fig. 14. *F. falcata* (Joh.). Female cercus (Pincrest, Calif.).
- Fig. 15. *F. carruthi* (Shaw). Female cercus (Wind Cave, So. Dak.).
- Fig. 16. *F. itascae* n.sp. Female cercus (Allotype).
- Fig. 17. *F. sigillata* (Dzied.). Female cercus (Twin Creek Camp, Idaho).
- Fig. 18. *F. guttata* (Dzied.). Female cercus (Ledges S.P., Iowa).
- Fig. 19. *F. pinguis* (Loew). Female cercus (White Pine Hollow, Iowa).
- Fig. 20. *F. signatoides* (Dzied.). Female cercus (Sioux City, Iowa).
- Fig. 21. *F. clavata* (V.D.). Female tergite IX and cercus (Prairie Creek Camp, Calif.).
- Fig. 22. *F. paula* (Loew). Female cercus (Pincrest, Calif.).
- Fig. 23. *F. subita* n.sp. Female tergite IX and cercus (Mt. Rainier N.P., Wash.).
- Fig. 24. *F. contigua* (Joh.). Female tergite IX and cercus (Ithaca, New York).
- Fig. 25. *F. pectita* (Joh.). Female tergite IX and cercus (Mill Valley, Calif.).
- Figs. 26, 27. *F. ruficollis* (Meig.). Male terminalia (Crater Lake, Ore.).
- Figs. 28, 29. *F. ichneumonea* (Say). Male terminalia (5 miles west of Walker, Minn.).





## PLATE III. Male Terminalia

Figs. 30,31. *F. parvimaculata* (V.D.). (Alma, Calif.).

Figs. 32,33. *F. sepulta* n.sp. (holotype).

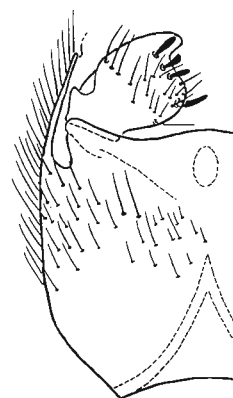
Figs. 34,35. *F. fisherae* n.sp. (Ames, Iowa).

Figs. 36,37. *F. thioptera* (Shaw). (Victoria, Texas).

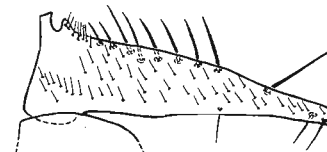
Figs. 38,39. *F. fungorum* (DeG.). (Stanford University, Calif.).

Figs. 40,41. *F. carruthi* (Shaw). (Robson, Br. Col.).

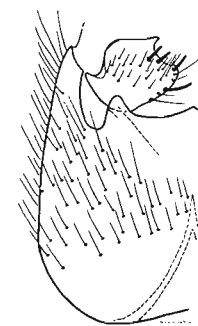
Figs. 42,43. *F. lenis* (Joh.). (holotype).



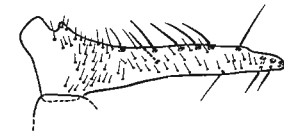
30. PARVIMACULATA



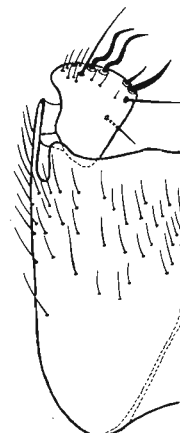
31. PARVIMACULATA



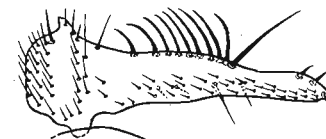
32. SEPULTA



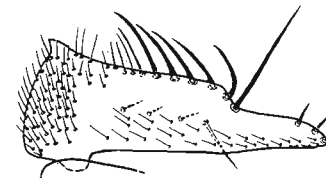
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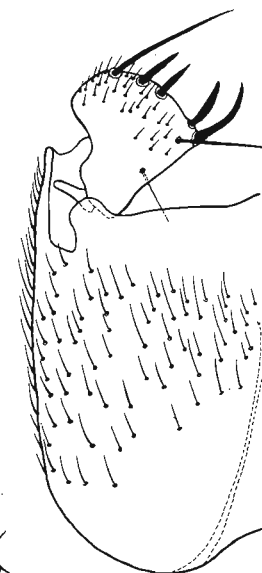
34. FISHERAE



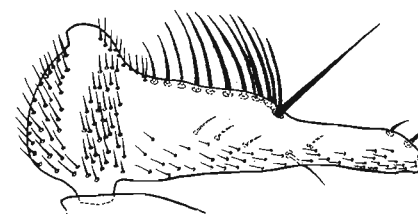
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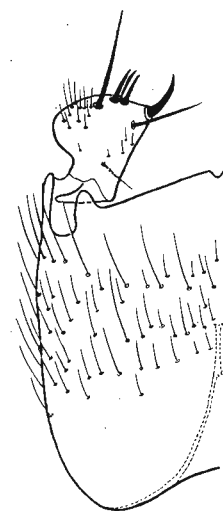
37. THIOPTERA



38. FUNGORUM



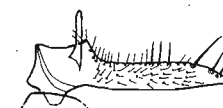
39. FUNGORUM



36. THIOPTERA



40. CARRUTHI



41. CARRUTHI



43. LENIS



42. LENIS

## PLATE IV. Male Terminalia

Figs. 44, 45. *F. falcata* (Joh.). (Itasca S.P., Minn.).

Figs. 46, 47. *F. illudens* n.sp. (holotype).

Figs. 48, 49. *F. browningi* n.sp. (holotype).

Figs. 50, 51. *F. vegeta* n.sp. (holotype).

Figs. 52, 53. *F. analis* (Coq.). (holotype).

Figs. 54, 55. *F. caudata* (Staeg.). (Itasca S.P., Minn.).

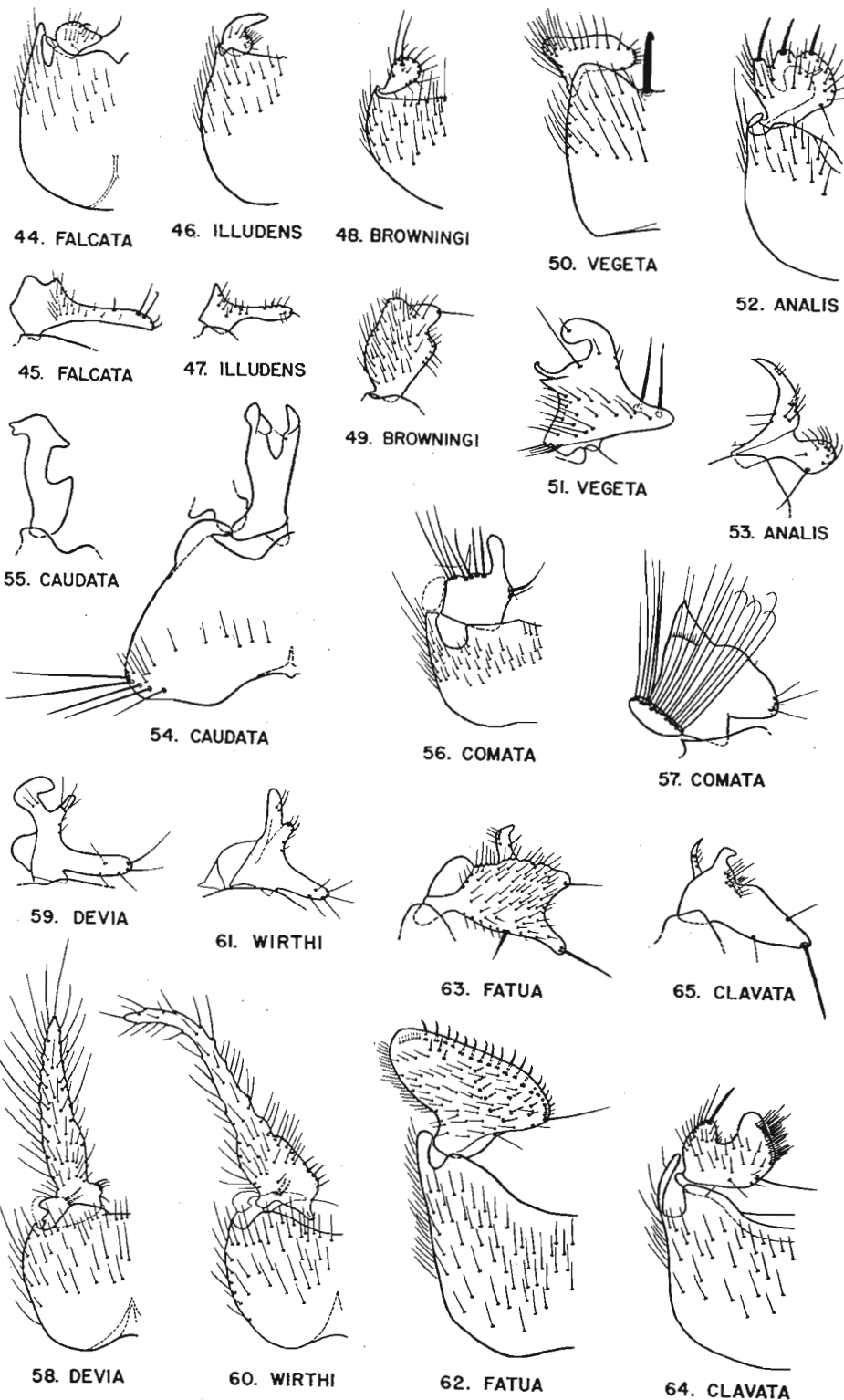
Figs. 56, 57. *F. comata* n.sp. (holotype).

Figs. 58, 59. *F. devia* n.sp. (holotype).

Figs. 60, 61. *F. wirthi* n.sp. (holotype).

Figs. 62, 63. *F. fatua* (Joh.). (Mt. Rainier N.P., Wash.).

Figs. 64, 65. *F. clavata* (V.D.). (Prairie Creek Camp, Calif.).



## PLATE V. Male Terminalia

Figs. 66, 67. *F. ocellus* (Walk.). (Ledges S.P., Iowa).

Figs. 68, 69. *F. crassiseta* n.sp. (holotype).

Figs. 70, 71. *F. sordida* (v.d. Wulp). (Ledges S.P., Iowa).

Figs. 72, 73. *F. cruciator* n.sp. (holotype).

Figs. 74, 75. *F. cavillator* n.sp. (holotype).

Figs. 76, 77. *F. paula* (Loew). (Pinecrest, Calif.).

Figs. 78, 79. *F. faceta* n.sp. (holotype).

Figs. 80, 81. *F. vesca* n.sp. (holotype).

Figs. 82, 83. *F. mitis* (Joh.). (Ledges S.P., Iowa)

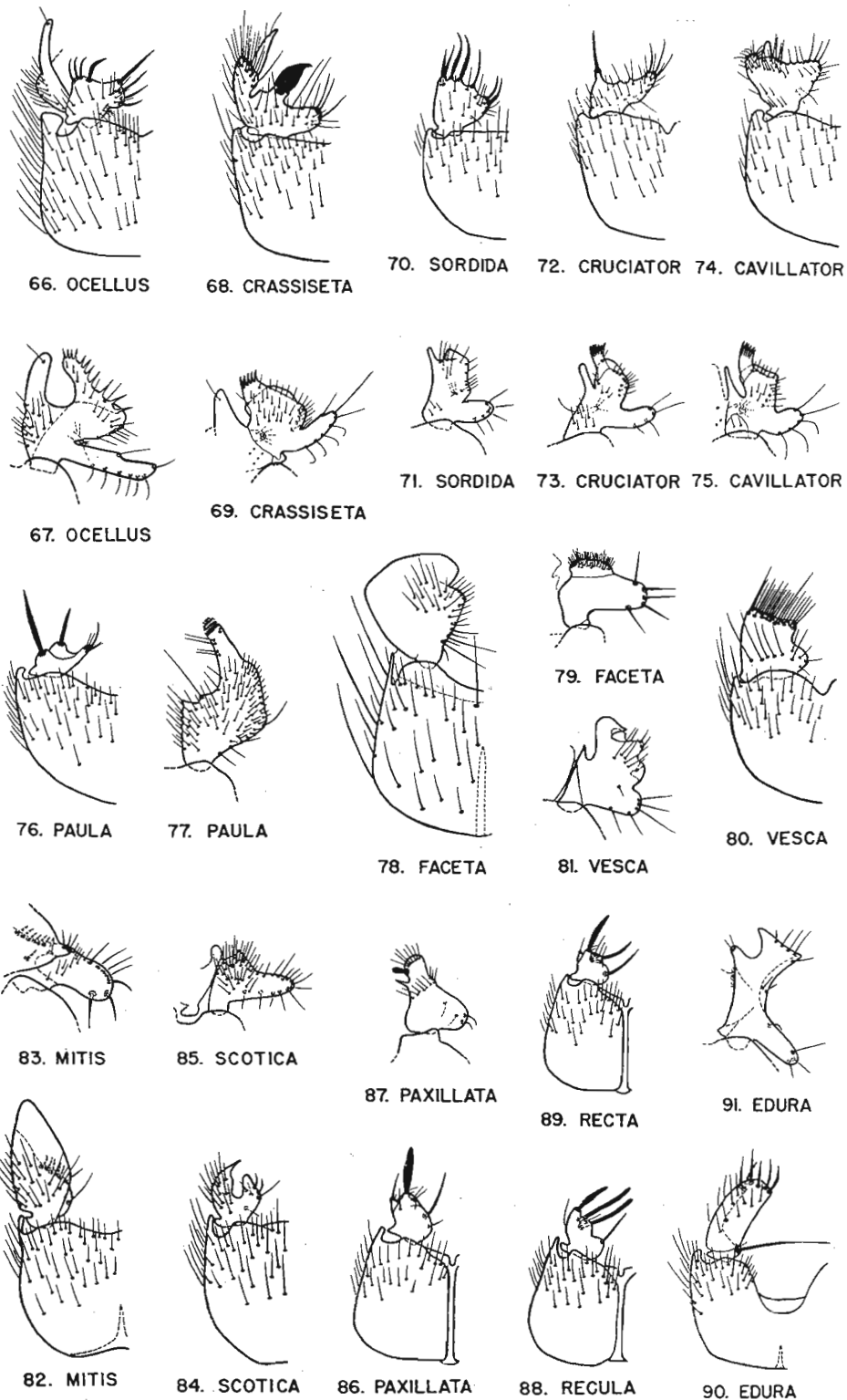
Figs. 84, 85. *F. scotica* (Edw.). (Matanuska, Alaska).

Figs. 86, 87. *F. paxillata* n.sp. (holotype).

Fig. 88. *F. recula* n.sp. Ventral view of left ventral stylomere and left half of fused gonocoxopodites. (holotype).

Fig. 89. *F. recta* (Joh.). Ventral view of left ventral stylomere and left half of fused gonocoxopodites. (Itasca S.P., Minn.).

Figs. 90, 91. *F. edura* (Joh.). (Itasca S.P., Minn.).



## PLATE VI. Male Terminalia

Figs. 92, 93. *F. propinqua* (Walk.). (Itasca S.P., Minn.).

Figs. 94, 95. *F. uncinata* n.sp. (holotype).

Figs. 96, 97. *F. ghanii* (Shaw). (Mt. Hood, Oregon).

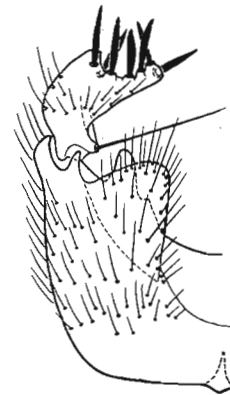
Figs. 98, 99. *F. arnaudi* n.sp. (holotype).

Figs. 100, 101. *F. capreolata* n.sp. (holotype).

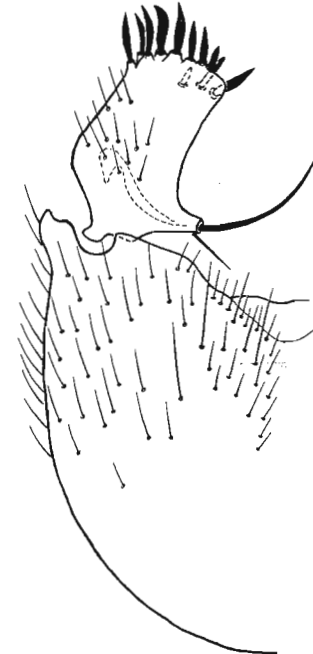
Figs. 102, 103. *F. consonans* n.sp. (holotype).



92. PROPINQUA



94. UNCINATA



96. GHANII



93. PROPINQUA



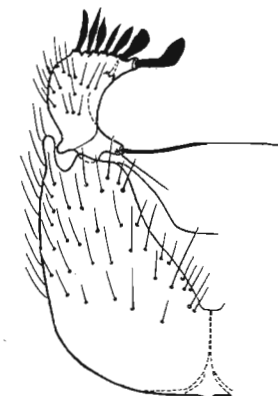
95. UNCINATA



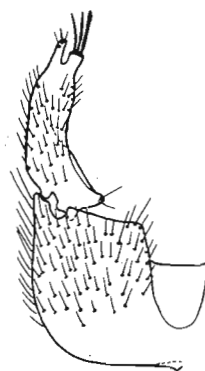
97. GHANII



99. ARNAUDI



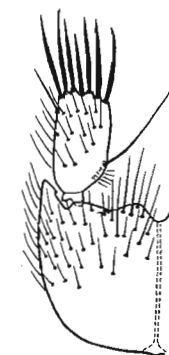
98. ARNAUDI



100. CAPREOLATA



101. CAPREOLATA



102. CONSONANS



103. CONSONANS

## PLATE VII. Male Terminalia

Figs. 104, 105. *F. hiulca* n. sp. (holotype).

Figs. 106, 107. *F. caurina*, n. sp. (holotype).

Figs. 108, 109. *F. frustrator* n. sp. (holotype).

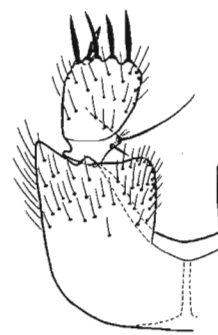
Figs. 110, 111. *F. sertata* n. sp. (Tuolumne Meadows, Calif.).

Figs. 112, 113. *F. impellans* (Joh.). (Bonny Doon, Calif.).

Figs. 114, 115. *F. itascae* n. sp. (holotype).

Figs. 116, 117. *F. cingulum* (Meig.). (Matanuska, Alaska).

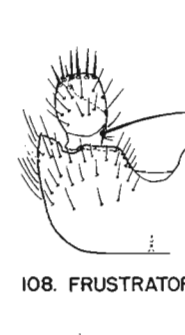
Figs. 118, 119. *F. sigmoides* (Loew). (Ledges S.P., Iowa).



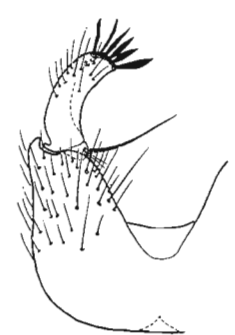
104. HIULCA



106. CAURINA



108. FRUSTRATOR



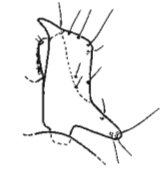
110. SERTATA



105. HIULCA



107. CAURINA



109. FRUSTRATOR



111. SERTATA



112. IMPELLANS



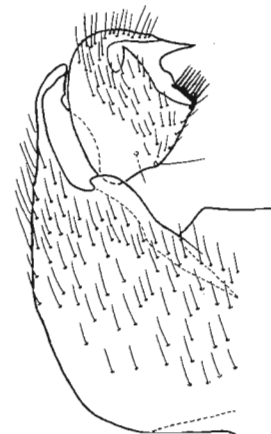
113. IMPELLANS



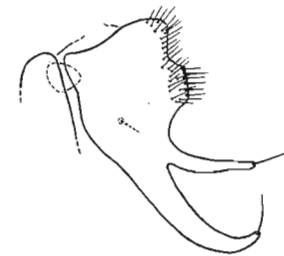
114. ITASCAE



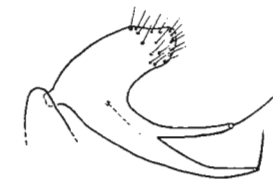
115. ITASCAE



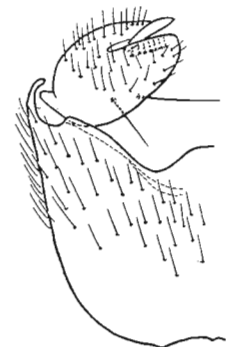
116. CINGULUM



117. CINGULUM



119. SIGMOIDES



118. SIGMOIDES

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Figs. 122, 123. *F. trinotata* (Staeg.). (Ledges S.P., Iowa).

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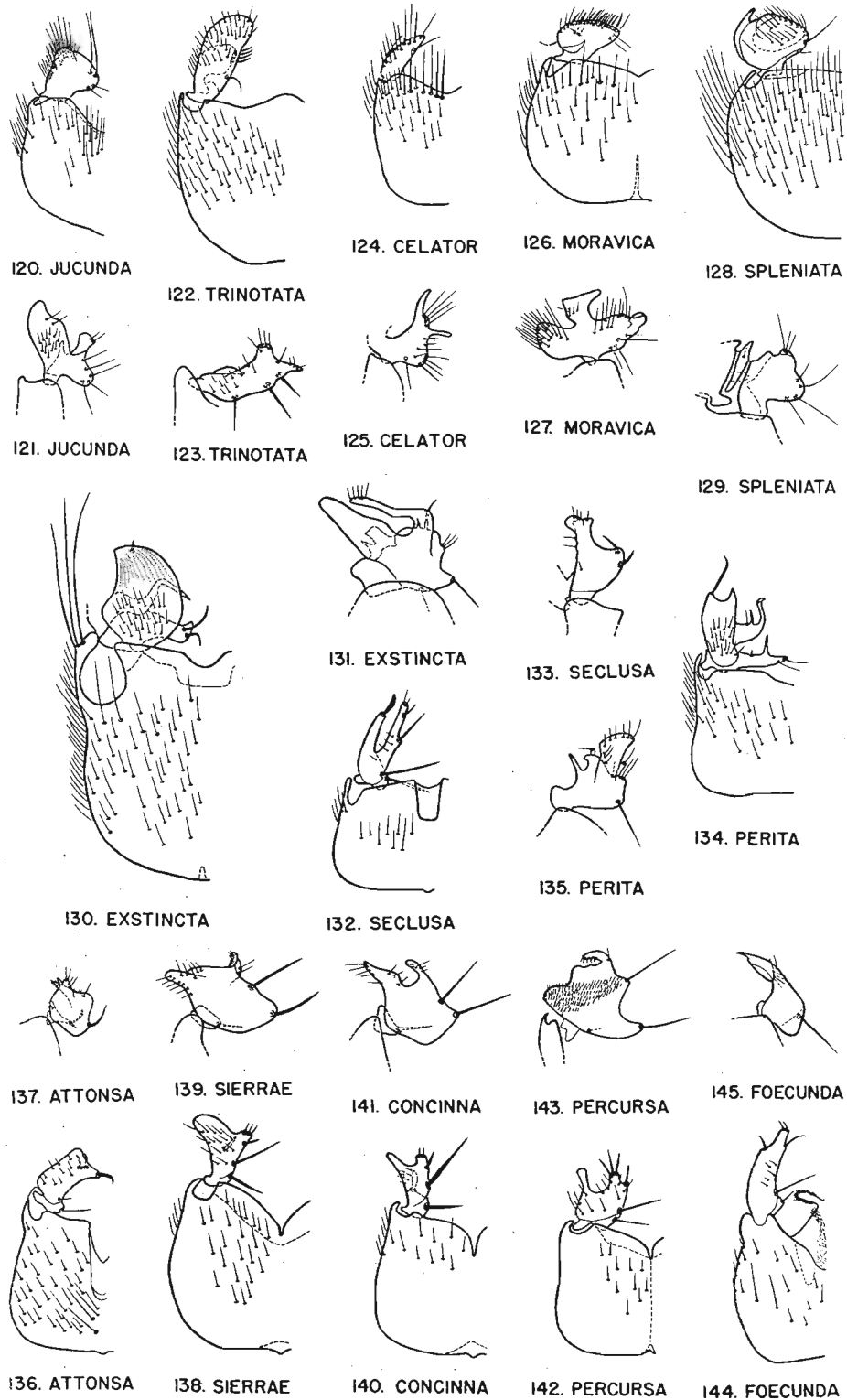
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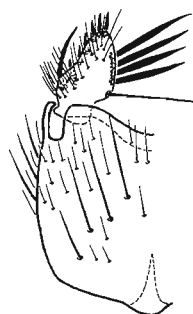
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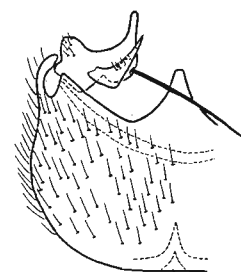
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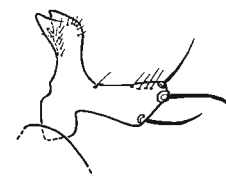
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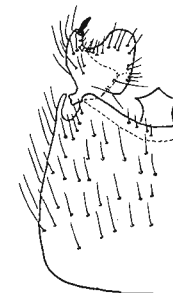
147. DENTATA



148. GUTTATA



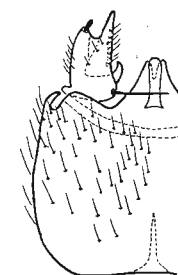
149. GUTTATA



150. STRICKLANDI



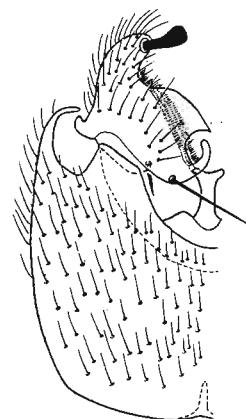
151. STRICKLANDI



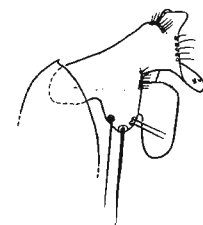
152. LENTA



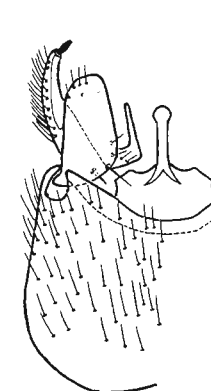
153. LENTA



154. PINGUIS



155. PINGUIS



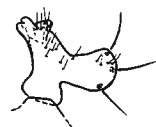
156. SIGILLATA



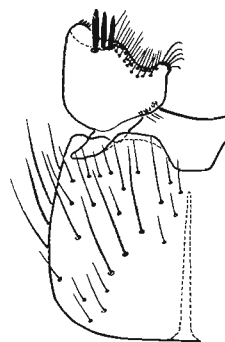
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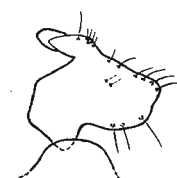
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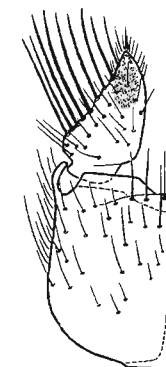
159. SIGNATOIDES



160. CHAMBERLINI



161. CHAMBERLINI



162. STRIGATA



163. STRIGATA

## PLATE X. Male Terminalia

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Figs. 166, 167. *F. unipunctata* (Meig.). (Ledges S.P., Iowa).

Figs. 168, 169. *F. stolida* (Walk.). (Ledges S.P., Iowa).

Figs. 170, 171. *F. alexanderi* n.sp. (holotype).

Figs. 172, 173. *F. bipunctata* (Loew). (Itasca S.P., Minn.).

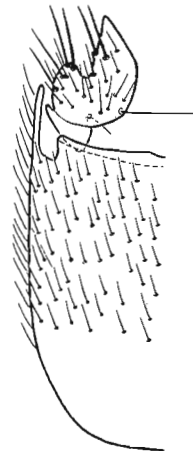
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Figs. 176, 177. *F. verecunda* n.sp. (Ledges S.P., Iowa).

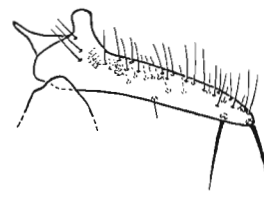
Figs. 178, 179. *F. discors* n.sp. (holotype).

Figs. 180, 181. *F. alberta* (Curran): (Matanuska, Alaska).

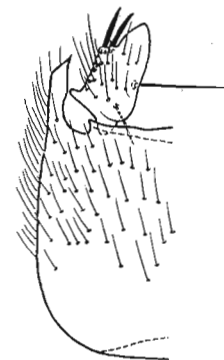
Figs. 182, 183. *F. shawi* n.sp. (Ledges S.P., Iowa).



164. LIMATA



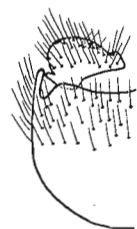
165. LIMATA



166. UNIPUNCTATA



167. UNIPUNCTATA



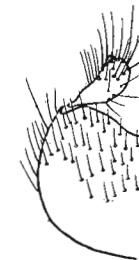
168. STOLIDA



170. ALEXANDERI



172. BIPUNCTATA



174. BENTINCKI



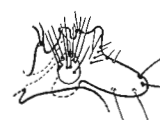
176. VERECUNDA



169. STOLIDA



171. ALEXANDERI



173. BIPUNCTATA



175. BENTINCKI



177. VERECUNDA



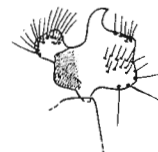
178. DISCORS



179. DISCORS



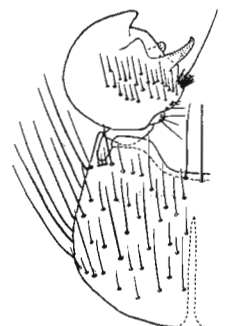
180. ALBERTA



181. ALBERTA



183. SHAWI



182. SHAWI



## PLATE XI. Male Terminalia

Figs. 184, 185. *F. fascinator* n.sp. (Itasca S.P., Minn.)

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Fig. 192. *F. contigua* (Walk.). Ventral view of left ventral stylomere and left half of fused gonocoxopodites. (White Pine Hollow, Iowa).

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Fig. 194. *F. contigua* (Walk.). Dorsal stylomere. (White Pine Hollow, Iowa).

Fig. 195. *F. pectita* (Joh.). Ventral view of left ventral stylomere and left half of fused gonocoxopodites. (Itasca S.P., Minn.)

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Fig. 200. *F. subita* n.sp. Dorsal stylomere. (Sequoia N.P., Calif.).



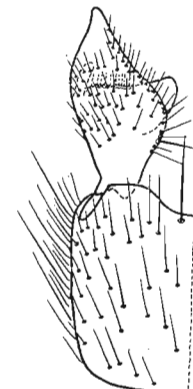
184. FASCINATOR



186. JUGATA



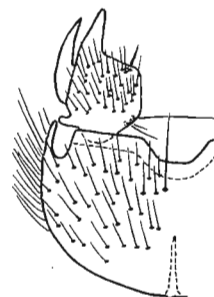
187. JUGATA



188. BIMACULATA



189. BIMACULATA



190. ALATA

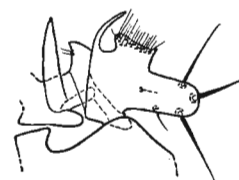
185. FASCINATOR



192. CONTIGUA



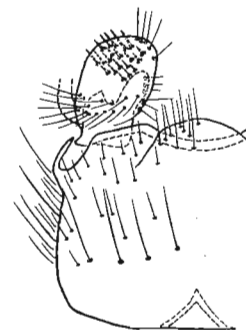
193. CONTIGUA



191. ALATA



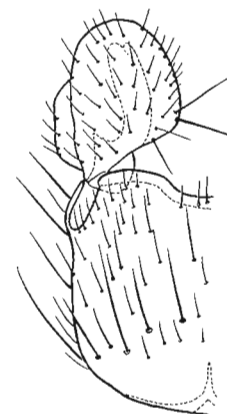
194. CONTIGUA



195. PECTITA



196. PECTITA



198. SUBITA



199. SUBITA



197. PECTITA



200. SUBITA

## PLATE XII. Male Terminalia

Figs. 201, 202. *F. scitula* n. sp. (holotype).

Figs. 203, 204. *F. finlandica* (Edw.). (LeConté Trace, Tenn.).

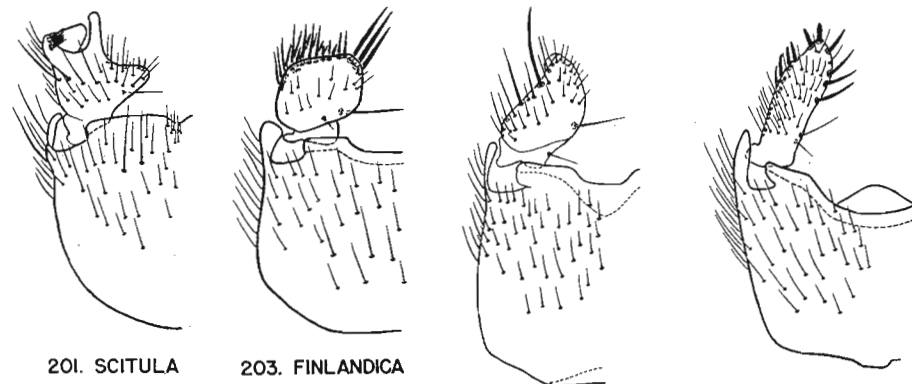
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Figs. 207, 208. *F. luctuosa* (Meig.). (Ledges S.P., Iowa).

Figs. 209, 210. *F. bohartorum* n. sp. (holotype).

Figs. 211, 212. *F. byersi* n. sp. (holotype).

Figs. 213, 214. *F. venusta* n. sp. (Ledges S.P., Iowa).



201. SCITULA

203. FINLANDICA

205. NAPAEA

207. LUCTUOSA

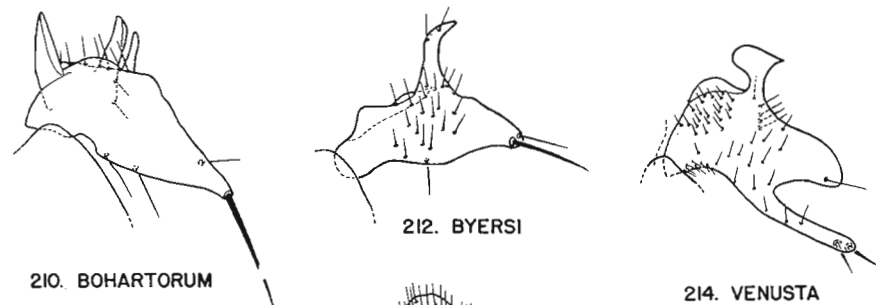


202. SCITULA

204. FINLANDICA

206. NAPAEA

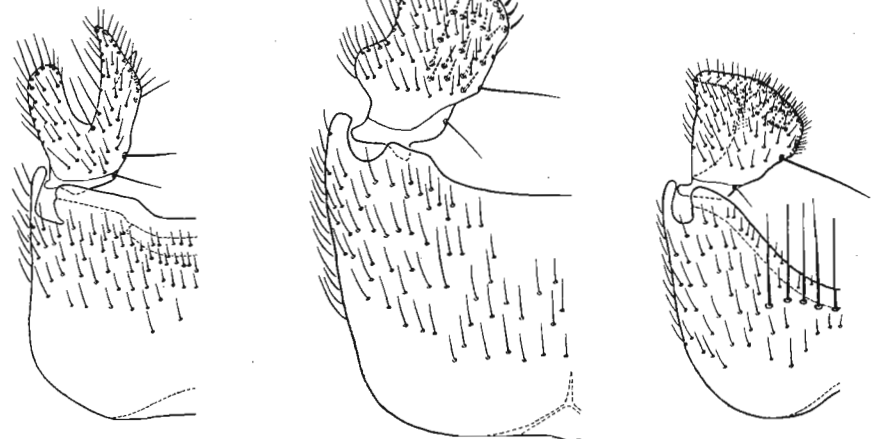
208. LUCTUOSA



210. BOHARTORUM

212. BYERSI

214. VENUSTA



209. BOHARTORUM

211. BYERSI

213. VENUSTA

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Straight underline indicates junior synonym, rejected homonym, or nude name in genus *Fungivora*, e.g., bifasciata.  
 Wavy underline indicates misdeterminations, and citations placed only as *Fungivora* sp. in this paper, e.g., arcuata.  
 All specific epithets (names) are in the genus *Fungivora* unless otherwise specified.  
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