

A clarification of Fallén's type specimens of Agromyzidae (Diptera) in Stockholm and Lund

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On a recent visit to the Naturhistoriska Riksmuseet, Stockholm I was able to examine the species described by Fallén in the genera *Agromyza* and *Phytomyza* and also *Madiza pinguis*, which is now accepted as an Agromyzid in the genus *Ophiomyia*. I have also been able to study Fallén's type specimens in the Zoological Institute, the University, Lund.

Brief notes are given below on 17 of the 18 species belonging to the current concept of the family Agromyzidae. Changes of nomenclature are necessary in only three cases, where Hendel incorrectly interpreted Fallén's species. The species are dealt with in the order of Fallén's original papers. The only species not considered is *Cerodontha affinis* (Fallén) which is being dealt with by Nowakowski in a paper on this genus.

Rydén examined Fallén's specimens at Lund and a number were variously labelled as lectotype, type and co-type. No lectotype designations were published and the mere labelling of a specimen does not itself constitute a lectotype designation. Where appropriate I have selected the same specimen as Rydén as lectotype but in a number of cases more suitable lectotypes were selected from specimens at Stockholm. In such cases Rydén's type labels, although without any validity, have been retained on the pin but upside down.

Ophiomyia pinguis (Fallén)

Madiza pinguis Fallén, 1820: 10. Lectotype ♀, designated by Spencer, 1964: 801, in Stockholm.
Ophiomyia pinguis (Fallén), Hendel, 1920: 130.

One of the two specimens in Stockholm, lacking its head, nevertheless is accepted as representing the current concept of the species. The species was discussed in a recent Revision of the genus by Spencer (1964). Unfortunately, only later did I discover there are also two syntypes, a male and female, in Lund, one of which was labelled by Rydén as lectotype. However, this does not constitute a valid lectotype designation. These two specimens, both in good condition, have now been labelled as paralectotypes.

Agromyza reptans Fallén

Agromyza reptans Fallén, 1823 a: 3. Lectotype ♂ in Stockholm.

Fallén (1823 a: 4) writes of "var. c" of this species "in *Urtica dioica* hospitantans". Hendel (1931-6: 144) describes in detail the common leafminer in

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Urtica. Nowakowski (1962: Fig. 8) illustrated the aedeagus of a specimen bred from *Urtica* in Galicia. Griffiths (1962: Fig. 3) also illustrated the aedeagus of a specimen from *Urtica* from England which clearly represented a distinct species.

I have examined a number of specimens in Hendel's collection in the Naturhistorisches Museum, Vienna and it became clear that his species does not represent the true *reptans* Fallén. Nowakowski (1964: 188) designated a male in Stockholm as lectotype of *reptans* (genitalia examined by myself, slide No. 576) and described as *urticae* sp. n. the common species in Western Europe which Hendel and subsequent authors have mistakenly accepted as *reptans* Fallén.

There is a single female in Lund representing *A. abiens* Zett.

Agromyza ambigua Fallén

Agromyza reptans, var. d. *ambigua* Fallén, 1823 a: 4, nec *ambigua* sensu Hendel et auct. post 1920. Lectotype ♀ in Stockholm.

Agromyza niveipennis Zetterstedt, 1848, SYN. NOV. Syntypes in Lund.

The series of *Agromyza reptans* Fallén in Stockholm includes "var. d. *ambigua*", a female in perfect condition, which clearly represents what Hendel and subsequent authors have accepted as *niveipennis* Zetterstedt. This is an unmistakable species with conspicuously silvery wings. There is a second identical female in Lund, which I have labelled as paralectotype.

I have examined the four specimens of *niveipennis* in Zetterstedt's type series in Lund and now synonymise *niveipennis* Zett. with *ambigua* Fallén.

The genitalia of one of Zetterstedt's males are shown in Figs. 1—3. The aedeagus is typical of other grass feeders.

The earliest available name for the species accepted by Hendel as *ambigua* Fall. appears to be *nigrella* Rondani, 1875. I have recently examined the female holotype in Rondani's collection in Florence and confirm that this agrees with Hendel's concept of *ambigua*.

The aedeagus of *A. nigrella* will be illustrated in a forthcoming paper describing a new species bred by Prof. E. M. Hering from *Bromus* at Berlin, which on external characters cannot satisfactorily be distinguished from *nigrella*.

Melanagromyza aeneoventris (Fallén)

Agromyza aeneo-ventris Fallén, 1823 a: 4. Holotype ♀ in Stockholm.

Melanagromyza aeneiventris (Fallén), Hendel, 1920: 126.

The single female is in poor condition but is recognisable as the species feeding as an internal stem-borer in *Cirsium* spp. Hendel (1931—6: 158) used the name *aeneiventris* to embrace a group of species feeding on a number of different hosts. These species are being clarified in a revision of the genus *Melanagromyza* (Spencer, 1965 b).

Campanulomyza gyrans (Fallén)

Agromyza gyrans Fallén, 1823 a: 4. Two syntypes in Lund.

Dizygomyza (Calycomyza) gyrans (Fallén), Hendel, 1931—6: 69.

Campanulomyza gyrans (Fallén), Nowakowski, 1962: 97.

Two syntypes in Lund, a male and a female, agree completely with Hendel's concept; the male lacks its abdomen and it is not proposed at the present time to designate a lectotype.

There is one male in Stockholm without its head but from the wing venation it is immediately possible to place it as a *Dizygomyza* sp. sensu Hendel, in either the sub-genera *Dizygomyza* or *Poemyza*. Examination of the male genitalia confirms that the species represents *Diz. caricivora* Groschke, 1954.

Nowakowski (1962: 97) erected the monotypic genus *Campanulomyza* for this species on the basis of its distinctive genitalia.

Hering (private communications) has suggested from differences in the larvae and leaf-mines found on *Campanula trachelium* L. on the one hand and other *Campanula* spp. on the other hand that "*gyrans*" represents two species. Buhr (1964) supports this view. From the limited material I have examined I have not been able satisfactorily to distinguish two distinct species. It is to be hoped that as more material becomes available, this problem can be studied in greater detail.

Cerodontha (Icteromyza) geniculata (Fallén)

Agromyza geniculata Fallén, 1823 a: 6. Lectotype ♂ in Stockholm.

Dizygomyza (Icteromyza) geniculata (Fallén), Hendel, 1931—6: 53.

Phytobia (Icteromyza) geniculata (Fallén), Frick, 1952: 392.

Cerodontha (Icteromyza) geniculata (Fallén), Nowakowski, 1962: 102.

One male and one female, both in reasonable condition in Stockholm; a further male and female in Lund. The male in Stockholm is designated here-with as lectotype.

This species agrees completely with the concept established by Hendel and followed by subsequent authors. The male genitalia were illustrated by Nowakowski (1962: Fig. 11); these agree with those of the lectotype.

Liriomyza flaveola (Fallén)

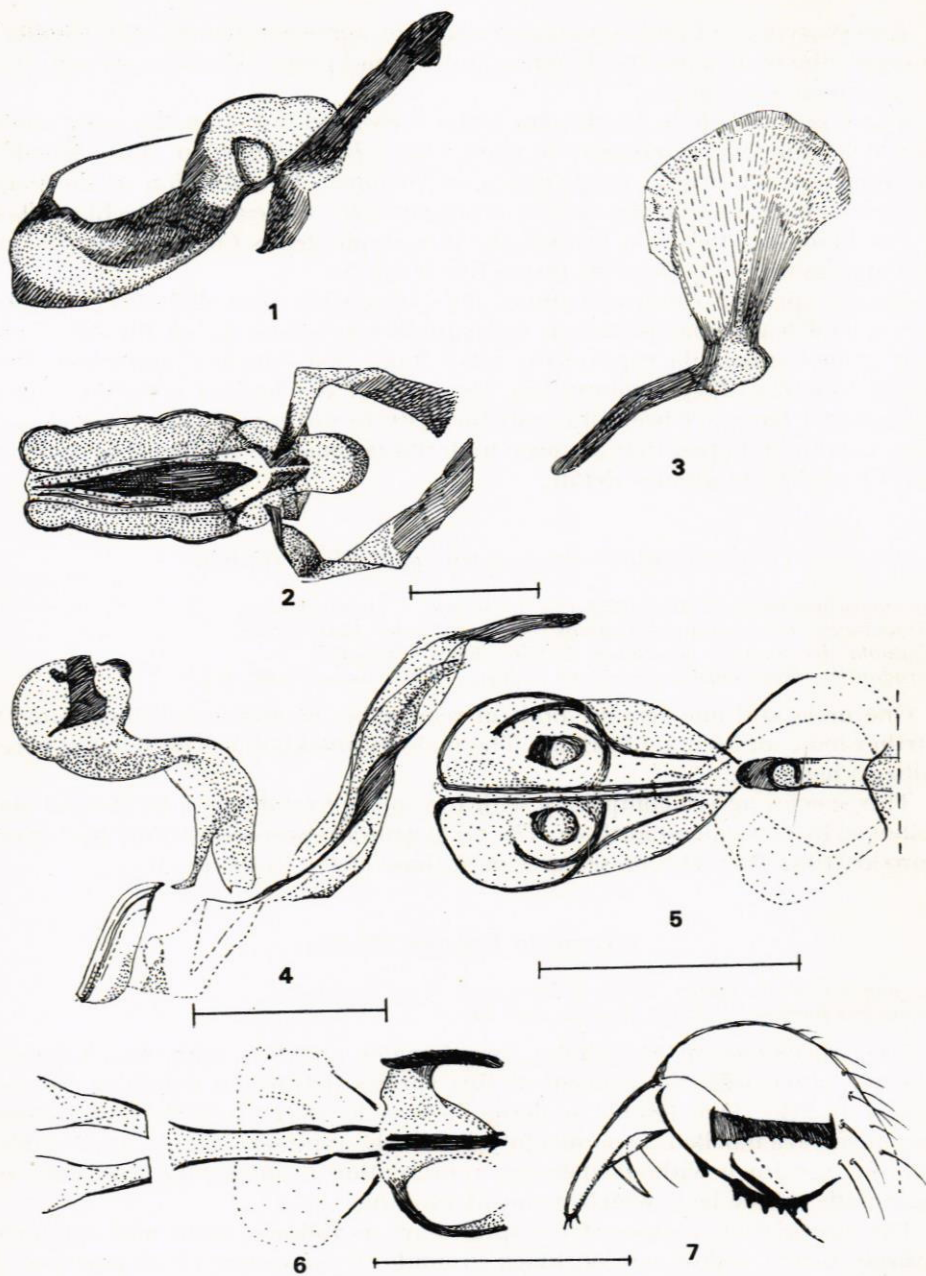
Agromyza flaveola Fallén, 1823 a: 6. Lectotype ♂ in Stockholm.

Liriomyza flaveola (Fallén), Hendel, 1920: 142.

Four specimens in Stockholm, two females and two with the abdomen missing, agree with the concept of this species defined in detail by Hendel (1931—6: 219). One female is designated as lectotype and the other three specimens are labelled as paralectotypes. In the type series there are in addition one specimen without abdomen representing *L. lutea* (Mg.) and one female with yellow legs, which is not identifiable.

The essential characters of the species are as follows: frons and antennae entirely bright yellow, vte on black ground, vti on yellow or at junction of yellow and black; mesonotum shining black, large yellow patches at hind-corners, mesopleura broadly black on lower half; acrostichals in 4 rows; legs black, all femora broadly yellow at knees; wing length 2.4 mm, last section of vein m4 twice length of penultimate.

There is a long series of this species in Stockholm collected by Bohemann. The genitalia of one of these males is shown in Figs. 4—5.



Figs. 1—3. *Agromyza ambigua* Fallén: 1, aedeagus, side view; 2, same, dorsal view; 3, sperm sac. Figs. 4—5. *Liriomyza flaveola* (Fallén): 4, aedeagus, side view; 5, distiphallus, ventral view. Figs. 6—7. *Metopomyza flavoscutellaris* (Zett.): 6, aedeagus, dorsal view; 7, surstylus. (Scale line=0.1 mm.)

Agromyza flaviceps Fallén

Agromyza flaviceps Fallén, 1823 a: 6. Lectotype ♂ in Lund.

The only specimen in Stockholm is a male with the abdomen missing, representing a *Liriomyza* sp., which cannot now be positively identified. In Lund there are two specimens, one a male, labelled by Rydén as lectotype, and now formally so designated, agreeing completely with current concepts (Hendel, 1931—6: 116); the second is not an Agromyzid. This is a distinctive, immediately recognisable species with bright yellow legs and antennae.

Metopomyza flavoscutellaris (Zetterstedt)

Agromyza scutellata Fallén, 1823 a: 7, nec *Chlorops scutellatus* Panzer, 1803, **syn. nov.**

Agromyza flavoscutellaris Zetterstedt, 1848. Holotype ♂ in Lund.

Liriomyza flavoscutellaris (Zett.); Hendel, 1920: 144.

Metopomyza flavoscutellaris (Zett.), Frick, 1952: 406.

There is a single specimen of *A. scutellata* in Stockholm, lacking its abdomen but otherwise in good condition.

Hendel (1931—6: 221) synonymised *M. scutellata* with *flavonotata* Haliday, 1833, considering the name *scutellata* Fallén as pre-occupied by *scutellatus* Panzer. *M. scutellata*, however, is not synonymous with *M. flavonotata* in which the legs are entirely black, but with *M. flavoscutellaris* Zett., which has yellow knees.

The aedeagus of *M. flavoscutellaris* is shown in Fig. 6 and the surstylus in Fig. 7; the latter is particularly distinctive, with a conspicuous fork distally and the epandrium has an unusual comb-like process of short spines on the lower corner.

Phytomyza nigripennis Fallén

Phytomyza nigripennis Fallén, 1823 b: 2. Lectotype ♂ in Lund.

One male, designated herewith as lectotype, in Lund; two specimens, a female in good condition and a second, without abdomen, which is probably not conspecific, in Stockholm.

This is a large, distinctive species, agreeing completely with Hendel's concept (1931—6: 439). The aedeagus of a male from Laughton, Sussex, England, 15.iv.1961 (K.A.S.) is shown in Fig. 8; this agrees with that of the lectotype, which, however, was extruded with the distal tubules broken.

Napomyza lateralis (Fallén)

Phytomyza lateralis Fallén, 1823 b: 3. Lectotype ♂ in Lund.

Napomyza lateralis (Fallén), Hendel, 1920: 149.

The two specimens in Lund, a male and female, are both in reasonable condition and the male is designated as lectotype. The aedeagus of the lectotype is illustrated in Fig. 9.

Two specimens in Stockholm, one labelled as male, with abdomen largely missing and the second, a female, with the wings missing. The first specimen agrees completely with Hendel's concept of the species.

This species has been recorded on a variety of plant families feeding in

roots, stems and seeds. Further study is necessary, particularly with bred specimens, to decide whether a species group is involved, as now seems probable.

Phytomyza affinis Fallén

Phytomyza affinis Fallén, 1823 b: 3. Lectotype ♂ in Stockholm.

Of four specimens in Stockholm, all in poor condition, three are conspecific and of these a male has been selected as lectotype. The genitalia show that the species is without question not *affinis* sensu Hendel (1931—6: 334), the leaf-miner on *Cirsium*, but represents the species accepted by Hendel (1931—6: 487) and subsequent workers as *tenella* Meigen. The genitalia were illustrated by Spencer (1963: 4) and also by Griffiths (1964: 10). The species feeds in the seeds of *Euphrasia* spp.

Griffiths (1964: Fig. 9) illustrated the aedeagus of the holotype of *tenella* Meigen and commented (p. 411) on the differences between this and the aedeagus of other specimens from Austria, Switzerland, the Faroes and Iceland, suggesting that possibly two species were involved. Griffiths has recently seen additional specimens in the Schlick collection in Copenhagen with identical genitalia to those of the holotype of *tenella* and it is now clear that this represents a different species from the species previously accepted as *tenella*, which is in fact the true *affinis* Fallén.

The name *affinis* Fallén has been widely used in the past for many different species. Hendel in his *Prodromus* (1920: 173) considered *affinis* to be a leaf-miner not only on *Cirsium arvense* but also on *Tussilago farfara* L. and *Arctium lappa* L. Subsequently, Hendel (1931—6) for the first time restricted the name *affinis* to the *Cirsium* leaf-miner. This was an arbitrary decision, not based on examination of Fallén's types.

Griffiths (1959) described *P. autumnalis* which was stated to be close to *P. affinis* Fall. (the *Cirsium* miner) but differed primarily in pupal characters and to some extent in the leaf-mine. The adults of the two species were not satisfactorily distinguishable. I have re-examined *P. autumnalis* and am satisfied, as is Griffiths, that this is in fact the late autumnal form of the *Cirsium* miner, representing an unusual case of seasonal dimorphism. The genitalia of specimens from early and late generations are identical.

Hendel (1931—6: 334) synonymised *P. liturata* Brullé, 1832, *P. nigricornis* Macquart, 1835, *P. geniculata* Schiner, 1864 and *P. syngenesiae* Hardy, p.p., 1864 with *P. affinis* Fallén. However, none of these names can satisfactorily be associated with the *Cirsium* leaf-miner. I have established that the types of *P. liturata* Brullé and *P. nigricornis* Mcq. are lost and it is clear from the description that *P. syngenesiae* Hardy refers to *P. atricornis* Meigen. There is thus no name available for the *Cirsium* leaf-miner prior to *P. autumnalis* Griffiths, 1959. The holotype and some paratypes are in coll. Griffiths, London; further paratypes are in my collection.

Phytomyza marginella Fallén

Phytomyza marginella Fallén, 1823 b: 3. Holotype ♀ in Lund.

Phytomyza sonchi Robineau-Desvoidy, 1851: 400; Hendel, 1931—6: 481. **Syn. nov.**

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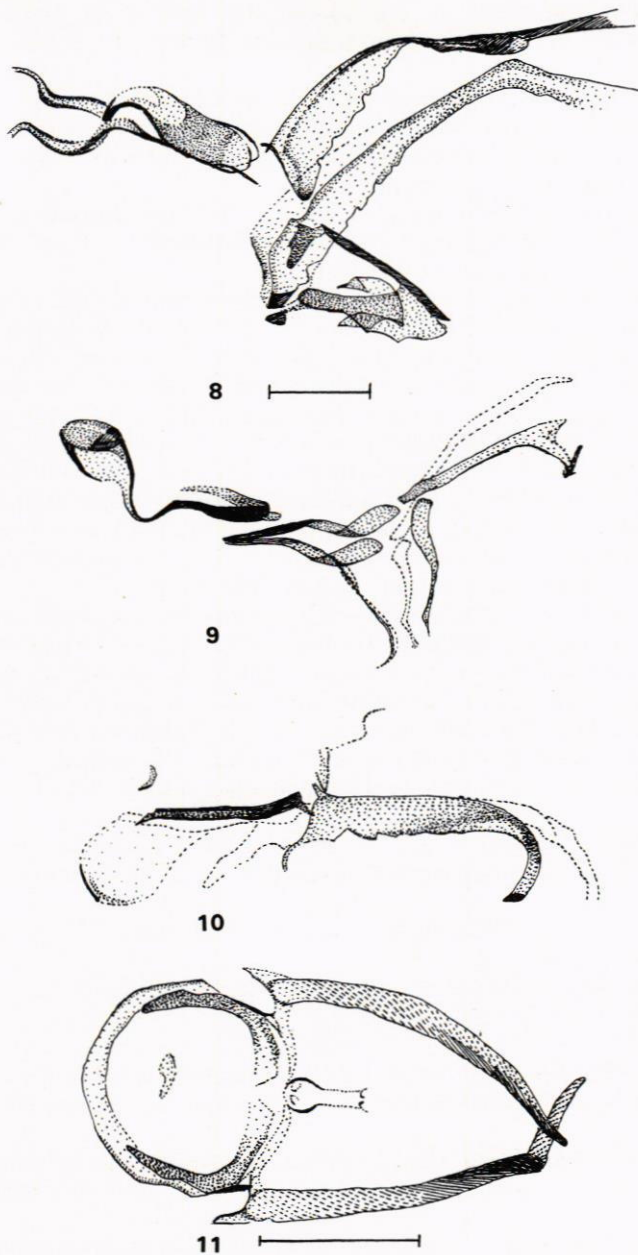


Fig. 8. *Phytomyza nigripennis* Fallén: aedeagus. Fig. 9. *Napomyza lateralis* (Fallén): aedeagus. Figs. 10—11. *Phytomyza autumnalis* Griffiths: 10, aedeagus, side view; 11, same, dorsal view. (Scale line=0.1 mm.)

Hendel (1920 and 1931—6) considered this species as the leaf-miner on *Peucedanum cervaria* L., describing it briefly (1920: 153) and in greater detail (1931—6: 426).

Rydén (1953) stated there was a single female representing Fallén's type in Zetterstedt's collection, Lund, which he re-described. From the description of the type, it was clear that Hendel was dealing with a different species, which Rydén renamed *peucedani*.

Both specimens referred to by Fallén in his description are present in Lund — not only the holotype correctly identified by Rydén but also the darker specimen mentioned as a variety.

Rydén made a major error in his description stating the scutellum to be yellow and thus including the species in couplet 17 of Hendel's key. The scutellum is in fact essentially grey, although admittedly appearing somewhat yellowish when viewed from the front. Fallén did not mention a yellow scutellum but merely "capite, abdominis medio tibiisque flavis". I am entirely satisfied that *P. marginella* represents *P. sonchi* R.-D. and therefore establish this new synonymy herewith. Among 12 bred specimens of *P. sonchi* in my collection three have the scutellum distinctly paler than the mesonotum. With age it is clear that the scutellum will tend to become brownish — or yellowish-grey and this led Rydén to place *P. marginella* among the small group of species with a truly yellow scutellum.

P. marginella forms a white leaf-mine primarily on *Sonchus* but also on *Hieracium*, *Lampsana*, *Mulgedium*, *Prenanthes* and *Taraxacum*. It is believed that *Phytomyza taraxaci* Hendel is the same species as that occurring commonly on *Sonchus* and *Lampsana* and will thus prove to be synonymous with *marginella* Fall. from *Sonchus oleraceus* L. Robineau-Desvoidy described *P. sonchi* from a specimen bred by Col. Goureau. The aedeagus of a specimen bred from *Sonchus oleraceus* at Hampstead, London, 6.viii.1953 is shown in Fig. 12.

Fallén's second specimen is a striking species, predominantly black but with an entirely yellow abdomen. I have not been able to identify this species.

Phytomyza ranunculi (Schrank)

Musca ranunculi Schrank, 1803.

Phytomyza flava Fallén, 1823 b: 3. Lectotype ♂ in Lund.

Phytomyza flavo-scutellata Fallén, 1823 b: 4. Lectotype ♀ in Lund.

Phytomyza ranunculi (Schrank), Hendel, 1931—6: 463.

A male of *Phytomyza flava* in Lund is in good condition, with extruded genitalia, and is designated herewith as lectotype. There are further females in Stockholm.

A female of *Phytomyza flavoscutellata* in Lund was labelled by Rydén as lectotype and is formally now so designated. There are further females in Stockholm.

Phytomyza flava and *P. flavoscutellata* represent the pale and dark forms of *P. ranunculi* (Schrank); these and intermediate colour forms were discussed in detail by Hendel (1931—6: 463—7).

This species is common throughout Europe and has been recorded in N. America. A new species, *P. cortusifolii* Spencer (1965 a), has recently been described from the Canary Islands; this cannot be distinguished morphologically from *P. ranunculi* but has entirely different genitalia.

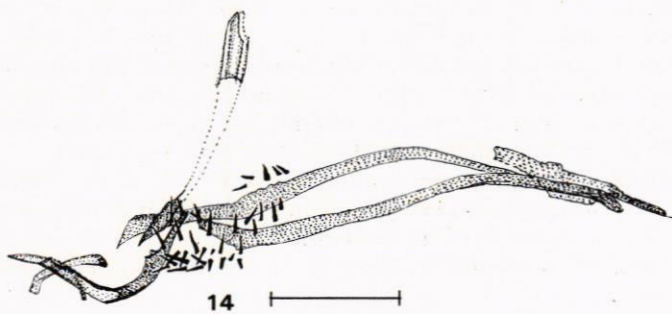
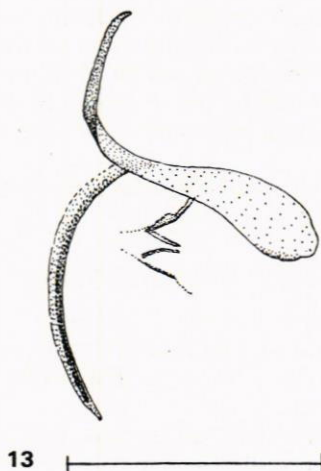
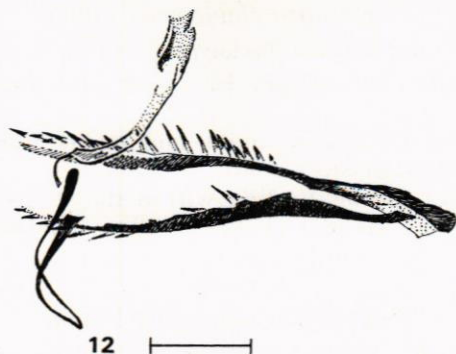


Fig. 12. *Phytomyza marginella* Fallén: aedeagus, side view. Fig. 13. *Phytomyza flavicornis* Fallén: aedeagus, ventral view. Fig. 14. *Phytomyza obscurella* Fallén: aedeagus, side view. (Scale line=0.1 mm.)

Phytomyza flavicornis Fallén

Phytomyza flavicornis Fallén, 1823 b: 4. Lectotype ♂ in Lund.

A male and female on one pin in Lund; this male is designated as lectotype.

Two specimens, one labelled as male, lacking its abdomen, and a second female in good condition in Stockholm.

This is a distinctive species feeding within the stems of *Urtica dioica* L., correctly interpreted by Hendel (1931—6: 403). The aedeagus is shown in Fig. 13.

Phytomyza obscurella Fallén

Phytomyza obscurella Fallén, 1823 b: 4. Syntypes in Stockholm and Lund.

The Stockholm collection contains seven specimens, two labelled as males, lacking the abdomen, one female without its head and three other females in reasonable condition. This species belongs to a difficult group but Fallén's types agree with the current concept, in which *obscurella* represents the leaf-miner on *Aegopodium podagraria* L. (cf. Hendel, 1931—6: 443).

There are two females in Lund, one only of which is conspecific with the series in Stockholm.

The aedeagus of a male bred from *Aegopodium* at Hampstead, London is shown in Fig. 14.

Phytomyza albipennis Fallén

Phytomyza albipennis Fallén 1823 b: 4. Holotype ♀ in Lund.

There is a single female in Lund, labelled by Rydén as lectotype, but which clearly represents the holotype. This is a distinctive species, immediately recognisable by its silvery wings.

A female in Stockholm labelled as *albipennis* is a Chloropid. This specimen is not accepted as one of Fallén's syntypes. Fallén clearly noticed the distinctive feature of this species, referring to "alis albicantibus".

I wish to thank Dr. E. Kjellander and Dr. Per Inge Persson of the Naturhistoriska Riksmuseet for allowing me to examine Fallén's collection in Stockholm and for the loan of material and Fil. Kand. H. Andersson, Zoological Institute, the University for the loan of material from Fallén's collection at Lund. Dr. Persson and Mr. Andersson have also given me valuable information on the distribution of Fallén's material between Stockholm and the Zetterstedt collection at Lund.

I would also like to express my gratitude to Prof. Dr. E. M. Hering for many helpful comments during the preparation of this paper both in numerous letters and in a number of personal discussions in Berlin.

Finally, I would like to thank my wife for the preparation of the genitalia drawings in this paper.

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