

species	Hoboken	Schoten
	♂♂, ♀♀	♂♂, ♀♀
<i>Pullimosina heteroneura</i> (HALIDAY)	0,1	28,35
<i>Pullimosina moesta</i> (VILLENEUVE)	1,3	5,10
<i>Spelobia bifrons</i> (STENHAMMAR)		1,2
<i>Spelobia clunipes</i> (MEIGEN)	4,3	8,8
<i>Spelobia luteilabris</i> (RONDANI)		21,33
<i>Spelobia ochripes</i> (MEIGEN)	41,15	
<i>Spelobia palmata</i> (RICHARDS)		1,2
<i>Spelobia parapusio</i> (DAHL)	0,1	24,37
<i>Spelobia rufilabris</i> (STENHAMMAR)	3,1	
<i>Spelobia talparum</i> (RICHARDS)	7,10	5,7
<i>Telomerina flavipes</i> (MEIGEN)	1,4	7,4
* <i>Telomerina pseudoleucoptera</i> (DUDA)	4,0	15,15
<i>Terrilimosina schmitzi</i> (DUDA)		10,3
* <i>Trachyopella bovilla</i> COLLIN		7,8
* <i>Trachyopella folkei</i> ROHÁČEK		2,1
* <i>Trachyopella kuntzei</i> (DUDA)		7,4
* <i>Trachyopella leucoptera</i> (HALIDAY)		2,1
* <i>Trachyopella lineafrons</i> (SPULER)		1,2
<i>Trachyopella melania</i> (HALIDAY)		0,1
* <i>Trachyopella minuscula</i> COLLIN	1,2	

3. Dhr. J. SCHEIRS doet de volgende mededeling.

### Leafminers (Diptera; Agromyzidae) of *Phragmites australis* in Belgium

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#### Abstract

During 1991, leafminers on *Phragmites australis* were collected at different localities in Belgium. Four different species of Agromyzidae were reared: *Agromyza hendeli*, *Agromyza phragmitidis*, *Cerodontha* (*Poemyza*) *incisa* and *Cerodontha* (*Poemyza*) *phragmitidis*. All species recorded are new to the Belgian fauna. The larval biology of each species is briefly discussed.

#### Samenvatting

Tijdens 1991 werden in verschillende localiteiten in België bladminnen, die op *Phragmites australis* aangetroffen werden, verzameld. Het uitkweken van de adulte vliegen resulteerde in vier soorten Agromyzidae: *Agromyza hendeli*, *Agromyza phragmitidis*, *Cerodontha* (*Poemyza*) *incisa* en *Cerodontha* (*Poemyza*) *phragmitidis*. Alle vier de soorten zijn nieuw voor de Belgische fauna. De larvale biologie van de verschillende soorten wordt kort besproken.

#### Introduction

The family Agromyzidae represents a rather common but often overlooked group of small acalyptrate flies. Agromyzidae are exclusively plant feeders. The larvae of most species feed on the parenchymatous tissues of leaves and produce typical mines. Other species are known to mine in the stem, roots, seeds or cambium of young trees, some species form galls (SPENCER, 1990; VON TSCHIRNHAUS, 1992).

The Belgian Agromyzid fauna has been poorly investigated. Until now, only 88 species have been recorded (DE BRUYN & VON TSCHIRNHAUS, 1991). Compared to the Agromyzid fauna of the surrounding countries (United Kingdom: 313, SPENCER, 1972; Netherlands: >150, OOSTERBROEK, 1981; Germany: >320, SCHUMANN, 1992), this number is very low. Most certainly numerous other species will be found in the future.

Except for the host range of the leafminers and, in some cases, the potential parasitoids attacking Agromyzidae, the knowledge concerning the life history of Agromyzidae is very scarce. More elaborate studies were only carried out on a number of economical important species (e.g. HENDRICKSON & BARTH, 1977; PARRELLA, 1983; QUIRING & McNEIL, 1984a,b,c, d,e, 1985, 1987a,b; SMITH & HANDMAN, 1986; MINKENBERG & FREDRIX, 1989).

In the scope of a general survey of leafminers living in Poaceae, an ecological study of the Agromyzid parasites of *Phragmites communis* (Cav.) Trin. ex Steud. was carried out during the autumn of 1991 (SCHEIRS, 1992). In the present article, we report our preliminary results.

#### Material and methods

From August to November 1991, mined leaves on *Phragmites australis* were collected at different localities in Belgium. The mines were transported to the laboratory to rear the larvae. Leafmines containing larvae were kept in a sealed plastic bag until the larvae left the mine and pupated. Puparia were kept in a glass tube with a moist slip of paper to prevent desiccation.

### Results and discussion

As a result of the present study, Agromyzidae, belonging to 2 genera and 4 species were reared from the leafmines. All four species are new to the Belgian fauna. Each species will be discussed more in detail.

#### *Agromyza hendeli* GRIFFITHS, 1963

Material examined: Doel (ES.88), 26.IX.91, 1♂, 1♀; Schilde (FS.07), 17.X.91, 1♀; Zoersel (FS.18), 20.X.91, 4♂♂, 6♀♀.

Medium-sized, dark species. Frons dark brown to black, 0.8-1.2 times width of eye; 5 or 6 strong orbital bristles; large third antennal segment. Wing length 2.5-3.1 mm, costa extending strongly to vein  $M_{1-2}$ , last section of  $M_{3+4}$  short, at most 2/3 penultimate; squamae and margin white, fringe contrasting black. Figures of male genitalia can be found in SPENCER (1976).

*A. hendeli* is a monophagous leafminer of *Phragmites australis*. The larvae produce a broad, collective blotch mine. Pupation takes place outside the mine, often attached to the surface of the leaf. The puparium is black and the posterior spiracles each have 3 bulbs.

*A. hendeli* is known from Austria, Great Britain, Denmark, Germany, Holland, Italy, Poland and Sweden (GRIFFITHS, 1963; SPENCER, 1972, 1976).

#### *Agromyza phragmitidis* HENDEL, 1922

Material examined: Halle (FS.17), 13.X.91, 2♂♂, 6♀♀; Hoboken (ES.97), 13.VII.91, 1♂; Nieuwmoer (FT.09), 23.X.91, 3♂♂, 2♀♀; Zoersel (FS.18), 4.IX.91, 1♂; 3.X.91, 1♂; 20.X.91, 11♂♂, 12♀♀; 21.X.91, 2♂♂; 27.X.91, 1♂; 17.XI.91, 6♂♂, 3♀♀.

Medium-sized shining black species. Frons brown; first and second antennal segments brown, third black and rounded. Femora black but fore-knees narrowly yellow; tibiae and tarsi variable, either dark brown or more yellowish. Wing length 2.2-2.8 mm, costa extending strongly to vein  $M_{1+2}$ , last section of  $M_{3+4}$  2/3 of penultimate; squamae and fringe white. Figures of the male genitalia can be found in SPENCER (1976).

*A. phragmitidis* is monophagous, the mines occur only on the leaves of *Phragmites australis*. The female flies oviposit in the proximal part of the leaf. Initially, several larvae gnaw their way to the top of the leaf in separated, narrow mines. After a short time they merge into a broad, collective blotchmine. As a rule, pupation takes place outside the mine. The puparium varies in colour from brown to almost yellow; the posterior spiracles each have three elongate bulbs, the two processes being separated by their own diameter.

Without exception, *A. phragmitidis* mines are found on shoots growing in the shaded areas of a reed bed. Analogous results were obtained by ROTHÉRAY (1987) for *Chromatomyia milii* (KALTENBACH). Whether this

distribution pattern is caused by differences in the quality of the feeding tissues or parasitoid pressure, or is merely a result of female foraging behaviour, could not be resolved from our data.

This species was formerly recorded from Great Britain, Denmark, Finland, Germany, Hungary, Poland, Sweden (GRIFFITHS, 1963; SPENCER, 1972, 1976).

#### *Cerodontha (Poemyza) phragmitidis* Nowakowski, 1967

Material examined: Halle (FS.17), 13.X.91, 2♂♂; Nieuwmoer (FT.09), 23.X.91, 2♂♂, 4♀♀; Zoersel (FS.18), 17.XI.91, 2♀♀.

Frons only slightly wider than eye, narrowly projecting above eye in profile; 2 ors, 3 ori; lunule broad at base, conspicuously narrowing at midpoint, becoming U-shaped above, with upper margin slightly above level of upper ori; jowls not greatly extended at rear, 1.6 height of eye; third antennal segment higher than broad. 3 strong dc and normally 2 smaller ones beyond; acr in 6-8 rows. Wing length 2.5-3.5 mm, last section of  $M_{3+4}$  1.2-1.5 times length of penultimate; squamae and fringe bright yellow. Figures of the male genitalia can be found in SPENCER (1976).

*C. phragmitidis* is strictly monophagous, the mines can only be found on *Phragmites australis*. The larvae form a large, linear blotch mine at the edge of the leaf. Normally they pupate in the leaf. The puparium is metallic black, deeply segmented; the posterior spiracular processes are knob-like, each with 3 bulbs. They are located on a long, narrow projection.

*C. phragmitidis* is known from Great Britain, Denmark, Estonia, France, Germany, Holland, Hungary, Poland, Sweden (NOWAKOWSKI, 1972; SPENCER, 1972, 1976).

#### *Cerodontha (Poemyza) incisa* (MEIGEN, 1830)

Material examined: Antwerpen L.O. (ES.97), 12.VIII.91, 2♀♀.

Frons 1.5 times width of eye, not projecting above eye in profile; 2 ors, 2 ori; lunule high, upper margin almost reaching level of lower ors; jowls narrow, 1/10 height of eye; third antennal segment small, round. 3+1 dc, acr in 6 rows. Wing length 2.3-2.75 mm; last section of  $M_{3+4}$  from just less than 2-2.5 times length of penultimate; squama and fringe bright yellow. Figures of the male genitalia can be found in SPENCER (1976).

In contrast to the other agromyzid species *C. incisa* is a polyphagous leafminer. Until now, this species has been recorded from 28 grass genera (SPENCER, 1990). The favorite genera appear to be *Agropyron*, *Calamagrostis*, *Festuca* and *Phalaris*. The puparium remains in the mine, loosely attached by silk. The puparium is shining, metallic black and deeply segmented; the posterior spiracles are situated on a conspicuous projection, each with 3 round bulbs.

*C. incisa* is widespread in Europe and has been reported from Austria, Great Britain, Bulgaria, Czechoslovakia, Denmark, Estonia, Finland,

Germany, The Netherlands, Hungary, Iceland, Ireland, Italy, Lithuania, Norway, Poland, Rumania, Spain, Sweden, Yugoslavia. Also widespread in Asia and North-America (NOWAKOWSKI, 1972; SPENCER, 1972, 1976).

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4. M. G. MIESSEN fait circuler une série de *Trichius fasciatus* (L., 1758) (Coleoptera, Scarabaeidae) illustrant la variabilité des dessins élytraux:
- ab. *dubius* MULSANT dont la première paire de fascies est semblable à celle de la forme typique de *Trichius rosaceus* (VOET, 1769);
  - des formes intermédiaires de l'ab. *interruptus* MULSANT;
  - 1 ♂ possédant des macules rouges entre la première et la deuxième paires de fascies.
- Il signale ensuite que *Pytho depressus* (L., 1767) (Coleoptera, Pythidae) est relativement abondant dans une forêt de *Pinus sylvestris* L. des envi-