

Records of mining Lepidoptera in Belgium with nine species new to the country (Nepticulidae, Opostegidae, Tischeriidae, Lyonetiidae)

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Abstract. Records of 56 species of mining Lepidoptera are given, mostly for Wallonia. *Stigmella thuringiaca* (Namur: Nismes, on *Potentilla tabernaemontani*), *Ectoedemia arcuatella* (Luxembourg, Namur, on *Fragaria vesca*) and *Leucoptera lustratella* (Luxembourg, Namur, on *Hypericum perforatum*) are reported new for Belgium on the basis of reared adults, *Stigmella crataegella* (Luxembourg: Belvaux, *Crataegus monogyna*), *S. confusella* (West Vlaanderen, *Betula pubescens*), *Trifurcula subnitidella* (Namur: Nismes, *Lotus corniculatus*), and *Ectoedemia spinosella* (Namur: Nismes, *Prunus spinosa*) are reported as new on the basis of vacated mines and *Coptotriche heinemanni* (on *Agrimonia eupatoria*) and *C. gaunacella* (on *Prunus spinosa*) are reported as new both from the province of Luxembourg: Torgny, each on the basis of a single larva and mine, of which rearing failed. In addition to these, 50 new provincial records are given, particularly for Liège, Luxembourg and Namur. The previous record of *Ectoedemia agrimoniae* is regarded to be in the province of Luxembourg, not Namur.

Samenvatting. Dit artikel omvat waarnemingen en vangsten van 56 soorten minerende Lepidoptera, vooral uit Wallonië. *Stigmella thuringiaca* (Namen: Nismes, op *Potentilla tabernaemontani*), *Ectoedemia arcuatella* (Luxemburg, Namen, op *Fragaria vesca*) en *Leucoptera lustratella* (Luxemburg, Namen, op *Hypericum perforatum*) worden nieuw voor België gemeld op grond van gekweekte vlinders; *Stigmella crataegella* (Luxemburg: Belvaux, *Crataegus monogyna*), *S. confusella* (West Vlaanderen, *Betula pubescens*), *Trifurcula subnitidella* (Namen: Nismes, *Lotus corniculatus*), en *Ectoedemia spinosella* (Namen: Nismes, *Prunus spinosa*) worden nieuw voor België gemeld op grond van lege mijnen en *Coptotriche heinemanni* (op *Agrimonia eupatoria*) en *C. gaunacella* (op *Prunus spinosa*) worden beide nieuw voor België gemeld uit de provincie Luxembourg: Torgny, op grond van een enkele bladmine en rups van elk, waarvan het kweken mislukte. Daarnaast worden 50 nieuwe provincievondsten vermeld, in het bijzonder voor Luik, Luxemburg and Namen. De vroegere vermelding van *Ectoedemia agrimoniae* wordt beschouwd betrekking te hebben op de provincie Luxembourg, en niet Namen.

Résumé. Des données de 56 espèces de Lépidoptères mineurs sont fournies, notamment provenant de Wallonie. *Stigmella thuringiaca* (Namur: Nismes, sur *Potentilla tabernaemontani*), *Ectoedemia arcuatella* (Luxembourg, Namur, sur *Fragaria vesca*) et *Leucoptera lustratella* (Luxembourg, Namur, sur *Hypericum perforatum*) sont signalées de Belgique pour la première fois sur la base des adultes élevés, *Stigmella crataegella* (Luxembourg: Belvaux, *Crataegus monogyna*), *S. confusella* (Flandres Occidentale, *Betula pubescens*), *Trifurcula subnitidella* (Namur: Nismes, *Lotus corniculatus*), et *Ectoedemia spinosella* (Namur: Nismes, *Prunus spinosa*) sont signalés de Belgique sur la bases des mines vides et *Coptotriche heinemanni* (sur *Agrimonia eupatoria*) et *C. gaunacella* (sur *Prunus spinosa*) sont également signalés comme nouveaux, les deux provenant de Luxembourg: Torgny, sur base d'une seule mine et larve pour chacun; l'élevage des adultes n'a pas donné de résultat. De plus 50 données provinciales nouvelles sont fournies, particulièrement pour Liège, Luxembourg et Namur. Il est montré que la donnée ancienne de *Ectoedemia agrimoniae* sera attribuée à la province de Luxembourg, et non à Namur.

Key words: Nepticulidae – Opostegidae – Tischeriidae – Lyonetiidae – faunistics – hostplants.

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Introduction

Despite the increased interest for the study of Microlepidoptera in Belgium, as shown in the pages of this journal and the recent checklists (De Prins 1998, De Prins & Steeman 2006), the knowledge for most leafmining Lepidoptera is still relatively poor, particularly when compared with The Netherlands. Recently the family Gracillariidae has received more interest than the other families, but few papers deal with Nepticulidae, Opostegidae, Tischeriidae or Lyonetiidae. The last species recorded as new for Belgium in the Belgian literature were *Stigmella zelleriella* (Snellen, 1875) (Henderickx 1983), *Pseudopostega auritella* (Hübner, 1813) (De Prins 1989), *Leucoptera lotella* (Stainton, 1858) (Coenen 1994) and *Lyonetia prunifoliella* (Hübner, 1796) (De Prins 2003). The total numbers of species known of these families are also lower than for The Netherlands, respectively 64 and 83 for Nepticulidae, 4 and 6 for Tischeriidae and 7 and 8 for Lyonetiidae. On the level of the provinces the knowledge is distributed unevenly: most recent records are known from the province of Antwerp, whereas Brabant has many records, but almost all prior to 1980. Almost all other provinces are poorly covered.

In the course of the years I collected several times in Belgium, usually incidental records during short holidays, in two cases on short but intensive collecting trips to Wallonia, particularly visiting limestone grasslands (in 1999 with Jin Tao and in 2002 with Kees van den Berg). Because of the relative poor knowledge, particularly for Wallonia, I present here all my records, except for the better known Gracillariidae. Willem Ellis (Zoological Museum Amsterdam) collected leafmines in the last years during various trips to Belgium; he was so kind to allow me to publish all his records as well. Nine species are recorded for the first time from Belgium: 6 Nepticulidae, 2 Tischeriidae and 1 Lyonetiidae.

Material and methods

Most material collected is in the collection of the National Museum of Natural History Naturalis, Leiden (RMNH), but some material collected by me and co-workers before 1984 and the material collected by Willem Ellis is in the Zoological Museum of Amsterdam (ZMAN). Both leafmines and reared adults are kept, and some samples of larvae, including tissue for DNA research (collected from 1999 on).

Records of vacated mines are only used when they can unequivocally be identified to species. This precludes the records of vacated mines of *Stigmella* on *Rosa*, *Rubus*, *Quercus*, and several Rosaceous herbs, which too often cannot be identified with certainty, with the exclusion of *Stigmella basiguttella* on *Quercus* and *S. aeneofasciella* on Rosaceae.

With larvae such mines may be identifiable by any of the following methods: rearing of adults, morphology of larva (after making microscopic preparation) or DNA.

The photographs of leafmines are HR scans from colour slides, taken with a Zeiss microcamera attached to a Carl Zeiss SV11 Stereomicroscope, photographs of adults were taken with the Zeiss AxioCam attached to the same

microscope, those of genitalia with the AxioCam attached to a Zeiss Axioskop, using Zeiss AxioVision 3.0 software.

In the material lists I provide the 1×1 km UTM grid references.

Several of the cited records here from Liège and Limburg have been used in the catalogues by De Prins (1998) and De Prins & Steeman (2006) and are thus shown there by black dots or red circles respectively; here these records are published for the first time in detail. For information on the distribution over the provinces I refer to the online checklist (De Prins & Steeman 2006), the latest update on 28 March 2006.

Identification

All Nepticulidae and Opostegidae found in Belgium can be identified with Johansson *et al.* (1990), and for the Nepticulidae also Laštůvka & Laštůvka (1997) is available, but the colour plates make the first book superior. For the Tischeriidae there are no recent complete treatments, De Prins & Steeman (2006) cites several older sources. For the genus *Leucoptera* in Lyonetiidae, the best source is Mey (1994), and Emmet (1985) as general key for the family. For leafmines of all families much information and good photographs can be found in two websites of neighbouring countries: Ellis (2005) and Edmunds (2006).

List of abbreviations

In the material lists the provinces are abbreviated following the same system as in De Prins (1998) and De Prins & Steeman (2006).

AN= Antwerpen (Antwerp), CvdB = C. (Kees) van den Berg (Leiden); EvN = Erik J. van Nieuwerkerken; GB = Georgina Bryan, Amsterdam (to 1983); JC = J. Cronau (student Amsterdam in 1983), LG = Liège; LI = Limburg; LX = Luxembourg; NA = Namur; TJ = Jin Tao (Leiden, 1999–2000); TM = tenanted mines (with larvae or pupae); VM = vacated mines; WE = Willem Ellis (Amsterdam); WV = West-Vlaanderen.

Nepticulidae

Stigmella lapponica (Wocke, 1862)

LG: Spa N, Parc, 250–300 m, GR0397, 23.x.2000, *Betula pendula*, 1VM, EvN. – LX: Bois d'Etalles, 27.viii.2002, *B. pubescens*, VM, WE.

New for Liège and Luxembourg. This common species has been recorded remarkably seldom from Belgium (AN and LI only). Detailed search for mines in summer will undoubtedly result in many new records for this and the following species.

Stigmella confusella (Wood & Walsingham, 1894) **New for Belgium**

OV: Retranchement, de Vrede (Dutch border), ES2688, 16.x.2003, *Betula pubescens*, VM, WE.

It is remarkable that this species had not been recorded earlier from Belgium, although it usually occurs almost as common as *S. lapponica*. These two species are easier to identify as leafmine than as adult (Johansson *et al.* 1990).

***Stigmella tiliae* (Frey, 1856)**

LG: Malmédy, center, 330 m, KA8890, 26.x.2000, *Tilia europaea*, VM, EvN; Spa, east: Lac de Warfai, shore, 280 m, GR0599, 24.x.2000, *Tilia europaea*, VM, EvN. – **LX:** Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Tilia cordata*, VM, EvN & TJ; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *Tilia*, VM, EvN & TJ.

New for Liège and Luxembourg. A very common species with its host *Tilia*, both in forests and in parks and along alleys.

***Stigmella betulicola* (Stainton, 1856)**

LX: Melines, 1 km SW Soy, 240 m, FR7872, 1.v.1987, 1♂, EvN.

New for Luxembourg. *Stigmella betulicola* is only known from old literature records for Brabant and Namur. Most likely this species occurs commonly with its host *Betula*, particularly on seedlings in heathland; it is thus to be searched for in the Kempen.

***Stigmella sakhalinella* Puplesis, 1984**

LX: Bois d'Étalles, 27.viii.2002, *Betula pubescens*, VM, WE. – **NA:** Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Betula*, VM, EvN & TJ.

New for Luxembourg and Namur. Previously only recorded from Antwerpen and Limburg.

***Stigmella microtheriella* (Stainton, 1854)**

LG: Bevercé, Ermitage, 2 km N. Malmédy, 450 m, KA8892, 25.x.2000, *Corylus avellana*, VM, EvN; Spa N, Parc, 250–300 m, GR0397, 23.x.2000, *C. avellana*, VM, EvN. – **LI:** Beusdal: bos bij Sinnich, GS0326, 12.vii.2001, *C. avellana*, TM, WE. – **LX:** Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *C. avellana*, *Carpinus betulus*, TM, 1♀, e.l. 28.iii.2000, EvN & TJ; Muno, 29.x.2000, *C. betulus*, VM, WE; Ruelle (SE Virton), FQ8690, 29.viii.2002, *C. avellana*, *C. betulus*, VM, WE; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *C. betulus*, TM, EvN & TJ. – **NA:** Belvaux: forêt de Niau, FR5552, 15.vii.2000, *C. avellana*, VM, WE; Han-sur-Lesse: Belvédère, FR5656, 14.vii.2000, *C. avellana*, VM, WE; Han-sur-Lesse: la grande Tinémont, FR5855, 28.x.2000, *C. avellana*, VM, WE; Nismes, 16.vii.2000, *C. avellana*, VM, WE; Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *C. avellana*, TM, EvN & TJ.

New for Limburg and Luxembourg, first record for Namur after 1980. This is a common and often abundant leafminer of hazel (*Corylus avellana*) and hornbeam (*Carpinus betulus*), partly because it is a parthenogenetic species of which usually only females are found.

***Stigmella prunetorum* (Stainton, 1855)**

LG: Montagne St Pierre, Lanaye, 95 m, FS8928, 19.x.1994, TM, 1♂, 1♀, e.l. 20.v.1995, EvN. – **LX:** Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, TM, EvN & TJ; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, TM, 1♀, e.l. 31.iii.2000, EvN & TJ. – **NA:** Han-sur-Lesse: Belvédère, FR5656, 14.vii.2000, VM, WE; Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, TM, 2♂, 2♀, e.l. 28–30.iii.2000, EvN & TJ; Nismes: Tienne Breumont, 200 m, FR1048, 23.ix.2002, TM, 1♂, 4♀, e.l. 21–24.iii.2003, CvdB & EvN. All leafmines on *Prunus spinosa*.

New for Luxembourg, first records for Namur after 1980. *Stigmella prunetorum* is currently known only from the eastern and southern parts of the country, a situation similar to the Netherlands, where it is absent from all coastal areas (Kuchlein & Donner 1993).

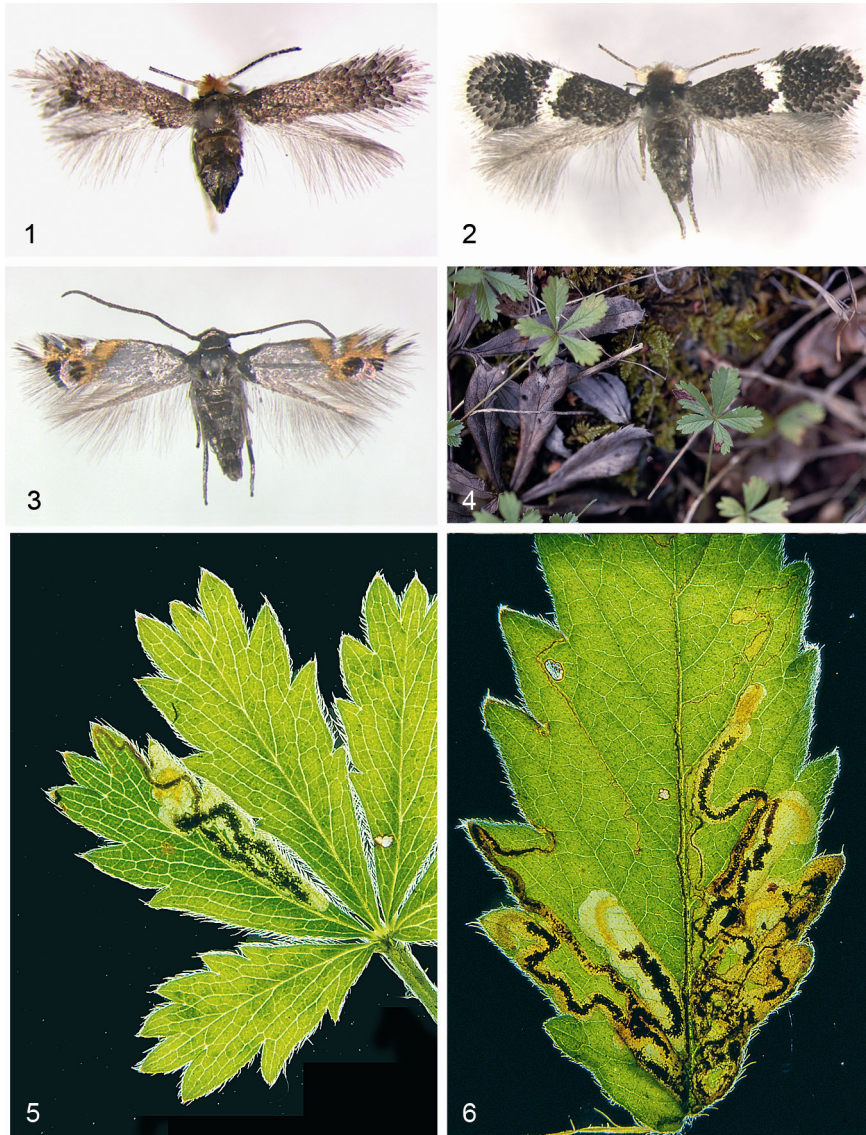


Figure 1. *Stigmella thuringiaca*, female, Namur: Nismes.

Figure 2. *Ectoedemia arcuatella*, female, Luxembourg: Torgny.

Figure 3. *Leucoptera lustratella*, male, Arlon, Bois de Stockhem.

Figures 4–5. *Stigmella thuringiaca*, leafmines on *Potentilla tabernaemontani*, Nismes. 4. In the field, 23.ix.2002, photograph C. van den Berg; 5. 2.x.1999.

Figure 6. *Agrimonia eupatoria* with leafmines and larvae of *Ectoedemia agrimoniae* (i.e., top, dark head) and *Stigmella aeneofasciella* (i.e. large mine just above midrib, yellow, head poorly visible), Luxembourg, Belvaux.

***Stigmella malella* (Stainton, 1854)**

LX: Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *Malus domestica*, 1VM, EvN & TJ.

New for Luxembourg. In Belgium this apple pest was previously recorded only from three provinces. In contrast to neighbouring countries, I have not been able to find references for this species in the agricultural literature. Still, it probably is or has been a pest in some of the apple orchard regions.

***Stigmella catharticella* (Stainton, 1853)**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Rhamnus catharticus*, 1VM, EvN & TJ.
– NA: Belvaux: Herdal, FR5752, 15.vii.2000, *R. catharticus*, VM, WE; Han-sur-Lesse: Belvédère, FR5656, 14.vii.2000, *R. catharticus*, VM, WE; Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *R. catharticus*, VM, EvN & TJ.

New for Luxembourg, first records for Namur after 1980. *Stigmella catharticella* was previously known only from an old record in Namur (Fologne 1862b), but recently also recorded from Antwerpen (De Prins 2004) (incorrectly spelled as *Stigmella catharticus*). It is probably widespread.

***Stigmella thuringiaca* (Petry, 1904) New for Belgium (Figs. 1, 4, 5, 11, 12)**

NA: Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Potentilla tabernaemontani*, TM, 1♂, e.l. 4.iv.2000, EvN & TJ; Nismes: Fondry des Chiens, 225 m, FR1147, 23.ix.2002, *P. tabernaemontani*, TM, 1♂, 1♀, e.l. 12–31.iii.2003, CvdB & EvN.

Stigmella thuringiaca is widespread in southern Europe, with northern limits in Central Germany, Poland and Russia – Ulyanovsk (Johansson *et al.* 1990, Van Nieuwerkerken 2004, Van Nieuwerkerken *et al.* 2004). The adult is a rather dull greyish moth (Fig. 1), resembling several other uniformly coloured *Stigmella* species, best recognised by the male genitalia (Figs. 11, 12). It is usually found on hot limestone grasslands or rocky places, but occurs in Central Europe also high in the mountains. It feeds on a number of herbaceous Rosaceae, such as *Sanguisorba*, *Filipendula*, *Fragaria*, and often on *Potentilla*. The mines are shown in Figures 4 and 5, they are not particularly characteristic, and especially *Stigmella tormentillella* (Herrich-Schäffer, 1860) (to be expected in Belgium, found nearby in France: Lorraine, see Van Nieuwerkerken *et al.* 2006) may make very similar mines on *Potentilla*, and mines on *Sanguisorba* may also resemble those of *S. anomalella* or *S. centifoliella*. For identification see further Johansson *et al.* (1990).

The localities near Nismes are limestone grasslands which are well exposed to the sun, very suitable for this species. The nomenclature of the hostplant is confusing, it was often named *P. verna*, the Belgian flora (Lambinon *et al.* 1998) gives *P. neumanniana*, but the most recent Flora of the Netherlands again *P. tabernaemontani* (Meijden 2005). However, the nomenclature was more or less resolved in the European Flora Atlas by Kurtto *et al.* (2004: page 242), who uses *S. tabernaemontani* again, and treat *P. neumanniana* as a separate species with a restricted distribution in northern Europe and Germany.

***Stigmella regiella* (Herrich-Schäffer, 1855)**

LG: Comblain-au-Pont, P.N. Roches Noires, FR8295, 10.x.1979, *Crataegus spec.*, TM, 1♂, 1♀, e.l. 7–10.vi.1980, EvN & GB – LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, C.

monogyna, TM, EvN & TJ. – NA: Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *C. monogyna*, TM, 1♂, 1♀, e.l. 9.iv.2000, EvN & TJ; Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *C. monogyna*, VM, EvN & TJ.

New for Namur. The record for Liège was previously published in Van Nieukerken (1982). Usually occurring on *Crataegus* growing within forests or thickets, in the shade.

***Stigmella crataegella* (Klimesch, 1936) New for Belgium**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Crataegus monogyna*, old VM, EvN & TJ; Torgny (SW Virton), FQ7987, 28.viii.2002, *Crataegus monogyna*, VM, WE. – NA: Belvaux: Herdal, FR5752, 15.vii.2000, *Crataegus monogyna*, VM, WE.

Stigmella crataegella is widespread in Europe, but rare and localised in the Netherlands, where it is most common on the limestone grasslands in Limburg (Gielis *et al.* 1985, Van Nieukerken 1982). Its occurrence on Belgian limestone grasslands was therefore to be expected. The mines are rather characteristic, but when vacated they are sometimes confused with those of *S. perpygmaeella* (Doubleday, 1859), see Johansson *et al.* (1990) for identification. The green larva of *S. crataegella* separates it from all other Nepticulidae species which feed in the summer, the larvae feed usually during July-August. Larvae of *Stigmella oxyacanthella* (see below) are also green, but these occur from late September to November.

***Stigmella oxyacanthella* (Stainton, 1854)**

LG: Mont, N. of Comblain-au-Pont, FR8195, 10.x.1979, *Malus domestica*, TM, EvN & GB; Spa N, Parc, 250 m, GR0397, 23.x.2000, *M. domestica*, VM, EvN. – LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Crataegus monogyna*, TM, EvN & TJ; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *C. monogyna*, TM, EvN & TJ; *ibid.* *M. domestica*, TM, EvN & TJ. – NA: Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *C. monogyna*, TM, EvN & TJ; Nismes: Tienne Breumont, 200 m, FR1048, 23.ix.2002, *C. monogyna*, TM, CvdB & EvN.

New for Luxembourg. This species is a common autumn miner of *Crataegus*, *Malus*, *Pyrus*, and *Prunus avium*, often occurring together with *Ectoedemia atricollis*.

***Stigmella hybnerella* (Hübner, 1796)**

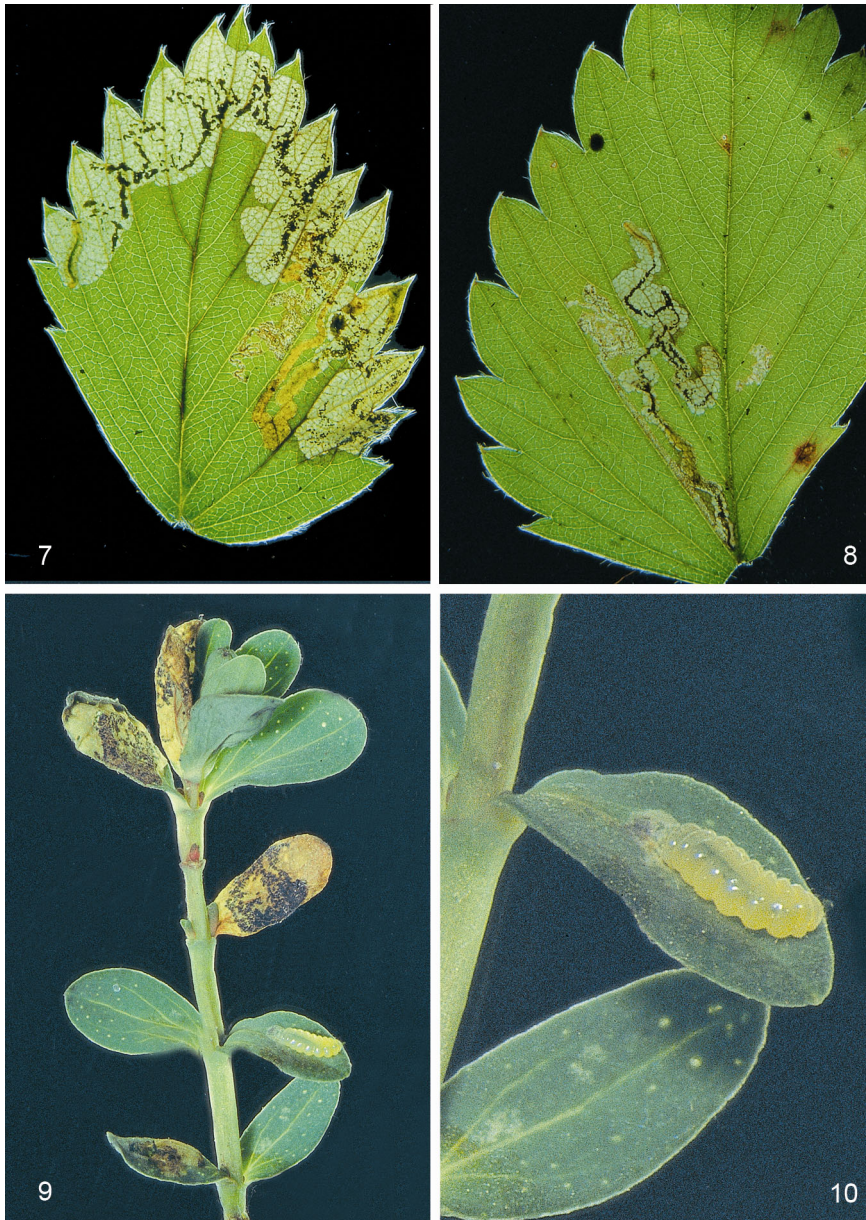
LG: Eben-Emael: Montagne St Pierre, W. slope, limestone grassland, FS8830, 12.ix.1979, *Crataegus monogyna*, 1♀, e.l. iv.1980, EvN *et al.*

A very common leafminer of *Crataegus*, to be expected throughout the country, but yet recorded only from three provinces.

***Stigmella floslactella* (Haworth, 1828)**

LG: La Calamine: valley of Hohn, 23.vi.2000, VM, WE. – LX: Ruelle (SE Virton), FQ8690, 29.viii.2002, VM, WE. – NA: Nismes, 16.vii.2000, VM, WE; Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, 1VM, EvN & TJ. All leafmines on *Corylus avellana*.

New for Luxembourg, first records for Namur after 1980. This species is usually common on hazel (*Corylus avellana*), but less abundant than *S. microtheriella*.



Figures 7–8. *Ectoedemia arcuatella*, leafmine on *Fragaria vesca*, Luxembourg: Torgny.

Figures 9–10. *Leucoptera lustratella*, leafmines and larvae on *Hypericum perforatum*, Namur, Nismes. Fig. 9 shows a larva, just starting a new mine.

***Stigmella tityrella* (Stainton, 1854)**

LG: Anthisnes, 27.x.2000, VM, WE; Sart-les-Spa, 1 km SW, Hé de Sart, 360 m, GR0699, 24.x.2000, TM, EvN; Spa N, Parc, 250–300 m, GR0397, 23.x.2000, TM, EvN. – **LI:** Beusdal: forest near Sinnich, GS0326, 12.vii.2001, VM, WE; Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, VM, EvN & JC; St. Martens-Voeren, Schoppener heide, 200 m, FS9726, 8.xi.1999, VM, EvN & TJ. – **LX:** Libin, N., 450 m, FR6041, 26.x.2002, TM, 1♂, 3♀, e.l. 20–24.iii.2003, EvN; Muno, 29.x.2000, VM, WE. All leafmines on *Fagus sylvatica*.

New for Liège and Luxembourg. This is a very common leafminer of *Fagus*, of which late mines can often be found in green islands in fallen leaves.

***Stigmella salicis* (Stainton, 1854)**

LG: Hautes Fagnes, 3.5 km N Malmédy, Tro Maret, 500 m, KA8993, 25.x.2000, *Salix aurita*, TM, EvN; Hautes Fagnes, Fagne Fraineu, 6 km N Malmédy, 610 m, KA9096, 25.x.2000, *S. aurita*, TM, EvN. – **LX:** Bois de Stockem, 4 km SW Arlon, 380 m, FR9805, 3.x.1999, *S. cinerea*, TM, 1♂, e.l. 25.iv.2000, EvN & TJ. – **NA:** Han-sur-Lesse: la grande Tinémont, FR5855, 28.x.2000, *S. cinerea*, VM, WE.

New for Luxembourg and Namur. *Stigmella salicis* is a very common leafminer of the sallows (*Salix aurita*, *cinerea* and *caprea*).

***Stigmella myrtillella* (Stainton, 1857)**

LG: Eupen, 5 km SW, Hé des Morts, 300 m, GS1208, 14.x.1998, *Vaccinium myrtillus*, 2VM, EvN.

New for Liège. *Stigmella myrtillella* has previously only been recorded from Antwerpen and Brabant, but it should be expected to occur widely with its host, the common blueberry *Vaccinium myrtillus*.

***Stigmella obliquella* (Heinemann, 1862)**

LG: Montagne St. Pierre, Emael, along Geer, 70 m, FS8830, 8.xi.1999, *Salix alba*, TM, EvN & TJ.

New for Liège. *Stigmella obliquella* feeds on narrow leaved *Salix* species, such as *Salix alba*, *S. fragilis* and *S. viminalis*. See also De Prins (1996).

***Stigmella assimilella* (Zeller, 1848)**

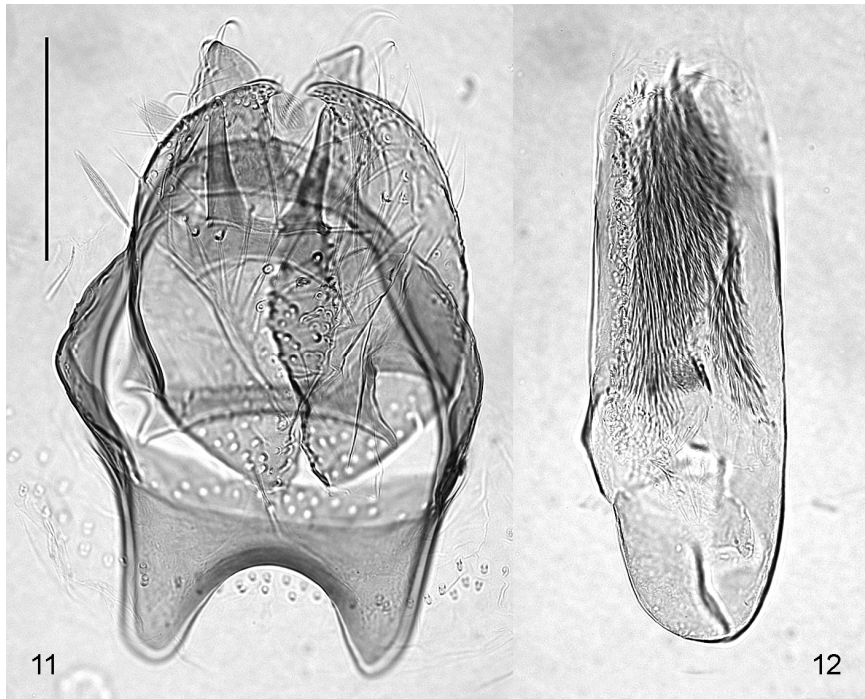
LG: Pont, 16.vii.1985, 1♀, K. J. Huisman.

Stigmella assimilella is a relatively rare species, feeding on aspen (*Populus tremula*), apart from Liège there are only old records from Brabant and Hainaut.

***Stigmella plagicolella* (Stainton, 1854)**

LI: Beusdal: forest near Sinnich, GS0326, 12.vii.2001, VM, WE. – **LX:** Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, TM, EvN & TJ; Ruette (SE Virton), FQ8690, 29.viii.2002, VM, WE; Torgny (SW Virton), FQ7987, 28.viii.2002, VM, WE; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, TM, 1♂, e.l. 5.iv.2000, EvN & TJ. – **NA:** Belvaux: Herdal, FR5752, 15.vii.2000, VM, WE; Han-sur-Lesse: Belvédère, FR5656, 14.vii.2000, VM, WE; Nismes, 16.vii.2000, VM, WE; Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, TM, 1♂, 2♀, e.l. 30-31.iii.2000, EvN & TJ; *ibid.*, 23.ix.2002, TM, 1♂, 2♀, e.l. 13.iii-2.iv.2003, CvdB & EvN. – **WV:** Retranchement, de Vrede, near Dutch border, ES2688, 16.x.2003, VM, WE. All leafmines on *Prunus spinosa*.

New for Limburg and West-Vlaanderen, first record for Namur after 1980. One of the commonest European Nepticulidae, *Stigmella plagicolella* occurs everywhere with sloe (*Prunus spinosa*) and plums (*P. domestica*), sometimes even forming a pest on the latter. In Belgium still to record from Oost-Vlaanderen and Hainaut.



Figures 11–12. *Stigmella thuringiaca*, male genitalia, slide EvN3354, Namur: Nismes. Scale 100 μ m.

***Stigmella lemniscella* (Zeller, 1839)**

LG: Comblain-au-Pont, P.N. Roches Noires, FR8295, 10.x.1979, *Ulmus*, 1♀, e.l. 1980, EvN & GB [Genitalia slide and leafmines preserved].

A common leafminer of *Ulmus*, recorded from five provinces.

***Stigmella aurella* (Fabricius, 1775)**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Fragaria vesca*, 1♂, e.l. 17.iv.2000, EvN & TJ; *ibid.*, *Agrimonia eupatoria*, VM; *ibid.*; *Rubus fruticosus*, TM, EvN & TJ.

New for Luxembourg. *Stigmella aurella* is probably one of the commonest and most widespread species of Nepticulidae in western Europe. Leafmines can usually not be separated with certainty from *S. splendidissima* (Herrich-Schäffer, 1855), therefore we only list here vacated mines from a locality where we also reared the species from another host. This species when feeding on *Agrimonia* was described from Belgium as '*Nepticula nitens*' (Fologne 1862a).

***Stigmella aeneofasciella* (Herrich-Schäffer, 1855) (Fig. 6)**

LG: Montagne St. Pierre, Emael, W. slopes, 100 m, FS8830, 8.xi.1999, *Agrimonia eupatoria*, TM, 2♂, 2♀, e.l. 5.iv.2000, EvN & TJ. – **LX:** Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *A. eupatoria*, TM, 3♂, 3♀, e.l. 21.iii–4.iv.2000, EvN & TJ. – **NA:** Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *A. eupatoria*, TM, 1♂, 3♀, e.l. 27.iii–3.iv.2000, EvN & TJ.

New for Liège and Luxembourg. Apparently widespread on limestone in eastern and southern Belgium, but also recorded from Antwerp. In Belgium and the Netherlands this species is until now only known from *Agrimonia*, although it is elsewhere also found on *Potentilla* or *Fragaria*. In Belvaux *S. aeneofasciella* was found together with *Ectoedemia agrimoniae*, often mining the same leaf, as shown in Figure 6.

***Stigmella perpygmaeella* (Doubleday, 1859)**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, TM, EvN & TJ; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, TM, 1♂, 3♀, e.l. 20–22.iii.2000, EvN & TJ. – **NA:** Belvaux: Herdal, FR5752, 15.vii.2000, VM, WE; Han-sur-Lesse: Belvédère, FR5656, 14.vii.2000, VM, WE. All leafmines on *Crataegus monogyna*.

New for Luxembourg and Namur. This species is almost as common on *Crataegus* as *Stigmella hybnerella*, in Belgium even recorded more frequently. Vacated mines may be confused with those of *S. crataegella*, but the larval colour (yellow versus green) separates them immediately.

***Stigmella hemargyrella* (Kollar, 1832)**

LX: Libin, N., 450 m, FR6041, 26.x.2002, *Fagus sylvatica*, 1VM, EvN; Montauban, S Etalles, 27.viii.2002, *F. sylvatica*, VM, WE.

New for Luxembourg. These are the first records of this common miner of *Fagus* from the area of High Belgium (the Ardennes and environs). It most likely is common everywhere.

***Stigmella basiguttella* (Heinemann, 1862)**

AN: Bouwel, 6 km W Herentals, FS2269, 15.xi.1983, 2VM, EvN & JC – **LG:** Comblain-au-Pont, P.N. Roches Noires, FR8195, 10.x.1979, *Quercus robur*, 2♀, e.l. 6.vi.1980, EvN & GB – **LI:** Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, VM, EvN & JC; NE of Teuven, nr border, 11.ix.1979, *Q. robur*, VM, EvN; Zolder: Heikant, FS6152, 15.xi.1983, VM, EvN & JC – **NA:** Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Q. robur*, 1VM, EvN & TJ.

New for Namur. *Stigmella basiguttella* is the only *Quercus* mining *Stigmella* that can be identified with certainty on the basis of vacated leafmines. Records of this and the following three species have been used in preparing the distribution maps of the *Quercus* feeding *Stigmella* (Van Nieuwerkerken & Johansson 2003), but where not published in detail.

***Stigmella atricapitella* (Haworth, 1828)**

NA: Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Quercus robur*, 1♂, e.l. 4.iv.2000, EvN & TJ.

New for Namur. Because of the confusion within this group of species (Van Nieuwerkerken & Johansson 2003), old records cannot be used; they may refer also to *Stigmella samiatella* or males of *S. ruficapitella*. Material from the province of Antwerpen (coll. Turelinckx, localities Geel-Zammel and Westerlo) has been identified by me, but the record from Oost-Vlaanderen (East Flanders) (De Prins 1998) remains doubtful.

***Stigmella ruficapitella* (Haworth, 1828)**

LG: Pepinster, SW, forest on slope, GS9804, 10.x.1979, *Quercus petraea*, 1♂, e.l. 15–16.v.1981, EvN & GB.

See also remark under previous species. Many old records of *Stigmella ruficapitella* actually refer to *S. roborella*. Apart from the cited specimen, I have seen correct *S. ruficapitella* from Antwerpen (coll. Turelinckx: Hesselt Bergom, Westerlo, Westerlo-Tongerlo).

***Stigmella roborella* (Johansson, 1972)**

LG: Comblain-au-Pont, P.N. Roches Noires, FR8195, 10.x.1979, *Quercus robur*, TM, 1♂, e.l. 28.v.1980, EvN & GB; Pepinster, SW, forest on slope, GS9804, 10.x.1979, *Q. petraea*, TM, 1♂, e.l. 24–25.v.1980, EvN & GB; Sart-les-Spa, 1 km SW, Hé de Sart, 360 m, GR0699, 24.x.2000, *Q. petraea*, TM, 1♀, e.l. 30.iii.2001, EvN.

Stigmella roborella is probably the commonest oak mining *Stigmella* in Belgium. It is also known from many localities in Antwerpen (De Prins 1996), of which I have seen most material. It remains to be recorded from all other provinces.

***Trifurcula (Trifurcula) subnitidella* (Duponchel, 1843) New for Belgium**

NA: Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *Lotus corniculatus*, 1 VM, EvN & TJ.

Trifurcula subnitidella makes characteristic mines in the stem of *Lotus*, the vacated mine found here is therefore sufficient proof of its occurrence in Belgium. It is usually common on limestone grasslands, but occurs in the Netherlands also in the coastal dunes (Van Nieukerken 1990, Johansson *et al.* 1990, Van Nieukerken *et al.* 1993).

***Trifurcula (Trifurcula) immundella* (Zeller, 1839)**

LI: Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, *Cytisus scoparius*, VM, EvN & JC; Zolder: Heikant, FS6152, 15.xi.1983, *C. scoparius*, TM, 2♂, e.l. 16–18.vi.1984, EvN & JC. – **LX:** 1.5 km SE Odeigne, 555 m, FR920693, 23.ii.2006, *C. scoparius*, VM, EvN.

First record for Luxembourg since 1980; these are the only records since 1980. *Trifurcula immundella* is a common species where common broom, *Cytisus scoparius*, is growing. The characteristic black stemmines can be found from October to March or even April. Later in the season they may be confused with those of *Leucoptera spartifoliella* (Hübner, 1813), which usually is more sinuous and green, not black. Adults can easily be collected at dusk near bushes of its host. Here one should also look for the slightly larger *T. squamatella* Stainton, 1849, which flies in August and September.

***Ectoedemia (Fomoria) septembrella* (Stainton, 1849)**

LG: Malmédy, Tier de Liège, 400 m, KA8890, 25.x.2000, *H. perforatum*, TM, 1♀, e.l. 18.iv.2001, EvN; Trois-Ponts, gare, GR0483, 26.x.2000, *H. perforatum*, TM, 4♂, e.l. 1–6.iv.2001, EvN. – **LI:** Beusdal: forest near Sinnich, GS0326, 12.vii.2001, *Hypericum perforatum*, TM, WE. – **LX:** Bois de Stockem, 4 km SW Arlon, 380 m, FR9805, 3.x.1999, *H. dubium*, TM, EvN & TJ. – **NA:** Han-sur-Lesse: la grande Tinémont, FR5855, 28.x.2000, *H. perforatum*, VM, WE; Nismes, 16.vii.2000, *H. perforatum*, VM, WE; Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *H. perforatum*, 1♀, e.l. 29.iii.2000, EvN & TJ.

New for Luxembourg. A very common species with both native and cultivated *Hypericum* species; it can often be found in gardens.

***Ectoedemia intimella* (Zeller, 1848)**

LG: Bevercé, Ermitage, 2 km N. Malmédy, 450 m, KA8892, 25.x.2000, *Salix caprea*, 1 TM, EvN. – **LI:** Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, *S. caprea*, VM, EvN & JC.

New for Liège. The mines of *Ectoedemia intimella* start in the midrib of a leaf of *Salix*, and later enter the leaf. It is a very late species, often found in green islands in fallen leaves, as was also here the case. See also Dufrane (1930) for information on this species in Belgium.

***Ectoedemia hannoverella* (Glitz, 1872)**

LG: Montagne St. Pierre, Emael, W. slopes, 100 m, FS8830, 8.xi.1999, *Populus canadensis*, TM, EvN & TJ; Rouvreur, roadside forest, FR8896, 10.x.1979, *P. canadensis*, 2♂, 1♀, e.l. 26–27.v.1980, EvN & GB.

Ectoedemia hannoverella was for the first time recorded from Belgium by Dufrane (1942); later it was shown that Belgian material was a mixture of this species and *Ectoedemia turbidella* (Zeller, 1848) (Van Nieuwerkerken 1985). It is probably common throughout Belgium on *Populus nigra* and its hybrids, and often easy to collect in September–October on the ground in green islands, contrasting strongly with the rest of the yellow leaf.

***Ectoedemia argyropeza* (Zeller, 1839)**

LG: Hautes Fagnes, Fagne Fraineu, 6 km N Malmédy, 610 m, KA9096, 25.x.2000, *Populus tremula*, TM, 2♀, e.l. 15.iv.2001, EvN; Pepinster, SW, forest on slope, GS9804, 10.x.1979, *P. tremula*, TM, EvN & GB.

New for Liège. A common species on *Populus tremula*, similarly to the previous species it is often easy to collect in fallen leaves.

***Ectoedemia quinquella* (Bedell, 1848)**

LG: Montagne St. Pierre, Emael, W. slopes, 100 m, FS8830, 8.xi.1999, *Quercus robur*, TM, EvN & TJ; Montagne St. Pierre, SE slopes, 1 km W Lanaye, 100 m, FS8828, 8.xi.1999, *Q. robur*, TM, 1♀, e.l. 9.v.2000, EvN & TJ.

New for Liège. This species was previously found commonly in Brabant: Tervuren (De Crombrugge de Picquendaele 1909) and one old specimen in Limburg: Zolder (Van Nieuwerkerken 1985). After its discovery in the limestone grasslands in The Netherlands, particularly the Sint-Pietersberg (Alders & Donner 1992, Huisman *et al.* 2001), we searched the Belgian part of the Sint-Pietersberg or Montagne St. Pierre, where we found at least two small populations on the western and south-eastern slopes. The species occurs on isolated oaks in the sunny grassland. The larva of *E. quinquella* is one of the latest in the season, most larvae are full-grown in November.

***Ectoedemia albifasciella* (Heinemann, 1871)**

LG: Eupen, 5 km SW, Hé des Morts, 300 m, GS1208, 14.x.1998, *Quercus petraea*, VM, EvN. – **LI:** Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, *Q. robur*, VM, EvN & JC; Zolder: Heikant, FS6152, 15.xi.1983, VM, EvN & JC. – **LX:** Bois d'Etalles, 28.viii.2002, *Q. robur*, VM, WE.

New for Liège and Luxembourg. A very common species, of which the larvae are abundant from late August to September. Mines and larvae are sometimes difficult to separate from those of *E. heringi*, but after rearing identification is straightforward.

***Ectoedemia subbimaculella* (Haworth, 1828)**

LG: Montagne St. Pierre, Emael, W. slopes, 100 m, FS8830, 8.xi.1999, *Quercus robur*, 1VM, EvN & TJ; Montagne St. Pierre, SE slopes, 1 km W Lanaye, 100 m, FS8828, 8.xi.1999, *Q. robur*, TM, EvN & TJ; Sart-les-Spa, 1 km SW, Hé de Sart, 360 m, GR0699, 24.x.2000, *Q. petraea*, TM, EvN. – **LI:** Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, *Q. robur*, VM, EvN & JC; Zolder: Heikant, FS6152, 15.xi.1983, *Q. robur*, VM, EvN & JC. – **LX:** Torgny, S. of Virton, 280 m, FQ7987,

3.x.1999, *Q. robur*, TM, EvN & TJ. – NA: Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Q. robur*, TM, EvN & TJ.

New for Liège, first record for Namur after 1980. As the previous species, *E. subbimaculella* is also very common and abundant where oaks are growing, but larvae occur much later, from October far into November. The mines are very easy to recognize, because the larva prepares a slit in the under epidermis.

***Ectoedemia heringi* (Toll, 1934)**

LG: Montagne St. Pierre, Emael, W. slopes, 100 m, FS8830, 8.xi.1999, *Quercus robur*, TM, EvN & TJ; Montagne St. Pierre, SE slopes, 1 km W Lanaye, 100 m, FS8828, 8.xi.1999, *Q. robur*, 3♂, 4♀, e.l. 5-11.v.2000, EvN & TJ; Sart-les-Spa, 1 km SW, Hé de Sart, 360 m, GR0699, 24.x.2000, *Q. petraea*, TM, 1♂, e.l. 15.iv.2001, EvN; Spa N, Parc, 250–300 m, GR0397, 23.x.2000, *Q. petraea*, TM, 1♂, 1♀, e.l. 18–23.iv.2001, EvN. – LI: St. Martens-Voeren, Schoppener heide, 200 m, FS9726, 8.xi.1999, *Q. petraea*, 2♂, e.l. 5–8.v.2000, EvN & TJ. – LX: Libin, N., 450 m, FR6041, 26.x.2002, *Q. petraea*, VM, EvN.

New for Liège and Luxembourg. *Ectoedemia heringi* is much rarer than the two previous species, with which it usually occurs sympatrically. The mines and larvae resemble those of *E. albifasciella*, but occur much later (in October–November), and the adults resemble those of *E. subbimaculella*. We confirm here the occurrence of this species for Belgium, that was previously only cited on the basis of the cited mines from Sint-Martens-Voeren (De Prins 1998). Up to now only recorded from Wallonia. In The Netherlands it is also only known from the Eastern part.

***Ectoedemia agrimoniae* (Frey, 1858) (Fig. 6)**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Agrimonia eupatoria*, TM, 6♂, 5♀, e.l. 10–15.v.2000, EvN & TJ.

Record shifted from Namur to Luxembourg. De Prins (1998) recorded *E. agrimoniae* on the basis of material reared by F. Turelinckx from Belvaux. I collected the species there commonly in the limestone grasslands of the nature reserve Les Pairées (Parc naturelle Lesse et Lomme), and I assume this is also the locality where he found the mines; the village itself does not look to be a suitable habitat. Although the village Belvaux is in the province Namur, this nature reserve is nowadays just across the border of Luxembourg, so it should be deleted from the list as occurring in Namur. The larvae were found here together with those of *Stigmella aeneofasciella*, see Figure 6.

***Ectoedemia angulifasciella* (Stainton, 1849)**

LG: Trois-Ponts, gare, GR0483, 26.x.2000, *Rosa*, TM, 1♂, e.l. 15.v.2001, EvN. – LX: Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *Rosa*, TM, 3♂, e.l. 23–26.vi.2000, EvN & TJ. – NA: Han-sur-Lesse: la grande Tinémont, FR5855, 28.x.2000, *Rosa*, TM, WE.

New for Liège. *Ectoedemia angulifasciella* seems to be restricted to the eastern part of the country, just as in The Netherlands. The larva lives gregariously, and many mines are usually found together on the same leaf, often with *Coptotriche angusticolella* as well (see below).

***Ectoedemia atricollis* (Stainton, 1857)**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Crataegus monogyna*, TM, EvN & TJ; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *C.*

monogyna, 1♂, 1♀, e.l. 28.iv.2000, EvN & TJ. – **NA**: Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *C. monogyna*, TM, EvN & TJ.

New for Luxembourg and Namur. *Ectoedemia atricollis* is a widespread and common species on rosaceous trees, such as *Crataegus*, *Malus*, *Pyrus*, and *Prunus avium*; larvae are found in September – October.

***Ectoedemia rubivora* (Wocke, 1860)**

LG: Anthisnes, 27.x.2000, *Rubus fruticosus*, VM, WE; Montagne St. Pierre, Emael, W. slopes, 100 m, FS8830, 8.xi.1999, *Rubus fruticosus*, TM, 1♀, e.l. 26.vi.2000, EvN & TJ; Sart-les-Spa, 0.5 km SW, 380 m, GR0799, 24.x.2000, *R. fruticosus*, VM, EvN. – **LI**: Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, *R. fruticosus*, VM, EvN & JC. – **LX**: Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *R. fruticosus*, TM, EvN & TJ. – **NA**: Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *R. fruticosus*, TM, EvN & TJ.

New for Luxembourg and Namur. Mines of *Ectoedemia rubivora* are often abundant in September to October, occurring usually with many larvae in one leaf. The species is expected to occur throughout Belgium.

***Ectoedemia arcuatella* (Herrich-Schäffer, 1855) New for Belgium (Figs. 2, 7, 8)**

LX: Belvaux, 1 km S: les Pairées, 260 m, FR5652, 3.x.1999, *Fragaria vesca*, 4VM, EvN & TJ; Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *F. vesca*, TM, 1♂, 4♀, e.l. 13–20.vi.2000, EvN & TJ. – **NA**: Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *F. vesca*, TM, 1♂, 4♀, e.l. 9–19.vi.2000, EvN & TJ.

The mines and larvae of *Ectoedemia arcuatella* (Figs. 7, 8) were found commonly in all three nature reserves on limestone. They are mainly found on *Fragaria* leaves in the edges of the forest or shrub, with some shade. I found the species in very similar situations in northern France, also on the border with Germany (Van Nieuwerkerken *et al.* 2006) and in the single locality in The Netherlands (Van Nieuwerkerken 1982). It is expected that *E. arcuatella* can be found more commonly in similar conditions in Wallonia. The adult (Fig. 2) is rather similar to the related *E. atricollis*, *E. rubivora* and *E. angulifasciella*, of which *rubivora* is separated by a black head and *angulifasciella* by paler head and collar. Because the genitalia in this group also differ hardly, identification of reared adults is easier than from specimens collected as adult.

***Ectoedemia spinosella* (Joannis, 1908) New for Belgium**

NA: Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, 23.ix.2002, *Prunus spinosa*, VM, EvN & TJ, CvdB & EvN.

Dufrane (1925) recorded *Ectoedemia spinosella* new for Belgium from Hainaut based on a single vacated mine, but later rejected the identification, made by Joannis (Dufrane 1949). However, the vacated mines of this species are easily separated from those of *Stigmella plagicolella*, and I base the occurrence in Belgium again on vacated mines found on two occasions in Nismes. The larvae occur somewhat earlier in August-September. In the Netherlands the species also occurs in limestone grassland areas in Limburg (Van Nieuwerkerken 1982) and can therefore be expected throughout the limestone area. In the light of this finding, one should reconsider the possibility that Dufrane's record was correct after all.

***Ectoedemia occultella* (Linnaeus, 1767)**

LG: Eupen, 28.v.1977, 1♀, C. Gielis. – **LI:** Bolderberg, 5 km SW Zolder, FS5950, 15.xi.1983, *Betula* sp. VM, EvN & JC. – **LX:** Torgny (SW Virton), FQ7987, 28.viii.2002, *Betula pubescens*, VM, WE.

New for Luxembourg. This is a very common leafminer of birch (*Betula*), which may form irregular outbreaks when thousands of mines can be found on single trees.

Opostegidae

***Pseudopostega crepusculella* (Zeller, 1839)**

LG: Pont, 24.vii.1985, 1♂, K. J. Huisman.

New for Liège. The only other recent record of *Pseudopostega crepusculella* is from Antwerp. This species is associated with *Mentha*, although the larva has yet to be discovered.

Tischeriidae

***Coptotriche angusticolella* (Duponchel, 1843)**

LX: Torgny (SW Virton), FQ7987, 28.viii.2002, *Rosa*, TM, WE. – **NA:** Namur, Belvaux: Herdal, FR5752, 15.vii.2000, *Rosa canina*, TM, WE; Namur, Han-sur-Lesse: la grande Tinémont, FR5855, 28.x.2000, *Rosa*, TM, WE; Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *Rosa*, TM, 1♂, 1♀, e.l. 27–29.iii.2000, EvN & TJ.

First record for Luxembourg after 1980. *Coptotriche angusticolella* (= *Emmetia angusticolella*) is only known from the eastern part of the country, a situation similar to The Netherlands where it is only known from Overijssel, Gelderland and Limburg. This species is very often found sympatrically with *Ectoedemia angulifasciella*, often on the same leaves.

Nomenclature: Puplesis & Diškus (2003) showed that *Emmetia* is a junior synonym of *Coptotriche*. This nomenclature is also followed in the online Belgian and Fauna Europaea databases (De Prins & Steeman 2006, Karsholt & Van Nieuwerkerken 2004).

***Coptotriche heinemanni* (Wocke, 1871) New for Belgium**

LX: Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *Agrimonia eupatoria*, 2TM, 1VM, EvN & TJ.

We collected three brown mines (two with larvae) on *Agrimonia*, very typical for *Coptotriche heinemanni*, which also occurs on *Rubus*. Unfortunately the rearing failed, but one unfinished mine is kept as voucher in the collection. Although the new record is published with some hesitation, I am convinced about the occurrence of this species in Belgium and the correctness of the identification of these mines. Many larvae were found in similar mines on *Agrimonia* in the Bois de Villécloye near Montmédy, (France, dép. Meuse), which is only 5 km from the locality Torgny and on the same hilly ridge. From this material many adults were reared and are preserved in RMNH. *C. heinemanni* occurs also in several provinces in the eastern and southern part of The Netherlands (Huisman & Koster 1994, 2000, Huisman *et al.* 2004).

***Coptotriche marginea* (Haworth, 1828)**

LX: La Roche-en-Ardenne, 17.vii.2000, *Rubus idaeus*, TM, WE. – **NA:** Belvaux: forêt de Niau, FR5552, 15.vii.2000, *R. fruticosus*, TM, WE; Han-sur-Lesse: la grande Tinémont, FR5855, 28.x.2000, *R. fruticosus*, VM, WE; Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *Rubus fruticosus*, TM, 3♂, 1♀, e.l. 3–5.iv.2000, EvN & TJ.

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Coptotriche marginea is a very common species on *Rubus*, which in Belgium remains only to be recorded from West Flanders.

***Coptotriche gaunacella* (Duponchel, 1843) New for Belgium**

LX: Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *Prunus spinosa*, 1TM, EvN & TJ (observation).

This species is reported even with more hesitation than *Coptotriche heinemanni*. We found a single tenanted mine on *Prunus spinosa*, an unmistakable white tischeriid mine, which was reared together with *Stigmella prunetorum* from the same locality. Unfortunately the mine must have been taken out of the rearing container unnoticed and be thrown away; therefore no voucher exists. Because I do not doubt my original identification, I report this species here with the hope that others will confirm its occurrence and collect voucher material. *C. gaunacella* is widespread in Central and southern Europe (Karsholt & Van Nieukerken 2004), but more local than the other *Coptotriche* species.

***Tischeria ekebladella* (Bjerkander, 1795)**

LX: Muno, 29.x.2000, *Quercus petraea*, TM, WE. – NA: Belvaux: Herdal, FR5752, 15.vii.2000, *Q. robur*, TM, WE; – NA: Han-sur-Lesse: Belvédère, FR5656, 14.vii.2000, *Q. robur*, TM, WE; Nismes, 16.vii.2000, *Q. robur*, TM, WE; Nismes, Fondry des Chiens, 220 m, FR1147, 2.x.1999, *Q. robur*, TM, 3♂, 1♀, e.l. 10–17.iv.2000, EvN & TJ.

Tischeria ekebladella is undoubtedly the most abundant tischeriid in Belgium and neighbouring countries, there are hardly any oaks where the large whitish blotches are absent. For Belgium still to be recorded from West-Vlaanderen and Hainaut.

***Tischeria dodonaea* Stainton, 1858**

LX: Bois d'Etalles, 28.viii.2002, *Quercus robur*, TM, WE. – NA: Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Q. robur*, TM, 1♂, e.l. 3.iv.2000, EvN & TJ.

New for Luxembourg. *Tischeria dodonaea* is almost always much scarcer than the previous species, found in small numbers. However, it should be more common than the four cited provinces suggest; Namur and Limburg are the only provinces with recent records. Another species, resembling *T. dodonaea*, is expected to occur in Belgium: *T. decidua* Wocke, 1876, in which the larva cuts a hole out of the mine. This species was recently discovered in the southern part of The Netherlands (Huisman *et al.* 2005) and may be expanding.

Lyonetiidae

***Leucoptera laburnella* (Stainton, 1851)**

LX: Torgny, S. of Virton, 280 m, FQ7987, 3.x.1999, *Genista tinctoria*, TM, 3♂, e.l. 22.iii.2000, EvN & TJ. – NA: Nismes, 16.vii.2000, *Laburnum anagyroides*, VM, WE.

New for Luxembourg. *Leucoptera laburnella* is a common miner of *Laburnum anagyroides* trees in gardens and parks, but also feeds frequently on *Genista tinctoria* as in Torgny. Leafmines from the only other recent record (also from Namur) are illustrated on the Catalogue Website (De Prins & Steeman 2006).

***Leucoptera lustratella* (Herrich-Schäffer, 1855) New for Belgium** (Figs. 3, 9, 10)

LX: Bois de Stockem, 4 km SW Arlon, 380 m, FR9805, 3.x.1999, *Hypericum dubium*, TM, 1♂, 2♀, e.l. 28–30.iv.2000, EvN & TJ. – **NA:** Nismes, Tienne Breumont, 200 m, FR1048, 2.x.1999, *Hypericum perforatum*, TM, 1♀, e.l. 29.iii.2000, EvN & TJ.

Numerous larvae and mines of *Leucoptera lustratella* were found on the two *Hypericum* species, which have very different leaf size. The larva can survive when using the very small leaves of *H. perforatum* in the second locality, because it frequently can change leaves and make new mines (Fig. 9, 10). This behaviour has only been mentioned once before in literature by Puplesis *et al.* (1992), and has – as far as I know – not been reported from other *Leucoptera* species. *L. lustratella* (Fig. 3) belongs to the species with grey metallic forewings, to which also the Belgian species *L. malifoliella* (Costa, 1836) and *L. lotella* (Stainton, 1859) belong. *L. lustratella* can be separated by the combination of a smooth head (vertex) (with erect scales in *lotella* and sometimes in *malifoliella*) and lead-grey forewings (silver-grey in *malifoliella*). Leafmines are sometimes confused with those of *Ectoedemia septembrella*, but the latter has always a distinct narrow gallery at the start of the mine. Both species make their cocoons inside the mine, although this is not always the case in *L. lustratella*. *L. lustratella* is known from a limited number of records in central Europe, westwards to Bordeaux, France, one record in central Italy and northwards to southern Sweden and Finland; in The Netherlands it is only recorded from the south of Limburg (Mey 1994, 2004). Although it is not reported from Russia, it has also been found as far East as Tajikistan (Puplesis *et al.* 1992).

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References

- Alders, K. & Donner, J. H. 1992. *Ectoedemia quinquella*, een nieuwe bladmineerder voor Nederland (Lepidoptera: Nepticulidae). — *Entomologische Berichten*, Amsterdam **52**(11): 157–158.
- Coenen, F. 1994. *Leucoptera lotella* (Stainton, 1858): espèce nouvelle pour la faune belge (Lepidoptera: Lyonetiidae). — *Phegea* **22**(4): 161–163.
- Crombrugge de Picquendaele, G. de 1909. Observations Microlépidoptérologiques faites en 1908. — *Annales de la Société Entomologique de Belgique* **53**: 44–47.
- De Prins, W. 1989. Enkele soorten Microlepidoptera nieuw voor de Belgische fauna (Lepidoptera: Opostegidae, Ochsenheimeriidae, Coleophoridae, Gelechiidae, Cochylidae, Pterophoridae). — *Phegea* **17**(2): 49–52.
- De Prins, W. 1996. Enkele nieuwe en interessante soorten Microlepidoptera voor de Belgische fauna (Lepidoptera: Nepticulidae, Yponomeutidae, Coleophoridae, Gelechiidae). — *Phegea* **24**(4): 137–140.

- De Prins, W. 1998. Catalogue of the Lepidoptera of Belgium. — *Studiedocumenten van het K.B.I.N.* **92**: 1–236.
- De Prins, W. 2003. Four new species for the Belgian fauna (Lepidoptera: Lyonetiidae, Coleophoridae, Pterophoridae). — *Phegea* **31**(3): 87–90.
- De Prins, W. 2004. Interessante waarnemingen van Lepidoptera in België in 2003 (Lepidoptera). Interesting records of Lepidoptera in Belgium in 2003 (Lepidoptera). — *Phegea* **32**(1): 1–6.
- De Prins, W. & Steeman, C. 2006. *Catalogue of the Lepidoptera of Belgium*. — Vlaamse Vereniging voor Entomologie. <http://webhost.ua.ac.be/vve/Checklists/Lepidoptera/LepMain.htm> [visited on: 2006-03-30].
- Dufrane, A. 1925. Microlépidoptères nouveaux pour la faune belge. — *Revue mensuelle de la Société Entomologique Namuroise* **6**: 50–52.
- Dufrane, A. 1930. Les *Nepticula* des Saules en Belgique. — *Bulletin et Annales de la Société Entomologique de Belgique* **70**: 29–32.
- Dufrane, A. 1942. Microlépidoptères de la faune Belge (1re note). — *Bulletin du Musée Royal d'Histoire Naturelle du Belgique* **18**(5): 1–12.
- Dufrane, A. 1949. Microlépidoptères de la faune Belge (6e note). — *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique* **25**(13): 1–11.
- Edmunds, R. 2006. *British leafminers*. — <http://www.leafminers.co.uk/index.htm> [visited on: 2006-03-07].
- Ellis, W. N. 2005. *De bladmineerders van Nederland*. — <http://www.bladmineerders.nl/> [visited on: 2006-03-07].
- Emmet, A. M. 1985. Lyonetiidae. — In: Heath, J. & Emmet, A. M. (eds.): *The moths and butterflies of Great Britain and Ireland, 2. Cossidae – Heliodinidae*. Chapter pagination: 212–239, illustr. Harley Books, Colchester.
- Fologne, E. 1862a. Observations sur quelques Lépidoptères en Belgique. — *Annales de la Société Entomologique Belge* **6**: 161–169, pl. 2.
- Fologne, E. 1862b. Notes sur quelques Lépidoptères observés en Belgique. — *Annales de la Société Entomologique Belge* **6**: 170–175.
- Gielis, C., Huisman, K. J., Kuchlein, J. H., van Nieukerken, E. J., van der Wolf, H. W. & Wolschrijn, J. B. 1985. Nieuwe en interessante Microlepidoptera uit Nederland, voornamelijk in 1982 en 1983 (Lepidoptera). — *Entomologische Berichten*, Amsterdam **45**: 89–104.
- Henderickx, H. 1983. *Stigmella repentiella* (Wolff, 1955) een nieuwe soort voor de Belgische fauna (Lepidoptera, Nepticulidae). — *Phegea* **11**(2): 29–30.
- Huisman, K. J. & Koster, J. C. 1994. Nieuwe en interessante Microlepidoptera uit Nederland in de jaren 1988–1991 (Lepidoptera). — *Entomologische Berichten*, Amsterdam **54**(3): 29–47.
- Huisman, K. J. & Koster, J. C. 2000. Nieuwe en interessante Microlepidoptera uit Nederland in hoofdzak van de jaren 1997 en 1998 (Lepidoptera). — *Entomologische Berichten*, Amsterdam **60**(11): 193–216.
- Huisman, K. J., Koster, J. C., van Nieukerken, E. J. & Ulenberg, S. A. 2001. Nieuwe en interessante Microlepidoptera uit Nederland in het jaar 1999 (Lepidoptera). — *Entomologische Berichten*, Amsterdam **61**(12): 169–199.
- Huisman, K. J., Koster, J. C., van Nieukerken, E. J. & Ulenberg, S. A. 2004. Microlepidoptera in Nederland in 2001–2002. — *Entomologische Berichten*, Amsterdam **64**(6): 170–187.
- Huisman, K. J., Koster, J. C., van Nieukerken, E. J. & Ulenberg, S. A. 2005. Microlepidoptera in Nederland in 2003. — *Entomologische Berichten*, Amsterdam **65**(2): 30–42.
- Johansson, R., Nielsen, E. S., van Nieukerken, E. J. & Gustafsson, B. 1990. The Nepticulidae and Opostegidae (Lepidoptera) of north west Europe. — *Fauna Entomologica Scandinavica* **23**(1–2): 1–413, 414–739.
- Karsholt, O. & van Nieukerken, E. J. 2004. Fauna Europaea: Carposinidae, Choreutidae, Hepialidae, Tischeriidae. — In: Karsholt, O. & van Nieukerken, E. J. (eds.) 2004. *Lepidoptera, Moths. Fauna Europaea version 1.1*. Fauna Europaea, Copenhagen, Amsterdam, Paris. <http://www.faunaeur.org/> [visited on: 2006-01-11].
- Kuchlein, J. H. & Donner, J. H. 1993. *De kleine vlinders: Handboek voor de faunistiek van de Nederlandse Microlepidoptera*. — Pudoc, Wageningen, 715 pp.

- Kurtto, A., Lampinen, R. & Junikka, L. (Eds.), 2004. Rosaceae (*Spiraea* to *Fragaria*, excl. *Rubus*): 320 pp. Atlas Florae Europaeae: distribution of vascular plants in Europe. Committee for Mapping the Flora of Europe, Helsinki.
- Lambinon, J., De Langhe, J.-E., Delvosalle, L. & Duvigneaud, J. 1998. *Flora van België, het Groothertogdom Luxemburg, Noord-Frankrijk en de aangrenzende gebieden (Pteridofyten en Spermatofyten)*. Derde druk. — Nationale Plantentuin, Meise, . cxxiii + 1091 pp
- Laštůvka, A. & Laštůvka, Z. 1997. Nepticulidae Mitteleuropas. Ein illustrierter Begleiter (Lepidoptera). — Konvoj, Brno, 229 pp.
- Meijden, R. van der 2005. *Heukels' Flora van Nederland. Drieëntwintigste druk*. — Wolters-Noordhoff, Groningen, 685 pp.
- Mey, W. 1994. Taxonomische Bearbeitung der westpalaarktischen Arten der Gattung *Leucoptera* Hübner, (1825), s. 1. (Lepidoptera, Lyonetiidae). — *Deutsche Entomologische Zeitschrift* **41**(1): 173–234.
- Mey, W. 2004. Fauna Europaea: Bedelliidae, Bucculatricidae, Galacticidae, Lyonetiidae. — In: Karsholt, O. & E. J. van Nieuwerkerken (eds.) 2004. *Lepidoptera, Moths. Fauna Europaea version 1.1*. Fauna Europaea, Copenhagen, Amsterdam, Paris. <http://www.faunaeur.org/> [visited on: 2006-03-13].
- Nieuwerkerken, E. J. van 1982. New and rare Nepticulidae in the Netherlands (Lepidoptera). — *Entomologische Berichten*, Amsterdam **42**(7): 104–112.
- Nieuwerkerken, E. J. van 1985. A taxonomic revision of the western Palaearctic species of the subgenera *Zimmermannia* Hering and *Ectoedemia* Busck s. str. (Lepidoptera, Nepticulidae), with notes on their phylogeny. — *Tijdschrift voor Entomologie* **128**(1): 1–164.
- Nieuwerkerken, E. J. van 1990. The *Trifurcula subnitidella* group (Lepidoptera: Nepticulidae): taxonomy, distribution and biology. — *Tijdschrift voor Entomologie* **133**(2): 205–238.
- Nieuwerkerken, E. J. van, Gielis, C., Huisman, K. J., Koster, J. C., Kuchlein, J. H., van de Wolf, H. W. & Wolschrijn, J. B. 1993. Nieuwe en interessante Microlepidoptera uit Nederland (Lepidoptera). — *Nederlandse Faunistische Mededelingen* **5**: 47–62.
- Nieuwerkerken, E. J. van & Johansson, R. 2003. The *Quercus* feeding *Stigmella* species of the West Palaearctic: new species, key and distribution (Lepidoptera: Nepticulidae). — *Tijdschrift voor Entomologie* **146**(2): 307–370.
- Nieuwerkerken, E. J. van 2004. Fauna Europaea: Crinopterygidae, Heliozelidae, Nepticulidae, Opostegidae, Schreckensteiniidae, Urodidae. — In: Karsholt, O. & van Nieuwerkerken, E. J. (eds.) 2004. *Lepidoptera, Moths. Fauna Europaea version 1.1*. Fauna Europaea, Copenhagen, Amsterdam, Paris. <http://www.faunaeur.org/> [visited on: 2006-03-07].
- Nieuwerkerken, E. J. van, Zolotuhin, V. V. & Mistchenko, A. 2004. Nepticulidae from the Volga and Ural region. — *Nota Lepidopterologica* **27**(2/3): 125–157.
- Nieuwerkerken, E. J. van, Laštůvka, A. & Laštůvka, Z. 2006. Annotated catalogue of the Nepticulidae and Opostegidae (Lepidoptera: Nepticuloidea) of France and Corsica. — *Zootaxa* **1216**: 1–114.
- Puplesis, R., Seksjaeva, S., Puplesiene, J. & Bajarunas, J. 1992. *Leucoptera lustratella* (Herrich-Schaffer) (Lepidoptera, Lyonetiidae) species on *Hypericum* from Tadzhikistan. — *Acta Entomologica Lituanica* **10**: 52–57.
- Puplesis, R. & Diškus, A. 2003. Strateginių regionu taksonomines revizijos ir nauju rusiu aprasai. Strategic regional revisions with description of new species. — In: Puplesis, R. & Diškus, A. (eds.) *Nepticuloidea ir Tischerioidea (Lepidoptera) pasaulio ir lietuvos faunoje. The Nepticuloidea & Tischerioidea (Lepidoptera) – a global review, with strategic regional revisions*. Chapter pagination: 176–289. Lutute publishers, Kaunas.