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## ***Gelechia rhombelliformis* and *Homoeosoma sinuella*, two new species for the Belgian fauna (Lepidoptera: Gelechiidae, Pyralidae)**

Willy De Prins & Chris Steeman

**Samenvatting.** *Gelechia rhombelliformis* en *Homoeosoma sinuella*, twee nieuwe soorten voor de Belgische fauna (Lepidoptera: Gelechiidae, Pyralidae)

Het eerste Belgische exemplaar van *Gelechia rhombelliformis* Staudinger, 1871 werd waargenomen in het Stamprooiersbroek te Kinrooi (België, Limburg) op 18 augustus 2005. *Homoeosoma sinuella* (Fabricius, 1794) werd voor het eerst in België gezien op 17 juni 2005 te Koksijde (West-Vlaanderen). Van beide soorten worden de verspreiding in Europa en de biologie kort besproken.

**Résumé.** *Gelechia rhombelliformis* et *Homoeosoma sinuella*, deux espèces nouvelles pour la faune belge (Lepidoptera: Gelechiidae, Pyralidae)

Le premier exemplaire de *Gelechia rhombelliformis* Staudinger, 1871 fut observé dans la réserve Stamprooiersbroek à Kinrooi (Belgique, Limbourg) le 18 août 2005. *Homoeosoma sinuella* (Fabricius, 1794) fut observé pour la première fois en Belgique le 17 juin 2005 à Koksijde (Flandre occidentale). La répartition en Europe et la biologie des deux espèces sont discutées brièvement.

**Key words:** *Gelechia rhombelliformis* – *Homoeosoma sinuella* – Belgium – faunistics – first record.

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### ***Gelechia rhombelliformis***

On 18 August 2005, the first Belgian specimen of *Gelechia rhombelliformis* Staudinger, 1871 was observed in the nature reserve "Stamprooiersbroek" at Kinrooi (Province of Limburg) by M. Jacobs & C. Steeman. Single specimens were seen at the same locality on 31 August and 08 September. The species was also recorded from Kontich (Province of Antwerpen) on 20 August 2005, leg. G. Sallaets.

The forewing of *G. rhombelliformis* is greyish, mottled with light and dark scales, and has a blackish spot at 4/5 on the costa, after which an indistinct lighter subapical fascia occurs. There are some small blackish spots in the central wing area of which two are more conspicuous (fig. 1). *G. rhombella* ([Denis & Schiffermüller], 1775), which has also 2 conspicuous blackish spots in the same area of the forewings, has a very distinct blackish streak along the costa near the base. This streak is lacking in *G. rhombelliformis*. This species can furthermore be recognised from its congeners by the black apical area of the forewings and by the brush of black scales on the second segment of the labial palp.

*G. rhombelliformis* occurs from West Europe, through European Russia, to Central Asia (Huemer & Karsholt 1999: 119). It has not been recorded from the United Kingdom, France and from the Mediterranean region. Karsholt (2005) lists the following European countries: Austria, Belarus, Czech Republic, Denmark, Hungary, Lithuania, the Netherlands, Poland, Romania, Russia, Slovakia, and Ukraine.

The first Dutch specimen was observed in 1970 in nature park Leudal (Province of Limburg) (van der Wolf 1984: 54). Since then, the species has been recorded from about 5 other localities, all situated in the southern half of the country (Kuchlein 1993: 273).

In Germany, *G. rhombelliformis* is recorded from Bayern, Brandenburg, Sachsen, Sachsen-Anhalt and there is pre-1980 record from Thüringen (Gaedike & Heinicke 1999: 79).

The caterpillar of *G. rhombelliformis* feeds on the leaves of *Populus* spp., especially *P. nigra*, *P. pyramidalis* and *P. balsamifera* (Piskunov 1981: 669, Huemer & Karsholt 1999: 119), pupation under the bark. The adults fly from June till mid September, but most specimens have been observed in August. They come to light.

*G. rhombelliformis* prefers forest steppes and steppes (Piskunov 1981: 669), deciduous forests, riverine forests and coastal areas (Huemer & Karsholt 1999: 119). It occurs locally and not common in West Europe, but more common in Central Europe (Elsner *et al.* 1999: 36).

### ***Homoeosoma sinuella***

A single specimen of *Homoeosoma sinuella* (Fabricius, 1794) was observed at Koksijde (Province of West-Vlaanderen) on 17 June 2005 by the second author (fig. 2). This is the first documented record of this species for the Belgian fauna. It had been mentioned in Roesler (1973: 521) from the Benelux countries and in De Prins (1983: 24) from Belgium, both without any further details or mentioning of localities. Therefore, the species was deleted from the Belgian list in De Prins (1998: 120), as no specimens were found in the collections studied.

The forewing of *H. sinuella* is yellowish ochreous, a little darker along the costa, with two irregular brownish transverse bands at the centre and at 3/4 of the wing. These bands are often interrupted. Also the marginal area is often darker brown than the ground colour.



Figs. 1–2.– *Gelechia rhombelliformis* Staudinger, 1871, Belgium, Limburg, Kinrooi, 18.VIII.2005, leg. M. Jacobs & C. Steeman; figs. 3–4.– *Homoeosoma sinuella* (Fabricius, 1794), Belgium, West-Vlaanderen, Koksijde, 17.VI.2005, leg. C. Steeman.

*H. sinuella* occurs in Central and South Europe, becoming more common towards the south (Hannemann 1964: 228). In the northern areas, it is rather rare. In Greece, Italy and Spain, it can be locally very common (first author pers. obs.). Nuss *et al.* (2005) mention the following countries: Albania, Austria, Bosnia & Herzegovina, Bulgaria, Corsica, Crete, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, the Netherlands, Poland, Portugal, Romania, Russia, Sardinia, Serbia & Montenegro, Slovakia, Spain, Sweden, and Switzerland.

In the Netherlands, *H. sinuella* occurs mainly in the dune area where it is known from about 10 localities (Kuchlein 1993: 296). In Germany the species is recorded from Bayern, Hessen, Rheinland-Pfalz, Saarland and a pre-1980 record from Baden-Württemberg (Gaedike & Heinicke 1999: 117). In the UK, it is locally common in England from Norfolk southwards, and in south Wales (Goater 1986: 128).

The caterpillar of *H. sinuella* lives in the rootstock of *Plantago lanceolata* and other *Plantago* species (Hannemann 1964: 228), causing the central leaves to droop in the autumn and the growth of the plant is stunted in spring (Goater 1986: 128). The record of *Chenopodium* sp. (Slamka 1997: 11) needs confirmation. After hibernation, the caterpillar pupates in the larval habitation. The moths fly from June till August. They are active at dusk and come to light.

The species prefers dry, light soils with sparse vegetation, cliffs and grassy banks by the sea, waste ground, railway banks, dunes, and chalk downs (Goater 1986: 128).

## Acknowledgements

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

Erik J. van Nieukerken

**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. gainacella* (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. gainacella* (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 Luxemburg, 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. gainacella* (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

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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'Etalles, 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).





1



2



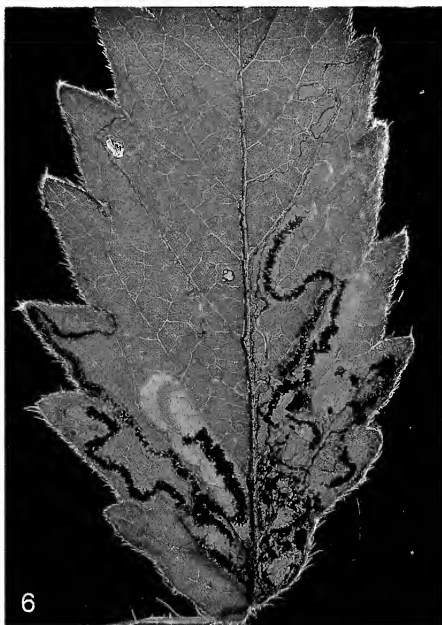
3



4



5



6

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

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

Figure 3. *Lencoptera 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. neummanniana*, 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. tabaernameontani* again, and treat *P. neummanniana* 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: Heral, 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.*

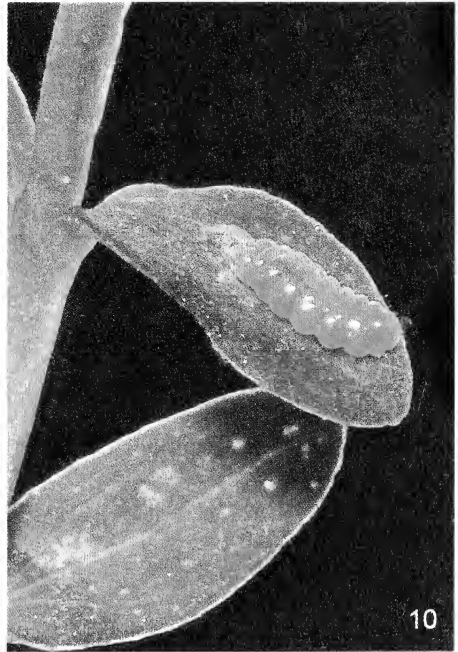
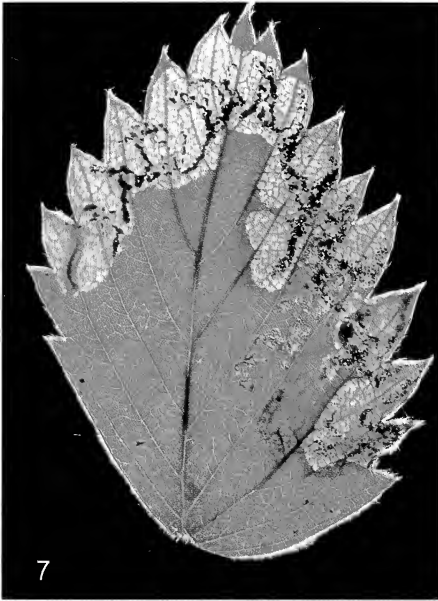
A very common leafminer of *Crataegus*, to be expected throughout the country, but yet recorded only from three provinces.

### ***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. *Lencoptera 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 willows (*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)**

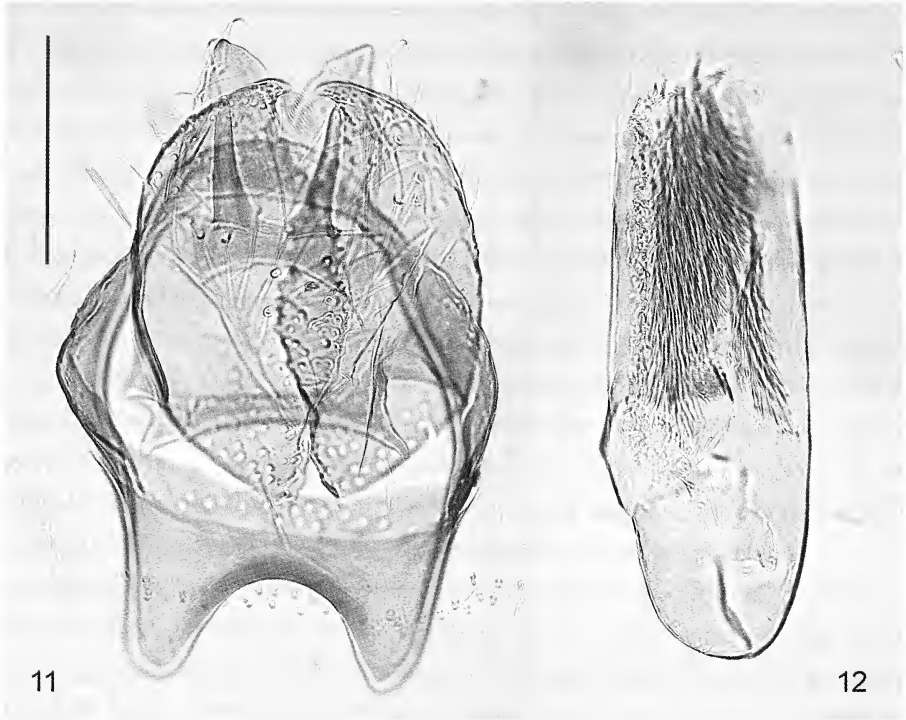
LG: Pont, 16.vii.1985, 1♀, K. J. Huisman.

*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; Ruelle (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: Retrachement, 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  $\mu$ 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. splendidissimella* (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 Nieuwerkerken 1990, Johansson *et al.* 1990, Van Nieuwerkerken *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; Rouvieux, 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.



*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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# Bijdrage tot een betere kennis van de verspreiding van onze inheemse spiegelkevers (Coleoptera: Histeridae)

Willy Troukens

**Abstract.** Contribution to a better knowledge of the distribution of Belgian Histeridae (Coleoptera)

The author lists several new localities of 13 Histeridae species from various regions in Belgium.

**Résumé.** Contribution à une meilleure connaissance de la distribution en Belgique des Histeridae (Coleoptera)

L'auteur donne une liste des localités de 13 espèces d'Histeridae dans différentes régions de Belgique.

**Key words:** Belgium – faunistics – Histeridae.

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Als reactie op mijn artikel "Spiegelkevers aan de westrand van Brussel" (Troukens 2005: 138–144), werd mij door een paar keverliefhebbers materiaal bezorgd ter determinatie. Sommige vangsten dateren van "lang geleden", maar de gegevens zijn te interessant om verloren te laten gaan. Daarom werd besloten de resultaten te publiceren. Ook eigen vangsten van buiten mijn traditioneel studiegebied werden aan de lijst toegevoegd. Voor de nomenclatuur werd gekozen voor de naamgeving zoals gebruikt door Witzgall (1971). De determinatie gebeurde met de tabellen van Kuhnt (1911: 362–378), Schilthuizen & Vallenduuk (1998: 31–60) en Witzgall (1971: 156–189). In het totaal werden gegevens verzameld van de 13 volgende soorten (BR=Brabant, OV=Oost-Vlaanderen, WV=West-Vlaanderen):

1. *Saprinus aeneus* (Fabricius, 1775): Gentbrugge (OV) 24.VII.1964, 1 ex.; 26.VII.1964, 1 ex.; 28.VII.1964, 2 ex., telkens op of onder een dode muis, leg. E. Meuris.

2. *Saprinus immundus* (Gyllenhal, 1827): Blankenberge (WV), 3.VIII.2005, 5 ex. in de duinen op uitwerpselen, leg. R. Guinez.

3. *Saprinus cuspidatus* (Ihssen, 1949): Wenduine (WV), 3.VII.1982, 1 ex. onder een dode spitsmuis; 9.VII.1993, 2 ex., leg. W. Troukens; Vorst-Brussel (BR), 28.V.2005, 1 ex., leg. R. Guinez.

4. *Saprinus virescens* (Paykull, 1798): Bredene/Oostende (WV), 23.VII.1971, 1 ex., leg. E. Meuris.

5. *Chalcionellus decemstriatus* (Rossi, 1792): Wenduine (WV), 6.VIII.1988, 1 ex., leg. W. Troukens.

6. *Hypocaccus rugifrons* (Paykull, 1798): Bredene/Oostende (WV), 18.VII.1978, 1 ex., leg. E. Meuris; Wenduine (WV), 5.VII.1982, 1 ex., leg. W. Troukens.

7. *Hypocaccus metallicus* (Herbst, 1792): Wenduine (WV), 5.VII.1982, 1 ex.; Knokke (WV), 30.V.2000, 1 ex. in Het Zwin onder een dood konijn, leg. W. Troukens.

8. *Paralister purpurascens* (Herbst, 1792): Gentbrugge (OV), 19.IV.1963, 1 ex. in emmer; Hamme (OV, 18.IX.1970, 1 ex. rondkruipend, leg. E. Meuris; Wenduine (WV), 2.VII.1982, 1 ex., leg. W. Troukens; Beersel (BR), 24.IV.1998, 2 ex., leg. R. Guinez.

9. *Paralister ventralis* (Marseul, 1854): Vorst-Brussel (BR), 2.VI.1960, 1 ex.; 24.IV.1998, 1 ex., leg. R. Guinez.

10. *Hister unicolor* Linnaeus, 1758: Vorst-Brussel (BR), 10.VI.1963, 1 ex.; 30.III.1998, 1 ex., leg. R. Guinez.

11. *Hister merdarius* (Hoffman, 1803): Gentbrugge (OV), 12.V.1964, 2 ex. onder een dode vogel, leg. E. Meuris; Vorst-Brussel (BR), 2.VI.1960, 1 ex.; 11.VI.1962, 1 ex.; 30.VI.1963, 3 ex.; 8.V.1998, 1 ex.; Beersel (BR), 24.IV.1998, 2 ex., leg. R. Guinez.

12. *Hister cadaverinus* (Hoffman, 1803): Vorst-Brussel (BR), 11.VI.1961, 1 ex., leg. R. Guinez.

13. *Atholus corvinus* (Germar, 1817): Mariakerke (OV), 25.VI.1995, 1 ex. in koemest, leg. E. Meuris.

## Dankwoord

Ik dank van harte de vrienden-entomologen die mij hun collectiemateriaal ter beschikking stelden, met name Eric Meuris (Gentbrugge) en Remi Guinez (Vorst-Brussel).

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# On the systematics of some *Colias cocandica*-like taxa (Lepidoptera: Pieridae)

Stanislav K. Korb

**Summary.** In the present paper the status of the closely related taxa *mongola*, *sidonia* and *ukokana* is discussed. For *ukokana* the original subspecific status is returned. It is shown, that the taxa *tamerlana* and *mongola* are young, separate species with different origin – the former has its origin in a *cocandica*-like ancestor, the latter in a *nastes*-like ancestor. The exact type localities of the taxa *mongola*, *sidonia*, *ukokana*, *maja*, and *tamerlana* are listed. The holotype (♀) of *Colias cocandica* Erschoff, 1874 is pictured here for the first time.

**Резюме.** В настоящей работе дискутируется статус близких таксонов *mongola*, *sidonia* и *ukokana*, таксону *ukokana* возвращается оригинальный подвидовой статус. Показано, что таксоны *tamerlana* и *mongola* являются молодыми самостоятельными видами с обособленным происхождением: первый происходит от *cocandica*-подобного предка, второй – от *nastes*-подобного. Приводятся точные данные о типовых местонахождениях таксонов *mongola*, *sidonia*, *ukokana*, *maja* и *tamerlana*. Публикуется изображение самки голотипа *Colias cocandica* Erschoff, 1874.

**Samenvatting.** Over de systematiek van enkele taxa die op *Colias cocandica* lijken (Lepidoptera: Pieridae)

De status van de nauw verwante taxa *mongola*, *sidonia* en *ukokana* wordt besproken. De laatste wordt teruggebracht naar zijn originele status van subspecies. Er wordt aangetoond dat de taxa *tamerlana* en *mongola* jonge, aparte soorten zijn van verschillende oorsprong – de eerste stamt af van een *cocandica*-achtige soort, de tweede van een *nastes*-achtige soort. De exacte typelocaliteiten van de taxa *mongola*, *sidonia*, *ukokana*, *maja* en *tamerlana* worden aangegeven. Het holotype (♀) van *Colias cocandica* Erschoff, 1874 wordt hier voor het eerst afgebeeld.

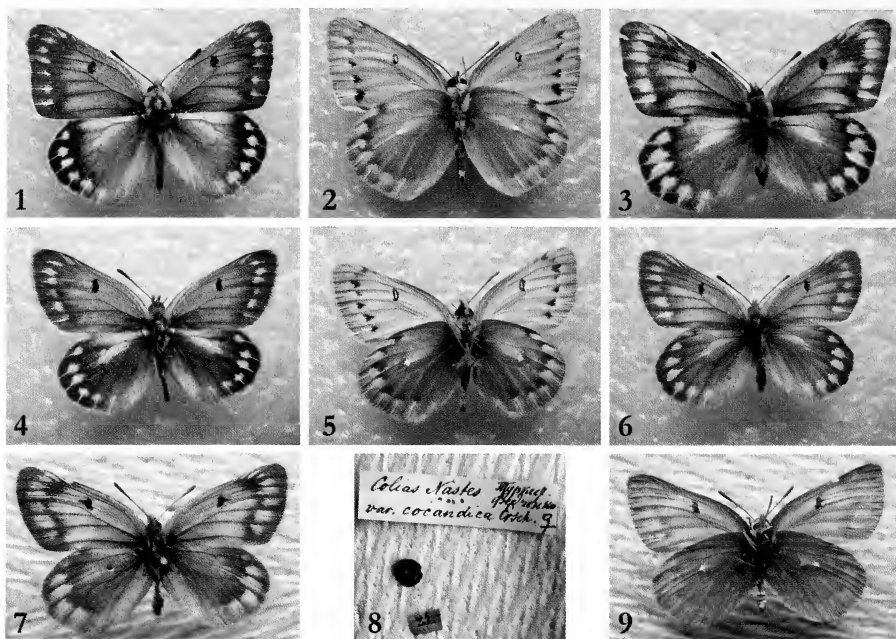
**Résumé.** Sur la systématique de quelques taxa ressemblant à *Colias cocandica* (Lepidoptera: Pieridae)

Le statut des taxa apparentés *mongola*, *sidonia* et *ukokana* est discuté. Le dernier est réinstallé comme sous-espèce. Il est montré que les taxa *tamerlana* et *mongola* sont des espèces bien distinctes, jeunes, mais d'origine différente – *tamerlana* a son origine dans le groupe de *cocandica*, *mongola* origine d'une espèce dans le groupe de *nastes*. Les localités types des taxa *mongola*, *sidonia*, *ukokana*, *maja* et *tamerlana* sont précisées. L'holotype (♀) de *Colias cocandica* Erschoff, 1874 est figuré ici pour la première fois.

**Key words:** *Colias* – *mongola* – *tamerlana* – *ukokana* – *maja* – *sidonia* – taxonomy – systematics – closely related taxa.

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The closely related taxa of the *Colias cocandica*-group form a very interesting and very difficult taxonomic problem. In fact, the difficulty of this question depends on a human factor: we have two groups of scientists, with their own opinion. The first group is inclined to believe that the taxa *mongola*, *cocandica*, *tamerlana* and *nastes* are separate species, the second group makes a lot of hashing between these taxa. I will not enumerate all combinations which are listed in modern literature – but there are a lot of them. And, for sure, if there are a lot of combinations, it represents this question as unclear and unfinished at present.



Figs. 1–3. *Colias mongola mongola* Alphéraky, 1897. 1.– ♂ upperside (topotype of *sidonia*); 2.– ♂ underside (topotype of *sidonia*); 3.– ♀ upperside (topotype of *sidonia*); all in coll. A. V. Zvetaev (Zoological Museum of Moscow University).

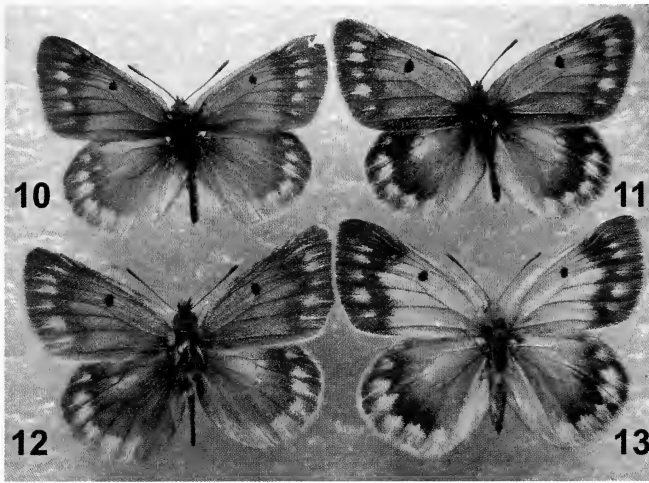
Figs. 4–6. *Colias mongola ukokana* Korb & Yakovlev, 2000. 4.– ♂ upperside; 5.– ♂ underside; 6.– ♀ upperside; all South Altai, Severochuysky Mts., Kagan-Uzun, in coll. A. V. Zvetaev (Zoological Museum of Moscow University).

Figs. 7–9. *Colias cocandica* Erschoff, 1874. 7.– ♀ holotype, upperside; 8.– ♀ holotype, labels; 9.– ♀ holotype, underside; all in coll. N. G. Erschoff (Zoological Museum of Moscow University).

In November 2005, I studied the lepidopterological collections of N. G. Erschoff and A. V. Zvetaev which are currently deposited in the Zoological Museum of Moscow University. In the collection of N. G. Erschoff I found the holotype (by monotypy) female of *Colias cocandica* Erschoff, 1874; this specimen is figured here for the first time (figs. 7, 9). The second find was a series of *Colias* in the collection of V. A. Zvetaev; these are topotypes of *sidonia*. For the estimation of the correct taxonomic status and position of specimens from Southern Siberia, Mongolia, Dzhungaria and northern Central Asia, we need to clarify the systematics of *cocandica*-like *Colias*.

The taxa with an unclear status are:

*maja* Grum-Grshimailo, 1891 (Grum-Grshimailo 1891: 447), TL: "Thian Chan ... Богусъ-Зуслунъ [Bogus-Zuslun]" – by the lectotype designation (Grieshuber & Churkin 2003: 257).



Figs. 10–13. *Colias cocandica* Erschoff, 1874. 10.– ♂, Terskey Ala-Too Mts., Pokrovka; 11.– ♂, Kyrghyz Mts., Kara-Balta river basin; 12.– ♂, West Tian Shan, Talassky Mts., Kuygun-say; 13.– ♀, Inner Tian Shan, Dolon pass; all in coll. A. V. Zvetsov (Zoological Museum of Moscow University).

*mongola* Alphéraky, 1897 (Alphéraky 1897: 188–189), TL: "Urga" – by the lectotype designation (Grieshuber & Churkin, 2003: 267);

*sidonia* Weiss, 1968 (Weiss 1968: 112), TL: "Mongolia, Rincinlhumbe, 2000 m" – by the original description;

*tamerlana* Staudinger, 1897 (Staudinger 1897: 152; Taf. 5, Abb. 1, 3), TL: "...im östlichsten Tan-Schan-Gebirge (nördlich von Chamyl), etwa 2000 m hoch..." – by the subsequent designation (Staudinger, 1901: 16);

*ukokana* Korb & Yakovlev, 2000 (Korb & Yakovlev 2000: 3–4, fig. 1), TL: "Altaï méridional, Oukok, rivièrè Ak-Alakha, 2500 m" – by the holotype;

In fact, we can easily reconstruct only the type localities of *tamerlana*, *sidonia*, *ukokana* and *maja* without problems.

For *maja*: "The locality Bogus-Zuslun is an upper stream of the Utudzhin (Utudjin) River, a tributary of the Emnudzhin (Emnujin) River. The co-ordinates [sic !] where Grum-Grshimailo camped at '2862 m' are approximately 44°17'N, 83°18'E... The type locality may therefore be given as follows: China, Xinjiang, Boro-Horo Shan, the Bogus-Zuslun river valley at approximately 44°17'N, 83°18'E" (Grieshuber & Churkin 2003: 259).

For *sidonia*: Rincinlhumbe, or Rincin Lhumbe, is the old name of the village Dzöölön, situated 45 km W from lake Hövsgöl Nur (= Dood nur). Rincin Lhumbe is also a mountain ridge situated at the left side of this lake. The village Dzöölön (Rincin Lhumbe) is located in a depression where the high- and middle-mountainous taxa of the *cocandica*-group do not live; they are present in the mountains around this village. Close to this depression is a small mountain



ridge, also called Rincin Lhumbe. So, the exact coordinates of the type locality are: 51°10'N, 99°98'E.

For *tamerlana*: In the original description the type locality is stated as "Chamyi" in eastern Tian Shan. Only one locality is consonant to this: the name of the city Hami (in the literature also spelled as Kamil, Kamul, Komul, Khamil), situated in Chinese Turkistan (Sinczan-Ujgur Autonomic Region), on the southern slopes of Karlik Shan mountains (73,5 km SW from Karlik Shan peak (4925 m above sea level)), and on the northern verge of the Great Gobi desert, at 42°85'N and 93°51' E. The species from the *Colias cocandica*-group do not inhabit flat landscapes at low altitude (Hami is located at an altitude of 950–1100 m), thus the type locality lays in the mountains near Hami – on the way to Karlik Shan peak. So, the exact coordinates of the type locality are: 43°05'N, 93°90'E.

For *ukokana*: The type locality is indicated very clearly in the description and can be found without errors: Ak-Alakha river in Ukok plateau, coordinates: 49°75'N, 87°24'E.

It is very important to determine the correct type locality of *mongola*. As written in the paper of J. Grieshuber & S. Churkin (2003: 268): "Staudinger ... stated that Leder collected the specimens (since labelled Urga by Christoph) in the Changai Mountains, about half way between Urga and Uliassutai (Uliastay: 47°43'N, 96°50'E). It is impossible to restrict the type locality now, because trained Cossacks also collected for Leder in unknown localities". The Urga city was established in 1689 as a Buddha monastery, and a long time this was its only status. On the territory of the monastery and its vicinities from 1809 and until 1907 there existed a prohibition of hunting, fishing, felling and visiting for strangers, non-buddhists. So, the type series of *mongola* has not been collected in Urga itself. But the route of Leder's expedition passed through the Urga river basin and here existed no religious prohibition whatsoever. It can be assumed that the 5 type specimens known were collected in one locality, and this place is situated in the Urga river basin. The type locality of *mongola* can therefore be located at 47°82'N, 106°98'E.

The type material of almost all discussed taxa has been figured already, namely:

- *maja* – the lectotype figured by J. Grieshuber & S. Churkin (2003: pl. 16, fig. 3).
- *mongola* – the lectotype figured by J. Grieshuber & S. Churkin (2003: pl. 16, fig. 5).
- *sidonia* – the topotypes figured here (figs. 1–3).
- *tamerlana* – the syntype figured by V. Tshikolovets (2005: pl. 31, fig. 16).
- *ukokana* – the holotype figured by S. K. Korb & R. V. Yakovlev (2000: fig. 1).

For the best understanding of the interrelations between the taxa of the *cocandica*-group discussed in this paper, the holotype of *C. cocandica* is here also figured (figs. 7–9). The external morphological characters of these closely related taxa are summarized in table 1.

Table 1. External morphological characters in the taxa under consideration:

Character	<i>tamerlana</i>	<i>maja</i>	<i>mongola</i>	<i>sidonia</i>	<i>ukokana</i>	<i>cocandica</i>
Ground colour, upperside, male	dark-greenish-gray	lemon-yellow	greyish-white	greyish-white	dark-greenish-grey to greyish-white (fig. 4)	lemon-yellow to dark-grey-greenish (figs. 10 – 13)
Ground colour, upperside, female	greyish-white	greyish-white	greyish-white	greyish-white	greyish-greenish-white	greyish-white
Ground colour, hindwing underside, male	dark-greyish-green	dark-greenish-grey	green-white (not all surface)	green-white (not all surface)	green-white to grey-green (all surface)	greenish-grey to greyish-yellow-green
Ground colour, hindwing underside, female	greyish-green	greyish-yellowish-green	greyish-green (not all surface)	greyish-green (not all surface)	greyish-green (all surface)	greyish-green
Submarginal row of bright spots, upperside, male	full in hindwing, not full in forewing	full in forewing, not full in hindwing	full in forewing, full in hindwing	full in forewing, full in hindwing	full in forewing, full in hindwing	very variable
Bright stroke in hindwing upperside, male	not developed	not developed	hardly visible	hardly visible	well visible, full	not developed
Discal spot, hindwing underside	one pink dot with whitish centre	one pink spot with whitish centre	one pink spot with whitish centre	one whitish spot	two whitish spots with pink border	one whitish spot with pink border

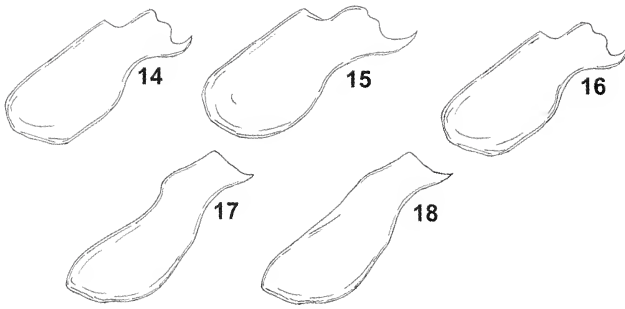


Fig. 14–18. Valva of *Colias*. 14.– *Colias mongola mongola* Alphéraky, 1897, Ulan-Bator vicinities; 15.– *Colias mongola ukokana* Korb & Yakovlev, 2000, South Altai, Ukok plateau, Dzhazator vicinities; 16.– *Colias mongola mongola* Alphéraky, 1897, Dood-Nur lake; 17.– *Colias cocandica maja* Grum-Grshimailo, 1891, Boro-Horo Mts.; 18.– *Colias tamerlana tamerlana* Staudinger, 1897 (topotypus).

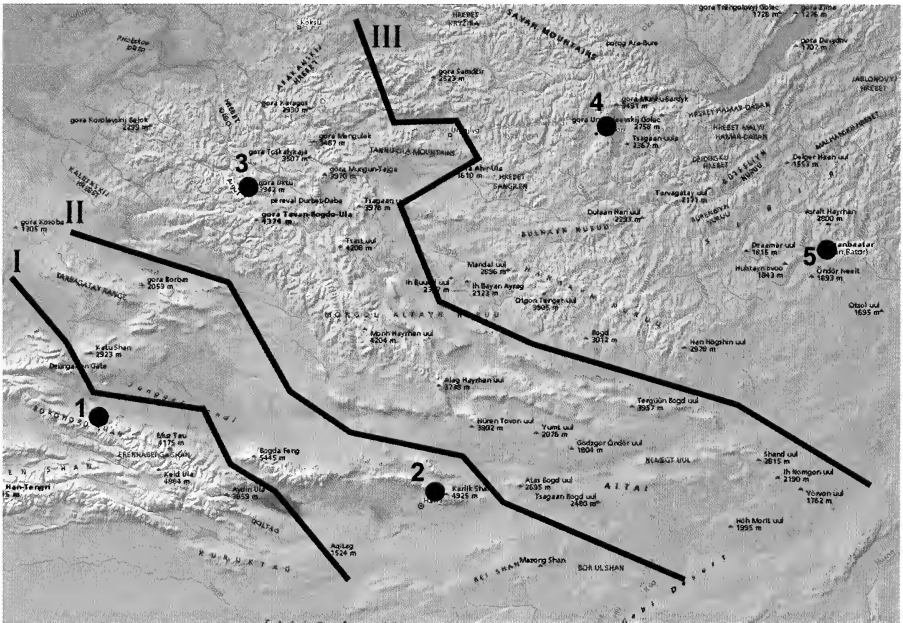


Fig. 19. Localities and borders of the *Colias cocandica*-like taxa from the East Tian Shan–Mongolian territory. Localities: 1.– type locality of *Colias cocandica maja* Grum-Grshimailo, 1891; 2.– type locality of *Colias tamerlana* Staudinger, 1897; 3.– type locality of *Colias mongola ukokana* Korb & Yakovlev, 2000; 4.– type locality of *Colias mongola sidonia* Weiss, 1968; 5.– type locality of *Colias mongola mongola* Alphéraky, 1897. Borders: I.– border between the taxa *cocandica* and *tamerlana*; II.– border between the taxa *tamerlana* and *ukokana*; III.– border between the taxa *ukokana* and *mongola*.

As we can see from table 1, all listed taxa can be grouped into 3 complexes: *tamerlana*, *mongola-sidonia-ukokana*, *cocandica-maja*. By the development of the bright stroke on the hindwing underside and by the ground colour the *tamerlana*-complex is very close to *cocandica-maja*. It is very interesting, that taxon *ukokana* has a complete other type of discal spot on the hindwing underside; it consists of 2 spots like in *C. hyale* (Linnaeus, 1758) or *C. erate* (Esper, [1805]) which is not a characteristic feature for *cocandica*-like species.

But in fact we cannot make any reliable conclusion about the discussed taxa only on the basis of external morphology. Therefore the structures of the male genitalia of these taxa were studied. The most illustrative differences are found in the valvae structures (figs. 14–18). All examined taxa can easily be grouped into 2 complexes by the valvae structure: the complex of *mongola*-like taxa comprising *mongola*, *sidonia*, and *ukokana*, and the complex of *cocandica*-like taxa comprising *maja* and *tamerlana*. The taxon *maja* without doubt is a good subspecies of *cocandica* – it is the opinion of all authors including O. Staudinger (1901: 16). Using the table of external characters and the figures of the valvae, we can see, that *cocandica* and *tamerlana* are more close than *tamerlana* and *mongola*. In fact, *tamerlana* and *cocandica* are very close (valvae main form, submarginal pattern on wings upperside, etc.) but have good differences: valvae have different structure of ventral part; ground colour (in *tamerlana* constant, in *cocandica* very variable); discal spot in hindwing underside. Using these features the taxa *tamerlana* and *mongola* must be considered as young, but separate, species.

The taxa *sidonia*, *mongola* and *ukokana* represent another evolutionary branch in this group, which is very closely related to *C. nastes* Boisduval, 1832. This closeness can be seen in the wing pattern (especially in *mongola* and *sidonia*) and in the genitalia armatures (the valvae and subunci structure are typical for *nastes*-like taxa: a big tooth in the apical part of the valvae, a tooth-like ledge in its ventral part). With the combination of these characters the taxa *sidonia*, *mongola* and *ukokana* cannot be included into the *cocandica*-like group of *Colias*, they belong to the *nastes*-like group.

The taxa *sidonia* and *mongola* are identical in external characters (see table) and in valvae structure (figs. 14, 16). They are without doubt synonyms: *Colias mongola mongola* Alphéraky, 1897 = *Colias mongola sidonia* Weiss, 1968.

The taxon *ukokana* is very interesting in its external features: it has a wing pattern and coloration closer to *cocandica* than to *mongola* (see table), but in the valvae structure it belongs to *mongola*. Using the combination of external and internal differences *ukokana* should be returned to its subspecific status: *Colias mongola ukokana* Korb & Yakovlev, 2000, stat. rest.

All type localities discussed in this paper are shown in fig. 19. We can see, that insuperable borders are situated between the type localities (and, in fact,

between the areas) of the discussed taxa; there are large areas of low altitudes between the mountains (all discussed taxa inhabit altitudes of minimum 1800–2000 m). There are three of such borders: the first two are not only borders between *cocandica* and *tamerlana*, but also between *cocandica*-like and *nastes*-like taxa. From this map we furthermore see, that *ukokana* and *mongola* are well isolated geographically. Under these conditions *ukokana* is a young product of a *mongola*-like ancestor which has a divergent resemblance with *Colias cocandica* Erschoff, 1874 in external features because the area of *ukokana* is situated at the same altitudes and in similar biotopes like *cocandica* in Central Asia.

#### Conclusions:

- *sidonia* is a synonym of *mongola*;
- the taxon *ukokana* is a subspecies of *mongola*;
- the taxa *mongola* and *tamerlana* are young, but separate species with different origin.

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# *Antigastra catalaunalis*, a new species for the Belgian fauna (Lepidoptera: Crambidae)

Willy De Prins & Wim Veraghtert

**Samenvatting.** *Antigastra catalaunalis*, een nieuwe soort voor de Belgische fauna (Lepidoptera: Crambidae)

Verskillende exemplaren *Antigastra catalaunalis* (Duponchel, 1833) werden in de loop van 2006 op diverse plaatsen in België waargenomen. Het is het eerste jaar dat deze zeldzame migrant in België wordt opgemerkt.

**Résumé.** *Antigastra catalaunalis*, une espèce nouvelle pour la faune belge (Lepidoptera: Crambidae)

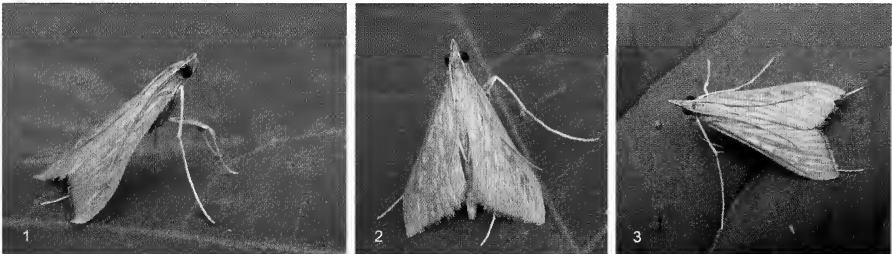
Plusieurs exemplaires de *Antigastra catalaunalis* (Duponchel, 1833) furent observées en 2006 dans plusieurs localités en Belgique. C'est la première fois que cette espèce migratrice est observée en Belgique.

**Key words:** *Antigastra catalaunalis* – Belgium – faunistics – first record.

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On 05 September 2006, 2 specimens of *Antigastra catalaunalis* (Duponchel, 1833) were observed at Veurne (Province of West-Vlaanderen), leg. D. D'Hert. As far as we know, these represent the first sightings of this rare migrant in Belgium. A third specimen was seen in the same locality on 07 September and another one by the second author at Oostmalle (Province of Antwerpen) on 13 September. At the same locality, another individual was caught on 24 September, leg. M. Jacobs. On 16 September, a specimen was seen at Olloy-sur-Viroin (Province of Namur), leg. C. Steeman, followed by a specimen in the nature reserve "Stamprooiersbroek" at Kinrooi (Province of Limburg) on 22 September, leg. M. Jacobs, a specimen at Averbode (Province of Brabant) on 23 September, leg. W. Veraghtert, and a specimen at Rosières (Province of Brabant) on 29 September, leg. P. Fontaine.



Figs. 1–3. *Antigastra catalaunalis* (Duponchel, 1833), 1–2. Belgium, Limburg, Kinrooi, Natuurreservaat Stamprooiersbroek, 22.ix.2006, leg. M. Jacobs; 3.– Belgium, Namur, Olloy-sur-Viroin, 16.ix.2006, leg. C. Steeman (Photo 1–2 M. Jacobs, photo 3 C. Steeman).

For a crambid moth, *A. catalaunalis* has rather pointed forewings. Ground colour yellowish suffused ferruginous on veins and margins. It looks a little like *Nascia ciliaris* (Hübner, 1796) but the forewings are more narrow and the ground colour is paler.

*A. catalaunalis* is a tropical species extending into southern Europe. It occurs on almost all Mediterranean and East-Atlantic islands: Balearic Islands, Canary Islands, Corsica, Madeira, Malta, Sardinia, and Sicily. Nuss *et al.* (2005) list following countries: Bosnia & Herzegovina, Croatia, Czech Republic, Denmark, France, Gibraltar, Great Britain, Greece, Hungary, Italy, Macedonia, Portugal, Romania, Spain, and Switzerland. In most of the Central European countries listed above, *A. catalaunalis* occurs only as a rare or very rare migrant. It becomes more common further south and can be quite abundant in the tropics. It has been imported in many tropical countries and occurs nowadays worldwide in a.o. Australia, Colombia, Costa Rica, Hong Kong, Iran, and Japan.

The species has also been observed in the Netherlands in 2006: 1 specimen at Retranchement on 18 September, leg. A. Allemekinders, and 1 specimen at Kruiningen (both Province of Zeeland) on 27 September, leg. F. van Lamoen. Also in the UK, where *A. catalaunalis* is listed as a very scarce migrant, occurring only in the southern counties (Goater 1986: 89), some observations during September 2006 became known.

A huge population density in its natural area and favourable warm weather conditions, combined with northward winds have probably caused the migration of many specimens of *A. catalaunalis* in September.

The caterpillar feeds mainly on *Sesamum indicum* (Pedaliaceae), both on young and full-grown plants and can be very destructive.

### Acknowledgements

We would like to thank D. D'Hert, P. Fontaine, M. Jacobs, and C. Steeman for providing us with information on the observation of this species in Belgium, M. Jacobs and C. Steeman for the permission to use their photographs.

### References

- Nuss, M., Speidel, W. & Segerer, A. 2005. Fauna Europaea: Pyralidae. – In: Karsholt, O. & van Nieukerken, E. J. (eds.), *Fauna Europaea: Lepidoptera, Moths*. Fauna Europaea version 1.2, <http://www.faunaeur.org>.
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# A new species of the genus *Callostoma* (Diptera: Bombyliidae) from Turkey

J. Dils & H. Özбек

**Samenvatting.** Een nieuwe soort van het genus *Callostoma* (Diptera: Bombyliidae) uit Turkije

*Callostoma oezbeki* sp. n. wordt beschreven uit Oost-Turkije. De soort wordt vergeleken met de aanverwante soorten en met *Cytherea dispar* Loew, 1873.

**Résumé.** Une nouvelle espèce du genre *Callostoma* (Diptera: Bombyliidae) de Turquie *Callostoma oezbeki* sp. n. est décrite de la Turquie orientale. Cette nouvelle espèce est comparée avec les espèces apparentées et avec *Cytherea dispar* Loew, 1873.

**Key words:** *Callostoma oezbeki* sp. n. – Bombyliidae – Turkey

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Specimens of the new species have hitherto only been found on the south-eastern slopes of the Süvarihalil pass near Hakkari and on the Kübbe pass near Malatya. The first specimens were collected in July 2004 and later on in July 2005 confirming the determination of a new species. The new species differs from other *Callostoma* spp. in lacking the typical alternating black and grey (whitish) bands on the abdomen and therefore it can be easily confused with some *Cytherea* such as *Cytherea dispar* Loew, 1873 which flies together with it.

## *Callostoma oezbeki* sp. n.

Material: Holotype ♂, Turkey, Hakkari, Süvarihalil geçidi, 11-07-2004, 1800–2400 m, N 37°29'49,7" E 43°22'19,8". Paratypes: 3♂, Turkey, Hakkari, Süvarihalil geçidi, 11-07-2004, 1800–2400 m, N 37°29'49,7" E 43°22'19,8"; 9♂, Turkey, Hakkari, Süvarihalil geçidi, 18-06-2005, 1095 m, N 37°29'56,3" E 43°27'46,8"; 1♂ + 2♀ Turkey, Hakkari, Süvarihalil geçidi, 12-07-2004, 1300 m, N 37°30'59" E 43°22'21"; 1♂, Turkey, Malatya, Kübbe geçidi, 27-06-2004, 1300 m, N 38°16'56,8" E 38°31'42,0"; 3♂ + 3♀, Turkey, Hakkari, Süvarihalil geçidi, 15-07-2005, 1750 m, N 37°29'55,1" E 43°21'50,9", all specimens leg. Dils J. & Faes J., holotype and paratypes deposited in the Zoological Museum Amsterdam, some paratypes deposited in the Atatürk University and in coll. J. Dils (Stabroek, Belgium).

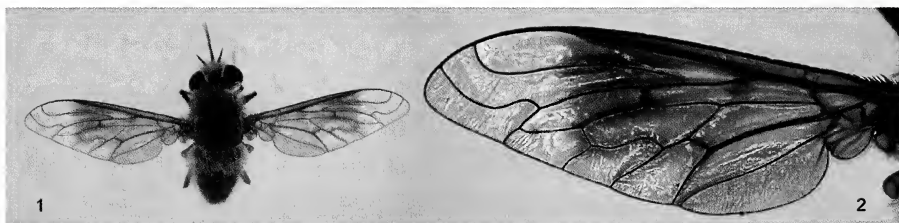
Male: Head: The proportion of the length of the proboscis with the height of the head is 27/19. The proportion; width of frons near to the ocellar tubercle to the head is 15/45. The gena, deeply grooved, covered with pure white hair like scales as is the whole face and frons. The pale hairs on those areas are white, becoming yellowish towards the ocellar tubercle where the hairs are brown. The occiput near the tubercle is covered with white hairs as long as scape and pedicel together, dense white scales along the eye margin. The antenna: proportion

flagellum / pedicel / scape = 39/9/14. Scape bearing white hairs and scales, pedicel shorter black hairs.

Thorax: Ground colour black, greyish pollinose, all bristles and erect hairs on mesonotum reddish-yellow, adjacent hairs white. All hairs and scales on scutum, pleurae, sterna and coxae white with an admixture of brownish scales. Hairs on mesopleuron long and bristle-like. Haltere with reddish stem and ivory knob.

Wings: The base of the wing as well as the middle, unlike other species of *Callostoma*, infuscated brown. The brown infuscation is sometimes somewhat mottled, darker along the veins (center of cells lighter brown).

Legs: Femora (F) Dark brown. F1 on the inside with 1 or 2 black bristles and adjacent white scales. F2 on the inside with 4 to 5 black bristles and adjacent white scales. F3 with 3 to 4 small black bristles dorsally at the apex and 4 to 5 somewhat longer on the outside and covered with adjacent white scales. Tibia and tarsi reddish yellow with black bristles, no pulvilli.



Figs. 1–2: *Callostoma oezbeki* sp. n., Holotype, Turkey, Hakkari, Süvarihalil geçidi, 11-07-2004, 1800–2400 m, leg. Dils J. & Faes J., coll. Zoological Museum Amsterdam.



Figs. 3–4: *Callostoma oezbeki* sp. n., paratype. 3.– gonoxoca; 4.– phalic complex.

Abdomen: Ground colour black, tergite (t1) with erect white hair, all others with reddish-yellow bristles on posterior edges and covered with white scales with an admixture of reddish-yellow ones. No alternating black and white bands. Sternites covered with white hair like scales.

Female: Proportion frons/head width = 25/56. The female differs only in the colour of the hairs on the ocellar tubercle, which are reddish-yellow instead of brown.

Etymology: The species is named after Dr. Hikmet Özbek, hymenopterologist at the Atatürk Üniversitesi of Erzurum, because of his valuable assistance during several expeditions of the Flemish Entomological Society in Turkey.

### **Aknowledgment**

We wish to thank Dr. David Greathead for his generous and indispensable help.

### **Reference**

Engel, E. O. 1938. Bombyliidae. – In: Lindner, E. (ed.), *Die Fliegen der palaearktischen Region*, p. 1–48. Vol. 4, pt. 3. E. Schweizerbart, Stuttgart. [The entire work was issued in 12 Lieferungen from 1932 to 1937 as follows: p. 1–48 (7 September 1932); p. 49–96 (2 November 1932); p. 97–144 (1 February 1933); p. 145–92 (20 December 1933); p. 193–256 (4 September 1934); p. 257–304 (6 February 1935); p. 305–52 (13 March 1935); p.353–400 (9 May 1935); p. 401–48 (18 May 1936); p. 449–512 (8 September 1936); p. 513–60 (8 December 1936); p. 561–619 (26 July 1937). Dated from a tip-in sheet bound with the completed series in 1937.]

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## Boekbespreking

**Biesenbaum, W.:** *Die Lepidopterenfauna der Rheinlande und Westfalens. Band 12 Gracillariidae, Lithocolletinae.*

15 × 21 cm, 208 pp, 11 kleurenplaten, Arbeitsgemeinschaft Rheinisch-Westfälischer Lepidopterologen e.V., Am Weingarten 21, D-51371 Leverkusen, Paperback 15,- € (ISSN 0941-3189).

In dit twaalfde deel uit deze interessante reeks worden 62 soorten uit het genus *Phyllonorycter* en 1 soort uit het genus *Cameraria* besproken. Na een korte inleiding worden de voedselplanten waarin de rupsen mineren opgesomd met de daarbij horende soorten. Het grootste deel van deze studie bestaat uit de bespreking van de individuele soorten waarbij telkens wordt verwezen naar een kleurenafbeelding. Dikwijls wordt vermeld dat een zekere identificatie enkel mogelijk is door genitaalonderzoek. Genitaalafbeeldingen worden echter niet gegeven. De tekst bevat informatie over de algemene verspreiding van de soort en de gedetailleerde verspreiding in het studiegebied. Deze laatste wordt telkens op een kaartje grafisch voorgesteld. Achteraan volgt een uitdraai van alle faunistische gegevens.

De kleurenafbeeldingen stellen collectie-exemplaren op groene achtergrond voor. De meeste soorten zijn zeer goed te herkennen al zijn sommige foto's iets te rood uitgevallen. Het boek biedt een goede basis voor verder faunistisch onderzoek.

W. De Prins

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## Erratum

The wrong currency was mentioned in the following book review (see *Phegea* 34(3): 84):

**De Prins, W. & De Prins, J.:** *Gracillariidae (Lepidoptera)* – In: Landry, B. (Ed.), *World Catalogue of Insects Volume 6.*

17,5 × 24,5 cm, 502 p., Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, www.apollobooks.com, hardcover, 2005, 760.00 DKK (ISBN 87-88757-64-1).

The correct book price is 760.00 DKK (= 101.89 €).

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## Inhoud:

De Prins, W. & Steeman, C.: <i>Gelechia rhombelliformis</i> and <i>Homoeosoma sinuella</i> , two new species for the Belgian fauna (Lepidoptera: Gelechiidae, Pyralidae).....	121
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