

# *Gynaephora selenitica* (Lepidoptera: Erebidae: Lymantriinae), another enigmatic species of the Belgian fauna

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**Abstract.** One male specimen of *Gynaephora selenitica* (Esper, 1789) was retrieved in the collection of the Royal Belgian Institute of Natural Sciences. It was caught at Stoumont (LG) on 16.viii.1932 by J. Depré. This specimen probably belonged to a relict population of this species which got extinct in the mid of the 20<sup>th</sup> century.

**Samenvatting.** In de verzameling van het Koninklijk Belgisch Instituut voor Natuurwetenschappen werd een mannetje van *Gynaephora selenitica* (Esper, 1789) teruggevonden dat gevangen was te Stoumont (LG) op 16.viii.1932 door J. Depré. Dit exemplaar behoorde waarschijnlijk tot een relictpopulatie van deze soort die uitstierf in het midden van de 20<sup>ste</sup> eeuw.

**Résumé.** Un mâle de *Gynaephora selenitica* (Esper, 1789) a été retrouvé dans la collection de l'Institut Royal des Sciences Naturelles de Belgique. Il a été pris à Stoumont (LG) le 16.viii.1932 par J. Depré. Ce spécimen appartenait probablement à une population relique de cette espèce qui a disparu au milieu du 20<sup>ème</sup> siècle.

**Key words:** *Gynaephora selenitica* – New record – Extinction.

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## Introduction

During the curation of the Belgian Lepidoptera collection deposited in the Royal Belgian Institute of Natural Sciences, a male specimen of *Gynaephora selenitica* (Esper, 1789) was discovered among the huge material of *Lymantria dispar* (Linnaeus, 1758). It was not even set apart and probably just considered as a variety or aberration of *L. dispar*. The male specimen was caught at Stoumont (LG) on 16.viii.1932 and suffered from pest attacks as great parts of the thorax have been eaten (Fig. 1). It belonged to the collection of Jean Depré (sometimes also spelled De Pré) and was very likely collected by himself. He lived in Liège and joined the Société entomologique de Belgique in 1926 where he was interested in "Entomologie générale". He was no longer mentioned in the membership lists of the society after 1955. He furthermore was a member of the Cercle des Entomologistes Liégeois and accepted a post as commissioner in the library of the Cercle in May 1941 (Leclercq 2014: 22). He was a citizen scientist (he earned his living as a hairdresser), and he very often collected (mainly beetles) in the Hautes-Fagnes, but also some other insects. In 1966, his collection was sold to the Royal Belgian Institute of Natural Sciences. It contained 7977 specimens of Coleoptera, 891 Lepidoptera and 134 Hemiptera, all of which have been dispersed into the general collections of the Institute (S. Kerkhof, pers. comm.). All the specimens contained a label with the usual faunistic data (locality and date) and sometimes even with detailed information about the circumstances in which the specimen was caught. Therefore, it may be assumed with great certainty that the specimen of *Gynaephora selenitica*, contained in this collection, formed part of a relict population of this species still present in the Hautes-Fagnes in the beginning of the 20<sup>th</sup> century. This population probably belonged to the "wet and cold raised bogs" strain (see further in the distribution in Germany) which died out in the mid of the 20<sup>th</sup> century in the same period and perhaps because of the same causes which laid to the extinction of *Colias palaeno* (Linnaeus, 1760) in Belgium (extremely cold winter without snow cover). The

only remaining doubt about this specimen is its collecting date. August is the caterpillar period which extends till May of the next year.

## Distribution

*G. selenitica* occurs in Central Europe eastwards till the Carpathian Mountains in Poland and in Finland, but the species is absent in West and North-West Europe (de Freina & Witt 1987: 200). The distribution map (nr. 125) in the same publication shows an area almost touching the Grand Duchy of Luxembourg. Stoumont is situated roughly 200 km to the north-west of that point. A similar map in Speidel & Witt (2011) is a little more detailed and also shows some isolated populations in central France.

Schintlmeister (1996) and Skule & Fibiger (2017) record the species from Austria, Belarus, Estonia, Finland, France, Germany, Latvia, Lithuania, Macedonia, Poland, Romania and Russia, doubtful from Slovakia. Bryk (1934) furthermore records the species from Hungary "bis über den Rhein" and adds, already in 1934, that it is "lokal". The record of Hungary is not repeated in the later publications.

In Germany, the species has been recorded from 10 Bundesländer: Baden-Württemberg, Bayern, Hessen, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, Sachsen, Sachsen-Anhalt, and Thüringen, though it has not been recorded in five of them after 1980. It still occurs in Baden-Württemberg, Bayern, Hessen, Sachsen-Anhalt and Thüringen, though everywhere populations are declining (Gaedike & Heinicke 1999, Lepiforum 2019).

The species used to be observed in May [no year stated] "nicht selten" in a dry area with a lot of bushes and shrubs near Mechttersheim (Rheinland-Pfalz) (Heuser & Jöst 1959), but these authors write one sentence later that the habitat has been destroyed since then. Nevertheless, some specimens were observed in another habitat south of Mechttersheim in 1938.

A detailed account of the occurrence of *G. selenitica* in Baden-Württemberg reveals that it occurs there in two completely separated areas: the northern dry and xerothermic Muschelkalkgebiete in Tauberland at an

altitude between 200 and 400 m and the wet and cold raised bogs in Oberschwaben and West Allgau at an altitude of resp. 580 and 700 m (Ebert 1994). The species has been recorded several times in both areas, especially in the first half of the 20<sup>th</sup> century, but since about 1950 the populations have been shrinking dramatically, especially in the southern area of Oberschwaben.

In France, Lhomme (1923–1935) mentioned the species only from the departments Basses-Alpes

(currently Alpes-de-Haute-Provence) and Isère, and doubtfully from Cher. Lépi'Net (2019) acknowledges the occurrence of the species in both former departments and adds Drôme, Hautes-Alpes, Savoie, and Vaucluse, all situated in South-East France, with records after 1980. Furthermore, Drouet & Filosa (2015) mention a record from the Alpes-Maritimes in 1922. Finally, P. Leraut (2006) mentions an old record from Moselle in 1789.



Fig. 1. The only specimen of *Gynaephora selenitica* found in Belgium, a male at Stoumont, LG, 16.viii.1932, ex coll. J. Depré. ©Jurate De Prins.

### Biology

The eggs are deposited in rings and covered with the hairs of the last abdominal segment of the female. They were e.g. found on dry grass stems in June (Bergmann 1953).

The caterpillar is highly polyphagous. It has been recorded from *Onobrychis sativa*, *Hippocrepis comosa*, *Medicago sativa*, *Lathyrus* (all Fabaceae) but also from *Prunus spinosa* (Rosaceae) and trees like *Larix*, *Pinus* (Pinaceae), *Salix aurita*, *S. cinerea* (Salicaceae), *Betula pubescens* (Betulaceae), and *Quercus* (Fabaceae) (Bergmann 1953, de Freina & Witt 1987, Ebert 1994). The larvae can be found from early August, hibernating till March. They usually never occur higher than 50 cm from the soil, hide in the morning, but tend to bask in late afternoon, during warm late summer days' sunshine on bushes, grasses and the like, sometimes in high numbers. A great number of the caterpillars dies during the winter period, because of a.o. diseases, parasitism and predation (e.g. the bug *Picromeris bidens*), explaining the fact that the adult moth is usually rarely seen. Even in artificial conditions, many caterpillars die during the hibernation period (Bergman 1953). In the winters of 1936–1937 and again in 1941–1942, from about 100 caterpillars each time, only 2 females and no males have hatched (Heuser & Jöst 1959). The short flight period extends from mid-May till mid-June. Males have been observed flying close to the ground just before noon in search for females, in a

swift flight resembling a *Pyrgus* specimen (Bergmann 1953, Heuser & Jöst 1959, Ebert 1994).

*G. selenitica* occurs in two quite different ecological variants: dry heathlands and wet raised bogs. In some areas of its distribution it requires dry, xerothermic, huge, open areas like heathlands, large open places in forests and sunny sides of forests, preferably on limestone (de Freina & Witt 1987, Wagner 2019). However, in some areas, the species occurs in cold and wet habitats like Hochmoore (raised bogs), with many *Calluna vulgaris* and bushes of *Salix* and *Betula*. This is e.g. the case in Oberschwaben (Baden-Württemberg) (Ebert 1994). The caterpillar of *G. selenitica* lives in the northern limestone area of Baden-Württemberg (Tauberland) on lower plants like *Agrimonia eupatoria*, *Coronilla varia*, *Aster linosyris* and *Vicia tenuifolia*, while in the southern raised bogs it feeds on *Salix aurita*, *S. cinerea* and *Betula pubescens* (Ebert 1994). The Belgian population belonged to the strain that lived in wet and cold raised bogs and probably fed mainly on *Salix* and *Betula*.

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## References

- Bergmann A. 1953. *Die Gross-Schmetterlinge Mitteldeutschlands unter besonderer Berücksichtigung der Formenbildung, der Vegetation und der Lebensgemeinschaften in Thüringen sowie der Verflechtung mit der Fauna Europas. Band 3. Spinner und Schwärmer*. — Urania-Verlag GmbH, Jena, 552 pp.
- Bryk F. 1934. *Lepidopterorum Catalogus. Pars 62 Lymantriidae*. — W. Junk, Berlin, 991 pp.
- de Freina J. J. & Witt T. J. 1987. *Die Bombyces und Sphinges der Westpalaearktis (Insecta, Lepidoptera). Band 1 Noctuoidea (Nolidae–Thyretidae), Sphingoidea (Sphingidae), Geometroidea (Axiidae–Thyatiridae), Bombycoidea (Bombycidae–Saturniidae)*. — Edition Forschung & Wissenschaft Verlag GmbH, München, 708 pp.
- Drouet E. & Filosa A. 2015. Compléments à la faune des papillons de nuit des Hautes-Alpes (Lepidoptera). — *Oreina* **29**: 30–31.
- Ebert G. 1994. Lymantriidae (Trägspinner). — In: Ebert G. (Ed.), *Die Schmetterlinge Baden-Württembergs. Band 4: Nachtfalter II*. — Verlag Eugen Ulmer, Stuttgart, 535 pp.
- Gaedike R. & Heinicke S. (Eds) 1999. Verzeichnis der Schmetterlinge Deutschlands. — *Entomologische Nachrichten und Berichte, Beiheft 5*: 1–216.
- Heuser R. & Jöst H. 1959. Die Lepidopteren-Fauna der Pfalz. A. Systematisch-chronologischer Teil. II. Spinner und Schwärmer. — *Mitteilungen der Pollichia* **3**(6): 169–244.
- Leclercq J. 2014. Choses déjà dites et non-dites dans l'histoire du Cercle des Entomologistes Liégeois (1895–2010). — *Natura Mosana, nouvelle série* **67**: 9–35. Available online <https://neptun.unamur.be/s/neptun/item/10166#c=0&m=0&s=0&cv=0> (accessed 22 October 2019).
- Lepiforum E.V. (ed.) 2019. *Gynaephora selenitica* (Hummel, 1823). — Lepiforum E.V. (ed.) (2008–2019): Bestimmungshilfe für die in Europa nachgewiesenen Schmetterlingsarten. — [http://www.lepiforum.de/lepiwiki.pl?Gynaephora\\_Selenitica](http://www.lepiforum.de/lepiwiki.pl?Gynaephora_Selenitica) (accessed 10 August 2019).
- Lépi'Net 2019. Les Carnets du Lépidoptériste Français. *Gynaephora selenitica*. — <https://www.lepinet.fr/especies/nation/carte.php?e=&id=38610#> (accessed 10 August 2019).
- Leraut P. 2006. *Moths of Europe. Vol. 1: Saturnids, Lasiocampids, Hawkmoths, Tiger moths*. — N.A.P. Editions, 396 pp.
- Lhomme L. 1923–1935. *Catalogue des Lépidoptères de France et de Belgique. Volume I, 2e partie*. — Le Carriol, par Douelle (Lot), pp. 345–800.
- Schintlmeister A. 1996. Lymantriidae. — In: Karsholt O. & Razowski (Eds), *The Lepidoptera of Europe, A distributional checklist*. — Apollo Books, Stenstrup, 380 pp.
- Skule B. & Fibiger M. 2017. Fauna Europaea: Lepidoptera, Erebiidae, Lymantriinae. — In: van Nieuwerkerken E. & Karsholt O. (Eds), *Fauna Europaea, Lepidoptera, moths. Version 2017.06*. — <https://fauna-eu.org> (accessed on 10 August 2019).
- Speidel W. & Witt T. J. 2011. Subfamilia Lymantriinae Hampson, [1893]. — In: Witt T. J. & Ronkay L. (Eds), *Noctuidae Europaeae Volume 13. Lymantriinae and Arctiinae including phylogeny and check list of the quadrifid Noctuoidea of Europe*. — Entomological Press, Sorø, 448 pp.
- Wagner W. 2019. *Schmetterlinge und ihre Ökologie*. — [http://www.pyrgus.de/Gynaephora\\_selenitica.html](http://www.pyrgus.de/Gynaephora_selenitica.html) (accessed on 10 August 2019).