



**SYNANTHEDON SCOLIAEFORMIS (BORKHAUSEN, 1789)
(LEPIDOPTERA: SESIIDAE) IN NE SLOVENIA AND W HUNGARY**

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Abstract – The clearwing moth species *Synanthedon scoliaeformis* (Borkhausen, 1789) is reported for the first time from the eastern part of the Goričko Regional Park (NE Slovenia), mainly along the Slovene-Hungarian border. The species has also been observed at several localities on the Hungarian side of the border as well, and in the area between the villages of Velemer, Szentgyörgyvölögy, Kerkaskapolna, Bayansenyé and Oriszentpeter (W Hungary). It is new to the fauna of that country. Its discovery, distribution and biology are described.

KEY WORDS: Sesiidae, *Synanthedon scoliaeformis*, faunistics, Hungary.

Izvešček - *SYNANTHEDON SCOLIAEFORMIS* (BORKHAUSEN, 1789) (LEPIDOPTERA: SESIIDAE) V SV SLOVENIJI IN Z MADŽARSKI

Steklokrilec vrste *Synanthedon scoliaeformis* (Borkhausen, 1789) je prvič zabeležen v vzhodnem delu regionalnega parka Goričko (SV Slovenija), v glavnem vzdolž slovensko-madžarske meje. Prisotost vrste je bila opažena tudi na več krajih na madžarski strani obmejnega pasu, kot tudi v področju med vasmi Velemer, Szentgyörgyvölögy, Kerkaskapolna, Bayansenyé in Oriszentpeter (Z Madžarska). Vrsta je novost v favni te dežele. Podana sta opis njenega odkritja, razširjenost in biologija.

KLJUČNE BESEDE: Sesiidae, *Synanthedon scoliaeformis*, favnistika, Madžarska.

Introduction

Synanthedon scoliaeformis (Borkhausen, 1789) has an Eurasiatic distribution (Laštůvka & Laštůvka, 2001). It occurs in northern and central Europe, in Ireland and Britain, Scandinavia and northern Russia extending to the Arctic Circle (Špatenka et

al., 1999). The southern limit of the range runs through northern Spain and northern Italy. It occurs in southern Romania, Bulgaria, European Russia, Ukraine, central Caucasus, Ural, throughout western Siberia, Altai, Transbaikalia, Georgia, Uzbekistan, northern and western Kazakhstan, central Mongolia, Russian Far East and China and Japan as ssp. *japonica* Špatenka & Arita, 1992 (Špatenka et al., 1999, De Freina, 1997). In Slovenia the species is widespread according to personal research, with the exception of the Karst and the Mediterranean area and is not present in some parts of the Alps. My most southern find so far is from northern Croatia (Gorski Kotar, Gerovski Kraj, Mladje, 31.8.2008, mature caterpillar), not far away



Fig. 1: Woody belt alongside the border between Slovenia and Hungary (near Motvarjevci and Velemer), a suitable biotope for *S. scoliaeformis*.



Fig. 2: Biotope of *S. scoliaeformis* near Kerkaskapolna (W Hungary).

from the border with Slovenia. The species lives in hilly to mountainous country and in the lowlands. It inhabits localities such as river valleys, edges of woods, moors, and groups of old birch trees. I found it also in some city parks (Maribor, Celje, Slovenj Gradec).

I found evidence of the species (mostly characteristic old exit holes with the rests of cocoons) in various biotopes within the investigation area in the lowland belt of the altitude between 190–270 m; it lives in warm mixed forests and in woody belts in which *Betula pubescens* often grows accompanied by *Populus tremula* and *Pinus sylvestris*, sometimes also with *Quercus* sp., *Fagus sylvatica*, *Alnus glutinosa*, *Castanea sativa* and *Carpinus betulus* in groups of birch often mixed with *P. trem-*



Fig. 3: Mature larvae of *S. scoliaeformis* (near Velemer, W Hungary).

ula near villages, on individual solitary trees, in swampy or dry forest edges, beside roads and fields, as well as in open land beside water channels etc.

S. scoliaeformis very often chooses solitary trees, which then serve several generations of the moth. The larva lives over two or three years between the bark and wood in old birch trees (*Betula* spp., Betulaceae) in the lower parts of the trunk, usually up to about 2 meters, and in tumorous tissue on trunks and branches (sometimes about 4 meters from the ground, own observations), where it forms broad, usually criss-crossed corridors. The presence of caterpillars is only rarely observable externally, from traces of excrement in the bark (own observations). It diapauses in a flimsy cocoon at the end of the main corridor. The emerging hole is not completed until spring. The larva forms a densely spun cocoon of saw-dust and silk, in which it pupates during May. The adults are good fliers and swarm in May to July, in northern Scandinavia and Russia to August (Špatenka et al., 1999, De Freina, 1997).

Methods

Traditional entomological methods were used to investigate the presence of *S. scoliaeformis* in the field. The lower parts of old trunks of host plants, mainly downy

birch (*Betula pubescens* Ehrh., Betulaceae) were carefully inspected for the presence of ca. 5 mm round old exit holes typical of that species, usually with the remains of characteristic long and firm cocoons inside the burrows. These old exit holes remain for several years as an excellent sign of previous infestation by the species. It was thus possible to detect the presence of the species although their flight period appeared to be already over. In some cases, exuviae can also remain in the infested bark for an extended period and to a lesser extent can be a useful tool for determination.

Results

Records of *Synanthedon scoliaeformis* (Borkhausen, 1789)

Slovenia, SW of Adrijanci, near Nedeljski Breg, 29 July 2003, 11 old exit holes and fresh feeding traces of caterpillars in the bark of old *Betula pubescens* trunk on the forest edge along the road. During my next visit on 19 April 2008 I noticed that the number of old exit holes on the same trunk had in the meantime risen to 43; N of Šalovci, Kutošov Breg, 19 April 2008, several old exit holes on a few birch trees on the edge and in mixed wood; NW of Prosenjakovci/Partosfalva, same date, 21 old exit holes, two-year old larva and three this-year chrysalis skins on one old downy birch in the mixed forest mainly of *Quercus* sp., *Pinus sylvestris*, *Carpinus betulus* and *Castanea sativa*; NE of Pordašinci/Kisfalva, in border zone about 50 meters from the boundary stones, 9 March 2008, one old exit hole from last year with the remains of a cocoon in one of numerous old *B. pubescens* trunks in the mixed *B. pubescens*-*Quercus* sp.-*P. sylvestris*-*P. tremula*-*C. betulus* forest.

Hungary, about 1.3 km SW of Velemer, in the same wood near Pordašinci/Kisfalva, but this time 450 m inside Hungarian territory, 9 March 2008,



Fig. 4: Fresh female of *S. scoliaeformis* (ex larva, ex *Betula pubescens* Ehrh., near Velemer, W Hungary).

one old exit hole with remains of a cocoon just a few cm above the ground in the bark of old *B. pubescens* trunk. First evidence of this species occurrence in Hungary!

In 16 March 2008, while checking 6–7 km long and sometimes very narrow (150–350 m) woody belt composed mainly of *P. tremula*-*B. pubescens* and *P. sylvestris* trees along the Hungarian side of the border, about 3 km S from the first finding place and 1.2–3 km SE of village Szentgyörgyvölgy, I found more than 60 old exit holes, two mature and several young caterpillars in a number of old *B. pubescens* trees. The species is fairly common throughout the investigated area here. There were mainly single or two, three, rarely more old exit holes per single infested birch trunk. I found one fresh feeding trace of caterpillar and two old exit holes also on the Slovenian side.

Hungary, NW of Kobilje, near abandoned custom house on the Hungarian side of the border, 7 April 2008, one old exit hole in the trunk of birch in a large group of



Fig. 5: Old exit hole of *S. scoliaeformis* in the bark of upper part (in the middle) of an old birch stem (near Szentgyörgyvölgy, W Hungary).



Fig. 6: Old exit hole with well preserved remains of the cocoon of *S. scoliaeformis* (near Bayansenyé, W Hungary). All photos by the author.

P. tremula-*B. pubescens* trees; Velemer, Velemerihegy, same date, four old exit holes in one old birch trunk in *A. glutinosa*-*P. sylvestris*-*Quercus* sp. and *B. pubescens* forest; N of Szentgyörgyvölgy, same date, two old exit holes in the bark of *B. pubescens* on light forest edge of *B. pubescens*-*P. tremula* and *Pinus sylvestris*; 1.6 km N of Kerkaskapolna, 19 April 2008, old exit hole with well preserved remains of cocoon in the trunk of one of large group of *B. pubescens* trees, mixed mainly with *P. tremula* and *C. betulus* in light forest edge; Bayansenyé, same date, a few old exit holes and two fresh of caterpillar feeding traces in trunks of single standing birch trees along water channel behind the village and one exit hole on forest edge about 1 km SE of the village; SE of Oriszentpeter (near train station), same date, one old exit hole with remains of cocoon in one old *B. pubescens* trunk on the edge of mixed forest; this find is by far the deepest into Hungarian territory. Because of lack of birch trees I had no success in searching woods around Resznek, Csestreg and Nemesnep.

Conclusion

Study of the Hungarian Sesiidae fauna has a long tradition and clearwings are among the better investigated moths on a European scale. It is surprising that such a beautiful and large species of clearwing moth as *S. scoliaeformis* had not been, until now, discovered in Hungary. Further faunistic investigations are required to complete the knowledge of this species in Hungary and whether it is endangered. On the basis of recent finds, *S. scoliaeformis* might also be expected along the remaining part of the border zone to the north, to the boundary with Styria and in all such places in NW Hungary, as also in NE Hungary along the Slovakian border (Aggtelek karst) where the food plant is present.



Fig. 7: Map with the finds marked.

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