

## *Xestia sextrigata* (HAWORTH, 1809) (Lepidoptera, Noctuidae) a new species expanding into Romania

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**Summary:** Records from Austria, Hungary, Ukraine and the Republic of Moldova collected in the last 30 years suggest that *Xestia sextrigata* (HAWORTH, 1809) is extending its range towards South-Eastern Europe. Here we report the first genuine record of *X. sextrigata* from Romania. Older records from the literature are shown to be erroneous.

**Rezumat:** Pe baza datelor de colectare din ultimii 30 de ani din Austria, Ungaria, România, Ucraina și Republica Moldova, *Xestia sextrigata* (HAWORTH, 1809) este considerată o specie expansionistă cu tendințe de lărgire a arealului spre sud-estul Europei. *X. sextrigata* este pentru prima dată menționată cu certitudine din România. Datele mai vechi din literatură sunt considerate eronate.

**Key words:** *Xestia sextrigata*, Romania, Europe, distribution, expansion.

### Introduction

*Xestia sextrigata* (HAWORTH, 1809) has so far been mentioned two times from the fauna of Romania. In the Catalogue of Romanian Lepidoptera (RÁKOSY *et al.* 2003) the species is, however, listed under „excluded taxa”, as the existing records were considered unreliable.

The first record stems from Săcărâmb (Transilvania) (FUSS 1850) and should have been part of the Franzenau collection under the name *X. umbrosa* HÜBNER, 1790. The collection is deposited at the Zoological Museum of the Babeș-Bolyai University in Cluj, the presence of the voucher specimen of *Xestia sextrigata* was thus easily checked. Under the label „*umbrosa*” there are two specimens of *Diarsia mendica* (FABRICIUS, 1775) (Fig. 1). In other words, there is no *X. sextrigata* in the J. Franzenau collection; the species was confused with *Diarsia mendica*.

The second record appears in an article focused on the management of species of the subfamily Agrotinae which can become agronomic pests (PEIU *et al.* 1977). The authors include *X. sextrigata* among the species collected using light traps in Iași and Bucharest, mentioning only that a few specimens were collected in September. No further information on the exact locality of where the species was found, the date or the number of individuals captured were provided. If the collected specimens would have been correctly identified, then theirs would have been the first record of *X. sextrigata* from Romania. The fact that the authors were inexperienced in the identification

of noctuids led to their article and the mention of *X. sextrigata* to be ignored by specialists. However, their collection (stored under the name „M. Peiu”) still exists and is deposited at the Natural History



Fig. 1. The two specimens of *Diarsia mendica* that were mistakenly identified as *Xestia sextrigata* (= *umbrosa*) in the J. Franzenau Collection.

Museum of Oltenia in Craiova. But examinations of the collections have failed to find any specimens of *X. sexstrigata* (CHIMIŞLIU 1989). This leads us to believe that the authors may have misidentified the species, confusing it with *Xestia xanthographa*, *X. baja*, *Diarsia brunnea* or *D. mendica*.

Based on the above we can safely conclude that the present paper presents the first genuine record of *Xestia sexstrigata* from Romania.

During the last 30 years *X. sexstrigata* has shown a tendency to expand its range towards South-Eastern Europe. Here we provide evidence for the first occurrence in Romania.

## Methods and Results

A female of *X. sexstrigata* was collected along the Gârbău Valley (Valea Gârbăului, N 46°42'51", E 23°31'59"), near Cluj-Napoca at an altitude of 465 m on the 29<sup>th</sup> of August 2020 (Fig. 2).

The specimen (Fig. 3) was collected as part of the monitoring of the Lepidoptera of this region using a light trap with an LED source which emits light along a broad range of the spectrum, with a peak in the UV range (BREHM 2017).

The collected individual is a freshly hatched female (Fig. 4 A,B), which shows the characteristic pattern and colouration of the species. The forewing thus clearly bears the transversal striations which define *X. sexstrigata*. As this is a very typical individual for this species, we did not consider it necessary to perform a detailed analysis of its genital structures. These have already been illustrated in several publications (RÁKOSY 1996, FIBIGER 1997, WYMANN *et al.* 2015).

## Biology and Ecology

Following HEATH and EMMET (1979), FIBIGER (1993), RÁKOSY (1996), STEINER and EBERT (1998), STEINER *et al.* (2014) and WYMANN *et al.* (2015), *X. sexstrigata* is a hygro- or mesohygrophilic species, characteristic for humid or swampy areas (alluvial forests, sphagnum swamps, oligotrophic swamps, humid meadows and valleys) as well as other associations of humid and dry habitats. It seems possible that during its range expansion the species became less dependent on hygro- and mesohygrophilic habitats, individuals being increasingly found outside its preferred habitats. The flight period of *X. sexstrigata* lies between July and September, with a peak in August. The caterpillars are polyphagous, feeding on various species of low growing herbs or even grasses. The early life stages were described and illustrated by HEATH and EMMET (1979), BECK (1999) and AHOLA and SILVONEN (2011).

## Discussion

During the last years *X. sexstrigata* has shown a clear tendency to expand towards the south-eastern borders of its range. It has been first recorded from the westernmost regions of Austria (Voralberg) in 1974,

but more frequent occurrences are only recorded after 1990. *X. sexstrigata* seems to have reached the eastern parts of Austria (Burgenland) by 2003 (HÖTTINGER 2004). In Hungary the first individuals were collected approximately 35 years ago by Szeőke Kálmán, stemming from the surroundings of Vértes, in north-western Hungary. In the following years the species was reported from several locations within the country, sometimes even with higher numbers of individuals (pers.comm. Gabor and László RONKAY). L. Ronkay collected 2 individuals from the north-eastern part of Hungary, in the Zemplén Mountains in 2016 (pers.comm. László RONKAY). *X. sexstrigata* was captured by light and volatile traps of the Plant Protection Department of the University of Debrecen in Nagycsere (15 km E of Debrecen, SZANYI *et al.* mscr.). The species was also found in Switzerland, the records stemming from after 1960, and particularly after 1980 (WYMANN *et al.* 2015).

*X. sexstrigata* has also been sporadically recorded from Ukraine, with the records being rather recent. Findings from close to Romania's northern border stem from the highest part of the Ukrainian Carpathians, the Pozhzhzhevska Mountains (KANARSKYI and GERYAK 2014). One of the most recent records originates from the Republic of Moldavia (ȚUGULEA 2020).

Following the observed range extension of this species, it is not surprising that it has also reached Transylvania. However, the location of where the individual from the outskirts of Cluj has been collected is not entirely typical for *X. sexstrigata*. The site lies in the hilly area, south-east of the city (Fig. 5). The vegetation is characterized by mesophilic meadows with *Prunus spinosa* and *Crataegus monogyna* shrubs and narrow, more humid and cooler valleys. During the same sampling night we also collected *Lemonia taraxaci*, *Tholera cespitis*, *Talpothila matura*, *Hoplodrina octogenaria*, *Amphipoea oculea*, *Callimorpha (Euplagia) quadripunctaria* etc.

*X. sexstrigata* is an Atlanto-Mediterranean species, distributed from the Iberian Peninsula, to Western and Central Europe, namely northern Italy, Austria, Hungary, Slovakia and to the north towards Scotland and the southern areas of the Scandinavian countries. In the eastern parts of Europe it ranges from Poland, Ukraine to Russia, where it reaches Moscow (FIBIGER 1993, STEINER and EBERT 1998). In the past 10 years the species has reached Romania, Ukraine and Moldova and is likely to spread further east. The eastern area boundary reaches the Caucasus (HERCZIG *et al.* 1990). Further, eastern records (DZAUDINOVA 2006) belong probably to other, so far undescribed, cryptic taxa or are the result of confusions with other similar species (pers.comm. László RONKAY).

## Conclusions

We present the first well supported record of *X. sexstrigata* from Romania, thus confirming the tendency of the species to expand its range towards South-Eastern Europe.



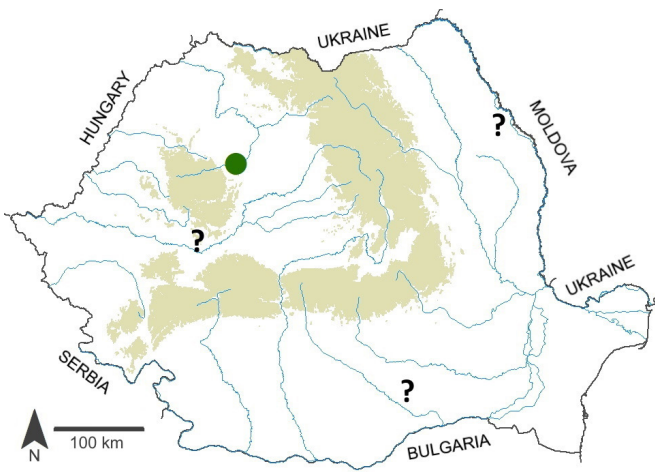


Fig. 2. Record of *Xestia sextrigata* (green dot) in Transilvania, near Cluj-Napoca (Gârbău Valley), Romania. Erroneous reports (?): Săcărâmb, Bucharest, Iași.



Fig. 3. *Xestia sextrigata*, FF, 29.08.2020, Romania, Cluj-Napoca, Valea Gârbăului, 465 m.



Fig. 4. *Xestia sextrigata* FF, 29.08.2020, Romania, Cluj-Napoca, Valea Gârbăului, 465 m. A - wing upperside; B - wing underside.



Fig. 5. Habitat along the Gârbău Valley, from where *Xestia sextrigata* was collected.



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