ECOLOGIA BALKANICA

2023, Vol. 15, Issue 1 June 2023 pp. 184-187

Short note

The first record of Euphyia biangulata (Haworth, 1809) (Lepidoptera: Geometridae) for Kosovo

Pajtim Bytyçi[1,2], Ferdije Zhushi-Etemi[1*], Edona Kabashi-Kastrati[1], Hazir Çadraku[2], Toni Koren[3]

[1] - University of Prishtina "Hasan Prishtina", Faculty of Mathematics and Natural Sciences Department of Biology, George Bush, nr.5, Prishtina 10000, KOSOVO

[2] - UBT - Higher Education Institution, Kalabria, street Rexhep Krasniqi, Nr. 56, Prishtina, 10000, KOSOVO

[3] - Association Hyla, I. Lipovac 7, HR-10000 Zagreb, CROATIA

*Corresponding author: ferdije.zhushi@uni-pr.edu

Abstract. In this article, we present a new record for moth fauna in Kosovo. The specimens of *Euphyia biangulata* (Haworth, 1809) (Lepidoptera, Geometridae) were collected at two localities on Mt. Koritnik. This newly recorded species increases the number of geometrid species recorded for Kosovo to 248.

Key words: distribution, new records, range, Balkan peninsula.

Euphyia biangulata (Haworth, 1809) is a medium-sized, easily recognizable geometrid species. The larvae mostly feed on the flowering plant species of the genus *Stellaria*, family Caryophyllaceae. Three species are known to be primary host plants: *Stellaria holostea* L., *Stellaria media*, and *Stellaria nemorum* (Hausmann & Viidalepp, 2012; Leraut, 2009).

Euphyia biangulata occurs in open woods such as oak and hornbeam forests, also in ash forests and coniferous forests.

The flight period time depends on altitude, usually in two generations from May to late August (Hausmann & Viidalepp, 2012). It is distributed across Europe, Anatolia, the Caucasus region, and also NE Turkey and Iran. It was reported from all countries in the Balkan Peninsula: Albania (Beshkov & Nahirnić, 2020), Serbia (Tomić et al., 2002; Dodok, 2006), North Macedonia (Huemer et al., 2011) Bulgaria (Nestorova, 1990; Zlatkov, 2007; Beshkov & Langourov, 2011), Greece (Gozmány, 2012), Bosnia and Herzegovina (Lelo, 2004), Romania (Rákosy et al., 2003), Croatia (Koren, 2018), and Slovenia (Hausmann & Viidalepp, 2012), except Kosovo.

Here we report the first observations of this species in Kosovo.

Moths were collected in the summer of 2021 and 2022, with 6W 12V Portable Heath Moth Traps, in the period from eight o'clock in the evening up to eight in the morning, when the traps were emptied.

During this investigation, *Euphyia biangulata* has been observed from two localities (Fig. 1) in Mountain Koritnik in Kosovo: 1) village Rapçë, in a stony slope with *Juniperus communis* and *Pinus heldreichii*, 42°04'49" N, 20°36'32" E, 1214 m a.s.l., on 08.VII.2021 (Fig. 2), and 2) near the village Brezne (Fig. 3), in a mountain steppe

with *Quercus*, *Carpinus*, and *Acer* trees (*Festuco-Brometalia* and *Quecus Frainetto* woods), 42°07'59" N, 20°38'07" E, 1064 m a.s.l., on 23.VII.2022.

The habitats are described according to EUNIS -European Nature Information System for habitat classification (Chytry et al., 2020).

In total, two individuals have been collected. The first individual was collected on 08.VII.2021 in the first locality, Rapçë (Fig. 4), whereas the second specimen was collected on 23.VII.2022 in the second locality, Brezne. In both localities the host plant *Stellaria holostea* was present.

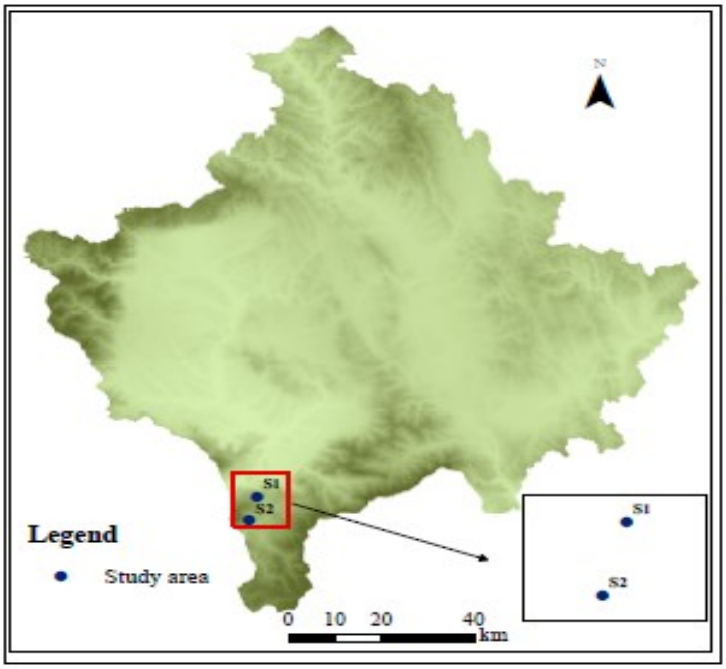

Fig. 1. The localities in Kosovo where *Euphyia biangulata* was observed.

Fig. 2. Habitat of *Euphya biangulata* at the locality Rapçë (1214 m), photograph by PB, 08 July 2021.

Fig. 3. Habitat of *Euphya biangulata* at the locality Brezne (1064 m), photograph by PB, 23 July 2022.

Fig. 4. *Euphyia biangulata* (Haworth, 1809), collected by PB in Rapçë, 08 July 2021

The geometrid moths are the only lepidopteran family with a recent checklist for Kosovo considering all available literature as well as new records (Bytyçi et al., 2022). Accordingly, *E. biangulata* is added to the list of Geometridae of Kosovo, and with this species the number of geometrid species in the country is 248. Considering the size of Kosovo, the number of 248 geometrid species can be considered a high number, however comparing to the other Balkan countries, Serbia 390 species (Stojanovic, 2010), Croatia 440 (Mihoci 2008), Bulgaria 442, and the European part of Turkey 200 species (Okyar& Mironov, 2008), it can be expected the number of geometrid species in Kosovo to increase with further research.

References

Beshkov, S., & Langourov, M. (2011). Nocturnal and Day-flying Moths (Macrolepidoptera, excluding Hesperioidea & Papilionoidea) of the Bulgarian part of Western Rhodopes. *Biodiversity of Bulgaria*, 4, 299-484.

Beshkov, S., & Nahirnić, A. (2020). Contribution to knowledge of the Balkan Lepidoptera (Lepidoptera: Macrolepidoptera). *Ecologica Montenegrina*, 30, 1-27. doi: 10.37828/em.2020.30.1.

Bytyci, P., Zhushi-Etemi, F., Kabashi-Kastrati, E., Gashi, V., Muja-Bajraktari, N., Cadraku, H., & Koren, T. (2023). First tentative checklist of Geometridae (Insecta: Lepidoptera) of Kosovo. *Oriental Insects*, 57 (1), 88-114. doi: 10.1080/00305316.2022.2066214.

Chytrý, M., Tichý, L., Hennekens, S. M., Knollová, I., Janssen, J. A., Rodwell, J. S., & Schaminée, J. H. (2020). EUNIS Habitat Classification: Expert system, characteristic species combinations and distribution maps of European habitats. *Applied Vegetation Science*, 23(4), 648-675.

Dodok, I. (2006). The fauna of Geometridae (Lepidoptera) in the region of Užice in Western Serbia. *Acta Entomologica Serbica*, 11 (1/2), 61-75.

Gozmány, L. A. (2012). *Fauna Graeciae: The Lepidoptera of Greece and Cyprus*. Hellenic Zoological Society.

Hausmann, A., & Viidalepp, J. (2012). *The geometrid moths of Europe*, Vol. 3. Larentiinae I.

Huemer, P., Krpač, V., Plössl, B., & Tarmann, G. (2011). Contribution to the fauna of Lepidoptera of the Mavrovo National Park (Republic of Macedonia). *Acta Entomologica Slovenica*, 19 (2), 169-186.

Koren, T. (2018). Diversity of moths (Lepidoptera: Heterocera) in the surroundings of the Bednja River, Varaždin County, Northern Croatia. *Natura Croatica*, 27 (1), 111–141. doi: 10.20302/NC.2018.27.6

Lelo, S. (2004). *Revizija Rebelovog popisa leptira Bosne i Hercegovine*. Coron's.

Leraut, P. (2009). *Moths of Europe*, vol. 2, Geometrid moths. - N A P. Editions, Verrieres le Biiisson. France.

Mihoci, I. (1882). Geometrid moths (Lepidoptera, Geometroidea, Geometridae) from the Košćec museum collection. *Franjo Košćec i njegovo djelo*, 1968, 129-162.

Nestorova, E. (1990). Geometrids (Insecta, Lepidoptera, Geometridae) from Vitosa. In: *Fauna of Southwestern Bulgaria, Part 3*. Sofia, Bulgarian Academy of Sciences: 208-218

Okyar, Z., & Mironov, V. (2008). Checklist of the Geometridae of European Turkey, with new records (Lepidoptera). *Zootaxa*, 1789(1), 1-56.

Rákosy, L., Goia, M., & Kovács, Z. (2003*). Catalogul Lepidopterelor României / Verzeichnis der Schmetterlinge Rumäniens*. Societatea Lepidopterologică Română, Cluj-Napoca.

Stojanović, D. V., Ćurčić, S. B., Brajković, M. M., & Ćurčić, B. P. (2010). *The Geometrid moths (Lepidoptera, Geometridae) of Mt. Fruška Gora (Northern Serbia*). Institute of Zoology, Faculty of Biology, University of Belgrade.

Tomić, D., Zečević, M., Mihajlović, L., & Glavendekić, M. (2002). *Fauna zemljomerki (Lepidoptera, Geometridae) Srbije*. Zbornik radova o fauni Srbije. Beograd: SANU. Knjiga VI, 73-164.

Zlatkov, B. (2007). Butterflies and moths (Lepidoptera: Macrolepidoptera) of Mesta Valley in SW Bulgaria. *Historia naturalis bulgarica*, 18, 95-126.

Received: 10.01.2023
Accepted: 17.05.2023