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ORIGINAL ARTICLE
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Amephana dalmatica (Rebel, 1919) (Lepidoptera: Noctuidae) FOUND IN THE NATURE PARK "GOLIJA" − A NEW SPECIES IN THE FAUNA OF THE REPUBLIC OF SERBIA

ABSTRACT: Inventorying the diversity of entomofauna is the first stage in a consistent approach to its conservation. The diversity of Lepidoptera in Serbia, although impressive in terms of the number of inventoried species, is far from complete. This paper describes the first finding of the species *Amephana dalmatica* (Rebel, 1919) in the Republic of Serbia. Moreover, for the first time, a species from the genus *Amephana* Hampson, 1906 is recorded in the fauna of Lepidoptera of Serbia. *A. dalmatica* is a Ponto-Mediterranean species. It occurs in the Southern Europe (western and southern parts of the Balkans, north to Dalmatia), as well as in the western and southwestern parts of European Turkey. Here are presented the basic anatomical-morphological and taxonomic characteristics of the species *A. dalmatica*, its distribution and flight period. The three out of the eight research objectives on the Lepidoptera fauna in the Republic of Serbia were implemented in this research, presented in the "General Plan of Lepidopterological Research for the Achievement of Defined Goals in the Republic of Serbia with a Focus on Climate Change, Allochthonous and Migratory Species": Golija is one of the highest mountains in the Republic of Serbia, it is a protected area and *A. dalmatica* is a rare Lepidoptera species in the Republic of Serbia, which speaks of the importance of this study and the research area.

KEYWORDS: *Amephana dalmatica*, diversity, entomofauna, Lepidoptera, Noctuidae, Nature Park "Golija"

INTRODUCTION

The genus *Amephana* Hampson, 1906 consists of two distinct phyletic lines which are interpreted as subgenera (*Amephana* and *Trigonephra*). It contains only four species, three of them from the southern parts of Europe. Within the

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subgenus *Amephana*, the species *anarrhini* (Duponchel, [1840]) is present in Europe. Within the subgenus *Trigonephra* Berio, 1980, the species *aurita* (Fabricius, 1787) and *dalmatica* (Rebel, 1919) are known in Europe. Beshkov (2000), Hacker (1989), Karsholt & Razowski (1996), Kornosor & Lödl (1990), Leraut (2019), Ronkay & Ronkay (1995), gave the data and records of *A. dalmatica* in Croatia, Montenegro, Greece, Albania, Macedonia, Bulgaria and western and southwestern parts of Turkey. Beshkov & Nahirnić (2016) announced that species *A. dalmatica* might exist in southern Serbia. In their research, Fibiger & Sarto and Monteys (2003) point out the differences between the sister species *A. dalmatica* and *A. aurita* (Fabricius, 1787) and confirm the finding of *A. aurita* in Spain (Balearic Islands).

In the Republic of Serbia, *A. dalmatica* was not recorded in the previous studies (Vasić, 2002; Zečević, 1996; Zečević, 2002). *A. dalmatica* was also not registered in the more contemporary long-term research (Stojanović, 2012; Stojanović & Šumarac, 2020; Stojanović & Šekler, 2022). Furthermore, *A. dalmatica* is neither presented in the comprehensive study on diversity of noctuid moths in Serbia (Stojanović & Ćurčić, 2011), nor in the Red List of Noctuidae of Serbia (Stojanović et al., 2013).

A. dalmatica is a Ponto-Mediterranean species. A xerophilous species is typical for Mediterranean maquis and sclerophyllous forests of the lower and medium altitude zones of the Balkan Peninsula and Asia Minor, absent or very rare at higher altitudes. It is local but numerous and strongly attracted to light. The flight period is the end of May and June. The early stages of development and the host plant are unknown (Ronkay & Ronkay 1995).

MATERIAL AND METHODS

The research was carried out in the Nature Park "Golija", in the location of the Monastery Gradac (UTM square DP 60; Figures 1 and 2) during June, 2022. The altitude of the locality is 550 m a.s.l.

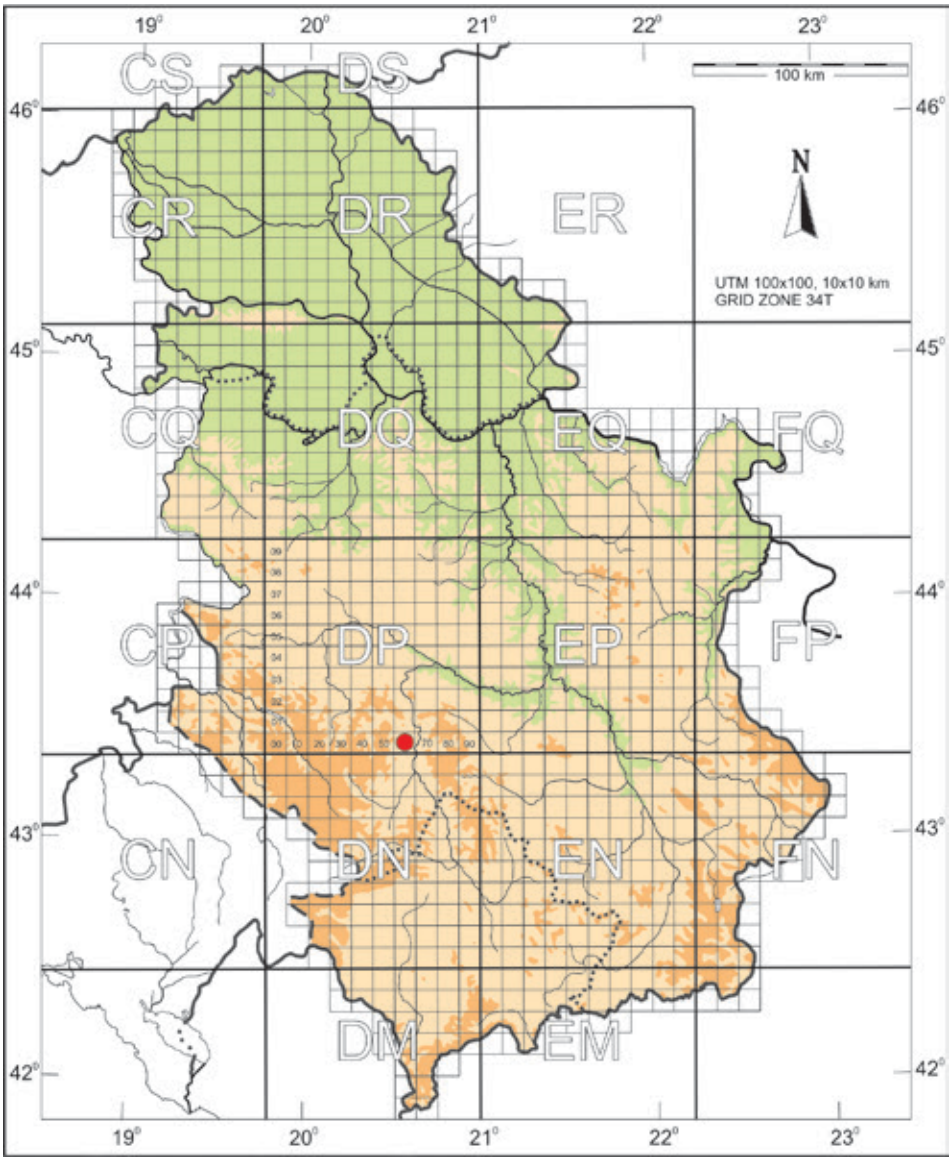

Figure 1. Map with locality of finding of species *Amephana dalmatica* in Serbia with UTM grids

Figure 2. Map with locality of finding of species *Amephana dalmatica* in the "Golija" Nature Park with UTM grids

The samples were collected by the author with a light source (250 and 400 W Philips Ml mercury lamps) behind which a cotton cloth was placed.

The collected adults were prepared, labeled, determined, photographed and stored as dry specimens in entomological boxes in the author's private collection. The chitinous armatures of their genital apparatus were dissected, identified, photographed and permanent microscopic preparations were made from them, stored in the collection of microscopic preparations, located in the author's private collection. Identification was carried out according to Ronkay & Ronkay (1995) and Fibiger & Sarto and Monteys (2003).

Photographs of the site were taken using a Canon EOS 5D Mark III digital camera, equipped with a CANON EF 50 mm, 1:1.8L lens. Photographs of insect specimens and genital armature were taken with the same digital camera, equipped with a CANON macro lens EF 100 mm, 1:2.8L. The photographs of the prepared specimens given below were taken in the laboratory of the Institute for Lowland Forestry and the Environment of the University of Novi Sad.

RESULTS AND DISCUSSION

Two males of *A. dalmatica* were found on 23rd of June, 2022. The species was discovered in the Nature Park "Golija", in the locality the Monastery Gradac (Figure 3), that is under the protection of 3rd level regime.

Figure 3. Locality of finding, Monastery Gradac (photo: Stojanović, DV)

Wingspan of *A. dalmatica* is 19–27 mm. It is highly similar to *A. aurita* but distinguished by the antemedial line which is much less sinuous, without deeper angles below cell and at inner margin. Therefore, the median zone is broader and less constricted at its lower third (Ronkay & Ronkay, 1995). Habitus of male is shown on Figures 4–5.

Male genital armature (Figures 6–7): The chitinous armatures of the male genital apparatus differ from the sister species *A. aurita* by the clasper, which is spatulate at the tip. Harpa is thickened at base, less pointed at apex. Juxta is convex at top. Aedoeagus is large, with thickened cornuti. Vesica is bent at an angle of 120 degrees, like an Aboriginal boomerang.

Figures 4–5. *Amephana dalmatica*, habitus of male; 4 – with spread wings (dorsal view); 5 – with spread wings (ventral view) (photo: Stojanović, DV)

Figures 6–7. Amephana dalmatica male genital apparatus; 6 – male genital armature; 7 – aedoeagus (photo: Stojanović, DV)

There are eight objectives of Lepidoptera fauna research in the Republic of Serbia presented in the "General plan of lepidopterological research for the achievement of defined objectives in the Republic of Serbia with reference to climate changes, alien and migratory species" (Stojanović & Konjević, 2023). Three out of them were realized in this research: Golija belongs to the highest mountains in the Republic of Serbia, it is a protected area and *A. dalmatica* is a rare species of Lepidoptera in the Republic of Serbia, which speaks of the importance of this study and the researched area.

CONCLUSION

The discovery of *A. dalmatica* in the "Golija" Nature Park (southwestern part of the Republic of Serbia) represents the first finding of this species in the Republic of Serbia.

Public Company "JP Srbijašume" manages the sustainable protection of natural values in the third level of protection of the "Golija" Nature Park, where *A. dalmatica* was found. Due to the importance of the discovery, it is necessary to establish monitoring, population control and conservation measures for the very rare species, *A. dalmatica* in the "Golija" Nature Park.

It is necessary to determine the probability of endangerment and undertake appropriate, practical conservation measures aimed to protect this rare species as well as its habitat. It is recommended to establish and present *A. dalmatica* as a national treasure of the Republic of Serbia, a tourist attraction and a kind of brand of the "Golija" Nature Park.

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ОРИГИНАЛНИ ЧЛАНАК
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Amephana dalmatica (Rebel, 1919) (Lepidoptera: Noctuidae) ПРОНАЂЕНА У ПАРКУ ПРИРОДЕ „ГОЛИЈА" − НОВА ВРСТА У ФАУНИ СРБИЈЕ

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РЕЗИМЕ: Инвентаризација диверзитета ентомофауне је прва фаза у конзистентном приступу његовог очувања. Диверзитет Lepidoptera у Србији, иако

импресиван по броју инвентарисаних врста, далеко је од потпуне истражености. У раду је описан први налаз врсте *Amephana dalmatica* (Rebel, 1919) у Републици Србији. Штавише, први пут је забележена врста из рода *Amephana* у фауни Lepidoptera Србије. *A. dalmatica* је понто-медитеранска врста. Јавља се у јужној Европи (западни и јужни делови Балкана, северно до Далмације), као и у западним и југозападним деловима европске Турске. Овде су представљени основни дијагностички карактери, дистрибуција и период лета ове врсте. Од осам циљева истраживања фауне Lepidoptera у Републици Србији који су представљени у „Општем плану лепидоптеролошких истраживања за остваривање дефинисаних циљева у Републици Србији са освртом на климатске промене, алохтоне и миграторне врсте", у овом истраживању реализована су три: Голија спада у највише планине у Републици Србији, у питању је заштићено подручје, а *A. dalmatica* је ретка врста Lepidoptera у Републици Србији, што говори о значају ове студије и истраживаног подручја.

КЉУЧНЕ РЕЧИ: *Amephana dalmatica*, диверзитет, ентомофауна, Lepidoptera, Noctuidae, Парк природе „Голија"