



New Records of *Araschnia levana* (Linnaeus, 1758) (Lepidoptera: Nymphalidae) in Kosovo

Ferdije Zhushi Etemi^{1,*}, Pajtim Bytyqi², Valmir Visoka³

¹ Department of Biology, Faculty of Mathematical and Natural Sciences, University of Prishtina "Hasan Prishtina", "Mother Theresa" street n.n. 10000 Prishtina, Kosovo; ²South East European University (SEEU), Ilindenska no 335 Tetovo, Macedonia; ³Elementary school "Sheqë Mirovci" Shtedim, Podujevë, Kosovo

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Abstract In this paper we present the new records of butterfly *Araschnia levana* (Linnaeus, 1758) in Republic of Kosovo. The survey was conducted from May/September 2016. In our survey *Araschnia levana* was recorded in two different areas, in Kopaonik Mountain range in northern part of the country and in Mirusha Park in central Kosovo. This research presents a modest contribution to the knowledge of butterfly fauna in Kosovo and to the distribution of butterfly species in Balkan Peninsula.

Keywords: *Butterfly fauna, Araschnia levana, distribution, Balkan Peninsula*

Introduction

Butterflies (Lepidoptera, Rophalocera) is one of the largest and most studied groups of insects. In Europe there are 482 species of butterflies divided in six families, out of them 237 belong to the family Nymphalidae. Butterflies of this family are called brush-footed butterflies, with often large and brightly-coloured species, such as the fritillaries, admirals, emperors, and tortoiseshells (Van Swaay et al. 2010). Butterfly species *Araschnia levana* has a distribution range from North Spain, to Central and East Europe, Caucasus, Central Asia, North Eastern China, Korea and Japan (Tolman and Lewington, 2008). Despite the fact that southern countries of Europe do not belong to the original range of distribution, *Araschnia levana* has further expanded its area in this part.

In Balkan Peninsula *A. levana* is recorded in Macedonia (Melovski, 2004); in Serbia (Jakšić, 2003) and (Popović et al. 2013); in Bulgaria (Abadjiev, 1993); in north eastern Greece (Koutroubas, 1991) and Turkey (Baron, 2007). In Kosovo the first record for *Araschnia levana* is reported from a locality in Sharri Mountain (Jakšić, 1998). The only country in Balkan Peninsula where the record of *Araschnia levana* is still missing is Albania. *Araschnia levana* -Map butterfly, is a Nymphalidae butterfly which is on the wing in two or three generations per year. It is characterized with well marked seasonal dimorphism. First generation (*F. levana*) is on the wing from May to June, the second one (*F. prorsa*) from July/August and in some regions in warm years the third generation partially in August/September.

The spring form has an orange ground colour on the upper side with angular black spots, with a passing resemblance to the fritillaries. The summer brood by contrast is black with a white band, recalling the white admirals, *Limenitis*, species. *A. levana* inhabits deciduous woodland clearings or bushy margins (Tolman & Lewington, 2008)

The adult female lays eggs on the underside of the leaves of the stinging nettles *Urtica dioica*, the host plant of the larvae. Hibernation takes place as a pupa. The adults occur on different nectar plants in open areas.

Materials and Methods

A survey of butterfly fauna was organized in two localities in Kosovo. In both localities of the survey the butterflies were collected with an entomological net during the sunny periods of the day. In Kopaonik Mountain during the research conducted in May and June 2016 in total 150 butterfly specimen of different species were registered, whereas in Mirusha the butterflies were collected from May to the end of August 2016, and as a result of more intensive field work 367 specimen were caught. Our aim was, beside the composition of the butterfly fauna in these two localities, to focus on the record of *Araschnia levana*. Butterflies were identified in the field and afterwards were released; a number of specimens among them two of *Araschnia levana*, were preserved for the collection at the

department of Biology, Faculty of Natural Sciences at the University of Pristine. Butterflies were identified by the first author of this paper, using the field guide (Tolman & Lewington, 2008)

Butterfly fauna was researched in two localities in different parts of the Republic of Kosovo. Figure 1. The first locality of our survey was the village Reçicë, at 892m altitude in Kopaonik Mountain range in the northern part of Kosovo, in the border with Serbia. Kopaonik Mountain range from here extends further into central Serbia. The second surveyed area is located in the central part of Kosovo, in the Mirusha Park (N 42°31'26" E 20°34'59") well known as Ujëvarët e Mirushës (Mirusha waterfalls) on the road from Prishtina to Gjakova. River (Table 1).



Figure 1. The position of the surveyed area in the map of Kosovo

Results and Discussion

The first three specimens of *Araschnia levana* of the second brood (*F. prorsa*) were recorded in June in the village Reçicë at 892m altitude in the Kosovo side of Kopaonik Mountain range (Table 1). Butterflies were collected in a meadow habitat near the forest edge, Figure 2. not far from the river that runs in this village and provides the moisture preferred by this species. In the forest the dominant trees were oak trees (*Quercus sp.*) and near the river bank the dominant was willow (*Salix alba*) that provided enough shadow for very abundant host plant *Urtica dioica*. The adult specimens of *Araschnia levana* (*F. prorsa*), Figure 3 was captured during the feeding on flowers of the plant *Sambucus ebulus* (Figure 4).



Figure 2. The habitat of *Araschnia levana* in Kopaonik

Table 1. Location of the new records of *Araschnia levana* in Kosovo

Location	Coordinates	Altitude	Number of recorded specimen	Date of the record
Kopaonik Mountain, village Reçica	(N 43o 06' 65" E 21o 03' 12")	892m	3	26.06.2016
Mirusha Park	(N 42°31'26" E 20°34'35")	379 m	4	05.08.2016
Mirusha Park near the third waterfall	(N 42° 31' 25" E 20° 33'46")	390 m	1	13.08.2016



Figure 3. A preserved specimen of *A. levana* L



Figure 4. *Sambucus ebulus*, the plant on which the adults *A.levana* were captured



Figure 5. The habitat of *A.levana* L. in Mirusha Park

The second place of the record of *A. levana* in Kosovo is Mirusha Park in the central part of the country. Four specimens of *A. levana*, second brood (*F. prorsa*) were collected in a meadow at 379 m altitude, very rich in plant diversity. Figure 5. Plenty of stinging nettles (*Urtica dioica*) were present on the margins of the meadow shaded mostly by shrubs. The adults were captured while feeding with nectar in different plants in open area. The other specimen of *A. levana*, second brood too, occurred in August, in a short distance from the first locality of the record, during our walk in a mountain road, not far from the third waterfall of Mirusha River. According to the existing data from the surveys of butterfly fauna in the territory of Kosovo in two National Parks: Sharri and Bjeshket e Nemuna, as well as in Pashtrik Mountain (Jakšić, 1998, 2006, 2007), *Araschnia levana* was for the first time recorded in the National Park Sharri (Jakšić, 1998). Mostly due to the lack of more intensive butterfly research in other parts of our country, the in both localities of our survey, *A. levana* was second brood (*F. prorsa*) the first brood (*F. levana*) was not registered, although our research started in early May. Obviously, we missed the record of the first generation (*F. levana*) that could have occurred earlier, in April, due to the climate conditions that influence the larval development.

Conclusion

The existing data of the record of *Araschnia levana* in Kosovo date back almost 17 years. Although there were unexplored areas in the country, particularly mountain ones, due to many circumstances, new research of butterfly fauna in the field was not organized until recently. Our research confirms two new record of *A. levana* in Kosovo. In both localities the habitat was in the vicinity of a water body that confirms the preference of moisture by *A. levana*. Despite the fact that only the second brood was recorded and number of specimens is relatively low, our work indicates for a wider distribution of this species in our country. However, further research should be organized to collect more evidence on the distribution and population size of this species in Kosovo.

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