



**NOTES ON THE PRESENCE OF *EREBIA*  
*ALBERGANUS* (DE PRUNNER 1879)  
(LEPIDOPTERA: NYMPHALIDAE) FOR KOSOVO**

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**Abstract**

*Erebia alberganus* (De Prunner 1798) is European endemic and high mountain species of Nymphalidae butterfly family, with scarce and isolated records along the Balkan peninsula. Its presence for Kosovo was recently confirmed, thus the aim of this paper is to present this interesting discovery in the National park Bjeshket e Nemuna and highlight its distribution in the neighboring countries. During our surveys, five specimens of *E. alberganus* are observed in two locations: Mokna Mt. and Peklena Mt. Previous record of this species at the border of Kosovo and North Macedonia was not reliable, although recent data from North Macedonia suggest that the species could also be present in Sharr. Mt., in the southern part of the country. With this record, the number of butterfly species in the Republic of Kosovo reaches 174. A population of *E. alberganus* at Peklena Mt. was destroyed by habitat alteration, which highlights the need for better conservation practices on one side and species vulnerability to such habitat changes on the other.

**Introduction**

*Erebia alberganus* is high mountain butterfly restricted to European continent. It belongs to the family Nymphalidae, the largest family of butterflies (Papilionoidea, former Rhopalocera), which includes 8 subfamilies. According to the European checklist of Butterflies, it is classified into the subfamily Satyrinae (WIEMERS et al. 2018). Based on this list, 57 species

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of *Erebia* have been recorded in Europe so far. *E. alberganus* is a univoltine butterfly that can be seen from June to late August in grasslands in the forest belt, to subalpine meadows, at an altitude from 900–2500 m. The larvae feed on *Anthoxanthum odoratum*, *Festuca ovine* and *Ochlopoa annua* (TSHIKOLOVETS 2011).

Being European endemic, *Erebia alberganus* is distributed in the Alps, in the northern mountains of Spain, in the Dolomites of Italy, in the southern Alps of Switzerland, Austria, central Italy, and France (VAN SWAAY et al. 2010). It also has a fragmented distribution in the Balkan peninsula, in countries: Montenegro (KUDRNA 2015, FRANETA 2018, JAKŠIĆ and KING 2021), Bulgaria (ABADJIEV 2001, HRISTOVA and BESHKOV 2017), Serbia (POPOVIĆ et al 2013, POPOVIĆ and VEROVNIK 2018), in North Macedonia (JAKŠIĆ 1988, MELOVSKI 2002, ABDIJA 2013). A recent publication on butterflies of Albania (CUVELIER et al. 2023) has confirmed the first record of *E. alberganus* near Valbonë in the North Albanian Alps (Bjeshket e Nemuna). As it spreads mainly at high altitudes, the risk of extinction is low, except in low altitude zones where it can be threatened by the human factor due to the destruction of its habitat. At European level, this species is not believed to face major threats (VAN SWAY et al. 2010).

The only previous mention of *E. alberganus* for Kosovo is from the maps of butterflies of Yugoslavia, with single point located at the border between Northern Macedonia and Kosovo (JAKŠIĆ 1988). We have recorded this species in Bjeshket e Nemuna National Park (63,028 ha), also known as Prokletine Mts., and located in the western and north-western territories of Kosovo. With recently confirmed presence of *E. alberganus* for Kosovo, we aim to present this interesting discovery and highlight its distribution in the neighboring countries.

## Material and Methods

### Study area

The Mountain massif “Bjeshket e Nemuna” (Prokletije) is located in the northwestern part of Kosovo, north of Albania, and the southeast of Montenegro. Bjeshket e Nemuna massif makes up the whole western border of the country. It belongs to Dinaric Alps or Dinarides, a great mountain range of south-eastern Europe. Due to the high natural and geomorphological values, with high biodiversity of flora and fauna and characterized by beautiful mountains, the mountain massif “Bjeshket e Nemuna” is declared a National Park in 2013. Moreover, the mountains are character-

ized by a large number of butterfly species, being also declared a Prime butterfly area (MESP 2015). Our research area included many locations in these mountains, including the high peaks above 1000 m whereas the localities where the species was recorded are located in the northern part of the Park, named Mokna Mt. and Peklana Mt. (Figure 1). Mokna Mt. is located on the Kosovo border with Serbia and Montenegro, at an altitude of 1640 m above sea level ( $42^{\circ}53'14.73''\text{N}$ ,  $20^{\circ}33'47.05''\text{E}$ ) while Peklana Mt. at an altitude of 1300 m above sea level ( $42^{\circ}40'30.56''\text{N}$ ,  $20^{\circ}14'26.20''\text{E}$ ). The vegetation in the National Park is very rich and diverse. Oak forests lie at an altitude from 300 m to 900 m, with the species *Quercus cerris*, *Quercus frainetto*, *Quercus pubescen*, and *Quercus petraea*; beech forest at altitude 800–1200 m, mixed *Picea* sp., *Abies alba* and *Pinus heildreichii*, with the dominant species *Fagus moesaica*. Coniferous forests lie at an altitude of 2000–2200 m, with characteristic species *Pinus heildreichii*, *Pinus peuce*. At the lower limit of this zone, *Abies alba* and *Picea* sp. are encountered, while on the upper border lies *Pinus mugo*, *Juniperus nana*, and *Juniperus intermedia*. At the upper limit of the forest, lie Alpine and subalpine pastures (REXHEPI 1994, MILLAKU 1999).



Fig. 1. The map of Kosovo with the surveyed localities in the National Park Bjeshtet e Nemuna  
Source: Valbon Bytyqi (2023).

The last data on the butterflies of Bjeshket e Nemuna date from the nineties (JAKŠIĆ 2006). Our survey is conducted after more than 20 years of gap in butterfly studies in this area and resulted in two new records for National Park Bjeshket e Nemuna and for the country. Apart from the record of *Erebia alberganus* which is the subject of this paper, the species *Heteropterus morpheus* (Pallas, 1771) is recorded for the first time in Kosovo (KABASHI KASTRATI et al. 2022). Regarding the species of the genus *Erebia*, until now 15 species have been recorded in an earlier survey in “Bjeshket e Nemuna” (JAKŠIĆ and ŽIVIĆ 1998, JAKŠIĆ 2006).

### Sampling

In the period from 2019 to 2021, several field trips were conducted to the mentioned locations. The research was carried out on warm and sunny days, mainly in the middle of the day during the months June, July, and August. The butterflies were collected with entomological nets, the species were mainly identified in the field and released back into nature, but some specimens were identified in the laboratory of zoology, in the Department of Biology (Faculty of Mathematics and Natural Sciences in Pristina, Kosovo), collected specimens have been spread and stored in the entomological boxes. Species identification was done according to TOLMAN and LEWINGTON (2008) and TSHIKOLOVETS (2011).

### Habitats

According to EUNIS classification, the habitat in Mokna Mt. where *E. alberganus* is recorded (20°14'26.74" N, 20°33'50.64" E) is *Abies and Picea* woodland (MILLAKU 1999). Southern European Norway spruce forests, outlying *Picea abies* formations of the Apennines, the southern Dinarides, the Balkan Range, and the Rhodopides, at the southern limit of the range of the species and mostly south of its continuous range (Figure 2a and Figure 2b).

Habitat and vegetation in Peklena Mt. where *E. alberganus* was collected (42°40'31.25" N, 20°14'12.10" E) is *Fagus* woodland (beech woodland). Forest dominated by beech species *Fagus orientalis* and other *Fagus* species in southeastern Europe and the Pontic region. Many montane formations are mixed beech-fir or beech-fir-spruce forests (EUNIS classification, 2020)



Fig. 2. Surveyed localities: *a, b* – Mokna Mt. 15 August 2021; *c, d* – Peklena Mt. 20 July 2019  
Source: photos by E. Kabashi Kastrati

## Results

*Erebia alberganus* (De Prunner 1798) was observed for the first time in the Peklena peak, on a hot and sunny day on July 20<sup>th</sup> 2019, on the roadside, near the bushes, where we found two specimens. After this period, the original habitat was destroyed due to the work for the construction of a new mountain road, which has caused habitat fragmentation and the disappearance of the species from this location. On, July 21<sup>st</sup> 2020, *Erebia alberganus* was observed in Mokna at an altitude of 1640 m, where two specimens are registered. Another specimen was found in the same place on August 15<sup>th</sup> 2021. Thus, from this research, in three years of surveys we have a total of five specimens of *Erebia alberganus*.

*Erebia alberganus* differ from other *Erebias* in wings pattern and coloration. They have mainly dark brown wings and almond shapes with black spots and white highlights (Figure 3). All markings are prominent and the species is overall easy to identify (LEWINGTON and TOLMAN, 2008).

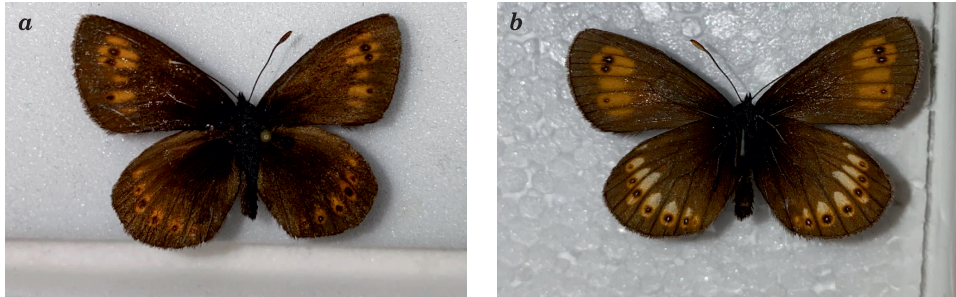


Fig 3. *Erebia alberganus*, male, Peklen, 20 July 2019, spread wings (dorsal view) and spread wings (ventral view)

## Discussion

This paper describes the first record of *Erebia alberganus* for the National Park Bjeshket e Nemuna, and first reliable data from Kosovo. There were some dilemmas that *E. alberganus*, registered by JAKŠIĆ (1988) in Sharri Mt., in the border of Kosovo with North Macedonia, was a record from Kosovo's territory, but the same author didn't include *E. alberganus* in his following publications on butterflies in Kosovo and Metohija (JAKŠIĆ and ŽIVIĆ 1998), nor in the Red Data Book of Serbian Butterflies (JAKŠIĆ 2003). For this reasons, the species was not included in previous lists of butterfly species of Kosovo. Recent publication on Butterflies in Sharr Mt. have confirmed the presence of *E. alberganus* in North Macedonia (MELOVSKI 2002, ABDIJA 2013, KRPAČ et al. 2021). Being present at the Ljuboten peak located at the border between the two countries, its presence is also expected on Sharr mountain range in Kosovo and pending to be confirmed.

*E. alberganus* was recorded in the same mountain range (Bjeshket e Nemuna) in Montenegro (FRANETA 2018), more precisely in the locality "Čakor pass" which is less than 5 kilometers from the border with Kosovo and 15–20 km from the new locality where we have observed the species, therefore its occurrence in our country is expected. In Serbia, *E. alberganus* is regularly reported from Stara planina Mt. (JAKŠIĆ 1996, POPOVIĆ et al. 2013, LANGOUROV, 2019) and has been recently found in Mokra Gora, a small part of Bjeshket e Nemuna Mts. in the southwestern (POPOVIĆ et al. 2020). According to POPOVIĆ et al. (2013), this species has an extremely fragmented distribution in the mountains of the Balkan Peninsula.

During our three-year research period we managed to register only five specimens of *E. alberganus*. In Peklena Mt, the species was observed only in the first year of the survey, when two specimens were collected.

After the habitat destruction the species was not recorded in 2020 and 2021. Even though the surveyed area is in the National Park which is protected by the Law, and also proclaimed as a Prime butterfly area, the threats for this species are evident. On the contrary, in Mokna Mt. the species was recorded during each year of the survey and the risk of habitat alteration here was much lower due to higher altitude. In the European Red List of Butterflies, *Erebia alberganus* (De Prunner, 1798) is considered LC (Least Concern) (VAN SWAY et al. 2010). Apart from the habitat destruction, possible threats for this species in Kosovo are high number of visitors in National parks and other mountain areas, fires caused by human carelessness, construction of houses and hotel facilities and climate changes.

## Conclusion

This research increased the number of *Erebia* species recorded for Kosovo and National Park “Bjeshkët e Nemuna”. With this record, the number of butterfly species in the Republic of Kosovo is 174.

During the realization of our research, we were witnesses to the effects of anthropogenic impact on the population of *E. alberganus* and the disappearance of the species from its original habitat. It is evident that habitat destruction has a negative impact on species status, therefore, we consider that much more rigorous management measures are needed to protect not only butterfly species in the National Park, but also its overall biodiversity, which is its most valuable asset.

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