

NEW DATA ON THE DISTRIBUTION OF LEPIDOPTERA IN MONTENEGRO, WITH A REVIEW OF ABERRANT FORMS

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ABSTRACT

During the three-year period of investigations, species from the families *Depressariidae* Meyrick, 1883, *Pyralidae* Latreille, 1809, *Crambidae* Latreille, 1810, *Lycaenidae* Leach, 1815, *Nymphalidae* Rafinesque, 1815, *Geometridae* Leach, 1815 and *Erebidae* Leach, 1815 were investigated. Investigations were carried out in 20 localities, distributed throughout the entire territory of Montenegro. Two species are listed for Montenegro for the first time: *Hypoxystis pluviaria* (Fabricius, 1787) and *Aspitates ochrearia* (Rossi, 1794).

Keywords: Lepidoptera, Montenegro.

INTRODUCTION

The moth fauna of Montenegro is still insufficiently surveyed. Only the area of NP “Durmitor” is well studied, thanks to the results of project “Fauna Durmitora”, which was realized in the period 1980 – 1996. Montenegro deserves special attention due to its rich biodiversity. In two biogeographical regions (Mediterranean, and Alpine) representatives of different fauna (Tertiary relicts, glacial relicts and modern elements) are present. With the publication of such data, the knowledge about the Lepidoptera fauna of Montenegro would be significantly increased.

In the period 2017 – 2020, field work was performed with the aim of recording key species of Lepidoptera for the needs of the project of implementation of Natura 2000 in Montenegro. On that occasion, in addition to the species from Annex II of Habitat Directive 92/43, other species of Lepidoptera were also sampled. We present part of the determined results in this paper.

MATERIAL AND METHODS

This survey was carried out at 20 localities, distributed throughout the entire territory of Montenegro (Table 1). Butterflies were collected in a classical way, using entomological nets. The moths were collected using “Philips” Mercury Vapour Standard HPL lamps and pyramidal light traps, which used white neon lights and UV neon lights, supported by “Ultracell” UL7-12 (12V 7AH/20HR) batteries. The photos were taken with a Nikon D 3200 camera. Taxonomic order and nomenclature uses the scheme according to Nieukerken (2011) and Wiemers (2018).

RESULTS AND DISCUSSION

Results for 22 species from seven families are shown. Among them, several species deserve special attention:
Family *Depressariidae* Meyrick, 1883

Ethmia chrysopygella (Kolenati, 1846), Grlja waterfall, 992 m, 5 May 2017., two males. [Name according to: Domingo et al. (2003)]

Family *Pyralidae* Latreille, 1809

Selagia spadicella (Hübner, 1796), Durmitor Mt., Žabljak, Meždo, 1376 m, 21 July 2017., one male. Genitalia checked, slide CG-2892.

Pempeliella ornatella ([Denis & Schiffermüller], 1775), Montenegro, Durmitor, Žabljak, 1450 m, 5 June 2017., one male. Genitalia checked, slide CG-2915. *Eurhodope rosella* (Scopoli, 1763), Durmitor Mt., Žabljak, 1376 m, 21 July 2017, one male.
Family *Crambidae* Latreille, 1810

Crambus hamella (Thunberg, 1788), Durmitor Mt., Žabljak, 1450 m, 5 June 2017, one male.

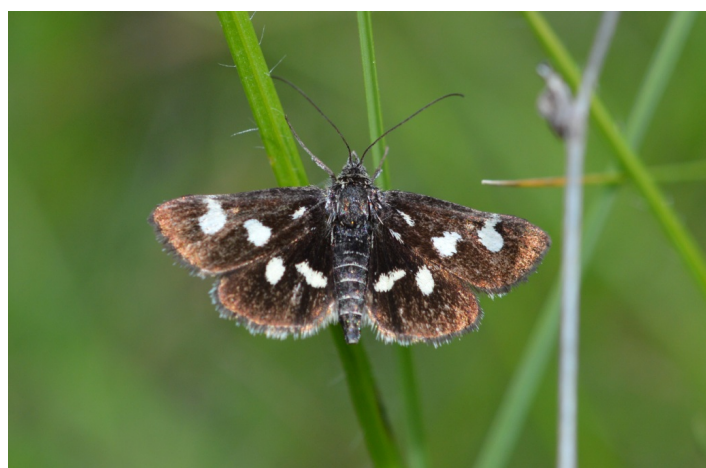


Figure 1. *Eurrhysis pollinalis* ([Denis & Schiffermüller], 1775).

Eurrhysis pollinalis ([Denis & Schiffermüller], 1775), Podgorica, Ćemovsko polje, 76 m, 2 June 2017., one male; Durmitor Mt., Goveđe jezero Lake, 1520 m, 6 June 2017, two males and

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Table 1. List of the visited localities in Montenegro, by chronological order.

LOCALITY and DATE	ELEVATION (m a.s.l.)	COORDINATES	
		Latitude	Longitude
		ϕ (N)	λ (E)
Grlja waterfall, 5 May 2017	992	42° 34' 07"	19° 49' 43"
Sušica River Canyon, 7 May 2017 and 3 June 2017	1.180	43° 11' 46"	19° 00' 18"
Podgorica, Cijevna River Canyon, 9 May 2017	38	42° 22' 50"	19° 16' 28"
Podgorica, Čemovsko polje, 2 June 2017	76	42° 24' 34"	19° 19' 51"
Žabljak, 5 June 2017	1.450	43° 09' 04"	19° 07' 54"
Komarnica, Nevidio, 6 May 2017	968	42° 59' 27"	19° 04' 03"
Pljevlja, Čehotina, 10 May 2017	671	43° 23' 20"	19° 10' 38"
Durmitor Mt., Goveđe jezero Lake, 6 June 2017	1520	43° 11' 27"	19° 06' 01"
Žabljak, Meždo, 21 July 2017	1.376	43° 08' 52"	19° 09' 09"
Durmitor Mt., Veliki Štuoc, 22 July 2017	1.930	43° 11' 08"	19° 03' 46"
Kom Vasojevički Mt., Trešnjevik, 23 August 2018.	1.303	42° 44' 14"	19° 41' 41"
Gusinje, Savini izvori (= Alipašini izvori), 25 June 2018	918	42° 32' 41"	19° 49' 28"
Bioč Mt., 10 July 2018 and 18 July 2018.	1.190	43° 11' 02"	18° 43' 51"
Maglić Mt., 11 July 2018	1.287	43° 15' 40"	18° 46' 14"
Bjelasica Mt., Jakovača, 15 July 2019	1.673	42° 51' 27"	19° 42' 03"
Mratinje, 21 July 2019	780	43° 15' 58"	18° 48' 19"
Obzir Mt., Meštrovac, 24 July 2019	1.419	43° 17' 07"	19° 02' 29"
Bijela Gora, Orjen Mt., 28 June 2020	974	42° 39' 05"	18° 36' 09"
Subra, Orjen Mt., 30 June 2020	1.167	42° 30' 46"	18° 33' 16"
Kutska Rijeka, Cecune, Andrijevisa, 9 July 2020	954	42° 38' 41"	19° 47' 08"

one female; Orijen Mt., Bijela Gora, 974 m, 28 June 2020., one female. (Fig. 1). Genitalia checked, slide DU-2935.



Figure 2. *Satyrium spini* f. *albosparsa* Oberthür, 1910).

Pyrausta nigrata (Scopoli, 1763), Komarnica, Nevidio, 968 m, 6 May 2017, one male.

Sitochroa verticalis (Linnaeus, 1758), Pljevlja, Čehotina, 671 m, 10 May 2017, two males

Anania funebris (Ström, 1768), Durmitor Mt., Sušica River Canyon, 1180 m, 3 June 2017, one female.

Family Lycaenidae Leach, 1815

Satyrium spini f. *albosparsa* Oberthür, 1910, Gusinje, Savini izvori (= Alipašini izvori), 918 m, 25 June 2018. (Fig. 2)

In this aberration the usual white line on the undersides of the wings has been expanded into a broad white band Tutt (1914).

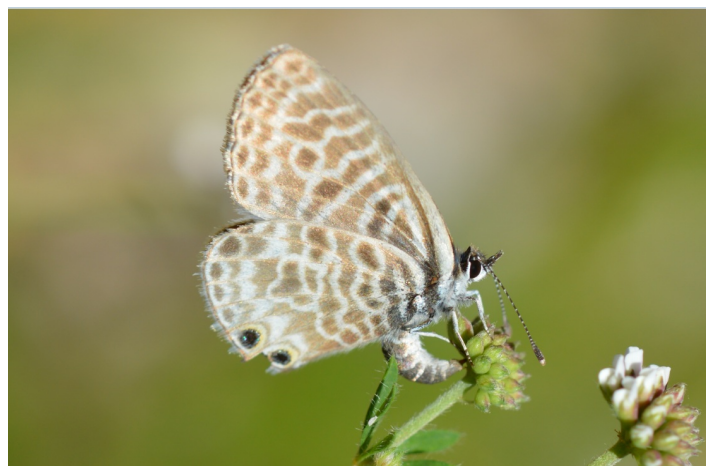


Figure 3. *Leptotes pirithous* Linnaeus, 1767.

Leptotes pirithous Linnaeus, 1767. Kutska Rijeka, Cecune, 954 m, Andrijevića, 9 Juli 2020. Female laying eggs. (Fig. 3)

Phengaris arion (Linnaeus, 1758), Maglič Mt., 1287 m, 11 July 2018, one female.



Figure 4. *Pseudophilotes vicrama schiffmuelleri* (Hemming, 1929).



Figure 5. *Erebia alberganus* (De Prunner, 1798).

Pseudophilotes vicrama schiffmuelleri (Hemming, 1929), Orjen Mt., Subra, 1167 m, 30 June 2020 (Fig. 4).

A specimen which lacked the usual basal ocellus of the typical form was recorded. There appears to be no name for this aberration Todisco et al. (2018).

Family Nymphalidae Rafinesque, 1815

Erebia alberganus (De Prunner, 1798), Bjelasica Mt., Jakovača, 1673 m, 15 July 2019, one female. (Figs. 5 & 6).

Erebia alberganus, first named by de Prunner in 1798, is named *E. albergana* by some authorities, eg Kudrna et al. (2015), following the Latin rule of adjectival agreement with the grammatical gender of the generic name. Franeta (2018) places *E. alberganus* as new to Montenegro, recorded by him in the Čakor Pass on 17 July 2017. However, Kudrna et al. (2015) had already noted this species in Montenegro. So, our finding on Bjelasica Mt. is the third record for this species in Montenegro.

Crna Gora Bjelasica Mt. Jakovača, 1673 m 15. juli 2019. Jakšić P. leg.

Figure 6. *Erebia alberganus* (De Prunner, 1798).

Erebia alberganus would appear to be a relict species, restricted, as it is, to warm grasslands and meadows, often sheltered by woodland, in mountainous regions Tolman & Lewington (2008). Thus it is found extensively in the Alps, but also exhibits a somewhat disjunct distribution overall, in the Apennine Mountains of Italy, the Cantabrian Mountains of N Spain and several isolated localities in the Balkans.



Figure 7. *Melanargia galathea* ab. *nigrata* Schröder, 1924.

Melanargia galathea ab. *nigrata* Schröder, 1924, Obzir Mt., Meštrovac, 1419 m, 24 July 2019, one male (Figs. 7 & 8).

This is a form which exhibits all-black forewings and ...”the hindwings equally darkened; only the pale basal patch and (pale) central band of patches stand out, although they are strongly blackish darkened. Frohawk’s *f nigrata* would appear to be to be the same form” Goodson & Read (1930-1950).

Family Lasiocampidae Harris, 1841

Malacosoma castrensis (Linnaeus, 1758), Mratinje, 780 m, 21 July 2019, one female.

Family Geometridae Leach, 1815

Colostygia aptata (Hübner, [1813]), Durmitor Mt., Žabljak, Meždo, 1387 m, 21 July 2017, one male. (Fig. 9)



Figure 8. *Melanargia galathea* ab. *nigrata* Schröder, 1924.



Figure 9. *Colostygia aptata* (Hübner, [1813]).

Widely distributed across the Palaearctic and has previously been found in other localities in the Balkans. This is a moth of dry, rocky, sunny grassland slopes and the fringes of forests, with poor soil, on mountains. The larvae feed on *Galium* spp Skou & Sihvonen (2015).

Already known species in Montenegro from several localities Tomić et al. (1990), but a very rare species.

Chesias rufata pinkeri Schawerda (1939), Durmitor Mt., Žabljak, 1450 m, 5 June 2017, one male. Genitalia checked, slide CG-2922.

Chesias rufata is a relatively common species, found locally across much of Europe, south of Scotland and Sweden, and also in North Africa. *C. rufata pinkeri* was originally believed to be a separate species, (Schawerda (1939), described on the basis of material from Ohrid in North Macedonia), and was later seen as a synonym of *rufata*; but it is now understood as a subspecies Hausman & Viidalepp (2012). *C.r. pinkeri* has been found sparingly across the western and southern Balkans. It is to be found on dry, open karst areas, where the larvae will feed on *Cytisus scoparius* or *Genista* spp. This is the second record of this taxon in Montenegro.

Hypoxystis pluviaria (Fabricius, 1787), Sušica River Canyon, 1180 m, 7 May 2017, two males, one female. Genitalia checked, slide CG-2894. (Fig. 10)



Figure 10. *Hypoxystis pluviaria* (Fabricius, 1787).

Distributed in Sweden and Finland and also eastern Europe to Siberia and Mongolia. Already known from Bosnia & Herzegovina and Republic of North Macedonia. This is a moth of wetlands, damp meadows, damp deciduous woodlands and woodland clearings, mostly at lower altitudes. The larvae are oligophagus, feeding on *Galium palustre*, *Cytisus scoparius*, *Senecio jacobaeae* and *Senecio nemorensis*. A new species for Montenegro.

Aspitates ochrearia (Rossi, 1794), Podgorica, Cijevna River Canyon, 38 m, 9 May 2017, one male.

Distributed in western and southern Europe. Already known from Bosnia & Herzegovina. The habitat of this moth is dry grasslands and dunes. The larvae eat a number of low-growing plants, including *Daucus carota*, *Plantago cornopus*, *Ononis* spp, *Linaria* spp, *Artimesia* spp, *Vicia tetrasperma* and *Crepis vesicaria*. A new species for Montenegro. (Fig. 11).



Figure 11. *Aspitates ochrearia* (Rossi, 1794).

Family Erebidæ Leach, 1815

Eilema pygmaeola (Doubleday, 1847), Durmitor Mt., Veliki Štuoc, 1930 m, 22 July 2017, one male. Genitalia checked, slide CG-2904 (Fig. 12).



Figure 12. *Eilema pygmaeola* (Doubleday, 1847).

Epatolmis luctifera ([Denis & Schiffermüller], 1775), Bioč Mt., 1190 m, 10 July 2018, one male.

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