

FIRST RECORD OF *BRENTHIS INO* (ROTTEMBERG, 1775) (LEPIDOPTERA; NYMPHALIDAE) AROUND ZAGREB, CROATIA

TONI KOREN¹ & MLADEN ZADRAVEC²

¹Vela Traba 5, 52000 Pazin, Croatia (e-mail: koren.toni1@gmail.com)

²Antuna Stipančića 12, 10 000 Zagreb, Croatia

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During a butterfly survey on the eastern slopes of Medvednica, in Vugrovec close to Zagreb, an interesting butterfly, *Brenthis ino* (Rottemburg, 1775) was observed. Although the butterfly fauna of Zagreb is well known and studied, this is the first record of this species around Zagreb. In this paper we discuss the finding of this rare species in a new locality, which extends the known range of the species in Croatia further to the north east.

Key words: Zagreb, Vugrovec, *Brenthis ino*, new record, habitat

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Tijekom istraživanja faune dnevnih leptira istočne padine Medvednice, u Vugrovcu, u okolici Zagreba, naišli smo na zanimljivog leptira *Brenthis ino* (Rottemburg, 1775). Iako je fauna leptira Zagreba vrlo dobro poznata i istražena, ovo je prvi nalaz u okolici Zagreba. U ovom radu raspravljamo o novom nalazu ove rijetke vrste, koji širi njen poznati areal rasprostranjenosti u Hrvatskoj na sjeveroistok.

Ključne riječi: Zagreb, Vugrovec, *Brenthis ino*, novi podatak, habitat

INTRODUCTION

In the last twenty years the knowledge of Croatian butterflies has greatly increased, mostly regarding the scope of the knowledge of species distribution and butterfly diversity in some regions. The presence of more than ten new species for Croatia has been recently confirmed; *Colias erate* (Esper, 1804) (LORKOVIĆ *et al.*, 1992) *Leptidea reali* (Lorković, 1993), *Zerynthia cerisy* (Godart, 1824) (SALA & BOLLINO, 1994), *Coenonympha oedippus* (Fabricius, 1787) (KUČINIĆ *et al.*, 1999), *Lycaena ottomanus* (Lefèvre, 1830) (MIHOČI *et al.*, 2005), *Polyommatus damon* (Denis & Schiffermüller, 1775) (MIHOČI *et al.*, 2006), *Danaus chrysippus* (Linnaeus, 1758) (PERKOVIĆ, 2006), *Maculinea*

alcon (Denis & Schiffermüller, 1775) (MIHOČI *et al.*, 2007), *Cacyreus marshalli* Butler, 1898 (KOSMAČ & VEROVNIK, 2009) and *Lasiommata petropolitana* (Fabricius, 1787) (MIHOČI & ŠAŠIĆ, 2009). Nevertheless, the butterfly fauna of Croatia is still far from well explored.

According to KARSHOLT & RAZOWSKI (1996) the Nymphalidae family in Europe counts altogether 217 species. In Croatia, only 85 species are present, including the latest finding of *Lasiommata petropolitana* (MIHOČI & ŠAŠIĆ, 2009).

The *Brenthis* genus is represented in Europe by three species: *Brenthis daphne* (Denis & Schiffermüller, 1775), *Brenthis hecate* (Denis & Schiffermüller, 1775) and *Brenthis ino* (Rottemburg, 1775), and all of them are present in the Croatian fauna. While *B. daphne* and *B. hecate* are quite common, *B. ino* is considered a rare species in Croatia according to MIHOČI & ŠAŠIĆ (2005).

The Lesser Marbled Fritillary (*B. ino*) is a univoltine species which flies in central and south Europe in June and early July. Eggs are laid singly primarily on *Filipendula ulmaria*, *F. petalana*, *Rubus chamaemorus*, *R. idaeus* and *Sanguisorba officinalis*. It can be usually found in damp forest places, close to bushes of light woodland, near rivers and marshes. Its larvae feed on flowers and leaves. It hibernates as an ovum or small larva (TOLMAN & LEWINGTON, 2008).

MATERIAL AND METHODS

Butterflies were collected by an entomological net in Vugrovec (X: 5586762, Y: 5081473), close to Zagreb on July 5th, 2009. All specimens are placed in a private butterfly collection (Koren – Ladavac) in Pazin.

Taxonomic determination of the collected butterflies was done according to TOLMAN & LEWINGTON (2008). The butterfly nomenclature was done according to the new European red list of butterflies: http://cmsdata.iucn.org/downloads/european_red_list_butterflies_new.pdf. The positions and coordinates at which the butterflies were caught were determined using Garmin e-Trex Vista GPS device.

RESULTS AND DISCUSSION

Only seven previous findings for *B. ino* in Croatia are known; Josipdol (MANN, 1867; ABAFI-AIGNER *et al.*, 1896), Plitvički Ljeskovac (KOČA, 1901; LORKOVIĆ, 2009), Žumberak Mountain – Sveta Gera & Slapnica (JAKŠIĆ, 1988; BOJANIĆ, 2001), Čedanaj (Kupa River valley) (MLADINOV, 1980), Velebit Nature Park – Sunderac, (MIHOČI & ŠAŠIĆ, 2005) and Karlovac (ŠPANIĆ, 2009) (Fig. 2).

Zagreb and the surrounding area were studied from the beginning of the 20th century by a great number of authors (VUKOTINOVIĆ, 1879; GRUND, 1908, 1916; GUSSICH, 1917; LORKOVIĆ, 1997) so it was difficult to expect any new finding of species around Zagreb. But during research into butterflies at different localities on the eastern slopes of Medvednica in spring and summer of 2009, one specimen of *B. ino* was observed and collected. Apart from *B. ino*, at the same locality we also found *B. daphne* and *B. hecate* (Fig. 1). *B. daphne* was by far the commonest species with more than 10 observed specimens, followed by *B. hecate* with 6 specimens. The *B. ino*

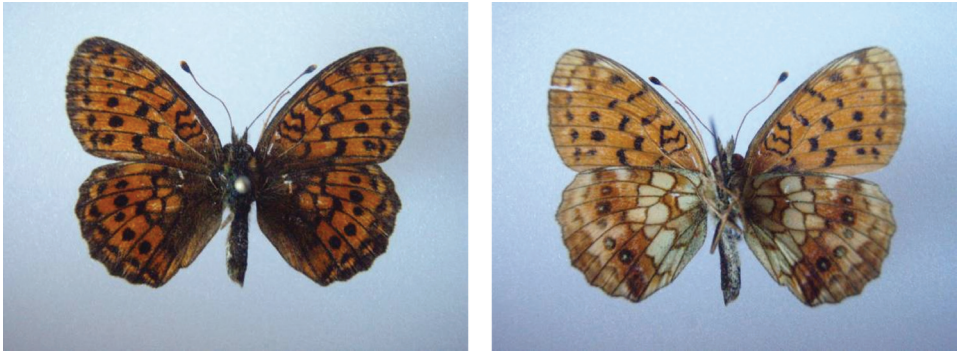


Fig. 1. Forewing and hindwing upper- and under-sides of *Brenthis ino* (Rottemburg, 1775) (collected in Vugrovec, Zagreb (photo: T. Koren))



Fig. 2. The distribution of the Lesser Marbled Fritillary (*Brenthis ino* Rott.) in Croatia. Grey circles represent old findings, and the black circle represents the new finding in Vugrovec.

specimen was found near the forest edge of a wet meadow, close to the main road that leads to Vugrovec (Fig. 3). The meadow is surrounded by a forest and a small stream and was once agricultural land, according to the local inhabitants. Although much effort was devoted to finding *B. ino* in nearby meadows and localities (Bednik, Krč), no other specimens were found.



Fig. 3. The meadow in Vugrovec where *Brenthis ino* (Rottemburg, 1775) was found (Photo: T. Koren)

At the same locality other butterfly species were observed; the papilionids *Iphiclides podalirius* (Linnaeus, 1758) and *Papilio machaon* Linnaeus, 1758, *Pieris mannii* (Mayer, 1851), *Pieris rapae* (Linnaeus, 1758), *Pieris napi* (Linnaeus, 1758), *Colias crocea* (Geoffroy, 1785), *Aphantopus hyperantus* (Linnaeus, 1758), *Argynnis paphia* (Linnaeus, 1758), *Boloria dia* (Linnaeus, 1767), *Coenonympha pamphilus* (Linnaeus, 1758), *Hamearis lucina* (Linnaeus, 1758), *Maniola jurtina* (Linnaeus, 1758), *Melanargia galathea* (Linnaeus, 1758), *Melitaea didyma* (Esper, 1778), *Melitaea phoebe* (Denis & Schiffermüller, 1775), *Aricia agestis* (Denis & Schiffermüller, 1775), *Celastrina argiolus* (Linnaeus, 1758), *Polyommatus icarus* (Rottemburg, 1775), *Ochlodes sylvanus* (Esper, 1777), *Thymelicus sylvestris* (Poda, 1761) and *Pyrgus malvae* (Linnaeus, 1758).

The locality in Vugrovec have provided the first record of this species around Zagreb, and is the most north-eastern site in Croatia. The closest known site of *B. ino* is in Žumberak Mountain (JAKŠIĆ, 1988; BOJANIĆ, 2001) around 70 km away. That shows that the distribution of *B. ino* in Croatia is still far from well known and further efforts will be needed to establish a more accurate distribution of this species in Croatia.

As only a single specimen of this species was observed at that site, additional visits will be required, possibly at earlier dates in June. Since the species has recent records only from four sites, these should also be re-checked to evaluate possible threats and the risk of local extinctions.

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SAŽETAK

Prvi nalaz vrste *Brenthis ino* (Rottemburg, 1775) (Lepidoptera, Nymphalidae) u okolini Zagreba, Hrvatska

T. Koren & M. Zadavec

Tijekom istraživanja faune dnevnih leptira istočne padine Medvednice, u Vugrovcu u okolini Zagreba, naišli smo na jednu jedinku leptira *Brenthis ino* (Rottemburg, 1775). Ovaj je nalaz zanimljiv zbog toga što je ova vrsta u Hrvatskoj do sada zabilježena na samo sedam lokacija; Josipdol (MANN, 1867; ABAFI-AIGNER *et al.*, 1896), Plitvički Ljeskovac (KOČA, 1901, LORKOVIĆ, 2009), Žumberačka gora – Sveta Gera & Slapnica (JAKŠIĆ, 1988; BOJANIĆ, 2001), Čedanjan (dolina Kupe) (MLADINOV, 1980), Park Prirode Velebit – Sundđerac, (MIHOCI & ŠAŠIĆ, 2005); Karlovac (ŠPANIĆ, 2009), a nalaz u Vugrovcu je najsjeveroistočniji nalaz do sada (Fig. 2). Dodatnu važnost ovome nalazu daje to što se istraživani lokalitet, Vugrovec, nalazi u neposrednoj blizini grada Zagreba, čija je fauna leptira već dulje vrijeme vrlo dobro poznata i istražena (VUKOTINOVIĆ, 1879; GRUND, 1908, 1916; GUSSICH, 1917; LORKOVIĆ, 1997). Unatoč tome ova vrsta u Zagrebu nije do sada nikada potvrđena. Na istom lokalitetu nađene su i preostale dvije vrste roda *Brenthis*, *B. daphne* i *B. hecate* (Fig. 1), i to u znatno većoj brojnosti nego *B. ino*. Daljnjim istraživanjem okolnih i udaljenih lokaliteta (poput Krča i Bedenika) nije pronađena niti jedna jedinka vrste *B. ino*. To ukazuje da je ova vrsta rijetka čak i na lokalitetu u Vugrovcu. Buduća istraživanja trebala bi biti usmjerena na daljnje istraživanje okolice Zagreba u svrhu utvrđivanja prisutnosti ove vrste i na nekim drugim lokacijama. Osim toga trebalo bi procijeniti da li ova vrsta, s obzirom na mali broj lokaliteta na kojima je pronađena, treba biti smještena na Crveni popis dnevnih leptira Hrvatske.