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THE FALSE RINGELT (*Coenonympha oedippus* F.) IS A MEMBER OF THE CROATIAN BUTTERFLY FAUNA AFTER ALL

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The discovery of the butterfly False Ringelt (*Coenonympha oedippus* F.) in two localities in Istria, between Marušići, Vranjak and Šterna (VL02, VL03) and in the valley of the Mirna Valley near Buzet (VL12) has reconfirmed this species as a member of the fauna of Croatia. At the same time, a review of the collection of the Croatian Natural History Museum has shown that specimens catalogued as *C. oedippus* from Mt Velebit are either not from Croatia or belong to the species *Aphantopus hyperantus*. There is an urgent necessity to establish the precise range and size of the population and the degree of threat to it, and to undertake legislative and active measures for the conservation of the remaining habitats of this butterfly in Croatia, since it is one of the most endangered animal species in Europe.

Key words: *Coenonympha oedippus*, butterflies, threatened species, Istria, Croatia

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Otkrićem danjeg leptira močvarnog okaša (*Coenonympha oedippus* F.) u Istri na dva lokaliteta između sela Marušići, Vranjak i Šterna (VL02, VL03), te u dolini rijeke Mirne uz Buzet (VL12), ova vrsta je potvrđena kao član faune Hrvatske. Istovremeno je pregledom zbirke Hrvatskog prirodoslovnog muzeja za primjerke publicirane kao *C. oedippus* s planine Velebita utvrđeno da ili nisu iz Hrvatske ili da pripadaju vrsti *Aphantopus hyperantus*, tako da su naši nalazi prvi dokumentirani nalazi za Hrvatsku. Hitno treba utvrditi točni areal, veličinu i ugroženost populacija, te poduzeti zakonske i aktivne mjere zaštite svih preostalih staništa tog leptira u Hrvatskoj, jer se radi o jednoj od najugroženijih životinjskih vrsta u Europi.

Ključne riječi: *Coenonympha oedippus*, danji leptiri, ugrožene vrste, Istra, Hrvatska

INTRODUCTION

KOLAR (1929) was the first to suppose that the False Ringelt, *Coenonympha oedippus* F., lives in Croatia. In a review of the distribution of the species known at the

time, as well as in Trebević in Bosnia, later disputed by Sijarić (1984), and Strunjan (Strugnano) in the Slovene part of Istria, he wrote that the False Ringelt also probably came to the vicinity of Pula ("Angeblich soll *oedipus* auch bei Pola vorkommen"). MLADINOV (1973) in the Catalogue of Butterflies of Croatia of the National Zoological Museum in Zagreb (today the Zoological Department of the Croatian Natural History Museum) wrote that there were 11 specimens of the False Ringelt with labels: Velebit, July 1908 and 1912, inv. nos. 5426–5437, all from the Taborsky collection. In the same collection, which the amateur lepidopterologist and city senator D. Taborsky gave to the then National Museum in Zagreb, there are also specimens with dubious finding locations, for example, *Erebia stirius* Godt. from (Isl.?) Vis! All unconfirmed species from similar collections, without a precise locality, are omitted from the list of Croatian butterflies (LORKOVIĆ, unpublished MS). SIJARIĆ (1978, 1984) and JAKŠIĆ (1988) in their surveys for the former Yugoslavia state that the False Ringelt lives only in Slovenia. SIJARIĆ (1984) wrote that Kolar's date for Strunjan (UL94) had not been confirmed after 1900. JAKŠIĆ (1988), according to data from older literature recorded this species for the Dragonja valley (three UTM squares of 10 x 10 km: UL83, UL93, VL03) as well as for the areas around Ljubljana and Gorica. ČELIK & REBEUŠEK (1996) confirm only an unnamed locality close to the mouth of the Dragonja River (UL93), and also cite UTM square UL94; very likely this is the locality Nova Vas near Portorož, where Z. Lorković and

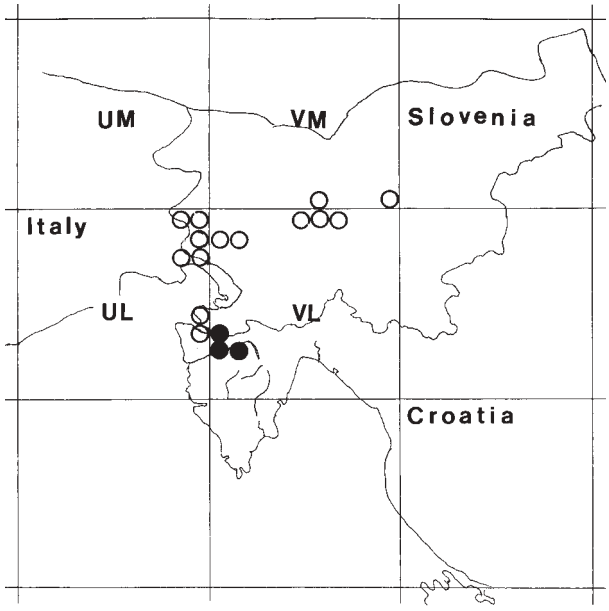

Fig. 1. The distribution (points) of the False Ringelt established in northern Istria (Croatia) together with localities already known in neighbouring Slovenia (circles) according to ČELIK & REBEUŠEK (1996). Only individual squares (UTM 10 x 10 km) of the finds are marked.

Schaider found the butterfly in 1980. Since the finds along the Dragonja are right by the Croatian frontier, and the species is on the list of threatened animals of the world (GROOMBRIDGE, 1994), we have made an effort to investigate some habitats suitable for this species in the Croatian part of Istria.

MATERIAL AND METHODS

On June 16 and June 24 1999 we had the opportunity to make a tour of the wet flysch-geology valleys in northern Istria and look over potential habitats in the area of Pula. Adult butterflies were caught by the classical method with an entomological net. Specimens of *Coenonympha oedippus* are kept in the Croatian Natural History Museum in Zagreb, inventory nos 9300 – 9306. All entomological collections of the Zoology Department of the Croatian Natural History Museum in Zagreb were also scrutinised, i.e., the Gušić, Igalffy and Lorković collections, as well as those specimens that were marked *C. oedippus* in the catalogue of the Central Butterfly Collection (MLADINOV, 1973). The collections of the Zagreb Faculty of Forestry were also examined, and the Koščec butterfly collection of the Varaždin Municipal Museum. Identification according to morphological characteristics of the wings was done according to SCHW. BUND FÜR NATURSCHUTZ (1987) and TOLMAN & LEWINGTON (1997), while checks on possibly disputable specimens were done by making genital preparations (M. Kučinić) and identification according to HIGGINS (1975) and JAKŠIĆ (1998).

RESULTS

On the very first field trip in northern Istria on June 16 (Fig. 1) around the hamlet of Bazuja by the brook of the same name not far from the village of Marušići (VL02) at 245 m a.s.l. we came upon a population of *C. oedippus* (Fig. 2) on a wet meadow between cultivated fields. The meadow was partially overgrown with several bushes and reeds (*Phragmites communis*), while of other plants, apart from the grass *Molinia caeruleus* and the sedges (*Carex* sp.), there were many *Epipactis palustris* orchids, as well as ribwort plantain (*Plantago lanceolata*). A large number of False Ringelt imagoes were sheltering from the rain in the reeds and bushes. On June 24 we looked in more detail over the area along Bazuja brook and determined *C. oedippus* to be distributed over the whole 3 km long valley up towards the source below the village of Vranjak (VL03). In the same habitat, *Heteropterus morpheus* Pall., *Artogeia mannii* May., *Leptidea sinapis* L., *Colias crocea* Geoff. in Four, *Melitaea didyma* Esp., *Melanargia galathea* L., *Coenonympha arcania* L. and *C. pamphilus* L. were caught too. To the east of Marušići towards Zrenje there are six more flysch valleys stretching north-south, all with brooks ending in swallow holes. Going round Jugovski brook, not far from the village of Štern, we found several specimens of False Ringelt, yet by Malinska brook, near Čepić, we found only the also endangered species *Heteropterus morpheus*. The False Ringelt was found at localities twenty kilometers

Fig. 2. Photograph of the False Ringelt (*Coenonympha oedippus* F.) from a locality near Buzet (Istria, Croatia). Photo: B. Jalžić.

off, alongside the right edge of the Mirna River valley from Buzet (VL12) to its entry into the karst canyon towards Istarske Toplice. There were two localities also on flysch and on water meadows, which were already quite overgrown with bushes, for mowing is clearly no longer done.

Looking over the Central Collection of Rhopalocera of the Zoological Department of the Croatian Natural History Museum, it was found that of the 11 alleged specimens of *C. oedippus* (MLADINOV, 1973), but only four belonged to the Taborsky Collection (nos. 5436 – 28, 5437). Two were from Moosbrun, Lower Austria, from 1906 and 1908, and a third with an illegible label (Au?ay) and with two labels with differently marked years of catching (1906, 1908). A fourth, a male, had a label marked Velebit (no. 5426) and the date June 9, 1912. This specimen was wrongly identified: a careful examination of the markings on the wings and the genital preparation showed that it belonged to the morphologically similar species *Aphantopus hyperantus* L. The other specimens are from the Locke Collection: no. 5429 is from Switzerland, and nos. 5430 – 5436 have no locality marked. The False Ringelt was found neither in other collections inspected nor in a purposeful search in the neighbourhood of Pula. On June 24 one of the last extant swamps, Velika Budava, was searched, but without success.

DISCUSSION

Looking through the specimens from the collections of the Zoological Department of the Croatian Natural History Museum in Zagreb it was definitely confirmed that *C. oedippus* has never been found on Mt. Velebit, as assumed by SIJARIĆ (1984). Nor was the record of KOLAR (1929) about a possible finding place near Pula confirmed, our finds of the species from northern Istria thus probably being the very first in Croatia.

Finds in the last seven years of *Coenonympha oedippus* and of three species more: *Colias erate* Esp. (LORKOVIĆ *et al*., 1992), *Leptidea reali* Reiss. (LORKOVIĆ, 1993) and *Zerynthia cerisy* God. (SALA & BOLLINO, 1994), previously unknown in Croatia, have shown that the Rhopalocera fauna of Croatia is not yet thoroughly known. It can be assumed that during further research three or four more species of butterfly will be discovered for Croatian fauna. It is essential, however, as soon as possible to map the habitats of the most endangered of the known species, especially those related to wet meadows, which are most directly exposed to anthropogenic influences. There are no concrete data about how endangered these species really are, or about the population ecology of individual species, especially about the sizes and natural fluctuations in the sizes of populations. Protection plans, in concert with neighbouring Slovenia, should be urgently drawn up for some of the species, such as *C. oedippus* in Istria, and the rich butterflies fauna of the Kupa valley (LORKOVIĆ & MLADINOV, 1971) and Žumberak (Gorjanci) Mts. These border areas are marked by a good deal of biological diversity thanks to their varied underlying geology and their geomorphology, their exceptional biogeographical position and the complex history of colonisation. In the Croatian part, because of the relatively sudden changes in land use (both grazing and mowing have stopped) there have been abrupt changes in the habitats, which can threaten the survival of species the populations of which are restricted to narrow areas on either side of the frontier.

HEATH (1981) determined the status of *C. oedippus* in Europe as *endangered* (*EN*), while GROOMBRIDGE (1994) put the butterfly on the list of the most threatened species of the world. ČELIK & REBEUŠEK (1996) also consider it an endangered species in the fauna of neighbouring Slovenia. The species is only known from some isolated localities in Slovenia, and is extinct in Germany, Styria, the Czech Republic and Slovakia. It is endangered because of land drainage and grassland improvement in its primary habitats, which are natural and semi-natural wet lowland *Molinia* meadows on the edges of bogs and streams (HEATH, 1981). Accordingly, in Croatia this species needs legislative protection and an urgent conservation plan.

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SAŽETAK

Močvarni okaš (*Coenonympha oedippus* F.) je ipak član faune danjih leptira Hrvatske

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Iako je još KOLAR (1929) pretpostavio da močvarni okaš (*Coenonympha oedippus* F.) živi u Hrvatskoj, a MLADINOV (1973) ga navodi za planinu Velebit, on je dosad bio izostavljen iz popisa leptira Hrvatske (LORKOVIĆ, rukopis; SIJARIĆ 1978, 1984; JAKŠIĆ, 1988). Pregledom središnje zbirke danjih leptira Zoološkog odjela Hrvatskoga prirodoslovnog muzeja utvrđeno je da su podaci koje je objavila MLADINOV (1973) netočni, a pregledom ostalih entomoloških zbirki da nema dokaznih primjeraka ove vrste za Hrvatsku. Kako je močvarni okaš zabilježen u susjednoj Sloveniji za dolinu Dragonje (ČELIK & REBEUŠEK, 1996) koja je neposredno uz granicu s Hrvatskom, a leptir se nalazi na popisu najugroženijih životinjskih vrsta Europe (GROOMBRIDGE, 1994), u lipnju 1999. godine obišli smo u Istri dio vlažnih livada na kojima bi on mogao živjeti. U dva terenska istraživanja pronađen je ovaj izrazito stenotopični leptir u flišnoj dolini uz potok Bazuja između sela Marušići (VL02) i Vranjak (VL03), uz Jugovski potok nedaleko sela Šterna, te na dva lokaliteta uz desni rub doline Mirne između Buzeta (VL12) i krškog kanjona prema Istarskim Toplicama.

Osim što je ovim nalazom povećan broj poznatih vrsta danjih leptira Hrvatske, on bi trebao biti poticaj za buduća istraživanja točnijeg rasprostranjenja, ekologije i stupnja ugroženosti močvarnog okaša u Hrvatskoj. Zbog relativno naglih promjena u gospodarenju (prestanak ispaše i košnje livada), dolazi do nagle izmjene staništa i mogli bismo uskoro ostati bez ove u Europi ugrožene (EN) vrste, pa su ovakva istraživanja nužni preduvjet ukoliko želimo zadržati sadašnju biološku raznolikost. Vrstu bi odmah trebalo zakonski zaštititi, a nakon provedenih istraživanja izraditi i provesti potrebni akcijski plan zaštite njenih staništa, što bi trebalo koordinirati sa susjednom Slovenijom.