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AN INTERESTING SPECIMEN OF *Leptidea duponcheli* (Staudinger, 1871) IN THE CENTRAL BUTTERFLY COLLECTION OF THE CROATIAN NATURAL HISTORY MUSEUM IN ZAGREB

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A specimen of the Eastern Wood White *Leptidea duponcheli* (Staudinger, 1971) collected on the island of Unije in 1964 and deposited in the Central Butterfly Collection of the Croatian Natural History Museum in Zagreb is analyzed. The analysis shows, so far, that *Leptidea duponcheli* Staud. cannot be considered a member of the Croatian butterfly fauna, although it might be found in the Mediterranean part of Croatia, on the Croatian islands or in southern Croatia (Konavle region).

***Leptidea duponcheli*, Croatia, island Unije**

M. KUČINIĆ, D. PELIĆ, M. VAJDIĆ i B. GJURAŠIN, Zanimljiv primjerak *Leptidea duponcheli* (Staudinger, 1871) u Središnjoj zbirci danjih leptira Hrvatskog prirodoslovnog muzeja u Zagrebu: Entomol. Croat. 2009, Vol. 13. Num. 1: 95 - 100

Pregledom Središnje zbirke danjih leptira Hrvatskog prirodoslovnog muzeja u Zagrebu utvrđen je jedan primjerak leptira koji je određen kao vrsta *Leptidea duponcheli* Staud. Budući da ova vrsta nije zabilježena na području Hrvatske, navedeni primjerak koji je prema podacima na etiketi prikupljen na otoku Unije, bio bi prvi nalaz ove vrste u fauni Hrvatske.

Nalazi većeg broja novih vrsta danjih leptira u fauni Hrvatske u posljednjih 15-tak godina ukazuju da je moguć nalaz i nekih drugih, manje očekivanih vrsta u našoj fauni, pa tako i vrste *L. duponcheli* Staud. Ti nalazi mogu se očekivati u mediteranskom području posebice na području otoka i juga Hrvatske (Konavle). Osim toga, promjena klimatskih značajki koja je očita i

na prostoru Hrvatske zasigurno će dovesti do promjena i u našoj fauni. Neke će se nove vrste koje šire svoje areale ili su introducirane s tropskih ili subtropskih područja pojaviti i postati sastavni element naše faune. S druge strane, neke koje su elementi hrvatske faune, ako se ne uspiju prilagoditi na novonastale uvjete, gotovo će sigurno nestati s ovog područja. Zbog toga, je u našoj fauni moguć i nalaz vrste *L. duponcheli* Staud., ali za sada na temelju analiziranog primjerka iz Središnje zbirke danjih leptira Hrvatskog prirodoslovnog muzeja u Zagrebu nije je moguće brojati kao element faune Hrvatske.

***Leptidea duponcheli*, Hrvatska, otok Unije**

Posvećeno akademiku Zdravku Lorkoviću (autori)
Dedicated to Academician Zdravko Lorković (the authors)

Introduction

There are four European species in the *Leptidea* genus: *Leptidea duponcheli* (Staudinger, 1871), *Leptidea morsei* (Fenton, 1881), *Leptidea reali* Reissinger 1989 and *Leptidea sinapis* (Linnaeus, 1758). The *Leptidea* genus is a member of Dimorphiinae subfamily, Pieridae family. The main features of the species are: white oblong fore- and hind-wings, distinct apical markings on the fore-wings in the spring and summer broods (especially males), seasonal and sexual dimorphism and a different number of broods per year according to the climatic characteristics in the distribution areas of the different species (Tolman & Lewington, 2008).

So far, there are 192 butterfly species recorded in the Croatian fauna (Mihoci & Šašić, 2009). In the last 15 years, 11 new species of butterflies were found in Croatia: *Zerynthia cerisyi* subspecies *dalmaciae* Sala & Bollino, 1994 (Sala & Bollino, 1994), *Leptidea reali* Reissinger, 1899 (Lorković, 1993), *Colias erate* (Esper, 1805) (Lorković et al., 1992), *Lycaena ottomanus* (Lefèbvre, 1830) (Mihoci et al., 2005), *Cacyreus marshalli* (Butler, 1898) (Kosmač & Verovnik, 2009), *Maculinea alcon* (Dennis & Schiffermuller, 1775) (Šašić, 2004; Mihoci et al., 2007), *Agrodiaetus damon* (Dennis & Schiffermuller, 1775) (Mihoci et al., 2006), *Danaus chrysippus* (Linnaeus, 1758) (Perković, 2006), *Lasiommata petropolitana* (Fabricius, 1787) (Mihoci & Šašić, 2009), *Coenonympha oedippus* (Fabricius, 1787) (Kučinić et al., 1999) and *Hipparchia aristaeus* subspecies *senthes* (Frühstorfer, 1908) (Micevski & Micevski 2004/05; Withrington & Verovnik, 2008) (according to systematics by Tolman & Lewington, 2008).

Results and Discussion

In a review of the Central Butterfly Collection of the Croatian Natural History Museum in Zagreb, we found one butterfly specimen identified as *Leptidea duponcheli* Staud. This species has, so far, not been recorded in the Croatian fauna, so the specimen identified as *Leptidea duponcheli* Staud., with the label Unije island, collected in 1964 would represent the first find of this species in Croatia. (Figure 1).

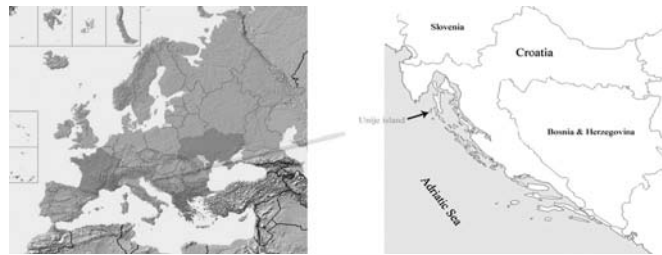


Figure 1. Presence of *Leptidea duponcheli* Staud. in Europe (in green), absence in Europe (in pink) (according to www.faunaeur.org) and doubtful data for *L. duponcheli* Staud. for island Unije, Croatia (map modified according to Fauna Europaea)

During 90s of the 20th et Prof. Zdravko Lorković worked on the taxonomy and distribution of species *Leptidea reali* Reiss. and *L. sinapis* L. (Lorković, 1993). He also helped us in analysing the specimen collected on the island of Unije, as well as the characteristics of entomological pin of that specimen. We concluded that the pin was same as the pin of specimens of *L. duponcheli* collected in same period. This specimen was collected in 1965, in Ohrid (Macedonia) and deposited in the same museum collection. Professor Lorković also confirmed the validity of the specimen identification as *Leptidea duponcheli* Staud. from the island Unije, although he was truly doubtful that the species could have been found on Unije island. May be that specimen from the “Unije island” was collected in Macedonia and has entomological label with wrong data. This is one of the possibilities.

In the 1960s employees of the Croatian Natural History Museum in Zagreb (Lidija Mladinov, Konstantin Igalfy, Alojz Magerle) conducted entomological research on several Croatian islands (Pag, Male Srakane, Vele Srakane, Susak,

Unije) and senior curator Lidija Mladinov published several papers on the lepidopteran fauna of the islands (Mladinov, 1960/61, 1965, 1967; Mladinov & Herman, 1964). In the paper on diversity of lepidopteran fauna of Unije island (Mladinov, 1967), as well as in the Catalogue of the Central Butterfly Collection of CNHM Zagreb (Mladinov, 1973), the find of *Leptidea duponcheli* Staud. is not given. Information on the specimen label is also confusing as the precise collecting date is not specified (only September 1964, Unije island, Magerle); it is even more confusing when we know that the morphological characters of the collected specimen of *Leptidea duponcheli* Staud. imply the first, spring brood and not the second, summer brood. The first, spring brood specimens are easily distinguishable from the summer brood by a specific grey colour of the upper side and greenish under side of the hind-wings. The upper side is slightly yellowish in the summer brood (Lafranchis, 2004). The morphological specificity of *L. duponcheli* Staud. is a dark grey and brown antennal club and vein 1 of fore-wing with a hump below the cell (Lafranchis, 2004).

During a field trip in 20 - 21 July 1998 on Unije island (B. Gjurašin, D. Pelić, M. Vajdić, M. Kučinić) in order to collect once more and reconfirm *L. duponcheli* Staud., only *Leptidea sinapis* L. was recorded (unpublished data). We can conclude, based on the previously stated facts, that the information on the label on the Unije specimen deposited in the Central Butterfly Collection of the Croatian Natural History Museum Zagreb is probably wrong.

Leptidea duponcheli Staud. is a Mediterranean-Asian species with disjunctive distribution in Europe, from south-eastern France, north-western Italy to the eastern distribution area in the southern Balkan Peninsula, Turkey, northern Iraq, northern and southern Iran and Transcaucasus (Tolman & Lewington, 2008). Species have two or three broods per year; the first, spring brood (adults April-May) and the second, summer brood (adults June-July). Typical habitats of the species are hot, dry, sunny and bushy places, dry grasslands and woodland margins and rocky gullies (Lafranchis, 2004; Tolman & Lewington, 2008). Oviposition plants are *Lathyrus aphaca*, *L. pretense* and *Lotus uliginosus* (Tolman & Lewington, 2008). Ova are usually laid on the upper side of leaves and larvae feed on leaves. *Leptidea duponcheli* Staud. hibernates in the pupal stage (Tolman & Lewington, 2008).

The most interesting recent finds in the Croatian butterfly fauna are three species: *Danaus chrysippus* L. (Perković, 2006), *Hipparchia aristaeus senthes* Für.

(Micevski & Micevski 2004/05; Withrington & Verovnik, 2008) and *C. marshalli* But. (Kosmač & Verovnik, 2009). The butterfly *D. chrysippus* L. is a migrant species that entered Croatia most probably from South Europe (Greece) or North Africa. *C. marshalli* butterfly is distributed across Europe. It originates from South Africa, and it was introduced to the Balearic islands (Mallorca) for the first time in 1990. due to its invasive characteristics it fastly spread across Europe (Tolman & Lewington, 2008). The most surprising and doubtful is the finding of *H. a. senthes* Für. on the island Cres, because the nearest finding sites of this species are Corsica on the east or Albania in the south (Tolman & Lewington, 2008). The presence of this species should be proved by future studies in Croatia.

These data do indicate the possibility of less expected species being found in the Croatian fauna, therefore *L. duponcheli* Staud. as well as *L. duponcheli* might perhaps found in the Mediterranean part of Croatia, especially the southern Croatian islands and the Konavle region. Climate change will induce further changes in the distribution of fauna in Croatia as well, so some tropical or subtropical species, while spreading north, will become a component (integral) part of Croatian fauna. By the same token, our native species, unable to adapt to changing ecological and climatic conditions, could eventually disappear.

Accordingly, *L. duponcheli* Staud. could be found in Croatia; however, an analysis of the specimen deposited in the Central Butterfly Collection, of the Croatian Natural History Museum in Zagreb indicates that nowadays *L. duponcheli* cannot be considered a member of the Croatian butterfly fauna. According to these hypotheses, *L. duponcheli* will become the object of future systematic faunistic research, which could result in the finding of additional new butterfly, moth and other insect species in the Croatian fauna.

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