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GRECIAN COPPER *LYCAENA OTTOMANUS* (LEFÈBVRE, 1830) (LEPIDOPTERA, LYCAENIDAE) – A NEW SPECIES IN THE CROATIAN BUTTERFLY FAUNA

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This article presents the first data about the presence of the species Grecian Copper *Lycaena ottomanus* (Lefèbvre, 1830) (Lycaenidae, Lycaeninae) in Croatia. For the first time, the species was recorded on Snježnica Mountain (south-eastern Croatia, southern Dalmatia), in Kuna Konavoska village (720 a.s.l.) on June 30, 2005. The first record of the species was reconfirmed on the next field trip on July 13, 2005. Including *L. ottomanus* the Croatian butterfly fauna has 188 species in total.

Key words: *Lycaena ottomanus*, Lycaenidae, fauna, Croatia

Mihoci, I., Tvrtković, N. & Šašić, M.: Grčki plavac *Lycaena ottomanus* (Lefèbvre, 1830) (Lepidoptera, Lycaenidae) – nova vrsta danjeg leptira u fauni Hrvatske. *Nat. Croat.*, Vol. 14, No. 4., 255–262, 2005, Zagreb.

U radu se navodi prvi nalaz vrste *Lycaena ottomanus* (Lefèbvre, 1830) (Lycaenidae, Lycaeninae) u Hrvatskoj. Vrsta je pronađena 30. lipnja 2005. godine u mjestu Kuna Konavoska na 720 metara nadmorske visine na Snježnici (jugoistočna Hrvatska, južna Dalmacija), a njezina prisutnost potvrđena je terenskim istraživanjem faune leptira istog područja i u srpnju iste godine. To je 188. vrsta na popisu danjih leptira u fauni Hrvatske.

Ključne riječi: *Lycaena ottomanus*, Lycaenidae, fauna, Hrvatska

INTRODUCTION

The 1989 list of butterfly fauna of Croatia (LORKOVIĆ, 1989) included 183 species. Published data about finds of new species for the butterfly fauna of Croatia in the last 15 years have shown that Croatian Rhopalocera fauna is not yet thoroughly

known. In 1989 *Colias erate* (Esper, 1805) was found in northern Croatia, along the whole 250 km-long valley of the Drava River, from Erdut to the city of Varaždin (LORKOVIĆ *et al.*, 1992). The presence of *Leptidea reali* Reissinger, 1989 (=lorkovici Real) ssp. *melanogyna* nov. in Croatian fauna was published by LORKOVIĆ (1993) according to the type material collected in the years 1925–1993 in Zagreb, Samobor, Turopolje, Koprivnica and Hrvatsko Zagorje. In May 1989 Italian entomologists found *Allancastria cerisyi* (Godart, 1824) ssp. *dalmacijae*, new endemic subspecies for the Croatian fauna near the city of Makarska (SALA & BOLLINO, 1994). The discovery of *Coenonympha oedippus* (Fabricius, 1787) at two localities in Istria in 1999 has confirmed this species as a member of the butterfly fauna of Croatia (KUČINIĆ *et al.*, 1999).

The Grecian Copper *Lycaena ottomanus* (Lefèbvre, 1830) is the 188th species on the list of butterfly fauna of Croatia.

According to TOLMAN & LEWINGTON (1997) the Grecian Copper *Lycaena ottomanus* (Lefèbvre, 1830) is distributed in »south-western Serbia (Montenegro: Vipatar), the Republic of Macedonia, Albania, Bulgaria and Greece«. Previously many authors (DE LA NICHOLL, 1899; CARNELUTTI & MICHIELI, 1958; BRETHERTON *et al.*, 1966, 1973; SIJARIĆ & MIHLJEVIĆ, 1973; SIJARIĆ, 1984, 1991) wrote about the presence of *L. ottomanus* at several localities in Montenegro. The species has also been recorded in Turkey (HESSELBARTH *et al.*, 1995). In the entire area of distribution the species is relatively widespread but often very local (TOLMAN & LEWINGTON, 1997).

The status of the Grecian Copper in Bosnia and Herzegovina is still uncertain. According to Jakšić's provisional distribution maps of the butterflies of former Yugoslavia (JAKŠIĆ, 1988) and his contribution as compiler in the Red Data Book of European Butterflies (Rhopalocera) (VAN SWAAY & WARREN, 1999), KUDRNA (2002) and Fauna Europaea (<http://www.faunaeur.org/>) *L. ottomanus* is present in Bosnia and Herzegovina. In contrast, previous scientific studies (APFELBECK, 1892; DE LA NICHOLL, 1899, 1902; REBEL, 1904; SCHAWERDA, 1906; SIJARIĆ, 1966, 1978, 1980) or recent published works (LELO, 2000; 2004) on the Rhopalocera fauna of Bosnia and Herzegovina have not stated or proved the presence of *L. ottomanus* in this country.

The Grecian Copper *Lycaena ottomanus* (Lefèbvre, 1830) is believed to be extinct in Hungary (VAN SWAAY & WARREN, 1999; LAFRANCHIS, 2004). It was not mentioned in the Preliminary List of Butterflies of Hungary (BALINT, 1991) or in the Distribution Atlas of European Butterflies from KUDRNA (2002).

Despite previous faunistic researches and systematic studies of the Lepidoptera fauna of southern Dalmatia *L. ottomanus* has not previously been found. At the beginning of the 19th century, GERMAR (1817) visited Dalmatia and Ragusa (=Dubrovnik) and at the end of the century DE LA NICHOLL (1899) visited Ragusa and Sebenico in Dalmatia as well as Montenegro and Bosnia and Herzegovina. M. De La Nicholl did not find the Grecian Copper in the investigated area in Dalmatia and Bosnia and Herzegovina (she found three males and one female only close to Cetinje in Montenegro). In the 20th century GUSSICH (1917), BURGERMEISTER (1964) and HABELER (1976) in their multiannual systematic studies of the Lepidoptera fauna of Dalmatia (south Dalmatia, area of Dubrovnik, Gravosa /= Gruž/, Mlini and Komolac) did not establish the presence of the *L. ottomanus* at the mentioned

localities. Minor contributions to the Rhopalocera fauna of the same area were given by GIBBS (1913), HAIG-THOMAS (1931) and NEW (1966) but also without any record of the Grecian Copper.

As some of the surrounding areas (primarily the neighbourhood of Montenegro) have established the Grecian Copper as a member of their fauna and according to geographical and ecological conditions of southern Dalmatia we anticipated the possible presence of the same species in Croatian fauna.

MATERIAL AND METHODS

Adult specimens of *L. ottomanus* were observed on June 30th, 2005 and July 13th, 2005 in southern Dalmatia. The specimens, collected by the classical method with an entomological net (three males and one female), are kept in the Department of Zoology of Croatian Natural History Museum in Zagreb. Of the four collected specimens of *L. ottomanus*, one male – Inv. No. 9313 and one female – Inv. No. 9314 are kept in the Central Butterfly Collection in the Department of Zoology of CNHM. Determination of the species regarding morphological characteristics of the wings was done according to TOLMAN & LEWINGTON (1997). Nomenclature and systematics are done according to KARSHOLT & RAZOWSKI (1996).

RESULTS AND DISCUSSION

The species *L. ottomanus* was discovered in the karst *polje* in Kuna Konavoska village at 720 a.s.l. on Mt Sniježnica (Fig. 1) on June 30, 2005.

Grecian Copper habitats are dry, hot and sunny places, often among bushes (TOLMAN & LEWINGTON, 1997) or according to VAN SWAAY & WARREN (1999) dry calcareous grasslands and steppes, phrygana and sclerophyllous scrubs. At the researched locality in Kuna Konavoska village adult butterflies were fluttering over flowers of the Ground Clematis (*Clematis recta* L.) on a meadow surrounded with Hop Hornbeam (*Ostrya carpinifolia* Scop.) and Flowering Ash (*Fraxinus ornus* L.). Only a few males (Fig. 2) and one female (Fig. 3) were observed. The larval host-plant Sheep Sorrel (*Rumex acetosella* L.), and the Knotweed (*Polygonum aviculare* L.), accepted in captivity (TOLMAN & LEWINGTON, 1997), were not recorded probably due to previous meadow haymaking.

The behavioural pattern reported of the rarity of females, even in colonies where males are abundant, was confirmed with our observations on both field trips, but no detailed studies have been performed. According to TOLMAN & LEWINGTON (1997) this is due to females retiring to different parts of their habitat after reproduction and also because of relatively subdued female activity.

The following butterfly species were also observed in June and July 2005 in the habitat of *L. ottomanus*, in Kuna Konavoska village: *Iphiclides podalirius* (Linnaeus, 1758); *Aporia crataegi* (Linnaeus, 1758), *Pieris mannii* (Mayer, 1851), *Pieris rapae* (Linnaeus, 1758), *Colias croceus* (Fourcroy, 1758), *Gonepteryx rhamni* (Linnaeus, 1758);



Fig. 1. Kuna Konavoska (720 a.s.l) on Mt Sniježnica – locality of the Grecian Copper *Lycaena ottomanus* (Lefèbvre, 1830) in Croatia.

Satyrium spini (Denis & Schiffermüller, 1775), *Satyrium ilicis* (Esper, 1779), *Celastrina argiolus* (Linnaeus, 1758), *Polyommatus coridon* (Poda, 1761); *Argynnis aglaja* (Linnaeus, 1758), *Argynnis adippe* (Denis & Schiffermüller, 1775), *Brenthis daphne* (Denis & Schiffermüller, 1775); *Lasiommata megera* (Linnaeus, 1767), *Lasiommata maera* (Linnaeus, 1758), *Maniola jurtina* (Linnaeus, 1758), *Melanargia larissa* (Geyer, 1828), *Brintesia circe* (Fabricius, 1775), *Satyrus ferula* (Fabricius, 1793), *Hipparchia syriaca* (Staudinger, 1871), *Hipparchia semele* (Linnaeus, 1758); *Thymelicus sylvestris* (Poda, 1761), *Thymelicus acteon* (Rottemburg, 1775), *Charcharodus lavaterae* (Esper, 1783) and *Ochlodes venata* (Bremer & Grey, 1853). All these species were represented by a higher number of specimens than the Grecian Copper population.

L. ottomanus is listed in the Red Data Book of European Butterflies (VAN SWAAY & WARREN, 1999) as species of global conservation concern (SPEC 1) restricted to Europe and considered globally threatened and vulnerable (VU). The present distribution class (as the percentage of the total number of investigated grid squares in Eu-



Fig. 2. *Lycaena ottomanus* (Lefèbvre, 1830) – fore-wing and hind-wing uppersides and undersides (♂), specimen collected on June 30th, 2005 in the Kuna Konavoska village (photo: I. Mihoci)



Fig. 3. *Lycaena ottomanus* (Lefèbvre, 1830) – fore-wing and hind-wing uppersides and undersides (♀), specimen collected on July 13th, 2005 in the Kuna Konavoska village (photo: I. Mihoci)

rope where the species is reported after 1980) of the species in Europe is lower than 1% and population abundance has decreased by 20–50% over the last 25 years (VAN SWAAY & WARREN, 1999).

At the researched locality on Mt Snježnica, the Grecian Copper reaches the western border of its area of distribution in Europe. Therefore, future investigation studies of *L. ottomanus* will be focused on determining the complete distribution, ecology, behavioural pattern and threat status of this species in Croatia. Research might also necessitate the inclusion of this species on the Red Data List of Croatian butterflies.

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SAŽETAK

**Grčki plavac *Lycaena ottomanus* (Lefèbvre, 1830)
(Lepidoptera, Lycaenidae) – nova vrsta danjeg leptira
u fauni Hrvatske**

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Do posljednjeg objavljenog broja danjih leptira za faunu Hrvatske (LORKOVIĆ, 1989) zabilježene su 183 vrste. U zadnjih petnaestak godina za faunu danjih leptira pronađeno je još nekoliko vrsta: *Colias erate* (Esper, 1805) (LORKOVIĆ, SILADJEV & KRANJČEV, 1992), *Leptidea reali* Reissinger, 1989 (*lorkovici* Real) ssp. *melanogyna* nov. (LORKOVIĆ, 1993), *Allancastria cerisyi* (Godart, 1824) ssp. *dalmacijae* (SALA & BOLLINO, 1994), *Coenonympha oedippus* (Fabricius, 1787) (KUČINIĆ *et al.*, 1999) i našim terenskim istraživanjem *Lycaena ottomanus* (Lefèbvre, 1830). Na popisu danjih leptira imamo ukupno 188 vrsta.

Grčki plavac *L. ottomanus* zabilježen je prvi puta na prostoru Hrvatske u južnoj Dalmaciji u mjestu Kuna Konavoska na 720 metara nadmorske visine na planini Sniježnici u lipnju 2005. te ponovo u srpnju iste godine.

Prijašnjim istraživanjima faune leptira južne Dalmacije, posebice Dubrovnika, Konavala i okolice grčki plavac nije bio pronađen (GERMAR, 1817; DE LA NICHOLL, 1899; GIBBS, 1913; GUSSICH, 1917; HAIG-THOMAS, 1931; BURGERMEISTER, 1964; NEW, 1966; HABELER, 1976), vjerojatno zato što je u čitavom arealu poznat samo u manjim izoliranim kolonijama (TOLMAN & LEWINGTON, 1997). Područje rasprostranjenja vrste u Europi proteže se od Crne Gore, Albanije, Makedonije, Bugarske i Grčke (TOLMAN & LEWINGTON, 1997) do Turske (HESELBARTH *et al.*, 1995). Status vrste u Bosni i Hercegovini je nejasan jer pregledom prijašnjih znanstvenih istraživanja (APFELBECK, 1892; DE LA NICHOLL, 1899, 1902; REBEL, 1904; SCHAWERDA, 1906; SIJARIĆ, 1966, 1978, 1980) kao i nedavno objavljenih radova (LELO, 2000; 2004) o fauni danjih leptira Bosne i Hercegovine vrsta nije navedena, dok je s druge strane Jakšić navodi za Hercegovinu u »Privremenim kartama rasprostranjenosti dnevnih leptira« bivše Jugoslavije (JAKŠIĆ, 1988) kao i u svom prilogu za faunu BiH u Crvenoj knjizi danjih leptira Europe (VAN SWAAY & WARREN, 1999). Prisutnost vrste u Bosni i Hercegovini navodi i KUDRNA (2002) kao i »Fauna Europaea« (<http://www.faunaeur.org/>).

Grčki plavac navodi se u Crvenoj knjizi danjih leptira Europe (VAN SWAAY & WARREN, 1999) kao osjetljiva vrsta (VU) koja je globalno ugrožena (SPEC 1). Populacija *L. ottomanus* u Hrvatskoj predstavlja zapadnu granicu areala ove vrste u Europi stoga bi u budućim istraživanjima naglasak trebao biti na utvrđivanju stvarnog rasprostranjenja i karakteristika staništa, te svih čimbenika koji utječu na rasprostranjenje i ugroženost, kao i statusa vrste koja bi mogla biti ugrožena na prostoru Hrvatske.