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THE DISTRIBUTION OF THE GENUS *CHERSOTIS* BOISDUVAL, 1840 (INSECTA, LEPIDOPTERA, NOCTUIDAE) IN CROATIA

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The distribution of the genus *Chersotis* in Croatia is shown. Four species have been registered in Croatian fauna: *Chersotis multangula* (Hübner, 1803), *C. margaritacea* (Villers, 1789), *C. elegans* (Eversmann, 1843) and *C. cuprea* (Denis & Schiffermüller, 1775). The species *C. cuprea* D. & S. has now been registered for the first time in Croatian fauna, and *C. multangula* Hüb. has been re-registered in the fauna of Dalmatia, i. e. for the Mediterranean region of Croatia.

Key words: *Chersotis*, distribution, Croatia

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Prikazana je rasprostranjenost roda *Chersotis* na području Hrvatske u čijoj je fauni zabilježeno četiri specijesa: *Chersotis multangula* (Hübner, 1803), *C. margaritacea* (Villers, 1789), *C. elegans* (Eversmann, 1843) i *C. cuprea* (Denis & Schiffermüller, 1775). Vrsta *C. cuprea* D. & S. zabilježena je prvi put u fauni Hrvatske, a *C. multangula* Hüb. ponovo u fauni Dalmacije, odnosno mediteranskom području Hrvatske.

Ključne riječi: *Chersotis*, rasprostranjenost, Hrvatska

INTRODUCTION

There are 18 species of the genus *Chersotis* in European fauna (FIBIGER & HACKER, 1990; FIBIGER, 1993). It is a Palearctic genus, with one species which has a Holarctic type of distribution. There are five species registered in Africa, and four of them are registered in Europe as well (FIBIGER, 1993). The genus was described by

Boisduval (1840), based on the typical species *C. rectangula* (Denis & Schiffermüller, 1775). A revision was done by Boursin (1954), who included 36 species into the genus *Chersotis*. According to recently collected data, there are 52 species of this genus known (FIBIGER, 1993). *Chersotis* species live mostly in xerothermophilic habitats. They hibernate mostly as larvae. Feeding plants are various species from the genera *Vicia*, *Trifolium*, *Plantago*, *Galium*, *Asperula*, *Cirsium* etc.

MATERIAL AND METHODS

During our work on this paper, several collections were examined: the Croatian Natural History Museum collection and collections of the Municipal Museum of Varaždin and of the Faculty of Forestry in Zagreb, as well as an extensive lepidopterological literature: ABAFI-AINGER (1910), ABAFI-AINGER *et al.* (1896), BARTOL *et al.* (1964), BOHATCH (1891), BURGERMEISTER (1964), GALVAGNI (1902, 1909, 1934), KOČA (1900, 1901, 1925), KUČINIĆ (1992), MANN (1867), MLADINOV & KUČINIĆ (1993), SCHAWERDA (1921), STAUDER (1925) etc.

The material determination was obtained according to the standard literature on the genus *Chersotis*: (FIBIGER, 1993, 1997), FORSTER & WOHLFAHRT (1971), KOCH (1988), RÁKOSY (1996), SKINNER (1986). The analysis of morphological characteristics of male genitalia, and biology and species distribution data were obtained according to: (FIBIGER, 1993, 1997), HACKER & VARGA (1990), NOWICKI & FIBIGER (1996), RÁKOSY (1996).

RESULTS

According to FIBIGER (1993) and FIBIGER & HACKER (1990), there are 18 species of the genus *Chersotis* in European fauna.

Through an analysis of literature and of entomological collections from the Croatian Natural History Museum (coll. Središnja, coll. Lorković, coll. Igalffy, coll. Kučinić), the Municipal Museum of Varaždin (coll. Košćec) and the Faculty of Forestry in Zagreb (coll. Badovinac), it has been established that there are four species of this genus in Croatian fauna. Elementary biological data and data on findings in Croatia for each species are given (Fig. 1).

Chersotis multangula (Hübner, 1803)

Xerothermophilic species, hibernates as larva, feeding plants are most often from the genus *Galium* as well as various grasses. This species was found in Croatia only in the Kordun region, Bosiljevo locality. The data originate from the Središnja coll. of the CNHM. According to the literature data, it was found only in the central highland region of Croatia, in the Josipdol locality (MANN, 1867). The research recorded *C. multangula* for the Mt. Biokovo area, the first finding of this species in Dalmatia (MLADINOV & KUČINIĆ). It is rather common on Mt. Bio-

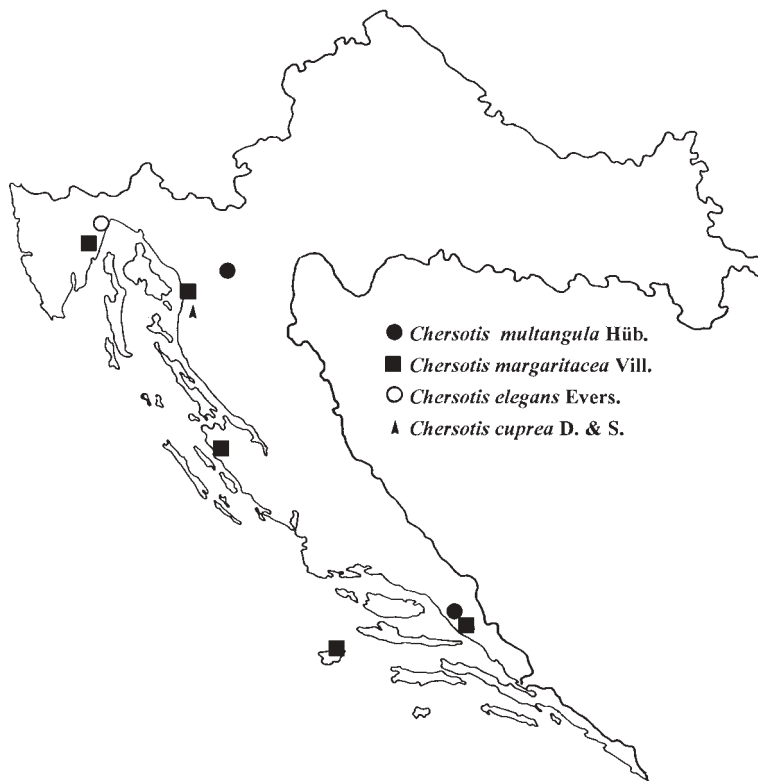


Fig. 1. Distribution of genus *Chersotis* in Croatia.

kovo and has been recorded on the following localities: 1100 m, 27. VII. 1995.; Lađena – 1270 m, 24. VII. 1995., Pod Sv. Jurom – 1600 m, 24. VII. 1994.

In European fauna *C. multangula* has been recorded in Central and Southern Europe (NOWICKI & FIBIGER, 1996).

C. margaritacea (Villers, 1789)

Xerothermic Asian-Mediterranean species. There were no data on findings of it in the collections examined. According to literature data, it was found on Mt. Učka, and in the Senj, Zadar and Vis areas (STAUDER, 1925) and the Vis area (GALVAGNI, 1909). Field research confirmed this species for the Mt. Biokovo area. It was found there repeatedly in the following localities: Trajna ploha – 1450 m, 14. IX. 1990.; Pod Sv. Jurom – 1600 m, 28. VIII. 1990.

C. margaritacea is distributed in Central and Southern Europe (NOWICKI & FIBIGER, 1996).

C. elegans (Eversmann, 1843)

There were no specimens found in the collections examined. Literature data refer only to the Mt. Učka area, and no exact localities are given (STAUDER, 1925). There were no specimens found in the material from Turopolje, Biokovo Mt., the lower part of the Neretva river and the Žumberak highlands either. In Europe it was recorded only in Spain, Portugal, Switzerland, Bulgaria and Greece (NOWICKI & FIBIGER, 1996).

C. cuprea (Denis & Schiffermüller, 1775)

There were no data in the literature confirming this species for Croatian fauna. Five specimens were discovered during an analysis of noctuids from the Lorković collection (Fig. 2). All of them were collected in the Velebit Botanical Garden, situ-



Fig. 2. *Chersotis cuprea* D. & S.,
(Zavižan – 1435 m, 17.VIII.1984; coll. Lorković) (photo I. Lajtner).

ated in the north of Mt. Velebit, near the Zavižan mountain lodge, on 1435 m a.s.l. The findings originate from 17. VIII 1984 (leg. Z. Lorković). Previously, this species was not registered in Croatian fauna. It was registered in Bosna and Hercegovina by REBEL (1904), and in Slovenia by CARNELUTTI (1992).

C. cuprea has been established by this research as a new species in Croatian fauna. *C. multangula* was registered for the first time in Dalmatia, i. e. in the Mediterranean region of Croatia.

DISCUSSION

According to the literature and the collections examined, there are four species of the genus *Chersotis* in Croatian fauna. The research shows that species from this genus are relatively rare in Croatian fauna, in both the literature and the collections. No species from the genus *Chersotis* were registered in thorough faunistic research by KRANJČEV (1985), who noted more than 290 noctuid species in the Podravina region, nor in that of Mladinov, who noted more than 140 species for the lower part of the Kupa river (MLADINOV, 1977, 1978, 1983, 1990). There are also no records of *Chersotis* species in the survey of Knin in 1934 (CARNELUTTI 1994, HAFNER 1994). It is similar with the extensive research of BURGERMEISTER (1964) and SCHWINGENSCHUB & WAGNER (1925 – 1927) in southern Croatia, and of Kovačević and Franjević-Oštrc in some forest associations in various parts of Croatia (KOVAČEVIĆ & FRANJEVIĆ-OŠTRC 1978). SCHAWERDA (1921) also does not mention *Chersotis* species in his list of moths of the coastal part of Croatia.

These facts all show that there are very few data on the *Chersotis* genus in Croatian fauna. This may be attributed to *Chersotis* species preference for xerophilic mountain habitats (FIBIGER, 1993), which have not been systematically investigated in Croatia.

Chersotis cuprea was registered for the first time in Croatian fauna on the basis of a paper by HACKER & VARGA (1990), who also give a detailed review of the distribution of some *Chersotis* species and all of their subspecies. The authors do

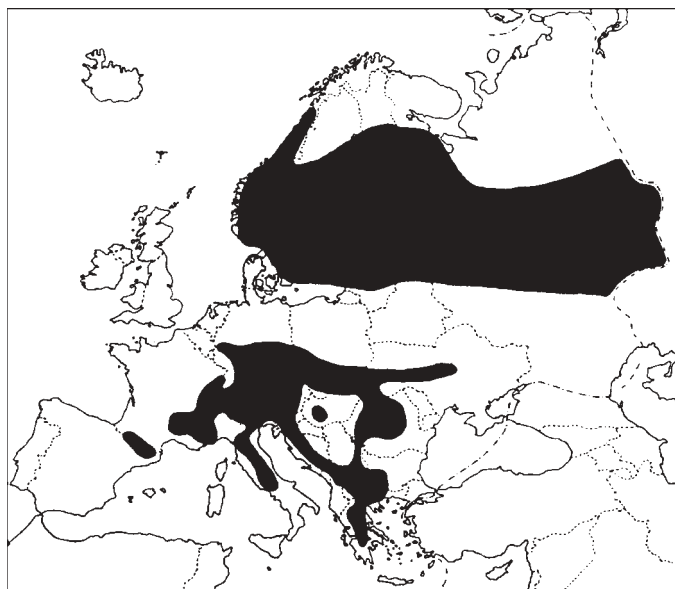


Fig. 3. Distribution of species *Chersotis cuprea* D. & S. in Europe (FIBIGER, 1993).

not mention Croatia in the *C. cuprea* distribution area, although they mention »Jugoslawien«. In a monograph on the noctuids of Europe, FIBIGER (1993) refers to this particular paper (HACKER & VARGA 1990) when he includes Croatia in the *C. cuprea* distribution area. No particular localities in Croatia are mentioned by these sources; thus we consider the specimens from the Lorković collection to be the first for this region. *C. cuprea* is also found in the fauna of Slovenia (CARNELUTTI, 1992), as well as in that of Bosnia and Herzegovina (REBEL, 1904), so the data from Mt. Velebit complete our knowledge of the species' distribution area in this region (Fig. 3).

Based on our knowledge of the distribution of all European species (CARNELUTTI, 1992; FIBIGER, 1993, NOWICKI & FIBIGER, 1996), we assume that other species of the genus *Chersotis* can be expected in Croatia, primarily *C. fimbriola* (ESPER, 1783) and *C. laeta* (REBEL, 1904).

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SAŽETAK

Rasprostranjenost roda *Chersotis* Boisduval, 1840 (Insecta, Lepidoptera, Noctuidae) u Hrvatskoj

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Od 52 poznate vrste roda *Chersotis* (FIBIGER, 1993) u europskoj fauni registrirano je 18 (FIBIGER & HACKER, 1990). Palearktičkog je tipa rasprostranjenja sa samo jednom holoarktičkom vrstom. Vrste iz ovog roda žive većinom na kserotermofilnim staništima. U radu je prikazana rasprostranjenost roda *Chersotis* na području Hrvatske u čijoj su fauni zabilježene četiri vrste: *Chersotis multangula* Hüb., *C. margaritacea* Vill., *C. elegans* Evers. i *C. cuprea* D. & S. (Fig.1). Vrsta *C. cuprea* D. & S. (Fig. 2) zabilježena je prvi put u fauni Hrvatske, a *C. multangula* Hüb. ponovno u fauni Dalmacije, odnosno mediteranskom području Hrvatske. Od preostalih vrsta iz tog roda na području Hrvatske realno je očekivati vrste *Chersotis fimbriola* Esp. i *C. laeta* Reb.