

FAUNAL AND ZOOGEOGRAPHICAL REVIEW OF THE LEPIDOPTERA COLLECTION OF THE FACULTY OF FORESTRY, UNIVERSITY OF ZAGREB, PART I: NOCTUIDAE (INSECTA: LEPIDOPTERA)

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Kučinić, M. & Hrašovec, B.: Faunal and zoogeographical review of the Lepidoptera collection of the Faculty of Forestry, University of Zagreb, Part I: Noctuidae (Insecta: Lepidoptera), Nat. Croat., Vol. 8, No. 1., 27–47, 1999, Zagreb

During the last ten years, through efforts comprehensively to describe the biodiversity of the lepidopteran fauna of Croatia, systematic analysis of various collections has yielded significant faunal contributions on this group of insects. This paper gives faunal and zoogeographical data on the lepidopterous collection of Faculty of Forestry in Zagreb. Because of the broadness of this collection only data on the family Noctuidae is given, since other lepidopterous groups, chiefly Rhopalocera, Bombyces & Sphinges, Geometridae & Microlepidoptera, are presently being analyzed and will be presented in due time. 1200 specimens were taxonomically checked and among these 164 species were determined. From the faunal viewpoint, *Orthosia populeti* Fab. and *Hyssa cavernosa* Ever. were the two most interesting species. The dominance of Eurasian species reflects the fact that most of the collection sites are situated in the inland regions of Croatia.

Keywords: Collection, Noctuidae, Lepidoptera, Faculty of Forestry, Croatia

Kučinić, M. & Hrašovec, B.: Faunistički i zoogeografski prikaz lepidopterološke zbirke Šumarskog fakulteta Sveučilišta u Zagrebu, dio I: Noctuidae (Insecta: Lepidoptera), Nat. Croat., Vol. 8, No. 1., 27–47, 1999, Zagreb

Zbog utvrđivanja bioraznolikosti faune leptira Hrvatske u posljednjih se desetak godina sustavno obrađuju neobrađene entomološke zbirke u kojima se nalazi značajni materijal za poznavanje faune leptira pojedinih dijelova Hrvatske. Ovim radom prikazuju se faunističke i zoogeografske značajke lepidopterološke zbirke Šumarskog fakulteta u Zagrebu. Zbog opsežnosti zbirke iznose se rezultati obrade porodice Noctuidae, a preostali dio zbirke koji obuhvaća skupine: Rhopalocera, Bombyces i Sphinges, Geometridae i Microlepidoptera, prikazat će se u sljedećem radu. Obradeno

je 1200 primjeraka sovica i utvrđene su 164 vrste. Faunistički najzanimljiviji su nalazi vrsta *Orthosia populeti* Fab. i *Hyssa cavernosa* Ever. Budući da je većina primjeraka prikupljena u kontinentalnom području Hrvatske, dominantan je udio euroazijskih zoogeografskih elemenata.

Ključne riječi: zbirka, Noctuidae, Lepidoptera, Šumarski fakultet, Hrvatska

INTRODUCTION

During the last ten years, due to an extensive review of Croatian lepidopterous species, methodical research has been performed on previously undescribed entomological collections which contain material of great value for the better knowledge of lepidopterous fauna from certain parts of Croatian territory. Consequently, data on species geographical distribution, their biological characteristics and finally, about their faunal composition as a whole are expanded on a national basis. Up to date, only part of the Central collection at the Croatian Natural History Museum (CNHM in subsequent text), covering Hesperiiidae, part of Macroheterocera from the Igalffy collection (KUĆINIĆ, 1992; KUĆINIĆ *et al.*, 1994) and smaller part of the Lorković collection (KUĆINIĆ & LORKOVIĆ, 1998) has been analyzed. In addition, the Košćec collection from the Municipal Museum Varaždin has been described by KUĆINIĆ & BREGOVIĆ (1996) and KUĆINIĆ *et al.* (1997).

The entomological collection of the Faculty of Forestry in Zagreb was founded at the beginning of the century. Apart from its scientific value, its cultural role is equally important since it has provided an educational resource to many generations of forestry students. Some parts of it date from the beginning of the century (Badovinac collection) and are still in very good condition. The collection covers all the insect orders and a small part of it is involved directly in the entomology classes. A large part of the collection is formed by specimens of the order Lepidoptera. This large order is mostly organized as a separate collection. Since there exist almost no published data covering this important collection, research was started with the intention of publishing the valuable data on collected Lepidoptera through past decades. The species collected originate either from the Badovinac collection (built up by the former member of Faculty staff, Zvonimir Badovinac) or from periodic field collecting done by researchers of the Forest Protection and Wildlife Management Department. Because of the extensiveness of the collection only the Noctuid family is presented in this paper. The remaining taxa of the order Lepidoptera, including Rhopalocera, Bombyces & Sphinges, Geometridae and Microlepidoptera are currently being analyzed and the results will be published later.

MATERIALS AND METHODS

For each determined species the locality of origin, date of collecting and zoogeographical characteristics are given. Taxonomic determination was done according to: BERIO (1985, 1991), FIBIGER (1990, 1993, 1997), HACKER (1989), KOCH (1988), RÁKOSY (1996), REZBANYAI-RESER (1985), RONKAY & RONKAY (1994, 1995) and SKINNER (1986). Along with the use of taxonomic keys, comparative research was done with

the CNHM collection of HesperIIDae & Macroheterocera. Additionally, more than 20 genital preparations were morphologically analyzed and a taxonomical determination was made according to: BERIO (1985, 1991), FIBIGER (1997), FORSTER & WOHLFAHRT (1971), RÁKOSY (1996) and RONKAY & RONKAY (1994, 1995). Taxonomic classification was assembled according to FIBIGER & HACKER (1990) and zoogeographical characteristics according to HACKER (1989) and RÁKOSY (1996). Because of certain technical problems, in this paper we did not use the latest systematics of Noctuidae according to NOWACKI & FIBIGER (1996). Biological characteristics of *Orthosia populi* Fab. and *Hyssa cavernosa* Ever. are given according to RÁKOSY (1996), and their spatial distribution in Europe according to NOWACKI & FIBIGER (1996).

Many species from the Badovinac collection carry labels indicating areas of Zagreb (e. g. Cmrok, Dolje, Josipovac, Jurj. ul. = Jurjevska ulica, Kraljevac, Maksimir, Medul. ul. = Medulićeva ulica, Moš. ul. – Mošinsk. ul. = Mošinskijeva ulica, today Nazorova ulica (LORKOVIĆ, 1976), Podsused, Prekrižje, Remetinec, Rokovo groblje, Tuškanac, Zelengaj). In such cases, the city of Zagreb is given in parentheses. A similar principle was obeyed with species originating from the nearby mountain Medvednica (e. g., Adolfovac – about 500 m; Kraljičin zdenac – 529 m; Rudnik – about 900 m; Sljeme – 1035 m, the highest peak) and with one locality on Kalnik mountain (Vratno). All localities in Zagreb or on Mt. Medvednica are charted as single entities since they lie relatively close in geographical terms (Fig. 1). All data referring to collecting localities which are given in parenthesis are not derived from the original labels but were added to depict more clearly the position of a collection site (Grubišno Polje, Mt. Kalnik, Mt. Medvednica, Slavonski Brod, Zagreb). A significant number of collected species from Mt. Kalnik are not precisely labeled with respect to the exact collection site but it can be assumed that most of the material came from Vratnik, a location where a significant amount of entomological collecting was done in the mid-seventies. The location »Zelenika« is given in the taxonomic list but is not charted since it is probable that it lies outside today's Croatian state borders Montenegro. The inscription »Ivin. Vod.« was assumed to correspond to the locality Ivine Vodice on the southern side of Mt. Velebit.

RESULTS AND DISCUSSION

Faunistic analysis

The complete study of noctuid fauna resulted in the analysis of 1200 specimens from the entomology collection of the Faculty of Forestry, 500 of these belonging to the Badovinac collection. There were total of 164 species determined among which 113 from the Badovinac collection and 91 from material collected in later years from department researchers (51 of these are not present in the Badovinac collection). According to the latest data, noctuid fauna in Croatia numbers about 585 species (KUČINIĆ, 1997; KUČINIĆ & LORKOVIĆ, 1998; KUČINIĆ *et al.*, 1998), which gives the analyzed collection a score of 28 % of total noctuid fauna. Since collecting was done mainly in forest biotopes, especially by the researchers of the Forest Protection Department, there is a relatively large number of species which partly reflect the composition of noctuids in forest ecosystems in some parts of Croatia.



Fig. 1. Geographical distribution of collection sites of noctuid moths from the Lepidoptera collection of the Faculty of Forestry, Zagreb.

Specimens were collected in more than 20 localities (Fig. 1). Most of the species in the Badovinac collection were collected in the Zagreb area (90 % of the species), while faculty researchers did the collecting on the higher regions of Mt. Kalnik and to a lesser extent near Grubišno polje (Slavonija) and Zalesina (Gorski kotar). In all other localities a significantly smaller number of specimens with only few species were recorded. The majority of the collection sites are situated in inland parts of Croatia (20 sites) and only four are located in Mediterranean part of Croatia (Mali Lošinj, Labin, Plomin, Sabunike).

The most numerous species in the collection are: *Diloba coeruleocephala* L., *Tholera decimalis* Poda and *Orthosia gothica* L. In one single night at the locality of Zalesina,

39 specimens of *T. decimalis* Poda were collected. There are several species with only one specimen represented in this collection, such as: *Autographa pulchrina* Haw., *A. jota* L., *Pyrois cinnamomea* Goeze, *Episema glaucina* Esp., *Hyssa cavernosa* Ever. and *Xestia rhomboidea* Esp.

Analysis of the collection expanded the knowledge of the spatial distribution of certain noctuid species in Croatia. This is especially true for the Mt. Kalnik region which was, until now, totally unknown with respect to noctuid fauna while 56 species are now registered for that area. The most interesting faunal data are those relating to *Hyssa cavernosa* Ever. and *Orthosia populeti* Fab. There is only one collected specimen of *H. cavernosa* Ever. from the locality Grubišno polje (on 1st of August 1976). In Croatia, it has been described only for the Podravina region by R. Kranjčev, who stated this as the first finding of the species in Croatia (KRANJČEV, 1985; 1995). In Europe, according to NOWACKI & FIBIGER (1996) this Eurasian species occurs only in the central part of the region and has been recorded in the faunae of Poland, Czech Republic, Slovakia, Italy, Austria, Hungary and Romania. Same authors do not mention this species for the regions of former Yugoslavia (NOWACKI & FIBIGER 1996). Neither, in a faunal review of Slovenian Macrolepidoptera, does CARNELUTTI mention this species as a member of the noctuid fauna in Slovenia (CARNELUTTI, 1992a; 1992b). In ecological terms, this species occurs in xerothermophilic oak associations. Its caterpillar feeds on various plants from the genera *Silene* and *Aristolochia*. It is a bivoltine species. Flight periods take place during May-June and July-August. It overwinters in the pupal stage.

O. populeti Fab. is also a rare species in collections from Croatia. In the Vinkovci area this species was recorded just once by the forester Gjuro Koča on 22nd of March 1892 (KOČA, 1901). In the collection analysed, there were only two specimens, collected in Zalesina (Gorski kotar) on 9th of April 1972. Taxonomic determination was backed up with genital preparation analysis and morphological comparison of these with taxonomic keys (BERIO, 1985; RÁKOSY, 1996). This species occurs in mesophylic to mesohygrophylic biotopes. The biological cycle is univoltine with a flight period from March till May. It is a Eurasian species distributed widely in Europe (Great Britain, Scandinavia, France, Spain, Greece etc.).

Concerning the relative richness of the species, the collection of the Faculty of Forestry has considerable value for improving knowledge of noctuid fauna in Croatia. Data acquired from the Badovinac collection facilitate temporal comparative research for the Zagreb region. It can be anticipated that such analysis will reflect the impact of intense anthropogenic influences in last cca. 80 years on this part of the fauna of Croatia.

Zoogeographical analysis

Zoogeographical analysis (Table 1) revealed that most of the collected noctuids belong to the group of Eurasian species (67.1 %) and to a smaller extent to that of Frontasiatic-Mediterranean species (23.8 %). This reflects the fact that most of the collection sites were in inland Croatia (Fig. 1). Zoogeographical analysis of the noctuid fauna of this region, in compliance with former works, confirms the presence

Table 1. Zoogeographical characteristics of Noctuid species from Collection of the Faculty of Forestry, Zagreb.

Zoogeographical char.	Number of species	Percentage
Eurasian species	110	67,1 %
Front.-Mediterr. species	39	23,8 %
Westasiatic-Mediterr. species	3	1,8 %
Mediterranean species	1	0,6 %
Pontic-Mediterr. species	1	0,6 %
Holarctic species	7	4,3 %
Cosmopolitan species	2	1,2 %
Subtropical species	1	0,6 %
Total	164	100,0 %

Front.-Mediterr. = Frontasiatic-Mediterranean species

Westasiatic-Mediterr. = Westasiatic-Mediterranean species

Pontic-Mediterr.=Pontic-Mediterranean species

of many Eurasian species in the rich and diverse fauna of these parts of Croatia (KUČINIĆ, 1992; KUČINIĆ & BREGOVIĆ, 1996; KUČINIĆ & PEROVIĆ, 1992/93; KUČINIĆ *et al.*, 1993; MLADINOV, 1977).

Taxonomic review of the determined noctuid species in the Lepidoptera collection of the Faculty of Forestry, Zagreb

fam. NOCTUIDAE

subfam. HERMINIINAE

Idia calvaria ([Denis & Schiffermüller], 1775)

Moš. ul. (Zagreb) 1916., 10. VI. 1924. (coll. **Badovinac**); Frontasiatic-Mediterranean species.

Herminia tarsipennalis Treitschke, 1835

Cmrok (Zagreb) 21. V. 1921., Kraljevac (Zagreb) 25. VI. 1921., Moš. ul. (Zagreb) 24. V. 1921., Samobor 1918. (coll. **Badovinac**). Eurasiatic species.

Trisateles emortalis ([Denis & Schiffermüller], 1775)

Kraljičin zdenac (Medvednica Mt.) 5. VI. 1921., Maksimir (Zagreb) 5. V. 1921., 9. V. 1921., 12. VI. 1921., 24. V. 1921., Tuškanac (Zagreb) 24. V. 1921. (coll. **Badovinac**). Eurasiatic species.

Paracolax tristalis (Fabricius, 1794)

Maksimir (Zagreb) 22. VI. 1921., Dolje (Zagreb) 26. VI. 1921., Kraljevac (Zagreb), 29. VI. 1921. (coll. **Badovinac**). Eurasiatic species.

Polypogon tentacularia (Linnaeus, 1758)

Cmrok (Zagreb) 22. V. 1921., (Kraljevac) 22. V. 1921. (coll. **Badovinac**). Eurasiatic species.

***Polypogon strigilata* (Linnaeus, 1758)**

Cmrok (Zagreb) 8. V. 1921., Kraljevac (Zagreb) 8. IV. 1920. (coll. **Badovinac**). Eurasiatic species.

***Polypogon lunalis* (Scopoli, 1763)**

Cmrok (Zagreb) 25. VI. 1921., Kr. zd. (Kraljičin zdenac-Medvednica Mt.) 10. VII. 1921., Samobor 1920., (coll. **Badovinac**), Vratno (Kalnik Mt.) 5. VII. 1974., 1. VII. 1975., 3. IX. 1975., 14. IV. 1976. Eurasiatic species.

subfam. R I V U L I N A E***Rivula sericealis* (Scopoli, 1763)**

Moš. ul. (Zagreb.) 29. VII. 1916. (coll. **Badovinac**). Eurasiatic species.

***Colobochyla salicalis* ([Denis & Schiffermüller], 1775)**

Kraljevac (Zagreb) 12. V. 1918., 28. IV. 1920., 13. V. 1921. (coll. **Badovinac**). Eurasiatic species.

subfam. H Y P E N I N A E***Hypena proboscidalis* (Linnaeus, 1758)**

Kraljičin zdenac 30. VI. 1921., Cmrok (Zagreb) 3. VI. 1920., Kraljevac (Zagreb) 29. IV. 1921., Tuškanac (Zagreb) 13. V. 1921., 26. V. 1921. (coll. **Badovinac**). Eurasiatic species.

***Hypena rostralis* (Linnaeus, 1758)**

Moš. ulica (Zagreb) 14. VII. 1917. (coll. **Badovinac**). Eurasiatic species.

***Hypena palpalis* (Hübner, 1796)**

lok. ?, 17. VII. 1914. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Phytometra viridaria* (Clerck, 1759)**

Dolje (Zagreb) 9. V. 1918. (coll. **Badovinac**). Eurasiatic species.

subfam. S C O L I O P T E R Y G I N A E***Scoliopteryx libatrix* (Linnaeus, 1758)**

Rudnik (Medvednica Mt.) 20. XI. 1923. (coll. **Badovinac**), Lipovljani 25. VII. 1970., Vratno (Kalnik Mt.) 7. IV. 1981. Holarctic species.

subfam. C A T O C A L I N A E***Catocala sponsa* (Linnaeus, 1767)**

Samobor 16. VII. 1917., Cmrok (Zagreb) 18. VII. 1918., Kraljevac (Zagreb) 20. VII. 1918., Maksimir (Zagreb) 18. VII. 1917., 19. VII. 1918., VII. 1918. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Catocala dilecta* (Hübner, [1808])**

Popovača 13. VI. 1969. Frontasiatic-Mediterranean species.

***Catocala nupta* (Linnaeus, 1767)**

Kraljičin zdenac (Medvednica Mt.) 20. VII. 1920., 16. VIII. 1922., Samobor 26. VII. 1916. (coll. **Badovinac**). Eurasiatic species.

***Catocala elocata* (Esper, [1787])**

Kraljičin zdenac (Medvednica Mt.) 16. VIII. 1922., Maksimir (Zagreb) 1916., Pod-sused (Zagreb) 9. VIII. 1918. (coll. **Badovinac**), Zagreb 3. IX. 1976., Sabunike 30. VIII. 1980. Frontasiatic-Mediterranean species.

***Catocala promissa* ([DENIS & SCHIFFERMÜLLER], 1775)**

Moš. ul. (Zagreb) 8. VII. 1917., Maksimir (Zagreb) 14. VII. 1918., 18. VII. 1918., 19. VII. 1918., Cmrok (Zagreb) 18. VII. 1918. (coll. **Badovinac**), Popovača 8. VI. 1969. Frontasiatic-Mediterranean species.

***Catocala electa* (VIEWEG, 1790)**

Zgb. (Zagreb) 28. IX. 1976. Eurasiatic species.

***Catocala nymphagoga* (Esper [1787])**

lok. ? 28. VII. 1922. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Catocala hymenaea* ([DENIS & SCHIFFERMÜLLER], 1775)**

Moš. ul. (Zagreb) 2. VIII. 1918. (coll. **Badovinac**). Eurasiatic species.

***Catocala fulminea* (Scopoli, 1763)**

Grubišno p. (Grubišno Polje) 1. VII. 1976. Eurasiatic species.

***Minuca lunaris* ([DENIS & SCHIFFERMÜLLER], 1775)**

Cmrok (Zagreb) 29. IV. 1918., Maksimir (Zagreb) 15. V. 1918. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Lygephila cracca* ([DENIS & SCHIFFERMÜLLER], 1775)**

Plomin IX. 1965. Eurasiatic species.

***Catephia alchymista* ([DENIS & SCHIFFERMÜLLER], 1775)**

Moš. ul. (Zagreb) 1. V. 1918. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Tyta luctuosa* ([DENIS & SCHIFFERMÜLLER], 1775)**

Samobor 6. VII. 1922., Cmrok (Zagreb) 15. VII. 1918., Dolje (Zagreb) 13. VII. 1923., Moš. ul. (Zagreb) 1916., 13. VII. 1917., 7. V. 1918., 9. V. 1918. (coll. **Badovinac**). Eurasiatic species.

***Euclidia glyphica* (Linnaeus, 1758)**

Maksimir (Zagreb) 1916., 1. VI. 1920., Cmrok (Zagreb) 17. VII. 1918. (coll. **Badovinac**). Eurasiatic species.

***Laspeyria flexula* ([DENIS & SCHIFFERMÜLLER], 1775)**

Maksimir (Zagreb) 25. IV. 1920., Tuškanac (Zagreb) 21. VI. 1921. (coll. **Badovinac**). Eurasiatic species.

***Colocasia coryli* (Linnaeus, 1758)**

Cmrok (Zagreb) 4. V. 1911., Josipovac (Zagreb) 11. IV. 1918., Moš. ul. (Zagreb) 18. VII. 1918., Tuškanac (Zagreb) 2. IV. 1921. (coll. **Badovinac**). Eurasiatic species.

subfam. E U T E L I I N A E***Eutelia adultrix* (Hübner, [1803])**

Plomin, IX. 1965. Frontasiatic-Mediterranean species.

subfam. CHLOEPHORINAE***Bena prasinana* (Linnaeus, 1758)**

Grubišno Polje 1. VII. 1976., 15. VII. 1976., Lipovljani 21. IV. 1972., Opeka 1. V. 1972., 16. V. 1972., Vratno (Kalnik Mt.) 1. VI. 1976., 16. VIII. 1977., 2. VI. 1978., 16. VIII. 1978., 3. VI. 1980., Zgb. (Zagreb) 24. XI. 1976. Frontasiatic-Mediterranean species.

***Pseudoips fagana* (Fabricius, 1789)**

Opeka 2.VI.1970. Frontasiatic-Mediterranean species.

subfam. PANTHEINAE***Panthea coenobita* (Esper, 1785)**

lok.?, 1. VIII. 1979. Eurasiatic species.

subfam. DILOBINAE***Diloba caeruleocephala* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 25. VIII. 1916., Josipovac (Zagreb) 28. X. 1916., 1916. (coll. **Badovinac**), Grubišno Polje 15. X. 1976., Kalnik 25. X. 1974., Vratno (Kalnik Mt.) 30. XI. 1975., 1. XI. 1977., 18. X. 1978., 16. X. 1980., Zgb. (Zagreb) 1980. Eurasiatic species.

subfam. ACRONICTINAE***Moma alpium* (Osbeck, 1778)**

Josipovac (Zagreb) 25. IV. 1918., Rokovo groblje (Zagreb) 8. V. 1918. (coll. **Badovinac**), Vratno (Kalnik Mt.) 18. VI. 1976., 20. VII. 1976., 3. VI. 1980. Eurasiatic species.

***Acronicta tridens* ([Denis & Schiffermüller], 1775)**

Moš. ul. (Zagreb) 1916. (coll. **Badovinac**). Eurasiatic species.

***Acronicta aceris* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1915., 18. IV. 1918., 20. V. 1918., Josipovac (Zagreb) 20. IV. 1920. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Acronicta megacephala* ([Denis & Schiffermüller], 1775)**

Josipovac (Zagreb) 9. V. 1916., Moš. ul. (Zagreb) 20. V. 1918. (coll. **Badovinac**). Eurasiatic species.

***Acronicta rumicis* (Linnaeus, 1758)**

Josipovac (Zagreb) 29. V. 1919., Moš. ul. (Zagreb) 27. VIII. 1916., 1916., 27. IV. 1918., (coll. **Badovinac**), Dugo Selo 25. V. 1970., Labin 17. VII. (pupa) – 3. VIII. 1956. (imago), Lipovljani 20. VII. 1970., Osijek 30. V. 1963., Repaš 3. VII. 1973., 6. VII. 1973., 25. VIII. 1973., Voltino-Zgb. (Zagreb) 9. VII. 1968. Eurasiatic species.

***Craniophora ligustri* ([Denis & Schiffermüller], 1775)**

Josipovac (Zagreb) 1915., Moš. ul. (Zagreb) 1916., 20. V. 1918., 22. VIII. 1920. (coll. **Badovinac**), Repaš 26. VI. 1973 (caterpillar) – 23. VII. 1973. (imago), 27. VI. 1973. (caterpillar) – 9. VIII. 1973. (imago), Spačva 1. VII. 1971. Eurasiatic species.

***Simyra albovenosa* (Goeze, 1781)**

Moš. ul. (Zagreb) 29. IV. 1919. (coll. **Badovinac**). Eurasiatic species.

Cryphia fraudatricula (Hübner, [1803])

Moš. ul. (Zagreb) 26. VII. 1919. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

Cryphia algae (Fabricius, 1775)

Moš. ul. (Zagreb) 28. VII. 1918. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

Cryphia raptricula ([Denis & Schiffermüller], 1775)

Moš. ul. (Zagreb) 28. VI. 1922. (coll. **Badovinac**). Eurasiatic species.

Cryphia muralis (Forster, 1771)

Moš. ul. (Zagreb) 28. VI. 1921., 26. VIII. 1921., 28. VII. 1924., Medul. ul. (Zagreb) 1923. (coll. **Badovinac**). Mediterranean species.

subfam. A C O N T I I N A E

Emmelia trabealis (Scopoli, 1763)

Samobor 15. V. 1921., Cmrok (Zagreb) 16. VIII. 1918., Moš. ul. (Zagreb) 1918. (coll. **Badovinac**). Eurasiatic species.

Prododeltote pygarga (Hufnagel, 1766)

Maksimir (Zagreb) 12. VI. 1921., 22. VI. 1921., 1921. (coll. **Badovinac**), Vratno (Kalnik Mt.) 20. VII. 1976. Eurasiatic species.

Pseudeustrotia candidula ([Denis & Schiffermüller], 1775)

Maksimir (Zagreb) 1. VI. 1919. (coll. **Badovinac**). Eurasiatic species.

Eublemma purpurina ([Denis & Schiffermüller], 1775)

Ivin.Vod. (Ivine Vodic, Velebit Mt.) 16. VII. 1924. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

subfam. P L U S I I N A E

Diachrysia chrysitis (Linnaeus, 1758)

Moš. ul. (Zagreb) 1916. (coll. **Badovinac**), Opeka 6. VI. 1972., Vratno (Kalnik Mt.) 18. VIII. 1976. Eurasiatic species.

Diachrysia chryson ((Esper, [1789])

Vratno (Kalnik Mt.) 7. VIII. 1976., 18. VI. 1976., 18. VIII. 1976. Eurasiatic species.

Autographa gamma (Linnaeus, 1758)

Zagreb 26. V. 1921., 28. V. 1921. (coll. **Badovinac**), Lipovljani 20. VII. 1970., 25. VII. 1970. Eurasiatic species.

Autographa pulchrina (Haworth, 1809)

lok.?, 20. VII. 1922. (coll. **Badovinac**). Eurasiatic species.

Autographa jota (Linnaeus, 1758)

Adolfovac, 1916. (coll. **Badovinac**). Eurasiatic species.

Abrostola asclepiadis ([Denis & Schiffermüller], 1775)

Vratno (Kalnik Mt.) 1. V. 1975. Frontasiatic-Mediterranean species.

subfam. C U C U L L I I N A E

Cucullia absynthii (Linnaeus, 1761)

Moš. ul. (Zagreb) 1916. (coll. Badovinac). Eurasiatic species.

Cucullia umbratica (Linnaeus, 1758)

Kalnik 26. V. 1972. Eurasiatic species.

Calophasia lunula (Hufnagel, 1766)

Cmrok (Zagreb) 4. V. 1919., Moš. ul. (Zagreb) 1916., 24. VI. 1920., 4. IV. 1921., Tuškanač (Zagreb) 12. V. 1921. (coll. Badovinac). Holarctic species.

Calophasia platyptera (Esper, [1788])

Podsused (Zagreb) 9. V. 1918. (coll. Badovinac). Frontasiatic-Mediterranean species.

Pyrois cinnamomea (Goeze, 1781)

Moš. ul. (Zagreb) 26. III. 1917. (coll. Badovinac). Frontasiatic-Mediterranean species.

Amphipyra livida ([Denis & Schiffermüller], 1775)

Moš. ul. (Zagreb) 1916. (coll. Badovinac). Eurasiatic species.

Amhipyra berbera Rungs, 1949

Maksimir (Zagreb) IV. (caterpillar) – V. 1965. (imago). Frontasiatic-Mediterranean species.

Amphipyra tragopoginis (Clerck, 1759)

Adolfovac (Medvednica Mt.) 1916., Samobor 1916., Moš. ul. (Zagreb) 1916. (coll. Badovinac) Holarctic species.

subfam. H E L I O T H I N A E

Heliothis viriplaca (Hufnagel, 1766)

Cmrok (Zagreb) 1916., 15. VII. 1918., 16. VII. 1918., 17. VII. 1918., 26. VII. 1918. (coll. Badovinac). Eurasiatic species.

Heliothis ononis ([Denis & Schiffermüller], 1775)

Cmrok (Zagreb) 17. VII. 1918., 22. IV. 1922. (coll. Badovinac). Holarctic species.

Pyrrhia umbra (Hufnagel, 1766)

Moš. ul. (Zagreb) 1918., 12. VI. 1921. (coll. Badovinac), Kalnik 26. V. 1972. Holarctic species.

subfam. I P I M O R P H I N A E

Panemeria tenebrata (Scopoli, 1763)

Kraljevac (Zagreb) 24. IV. 1918., 14. V. 1921., Moš. ul. (Zagreb) 27. IV. 1918., 1918. (coll. Badovinac). Frontasiatic-Mediterranean species.

Acosmetia caliginosa (Hübner, [1813])

Kraljevac (Zagreb) 22. IV. 1922., 29. IV. 1920. (coll. Badovinac). Eurasiatic species.

Caradrina morpheus (Hufnagel, 1766)

Kalnik VIII. 1974. Eurasiatic species.

***Hoplodrina ambigua* ([Denis & Schiffermüller], 1775)**

Zgb. (Zagreb) 24. V. 1968. Frontasiatic-Mediterranean species.

***Hoplodrina octogenaria* (Goeze, 1781)**

Zalesina 6. VII. 1972. Eurasiatic species.

***Dypterygia scabriuscula* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 12. VI. 1921., 2. IV. 1924. (coll. **Badovinac**). Eurasiatic species.

***Rusina ferruginea* (Esper, [1785])**

Kalnik VIII. 1974. Eurasiatic species.

***Polyphaenis sericata* (Esper, [1787])**

Moš. ul. (Zagreb) 29. VII. 1916. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Thalpophila matura* (Hufnagel, 1766)**

Zagreb (Moš. ul.) 11. VIII. 1916., 26. VIII. 1917., 10. VIII. 1922. (coll. **Badovinac**), Mali Lošinj 1. X. 1969. Frontasiatic-Mediterranean species.

***Trachea atriplicis* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1916. (coll. **Badovinac**), Opeka 6. VI. 1972., 16. V. 1972., 1.V III. 1979., Vratno (Kalnik Mt.) 15. VI. 1977. Eurasiatic species.

***Euplexia lucipara* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1. VIII. 1921. (coll. **Badovinac**). Eurasiatic species.

***Phlogophora meticulosa* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 21. V. 1916., 1929., Prekrižje (Zagreb) 4. V. 1918. (coll. **Badovinac**), Mali Lošinj 1. X. 1969. Frontasiatic-Mediterranean species.

***Actinotia polyodon* (Clerck, 1759)**

Jurj. ul. (Zagreb) 29. IV. 1922. (coll. **Badovinac**). Eurasiatic species.

***Calloplistria juvenina* (Stoll, 1782)**

Josipovac (Zagreb) 1916. (coll. **Badovinac**). Eurasiatic species.

***Eucarta amethystina* (Hübner, [1803])**

Grubišno Polje 15. VI. 1976., Opeka 6. VI. 1972., Vratno (Kalnik Mt.) VIII. 1974., 1. VIII. 1977. Eurasiatic species.

***Ipimorpha retusa* (Linnaeus, 1761)**

Lipovljani, 20. VI. 1970., Vratno (Kalnik Mt.) 15. VII. 1977. Eurasiatic species.

***Mesogona oxalina* (Hübner, [1803])**

Ličko Lešće 9. IX. 1972. Eurasiatic species.

***Cosmia trapezina* (Linnaeus, 1758)**

Cmrok (Zagreb) 1916. (coll. **Badovinac**), Maksimir (Zagreb) IV. 1985. (caterpillar) – V. 1985. (pupa), Maksimir (Zagreb) 9. VI. 1975., Opeka 17. VI. 1970., 27. V. 1971., 28. V. 1971., 31. V. 1971. Frontasiatic-Mediterranean species.

***Atethmia centrigo* (Haworth, 1809)**

Tuškanac (Zagreb) 1. IX. 1921. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Xanthia gilvago* ([Denis & Schiffermüller], 1775)**

Sl. Brod (Slavonski Brod) 15. X. 1963. Eurasiatic species.

***Xanthia citrigo* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 23. X. 1919. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Agrochola lota* (Clerck, 1759)**

Vratno (Kalnik Mt.) 5. X. 1977., 18. X. 1978. Eurasiatic species.

***Agrochola nitida* ([Denis & Schiffermüller], 1775)**

Kalnik 19. X. 1972. Frontasiatic-Mediterranean species.

***Eupsilia transversa* (Hufnagel, 1766)**

Cmrok (Zagreb) 2. III. 1921., Kraljevac (Zagreb) 10. III. 1919. (coll. **Badovinac**), Kalnik 9. III. 1972., Vratno (Kalnik Mt.) 21. IX. 1976., 12. II. 1977., 4. III. 1977., 5. X. 1977., 28. II. 1978., 20. III. 1980., 9. XI. 1980. Eurasiatic species.

***Conistra vaccinni* (Linnaeus, 1761)**

Jaskanski lug 8. X. 1990., Kalnik 23. III. 1972., Vratno (Kalnik Mt.) 3. XII. 1978. Eurasiatic species

***Conistra rubiginea* ([Denis & Schiffermüller], 1775)**

Kraljevac (Zagreb) 11. VIII. 1919., Zelengaj (Zagreb) 25. III. 1919. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Conistra erythrocephala* ([Denis & Schiffermüller], 1775)**

Cmrok (Zagreb) 2. III. 1919., 5. III. 1921., 28. III. 1921., Kraljevac (Zagreb) 11. III. 1919., 28. II. 1921. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Episema glaucina* (Esper, 1789)**

Plomin IX. 1965. Frontasiatic-Mediterranean species.

***Brachionycha nubeculosa* (Esper, 1785)**

Kalnik 9. III. 1972., 9. III. 1975., Vratno (Kalnik Mt.) 20. III. 1980. Eurasiatic species.

***Brachionycha sphinx* (Hufnagel, 1766)**

Zagreb 1916., Moš. ul. (Zagreb) 1923., Josipovac (Zagreb) 4. XI.?, 25. X. 1920., Jurj. ul. (Zagreb) 4. XI. 1921. (coll. **Badovinac**). Eurasiatic species.

***Brachylomia viminalis* (Fabricius, 1766)**

Vratno (Kalnik Mt.) 11. III. 1975., 11. VII. 1975., 3. VI. 1977. Eurasiatic species.

***Lithophane socia* (Hufnagel, 1766)**

Cmrok (Zagreb) 5. III. 1921., Moš. ul. (Zagreb) 1916., 3. V. 1918. (coll. **Badovinac**). Eurasiatic species.

***Lithophane ornitopus* (Hufnagel, 1766)**

Kraljevac (Zagreb) 5. III. 1919., 11. III. 1919., 28. III. 1921., Moš. ul. (Zagreb) 1920., Tuškanac (Zagreb) 1916. (jesen) (coll. **Badovinac**), Novska 27. III. 1974. Eurasiatic species.

***Lithophane furcifera* (Hufnagel, 1766)**

Moš. ul. (Zagreb) 4. IV. 1923. (coll. **Badovinac**), Kalnik 14. III. 1972., Vratno (Kalnik Mt.) 1. IV. 1978., 2. V. 1978., 23. III. 1979. Eurasiatic species.

***Xylena exsoleta* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 6. III. 1924. (coll. **Badovinac**), Sl. Brod (Slavonski Brod) 15. X. 1963. Eurasiatic species.

***Allophyes oxyacanthae* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1916., Josipovac (Zagreb) 25. X. 1916. (coll. **Badovinac**), Grubišno Polje 15. X. 1976., Kalnik 6. VIII. 1974., Vratno (Kalnik Mt.) 7. X. 1976., 5. X. 1977., 2. IX. 1978., 18. X. 1978., 16. X. 1980. Frontasiatic-Mediterranean species.

***Valeria oleagina* ([Denis & Schiffermüller], 1775)**

Jurj. ul. (Zagreb) 4. IV. 1922. (coll. **Badovinac**), Vratno (Kalnik Mt.) 7. IV. 1980. Frontasiatic-Mediterranean species.

***Dichonia aprilina* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1. X. 1916., 26. X. 1916. (coll. **Badovinac**), Opeka 12. X. 1970. Frontasiatic-Mediterranean species.

***Dichonia convergens* ([Denis & Schiffermüller], 1775)**

Moš. ul. (Zagreb) 1918. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Polymixis serpentina* (Treitschke, 1825)**

Plomin IX. 1965. Frontasiatic-Mediterranean species.

***Blepharita satura* ([Denis & Schiffermüller], 1775)**

Vratno (Kalnik Mt.) 15. IX. 1975., 21. V. 1976., 5. V. 1977., 5. X. 1977., 21. V. 1976., 7. IX. 1977., Kalnik 14. IX. 1972. Eurasiatic species.

***Apamea monoglypha* (Hufnagel, 1766)**

Moš. ul. (Zagreb) 1916., 19. VIII. 1921. (coll. **Badovinac**). Eurasiatic species.

***Apamea lithoxylaea* ([Denis & Schiffermüller], 1775)**

Moš. ul. (Zagreb) 1916., 12. VI. 1918. (coll. **Badovinac**). Eurasiatic species.

***Apamea charactera* ([Denis & Schiffermüller], 1775)**

Moš. ul. (Zagreb) 1916. (coll. **Badovinac**). Eurasiatic species.

***Apamea sordens* (Hufnagel, 1766)**

Opeka 6. VI. 1972. Eurasiatic species.

***Oligia strigilis* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 20. V. 1918., 28. V. 1921., 25. VI. 1921. (coll. **Badovinac**), Zagreb 6. VII. 1972. Eurasiatic species.

***Oligia latruncula* ([Denis & Schiffermüller], 1775)**

Moš. ulica (Zagreb) 20. V. 1918., Moš. ul. (Zagreb) 12. VI. 1921., 25. VI. 1921 (coll. **Badovinac**), Vratno (Kalnik Mt.) 3. VI. 1977. Eurasiatic species.

***Luperina testacea* ([Denis & Schiffermüller], 1775)**

Moš. ul. (Zagreb) 22. X. 1918., 1923. (coll. **Badovinac**). Frontasiatic-Mediterranean species.

***Charanyca trigrammica* (Hufnagel, 1766)**

Kalnik 25. V. 1972., 2. VI. 1975., Opeka 15. V. 1972., 16. V. 1972., Vratno (Kalnik Mt.) 8. V. 1977., 16. V. 1977., 3. VI. 1977., 2. VI. 1978., Zalesina 6. VII. 1972. Frontasiatic-Mediterranean species.

subfam. H A D E N I N A E***Lacanobia w-latinum* (Hufnagel, 1766)**

Kalnik 26. V. 1972., Vratno (Kalnik Mt.) 16. V. 1977. Eurasiatic species.

***Lacanobia oleracea* (Linnaeus, 1758)**

Kalnik 15. VII. 1975., Maksimir (Zagreb) 2. VI. 1970., Osijek 28. IX. 1989., Vratno (Kalnik Mt.) 16. VII. 1977., Zgb. (Zagreb) 14. IX. 1977. Eurasiatic species.

***Lacanobia thalassina* (Hufnagel, 1766)**

Mošinsk. ul. (Zagreb) 1916., 20. V. 1918., 20. VI. 1918., 1. VI. 1919. (coll. Badovinac). Eurasiatic species.

***Hada nana* (Hufnagel, 1766)**

Opeka 6. VI. 1972., Kalnik 26. V. 1972., Vratno (Kalnik Mt.) 23. V. 1980., 15. VI. 1980. Eurasiatic species.

***Hecatera dysodea* ([Denis & Schiffermüller], 1775)**

Moš. ulica (Zagreb) 12. VI. 1918. (coll. Badovinac). Eurasiatic species.

***Hecatera bicolorata* (Hufnagel, 1766)**

Moš. ul. (Zagreb) 1916. (coll. Badovinac). Eurasiatic species.

***Hadena bicurris* (Hufnagel, 1766)**

Moš. ul. (Zagreb) 29. VI. 1919., 24. VI. 1920., 2. VII. 1920., 17. V. 1921., 27. V. 1921., 1. VIII. 1921., 27. V. 1928. (coll. Badovinac). Eurasiatic species.

***Hadena confusa* (Hufnagel, 1766)**

Kalnik 26. V. 1972., Zelenika 22. V. 1974. Eurasiatic species.

***Hadena rivularis* (Fabricius, 1775)**

Moš. ul. (Zagreb) 24. VI. 1920., 2. VII. 1920., 1. VIII. 1920., 27. V. 1921. (coll. Badovinac), Zelenika 28. V. 1974. Eurasiatic species.

***Hadena perplexa* ([Denis & Schiffermüller], 1775)**

Kalnik 26. V. 1972. Eurasiatic species.

***Melanchra persicariae* (Linnaeus, 1761)**

Zagreb 1916. (coll. Badovinac). Eurasiatic species.

***Melanchra pisi* (Linnaeus, 1758)**

Gera (Žumberak Mt.) 2. VIII. 1920. (coll. Badovinac), Vratno (Kalnik Mt.) 16. V. 1977., 15. VII. 1977., Grubišno Polje 1. VIII. 1976. Eurasiatic species.

***Mamestra brassicae* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1916., Cmrok (Zagreb) 1916. (coll. Badovinac), Vratno (Kalnik Mt.) 1. VIII. 1979. Eurasiatic species.

***Polia nebulosa* (Hufnagel, 1766)**

Moš. ul. (Zagreb) 1916. (coll. Badovinac). Eurasiatic species.

***Leucania comma* (Linnaeus, 1761)**

Sljeme (Medvednica Mt.) 4. VII. ?, (coll. Badovinac), Vratno (Kalnik Mt.) 6. VII. 1972., 3. XI. 1978., Zalesina 6. VII. 1972. Holarctic species.

***Mythimna ferrago* (Fabricius, 1787)**

Moš. ul. (Zagreb) 8. VIII. 1914. (coll. **Badovinac**). Eurasiatic species.

***Mythimna turca* (Linnaeus, 1761)**

Grubišno Polje 15. X. 1976., Grubišno p. (Grubišno Polje) 1. VI. 1976. 15. VI. 1976., 1. IX. 1976., Opeka 16. V. 1972., 6. VI. 1972., Vratno (Kalnik Mt.) VIII. 1974., 18. VI. 1976., 19. VI. 1976., 7. VIII. 1976., 18. VIII. 1976., 21. IX. 1976., 2. VI. 1978., Zagreb 15. V. 1979., 5. VI. 1979., Zelenika 24. V. 1974., 5. VI. 1974., 6. VI. 1974., Zgb. (Zagreb) 21. X. 1976. Eurasiatic species.

***Mythimna albipuncta* ([Denis & Schiffermüller], 1775)**

Kalnik 26. V. 1972. Westasiatic-Mediterranean species.

***Mythimna vitellina* (Hübner, [1808])**

Plomin IX. 1965., Vratno (Kalnik Mt.) 29. IX. 1976. Subtropical species.

***Mythimna pallens* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 31. V. 1921. (coll. **Badovinac**), Kalnik 26. V. 1972. Eurasiatic species.

***Mythimna l-album* (Linnaeus, 1767)**

Moš. ul. (Zagreb) 1916., 1920. (coll. **Badovinac**). Eurasiatic species.

***Mythimna scripi* (Duponchel, 1836)**

Plomin IX. 1965. Pontic-mediterranean species.

***Orthosia incerta* (Hufnagel, 1766)**

Jurjevska (Zagreb) 7. IV. 1924., Kraljevac (Zagreb) 10. III. 1919., 11. III. 1919., 15. III. 1919., 2. IV. 1924., Moš. ul. (Zagreb) 6. IV. 1924., 7. IV. 1924., 8. IV. 1924., Zelengaj (Zagreb) 20. III. 1919., 25. III. 1919. (coll. **Badovinac**), Kalnik 9. III. 1972., 23. III. 1972., 6. IV.?, Novska 27. III. 1974., Opeka 3. III. 1972., Remetinec (Zagreb) 17. III. 1972., Sl. Brod (Slavonski Brod) 20. III. 1964., 13. IV. 1964., Zalesina 9. IV. 1972. Eurasiatic species.

***Orthosia gothica* (Linnaeus, 1758)**

Cmrok (Zagreb) 5. III. 1921., Kraljevac (Zagreb) 9. III. 1919., 10. III. 1919., 12. III. 1919., 15. III. 1919., 20. III. 1919. (coll. **Badovinac**), Kalnik 23. III. 1972., 27. III. 1974., 9. III. 1975., 20. III. 1975., 8. V. 1977., 6. IV.?, Opeka 3. III. 1972., Vratno (Kalnik Mt.) 19. VII. 1975., 17. 5. 1976., 4. III. 1977., 1. IV. 1978., 20. V. 1980., Remetinec (Zagreb) 17. III. 1972., Zalesina 9. IV. 1972., Zelenika 24. V. 1974. Eurasiatic species.

***Orthosia cruda* ([Denis & Schiffermüller], 1775)**

Kraljevac (Zagreb) 5. III. 1919., 6. III. 1919., 9. III. 1919., 10. III. 1919., 20. III. 1919., 25. III. 1919., Maksimir (Zagreb) 19. III. 1919. (coll. **Badovinac**), Kalnik 6. IV.?, Opeka 3. III. 1972., Remetinec (Zagreb) 17. III. 1972., Vratno (Kalnik Mt.) 19. II. 1971., Zalesina 9. IV. 1972. Westasiatic-Mediterranean species.

***Orthosia miniosa* ([Denis & Schiffermüller], 1775)**

Josipovac (Zagreb) 2. IV. 1924., Kraljevac (Zagreb) 10. III. 1919., 11. III. 1919., Tuškana (Zagreb) 2. IV. 1924. (coll. **Badovinac**). Eurasiatic species.

***Orthosia opima* (Hübner, [1809])**

Zalesina 9. IV. 1972. Eurasiatic species.

***Orthosia populeti* (Fabricius, 1781)**

Zalesina 9. IV. 1972. Eurasiatic species.

***Orthosia cerasi* (Fabricius, 1775)**

Cmrok (Zagreb) 5. III. 1921., 9. III. 1921., Josipovac (Zagreb) 1. IV. 1921., Kraljevac (Zagreb) 6. III. 1918., 5. III. 1919., 6. III. 1919., 9. III. 1919., 10. III. 1919., 11. III. 1919., 28. III. 1921., 12. III. 1919., 2. IV. 1924., Maksimir (Zagreb) 4. IV. 1924., Zelengaj (Zagreb) 28. III. 1919. (coll. Badovinac), Varoški lug 27. VI. 1990 (pupa) – 30. I. 1991. (imago), Zalesina 9. IV. 1972. Eurasiatic species.

***Orthosia gracilis* ([Denis & Schiffermüller], 1775)**

Vratno (Kalnik Mt.) 19. IV. 1976. Eurasiatic species.

***Orthosia munda* ([Denis & Schiffermüller], 1775)**

Kraljevac (Zagreb) 10. III. 1919., 11. III. 1919., 15. III. 1919., 25. III. 1919., Maksimir (Zagreb) 6. IV. 1924., Tuškanac (Zagreb) 5. III. 1921., Zelengaj (Zagreb) 25. III. 1919. (coll. Badovinac), Kalnik 20. III. 1975., Vratno (Kalnik Mt.) 17. V. 1976. Eurasiatic species.

***Panolis flammea* ([Denis & Schiffermüller], 1775)**

Maksimir (Zagreb) 5. III. 1919., Tuškanac (Zagreb) 10. IV. 1921. (coll. Badovinac), Vratno (Kalnik Mt.) 2. V. 1979., 7. IV. 1981. Eurasiatic species.

***Egira conspicillaris* (Linnaeus, 1758)**

Jurjevska (Zagreb) 8. IV. 1922., Moš. ul. (Zagreb) 6. V. 1918., 8. V. 1918., 1920., 19. IV. 1924. (coll. Badovinac). Westasiatic-Mediterranean species.

***Hyssia cavernosa* (Eversmann, 1842)**

Grubišno Polje 1. VIII. 1976. Eurasiatic species.

***Tholera decimalis* (Poda, 1761)**

Grubišno Polje 15. IX. 1976., Kalnik 14. IX. 1972., Vratno (Kalnik Mt.) 15. IX. 1975., 21. IX. 1976., 5. IX. 1977., 17. IX. 1977., 17. IX. 1978. Eurasiatic species.

subfam. N O C T U I N A E

***Axylia putris* (Linnaeus, 1761)**

Moš. ul. (Zagreb) 5. V. 1916., 25. V. 1921. (coll. Badovinac), Zelenika 22. V. 1974. Eurasiatic species.

***Ochropleura plecta* (Linnaeus, 1761)**

Cmrok (Zagreb) 11. VI. 1921., Tuškanac (Zagreb) 13. IV. 1921., 15. IV. 1921. (coll. Badovinac). Holarctic species.

***Noctua pronuba* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 25. V. 1916., 1916., 3. VI. 1917., Tuškanac (Zagreb) 30. V. 1916., Cmrok (Zagreb) 4. VII. 1919. (coll. Badovinac), Vratno (Kalnik Mt.) 1. VIII. 1979., Zagreb 17. VII. 1978., 26. VII. 1972., Zgb (Zagreb) 16. IX. 1968. Eurasiatic species.

***Xestia c-nigrum* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1916. (coll. Badovinac), Grubišno Polje 1. VIII. 1976., Vratno (Kalnik Mt.) 4. VIII. 1975., 3. IX. 1975., 18. VI. 1976., 21. IX. 1976., Zelenika 22. V. 1974. Eurasiatic species.

***Xestia triangulum* (Hufnagel, 1766)**

Kalnik VIII. 1974., Vratno (Kalnik Mt.) 16. VII. 1977. Eurasiatic species.

***Xestia baja* ([Denis & Schiffermüller], 1775)**

Vratno (Kalnik Mt.) 18. VI. 1976. Eurasiatic species.

***Xestia rhomboidea* (Esper, 1790)**

Vratno (Kalnik Mt.) 16. VIII. 1978. Eurasiatic species.

***Eugraphe sigma* ([Denis & Schiffermüller], 1775)**

Kalnik 12. VII. 1974., Vratno (Kalnik Mt.) 1. VII. 1975., 20. VII. 1976. Eurasiatic species.

***Cerastis rubricosa* ([Denis & Schiffermüller], 1775)**

Kalnik 23. III. 1972. Eurasiatic species.

***Naenia typica* (Linnaeus, 1758)**

Vratno (Kalnik Mt.) 15. VII. 1977. Eurasiatic species.

***Peridroma saucia* (Hübner, 1808)**

Zagreb 1915., 1916. (coll. Badovinac). Cosmopolitan species.

***Agrotis exclamationis* (Linnaeus, 1758)**

Moš. ul. (Zagreb) 1916., 28. V. 1921. (coll. Badovinac), Kalnik 26. V. 1972., Opeka 6. VI. 1972., Vratno (Kalnik Mt.) 8. V. 1977., 3. VI. 1977., 15. VI. 1977., 16. VII. 1977., 16. VIII. 1977., 1. VI. 1979., 15. VI. 1980., Zalesina 6. VII. 1972., Zelenika 22. V. 1974. Eurasiatic species.

***Agrotis ipsilon* (Hufnagel, 1766)**

Lipovljani 20. VI. 1970., 20. VII. 1970. Cosmopolitan species.

Received January 5, 1999

REFERENCES

- BERIO, E., 1985: Fauna d'Italia. Lepidoptera, Noctuidae I. Edizioni Calderini Bologna, pp. 970, Bologna.
- BERIO, E., 1991: Fauna d'Italia. Lepidoptera, Noctuidae II. Edizioni Calderini Bologna, pp. 708, Bologna.
- CARNELUTTI, J., 1992a: Rdeči seznam ogroženih metuljev (Macrolepidoptera) v Sloveniji. Varstvo narave, 17, 61–104.
- CARNELUTTI, J., 1992b: Popravki/errata (Rdeči seznam ogroženih metuljev (Macrolepidoptera) v Sloveniji. Varstvo narave 18, 189–190.
- FIBIGER, M., 1990: Noctuidae Europaeae. Vol. 1 (Noctuinae I). Entomological press, pp. 208., Sor.
- FIBIGER, M., 1993: Noctuidae Europaeae. Vol. 2 (Noctuinae II). Entomological press, pp. 230, Sor.
- FIBIGER, M., 1997: Noctuidae Europaeae. Vol. 3 (Noctuinae III). Entomological press, pp. 418, Sor.
- FIBIGER, M. & HACKER, H., 1990: Systematic List of the Noctuidae of Europe. Esperiana, 2, 1–111.
- FORSTER, W. & WOHLFAHRT, T.A., 1971: Die Schmetterlinge Mitteleuropas. Band IV Eulen (Noctuidae). Franckh'sche Verlagshandlung Stuttgart, pp. 329, Stuttgart.

- HACKER, H., 1989: Die Noctuidae Griechenlands, Mit einer Übersicht über die Fauna des Balkanraumes (Lepidoptera, Noctuidae). *Herbipoliana* 2, 1–588.
- KOCH, M., 1988: Wir bestimmen Schmetterlinge. Neumann Verlag pp. 792, Leipzig-Radebeul.
- KOČA, GJ., 1901: Prilog fauni leptira (Lepidoptera) Hrvatske i Slavonije. *Glasnik Hrvatskog naravoslovnog društva* 13(1–2), 1–67.
- KRANJČEV, R., 1985: Odnos faune makrolepidoptera prema prirodnim i antropogenim staništima Podravine i podravske pijesak (I). *Podravski zbornik*, 200–226.
- KRANJČEV, R., 1995: *Priroda Podravine*. Mali princ, pp. 224. Koprivnica.
- KUČINIĆ, M., 1992: The Noctuidae (Insecta, Lepidoptera) of Lička Plješevica mountain (Croatia). *Nat. Croat.* 1, 71–80.
- KUČINIĆ, M., 1997: Faunističke, ekološke i zoogeografske značajke sova Hrvatske. *Magistarski rad*, pp. 131, Sveučilište u Zagrebu.
- KUČINIĆ, M. & BREGOVIĆ, A., 1996: A contribution to the knowledge of faunal and zoogeographical characteristics of noctuids (Insecta, Lepidoptera, Noctuidae) in north-western Croatia. *Nat. Croat.* 5(4), 265–284.
- KUČINIĆ, M., HRAŠOVEC, B., BREGOVIĆ, A. & PEROVIĆ, F., 1997: Contribution to the knowledge of clearwing moths (Insecta, Lepidoptera, Sesiidae) in Croatia. *Nat. Croat.* 6(2), 275–284.
- KUČINIĆ, M., IGALFFY, K., ŠAŠIĆ, M. & BALEN, S., 1994: A contribution on the Heterocera fauna (Insecta, Lepidoptera) of the central-mountain part (Risnjak & Lička Plješevica) of the Republic of Croatia. *Nat. Croat.* 3(1), 23–40.
- KUČINIĆ, M., JALŽIĆ B. & PELIĆ D., 1998: *Xylocampa areola* (Esper, 1789), *Eurois occulta* (Linnaeus, 1758) and *Euxoa decora* (Denis & Schiffermüller, 1775), new elements in the noctuid fauna (Insecta: Lepidoptera: Noctuidae) of Croatia. *Nat. Croat.* 7(3), 213–226.
- KUČINIĆ, M. & LORKOVIĆ, Z., 1998: The distribution of the genus *Chersotis* Boisduval, 1840 (Insecta: Lepidoptera: Noctuidae) in Croatia. *Nat. Croat.* 7(2), 113–120.
- KUČINIĆ, M. & PEROVIĆ, F., 1992/93: Neke značajke faune sova (Lepidoptera, Noctuidae) Turropolja (Republika Hrvatska). *Rad HAZU* 26, 133–149.
- KUČINIĆ, M., ŠAŠIĆ, M. & BALEN, S., 1993: Faunističke, ekološke i zoogeografske karakteristike sova (Noctuidae, Lepidoptera) Gorskog kotara. *Šumarski list*, 67(9–10), 369–382.
- LORKOVIĆ, Z., 1976: Ing. Zvonimir Badovinac (1905–1976). *Acta Ent. Jug.* 12(1–2), 126.
- MLADINOV, L., 1977: Lepidoptera iz doline gornjeg toka rijeke Kupe III. Noctuidae. *Acta Ent. Jug.*, 13(1–2), 77–88.
- NOWACKI, J. & FIBIGER, M., 1996: Noctuidae. – In: KARSHOLT, O. & RAZOWSKI, J. (eds): *The Lepidoptera of Europe*. Apollo Books, pp. 380, Stenstrup.
- RÁKOSY, L., 1996: Die Noctuiden Rumäniens (Lepidoptera, Noctuidae). O. Ö. Landesmuseum, pp. 648, Linz.
- REZBANYAI-RESER, L., 1985: *Diachrysis chrysitis* (Linnaeus, 1758) und *tutti* (Kostrowicki, 1961) in der Schweiz. Ergebnisse von Pheromonfallenfängen 1983–84 sowie Untersuchungen zur Morphologie, Phänologie, Verbreitung und Oekologie der beiden Taxa (Lepidoptera, Noctuidae: Plusiinae). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft (Bulletin de la Société Entomologique Suisse)*, 58, 345–372.
- RONKAY, G. & RONKAY, L., 1994: Noctuidae Europaeae. Vol. 6 (Cucullinae I). Entomological press, pp. 282, Sor .
- RONKAY, G. & RONKAY, L., 1995: Noctuidae Europaeae. Vol. 7 (Cucullinae II). Entomological press, pp. 224, Sor .
- SKINNER, D., 1986: *Colour Identification Guide to Moths of the British Isles (Macrolepidoptera)*. Viking, pp. 267, London.

S A Ž E T A K

**Faunistički i zoogeografski prikaz lepidopterološke zbirke
Šumarskog fakulteta Sveučilišta u Zagerbu, I dio: Noctuidae
(Insecta: Lepidoptera)**

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Radi utvrđivanja raznolikosti leptira Hrvatske u posljednjih se desetak godina sustavno obrađuju neobrađene entomološke zbirke koje sadrže važne podatke o našoj fauni leptira. Njihovom obradom upotpunjuje se poznavanje rasprostranjenosti utvrđenih vrsta, značajke faune u pojedinim regijama, i Hrvatske u cjelini. Do sada je obrađen dio Macroheterocera iz zbirke »Igalffy« Hrvatskoga prirodoslovnog muzeja u Zagrebu (HPM-Zagreb) (KUČINIĆ, 1992; KUČINIĆ *et al.*, 1994), zbirke »Košćec«, Gradskog muzeja u Varaždinu (KUČINIĆ & BREGOVIĆ, 1996; KUČINIĆ *et al.*, 1997), dio materijala iz središnje zbirke Hesperiiidae & Macroheterocera (HPM-Zagreb) (KUČINIĆ *et al.*, 1997), te manji dio materijala iz zbirke Lorković (HPM-Zagreb) (KUČINIĆ & LORKOVIĆ, 1998).

Entomološka zbirka Šumarskog fakulteta u Zagrebu osnovana je početkom ovog stoljeća. Osim znanstvene važnosti ima i nastavnu funkciju, posebice kolekcija Badovinac (sakupljena je dvadesetih godina ovog stoljeća). Obuhvaća sve skupine kukaca. Važan dio zbirke čini skupina Lepidoptera. Taj segment formiran je kao samostalna kolekcija. Sadrži bogat materijal podijeljen u dvije zasebne cjeline. Jednu čini kolekcija koju je stvorio ing. Badovinac (coll. Badovinac), a drugu novoprikupljeni materijal. Zbog veličine zbirke, u ovom radu iznosi se faunistički i zoogeografski prikaz porodice Noctuidae, a preostali dio zbirke, koji obuhvaća skupine: Rhopalocera, Bombyces i Sphinges, Geometridae i Microlepidoptera, nakon obrade prikazat će se u nekom od sljedećih radova.

Obrađeno je 1200 primjeraka sovica od kojih iz zbirke Badovinac potječe oko 500, a od djelatnika Šumarskog fakulteta 700 primjeraka. Utvrđene su 164 vrste, od čega u zbirci Badovinac 113, a od djelatnika Šumarskog fakulteta 91 (51 nije prisutna u coll. Badovinac). Prema posljednjim podacima fauna sovica Hrvatske broji oko 585 vrsta (KUČINIĆ, 1997; KUČINIĆ & LORKOVIĆ, 1998; KUČINIĆ *et al.*, 1998), tako da je u zbirci Šumarskog fakulteta zastupljeno 28% hrvatske faune. Budući da je sakupljanje leptira, posebice od djelatnika Šumarskog fakulteta bilo usmjereno na šumske asocijacije, zbirka je relativno brojna, te oslikava djelomičan sastav sovica šumskih zajednica pojedinih dijelova Hrvatske.

Najveći broj prikupljenih primjeraka odnosi se na vrste: *Diloba coeruleocephala* L., *Tholera decimalis* Poda i *Orthosia gothica* L. Od vrste *Tholera decimalis* Poda, prikupljeno je na lokalitetu Zalesina samo tijekom jedne noći 39 primjeraka. Sa po jednim primjerkom u zbirci je zastupljen veći broj vrsta: *Autographa pulchrina* Haw., *Autographa jota* L., *Pyrois cinnamomea* Goeze, *Episema glaucina* Esp., *Hyssia cavernosa* Ever. *Xestia rhomboidea* Esp. i dr.

Obradom zbirke upotpunjeno je poznavanje rasprostranjenosti za određeni broj speciosa, te su dani važni faunistički podaci za planinsko područje Kalnika smješte-

nog u sjeverozapadnoj Hrvatskoj čija je fauna sovetica gotovo nepoznata, a ovim je radom utvrđeno 56 vrsta. Faunistički najzanimljiviji su nalazi sovetica: *Orthosia populeti* Fab. i *Hyssa cavernosa* Ever. koje su obradom ove zbirke zabilježene drugi put u fauni Hrvatske. *Hyssa cavernosa* Ever. zabilježena je samo na području Podravine (KRANJČEV, 1985; 1995), a *Orthosia populeti* Fab. samo krajem prošlog stoljeća na prostoru Vinkovaca (22. III. 1892.) (KOČA, 1901).

S obzirom na relativno velik broj vrsta, zbirka ima znatnu faunističku vrijednost, a podaci iz kolekcije Badovinac zanimljivi su za komparativna istraživanja faune sovetica na području Zagreba, te utvrđivanje promjena uvjetovanih antropogenim djelovanjem u posljednjih 80-tak godina.

Zoogeografska analiza pokazala je da najveći broj prikupljenih vrsta pripada skupini euroazijskih elemenata (Tab. 1). Ti rezultati uvjetovani su područjem na kojem je najveći dio materijala iz zbirke Šumarskog fakulteta prikupljen, a to su lokaliteti na prostoru kontinentalnog dijela Hrvatske (Sl. 1). Zoogeografska analiza faune sovetica tog područja i prema prijašnjim radovima ukazuje na dominantan udio euroazijskih vrsta u sastavu faune tih prostora Hrvatske (KUČINIĆ, 1992; KUČINIĆ & BREGOVIĆ, 1996; KUČINIĆ & PEROVIĆ 1992/93; KUČINIĆ *et al.*, 1993; MLADINOV, 1977).