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SLOVENSKO ENTOMOLOŠKO DRUŠTVO
ŠTEFANA MICHIELIJA

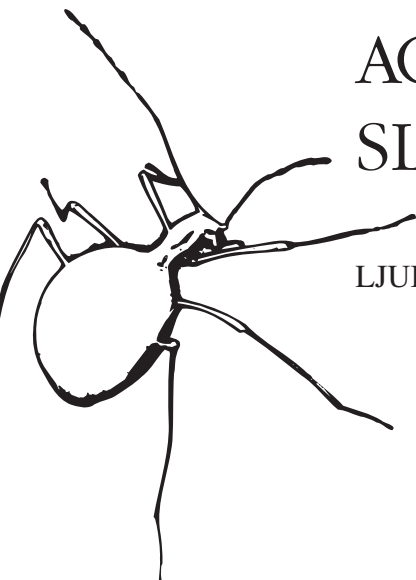
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Acta entomologica slovenica je glasilo Slovenskega entomološkega društva Štefana Michielija in Prirodoslovnega muzeja Slovenije. Objavlja izvirna znanstvena dela, pregledne članke in ocene knjig s področja entomologije. Članki lahko obravnavajo favnistiko, sistematiko, ekologijo, etologijo, fiziologijo ali zoogeografijo žuželk. Pisani naj bodo v slovenskem ali angleškem jeziku, z obveznim angleškim in slovenskim izvlečkom. Članki so strokovno recenzirani. Letno izideta dve številki.

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20 reprints and electronic version will be sent to the Authors free of charge.

**CONTRIBUTION TO THE KNOWLEDGE OF LEPIDOPTERA FAUNA
OF THE KARST**Radovan ŠTANTA¹, Matjaž ZADRGAL²¹ Miren 163, SI-5291 Miren, Slovenija, e-mail: radovan.stanta@gmail.com² Pod Lazami 53, Vrtojba, SI-5290 Šempeter pri Gorici, Slovenija,
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Abstract - The Macrolepidoptera fauna of Komenski and Sežanski Kras region has been under our examination during the years 1985-2015, first by random checks and later with planned, daily and night time inventory. We recorded 755 species of Macrolepidoptera during 422 inventories and records of 36 additional species were found in other sources, altogether 791 species or 52 % of Slovenian Macrolepidoptera fauna are present in the region. The families Hepialidae, Psychidae, Limacodidae, Heterogynidae, Zygaenidae, Sesiidae, Cossidae, Thyrididae and families from Bombycoidea to Noctuoidea are classified among Macrolepidoptera according to the old classification for older literature data comparability.

We have divided the investigated area into five zones – sub-areas, in accordance with the various ecological characteristics. We are stating the presence of species, their ecological characteristics, frequency rating and interesting informations from our own observations for each sub-area in the list of species. In rare and interesting species of the area we mention the exact data of the finds. Some of more interesting species are presented with comments and photos. We compare our results with other known data on the Karst fauna, as well as those for Gorizia and Trieste karst fauna of the neighboring Friuli - Venezia Giulia region. In addition we also present the differences between the sub-areas, especially between the warmer north-west and the colder south-east part of the area. Furthermore we highlight the phenomenon of the Karst plateau diversity, where in a small area xerophilous, mesophilous and hygrophilous species are met due to Karst's heterogeneous structure of microhabitats, where hygrophilous species retain in sinkholes, mesophilous on their edges, and xerophilous species on the slopes. The importance of nature protection of the area is also emphasized. The finding of the geometrid *Eupithecia limbata* Staudinger, 1879 (Geometridae) in the Slovenian fauna is being mentioned for the first time.

KEY WORDS: Lepidoptera, Macrolepidoptera, Fauna, List of Species, Slovenia, Karst, Komenski kras, Sežanski kras

Izveleček – PRISPEVEK K POZNAVANJU FAVNE METULJEV (LEPIDOPTERA) KRASA

Predstavljamo favno makro metuljev (Macrolepidoptera) Komenskega in Sežanskega krasa, ki smo jo proučevali v obdobju 1985-2015, najprej z naključnimi, kasneje pa z načrtnimi, dnevnimi in nočnimi popisi metuljev. Na skupno 422 popisih smo zabeležili 755 vrst makro metuljev, dodatnih 36 vrst pa predstavljajo še podatki iz drugih virov, kar skupaj zneso 791 vrst ali 52 % slovenske favne makro metuljev. Zaradi primerljivosti podatkov iz starejše literature so v prispevku po stari razdelitvi med makro metulje uvrščene tudi družine Hepialidae, Psychidae, Limacodidae, Heterogynidae, Zygaenidae, Sesiidae, Cossiidae, Thyrididae ter družine od Bombicoidea do Noctuoidea.

V prispevku smo obravnavano območje, zaradi različnih ekoloških značilnosti, razdelili na pet con - podobmočij. Pri seznamu vrst navajamo prisotnost vrst v posamezni coni, ekološke značilnosti vrste, ocenjeno pogostost ter zanimive informacije iz lastnih opazovanj. Pri redkih in zanimivejših vrstah v območju navajamo dejanske podatke o najdbah. Nekaj zanimivejših vrst je predstavljenih s komentarji in fotografijami. V prispevku primerjamo rezultate opazovanj z drugimi znanimi podatki o favni Krasa, kot tudi s favno Goriškega in Tržaškega krasa sosednje Furlanije - Julijske krajine. Prav tako predstavljamo razlike v favni med opredeljenimi conami, predvsem med toplejšim severozahodnim in hladnejšim jugovzhodnim delom območja. Izpostavljamo tudi fenomen raznolikosti kraške planote, kjer na majhnem območju srečamo kserotermne, mezofilne in higrofilne vrste, saj Kras s kraškimi pojavi nudi zelo heterogeno strukturo mikrohabitatov, kjer se v vrtačah zadržujejo higrofilne, na njihovem robu mezofilne, na pobočjih pa kserotermne vrste metuljev. Poudarjen je tudi naravovarstveni pomen območja. Prvič za favno Slovenije omenjamo najdbo pedica *Eupithecia limbata* Staudinger, 1879 (Geometridae).

KLJUČNE BESEDE: Lepidoptera, Macrolepidoptera, favna, seznam vrst, Slovenija, Kras, Komenski kras, Sežanski kras

Introduction

Parent Kras (Karst) has always been interesting for researchers of different disciplines, also for entomologists, among whom were quite some of lepidopterologists. Trieste as a major economic and intellectual center of this area offered in the past a research starting point for the Karst hinterland and wider surroundings, because here it was the second largest natural history museum at the time of the Austro-Hungarian Empire. This is also reflected in Lepidoptera literature as the area of Kras is cited in many publications.

According to the current political division the majority of these data belongs to the Italian side of the Kras. Data from the Slovenian part of the Kras are less

comprehensive and there are few recent data. With an aim to supplement the knowledge of fauna of Macrolepidoptera of the Komenski and Sežanski kras, we herein present a more complete review, which is the outcome of our 30-year-old survey of Lepidoptera in this area.

Kras with a capital letter or parent Kras, which is named also Komenski and Sežanski kras, is a limestone plateau the size of around 550 km². It lies in the southwest of Slovenia and in neighboring Italy, in Friuli - Venezia Giulia, which possesses about a quarter of the total area. During the turbulent political history of Kras in the last century, in the beginning it belonged to Austro-Hungarian Monarchy, then to Italy, after the Second World War was shared by Italy and Yugoslavia and is now divided between Italy and Slovenia. The border runs along the ridge Žekenc so that the north-western part and a narrow strip of hinterland of Gulf of Trieste is on the Italian side, while the rest, just over three quarters of the surface, is the Slovenian part.

Natural boundaries are Gulf of Trieste to the southwest, Friulian plain in the northwest and the Vipava Valley in the north and northeast, where border continues through the valleys of Branica and Raša. On the southeast border is more blurred as Kras passes in neighboring regions with similar characteristics, such as hills Vremščica, Brkini, Matarsko podolje and Podgorski Kras. The only distinctive dividing line is the Glinščica valley, which connects the southern boundary with the Gulf of Trieste. Inside the plateau, except in the extreme north and south are gently rounded hills, surrounded by valleys, sinkholes and larger planes. On the southwestern and northeastern edge the plateau descends with steep slopes down to the lowlands. The average altitude is between 300 and 400 m, with regard that the peaks V. Gradišče and Ograda in the far southwest exceed 700 m, at the northern edge Trstelj and Stol also rise over 600 m, in the northwest the plateau gradually reduces even at 50 m.

Kras's geological basis is Cretaceous and Tertiary lime stone, just to the northwest is occurring dolomite. Because of this permeable bedrock Karst does not have surface waters. Intermittent lake Doberdob - Lago di Doberdo and Prelosno Lake - Lago di Pietrarossa near Tržič - Monfalcone in Italy are two exceptions. Soil cover on the plateau is shallow, particularly in the northwest and in places where the wind and rain swept it away. Thicker soil is located only in numerous sinkholes and in valleys. In the middle part of the Karst occurs famous red soil, jerovica or terra rossa.

The climate of the Kras is characterized by a mixture of sub-Mediterranean and continental influences. Sub-Mediterranean influence is reflected in warm and relatively dry summer and relatively high rainfall in spring and autumn. Continental influence, however, is indicated in sporadic incursions of cold air in the form of the famous burja (bora) wind and the distribution of average temperatures (Gogala, 2003).

The average annual temperature across the plateau varies between 10-12 °C, except in the extreme north-west and in Brestoviški dol, where is 2 °C higher. In the far southwest, which is on average higher than 500 m is 2 °C lower. The average annual rainfall in the west, in the areas nearest the sea is around 1300 mm and is gradually increasing towards the northeast, where it reaches 1800 mm (www.arso.gov.si).

The dynamic karst terrain conditions large macroclimate differences. Valleys and sinkholes are filled at night with cold air, which brings a lot of dew, therefore even marsh plant species can be found there. The exact opposite is the dry slopes and peaks of the hills, where dew may be completely absent. On a sunny day grasslands and sparse woods get very hot during the day and cool at night strongly, due to the radiation during clear nights. Minor fluctuations in temperature between day and night are in denser stands.

Because of intensive logging and grazing of sheep, goats and cattle the plateau of Kras was in the past almost naked. In the middle of the 19th century, the Austro-Hungarian authorities began the systematic forestation of the Karst with the black pine. It has proved to be very successful tree species to grow on the deserted plateau, and therefore, mainly due to the abandonment of livestock, the Kras in recent years turned into a landscape with a large proportion of forest or land in abandonment. You can still admire the entire plateau interlacing and sharing its distinctive habitats, such as dry grasslands, scrub and forest.

Typical plant associations of the Karst are divided into forest, scrub and the associations of dry grasslands.

Typical forest associations in the area are:

- The association of hop hornbeam and autumn moor grass (*Seslerio autumnalis - Ostryetum carpinifoliae*) is a transitional form from grasslands to potential natural association of downy oak and hop hornbeam.
- The association of sessile oak and autumn moor grass (*Seslerio - Quercetum petreae*) appears on deeper grounds.
- The association of downy oak and hop hornbeam (*Ostryo carpinifoliae - Quercetum pubescentis*) is a climax forest association, we find it in various positions and it is relatively frequent.
- Black pine grooves - almost two hundred years after forestation of the Karst with black pine on poorer and rocky grounds a large amount of aging grooves are in a poor state of health. Based on the development of succession, the oldest pines already decay in the bottom layer of the stands and indigenous xerophilic tree species are emerging.

Typical scrubland associations of the area are:

- The association of hazel and spring bell (*Galantho nivalis - Coryletum avellanae*) occurs in the deeper, richer soils.
- Association of common dogwood and manna ash (*Fraxino orni - Cornetum hungaricae*) can be found on various habitats.
- The association mahaleb cherry and rocky buckthorn (*Frangulo rupestris - Prunetum mahaleb*) is a typical association of rocky habitats.
- The association wild privet elmleaf blackberry (*Rubo ulmifolii - Ligustretum*) is a typical association of nutrient - rich habitats.

- Association with blackthorn *Prunus spinosa* can be found in eutrophic habitats.
- The association smoke tree and rock buckthorn (*Frangulo rupestris* - *Cotinetum coggygriae*) is found between grasslands and forest edges.

Typical associations of dry meadows are:

- The most widespread and extremely rich in flora is the association of low sedge and rock centaury (*Carici humilis* - *Centaureetum rupestris*), which grows from lowlands to mountain belt.
- The association *Genisto sericeae* - *Seslerietum juncifoliae* is typical for rocky slopes and ridges exposed to the wind.
- The association *Danthonio-Scorzoneretum villosae* is linked to the deeper soil and the flora is very diverse (www.razvojkrasa.si/si/narava).

A review of literature on Lepidoptera from Karst

Compared to other “Carniola” countries, where Scopoli (1763) with his *Entomologia Carniolica* laid the foundation and reached to the former top of entomological science, butterflies of Karst are mentioned for the first time over 100 years later. The first records of 4 species we traced in Curò (1874, 1878), locations are not exact, only Karst.

In the next period which lasts until the collapse of the Austro-Hungarian Empire at the end of World War I, or after, we trace much more publications of various researchers. Galvagni (1909) in his work covers the period between 1900 and 1909, he states data for the landscapes around the northern Adriatic and Dalmatia. For Trieste Karst lists 43 species, of which 3 from current Slovenian side. Ivan Hafner (1909-1912) mentions two species in general for Kras and 2 specifically for Sežana and Divača. Among the 587 species that Hafner (1910) states in his work *Macrolepidoptera from Gorica - Gorizia and the surrounding area*, there are also 29 species of Kras. The data cover the period between 1892 and 1909 and are from two locations, Sežana and Kobdilj. Five articles follow with one species: Nauffock (1913), Stauder (1913, 1914, 1921), Rebel (1919).

Loebel (1920, 1921) recorded 145 species, mostly from Sežana and its surroundings, others from Divača. In the Stauder's articles (1919/20, 1920/21, 1922, 1923, 1925, 1926, 1927) 76 species were listed, most of the current Slovenian side of the Kras, almost half of the species records are citations of other authors.

The most complete review of this period can be found in Carrara (1926), in which the "Territory of Trieste" (*Territorio di Trieste*) lists 584 species of *Macrolepidoptera*. For certain species only exceptionally indicates the exact locality and date. He worked between Križ - S. Croce and Žavlje - Zaule or Aquilina in the Gulf of Trieste and between Prosek - Prosecco, Opčine - Opicina or Villa Opicina and Bazovica - Basovizza on the Karst plateau between 1907 and 1924. It can be concluded that almost all species quoted for Trieste Karst belong to locations that are now on the Italian side of the border.

During both world wars, when the entire Kras was under the Italian political power, the entomological activities decreased. We find only two publications: Loebel (1941) and Verity (1928) with one species.

After connecting Primorska to parent country in September 1947 and after the normalization of the post-war situation, the exploration of butterflies had increased again. Domestic entomologists have concentrated their activities mainly in the Triglav National Park and reconnected areas, among which was also Primorska region with Kras. But the parent Kras was quite neglected in comparison with the coastal areas and the Karst edge, the Vipava Valley with southern slopes of the Trnovski gozd and western parts of the Julian Alps.

The first publications of this period, signed by Italian entomologist Verity (1947, 1950, 1953) with four species for Slovenian Karst and two for the Italian side, followed by Proust and Wehrli (1934-1954) with two species. Carnelutti and Michieli (1955) indicate three new species of the Slovenian Karst among the novelties for Slovenia. Two articles followed with one species of the Trieste Karst (Melis, 1957; Storace, 1963), Pinker (1965) with eleven species on the Slovenian side and Bartol et al. (1965) with one. Carnelutti (1971) critically cites only findings by then, those of three species of Kras. Pleterski (1972) gives 160 species of owl moths (*Noctuidae*) without naming for Sežana, provided only to the level of genera and 158 species of other families, also without naming. In the article by Michieli (1978) 67 more rare or more interesting species of Lepidoptera from "Vipava Valley and neighboring karst areas" are presented, where Karst is not precisely defined. Considering the known prevalence of certain species, we can conclude that the author had in mind the entire south-western Dinaric karst area to the Karst edge and beyond. Many of these species can be considered as representatives of the parent Kras. Especially we can mention *Chelis maculosa* and *Omia cymbalariae* for Divača, since this is the only information from the Kras for these two species.

With the political independence of Slovenia in 1991 comes a new fruitful period of entomological research. The following year Slovenia gets the first comprehensive review of Macrolepidoptera (Carnelutti, 1992a, 1992b). Kras is included in the zoogeographical region of Primorska. Some articles with publications of new species records for Slovenia include new records for Kras. Štanta (1995, 1996, 2008) and Lasan (1997, 2000) recorded each of three and Predovnik (2001, 2002) two species. During this period, Čelik and Rebeušek (1996) collect and publish the first detailed data on endangered butterfly species of Slovenia, of which 13 are also found in the Kras. Here are some research works or reports, which deal mainly with butterflies of Kras: Verovnik, 2000, Čelik, 2003, Čelik et al., 2005, Polak, 2009, Bedjanič et al. 2009.

In the publication by Flamigni et al. (2007) recent data for 26 species of *Ennominae* are presented for the Italian part of the Karst, mentioned are also 3 interesting findings in the Komen Karst: *Gnopharmia stevenaria*, *Ennomos autumnaria* and *Nychiodes dalmatina*. Cited after Lasan (2000) is the discovery of *Isturgia murinaria* for the "Carso Triestino SLO" and marked on map at Šmarje pri Sežani. It is a misinterpretation as Šmarje near Koper is the site where the species was found.

The most extensive recent work in this field (Deutsch, 2008) deals with the province of Gorizia and Trieste in Friuli Venezia Giulia - Italy between 1973 and 2005. In it 905 species are listed, because it also includes Microlepidoptera. Among the 12 present locations, there are 7 situated in the Gorizia and Trieste Karst. If we consider only Macrolepidoptera with these seven karst sites, we get 359 species.

In The Atlas of Slovenian butterflies (Verovnik & al., 2012) there are confirmed 117 species of butterflies for the parent Kras. With the recent work by Koren & al. (2013) the prevalence of sister species *Pyrgus malvae* / *malvoides* are presented at their intersection with several new locations including the Kras. Some new butterfly sites for the Slovenian part of the Karst is also found in Čelik (2014).

In a recent work (Jež et al. 2015) R. Štanta recorded 149 species of nocturnal Macrolepidoptera found on three illuminated churches in the central Kras.

From the posts from the beginning of activity until the 60s of the last century, we see that entomologists operated primarily in the area of Trieste and at the railway lines, which run through the Kras, Vienna - Trieste - Venice and Gorizia - Trieste - Rijeka. Other parts with few exceptions have been unexplored due to the difficult access. Greater coverage area and greater efficiency of the inventory has recently been enabled with the development of other means of transport and new ways of night hunt, especially of the portable UV lamps.

Much of the data from the listed literature is not precise enough to be accurately placed in time and space. Nevertheless, with a high degree of accuracy we can estimate that 670 species of Macrolepidoptera are recorded for the Trieste and Gorizia Karst, which now belongs to Italy. For the Slovenian part of the Karst approximately 390 species are published.

Listed among Macrolepidoptera after that scheme also were: Hepialidae, Psychidae, Limacodidae, Heterogynidae, Zygaenidae, Sesiidae, Cossiidae and Thyrididae. The old systematics in the listed literature has led us to decide that we maintain the same classification in this paper in order to facilitate comparisons.

Material and methods

Inventories of Lepidoptera were conducted with day and night observations. In the case of daytime flying species we have carried out the locations overview and classical catching with butterfly net, as well as searching for different developmental stages on their food plants.

In the case of observations at night between 1985 and 1990, we mainly inspected lit areas under public lighting, which was renovated a little earlier and partly newly built. In it mainly 125W mercury vapor lamps were applied, which were in terms of attracting moths highly effective. The advantage of this method is data collecting in the same day from several sites. We used this method also later occasionally, but the aging of lamps and moreover with their replacement with more ecologic sodium-vapor lamps became completely ineffective. In the next period, most of the data were obtained by means of attracting moths on a white upright placed canvas, illuminated with 300W mercury-vapour lamp with a high proportion of UV light, powered by

220V electric generator. From 2000 onwards, we also used special light tents illuminated with super actinic UV tube lamps Blacklight and Blacklight blue 15W powered by 12V batteries covered by a translucent white synthetic fabric.

In the early spring and autumn months we used to attract moths with wine bait smell which has proved to be a very effective method. A mixture of wine, vinegar and sugar was used with which we sprinkled tree trunks just before dark. Owllet moths - Noctuidae and Erebidae prefer the bait.

We identified the species mainly on the spot already. Exceptionally, we took a small number of specimens away from the nature for subsequent determination. In some difficult determinable species we have used also the inspection of the genital armatures. Collected specimens of Lepidoptera are deposited in the collections of the authors.

Localities and dates of inventories of species

The border of the studied Komenski and Sežanski kras area is presented in Figure 1.

Addressed area was divided into 5 approximately equal zones. They are labeled with numbers from 1 to 5, and they follow as shown in Fig. 1, from northwest to southeast. This division allows us a more accurate analysis and show the prevalence and easier detection of species which have more local distribution.

In the Table 1 we present an overview of 70 locations, which provide data and dates of inventories.



Fig. 1: Map of Komenski and Sežanski kras region divided into 5 zones

Locations are named after the nearest town, hamlet, peak or after the provincial name. The average altitudes of locations are also listed and accurate or raw location coordinates in case if we were not able to identify them precisely, due to the size of the observed areas or due to more surveys in the vicinity of the same location. The names of locations are cited after Atlas Slovenije (1996).

Dates of observations or excursions are arranged chronologically for each location and gathered in groups of authors observations. Day and night observations are not specifically separated, so you can find two or more locations at the same date. More locations can also be found when we visited more long distant locations during one observation.

Authors of observations are marked only with initials of their names explained below in order to save space. Considered are only those authors who have joined us on observations with their equipment.

(RŠ) = Radovan Štanta, Miren, **(MZ)** = Matjaž Zadrgal, Vrtojba, **(BZ)** = Bojan Zadavec, Nova Gorica, **(CM)** = dr. Carlo Morandini, Campofornido (Italy), **(SG)** = Stanislav Gomboc, Kranj, **(ML)** = Mojmir Lasan, Ljubljana, **(TL)** = Tone Lesar(†), Maribor **(JD)** = Jozef Debets, Solčava

Table 1: Overview of localities of observed species and associated zones, as identified on the map and dates of the observations.

Zone	Name, altitude and coordinates of localities after WGS84	Dates and authors of observations
1	Brestovica, 66 m, 45.81258, 13.62173	13.2.1997, 28.6.1995, 31.5.1998, 22.6.2013 all (RŠ) ; 6.9.1991, 9.5.1992, 16.5.1994, 9.5.2013 all (RŠ&MZ) ; 24.9.1994, 26.9.1995, 16.5.2000 (MZ)
1	Gornja Brestovica, 70 m, 45.81236, 13.64460	16.4.1995 (RŠ) ; 20.7.1991, 19.3.1995, 10.9.1995, 3.4.2009, 13.11.2009 all (RŠ&MZ) ; 10.7.1997 (RŠ&ML) ; 26.3.1999 (RŠ&SG)
1	Hudi Log, 200 m, 45.83984, 13.61076	29.5.1997, 3.9.2012, 24. 8.2013 all (RŠ)
1	Klariči, 30 m, 45.81217, 13.60492	25.6.1988, 30.6.1988, 9.5.1992, 14.7.1992, 28.8.1993, 11.10.1993, 29.12.1994, 4.6.1995, 28.6.1995, 1.7.1995, 26.9.1995, 2.10.1995, 9.10.1995, 25.3.1996, 24.6.1996, 16.1.1998, 15.3.1998, 31.5.1998, 7.7.2001, 29.9.2011, 13.9.2015 all (RŠ) ; 19.7.1988, 9.11.1991, 7.9.1993, 18.3.1994, 25.3.1994, 24.4.1994, 13.11.1994, 22.1.1995, 26.1.1995, 18.3.1995, 19.3.1995, 26.3.1995, 7.9.1995, 29.10.1995, 13.11.1996, 15.3.2002, 13.11.2009, 21.4.2010, 27.9.2013, 7.10.2014 all (RŠ&MZ) ; 4.11.1993, 5.7.1995, 15.9.1995, 6.5.2000, 22.4.2006, 11.6.2010, 6.6.2012, 9.6.2013, 15.3.2014 all (MZ)
1	Klariči – Gnojne, 120 m, 45.80362, 13.61014	18.6.2014 (RŠ) ; 24.9.2014 (RŠ&MZ)
1	Korita na Krasu, 226 m, 45.83243, 13.62280	27.6.2004 (RŠ)

1	Kostanjevica na Krasu, 277 m, 45.84405, 13.64199	22.4.1981, 25.7.1981, 31.3.1987, 9.8.1987, 23.4.1988, 16.4.1989, 16.8.1989, 19.3.1990, 1.5.1991, 19.5.1991, 10.10.1991, 18.6.1993, 24.9.1993, 4.10.1993, 11.7.1994, 19.8.1994, 27.11.1994, 20.1.1995, 22.4.1995, 19.6.1995, 2.10.1995, 25.10.1995, 20.4.1996, 4.7.1996, 4.11.1996, 16.3.1997, 29.5.1997, 22.6.1997, 20.4.1998, 10.7.1998, 16.7.1998, 26.3.2003, 24.5.2003, 17.4.2006, 11.4.2007 all (RŠ) ; 10.10.1986, 2.5.1987, 23.5.1987, 6.6.1987, 11.7.1987, 15.7.1987, 25.7.1987, 23.8.1987, 15.8.1987, 19.9.1987, 27.5.1988, 11.6.1988, 19.7.1988, 24.9.1988, 7.4.1989, 14.4.1989, 23.4.1989, 6.5.1989, 10.6.1989, 1.7.1989, 26.7.1989, 25.8.1989, 1.10.1990, 13.3.1991, 7.4.1993, 22.5.1993, 22.9.1993, 25.3.1994, 31.3.1994, 16.5.1994, 17.2.1995, 1.3.1995, 2.4.1995, 12.7.1995, 26.2.1997, 9.7.2002, 30.10.2002 all (RŠ&MZ) ; 21.7.2001 (RŠ&BZ)
1	Lokvica, 215 m, 45.86114, 13.60280	23.11.1994, 28.6.1996, 4.11.1996, 19.7.2007, 26.8.2008, 8.10.2009, 21.11.2009, 22.6.2010, 5.9.2012 all (RŠ) ; 25.5.2002 (RŠ&BZ&SG)
1	Lokvica – Devetaki, 168 m, 45.86710, 13.58514	23.6.2006, 11.8.2006 all (RŠ)
1	Lokvica – Medvejšče, 300 m, 45.86370, 13.62460	27.6.2004, 30.3.2006, 2.9.2006, 30.3.2007, 6.4.2007, 25.2.2008, 9.4.2011, 1.8.2012, 14.9.2014, 17.9.2014 all (RŠ) ; 9.4.2007 (RŠ&MZ)
1	Lokvica – Segeti, 203 m, 45.85439, 13.61112	23.5.1988, 4.6.1989, 28.9.2003, 23.4.2006, 2.9.2011 all (RŠ) ; 11.4.2007 (RŠ&MZ&BZ&SG)
1	Miren – Gmajna, 215 m, 45.87602, 13.59923	19.11.1987, 2.9.1991, 27.10.1992, 19.3.1993, 29.10.1993, 11.11.1993, 5.11.1994, 24.3.1995, 15.4.2012 all (RŠ) ; 13.11.1994, 1.3.1995, 7.9.2008 (RŠ&MZ)
1	Nova vas, 200 m, 45.84173, 13.58372	14.10.2012, 14.9.2014 all (RŠ)
1	Novelo, 333 m, 45.84675, 13.66125	20.10.1989, 12.7.1996, 14.5.2011 all (RŠ) ; 14.7.1994, 15.8.1994, 26.10.1996, 9.7.2002 all (RŠ&MZ)
1	Opatje selo, 170 m, 45.85230, 13.58193	19.8.1978, 14.5.1989, 8.7.1989, 16.8.1989, 10.10.1991, 15.3.1992, 8.9.1992, 13.6.1993, 24.9.1993, 11.10.1993, 1.11.1993, 17.6.1994, 19.4.1995, 28.6.1996, 23.4.2006, 4.6.2006, 23.6.2006, 7.1.2007, 21.9.2011 all (RŠ) ; 2.5.1987, 6.6.1987, 11.7.1987, 2.8.1987, 15.8.1987, 23.8.1987, 19.9.1987, 6.5.1988, 27.5.1988, 11.6.1988, 19.7.1988, 13.8.1988, 24.9.1988, 7.4.1989, 14.4.1989, 6.5.1989, 12.5.1989, 10.6.1989, 1.7.1989, 26.7.1989, 25.8.1989, 27.10.1989, 5.5.1990, 21.9.1990, 1.6.1991, 7.9.1993, 22.1.1995, 26.1.1995 all (RŠ&MZ) ; 9.5.1987, 12.7.1987, 17.7.1987, 11.9.1987, 7.5.1995, 18.6.2004, 20.3.2007 all (MZ)
1	Sela na Krasu, 230 m, 45.82128, 13.61729	8.7.1989, 7.1.2007, 13.11.2010, 9.11.2011, 2.11.2013 all (RŠ) ; 10.11.2014 (MZ)

1	Temnica, 402 m, 45.84578, 13.67785	4.10.1993, 25.10.1995, 11.8.2008, 21.7.2009, 1.8.2009, 9.4.2011, 14.5.2011 all (RŠ)
1	Trstelj, 622 m, 45.85787, 13.70660	19.5.1991, 18.6.1993, 15.7.2000, 1.8.2009, 6.8.2009, 16.7.2010 all (RŠ) ; 14.6.1991, 2.9.2009 all (RŠ&MZ)
1	Trstelj – Vrtovka, 406 m, 45.86455, 13.66558	23.7.2009 (RŠ&MZ&TL) ; 25.7.2010 (MZ)
1	Vale, 120 m, 45.81299, 13.67324	23.6.1999 (RŠ)
1	Vojščica, 309 m, 45.82857, 13.67339	19.3.1988, 4.10.1991, 4.10.1993, 11.10.1993, 11.7.1994, 30.10.1994, 9.10.1995, 15.11.1995, 25.3.1996, 4.7.1996, 11.10.1996, 4.11.1996, 10.7.1998, 18.8.2002, 2.5.2004, 27.12.2012 all (RŠ) ; 10.10.1986, 22.9.1993, 31.3.1994, 24.4.1994, 16.5.1994, 14.7.1994, 17.2.1995, 2.4.1995, 12.7.1995, 7.9.1995, 26.10.1996, 26.2.1997, 10.6.1999, 4.6.2003 all (RŠ&MZ) ; 1.7.1987, 17.7.1993, 16.10.1993, 7.5.1994, 6.6.2011, 29.7.2012 all (MZ)
2	Brje pri Komnu, 178 m, 45.78370, 13.71933	18.10.1995, 4.11.1996 all (RŠ) ; 22.5.1993, 2.4.1995, 29.10.1995, 2.5.1999, 30.4.2003, 25.9.2009, 25.4.2014 all (RŠ&MZ) ; 15.6.2001, 21.7.2013, 26.7.2014 (MZ)
2	Gorjansko, 200 m, 45.80232, 13.71403	15.11.1995, 4.11.1996, 13.2.1997, 21.5.2000, 2.5.2004, 3.7.2005, 22.5.2011, 9.6.2013, 22.6.2013 all (RŠ) ; 24.4.1994, 16.5.1994, 29.10.1995, 20.10.1996, 13.11.1996, 26.2.1997, 22.5.2009 all (RŠ&MZ) ; 11.9.1996, 5.11.1996, 29.4.2004, 15.5.2007, 18.6.2007, 20.5.2009, 5.7.2009 all (MZ)
2	Gorjansko – Krmanjek, 150 m, 45.79801, 13.70130	29.9.2011, 2.10.2011 all (RŠ)
2	Gorjansko – Podklanec, 200 m, 45.80630, 13.70645	3.7.2009 (RŠ&MZ)
2	Ivanji Grad, 297 m, 45.81891, 13.70680	1.4.2001, 13.11.2010, 9.11.2012 all (RŠ)
2	Klanec pri Komnu, 180 m, 45.80956, 13.69820	3.7.2005 (RŠ) ; 21.4.2010 (RŠ&MZ)
2	Kobjeglava – Zavodi, 270 m, 45.81415, 13.80066	29.10.1995, 19.5.1997, 8.5.2001 all (RŠ&MZ)
2	Komen, 290 m, 45.81728, 13.74532	12.4.2007, 29.9.2010; 17.7.2015 all (RŠ) ; 10.10.1986, 2.5.1987, 23.5.1987, 22.9.1993, 25.3.1994, 19.5.2011, 24.9.2013 all (RŠ&MZ) ; 23.4.1996 (MZ&TL) ; 28.5.2012, 13.6.2013, 5.8.2013 all (MZ)
2	Komen – Devinsčina, 240 m, 45.80893, 13.72971	13.11.2010, 29.5.2011 all (RŠ)
2	Komen – Jažmerca, 210 m, 45.80122, 13.76386	5.6.2010, 18.9.2012 all (RŠ&MZ&BZ)
2	Lipa na Krasu, 366 m, 45.84386, 13.70732	30.6.1990, 18.8.1994, 27.11.1994, 20.4.1996, 12.7.1996, 29.5.1997, 16.5.1998, 10.7.1998, 13.6.1999, 26.4.2000, 18.6.2001, 9.6.2002, 29.7.2002, 25.2.2008, 1.8.2009, 19.6.2010, 9.4.2011, 14.5.2011 all (RŠ) ; 15.8.1994, 5.9.1994, 18.7.1995, 10.9.1995, 12.5.2006, 19.5.2010 all (RŠ&MZ) ; 21.7.2001 (RŠ&BZ) ; 14.5.2000, 9.6.2000, 14.5.2010, 16.6.2010 all (MZ)

2	Mali Dol, 270 m, 45.83355, 13.76515	2.5.2004, 20.5.2007, 4.10.2007 all (RŠ)
2	Preserje pri Komnu, 264 m, 45.81811, 13.72852	29.10.1995 (RŠ)
2	Škrbina, 360 m, 45.84590, 13.72486	18.8.1994, 27.11.1994, 14.5.2011, 6.5.2014 all (RŠ) ; 24.4.1994, 15.8.1994, 5.9.1994, 18.7.1995 all (RŠ&MZ)
2	Tublje pri Komnu, 200 m, 45.77696, 13.73963	29.10.1995 (RŠ&MZ)
2	Volčji Grad, 255 m, 45.80259, 13.74697	8.6.2004 (RŠ)
2	Zagrajec, 280 m, 45.81530, 13.69937	2.10.1995, 13.2.1997, 1.6.2003, 13.10.2008, 30.9.2010, 30.10.2010, 2.10.2011 all (RŠ) ; 15.11.1992, 26.4.1993, 1.3.1995, 26.7.2008, 22.5.2009, 10.9.2010, 25.10.2013 all (RŠ&MZ) ; 6.11.2004 (MZ)
3	Brje pri Koprivi, 280 m, 45.77852, 13.84864	16.10.1998, 25.4.2014 all (RŠ&MZ) ; 25.10.2009 (RŠ&BZ)
3	Dobravlje, 310 m, 45.76291, 13.88159	28.9.1996, 20.7.2013 all (RŠ)
3	Dutovlje, 315 m, 45.75632, 13.83525	21.6.1991, 9.8.1994, 18.10.1995, 15.11.1995, 11.10.1996, 4.11.1996, 14.10.1998, 17.8.2013 all (RŠ) ; 25.3.1994, 31.3.1994, 24.4.1994, 16.5.1994, 2.4.1995, 7.9.1995, 29.10.1995 all (RŠ&MZ) ; 1.6.1994, 15.9.1995, 23.3.1996 all (MZ)
3	Kobjeglava, 320 m, 45.81688, 13.80965	2.10.1995, 18.10.1995, 15.11.1995, 4.11.1996 all (RŠ) ; 19.5.1987, 15.11.1992, 31.3.1994, 7.9.1995, 26.4.1997, 27.9.1997 all (RŠ&MZ) ; 18.5.1996 (MZ)
3	Kobjeglava – Jelenca, 285 m, 45.80901, 13.80898	5.8.1988, 15.6.1990, 22.5.1997, 22.5.1999, 23.5.1999, 21.5.2000, 26.5.2000, 20.5.2007, 8.10.2008, 22.5.2011, 4.6.2012 all (RŠ) ; 25.4.1993, 19.5.1997, 9.5.2012, 25.10.2013, 6.5.2014 all (RŠ&MZ) ; 17.5.2004 (RŠ&MZ&BZ) ; 13.5.1997 (RŠ&MZ&SG) ; 16.5.1996 (RŠ&ML)
3	Kopriva, 280 m, 45.78177, 13.83379	22.5.2011, 29.5.2011, 30.5.2011, 10.6.2011, 26.6.2011, 20.8.2011, 3.9.2011, 15.6.2012, 27.6.2012, 18.7.2012, 13.8.2012, 10.7.2013, 4.8.2013, 17.8.2013, 7.9.2013 all (RŠ) ; 2.4.1995, 15.5.2013 all (RŠ&MZ) ; 5.7.2013 (MZ) ; 29.6.2013 (RŠ&MZ&CM) ; 6.7.2014 (RŠ&CM)
3	Krajna vas, 250 m, 45.76314, 13.80289	14.9.2010, 21.5.2014 all (RŠ) ; 21.5.2014, 18.7.2014 all (RŠ&MZ)
3	Kreplje, 280 m, 45.74515, 13.83082	8.6.2004 (RŠ)
3	Pliskovica, 280 m, 45.77545, 13.78746	23.6.1999, 10.8.2010, 29.5.2011, 10.8.2011, 15.8.2011, 17.8.2013 all (RŠ) ; 22.9.1993 (RŠ&MZ)
3	Ponikve, 325 m, 45.78986, 13.85696	12.6.2013, 17.6.2013 all (RŠ) ; 30.3.2014 (RŠ&MZ) ; 29.6.2013 (RŠ&MZ&CM)
3	Skopo, 290 m, 45.77385, 13.82180	29.5.2011, 30.5.2011, 10.6.2011, 26.6.2011, 28.7.2011, 20.8.2011, 3.9.2011, 12.10.2011, 4.8.2013, 17.8.2013, 7.9.2013 all (RŠ) ; 28.3.2012 (RŠ&MZ)
3	Štanjel, 300 m, 45.82069, 13.83588	2.5.1997 (RŠ) ; 1.6.1996 (MZ)

3	Tomaj, 360 m, 45.75698, 13.85754	12.10.2014 (RŠ)
3	Veliki Dol, 220 m, 45.77083, 13.75269	15.6.2012, 27.6.2012, 28.7.2012, 13.8.2012, 15.5.2013, 13.8.2014 all (RŠ); 29.10.1995 (RŠ&MZ)
3	Vrhovlje, 350 m, 45.72525, 13.83003	8.6.2004, 17.8.2013, 6.6.2014 all (RŠ); 8.8.2014 (RŠ&MZ)
4	Grahovo Brdo, 340 m, 45.74383, 13.90570	21.3.2014 (RŠ)
4	Kazlje, 340 m, 45.75553, 13.90355	30.7.2005; 13.5.2015 all (RŠ); 17.9.2011, 31.10.2011, 28.3.2012, 14.11.2014; 19.5.2015 all (RŠ&MZ)
4	Podbreže, 380 m, 45.72658, 13.92076	6.6.2014 (RŠ); 1.5.2013, 28.5.2013, 12.7.2013 all (RŠ&MZ); 25.4.2013 (MZ)
4	Povir, 420 m, 45.69437, 13.93855	22.5.2005 (RŠ); 28.4.2012, 11.10.2013; 29.6.2015 all (RŠ&MZ); 22.8.2005 (MZ)
4	Sežana, 350 m, 45.70722, 13.84790	15.9.1999 (RŠ&MZ); 2.10.1997 (MZ)
4	Sežana – Dol Leskovec, 345 m, 45.69850, 13.86794	14.6.1986, 23.5.1999, 10.7.2005, 17.8.2013 all (RŠ)
4	Šepulje, 350 m, 45.75282, 13.87099	16.10.1998 (RŠ&MZ)
4	Šmarje pri Sežani, 296 m, 45.72203, 13.86662	26.6.2011, 28.7.2011, 15.5.2013, 4.8.2013 all (RŠ)
4	Štorje, 355 m, 45.75193, 13.92337	28.4.1996, 28.9.1996, 10.7.2005 all (RŠ); 6.5.2015 (RŠ&MZ)
5	Divača, 435 m, 45.66786, 13.94995	8.7.2002, 22.5.2005 all (RŠ); 25.10.1992, 20.10.1996, 15.9.1999, 15.9.2000 all (RŠ&MZ); 25.9.1999 (MZ)
5	Jirmanec, 665 m, 45.64414, 13.90096	17.6.2011, 8.7.2011 all (RŠ); 4.6.2011, 19.8.2011, 28.7.2012, 14.6.2013, 5.9.2013, 19.10.2013 all (RŠ&MZ); 9.6.2013 (MZ); 7.9.2014 (RŠ&MZ&BZ); 8.5.2015 (RŠ&MZ&BZ&SG); 3.9.2015 (RŠ&MZ&CM)
5	Kozina, 500 m, 45.61421, 13.94821	30.6.1992, 2.6.1994 all (RŠ)
5	Krvavi Potok, 520 m, 45.62601, 13.91472	30.6.1992 (RŠ); 18.4.2013 (RŠ&BZ&SG)
5	Lokev, 455 m, 45.65583, 13.90865	23.5.1999, 8.7.2002, 6.6.2014, 25.8.2014 all (RŠ); 30.9.2011, 16.3.2012 all (RŠ&MZ); 4.9.2010 (RŠ&MZ&BZ); 25.6.2010 (RŠ&MZ&BZ&CM); 19.10.2012 (RŠ&MZ&BZ); 26.5.2012, 9.6.2013 all (MZ)
5	Rodik, 500 m, 45.62878, 13.96455	15.9.1999 (RŠ&MZ)
5	Vrhopolje, 550 m, 45.62760, 13.91480	8.3.2014 (RŠ&MZ)
5	Vrhopolje – Sv. Tomaž, 600 m, 45.63210, 13.92089	17.6.2011, 8.7.2011, 16.6.2012 all (RŠ)

Explanation of terms to the table showing all species observed in the area - Table 2

We present the data in a table with an overview of all of the species noticed in the area. Data present species according to the content that represent family and name of the species, the presence of the species in each zone (presence is marked with an x), time of occurrence of an adult butterfly (flying period) with an indication of the months when it was spotted, the frequency of species throughout the area and notes where peculiarities are presented and also interesting facts or accurate data in the case of rare species.

The classification and nomenclature of the species is listed according to Nieuwerkerken et al. in Zhang [ed.] (2011). All dates, which are stated in the text are provided in the format day.month.year.

Lepidoptera flying period is provided with the consecutive number of the month (1 = January, 2 = February, ...). It indicates when the adult imago was observed, with a few exceptions when it is an observation of caterpillars, as explained in a footnote.

Frequency of species is estimated on the basis of the average number of observed specimens of each species in the entire 30 year period inventory. If the species is present everywhere, the rating applies to the entire Karst if not this is applied only to segments where the presence of the species is confirmed or for micro-location in them, if the species is distinctly local (abandoned ponds, distinctly dry and warm slopes, the tops of hills ...). The rating applies to the time interval when specimens of the species fly except with a few exceptions, where the frequency is estimated on the basis of observations of caterpillars (*Cucullia*, *Thaumetopoea*, *Psychidae* ...)

Frequency of species in the table is divided into 5 categories: very rare, rare, less common, common and very common. Very rare means that there has been observed less than one specimen per year, a rare - observed one to 5 specimens per year, less common - observed over 5 specimens per year to three specimens in one observation, frequent - observed from 4 to 20 specimens in one observation, very common - seen more than 20 specimens in one observation.

Specimens of rarer, more interesting and more difficult determinable species which are mentioned by exact data, are deposited in the collections of the authors as evidence.

Results

During the thirty years of observations (1985-2015) Macrolepidoptera fauna of Komenski and Sežanski kras region, we recorded 755 species of Macrolepidoptera at the total of 422 inventories.

Including some data before 1985, we collected 15,400 records of the species finds. A complete species checklist is shown in Table 2 and represents data for the 25 families of Macrolepidoptera, as day or night flying species. Families with the greatest number of species identified in the area are Noctuidae (230 species), followed by Geometridae (212 species) and Erebidae (83 species).

By classifying and analyzing the data by zones we tried to determine the potential differences between them. Most of the records are from zone 1, 2 and 3, which represent 83% of the total. Among the most notable is zone no. 1 with 38% of the performed examinations and the largest number of locations, which leads to a greater number of found species (636). Zones 4 and 5 were less often visited, due to greater distances from the place of residence, so the total number of data and collected species is smaller (Fig. 2).

In zone 1, we find the majority of the species (56) which were found in only one of the zones. The zone 5 follows with 33 species, while in the central zones the number of such species is lower (Fig. 3).

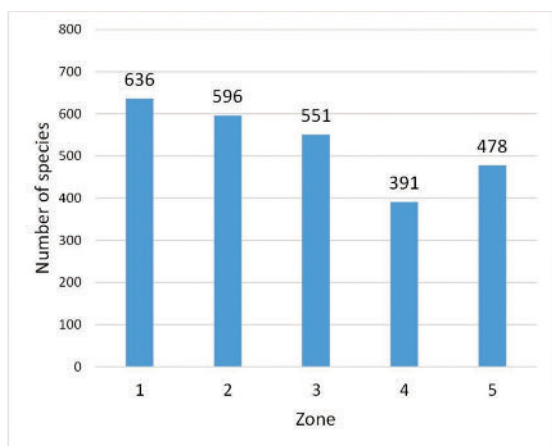


Fig. 2: Number of species found in each zone

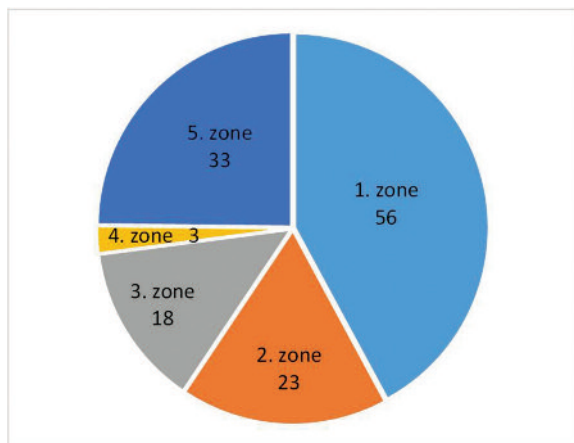


Fig. 3: Number of species in this zone only

Overview of interesting species of the area

This chapter presents some interesting, more scarce or locally distributed species with comments and specific data of findings.

Zygaenidae

Jordanita budensis Ad. & Au. Spey.

A rare species which with isolated populations occupies area from Spain through southern Europe, Asia Minor and the Caucasus to Mongolia. In neighborhood it has been found in the Trieste Karst Villa Opicina - Opčine (Deutsch, 2008). In Slovenia, it is known from Nanos (Štanta, Zadrgal personal observation), Vipava Valley and Kozina (Deutsch, 2008), southern slope of Trnovski gozd (Kovk, Kucelj) and Kačiči near Divača (S. Gomboc personal comment) and Brkini (S. Gomboc and M. Lasan personal comment). For the determination the analysis of genital structures, especially in females is necessary due to the visual similarity with related species *Jordanita globulariae* and *Jordanita notata*. The species is active during the day, at night it might come to artificial light, as came the specimen of 5.6.2014. Three males were found in Komenski Kras: Kobjeglava – Jelenca, 23.5.1999 1♂, 21.5.2000 1♂; Kobjeglava – Jelenca, 6.5.2014 (RŠ&MZ) gen. prep. & coll. (RŠ); several specimens have been observed in Kazlje, 13.5.2015 3♂1♀ leg., gen. prep. & coll. (RŠ).

Zygaena punctum Ochs.

Mediterranean – Eastern European xerophilous species that inhabits karst meadows where its food plants of the genus *Eryngium* grow. As a rare species, it is regularly found in Goriški and Komenski kras. Occasionally more numerous populations occur in the area around Brestovica and Komen.

Klariči, 4.6.1995, 1.7.1995, 24.6.1996; Opatje selo, 28.6.1996; Kostanjevica, 22.6.1997; Komen - Mali Dol, 20.5.2007; Kobjeglava – Jelenca, 20.5.2007; Kopriva, 29.5.2011; Vrhovlje, 6.6.2014 all leg. & coll. (RŠ); Klariči, 9.6.2013; Komen, 13.6.2013 both leg. & coll. (MZ).

Hesperiidae

Pyrgus malvae L. and *Pyrgus malvoides* Elw. & Edw.

In the Atlas of butterflies of Slovenija (Verovnik et al., 2012) a doubt is expressed about the accuracy of the data collected on sister species *P. malvae* / *malvoides* in Primorska, where the species mix, so we conducted an analysis of the genital structures of all 24 specimens from the Karst, which were available to us. 16 specimens with a total of 8 locations belong to *P. malvoides*. The remaining 8 specimens belong to *P. malvae*, all from a single location - south-east from Krajna vas. Although all the specimens are only from the zones 1, 2 and 3, they adequately complement the image of prevalence of *P. malvoides* at its eastern border, according to Koren et al., 2013.

P. malvoides:

Kostanjevica na Krasu, 22.4.1995 1♂1♀; Kostanjevica na Krasu, 20.4.1998 1♂2♀; Komen, 22.5.2010 1♂; Lipa na Krasu, 19.5.2010 2♂; Lipa na Krasu, 14.5.2011 1♀; Novoelo, 14.5.2011 1♀; Kobjeglava – Jelenca, 23.5.2010 2♂; Škrbina, 6.5.2014 1♂ all leg., gen. prep. & coll. (RŠ); Opatje selo, 7.5.1995 1♂; Lipa na Krasu, 14.5.2000 1♂; Brestovica, 16.5.2000 1♂ all leg., gen. prep. & coll. (MZ).

P. malvae:

Krajna vas, 21.5.2014 7♂1♀ leg., gen. prep. & coll. (RŠ).

Lycaenidae

Polyommatus escheri Hübn.

Escher's blue is in Slovenia only known from flysch slopes in the coastal part of Primorska and in a small area in the west of Ilirska Bistrica (Verovnik et al., 2012). By locating one male in Klariči near Brestovica is confirmed the data of 1992 that species is present also in Komenski Kras (UL97) (Čelik, Rebeušek, 1996): Klariči, 6.6.2012 leg. & coll. (MZ).

Geometridae

Rhoptria asperaria Hübn.

It is distributed from the Canary Islands, via Morocco, Algeria and South Europe to Asia Minor. It is not rare in the coastal maquis of the Mediterranean countries, but is mostly local. It flies in at least two generations from March to November. In our vicinity it has been found in Friuli and Istria (Flamigni, et al., 2007). The only published data for Slovenia is one from the beginning of May 1854 from the vicinity of Gradišče at Vipava (Mann, 1854), so Carnelutti included it in the red list (Carnelutti, 1992a) as presumed extinct (EX?). It was found in one specimen in Kras: Komen, 24.9.2013 (RŠ&MZ) coll. (MZ).

Ennomos quercaria Hübn.

Widespread in southern and central Europe to Iran. It flies between May and October in two generations. Inhabits oak forests because the larva feeds on various oaks - *Quercus* spp. In the south of the Apennine and the Balkan peninsulas it is quite



Fig. 4: *Rhoptria asperaria* female, Komen, 24.9.2013, leg. and coll. M. Zadrgal

common, but in the north it is rarer and more local. It is very rare in Slovenia. Long after the discovery in Vipava (Mann, 1854) it was no longer observed, therefore the red list (Carnelutti, 1992a) classified it as extinct (EX) for the Dinaric karst region and possibly extinct (EX?) for the Primorska region. It was later found in Podgorski kras (Flamigni et al., 2007), 23.9.2011 leg. (CM&RŠ) coll. (CM), near Koper (M. Sukič personal comment) and in Kozjansko (S. Gomboc personal comment). We got it only once in Kras: Ponikve, 29.6.2013 (RŠ&MZ&CM) coll. (RŠ).

Lycia graecarius Staud.

The species can be found in southern and western Balkans, in Italy extends back to the western border of Friuli, which is also the most eastern border of a similar species *Lycia florentina* (Flamigni et al., 2007). It was noted for the Slovenian Primorska (Carnelutti, 1992a) due to some wrongly determined specimens. From this sister species in Kras only *Lycia graecarius* is present. It flies from the end of February to April, depending on the height and it is relatively rare.

Vojščica, 19.3.1988 (RŠ); Klariči, 18.3.1994 (RŠ&MZ); Kostanjevica na Krasu, 25.3.1994 (RŠ&MZ); Gorjansko, 26.2.1997 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ) – larva.

Paraboarmia viertlii Boh.

It is widespread in South East Europe and extends back to the Caucasus and the Middle East. It occurs in late June and early July. In Slovenia was first detected in Podgorski Kras (Habeler, 2011), which is also the only so far known location. We got it in three locations in Kras, in the woods and at the edge of the forest with plenty of oak, its food plant.

Kopriva, 26.6.2011, 27.6.2012, 10.7.2013 all leg. & coll. (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM); Podbreže, 12.7.2013 (RŠ&MZ); Kopriva, 6.7.2014 (RŠ&CM).



Fig. 5: A female of *Paraboarmia viertlii* attracted by artificial ultra-violet light, Ponikve, 29.6.2013

Peribatodes correptaria Zell.

Karst is situated at the western border of distribution of this geometrid moth of South-Eastern Europe. Its westernmost find, which is also the first finding in Italy (Deutsch, 2008), derives from the surroundings of Tržič – Monfalcone. In Carnelutti, 1992b, it is listed still as *P. perversaria* and mentioned in our country from Primorska. As it turned out later, this species is widespread only in Western Europe, so all the data in our region are attributed to the species *P. correptaria*.

We found *P. correptaria* in three locations in Kras: Kobjeglava – Zavodi, 29.10.1995 leg. & coll. (RŠ); Jirmanec, 4.6.2011 and 14.6.2013 (RŠ&MZ); Komen, 24.9.2013 (RŠ&MZ).

Eumannia lepraria Reb.

Its prevalence area extends from Romania via Hungary and east Austria to the north of Italy. In Slovenia, it is known only from Primorska (Carnelutti, 1992b), listed as *Tephronia sepiaria*. Later species were separated, therefore the old data for *T. sepiaria* in our area are attributed to the species of *E. lepraria*. It flies in July and August and inhabits both warm, dry and as well highly humid biotopes. Larvae live on various lichens on wood and stone.

Gorenja Brestovica, 20.7.1991 (RŠ&MZ); Temnica, 14.7.1994 leg. & coll. (RŠ); Lipa na Krasu, 18.7.1995 (RŠ&MZ); Zagrajec, 26.7.2008 leg. & coll. (RŠ); Trstelj – Vrtovka, 23.7.2009 (RŠ&MZ&TL); Temnica, 11.8.2011 leg. & coll. (RŠ); Jirmanec, 19.8.2011 (RŠ&MZ); Kopriva, 5.7.2013 leg. & coll. (MZ).

Colostygia sericeata Schwin.

It occurs in the Apennine and the Balkan Peninsulas. In Slovenia, it is known only from Primorska (Carnelutti, 1992), classified still as *Colostygia multistrigaria*. Since *C. sericeata* was only recently separated from the western *C. multistrigaria*, old data



Fig. 6: *Eumannia lepraria* male, Trstelj – Vrtovka, 23.7.2009, leg. and coll. R. Štanta



Fig. 7: A male of *Colostygia sericeata* on a warm, dry karst slope near Sela na Krasu, 14.11.2010

of this species in our country can be attributed to *C. sericeata*. We found it in Brestoviška dolina in Kras, where is most common in warm, dry, sunny slope, where thrives *Asperula cynanchica* L., one of its food plants. Other nutritional plant *Galium verum* L. can be found at the bottom of the valley, where geometrid moth however is much more rare. Klariči, 4.11.1993; Sela na Krasu, 10.11.2014 vse leg. & coll. MZ; Sela na Krasu, 14.11.2010, 9.11.2011, 25.11.2011, 6.11.2012; Gorjansko, 13.11.2010 all leg. & coll. (RŠ).

Eupithecia schiefereri Boh.

From the similar and more common *E. venosata* differs by a gray base color, in addition unambiguous determination requires analysis of the genital structures. Carnelutti (1989) cited it from Krvavec. At Kras we found it on two locations of Komenski kras. Larvae could be found in June on *Silene latifolia* Poire. ssp. *alba* Mill., where they mainly feed with flowers and seeds. Komen – Jažmerca, 5.6.2010 1♂1♀ leg., gen. prep. & coll. (RŠ); Komen – Jažmerca, 19.5.2011 2♂2♀ (RŠ&MZ); Komen – Jažmerca, 10.5.2012 (larva 5.6.2011) leg. & coll. (RŠ); Kobjeglava – Jelenca, 9.5.2012 leg. & coll. (MZ).

Eupithecia limbata Staud.

Published records of the species in the Slovenian fauna can not be found. Heinz Habeler has found it at Podgorski Kras (S. Gomboc personal comment). In our vicinity it has been found in the Trieste Karst in Basovizza - Bazovica (www.lepiforum.de, 2013). The species is locally common in Spain and Italy, in the Balkans and in the Middle East. Tied to the karst terrain, where grows food plant genus *Eryngium*.



Fig. 8: *Eupithecia schiefereri*
- full grown larva on its host
plant *Silene latifolia alba*,
Komen – Jažmerca, 10.6.2011

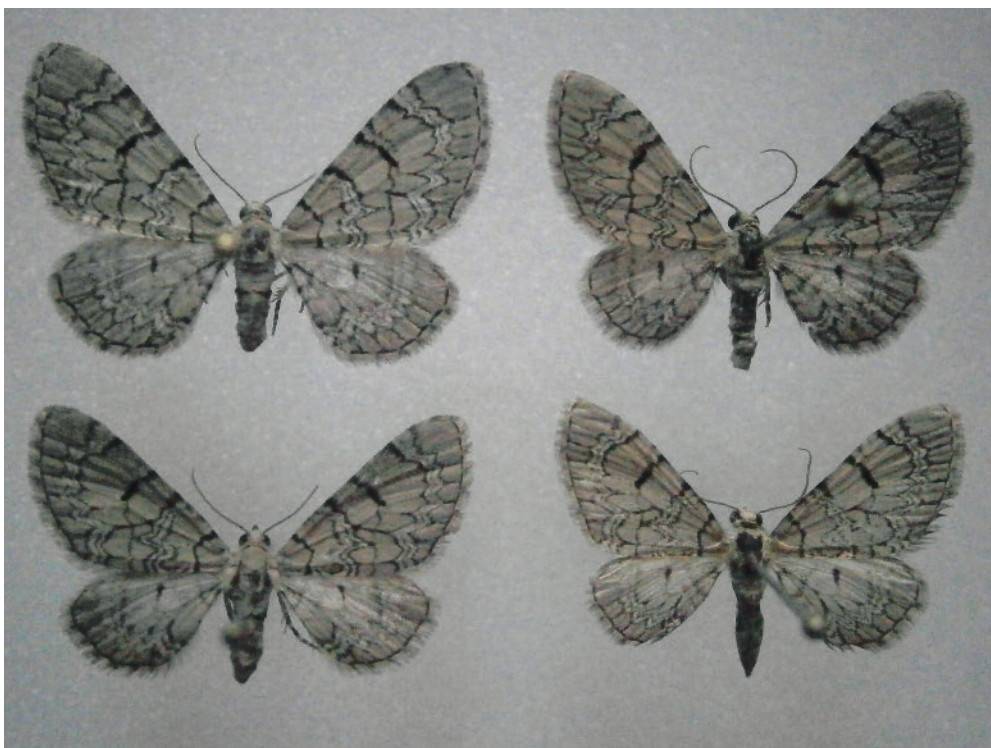


Fig. 9: *Eupithecia schiefereri* - three females and a male (above right), coll. R. Štanta



Fig. 10: Male of *Eupithecia limbata* sitting on a limestone rock, ex. larva Lokvica – Medvejšče, 10.7.2015, leg. and coll. R. Štanta

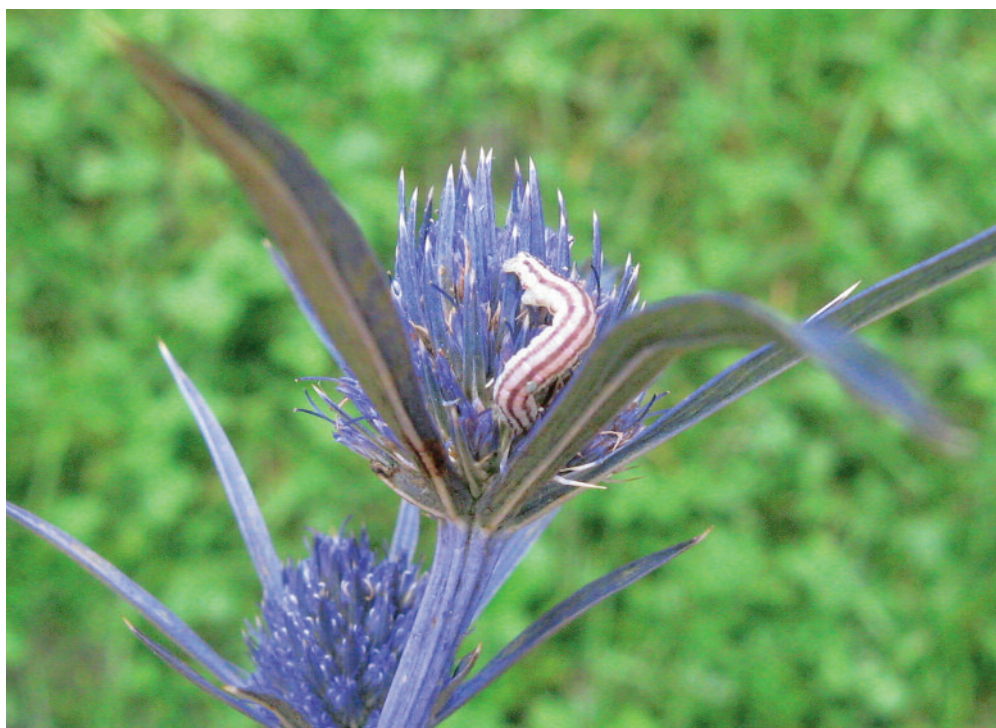


Fig. 11: Larva of *Eupithecia limbata* feeding on *Eryngium amethystinum* inflorescence, Hudi Log, 3.9.2012

Five larvae were found on flowers of *Eryngium amethystinum* L. on three locations of Goriški kras: Lokvica-Segeti, 2.9.2011; Hudi Log, 3.9.2012; Hudi Log, 24.8.2013 all larvae leg. & det. (RŠ); Lokvica – Medvejšče, 10.7.2015, 12.7.2015 (larvae 14.9.2014) leg. & coll. (RŠ).

Notodontidae

Paradrymonia vittata Staud.

This species of South European distribution reaches at our region the northeast limit of distribution. It is present throughout Kras and is not rare. It is tied to the forests and thickets, where thrives *Acer campestre* L., its plant nutrient. It flies from the beginning of May until mid-July. Here are only some data: Kostanjevica na Krasu, 11.7.1994 leg. & coll. (RŠ); Kostanjevica na Krasu, 1.7.1989 (RŠ&MZ); Gorenja Brestovica, 10.7.1997 (RŠ&ML); Jirmanec, 4.6.2011 (RŠ&MZ); Brestovica, 9.5.2013 (RŠ&MZ); Ponikve, 29.6.2013 (RŠ&MZ); Podbreže, 12.7.2013 (RŠ&MZ); Klariči, 18.6.2014 leg. & coll. (RŠ); Kopriva, 6.7.2014 (RŠ&CM).

Erebidae

Nudaria mundana L.

European species that prefers rocky mountain areas above 700 m altitude, was found in the Kras at three lowland locations: Kopriva (280 m), Ponikve (325 m) and Lokev (455 m), dominated by dry meadows with hedges and forest edge.

Lokev, 25.6.2010 (RŠ&MZ&BZ); Kopriva, 27.6.2012 leg. & coll. (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM).

Eilema pseudocomplana Dan.

This species is locally distributed in central and southern Europe, from Spain to Iran and is not common. It has one generation which flies in July and August. In Slovenia we have little published data, probably because of the similarity with *E. complana*, but is not uncommon on the Karst plateau, especially in August, when is the peak of its occurrence.

Lokev, 4.9.2010 (RŠ&MZ&BZ); Skopo, 28.7.2011 leg. & coll. (RŠ); Temnica, 11.8.2012 (RŠ&MZ); Jirmanec, 28.7.2012 (RŠ&MZ); Komen, 5.8.2013 leg. & coll. (MZ).

Amata marjana Staud.

Some authors designate it as *Amata kruegeri* (Ragusa, 1904). Xerophilous species that inhabits dry, open karst meadows. In Goriški kras - around Brestovica and Lokvica two populations can be found, they occur approximately two weeks before the sister species of *Amata phegea*, common throughout all Karst.

Lokvica, 18.6.1993, 18.6.2013; Lipa na Krasu, 13.6.1999; Klariči, 31.5.1998, 1.6.2001, 8.6.2013 all leg. & coll. (RŠ); Opatje selo, 18.6.2004 leg. & coll. (MZ).

Spiris slovenica Dan.

Until now known as subspecies of *Coscinia (Spiris) striata*, has been now identified as a valid species (Huemer, 2012) which replaces the previously asserted *C. striata* in Slovenia, Italy, southern Austria and Croatia. It is active during the day, at night can be attracted with artificial light. Its habitat are dry meadows. At Kras is a common and widespread everywhere:

Sežana - Dol Leskovec, 14.6.1986; Opatje selo, 8.7.1989; Dutovlje, 21.6.1991; Lipa na Krasu, 18.6.2001; Komen, 22.6.2013; Brestovica, 22.6.2013; Vrhovlje, 6.6.2014 all leg. & coll. (RŠ); Lokev, 9.6.2013 leg. & coll. (MZ).

Hypena lividalis Hübn.

This interesting South European erebid moth we got only once in the Komenski kras. It probably came to us as a migrant.

Zagrajec, 30.9.2010 leg. & coll. (RŠ).

Noctuidae*Euchalcia modestoides* Poole

This Eurasian species is not common, it flies in June and July. One male was found southwest of Ponikve:

Ponikve, 12.06.2013 leg. & coll. (RŠ).

Cucullia gozmanyi G. & L. Ron.

In Slovenia, it is known only in the Komenski kras (Lasan, 2000). Here are listed some of the findings, which expand the known distribution of the species to the Goriški kras:

Kobjeglava – Jelenca, 15.4.1998 ex larva on *Scrophularia phenicaceum* L. (larvae 22.5.1997); Kostanjevica na Krasu, 3. - 15.4.1998 (larvae 29.5.1997); Hudi log, 20.4.1998 (larvae 29.5.1997);

Lipa na Krasu, 15. - 18.4.2009 ex ovum on *S. phenicaceum* (ovum 9.5.2010, larvae 12. - 14.5.2010);

Kobjeglava – Jelenca, 12. - 26.4.2001 (larvae 23.5.2000); Gorjansko, 2. - 8.6.2001 (larvae 21.5.2000) all leg. & coll. (RŠ).

Schinia cardui Hübn.

This owlet moth has been found so far in three locations in Slovenia: Laško (Carnelutti, 1971), Košaki at Maribor (Lesar, Jež, 2006) and Sečovelje (S. Gomboc personal comment). From our proximity is known in Austria, Croatian Istria and Triest Karst, Ferneti (Fernetiči) (L. Morin personal comment). This xerophilous species we found in dry, open areas in Karst, particularly along the ways on *Picris hieracioides* L. where it feeds on flowers and seeds.

Sežana, 4.9.2010 3x larvae (RŠ&MZ&BZ); Pliskovica, 9. - 12.8.2011 2♂1♀ (larvae 14.9.2010); Krajna vas, 14.8.2011 1♂ (larva 14.9.2010); Pliskovica, 24. - 28.7.2012 5♂6♀ (larvae 15.8.2011); Veliki Dol, 28.7.2012 1♂ (larva 15.8.2011);

Pliskovica, 15.8.2011 1♀, Lokvica – Medvejšče, 1.8.2012 1♀ all leg. & coll. (RŠ); Vojščica, 29.7.2012; Brje pri Komnu, 21.7.2013, 26.7.2014 all leg. & coll. (MZ).

Oligia dubia Heyd.

It occurs around the Alps from Switzerland to the Pannonian plains in the east. It is more common on the southern slopes of the Alps and the eastern provinces of the northern Adriatic. At Kras it is common from the middle of May until the end of June. In the middle of this period, when is its summit occurrence *O. dubia* is almost as frequent as *O. latruncula*. Typical pattern of the front wings differentiates *O. dubia* from *O. latruncula* due to the lighter colored field between the post-median fascia and sub-terminal fascia. In a typical *O. dubia* the lower part of the post-median fascia is light, almost white, and it is in the lower edge of the wings slightly curved outwards, while in a typical *O. latruncula* it is on average darker, almost straight and reaches the lower edge of the wing at right angle. There are also some exceptions, so an analysis of genital armatures is required.

Kostanjevica na Krasu, 27.5.1988 (RŠ&MZ); Kobjeglava, 19.5.1997 (RŠ&MZ); Lokvica, 25.5.2002 (RŠ&BZ&SG); Lipa na Krasu, 12.5.2006 (RŠ&MZ); Zagrajec, 22.5.2009 (RŠ&MZ); Komen – Jažmerca, 5.6.2010 (RŠ&MZ&BZ); Komen, 19.5.2011 (RŠ&MZ); Kopriva, 30.5.2011 (RŠ); Skopo, 30.5.2011 and 10.6.2011 (RŠ); Jirmanec, 4.6.2011 (RŠ&MZ); Vrhpolje - Sv. Tomaž, 16.6.2012 (RŠ); Ponikve, 12.6.2013 (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM); Brje pri Komnu, 25.4.2014 (RŠ&MZ) all gen. prep. & coll. (RŠ).



Fig. 12: Two caterpillars of *Schinia cardui* feeding on flowers of *Picris hieracioides*, Pliskovica, 14.9.2010



Fig. 13: *Euxoa cos* male, Temnica, 29.8.2008, leg. and coll. M. Zadrgal

Perigrapha rorida Friv.

Mediterranean-Asian owlet moth occurs in March and April. Larvae are fed exclusively with *Paliurus spina-christi* Mill. Regularly occurring in west of Goriški and Komenski kras.

Klariči, 25.3.1994, 26.3.1995, 15.3.2002 (RŠ & MZ); Vojščica, 25.3.1996 leg. & coll. (RŠ); Klariči, 19. - 25.3.1996 ex larva leg. & coll. (RŠ); Klariči, 15.03.2014 leg. & coll. (MZ).

Euxoa cos Hübn.

It is a Mediterranean – West Asian species, Carnelutti (1992) is mentioning it for Vipava - old data. It has recently been found in Iamiano - Jamlje in Gorizia karst in Italy (Deutsch, 2008). One specimen was found also on the Slovenian side:

Temnica, 29.8.2008 leg. & coll. (MZ).

Discussion

755 species were found in the area of the Karst, compared with approximately 390 previously mentioned literature data, quite a significant increase in knowledge of Macrolepidoptera for Komenski and Sežanski kras. Comparison with approximately 670 recorded species on the more explored Italian side indicates that the vast majority of the registered fauna on the Italian side was found with our observations. Larger number of species is mostly due to greater surface of Kras on the Slovenian side and because there is a greater distance from the Gulf of Trieste, having on average, cooler climate. Typical species of these cooler areas, which are not confirmed for the Italian side, are populated in the southeastern and eastern part of the plateau. These are eg.:

Euphyia biangulata, *Nudaria mundana*, *Brachionycha nubeculosa*, *Mniotype adusta*, *Staurophora celsia*, *Agrotis cinerea* and others.

Fauna on the Italian side leads in the number of hygrophilous species, some of them were not found on our side: *Lycaena dispar*, *Gastropacha populifolia*, *Perizoma flavofasciata*, *Cerura vinula*, *Herminia tenuialis*, *Deltote bankiana*, *Deltote uncula*, *Apterogenum ypsilon*, *Mythimna pallens*, *Mythimna impure* and others. The literature does not always show the exact locations of these species; mainly they are surroundings of karst lakes, Doberdob lake - Lago di Doberdo and Prelosno lake - Lago di Pietrarossa and for some wetland areas of nearby Tržič - Monfalcone or Milje - Muggia.

We found some hygrophilous species on the Slovenian side in the surroundings of ponds and their residues as the only surface water. The most suitable due to multiannual abandonment and large edge vegetation zone is a pond in Komen, where we found the majority of hygrophilous species: *Athetis gluteosa*, *Rhizodra lutosa*, *Globia sparganii* and others.

There are fewer differences regarding xerophilous species among the Italian and the Slovenian part of the Karst. Thanks mainly to the warmer northwestern part on our side we found there almost all present species: *Polygonia egea*, *Gnopharmia stevenaria*, *Rhoptria asperaria*, *Colostygia sericeata*, *Dysauxes famula*, *Metachrostis velox*, *Zebeeba falsalis*, *Meganephria bimaculosa*, *Dryobotodes monochroma*, *Aporophyla canescens*, *Perigrapha rorida* and others.

In the studied area of the Karst the most notable regarding diversity are zones 1 and 5. Among the 56 species, which were found only in the zone 1 stand out xerophilous species. The main factor is the impact of a warmer local climate, especially in Brestoviški dol and neighboring lower parts of Goriški and Komenski kras, where the influence of the sea could be felt. Therefore some xerophilous species we found only here: *Acanthopsyche ecksteini*, *Pieris ergane*, *Polyommatus escheri*, *Polygonia egea*, *Nychiodes dalmatina*, *Amata marjana*, *Catocala conjuncta*, *Odice suava*, *Dryobotodes carbonis*, *Perigrapha rorida*, *Euxoa cos* and others.

Another group typical only for zone 1 are random finds species, which are more common in the near Vipava Valley: *Lycaena hippothoe*, *Clostera anastomosis*, *Gluphisia crenata*, *Furcula furcula*, *Furcula bifida*, *Spilosoma lutea*, *Euproctis chrysorrhoea*, *Sphrageidus similis*, *Acronicta auricoma*, *Apamea crenata*.

The discovery of Erebid moth *Pelosia muscerda* in Klariči is also interesting, the latter is probably accidental guest from the surroundings of karst lakes on the Italian side. Similarly, *Dryobota labecula* and *Dryobotodes tenebrosa* probably flew from the stands of holly oaks at the coast of the Gulf of Trieste.

Zone 5 is the second according to the number of unique species. We found 33 species here which in other zones can not be found. A key role in this has the set of hills with altitude about 700 m from Jirmanec, more commonly known as Kokoš to V. Gradišče and Ograda. Colder climate on the top generates the presence of certain species, which were found only here: *Peribatodes secundaria*, *Charissa obscurata*, *Scotopteryx moeniata*, *Catarhoe rubidata*, *Euphyia biangulata*, *Thera vetustata*, *Hydrelia flammeolaria*, *Eupithecia trisignaria*, *Eupithecia absinthiata*, *Xanthia icteritia*, *Eugnorisma depuncta* and others.

The warm southern slopes are different, there are some interesting xerophilous and mesophilous species: *Phaiogramma etruscaria*, *Euphyia adumbraria*, *Horisme calligraphata*, *Perigrappa i-cinctum slovenica*.

For the entire Kras, especially for the central zones 2,3 and 4 which are characterized by the coexistence of species with different ecological requirements. This is enabled by a heterogeneous structure of microhabitats, conditioned by karst phenomena. Thus we find in small areas xerophilous, mesophilous and hygrophilous species. Hygrophilous species retain in sinkholes, some of the rarer are: *Coenonympha oedippus*, *Acosmetia caliginosa*, *Photedes morrisii sohnretheli*, *Mythimna riparia*, *Orthosia gracilis*. At the edge of sinkholes mesophilous species are found, among which we highlight *Ennomos autumnaria*, *Odontopera bidentata*, *Polia nebulosa*, *Moma alpium*; on the slopes xerophilous species of Lepidoptera, among the rarer eg.: *Ennomos quercaria*, *Zekelita antiqualis*, *Praestilbia armeniaca*, *Aporophyla canescens*.

Among central zones slightly stands out zone 2 with 23 species which are not found elsewhere and consist of mainly xerophilous species: *Gnopharmia stevenaria*, *Rhoptria asperaria*, *Eublemma parva*, *Epimecia ustula*, because the lower southwest part of the zone falls within the warmer climate area.

Due to the small number of inventories in zones 4 and 5, the number of species found there is the smallest. We expect that with additional research the differences in correlation with other zones will diminish, as in these two zones over 110 ubiquitous species are missing but are being represented in all other zones.

A brief mention also deserve the most common species of Karst. In selection of the latter we took into account the average abundance throughout the period of 30 years. We canceled out seasonal fluctuations, which were quite large. Kras is being largely dominated by the tree species of Lepidoptera due to its overgrowth with shrubs and trees. Among these species we can find: *Colotois pennaria*, *Operophtera brumata*, *Eupithecia ericeata*, *Thaumetopoea pityocampa*, *Diloba caeruleocephala*, *Craniophora ligustri*, *Amphipyra pyramidea*, *Allophyes oxyacanthae*, *Conistra vaccinii*, *Conistra erythrocephala*, *Orthosia cerasi*, *Orthosia cruda*.

The butterflies were somewhat neglected in our observations, so we were unable to confirm all known species. According to the Atlas of butterflies of Slovenia (Verovnik & al., 2012) 9 additional species are also present: *Leptotes pirithous*, *Satyrium acaciae*, *Satyrium w-album*, *Apatura ilia*, *Aphantopus hyperantus*, *Araschnia levana*, *Brenthis ino*, *Satyrus ferula* and *Colias hyale*, as well as 15 species, which were found during the inventory of the Kras by Stanislav Gomboc: *Hyles gallii*, *Laothoe populi*, *Peribatodes umbraria*, *Idaea muricata*, *Scopula confinaria*, *Nebula achromaria*, *Epirrita autumnata*, *Aplocera praeformata*, *Atolmis rubricollis*, *Hypophora aulica*, *Lygephila procax*, *Eublemma ostrina*, *Bryophila domestica*, *Hoplodrina octogenarian* and *Noctua orbona*.

A few more species known from the literature are expected to be found, but we have not managed to find them yet: *Acanthopsyche atra*, *Apterona helicoidella* (parth. form), *Paranthrene tabaniformis*, *Synanthedon stomoxiformis*, *Daphnis nerii*, *Erannis ankeraria*, *Charissa variegata*, *Cerura vinula*, *Chelis maculosa*, *Catocala diversa*, *Omia cymbalariae*, *Dichonia aeruginea*.

Along with these, the number of species found in the Karst region rose to 791, which represents more than 52 % of known Macrolepidoptera species in Slovenia where from Carnelutti (1992a, 1992b), Gomboc & Lasan (2006) and Lesar & Govedič (2010) is to conclude that the slovenian fauna of Macrolepidoptera counts around 1500 species.

For slovenian Kras is in older literature also mentioned *Pyrgus onopordi*, which now applies to extinct species in Slovenia (Verovnik & al., 2012) and some dubious species: *Rebelia sapho*, *Asthenes anseraria*, *Autophila anaphanes* and *Diarsia mendica*, some of them had already been critically discussed: *Pyrgus cirsii*, *Coscinia cribraria*, *Malacosoma franconica* (Carnelutti, 1971).

Species Conservation overview

Karst is one of the hotspots of biodiversity, but we have witnessed accelerated change of the Kras area in recent decades. The main reason is the abandonment of traditional agricultural use of the landscape, resulting in overgrowth, thereby the reduction of the typical dry grasslands. The increase of urban environments, industrialization and the introduction of intensive farming also have a negative impact, but in the addressed area represent more marginal role. With the disappearance of the typical karst landscape we are losing the diversity of flora and fauna. The public is recently aware of this natural wealth, since almost the entire area of the central Kras has been placed in a special protection area Natura 2000 (Kras SI5000023), exempted are only Sežana, Divača and Kozina with their neighborhoods.

In the attached checklist of species there are 67 species, which have the status of the endangered species in Slovenia (UL RS, 82/2002), from which 43 are in the category of endangered species - E and 24 of them are vulnerable species - V.

There are 7 priority species living in Kras according to the Habitats Directive (92/43/EC), of those are 4 from Attachment II.: *Callimorpha (Euplagia) quadripunctaria*, *Coenonympha oedippus*, *Eriogaster catax* in *Euphydryas aurinia* and 3 from Attachment IV.: *Lopinga achine*, *Parnassius mnemosyne* and *Zerynthia polyxena*.

Protected species on the state level are laid down with Regulation of the conservation of natural habitats and of wild fauna and flora (Ur. l. RS, 2004a). 23 species are listed in both attachments.

In Attachment 1, which protects the species and populations, there are 30 species from Kras (following in alphabetical order, as in the Regulation): *Callimorpha (Euplagia) quadripunctaria*, *Carcharodus flocciferus (floccifera)*, *Chazara briseis (Ex?)*, *Chesias rufata*, *Coenonympha oedippus*, *Diaphora luctuosa*, *Eriogaster catax*, *Eublemma purpurina*, *Euphydryas aurinia*, *Eupithecia ochridata*, *Gnopharmia stevenaria*, *Gortyna puengeleri*, *Hecatera cappa*, *Hemaris fuciformis*, *Hemaris tityus*, *Lopinga achine*, *Nudaria mundana*, *Paradrymonia vittata*, *Parnassius mnemosyne*, *Perigrapha i-cinctum*, *Perisomena (Saturnia) caecigena*, *Phragmatobia luctifera*, *Plebicula (Polyommatus) escheri*, *Polygonia egea*, *Praestilbia armeniaca*, *Saturnia pyri*, *Schinia cardui*, *Zerynthia polyxena*, *Zygaena ephialtes*, *Zygaena punctum*.

42 species is from Attachment 2, which protects habitats: *Acanthopsyche zelleri*, *Apamea aquila*, *Archanara sparganii*, *Atethmia centrago*, *Athetis gluteosa*, *Callimorpha (Euplagia) quadripunctaria*, *Carcharodus flocciferus (floccifera)*, *Chazara briseis (Ex?)*, *Chesias rufata*, *Chortodes (Photodes) morrisii sohnretheli* (in Regulation as *Chortodes morrisii* and *Chortodes sohnretheli*), *Coenonympha oedippus*, *Colostygia sericeata*, *Coscinia slovenica* (in Regulation as *Coscinia striata*), *Crassagrotis crassa (Agrotis bigramma)*, *Cucullia gozmanyi*, *Diaphora luctuosa*, *Eilema pseudocomplana*, *Eriogaster catax*, *Eublemma purpurina*, *Euphydryas aurinia*, *Eupithecia ochridata*, *Euxoa cos*, *Gnopharmia stevenaria*, *Hemaris fuciformis*, *Hemaris tityus*, *Metachrostis dardouini*, *Metachrostis velox*, *Nudaria mundana*, *Odice suava*, *Orbona fragariae*, *Parnassius mnemosyne*, *Perigrapha i-cinctum*, *Phragmatobia luctifera*, *Plebicula (Polyommatus) escheri*, *Plebicula (Polyommatus) thersites*, *Polygonia egea*, *Praestilbia armeniaca*, *Rhizedra lutosa*, *Rhyparia purpurata*, *Zerynthia polyxena*, *Zygaena ephialtes*, *Zygaena punctum*.

Data on the recorded species of Macrolepidoptera confirm that the importance of the nature protection area is enormous and the collected data could represent the basis for the monitoring and supervision of the endangered, protected and other species.

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Appendix:

Tab. 2: Checklist of observed species. Explanation of terms and abbreviations is given in the chapter Materials and Methods.

Family / No. Sp. / Taxon	Zone					Flying period	Frequency	Note
	1	2	3	4	5			
HEPIALIDAE (2)								
<i>Triodia sylvina</i> (Linnaeus, 1761)	x	x	x	x	x	8,9	common	Kobjeglava - Jelenca, 13.5.1997 (RŠ&MZ&SG); Kobjeglava - Zavodi, 8.5.2001 (RŠ&MZ); Kobjeglava - Jelenca, 9.5.2012 (RŠ&MZ); Kazlje, 19.5.2015 (RŠ&MZ)
<i>Pharmacis lupulina</i> (Linnaeus, 1758)		x	x	x		5	rare	
PSYCHIDAE (13)								
<i>Dahlia triquetrella</i> (parth. form) (Hübner, 1813)	x	x	x			3,4	very common	Lokvica, 7.4.2006 e. p. 30.3.2006 (RŠ); Lipa na Krasu, 9.5.2008 e. l. 25.2.2008 (RŠ)
<i>Taleporia politella</i> (Ochsenheimer, 1816)	x	x	x	x		4,5	common	Opatje selo, 29.3.2007 e. p. 20.3.2007 (MZ); Lokvica, 19.4.2007 e. p. 30.3.2007 (RŠ); Lipa na Krasu, 10.5.2008 e. l. 25.2.2008 (RŠ)
<i>Psyche crassiorella</i> (Bruand, 1851)	x	x	x			3,4,5	not common	Lipa na Krasu, 20.4.1996 (RŠ&MZ); Lokvica, 30.3.2006 (RŠ) - larvae; Miren - Gmajna, 15.5.2012 e. l. 15.4.2012 (RŠ)
<i>Bijugis bombycella</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	5,6,7	very common	
<i>Rebelia per-lucidella</i> (Bruand, 1853)	x	x	x	x	x	4,5	common	
<i>Epichnopteryx kovacsi</i> Sieder, 1955	x	x				3,4	not common	Novelo, 5.4.1987 (RŠ); Kostanjevica na Krasu, 20.4.1996 (RŠ); Klarići, 15.3.1998 (RŠ)
<i>Acanthopsyche ecksteini</i> (Lederer 1855)	x					4	rare	Opatje selo, 2.4.2007 e. l. 2.9.2006 on <i>Satureja montana</i> and <i>Genista germanica</i> (RŠ); Lokvica, 9.4.2007 (RŠ&MZ)
<i>Acanthopsyche zelleri</i> (Mann, 1855)	x	x				4	common	Lokvica, 23.4.2006 (RŠ); Opatje selo, 7.4.2007 (RŠ); Kostanjevica na Krasu, 11.4.2007 (RŠ)

<i>Canephora hirsuta</i> (Poda, 1761)	x	x		6	rare	Kostanjevica na Krasu, 11.6.1988 (RŠ&MZ); Zagrajec, 4.6.2014 e. p. 25.10.2013 (RŠ&MZ)
<i>Pachythelia villosella</i> (Ochsenheimer, 1810)	x	x		5,6	rare	Lipa na Krasu, 9.6.2000 (MZ); Vojšćica, 6.6.2011 (MZ); Komen, 28.5.2012 (MZ)
<i>Ptilocephala plumifera mediterranea</i> (Lederer 1852)	x	x		3,4	rare	Lipa na Krasu, 20.4.1996 (RŠ&MZ); Kostanjevica na Krasu, 16.3.1997 (RŠ); Brje pri Komnu, 4.4.1999 (MZ); Kostanjevica na Krasu, 17.4.2006 (RŠ)
<i>Megalophanes viciella</i> (Denis & Schiffermüller, 1775)	x	x	x	5,6	common	
<i>Phalacropteryx praecellens</i> (Staudinger, 1870)	x	x	x	2,3,4	very common	
COSSIDAE (4)						
<i>Cossus cossus</i> (Linnaeus, 1758)	x	x	x	5,6,7	rare	Klarići, 16.5.1994 (RŠ&MZ); Skopo, 26.6.2011 (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM); Krajna vas, 18.7.2014 (RŠ&MZ)
<i>Parahypopta caestrum</i> (Hübner, 1803-1808)	x	x	x	6,7	rare	Gorenja Brestovica, 20.7.1991 (RŠ&MZ); Škrbina, 18.7.1995 (RŠ&MZ); Zagrajec, 26.7.2008 (RŠ&MZ); Veliki Dol, 27.6.2012 (RŠ)
<i>Dyspessa ulula</i> (Borkhausen, 1790)	x	x	x	4,5,6,7	not common	
<i>Zeuzera pyrina</i> (Linnaeus, 1761)	x	x	x	6,7,8,10	not common	Kostanjevica na Krasu, 1.7.1989 (RŠ&MZ); Kobjeglava, 2.10.1995 (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM); Kopriva, 6.7.2014 (RŠ&CM)
SESIIDAE (4)						
<i>Synanthedon andrenaeiformis</i> (Laspeyres, 1801)	x			/	very rare	Opatje selo, 23.4.2006 - larvae on <i>Viburnum lantana</i> (RŠ)
<i>Synanthedon myopaeiformis</i> (Borkhausen, 1789)		x		/	not common	Komen, 12.4.2007 - larvae on <i>Malus domestica</i> (RŠ)
<i>Synanthedon tipuliformis</i> (Clerck, 1759)	x			/	not common	Kostanjevica na Krasu, 24.5.2003 - larvae on <i>Ribes</i> spp. (RŠ)
<i>Chamaesphecia aerifrons</i> (Zeller, 1847)	x			/	not common	Vojšćica, 27.12.2012 (RŠ); Selo na Krasu, 2.11.2013 (RŠ) - exuviae and larvae in the roots of <i>Satureja montana</i>

HETEROGYNIDAE (1)														
<i>Heterogyis penella</i> (Hübner, 1819)									x	x	x	5,6	very common	Jirmanec, 4.6.2011 pupa (RŠ&MZ); Podbreže, 9.6.2013 e. p. 1.5.2013 (RŠ&MZ); Vrhovlje, 6.6.2014 exuviae (RŠ); Kazlje, 13.5.2015 (RŠ)
LIMACODIDAE (1)														
<i>Apoda limacodes</i> (Hufnagel, 1766)									x	x	x	5,6,7,8	common	
ZYGAEINIDAE (16)														
<i>Jordanita budensis</i> (Ad. & Au. Speyer, 1858)										x		5	very rare	Data in the Chapter regarding interesting species
<i>Jordanita notata</i> (Zeller, 1847)									x	x		6	rare	Lipa na Krasu, 9.6.2002 (RŠ); Kopriva, 10.6.2011 (RŠ) - inspection of the genital structures (RŠ)
<i>Jordanita chloros</i> (Hübner, 1813)											x	6,7	rare	Jirmanec, 16.7.2010 (MZ); Jirmanec, 8.7.2011 (RŠ)
<i>Jordanita globulariae</i> (Hübner, 1793)									x	x	x	5,6	common	
<i>Adscita manni</i> (Lederer, 1853)									x	x	x	5,6,7	common	
<i>Adscita staticeae</i> (Linnaeus, 1758)										x		5	very rare	Kobjeglava - Jelenca, 26.5.2000 (RŠ)
<i>Zygaena punctum</i> Ochsensheimer, 1808									x	x		5,6	rare	Data in the Chapter regarding interesting species
<i>Zygaena purpuralis</i> (Brünnich, 1763)									x	x	x	4,5,6	very common	
<i>Zygaena carniolica</i> (Scopoli, 1763)									x	x	x	6,7	common	
<i>Zygaena loti</i> (Denis & Schiffmüller, 1775)									x	x	x	5,6	very common	
<i>Zygaena osterodensis</i> Reiss, 1921									x			5	very rare	Opatje Selo, 9.6.1995 (MZ); Klariči, 31.5.1998 (RŠ); Kobjeglava - Jelenca, 26.5.2000 (RŠ)
<i>Zygaena viciae</i> (Denis & Schiffmüller, 1775)									x		x	6	rare	Lipa na Krasu, 9.6.2000 (MZ); Lipa na Krasu, 9.6.2002 (RŠ); Jirmanec, 17.6.2011 (RŠ)
<i>Zygaena ephialtes</i> (Linnaeus, 1767)									x			6	very rare	Klariči, 25.6.1988 (RŠ); Klariči, 5.7.1995 (MZ)
<i>Zygaena transalpina</i> (Esper, 1780)									x	x	x	5,6	not common	Nova vas, 14.9.2014 - unusual date, one male observed
<i>Zygaena filipendulae</i> (Linnaeus, 1758)									x	x	x	5,6	very common	
<i>Zygaena loniceriae</i> (Scheven, 1777)									x	x	x	5,6	common	

THYRIDIDAE (1)									
<i>Thyris fenestrella</i> (Scopoli, 1763)	x				6,7		very rare		Opatje selo, 8.7.1989 (RŠ); Klariči, 24.6.1996 (RŠ)
PAPILIONIDAE (4)									
<i>Zerynthia polyxena</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	3,4,5	common		Kostanjevica na Krasi, 16.4.1989 (RŠ); Lipa na Krasi, 26.4.2000 (RŠ); Dutovlje, 18.4.2009 (RŠ)
<i>Parnassius mnemosyne</i> (Linnaeus, 1758)	x	x	x	x		5,6	not common		Kobjeglava, 15.6.1990 (RŠ); Trstelj, 19.5.1991 (RŠ); Lipa na Krasi, 14.5.2010 (MZ); Kazije, 13.5.2015 (RŠ)
<i>Ipichides podalirius</i> (Linnaeus, 1758)	x	x	x	x	x	3,4,5,6,7,8	common		
<i>Papilio machaon</i> Linnaeus, 1758	x	x	x	x	x	4,5,6,7,8,9	not common		
HESPERIIDAE (15)									
<i>Erynnis tages</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,6,7,8,9	common		
<i>Carcharodus alceae</i> (Esper, 1780)	x					6	very rare		Brestovica, 28.6.1995 (RŠ)
<i>Carcharodus floccifera</i> (Zeller, 1847)	x	x	x	x	x	5,6,7	rare		Klariči, 31.5.1998 (RŠ); Lokev, 8.7.2002 (RŠ); Lipa na Krasi, 22.5.2010 (RŠ); Kobjeglava, 22.5.2011 (RŠ); Krajna vas, 21.5.2014 (RŠ); Vrhovlje, 6.6.2014 (RŠ)
<i>Spialia sertorius</i> (Hoffmannsegg, 1804)	x	x	x	x	x	4,5,6,7,8	common		
<i>Pyrgus carthami</i> (Hübner, 1813)	x	x	x	x	x	5,6	not common		Brestovica, 16.6.2002 (RŠ); Lipa na Krasi, 30.6.1990 (RŠ); Gorjansko, 22.5.2011 (RŠ); Kopriva, 29.5.2011 (RŠ); Podbreže, 6.6.2014 (RŠ)
<i>Pyrgus malvae</i> (Linnaeus, 1758)						5	rare		Data in the Chapter regarding interesting species
<i>Pyrgus malvoides</i> (Elwes & Edwards, 1897)	x	x				4,5,6	not common		Data in the Chapter regarding interesting species
<i>Pyrgus armoricanus</i> (Oberthür, 1910)	x	x	x			5,6	rare		Klariči, 6.5.2000 (MZ); Kobjeglava, 22.5.2011 (RŠ); Komen, 29.5.2011 (RŠ); Gorjansko, 22.6.2013 (RŠ); Vrhovlje, 6.6.2014 (RŠ); Lokev, 6.6.2014 (RŠ)
<i>Pyrgus alveus trebevicensis</i> (Warren, 1926)					x	6	very rare		Lokev, 6.6.2014 (RŠ)

<i>Heteropterus morpheus</i> (Pallas, 1771)	x	x	x	6,7	rare	Opatje selo, 23.6.2006 (RŠ); Kobjeglava, 15.6.1990 (RŠ)
<i>Carterocephalus palaemon</i> (Pallas, 1771)		x		5	very rare	Škrbina, 6.5.2014 (RŠ)
<i>Thymelicus lineola</i> (Ochsenheimer, 1808)	x	x	x	5,6,7	very common	
<i>Thymelicus sylvestris</i> (Poda, 1761)		x	x	6,7	rare	Lipa na Krasu, 19.6.2010 (RŠ); Dobravljje, 20.7.2013 (RŠ)
<i>Hesperia comma</i> (Linnaeus, 1758)	x	x	x	6,7,8,9	not common	
<i>Ochlodes sylvanus</i> (Esper, 1777)	x	x	x	5,6,7,8,9	common	
PIERIDAE (12)						
<i>Leptidea sinapis</i> (Linnaeus, 1758)	x	x	x	3,4,5,6,7,8,9	very common	
<i>Anthocharis cardamines</i> (Linnaeus, 1758)	x	x	x	3,4,5,6	common	
<i>Aporia crataegi</i> (Linnaeus, 1758)	x	x	x	4,5,6,7	very common	Kostanjevica na Krasu, 22.4.1981 (RŠ) - the earliest date
<i>Pieris brassicae</i> (Linnaeus, 1758)	x	x	x	5,6,7,8,9,10	not common	
<i>Pieris mammii</i> (Mayer, 1851)	x	x	x	3,4,5,6,7,8,9	common	
<i>Pieris rapae</i> (Linnaeus, 1758)	x	x	x	3,4,5,6,7,8,9,10	common	
<i>Pieris ergane</i> (Geyer, 1828)	x			6,8	very rare	Vale, 23.6.1999 (RŠ); Vojšičica, 18.8.2002 (RŠ)
<i>Pieris napi</i> (Linnaeus, 1758)	x	x	x	3,4,5,6,7,8,9,10	very common	
<i>Pontia edusa</i> (Fabricius, 1777)	x	x		4,5,6,8,9	not common	
<i>Colias croceus</i> (Geoffroy & Fourcroy, 1785)	x	x	x	4,5,6,7,8,9,10,11	common	
<i>Colias alfacariensis</i> Ribbe, 1905	x	x	x	4,5,6,7,8,9,10	common	
<i>Gonepteryx rhamni</i> (Linnaeus, 1758)	x	x	x	1 - 12	common	

LYCAENIDAE (30)												
<i>Hamearis lucina</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	4,5,7,8	common	Kopriva, 29.5.2011 (RŠ)	
<i>Lycæna phlaeas</i> (Linnaeus, 1761)	x	x	x	x	x	x	x	x	3,4,5,6,7,8,9,10,11	common	Kopriva and Vrhovlje, 17.8.2013 (RŠ)	
<i>Lycæna tityrus</i> (Poda, 1761)	x	x	x	x	x	x	x	x	4,5,6,7,8	not common		
<i>Lycæna aliciphron</i> (Rottemburg, 1775)								x	5	very rare	Lokev, 26.5.2012 (MZ)	
<i>Lycæna hippothoe</i> (Linnaeus, 1761)	x								6,7	very rare	Opatje selo, 19.7.1989 (RŠ); Kostanjevica na Krasu, 30.6.1990 (RŠ)	
<i>Favonius quercus</i> (Linnaeus, 1758)	x	x							6,7,8,9	rare		
<i>Callophrys rubi</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	3,4,5,6	common		
<i>Satyrium spini</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	6,7	common		
<i>Satyrium ilicis</i> (Esper, 1779)	x	x	x	x	x	x	x	x	6,7	very common		
<i>Cacyreus marshalli</i> Butler, 1898	x								9,10	not common	Opatje selo, 21.9.2011 (RŠ); Nova vas, 14.10.2012 (RŠ)	
<i>Cupido minimus</i> (Fuessly, 1775)	x	x	x	x	x	x	x	x	4,5,6,7	common	Kopriva, 29.5.2011 (RŠ)	
<i>Cupido argiades</i> (Pallas, 1771)	x	x	x						4,5,6,7,8,9	not common		
<i>Cupido alcetas</i> (Hoffmannsegg, 1804)	x	x	x	x	x	x	x	x	4,5,6,7,8,9	not common		
<i>Celastrina argiolus</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	4,5,6,7,8,9	common	Kopriva, 29.5.2011 (RŠ); Skopo, 17.8.2013 (RŠ)	
<i>Pseudophilotes vicrama</i> (Moore, 1865)	x	x	x						3,4,5,6,7,8	rare	Gorenja Brestovica, 16.4.1995 (RŠ); Opatje selo, 19.4.1995 (RŠ); Lipa na Krasu, 26.4.2000 (RŠ)	
<i>Scolitantides orion</i> (Pallas, 1771)	x	x	x						4,5,6,7	not common		
<i>Glaucopsyche alexis</i> (Poda, 1761)	x	x	x						4,5	rare		
<i>Plebeius argus</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	5,6,7,8	very common		
<i>Plebeius idas</i> (Linnaeus, 1761)	x	x	x	x	x	x	x	x	5,6,7,8,9	common		

<i>Plebeius argyrognomon</i> (Bergsträsser, 1779)	x	x	x		5,6,7,9	not common		Data in the Chapter regarding interesting species	
<i>Aricia agestis</i> (Denis & Schiffmüller, 1775)	x	x	x	x	4,5,6,7,8,9,10	common			
<i>Polyommatus semiargus</i> (Rottemburg, 1775)	x	x	x	x	5,6,7	very common			
<i>Polyommatus escheri</i> (Hübner, 1823)	x				6	very rare			
<i>Polyommatus dorylas</i> (Denis & Schiffmüller, 1775)	x	x			4,5,6,7	rare		Kostanjevica na Krasu, 23.4.1988 (RŠ); Kostanjevica na Krasu, 18.6.1993 (RŠ); Lipa na Krasu, 14.5.2011 (RŠ)	
<i>Polyommatus amandus</i> (Schneider, 1792)				x	5,6	not common		Krvavi Potok, 30.6.1992 (RŠ); Vrhpolje - Sv. Tomaž, 16.6.2012 (RŠ); Lokev, 9.6.2013 (MZ)	
<i>Polyommatus thersites</i> (Cantener, 1835)	x			x	5,6	very rare		Lokev, 26.5.2012 (MZ); Klariči, 11.6.2010 (MZ)	
<i>Polyommatus icarus</i> (Rottemburg, 1775)	x	x	x	x	5,6,7,8,9	very common			
<i>Polyommatus daphnis</i> (Denis & Schiffmüller, 1775)	x	x			6,7,8	rare			
<i>Polyommatus bellargus</i> (Rottemburg, 1775)	x	x	x	x	5,6,7,8,9,10	very common			
<i>Polyommatus coridon</i> (Poda, 1761)	x	x	x	x	7,8	very common		Pliskovica, Kopriva, Skopo, Dutovlje, Vrhovlje, Sežana - Dol Leskovec all 17.8.2013 (RŠ)	
NYMPHALIDAE (49)									
<i>Libythea celtis</i> (Laicharting, 1782)	x	x			2,3,4,6,7	common			
<i>Pararge aegeria</i> (Linnaeus, 1758)	x	x	x	x	2,3,4,5,6,7,8,9,10,11	common			
<i>Lasionnata megera</i> (Linnaeus, 1758)	x	x	x	x	3,4,5,6,7,8,9,10	common			
<i>Lasionnata maera</i> (Linnaeus, 1758)	x	x	x	x	4,5,6,7,8	common			
<i>Lopinga achine</i> (Scopoli, 1763)	x			x	6	very rare		Sežana - Dol Leskovec, 14.6.1986 (RŠ); Trstelj, 18.6.1993 (RŠ)	
<i>Coenonympha oedippus</i> (Fabricius, 1787)	x	x	x		6,7	not common		Opatje selo, 8.7.1989 (RŠ); Lokvica, 20.6.1998 (RŠ); Brje pri Komunju, 12.6.1999 (MZ); Pliskovica, 23.6.1999 (RŠ); Vale, 23.6.1999 (RŠ); Lipa na Krasu, 18.6.2001 (RŠ)	

<i>Coenonympha arcania</i> (Linnaeus, 1761)	x	x	x	x	x	x	x	5,6,7	very common	Lokev, 8.7.2002 (RŠ); Jirmanec, 17.6.2011 (RŠ)
<i>Coenonympha glycerion</i> (Borkhausen, 1788)							x	6,7	common	
<i>Coenonympha pamphilus</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	4,5,6,7,8,9,10	very common	
<i>Erebia aethiops</i> (Esper, 1777)	x		x				x	7,8	not common	Kobjeglava, 5.8.1988 (RŠ); Opatje selo, 11.8.2006 (RŠ); Jirmanec, 8.7.2011 (RŠ)
<i>Erebia medusa</i> (Denis & Schiffermüller, 1775)							x	5,6	not common	Povir, 22.5.2005 (RŠ); Lokov, 9.6.2013 (MZ)
<i>Pyronia tithonus</i> (Linnaeus, 1767)	x	x	x				x	7,8,9	common	Pliskovica, 10.8.2011 (RŠ); Kopriva, Dutovlje, Vrhovlje all 17.8.2013 (RŠ)
<i>Mantola jurtina</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	5,6,7,8,9	very common	
<i>Melanargia galathea</i> (Linnaeus, 1758)	x	x	x	x			x	5,6,7	very common	
<i>Minois dryas</i> (Scopoli, 1763)	x	x	x	x	x		x	7,8,9	common	Pliskovica, Kopriva, Skopo, Dutovlje, Vrhovlje, Sežana - Dol Leskovec all 17.8.2013 (RŠ); Veliki Dol, 13.8.2014 (RŠ)
<i>Brintesia circe</i> (Fabricius, 1775)	x	x	x	x	x		x	6,7,8,9	common	Pliskovica and Skopo, 29.5.2011 (RŠ)
<i>Arethusana arethusa</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x		x	7,8,9	very common	Pliskovica, Kopriva, Skopo, Dutovlje, Vrhovlje, Sežana - Dol Leskovec all 17.8.2013 (RŠ); Veliki Dol, 13.8.2014 (RŠ)
<i>Chazara briseis</i> (Linnaeus, 1764)	x							8	EX?	Miren - Gmajna, 7.8.1976 (RŠ); Opatje selo, 19.8.1978 (RŠ); Kostanjevica na Krasi, 25.7.1981 (RŠ) - it has not been observed after that date
<i>Hipparchia semele</i> (Linnaeus, 1758)	x	x	x	x	x		x	6,7,8,9,10	very common	Pliskovica, Kopriva, Skopo, Dutovlje, Vrhovlje all 17.8.2013 (RŠ)
<i>Hipparchia fagi</i> (Scopoli, 1763)	x	x	x	x	x		x	6,7,8,9	very common	
<i>Argynnis paphia</i> (Linnaeus, 1758)	x	x	x	x	x		x	6,7,8,9	common	
<i>Argynnis aglaja</i> (Linnaeus, 1758)	x	x	x	x	x		x	6,7,8	common	
<i>Argynnis adippe</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x		x	6,7,8	common	

<i>Argynnis niobe</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	5,6,7,8	common	
<i>Issoria lathonia</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	3,4,5,6,7,8,9	not common	
<i>Brenthis daphne</i> (Bergsträsser, 1780)	x	x	x	x	x	x	x	5,6,7	very common	
<i>Brenthis hecate</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	5,6,7	very common	
<i>Boloria euphrosyne</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	4,5,6	rare	Škrbina, 24.4.1994 (RŠ); Klariči, 31.5.1998 (RŠ); Zagrajec, 1.6.2003 (RŠ); Štorje, 6.5.2015 (RŠ&MZ)
<i>Boloria dia</i> (Linnaeus, 1767)	x	x	x	x	x	x	x	4,5,6,8,9	common	
<i>Limnitis camilla</i> (Linnaeus, 1764)	x	x	x	x	x	x	x	7	very rare	Klariči, 14.7.1992 (RŠ)
<i>Limnitis reducta</i> Staudinger, 1901	x	x	x	x	x	x	x	5,6,7,8,9,10,11	not common	Vrhovlje, 6.6.2014 (RŠ)
<i>Neptis rivularis</i> (Scopoli, 1763)	x	x	x	x	x	x	x	8	very rare	Klariči, 28.8.1993 (RŠ)
<i>Nymphalis antiopa</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	5	very rare	Kostanjevica na Krastu, 19.5.1991 (RŠ)
<i>Nymphalis polychloros</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	2,3,4,6	not common	
<i>Aglais urticae</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	3,4,5,6	not common	
<i>Aglais io</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	3,4,5,6,8,9	not common	
<i>Vanessa atalanta</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	1 - 12	not common	
<i>Vanessa cardui</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	4,5,6,7,8,9,10	common	
<i>Polygonia egea</i> (Cramer, 1775)	x	x	x	x	x	x	x	6,8	very rare	Kostanjevica na Krastu, 9.8.1987 (RŠ); Klariči, 30.6.1988 (RŠ); Klariči, 28.8.1993 (RŠ); Brestovica, 28.6.1995 (RŠ)
<i>Polygonia c-album</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	3,4,5,6,7	not common	
<i>Melitaea cinxia</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	5,6	very common	
<i>Melitaea diamina</i> (Lang, 1789)	x	x	x	x	x	x	x	6	very rare	Sežana - Dol Leskovec, 14.6.1986 (RŠ); Lipa na Krastu, 30.6.1990 (RŠ)

<i>Melittaea phoebe</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	x	5,6,7,8	very common	
<i>Melittaea didyma</i> (Esper, 1778)	x	x	x	x	x	x	x	x	x	5,6,7,8	very common	
<i>Melittaea trivita</i> (Denis & Schiffermüller, 1775)	x	x	x							6,7,8	rare	Kobjeglava, 5.8.1988 (RŠ); Kostanjevica na Krasi, 16.8.1989 (RŠ); Trstelj, 19.5.1991 (RŠ)
<i>Melittaea athalia</i> (Rottemburg, 1775)	x	x	x	x	x	x	x	x	x	5,6,7,8	very common	
<i>Melittaea aurelia</i> Nickerl, 1850	x	x	x	x	x	x	x	x	x	5,6,7,8	common	
<i>Melittaea britomartis</i> Assmann, 1847	x	x	x	x	x	x	x	x	x	5,6,7	not common	
<i>Euphydryas aurinia</i> (Rottemburg, 1775)	x	x	x	x	x	x	x	x	x	5,6	very common	Opatje Selo, 14.5.1989 (RŠ); Durovjlje, 21.6.1991 (RŠ); Kobjeglava, 26.5.2000 (RŠ); Vrhovlje, 8.6.2004 (RŠ); Krajna vas, 21.5.2014 (RŠ)
DREPANIDAE (9)												
<i>Thyatira batis</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	x	4,5,6,7,8,9,10	not common	
<i>Habrosyne pyritoidea</i> (Hufnagel, 1766)	x	x	x	x	x					5,8,9	rare	Lipa na Krasi, 12.5.2006 (RŠ&MZ); Temnica, 11.8.2008 (RŠ&MZ); Kazlje, 19.5.2015 (RŠ&MZ)
<i>Tethea or</i> (Denis & Schiffermüller, 1775)	x	x	x	x						4,5,6,7	rare	Durovjlje, 16.5.1994 (RŠ&MZ); Vojštica, 11.7.1994 (RŠ); Kobjeglava - Zavodi, 8.5.2001 (RŠ&MZ)
<i>Cymatophorina diluta</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	x	9,10,11	very common	
<i>Polyplocia ridens</i> (Fabricius, 1787)	x	x	x	x	x	x	x	x	x	3,4,5	common	
<i>Asphalia ruficollis</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	x	3,4	very common	
<i>Watsonalla binaria</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	x	x	4,5,6,7,8,9	common	
<i>Watsonalla cultraria</i> (Fabricius, 1775)	x	x	x	x	x	x	x	x	x	5,7,9	rare	Lipa na Krasi, 10.7.1998 (RŠ); Podbreže, 1.5.2013 (RŠ&MZ); Podbreže, 12.7.2013 (RŠ&MZ); Skopo, 7.9.2013 (RŠ)
<i>Cilix glaucata</i> (Scopoli, 1763)	x	x	x	x	x	x	x	x	x	3,4,5,6,7,9	rare	Kobjeglava, 7.9.1995 (RŠ&MZ); Skopo, 28.3.2012 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ)

LASIOCAMPIDAE (14)													
<i>Pocilocampa populi</i> (Linnaeus, 1758)	x	x	x	x	x	10,11,12	common	Kazljje, 31.10.2011 (RŠ&MZ) - the earliest date					
<i>Trichiura crataegi</i> (Linnaeus, 1758)	x	x	x	x	x	9,10	not common						
<i>Eriogaster lanestrus</i> (Linnaeus, 1758)	x	x				3,4	very rare	Vojščica, 2.5.2004 (RŠ); Gorjansko, 2.5.2004 (RŠ) - larvae on <i>Crataegus</i> spp.					
<i>Eriogaster rimicola</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	10,11	rare	Brije pri Komnu, 18.10.1995 (RŠ); Dutovlje, 29.10.1995 (RŠ&MZ); Kazljje, 31.10.2011 (RŠ&MZ); Ivanji Grad, 9.11.2012 (RŠ)					
<i>Eriogaster catta</i> (Linnaeus, 1758)	x	x	x	x		10,11	rare	Opatje selo, 1.11.1993 (RŠ); Dutovlje, 29.10.1995 (RŠ&MZ); Komen, 9.11.1996 e. l. (RŠ)					
<i>Malacosoma neustria</i> (Linnaeus, 1758)	x	x	x	x		6,7	rare	Lipa na Krasu, 10.7.1998 (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM)					
<i>Malacosoma castrensis</i> (Linnaeus, 1758)	x	x	x	x	x	6,7	not common						
<i>Lasiocampa trifolii</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	8,9,10	very common						
<i>Lasiocampa quercus</i> (Linnaeus, 1758)	x	x	x	x		7,8	rare						
<i>Macrothylacia rubi</i> (Linnaeus, 1758)	x	x	x	x		4,5	not common						
<i>Dendrolimus pini</i> (Linnaeus, 1758)	x	x	x	x	x	5,6,7,8,9	not common	Jirmanec, 5.9.2013 (RŠ&MZ) - the latest date					
<i>Phylodesma tremulifolia</i> (Hübner, 1810)	x	x	x	x	x	3,4,5,6	common						
<i>Gastropacha quercifolia</i> (Linnaeus, 1758)	x	x	x			6,7,8,9	rare	Kostanjevica na Krasu, 19.7.1988 (RŠ&MZ); Opatje selo, 17.7.1993 (MZ); Trstelj, 16.7.2010 (RŠ); Kopriva, 18.7.2012 (RŠ)					
<i>Odonestis pruni</i> (Linnaeus, 1758)	x	x	x	x	x	5,6,7,8,9	not common	Opatje selo, 1.7.1989 (RŠ&MZ); Trstelj, 14.6.1991 (RŠ&MZ); Jirmanec, 5.9.2013 (RŠ&MZ); Kopriva, 6.7.2014 (RŠ&CM)					
BRAHMAEIDAE (1)													
<i>Lemontia taraxaci</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	9,10	not common	Kostanjevica na Krasu, 24.9.1993 (RŠ); Vojščica, 11.10.1996 (RŠ); Kazljje, 17.9.2011 (RŠ&MZ); Kopriva, 18.9.2014 (RŠ&MZ&CM)					

ENDROMIDAE (1)										
<i>Endromis versicolora</i> (Linnaeus, 1758)	x	x	x	x	x	x	3,4		not common	
SATURNIIDAE (5)										
<i>Aglaia tau</i> (Linnaeus, 1758)		x	x	x	x	x	4,5		rare	Kobjeglava, 19.5.1987 (RŠ&MZ); Brije pri Komnu, 30.4.2003 (RŠ&MZ); Povir, 28.4.2012 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Saturnia pyri</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	4,5,6		not common	
<i>Saturnia pavoniella</i> (Scopoli, 1763)	x	x	x	x	x	x	3,4		not common	
<i>Saturnia caecigena</i> Kupido, 1825	x	x	x	x	x	x	9,10		not common	Kazlje, 17.9.2011 (RŠ&MZ) - the earliest date, larvae on <i>Quercus petraea</i>
<i>Antheraea yamamai</i> (Guérin-Ménéville, 1861)	x	x	x	x	x	x	7,8		not common	
SPHINGIDAE (14)										
<i>Marumba quercus</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	6,7,8		common	Novelo, 9.7.2002 (RŠ&MZ); Gorjansko - Podklaneč, 3.7.2009 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ); Kopriva, 27.6.2012 (RŠ)
<i>Mimas tiliae</i> (Linnaeus, 1758)	x	x	x	x	x	x	4,5,6,7,8		not common	
<i>Smerinthus ocellata</i> (Linnaeus, 1758)	x						5		very rare	Opatje selo, 6.6.1987 (RŠ&MZ)
<i>Agrilus convolvuli</i> (Linnaeus, 1758)	x	x	x	x	x	x	8,9,10		not common	
<i>Acherontia atropos</i> (Linnaeus, 1758)	x	x					8,9,10		very rare	Vojšičica, 9.10.1995 (RŠ); Mali Dol, 26.8.2014 e. l. 22.7.2014 (MZ)
<i>Sphinx ligustri</i> Linnaeus, 1758	x	x					7,8		very rare	Opatje selo, 26.7.1989 (RŠ&MZ); Lipa na Krasu, 15.8.1994 (RŠ&MZ)
<i>Sphinx pinastri</i> Linnaeus, 1758	x	x	x	x	x	x	5,6,7		common	
<i>Hemaris tityus</i> (Linnaeus, 1758)							5		very rare	Lokev, 26.5.2012 (MZ); Podbrežje, 6.5.2015 (RŠ&MZ)

<i>Hemaris fuciformis</i> (Linnaeus, 1758)	x	x	x	5	very rare	Kostanjevica na Krasi, 19.5.1991 (RŠ); Lipa na Krasi, 14.5.2011 (RŠ); Krajna vas, 21.5.2014 (RŠ)
<i>Macroglossum stellatarum</i> (Linnaeus, 1758)	x	x	x	3,4,5,6,7,8,9,10,11	not common	
<i>Hyles euphorbiae</i> (Linnaeus, 1758)	x	x		6	rare	Trstelj, 14.6.1991 (RŠ&MZ); Lokvica, 26.8.2008 (RŠ) larvae; Miren - Gmajna, 7.9.2008 (RŠ) larvae
<i>Hyles livornica</i> (Esper, 1780)	x		x	5	very rare	Opatje selo, 6.5.1988 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Deilephila elpenor</i> (Linnaeus, 1758)	x	x	x	5,6	very rare	Opatje selo, 10.6.1989 (RŠ&MZ); Brje pri Komnu, 22.5.1993 (RŠ&MZ); Vojščica, 12.7.1995 (RŠ&MZ); Lokev, 25.6.2010 (RŠ&MZ)
<i>Deilephila porcellus</i> (Linnaeus, 1758)	x	x	x	4,5,6,7,8	common	
GEOMETRIDAE (212)						
<i>Abraxas grossulariata</i> (Linnaeus, 1758)	x			6,7	very rare	Vojščica, 1.7.1987 (MZ)
<i>Ligdia adustata</i> (Denis & Schiffmüller, 1775)	x	x	x	3,4,5,6,7,8,9	common	
<i>Stegania trimaculata</i> (de Villers, 1789)	x	x	x	5,6,7	very rare	Vrhpolje - Sv. Tomaž, 16.6.2012 (RŠ); Jirmanec, 14.6.2013 (RŠ&MZ); Komen, 17.7.2015 (RŠ)
<i>Heliomata glarearia</i> (Denis & Schiffmüller, 1775)	x	x	x	4,5,6,7,8	common	
<i>Macaria alternata</i> (Denis & Schiffmüller, 1775)	x	x	x	4,5,6,7,8,9	common	
<i>Macaria liturata</i> (Clereh, 1759)	x	x	x	4,5,6,7,8,9	not common	
<i>Chiasmia clathrata</i> (Linnaeus, 1758)	x	x	x	4,5,6,8,9	very common	
<i>Isturgia arenacearia</i> (Denis & Schiffmüller, 1775)	x			7,8	very rare	Kostanjevica na Krasi, 25.7.1987 (RŠ&MZ); Opatje selo, 13.8.1988 (RŠ&MZ); Gorenja Brestovica, 20.7.1991 (RŠ&MZ)
<i>Gnopharmia stevenaria</i> (Boisduval, 1840)		x		5	very rare	Brje pri Komnu, 2.5.1999 (RŠ&MZ)
<i>Rhoptria asperaria</i> (Hübner, 1817)		x		9	very rare	Data in the Chapter regarding interesting species
<i>Petrophora chlorosata</i> (Scopoli, 1763)			x	5	very rare	Kobjeglava - Jelenca, 16.5.1996 (RŠ&ML)

<i>Plagodis pulveraria</i> (Linnaeus, 1758)	x	x	x	x	x	3,4,7,8	not common	Ponikve, 30.3.2014 (RŠ&MZ)
<i>Plagodis dolabraria</i> (Linnaeus, 1767)	x	x				6,7,8,9	rare	Kostanjevica na Krasu, 9.7.2002 (RŠ&MZ); Tennica, 11.8.2008 (RŠ); Trstelj, 2.9.2009 (RŠ&MZ); Trstelj, 16.7.2010 (RŠ)
<i>Opishograptis luteolata</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,6,7,8,9	common	
<i>Pseudopanthera macularia</i> (Linnaeus, 1758)	x	x	x	x	x	4,5	very common	
<i>Apeira syringaria</i> (Linnaeus, 1758)	x	x	x			6,7,9	very rare	Opatje selo, 21.9.1990 (RŠ&MZ); Komen - Jazmerca, 5.6.2010 (RŠ&MZ&BZ); Kopriva, 18.9.2014 (RŠ&MZ&CM)
<i>Ennomos autumnaria</i> (Werneburg, 1859)			x			9	very rare	Kobjeglava, 7.9.1995 (RŠ&MZ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Ennomos quercinaria</i> (Hufnagel, 1767)						6	very rare	Lokev, 25.6.2010 (RŠ&MZ&BZ)
<i>Ennomos erosaria</i> (Denis & Schiffmüller, 1775)				x		9,10	rare	Kazlje, 17.9.2011 (RŠ&MZ); Lokvev, 30.9.2011 (RŠ&MZ)
<i>Ennomos quercaria</i> (Hübner, 1813)				x		6	very rare	Ponikve, 29.6.2013 (RŠ&MZ&CM)
<i>Selenia dentaria</i> (Fabricius, 1775)	x	x	x			4,5,7,8	rare	Opatje selo, 12.5.1989 (RŠ&MZ); Gorjansko, 24.4.1994 (RŠ&MZ); Tennica, 11.8.2008 (RŠ); Krajna vas, 18.7.2014 (RŠ&MZ)
<i>Selenia lunularia</i> (Hübner, 1788)	x	x	x	x	x	3,4,5,6,7,8,9	common	
<i>Selenia tetralunaria</i> (Hufnagel, 1767)	x	x	x	x	x	3,4,5,7,8	common	
<i>Artiora evonymaria</i> (Denis & Schiffmüller, 1775)				x		7	very rare	Skopo, 28.7.2011 (RŠ)
<i>Odontoptera bidentata</i> (Clerck, 1759)				x		5	very rare	Kopriva, 15.5.2013 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Crocallis tusciaria</i> (Borkhausen, 1793)	x	x	x	x	x	9,10,11	very common	
<i>Crocallis elinguarina</i> (Linnaeus, 1758)	x	x	x	x	x	8,9,10	common	Lipa na Krasu, 1.8.2009 (RŠ) - the earliest date

<i>Ourapteryx sambucaria</i> (Linnaeus, 1758)	x	x	x	x	x	x	6	rare	Vojšćica, 10.6.1999 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ); Kopriva, 29.6.2013 (RŠ&MZ&CM)
<i>Colotois pennaria</i> (Linnaeus, 1761)	x	x	x	x	x	x	10,11	very common	
<i>Angerona prunaria</i> (Linnaeus, 1758)	x	x	x	x	x	x	6,7,8	rare	
<i>Apocheima hispidaria</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	2,3,4	common	
<i>Phigalia pilosaria</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	2,3	very common	
<i>Lycia hirtaria</i> (Clerck, 1759)	x	x	x	x	x	x	3,4	very common	
<i>Lycia graecarius</i> (Staudinger, 1861)	x	x	x	x	x	x	2,3	rare	Data in the Chapter regarding interesting species
<i>Biston strataria</i> (Hufnagel, 1767)	x	x	x	x	x	x	2,3,4	rare	
<i>Biston betularia</i> (Linnaeus, 1758)	x	x	x	x	x	x	3,4,5,6,7,8	common	
<i>Agriopsis leucophaearia</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	1,2,3	not common	Kostanjevica na Krasi, 1.3.1995 (RŠ&MZ); Gorjansko, 26.2.1997 (RŠ&MZ); Klariči, 16.1.1998 (RŠ)
<i>Agriopsis bajaria</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	10,11,12	common	
<i>Agriopsis aurantiaria</i> (Hübner, 1799)					x		11	very rare	Kazlje, 14.11.2014 (RŠ&MZ)
<i>Agriopsis marginaria</i> (Fabricius, 1776)	x	x	x	x	x	x	2,3,4	common	
<i>Erannis defoliaria</i> (Clerck, 1759)	x	x	x	x	x	x	11,12	common	
<i>Nymphodes dalmatina</i> Wagner, 1909	x						7	very rare	Klariči, 5.7.1995 (MZ)
<i>Menophra abruptaria</i> (Thunberg, 1792)	x	x	x	x	x	x	3,4,5,6,7,8,9	not common	
<i>Synopsis sociaria</i> (Hübner, 1799)	x	x	x	x	x	x	5,6,8,9	not common	Opatje selo, 1.6.1991 (RŠ&MZ); Kobjeglava, 7.9.1995 (RŠ&MZ); Zagajec, 22.5.2009 (RŠ&MZ); Kopriva, 7.9.2013 (RŠ)
<i>Paraboarmia vierthii</i> (Bohatsch, 1883)					x		6,7	not common	Kopriva, 26.6.2011 (RŠ); Kopriva, 27.6.2012 (RŠ); Pomikve, 29.6.2013 (RŠ&MZ&CM); Kopriva, 5.7.2013 (MZ); Podbreže, 12.7.2013 (RŠ&MZ)

<i>Peribatodes rhomboidaria</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	5,6,7,8,9,10, 11	very common	Jirmanec, 4.6.2011 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Peribatodes secundaria</i> (Denis & Schiffermüller, 1775)					x	6	very rare	Data in the Chapter regarding interesting species
<i>Peribatodes correptaria</i> (Zeller, 1847)					x	6,9,10	rare	Jirmanec, 3.9.2015 (RŠ&MZ&CM)
<i>Selidosema plumaria</i> (Denis & Schiffermüller, 1775)					x	9	very rare	
<i>Cleora cinctaria</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	3,4,5	not common	
<i>Alcis repandata</i> (Linnaeus, 1758)	x	x	x			5,6	rare	Opatje selo, 1.6.1991 (RŠ&MZ); Skopo, 30.5.2011 (RŠ)
<i>Hypomecis roboraria</i> (Denis & Schiffermüller, 1775)	x		x			5,6,8,9	not common	Kostanjevica na Krasu, 16.5.1994 (RŠ&MZ); Kopriva, 30.5.2011 (RŠ); Kopriva, 7.9.2013 (RŠ); Krajna vas, 21.5.2014 (RŠ&MZ)
<i>Hypomecis punctinalis</i> (Scopoli, 1763)	x	x	x	x	x	4,5,6,7,8,10	common	Vojščiča, 11.10.1996 (RŠ)
<i>Fagivorina arenaria</i> (Hufnagel, 1767)	x	x				4,5,6,7,8,9	not common	Povir, 28.4.2012 (RŠ&MZ); Jirmanec, 5.9.2013 (RŠ&MZ); Brje pri Komnu, 25.4.2014 (RŠ&MZ)
<i>Ascotis selenaria</i> (Denis & Schiffermüller, 1775)	x	x				4,5,6,7,8	not common	
<i>Ectropis crepuscularia</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	3,4,5,6,7	not common	Kazlje, 28.3.2012 (RŠ&MZ)
<i>Ematurga atomaria</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,6,7,8,9	very common	
<i>Eumannia lepraria</i> (Rebel, 1909)	x	x	x	x	x	7,8	rare	Data in the Chapter regarding interesting species
<i>Bupalus piniaria</i> (Linnaeus, 1758)	x	x	x	x	x	5,6	not common	
<i>Cabera pusaria</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,6,7,8	not common	
<i>Lomographa bimaculata</i> (Fabricius, 1775)	x	x	x			4,7,9	very rare	Brje pri Komnu, 30.4.2003 (RŠ&MZ); Trstelj, 16.7.2010 (RŠ); Skopo, 3.9.2011 (RŠ)
<i>Lomographa temerata</i> (Denis & Schiffermüller, 1775)	x	x	x			4,5,6,7	rare	
<i>Theria rupicaprararia</i> (Denis & Schiffermüller, 1775)	x	x	x			2,3	common	

<i>Campaea margaritaria</i> (Linnaeus, 1761)	x	x	x	x	x	x	5,6,7,8,9,10	very common	Jirmanec, 4.6.2011 (RŠ&MZ); Komen, 24.9.2013 (RŠ&MZ)
<i>Pungeleria capreolaria</i> (Denis & Schiffermüller, 1775)	x					x	6,9	very rare	Trstelj, 2.9.2009 (RŠ&MZ); Skopo, 28.7.2011 (RŠ)
<i>Gnophos furvata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	7,8,9	not common	Jirmanec, 19.8.2011 (RŠ&MZ); Jirmanec, 28.7.2012 (RŠ&MZ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Charissa obscurata</i> (Denis & Schiffermüller, 1775)						x	7,8,9	rare	Dutovlje, 16.5.1994 (RŠ&MZ); Klariči, 9.10.1995 (RŠ); Komen, 29.9.2010 (RŠ); Podbreže, 28.5.2013 (RŠ&MZ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Dyscia raunaria</i> (Freyer, 1851)	x	x	x	x	x	x	5,6,9,10	not common	Opatje selo, 7.1.2007 (RŠ)
<i>Alsophila aescularia</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	1,2,3,4	very common	Klariči, 29.12.1994 (RŠ); Klariči, 22.1.1995 (RŠ&MZ); Opatje selo, 7.1.2007 (RŠ)
<i>Alsophila aceraria</i> (Denis & Schiffermüller, 1775)	x	x					1,12	not common	
<i>Pseudoterpna pruinata</i> (Hufnagel, 1767)	x	x	x	x	x	x	5,6,7,8,9,10	not common	
<i>Geometra papilionaria</i> Linnaeus, 1758	x						6,7	very rare	Temnica, 25.7.1987 (RŠ&MZ); Kopriva, 10.6.2011 (RŠ)
<i>Comibaena bajularia</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	5,6	rare	Komen - Jažmerca, 5.6.2010 (RŠ&MZ&BZ); Kopriva, 22.5.2011 (RŠ); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Thetidia smaragdaria</i> (Fabricius, 1787)	x	x	x	x	x	x	6,7,8	rare	Kostanjevica na Krasi, 11.7.1987 (RŠ&MZ); Opatje selo, 23.8.1987 (RŠ&MZ); Temnica, 11.8.2008 (RŠ)
<i>Hemithea aestivaria</i> (Hübner, 1789)	x						5,6	rare	Kostanjevica na Krasi, 11.6.1988 (RŠ&MZ); Kopriva, 15.6.2012 (RŠ)
<i>Phaiogramma etruscaria</i> (Zeller, 1849)						x	6	very rare	Vrhoplje - Sv. Tomaž, 16.6.2012 (RŠ); Kopriva, 29.6.2013 (RŠ&MZ&CM)
<i>Thalera fimbrialis</i> (Scopoli, 1763)	x	x	x				6,7	rare	Gorjansko - Podklanec, 3.7.2009 (RŠ&MZ); Ponikve, 29.6.2013 (RŠ&MZ&CM)

<i>Hemistola chrysoprasaria</i> (Esper, 1795)	x	x	x	x	x	5,6,7,8,9	rare	Gorenja Brestovica, 20.7.1991 (RŠ&MZ); Skopo, 20.8.2011 (RŠ); Kopriva, 6.7.2014 (RŠ&CM)
<i>Emmiltis pygmaearia</i> (Hübner, 1809)	x	x	x			5,6,8,9	rare	Vojščiča, 4.6.2003 (RŠ&MZ); Pliskovica, 10.8.2010 (RŠ); Kobjeglava - Jelenca, 22.5.2011 (RŠ); Klariči, 13.9.2015 (RŠ)
<i>Idaea ochrata</i> (Scopoli, 1763)	x	x	x	x	x	6,7,8	not common	
<i>Idaea aureolaria</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	5,6,7	very common	
<i>Idaea rusticata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	5,6,7,8,9	common	
<i>Idaea filicata</i> (Hübner, 1799)	x	x	x	x	x	5,6,7,8,9	common	
<i>Idaea moniliata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	7,8	not common	
<i>Idaea humiliata</i> (Hufnagel, 1767)			x	x	x	6,7	common	
<i>Idaea seriata</i> (Schrank, 1802)	x	x	x			5,6,8,9,10,11	rare	
<i>Idaea dilutaria</i> (Hübner, 1799)	x	x	x	x	x	6,7	very common	
<i>Idaea subsericeata</i> (Haworth, 1809)	x	x	x	x	x	4,5,6,8,9	common	
<i>Idaea trigeminata</i> (Haworth, 1809)	x	x	x	x	x	5,6,7	rare	
<i>Idaea aversata</i> (Linnaeus, 1758)	x	x	x	x	x	5,6,7,8,9	very common	
<i>Idaea rubraria</i> (Staudinger, 1871)	x	x	x	x	x	7,8,9	common	
<i>Idaea degeneraria</i> (Hübner, 1799)	x	x	x	x	x	5,6,7,9,10	very common	
<i>Idaea straminata</i> (Borkhausen, 1794)	x	x	x	x	x	5,6,7,8,9	common	
<i>Idaea deversaria</i> (Herrich-Schäffer, 1847)	x	x	x	x	x	5,6,7,8,9	very common	
<i>Scopula immorata</i> (Linnaeus, 1758)	x	x	x	x	x	5,7,8	not common	Tennica, 11.8.2008 (RŠ); Lipa na Krasu, 14.5.2011 (RŠ); Kopriva, 18.7.2012 (RŠ)
<i>Scopula nigropunctata</i> (Hufnagel, 1767)	x	x	x			5,6,7,8,9	rare	Klariči, 11.9.1994 (MZ); Kobjeglava - Jelenca, 16.5.1996 (RŠ&ML); Lipa na Krasu, 12.5.2006 (RŠ&MZ)

<i>Scopula virgulata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	6,7,8,9	not common	
<i>Scopula ornata</i> (Scopoli, 1763)	x	x	x	x	x	x	x	x	4,5,6,7,8,9	common	
<i>Scopula submutata</i> (Tretschke, 1828)	x	x	x	x	x	x	x	x	6,7,8,9	rare	
<i>Scopula decorata</i> (Denis & Schiffermüller, 1775)	x	x							8,9	rare	Gorjansko, 15.8.2005 (RŠ); Lokvica - Medvejšče, 2.9.2006 (RŠ)
<i>Scopula rubiginata</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	x	5,6,7,8,9	not common	
<i>Scopula marginipunctata</i> (Goeze, 1781)	x	x	x	x	x	x	x	x	4,5,6,7,8,9,10	not common	Lokvica, 8.10.2009 (RŠ)
<i>Scopula incanata</i> (Linnaeus, 1758)	x	x							6,8,9	rare	Klariči, 11.9.1994 (MZ); Kostanjevica na Krasi, 19.6.1995 (RŠ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Scopula imitatoria</i> (Hübner, 1799)	x	x	x	x	x	x	x	x	6,7,8,9,10	rare	Klariči, 2.10.1995 (RŠ); Zagrajec, 10.9.2010 (RŠ&MZ&JD); Skopo, 10.6.2011 (RŠ)
<i>Scopula immutata</i> (Linnaeus, 1758)	x	x							6,9	very rare	Gorjansko, 11.9.1996 (MZ); Povir, 29.6.2015 (RŠ&MZ)
<i>Rhodostrophia vibicaria</i> (Clerck, 1759)	x	x	x	x	x	x	x	x	6,7,8	not common	
<i>Rhodostrophia calabra</i> (Petagna, 1786)	x	x	x	x	x	x	x	x	5,6,7	not common	
<i>Timandra comae</i> Schmidt, 1931	x	x	x	x	x	x	x	x	4,5,6,7,8,9,10	not common	Brje pri Komnu, 25.4.2014 (RŠ&MZ); Kobjeglava - Jelencea, 25.10.2013 (RŠ&MZ) - the earliest and the latest date
<i>Cyclophora albicollaria</i> (Hübner, 1789)									9	very rare	Jirmanec, 3.9.2015 (RŠ&MZ&CM)
<i>Cyclophora annularia</i> (Fabricius, 1775)	x	x	x	x	x	x	x	x	5,6,7,8,9	rare	Opatje selo, 26.7.1989 (RŠ&MZ); Kobjeglava, 19.5.1997 (RŠ&MZ); Komen, 19.5.2011 (RŠ&MZ); Kopriva, 26.6.2011 (RŠ)
<i>Cyclophora puppillaria</i> (Hübner, 1799)	x	x	x	x	x	x	x	x	5,6,7,8,9	rare	Trstelj, 16.7.2010 (RŠ); Jirmanec, 19.8.2011 (RŠ&MZ); Podbreže, 1.5.2013 (RŠ&MZ); Kopriva, 18.9.2014 (RŠ&MZ&CM)
<i>Cyclophora ruficiliaria</i> (Herrich-Schäffer, 1855)	x	x	x	x	x	x	x	x	4,5,9	rare	Opatje selo, 5.5.1990 (RŠ&MZ); Kobjeglava, 26.4.1997 (RŠ&MZ); Povir, 28.4.2012 (RŠ&MZ); Brje pri Komnu, 25.4.2014 (RŠ&MZ)

<i>Cyclophora porata</i> (Linnaeus, 1767)	x	x	x	x	x	4,5,7,8,9	rare	Vojštica, 24.4.1994 (RŠ&MZ); Trstelj, 6.8.2009 (RŠ); Zagrajec, 10.9.2010 (RŠ&MZ&JD); Komen - Jazmerca, 18.9.2012 (RŠ&MZ)
<i>Cyclophora quercimontaria</i> (Bastelberger, 1897)	x	x	x	x	x	5,6,7,8,9	very rare	Trstelj, 6.8.2009 (RŠ); Zagrajec, 10.9.2010 (RŠ&MZ&JD); Jirmanec, 19.8.2011 (RŠ&MZ)
<i>Cyclophora punctaria</i> (Linnaeus, 1758)	x	x	x	x	x	5,6,7,8,9	rare	Trstelj, 2.9.2009 (RŠ&MZ); Lokev, 4.9.2010 (RŠ&MZ&BZ); Klariči, 27.9.2013 (RŠ&MZ); Kopriva, 6.7.2014 (RŠ&CM)
<i>Cyclophora suppunctaria</i> (Zeller, 1847)					x	8	very rare	Povir, 22.8.2005 (MZ)
<i>Cyclophora linearia</i> (Hübner, 1799)	x	x	x			5,6,7,8	rare	Lipa na Krasu, 10.7.1998 (RŠ); Trstelj - Vrtoška, 23.7.2009 (RŠ&MZ&TL); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Rhodometra sacrararia</i> (Linnaeus, 1767)	x	x	x			7,8,9,10,11	not common	Lokvica, 4.11.1996 (RŠ); Kobjeglava - Jelena, 8.10.2008 (RŠ); Šmarje pri Sežani, 28.7.2011 (RŠ)
<i>Phibalapteryx virgata</i> (Hufnagel, 1767)	x	x	x			8,9	not common	Divjača, 15.9.2000 (RŠ&MZ); Jirmanec, 19.8.2011 (RŠ&MZ); Komen, 24.9.2013 (RŠ&MZ)
<i>Cataclysmes rigata</i> (Hübner, 1813)	x	x	x			4,5,6,7,8,9	common	
<i>Scotopteryx coarctaria</i> (Denis & Schiffermüller, 1775)	x	x	x			5,6	very common	
<i>Scotopteryx luridata</i> (Hufnagel, 1767)	x	x	x			5,6,7,8,9	very common	55 specimens of <i>S. luridata</i> from 18 locations were confirmed with the inspection of genital structures; <i>S. mucronata</i> has not been detected
<i>Scotopteryx bipunctaria</i> (Denis & Schiffermüller, 1775)						7	not common	Sežana - Dol Leskovec, 10.7.2005; Vrhpolje - Sv. Tomaž, 8.7.2011 (RŠ)
<i>Scotopteryx moeniata</i> (Scopoli, 1763)						7,8	rare	Jirmanec, 19.8.2011 (RŠ&MZ); Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Orthonama obstipata</i> (Fabricius, 1794)	x	x	x			8,9,10,11,12	rare	Kobjeglava, 15.11.1995 (RŠ); Lokvica, 4.11.1996 (RŠ); Gorjansko, 5.11.1996 (MZ); Kopriva, 18.9.2014 (RŠ&MZ&CM)

<i>Xanthorhoe fluctuata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	4,5,6,7,9	common	
<i>Xanthorhoe ferrugata</i> (Clerck, 1759)	x	x	x	x	x			4,7,9	rare	
<i>Catarhoe cuculata</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	3,4,5,6,8,9	common	Brestovica, 26.3.1999 (RŠ&SG) - the earliest date
<i>Catarhoe rubidata</i> (Denis & Schiffmüller, 1775)						x		6	very rare	Jirmanec, 4.6.2011 (RŠ&MZ)
<i>Campogramma bilineata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	5,6,7,8,9,10	common	
<i>Campogramma scripturata</i> (Hübner, 1799)						x		6,7	rare	Skopo, 26.6.2011 (RŠ); Jirmanec, 28.7.2012 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Epirrhoe alternata</i> (Müller, 1764)	x	x	x	x	x	x	x	4,5,6,7,9	common	
<i>Epirrhoe rivata</i> (Hübner, 1813)						x		5,7	very rare	Krajna vas, 18.7.2014 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Epirrhoe galiata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	5,6,7,8,9	common	
<i>Euphyia biangulata</i> (Haworth, 1809)								7,8,9	very rare	Lokev, 4.9.2010 (RŠ&MZ&BZ); Jirmanec, 19.8.2011 (RŠ&MZ); Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Euphyia adumbraria</i> (Herrich-Schäffer, 1852)	x	x	x	x	x	x	x	5,6,7,8,9	rare	Tennica, 1.8.2009 (RŠ); Skopo, 30.5.2011 (RŠ); Kopriva, 3.9.2011 (RŠ); Pomikve, 29.6.2013 (RŠ&MZ&CM)
<i>Earophila badiata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	3,4	common	
<i>Anticlea derivata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x			4,5	very rare	Opatje selo, 7.4.1989 (RŠ&MZ); Kobjeglava - Jelena, 16.5.1996 (RŠ&ML); Lupa na Krasu, 9.4.2011 (RŠ); Pomikve, 30.3.2014 (RŠ&MZ)
<i>Pelurga comitata</i> (Linnaeus, 1758)	x							9	very rare	Klariči, 26.9.1995 (RŠ)
<i>Pennithera firmata</i> (Hübner, 1822)	x	x	x	x	x			10,11	not common	
<i>Thera variata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	4,5,6,7,9,10	very common	
<i>Thera vetustata</i> (Denis & Schiffmüller, 1775)								10	very rare	Jirmanec, 19.10.2013 (RŠ&MZ)
<i>Thera juniperata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	10,11	very common	

<i>Cidaria fulvata</i> (Forster, 1771)	x	x	x	x	x	x	x	x	6	very rare	Lokev, 25.6.2010 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ); Vripolje - Sv. Tomaž, 16.6.2012 (RŠ); Jirmanec, 9.6.2013 (RŠ&MZ)
<i>Cosmorhoe ocellata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	4,5,6,8,9	not common	
<i>Chlorochysta siterata</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	x	3,4,5,6,9,10,11	very common	
<i>Colostygia olivata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	8,9,10	not common	
<i>Colostygia pectinataria</i> (Knoch, 1781)	x	x	x	x	x	x	x	x	5,6	not common	
<i>Colostygia sericeata</i> (Schwingenschuss, 1926)	x	x	x	x	x	x	x	x	11	rare	Data in the Chapter regarding interesting species
<i>Coenotephria salicata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	5,6,8,9	very common	
<i>Coenotephria ablutaria</i> (Boisduval, 1840)	x	x	x	x	x	x	x	x	3,4,9,10	very common	
<i>Operophtera brunata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	11,12,1	very common	Klariči, 16.1.1998 (RŠ); Trstelj, 7.1.2007 (RŠ)
<i>Epirrita dilutata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	10,11,12	very common	
<i>Minoa murinata</i> (Scopoli, 1763)	x	x	x	x	x	x	x	x	5,6	common	
<i>Asthena albulata</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	x	4,5,6,7,8,9	not common	
<i>Euchoeca nebulata</i> (Scopoli, 1763)	x	x	x	x	x	x	x	x	6	very rare	Lokev, 25.6.2010 (RŠ&MZ&BZ)
<i>Hydrelia flammeolaria</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	x	6	very rare	Jirmanec, 9.6.2013 (MZ)
<i>Philereme vetulata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	5,6,7	common	
<i>Philereme transversata</i> (Hufnagel, 1767)	x	x	x	x	x	x	x	x	6,7	rare	Lipa na Krasu, 18.7.1995 (RŠ&MZ); Skopo, 10.6.2011 (RŠ); Podbreže, 12.7.2013 (RŠ&MZ); Klariči, 18.6.2014 (RŠ)
<i>Hydria cervinalis</i> (Scopoli, 1763)	x	x	x	x	x	x	x	x	4,5	common	Lokvica - Segeti, 11.4.2007 (RŠ&MZ&BZ&SG); Podbreže, 1.5.2013 (RŠ&MZ); Grahovo Brdo, 21.3.2014 (RŠ); Brije pri Komnu, 25.4.2014 (RŠ&MZ)

<i>Triphosa dubitata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	3,4,5,6,7,10	not common	Jirmanec, 19.10.2013 (RŠ&MZ) - the latest date
<i>Pareutype berberata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	4,5,6,8,9	not common	
<i>Horisme vitalbata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	3,4,5,6,7,8,9	not common	
<i>Horisme tersata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	5,6,7,8	not common	Opatje selo, 6.6.1987 (RŠ&MZ); Dutovlje, 9.8.1994 (RŠ); Jirmanec, 28.7.2012 (RŠ&MZ) - all inspection of the genital structures (RŠ)
<i>Horisme radicularia</i> (de La Harpe, 1855)	x	x	x	x	x	x	x	x	5,6,7,8,9	not common	Dutovlje, 9.8.1994 (RŠ); Zagrajec, 10.9.2010 (RŠ&MZ&JD); Kobjeglava - Jelena, 9.5.2012 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ) - all inspection of the genital structures (RŠ)
<i>Horisme calligraphata</i> (Herrich-Schäffer, 1838)								x	6,9	rare	Lokev, 25.6.2010 (RŠ&MZ&BZ); Jirmanec, 4.6.2011 (RŠ&MZ); Vrhpolje - Sv. Tomaž, 1.6.2012 (RŠ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Melanthia procellata</i> (Denis & Schiffermüller, 1775)	x								5,6	very rare	Opatje selo, 11.6.1988 (RŠ&MZ); Kostanjevica na Krasu, 22.5.1993 (RŠ&MZ)
<i>Schistostege decussata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	5,6	very common	Kostanjevica na Krasu, 19.6.1995 (RŠ); Štanjel, 1.6.1996 (MZ); Kobjeglava, 20.5.2007 (RŠ); Vrhovlje, 6.6.2014 (RŠ)
<i>Aplocera plagiata</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	5,6,7,9,10	rare	Lipa na Krasu, 4.10.1996 (MZ); Kostanjevica na Krasu, 21.7.2001 (RŠ&BZ); Kobjeglava, 20.5.2007 (RŠ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Chesias rufata</i> (Fabricius, 1775)								x	4	very rare	Komen, 23.4.1996 (MZ&TL)
<i>Lobophora halterata</i> (Hufnagel, 1767)									5	very rare	Podbreže, 1.5.2013 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Acasis viretata</i> (Hübner, 1799)	x	x	x						5,6,8	very rare	Kobjeglava - Jelena, 13.5.1997 (RŠ&MZ&SG); Trstelj, 1.8.2009 (RŠ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Mesotype parallelolineata</i> (Retzius, 1783)									9,10	very rare	Lokev, 30.9.2011 (RŠ&MZ); Povir, 11.10.2013 (RŠ&MZ)

<i>Perizoma hydrata</i> (Treitschke, 1829)	x	x	x	x	x	5,6	rare	Komen, 19.5.2011 (RŠ&MZ); Kopriva, 30.5.2011 (RŠ); Kobjeglava - Jelenca, 9.5.2012 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Perizoma albulata</i> (Denis & Schiffermüller, 1775)					x	5,8	rare	Gorjansko, 20.5.2009 (MZ); Jirmanec, 19.8.2011 (RŠ&MZ)
<i>Gymnoscelis ruffifasciata</i> (Haworth, 1809)	x	x	x	x	x	4,5,6,7,8,9,10	not common	Vojštica, 31.3.1994 (RŠ&MZ); Klariči, 7.10.2014 (RŠ&MZ)
<i>Chloroclystis v-ata</i> (Haworth, 1809)	x	x	x	x	x	3,4,5,6,7	rare	
<i>Pasiphila rectangularata</i> (Linnaeus, 1758)	x				x	5,6	very rare	Opatje selo, 27.5.1988 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ)
<i>Pasiphila chloerata</i> (Mabille, 1870)	x					5	very rare	Opatje selo, 5.5.1990 (RŠ&MZ)
<i>Eupithecia haworthiata</i> Doubleday, 1856	x	x	x	x	x	5,6	not common	Vojštica, 10.6.1999 (RŠ&MZ); Zagrajec, 22.5.2009 (RŠ&MZ); Ponikve, 12.6.2013 (RŠ); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Eupithecia tenuiata</i> (Hübner, 1813)					x	4,7	very rare	Jirmanec, 28.7.2012 (RŠ&MZ) - inspection of the genital structures (RŠ); Gorjansko - Podklanec, 3.7.2009 (RŠ&MZ); Gorjansko, 29.4.2004 (MZ)
<i>Eupithecia inturbata</i> (Hübner, 1817)					x	7	very rare	Jirmanec, 28.7.2012 (RŠ&MZ) - inspection of the genital structures (RŠ)
<i>Eupithecia abietaria</i> (Goeze, 1781)					x	6	rare	Jirmanec, 4.6.2011 (RŠ&MZ)
<i>Eupithecia linariata</i> (Denis & Schiffermüller, 1775)	x					8	very rare	Lipa na Krasu, 1.8.2009 (RŠ)
<i>Eupithecia plumbeolata</i> (Haworth, 1809)					x	6	very rare	Skopo, 10.6.2011 (RŠ)
<i>Eupithecia venosata</i> (Fabricius, 1787)					x	5	very rare	Kobjeglava, 19.5.1987 (RŠ&MZ)
<i>Eupithecia schiefereri</i> Bohatsch, 1893					x	5,6	very rare	Data in the Chapter regarding interesting species
<i>Eupithecia allitaria</i> Staudinger, 1870	x	x	x			7,8	rare	Jirmanec, 28.7.2012 (RŠ&MZ); Temnica, 11.8.2012 (RŠ&MZ); Kopriva, 15.5.2013 (RŠ&MZ)
<i>Eupithecia abbreviata</i> Stephens, 1831	x				x	3,4,5	rare	Klariči, 19.3.1995 (RŠ&MZ); Krvavi Potok, 18.4.2013 (RŠ&BZ&SG)

<i>Eupithecia dodoneata</i> Guenée, 1858	x	x	x	x	x	x	x	x	4,5	very common	
<i>Eupithecia pusillata</i> (Denis & Schiffermüller, 1775)	x	x	x						8,9	very common	
<i>Eupithecia ericeata</i> (Rambur, 1833)	x	x	x	x	x	x	x	x	8,9,10	very common	
<i>Eupithecia tamillaria</i> Boisduval, 1840		x	x	x	x				4,5	rare	Kobjeglava - Jelenca, 17.5.2004 (RŠ&MZ&BZ) - inspection of the genital structures (RŠ); Podbrežje, 1.5.2013 (RŠ&MZ)
<i>Eupithecia selinata</i> Herrich-Schäffer, 1861						x			6	very rare	Komen - Jažmerca, 5.6.2010 (RŠ&MZ&BZ)
<i>Eupithecia egenaria</i> Herrich-Schäffer, 1848						x			4	very rare	Brje pri Komnu, 25.4.2014 (RŠ&MZ)
<i>Eupithecia ochridata</i> Schütze & Pinker, 1968						x			4	very rare	Gorjansko, 1.4.2009 e. 1. (MZ) on <i>Quercus petraea</i>
<i>Eupithecia gemellata</i> Herrich-Schäffer, 1861	x	x	x						5,6,9	rare	Lipa na Krasu, 10.9.1995 (RŠ&MZ); Kopriva, 30.5.2011 (RŠ)
<i>Eupithecia irriguata</i> (Hübner, 1813)									3,4,5	not common	Kazlje, 28.3.2012 (RŠ&MZ); Povir, 28.4.2012 (RŠ&MZ); Podbrežje, 1.5.2013 (RŠ&MZ); Brje pri Komnu, 25.4.2014 (RŠ&MZ)
<i>Eupithecia indigata</i> (Hübner, 1813)									4	very rare	Povir, 28.4.2012 (RŠ&MZ); Podbrežje, 1.5.2013 (RŠ&MZ)
<i>Eupithecia distinctaria</i> Herrich-Schäffer, 1848									5	very rare	Brje pri Komnu, 2.5.1999 (RŠ&MZ) - inspection of the genital structures (RŠ)
<i>Eupithecia centaureata</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	x	4,5,6,7,9	rare	Kobjeglava, 27.9.1997 (RŠ&MZ); Povir, 28.4.2012 (RŠ&MZ)
<i>Eupithecia limbata</i> Staudinger, 1879	x								7	very rare	Data in the Chapter regarding interesting species
<i>Eupithecia insigniata</i> (Hübner, 1790)	x	x	x	x	x	x	x	x	4,5	rare	Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Eupithecia trisignaria</i> Herrich-Schäffer, 1848									7	very rare	Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Eupithecia gueneata</i> Milliere, 1862	x								8	very rare	Temnica, 11.8.2008 (RŠ)
<i>Eupithecia gratiosata</i> Herrich-Schäffer, 1861									6,7	very rare	Škrbina, 18.7.1995 (RŠ&MZ)
<i>Eupithecia intricata</i> (Zetterstedt, 1839)									5	very rare	Kobjeglava - Jelenca, 13.5.1997 (RŠ&MZ)

<i>Eupithecia absinthiata</i> (Clerck, 1759)					x	8	very rare	Jirmanec, 19.8.2011 (RŠ&MZ)
<i>Eupithecia assimilata</i> Doubleday, 1856				x	6,7	rare	Gorjansko, 5.7.2009 (MZ); Lokev, 25.6.2010 (RŠ&MZ&BZ)	
<i>Eupithecia exiguata</i> (Hübner, 1813)			x	x	3,4	not common		
<i>Eupithecia icterata</i> (de Villers, 1789)			x	x	8,9	very common		
<i>Eupithecia semigraphata</i> Braund, 1850			x	x	8,9,10	very common		
NOTODONTIDAE (24)								
<i>Thaumetopoea processionea</i> (Linnaeus, 1758)			x	x	8,9	very common		
<i>Thaumetopoea pityocampa</i> (Denis & Schifferrmüller, 1775)			x	x	7,8	very common		
<i>Clostera curtula</i> (Linnaeus, 1758)			x	x	4,5	rare	Zagrajec, 26.4.1993 (RŠ&MZ); Kobjeglava - Jelena, 6.5.2014 (RŠ&MZ)	
<i>Clostera anastomosis</i> (Linnaeus, 1758)			x		5	very rare	Opatje selo, 2.5.1987 (RŠ&MZ)	
<i>Notodonta tritophus</i> (Denis & Schifferrmüller, 1775)			x	x	4,5,7	very rare	Opatje selo, 2.5.1987 (RŠ&MZ); Kostanjevica na Krasu, 11.7.1987 (RŠ&MZ); Gorjansko, 24.4.1994 (RŠ&MZ)	
<i>Drymonia dodonaea</i> (Denis & Schifferrmüller, 1775)			x	x	4,5,6,7	common		
<i>Drymonia ruficornis</i> (Hufnagel, 1766)			x	x	3,4,5	common		
<i>Drymonia querna</i> (Denis & Schifferrmüller, 1775)			x	x	4,7	very rare	Kostanjevica na Krasu, 1.7.1989 (RŠ&MZ); Kobjeglava - Jelena, 25.4.1993 (RŠ&MZ)	
<i>Pheosia tremula</i> (Clerck, 1759)				x	5	very rare	Dutovlje, 7.5.1994 (RŠ&MZ); Kobjeglava - Zavodi, 8.5.2001 (RŠ&MZ)	
<i>Paradrymonia vittata</i> (Staudinger, 1892)			x	x	5,6,7	not common	Data in the Chapter regarding interesting species	
<i>Pterostoma palpina</i> (Clerck, 1759)			x	x	4,5,6,8	rare	Opatje selo, 13.8.1988 (RŠ&MZ); Opatje selo, 1.6.1991 (RŠ&MZ); Kobjeglava - Jelena, 16.5.1996 (RŠ&ML); Kobjeglava - Jelena, 6.5.2014 (RŠ&MZ)	

<i>Ptilophora plumigera</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	11,12	common	Dutovlje, 15.11.1995 (RŠ); Gorjansko, 13.11.2010 (RŠ)	
<i>Ptilodon capucina</i> (Linnaeus, 1758)	x	x				4,7	very rare	Kostanjevica na Krasi, 19.7.1988 (RŠ&MZ); Zagrajec, 26.4.1993 (RŠ&MZ)	
<i>Ptilodon cucullina</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	4,5,6,7,8,9	not common		
<i>Gluphista crenata</i> (Esper, 1785)	x					7	very rare	Kostanjevica na Krasi, 15.7.1987 (RŠ&MZ); Klariči, 19.7.1987 (RŠ&MZ)	
<i>Furcula furcula</i> (Clerck, 1759)	x	x				7	very rare	Kostanjevica na Krasi, 15.7.1987 (RŠ&MZ); Opatje selo, 13.7.1988 (RŠ&MZ)	
<i>Furcula bifida</i> (Brahm, 1787)	x	x				5	very rare	Opatje selo, 27.5.1988 (RŠ&MZ)	
<i>Dicranura ulmi</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	3,4,5	common		
<i>Phalera bucephala</i> (Linnaeus, 1758)	x	x	x			5,6,7	rare		
<i>Phalera bucephaloides</i> (Ochsenheimer, 1810)	x	x	x			7,8	rare	Opatje selo, 2.8.1987 (RŠ&MZ); Zagrajec, 26.7.2008 (RŠ&MZ); Trstelj, 23.7.2009 (RŠ&MZ&TL); Krajna vas, 18.7.2014 (RŠ&MZ)	
<i>Peridea anceps</i> (Goeze, 1781)	x	x	x	x	x	3,4,5	common	Klariči, 13.9.2015 (RŠ) - second generation, two males observed	
<i>Stauropus jagi</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,6,7,9	not common		
<i>Harpya milhauseri</i> (Fabricius, 1775)	x	x	x	x	x	3,4,5	not common	Klariči, 27.9.2013 (RŠ&MZ) - unusual date, one male observed	
<i>Spatalia argentina</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	4,5,6,7,8	common		
EREBIDAE (83)									
<i>Nudaria mundana</i> (Linnaeus, 1761)		x	x			6	rare	Data in the Chapter regarding interesting species	
<i>Mitochondria miniata</i> (Forster, 1771)	x	x				7	very rare	Kostanjevica na Krasi, 26.7.1989 (RŠ&MZ); Zagrajec, 26.7.2008 (RŠ&MZ)	
<i>Cybosia mesomella</i> (Linnaeus, 1758)	x	x	x	x	x	6	rare	Opatje selo, 11.6.1988 (RŠ&MZ); Komen - Jažmerca, 5.6.2010 (RŠ&MZ&BZ); Jirnanec, 14.6.2013 (RŠ&MZ)	

<i>Pelosia muscerda</i> (Hufnagel, 1766)	x					9	very rare	Klarići, 27.9.2013 (RŠ&MZ)
<i>Lithosia quadra</i> (Linnaeus, 1758)	x	x	x	x	x	6,7,8,9,10	common	
<i>Eilema depressa</i> (Esper, 1787)	x	x	x	x	x	6,7,8,9,10	common	
<i>Eilema lurideola</i> (Zincken, 1817)	x	x	x	x	x	6,7,8	not common	Kopriva, 26.6.2011 (RŠ); Kopriva, 5.7.2013 (MZ); Podbrežje, 12.7.2013 (RŠ&MZ); Klarići, 18.6.2014 (RŠ)
<i>Eilema complana</i> (Linnaeus, 1758)	x	x	x	x	x	6,7,8,9,10	very common	
<i>Eilema pseudocomplana</i> (Daniël, 1939)	x	x	x	x	x	8,9,10	not common	Data in the Chapter regarding interesting species
<i>Eilema caniola</i> (Hübner, 1808)	x	x	x	x	x	5,6,7,8,9,10	very common	
<i>Eilema pygmaeola</i> (Doubleday, 1847)	x	x	x	x	x	5,6,7,8,9	common	
<i>Eilema sonorcuta</i> (Hufnagel, 1766)	x	x	x	x	x	4,5,6,7,9	common	
<i>Amata phegea</i> (Linnaeus, 1758)	x	x	x	x	x	6,7	very common	
<i>Amata marjana</i> (Stauder, 1913)	x					5,6	not common	Data in the Chapter regarding interesting species
<i>Dysauxes ancilla</i> (Linnaeus, 1767)	x	x	x	x	x	6,7,8	common	
<i>Dysauxes famula</i> (Freyer, 1836)	x	x				6,7,8,9	not common	Kostanjevica na Krasu, 25.7.1987 (RŠ&MZ); Zagrajec, 10.9.2010 (RŠ&MZ&JD); Komen, 24.9.2013 (RŠ&MZ); Klarići, 18.6.2014 (RŠ)
<i>Phragmatobia fuliginosa</i> (Linnaeus, 1758)	x	x	x	x	x	3,4,5,6,7,8,9,10	common	Vojščića, 31.3.1994 (RŠ&MZ)
<i>Phragmatobia lucifera</i> (Denis & Schiffmüller, 1775)	x	x				4,5	rare	Opatje selo, 2.5.1987 (RŠ&MZ); Kostanjevica na Krasu, 6.5.1989 (RŠ&MZ); Klarići, 21.4.2010 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Spilosoma lutea</i> (Hufnagel, 1766)	x					5,7	very rare	Kostanjevica na Krasu, 23.5.1987 (RŠ&MZ); Opatje selo, 1.7.1989 (RŠ&MZ)

<i>Spilosoma lubricipeda</i> (Linnaeus, 1758)	x	x	x	5,6,8	rare	Kobjeglava - Jelenca, 19.5.1987 (RŠ&MZ); Opatje selo, 2.8.1987 (MZ); Brije pri Kommu, 22.5.1993 (RŠ&MZ)
<i>Diaphora mendica</i> (Clerck, 1759)	x			5	very rare	Opatje selo, 2.5.1987 (RŠ&MZ)
<i>Diaphora luctuosa</i> (Hübner, 1831)	x	x	x	3,4,5	rare	Kostanjevica na Krasi, 7.4.1989 (RŠ&MZ); Klariči, 9.5.1992 (RŠ); Dutovlje, 24.4.1994 (RŠ&MZ); Kobjeglava - Jelenca, 9.5.2012 (RŠ&MZ); Podbreže, 25.4.2013 (MZ)
<i>Rhyparia purpurata</i> (Linnaeus, 1758)	x	x	x	5,6,7	rare	Lokvica, 28.6.1996 (RŠ); Skopo, 26.6.2011 (RŠ)
<i>Diacrisia sannio</i> (Linnaeus, 1758)	x	x	x	5,6,7,8,9	common	
<i>Arctia villica</i> (Linnaeus, 1758)	x	x	x	4,5,6	common	
<i>Spiris slovenica</i> (Daniel, 1939)	x	x	x	5,6,7	common	Data in the Chapter regarding interesting species
<i>Euplagia quadripunctaria</i> (Poda, 1761)	x	x	x	7,8,9	not common	Kobjeglava, 5.8.1988 (RŠ); Škrbina, 15.8.1994 (RŠ&MZ); Temnica, 11.8.2008 (RŠ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Laspeyria flexula</i> (Denis & Schiffermüller, 1775)	x	x	x	5,7,8,9	not common	
<i>Parascotia fuliginaria</i> (Linnaeus, 1761)	x	x	x	7,9	very rare	Kostanjevica na Krasi, 9.7.2002 (RŠ&MZ); Zagrajec, 10.9.2010 (RŠ&MZ&JD); Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Catephia alchymista</i> (Denis & Schiffermüller, 1775)	x	x	x	5,6,7,8	very rare	Gorenja Brestovica, 10.7.1997 (RŠ&ML); Kobjeglava - Jelenca, 17.5.2004 (RŠ&MZ&BZ)
<i>Minucia lunaris</i> (Denis & Schiffermüller, 1775)	x	x	x	4,5	not common	
<i>Ophiura tirhaca</i> (Cramer, 1773)		x		10	very rare	Zagrajec, 25.10.2013 (RŠ&MZ)
<i>Dysgonia algriva</i> (Linnaeus, 1767)	x	x	x	5,6,7,8,9	not common	
<i>Grammodes stolidia</i> (Fabricius, 1775)		x		9	very rare	Zagrajec, 10.9.2010 (RŠ&MZ&JD)
<i>Euclidia glyphica</i> (Linnaeus, 1758)	x	x	x	5,6,7	common	

<i>Euclidia mi</i> (Clerck, 1759)	x	x	x	x	x	x	x	5,6	very common	
<i>Catocala conversa</i> (Esper, 1783)	x	x						6,7	very rare	Vojštica, 14.7.1994 (RŠ&MZ); Lipa na Krasu, 16.6.2010 (MZ)
<i>Catocala nymphagoga</i> (Esper, 1787)	x	x	x	x	x			7,8	common	
<i>Catocala fraxini</i> (Linnaeus, 1758)		x						9	very rare	Lipa na Krasu, 10.9.1995 (RŠ&MZ)
<i>Catocala conjuncta</i> (Esper, 1787)	x							9	very rare	Klariči, 7.9.1993 (RŠ&MZ)
<i>Catocala nupta</i> (Linnaeus, 1767)	x	x						7,8,9,10	not common	Kostanjevica na Krasu, 11.7.1994 (RŠ); Zagrajec, 30.10.2010 (RŠ&MZ)
<i>Catocala elocata</i> (Esper, 1787)	x							7,8,9	rare	Klariči, 7.9.1993 (RŠ&MZ); Temnica, 14.7.1994 (RŠ&MZ); Kostanjevica na Krasu, 10.7.1998 (RŠ)
<i>Catocala dilecta</i> (Hübner, 1808)	x	x	x					7,8,9,10	not common	Klariči, 7.9.1995 (RŠ&MZ); Novoel, 9.7.2002 (RŠ&MZ); Zagrajec, 2.10.2011 (RŠ); Krajna vas, 18.7.2014 (RŠ&MZ)
<i>Catocala sponsa</i> (Linnaeus, 1767)	x	x	x	x	x			7,8,9	common	Kostanjevica na Krasu, 11.7.1994 (RŠ); Škrbina, 18.8.1994 (RŠ); Kopriva, 4.8.2013 (RŠ); Lokev, 25.8.2014 (RŠ)
<i>Catocala promissa</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x			6,7,8,9	common	Kostanjevica na Krasu, 4.7.1996 (RŠ&MZ); Podbreže, 12.7.2013 (RŠ&MZ); Klariči, 18.6.2014 (RŠ); Kopriva, 18.9.2014 (RŠ&MZ&CM)
<i>Apopestes spectrum</i> (Esper, 1787)								9	very rare	Lokev, 30.9.2011 (RŠ&MZ)
<i>Lygephila cracca</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x			5,6,7,8,9,10, 11	not common	
<i>Odice suava</i> (Hübner, 1813)	x							7	very rare	Opatje selo, 12.7.1987 (MZ)
<i>Eublemma parva</i> (Hübner, 1808)		x						7	very rare	Gorjansko - Podklanec, 3.7.2009 (RŠ&MZ)
<i>Eublemma purpurina</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x			5,6,7,8,9,10	rare	Lokvica, 4.6.1989 (RŠ); Kobjeglava - Jelenca, 21.5.2000 (RŠ); Temnica, 11.8.2008 (RŠ); Klariči, 27.9.2013 (RŠ&MZ)

<i>Metachrostis dardouini</i> (Boisduval, 1840)												Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Metachrostis velox</i> (Hübner, 1813)	x	x										Opatje selo, 24.9.1993 (RŠ); Gorjansko - Podklanec, 3.7.2009 (RŠ&MZ); Klariči, 13.9.2015 (RŠ)
<i>Orectis proboscoidata</i> (Herrich-Schäffer, 1851)	x	x	x	x	x							Komen, 22.9.1993 (RŠ&MZ); Kopriva, 26.6.2011 (RŠ); Kazlje, 17.9.2011 (RŠ&MZ); Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Idia calvaria</i> (Denis & Schiffermüller, 1775)	x	x	x	x								Kostanjevica na Krasi, 11.7.1987 (RŠ&MZ); Škrbina, 18.8.1994 (RŠ); Lipa na Krasi, 10.9.1995 (RŠ&MZ)
<i>Paracolax tristalis</i> (Fabricius, 1794)	x	x	x	x	x							
<i>Hermينيا tarsipemmalis</i> Treitschke, 1835	x	x	x	x	x							
<i>Hermينيا tarstirinalis</i> (Knoch, 1782)	x	x	x	x	x							
<i>Hermينيا grisealis</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x							
<i>Polypogon tentacularia</i> (Linnaeus, 1758)	x	x	x	x								Bije pri Komnu, 22.5.1993 (RŠ&MZ); Temnica, 11.8.2012 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Zanclognatha lunalis</i> (Scopoli, 1763)	x	x	x	x	x							
<i>Zanclognatha zelleralis</i> (Wocke, 1850)	x	x	x	x	x							Kostanjevica na Krasi, 4.7.1996 (RŠ); Trstelj, 16.7.2010 (RŠ); Zagrajec, 10.9.2010 (RŠ&MZ&JD)
<i>Pechipogo plumigeralis</i> Hübner, 1825	x	x	x	x	x							Kostanjevica na Krasi, 19.8.1994 (RŠ); Kopriva, 26.6.2011 (RŠ); Kazlje, 17.9.2011 (RŠ&MZ)
<i>Hypena proboscoidalis</i> (Linnaeus, 1758)	x	x	x	x								
<i>Hypena rostralis</i> (Linnaeus, 1758)	x	x	x	x	x							

<i>Hypena obsitalis</i> (Hübner, 1813)	x	x			2,3,4,11				very rare	Zagrajec, 13.2.1997 (RŠ); Lokvica, 21.11.2009 (RŠ)
<i>Hypena lividalis</i> (Hübner, 1796)		x			9				very rare	Data in the Chapter regarding interesting species
<i>Zekelita antiqualis</i> (Hübner, 1809)	x			x	6				very rare	Brestovica, 14.6.1998 (MZ); Jirmanec, 14.6.2013 (RŠ&MZ); Klariči, 18.6.2014 (RŠ)
<i>Schrankia costaestrigalis</i> (Stephens, 1834)	x	x	x	x	9,10				not common	Klariči, 7.9.1993 (RŠ&MZ); Zagrajec, 30.10.2010 (RŠ&MZ); Kazlje, 17.9.2011 (RŠ&MZ); Komen, 24.9.2013 (RŠ&MZ)
<i>Arctornis l-nigrum</i> (Müller, 1764)	x			x	6,7,8,9				rare	Tennica, 11.8.2012 (RŠ&MZ); Jirmanec, 14.6.2013 (RŠ&MZ); Kopriva, 7.9.2013 (RŠ); Lokev, 25.8.2014 (RŠ)
<i>Leucoma salicis</i> (Linnaeus, 1758)					6		x		rare	Jirmanec, 4.6.2011 (RŠ&MZ)
<i>Lymantria dispar</i> (Linnaeus, 1758)	x	x	x	x	7,8,9				very common	
<i>Lymantria monacha</i> (Linnaeus, 1758)	x	x	x		6,7				rare	Tennica, 25.7.1987 (RŠ&MZ); Lipa na Krasu, 21.7.2001 (RŠ&BZ)
<i>Oenertia rubea</i> (Denis & Schiffermüller, 1775)	x	x		x	7,8,9				rare	Tennica, 21.7.2009 (RŠ&MZ); Gorjansko - Podklanec, 3.7.2009 (RŠ&MZ); Podbrežje, 12.7.2013 (RŠ&MZ)
<i>Euproctis chrysoorrhoea</i> (Linnaeus, 1758)	x				7				very rare	Kostanjevica na Krasu, 11.7.1987 (RŠ&MZ)
<i>Sphrageidus similis</i> (Fuessly, 1775)	x				8,9				rare	Opatje selo, 13.8.1988 (RŠ&MZ); Vojštica, 7.9.1995 (RŠ&MZ)
<i>Calliteara pudibunda</i> (Linnaeus, 1758)	x	x	x	x	4,5,6				not common	Kostanjevica na Krasu, 23.4.1989 (RŠ&MZ); Kobjeglava - Jelenca, 16.5.1996 (RŠ&ML); Krajna vas, 21.5.2014 (RŠ&MZ)
<i>Orgyia antiqua</i> (Linnaeus, 1758)	x	x	x	x	9,10				not common	Opatje selo, 24.9.1988 (RŠ&MZ); Vojštica, 11.10.1996 (RŠ); Tomaj, 12.10.2014 (RŠ)
<i>Phytometra viridaria</i> (Clerck, 1759)	x	x	x	x	5,6,7,8,9				common	

<i>Nycteoila revayana</i> (Scopoli, 1772)	x	x	x	x	x	2,3,6,7,10,11	rare	Dutovlje, 23.3.1996 (MZ); Kostanjevica na Krasu, 26.2.1997 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ); Skopo, 10.6.2011 (RŠ)	
<i>Nycteoila asiatica</i> (Krulikovskiy, 1904)	x	x	x			3,7,9,10,11	rare	Klariči, 18.3.1995 (RŠ&MZ); Kobjeglava, 15.11.1995 (RŠ); Mali Dol, 4.10.2007 (RŠ); Kopriva, 18.9.2014 (RŠ&MZ&CM)	
NOCTUIDAE (230)									
<i>Colocasia coryli</i> (Linnaeus, 1758)	x	x	x	x	x	3,4,5,6,7,8,9	common		
<i>Diloba caeruleocephala</i> (Linnaeus, 1758)	x	x	x	x	x	10,11,12	very common		
<i>Craniophora ligustri</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	3,4,5,6,7,8,9,10	very common		
<i>Moma alpinum</i> (Osbeck, 1778)		x	x			5	very rare	Kobjeglava - Jelenca, 16.5.1996 (RŠ&ML); Komen, 19.5.2011 (RŠ&MZ)	
<i>Acronicta alni</i> (Linnaeus, 1767)	x	x	x			5,6,7	rare	Trstelj, 14.6.1991 (RŠ&MZ); Brje pri Komnu, 2.5.1999 (RŠ&MZ)	
<i>Acronicta psi</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,6,7,9	rare	Brje pri Komnu, 25.4.2014 (RŠ&MZ)	
<i>Acronicta auricoma</i> (Denis & Schiffmüller, 1775)	x					7	very rare	Kostanjevica na Krasu, 4.7.1996 (RŠ)	
<i>Acronicta rumicis</i> (Linnaeus, 1758)	x	x	x	x	x	3,4,5,6,7,8,10	not common		
<i>Acronicta euphorbiae</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	4,5,8	not common		
<i>Acronicta aceris</i> (Linnaeus, 1758)	x	x	x			5,6	not common		
<i>Acronicta megalcephala</i> (Denis & Schiffmüller, 1775)	x		x			5,9	very rare	Klariči, 7.9.1995 (RŠ&MZ); Klariči, 10.9.1995 (RŠ&MZ); Kobjeglava, 18.5.1996 (MZ)	
<i>Abrostola tripartita</i> (Hufnagel, 1766)	x		x			5,6,7	very rare	Opatje selo, 10.6.1989 (RŠ&MZ); Vojšičica, 17.7.1993 (MZ); Kopriva, 15.5.2013 (RŠ&MZ)	
<i>Abrostola asclepiadis</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	4,5,6,7	not common		

<i>Abrostola triplasia</i> (Linnaeus, 1758)	x	x	x	x	4,5,6	rare	Kostanjevica na Krasi, 22.5.1993 (RŠ&MZ); Podbreže, 1.5.2013 (RŠ&MZ); Kopriva, 15.5.2013 (RŠ&MZ); Pomikve, 12.6.2013 (RŠ); Brije pri Komnu, 25.4.2014 (RŠ&MZ)
<i>Chrysodeixis chalcites</i> (Esper, 1789)	x	x	x	x	7,8,9,10,11	common	
<i>Macdunnoughia confusa</i> (Stephens, 1850)	x	x			4,5,9,10,11	not common	
<i>Diachrysia chrysiis</i> (Linnaeus, 1758)	x	x			5,6,7	very rare	Vojšičica, 7.5.1994 (MZ); Klanec pri Komnu, 3.7.2005 (RŠ)
<i>Diachrysia stenochrysis</i> (Warren, 1913)	x				5,6	very rare	Opatje selo, 12.5.1989 (RŠ&MZ)
<i>Euchalcia modestoides</i> Poole, 1989		x			6	very rare	Data in the Chapter regarding interesting species
<i>Autographa gamma</i> (Linnaeus, 1758)	x	x	x	x	5,6,7,8,9,10,11	common	
<i>Deltote pygarga</i> (Hufnagel, 1766)	x	x	x	x	5,6,7,8	common	
<i>Deltote deceptorata</i> (Scopoli, 1763)	x	x	x	x	5,6,7	common	
<i>Panemeria tenebrata</i> (Scopoli, 1763)	x		x		4,5	very rare	Klarići, 22.4.2006 (MZ); Štorje, 6.5.2015 (RŠ&MZ)
<i>Tyta luctuosa</i> (Denis & Schiffermüller, 1775)	x	x	x	x	5,6,7,8,9	not common	
<i>Acontia trabealis</i> (Scopoli, 1763)	x	x	x	x	5,6,7,8,9	common	
<i>Acontia lucida</i> (Hufnagel, 1766)	x		x		9	very rare	Dutovlje, 7.9.1995 (RŠ&MZ); Lokvica, 5.9.2012 (RŠ)
<i>Aedia leucomelas</i> (Linnaeus, 1758)	x	x	x	x	7,8,9,10	rare	Miren - Gmajna, 2.9.1991 (RŠ); Škrbina, 15.8.1994 (RŠ&MZ); Zagrajec, 13.10.2008 (RŠ&MZ)
<i>Cucullia abstinii</i> (Linnaeus, 1761)	x		x		6	not common	Sežana, 26.6.2000 e. l. 15.9.1999 (RŠ&MZ); Rodik, 15.9.1999 (RŠ&MZ); Termica, 25.9.2001 (MZ) - larvae on <i>Artemisia vulgaris</i>
<i>Cucullia umbratica</i> (Linnaeus, 1758)	x				8	very rare	Kostanjevica na Krasi, 25.8.1989 (RŠ&MZ)

<i>Cucullia blattariae</i> (Esper, 1790)	x	x	x	x	x	x	x	3,4,5	common	Lokvica, 5.4.2002 e. l. 20.6.2001 (RŠ); Trstelj, 22.4.2001 e. l. 28.5.2000 (RŠ) - all larvae on <i>Scrophularia canina</i> ; Štorje, 10.7.2005 (RŠ) - larvae on <i>Scrophularia canina</i>
<i>Cucullia gozmanyi</i> (G. & L. Ronkay, 1994)	x	x						4,5	not common	Data in the Chapter regarding interesting species
<i>Cucullia lychnitis</i> Rambur, 1833	x	x						5,6	not common	Kostanjevica na Krasu, 19.5.1999 e. l. 16.7.1998 (RŠ); Lipa na Krasu, 21.6.2003 e. l. 29.7.2002 (RŠ) - all larvae on <i>Verbascum lychnitis</i>
<i>Cucullia verbasci</i> (Linnaeus, 1758)	x	x						7	rare	Lipa na Krasu, 9.6.2002 - larvae (RŠ); Trstelj, 18.6.2001 e. l. 15.7.2000 (RŠ); Kobjeglava - Jelenca, 6.5.2014 e. l. 28.3.2015 (RŠ&MZ) - all larvae on <i>Verbascum thapsus</i> podatki Matjaž - Dutovlje?
<i>Epimecia ustula</i> (Freyer, 1835)								6	very rare	Brije pri Komnu, 15.6.2001 (MZ)
<i>Lamprosticta culta</i> (Denis & Schiffermüller, 1775)	x	x						6,7	rare	Kostanjevica na Krasu, 11.7.1994 (RŠ&MZ); Vojšičica, 12.7.1995 (RŠ&MZ); Lipa na Krasu, 10.7.1998 (RŠ); Trstelj, 23.7.2009 (RŠ&MZ&TL)
<i>Praestilbia armeniaca</i> Staudinger, 1892								9	very rare	Lokev, 4.9.2010 (RŠ&MZ&BZ)
<i>Amphipyra pyramidea</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	6,7,8,9,10,11	very common	
<i>Amphipyra tragopoginis</i> (Clerck, 1759)	x							9	very rare	Klariči, 15.9.1995 (MZ)
<i>Amphipyra tetra</i> (Fabricius, 1787)	x	x	x	x	x	x	x	7,8,9,10	not common	Kostanjevica na Krasu, 19.8.1994 (RŠ&MZ); Gorjansko - Podklanec, 3.7.2009 (RŠ&MZ); Jirmanec, 19.8.2011 (RŠ&MZ); Gorjansko - Mavhinje, 2.10.2011 (RŠ)
<i>Asteroscopus sphinx</i> (Hufnagel, 1766)	x	x						11,12	not common	
<i>Brachionycha nubeculosa</i> (Esper, 1785)								3,4	not common	Lokev, 16.3.2012 (RŠ&MZ); Krvavi Potok, 18.4.2013 (RŠ&BZ&SG)
<i>Valeria oleagina</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	x	x	3,4	common	
<i>Meganephria bimaculosa</i> (Linnaeus, 1767)	x	x	x	x	x	x	x	9,10	not common	Vojšičica, 9.10.1995 (RŠ); Gorjansko - Mavhinje, 29.9.2011 (RŠ); Lokve, 30.9.2011 (RŠ&MZ); Komen, 24.9.2013 (RŠ&MZ)

<i>Allophyes oxyacanthae</i> (Linnaeus, 1758)	x	x	x	x	x	10,11,12	very common		
<i>Pyrrhia umbra</i> (Hufnagel, 1766)	x		x			8,9	very rare	Opatje selo, 8.9.1992 (RŠ); Dutovlje, 1.6.1994 (MZ); Lipa na Krasu, 18.8.1994 (RŠ)	
<i>Schinia cardui</i> (Hübner, 1790)	x	x	x			7,8	not common	Data in the Chapter regarding interesting species	
<i>Heliothis peltigera</i> (Denis & Schiffermüller, 1775)	x		x	x	x	3,5,6,7,8,9	rare	Opatje selo, 13.8.1988 (RŠ&MZ); Dutovlje, 31.3.1994 (RŠ&MZ); Dutovlje, 1.6.1994 (MZ); Jirnanec, 8.5.2015 (RŠ&MZ&BZ&SG)	
<i>Heliothis viriplaca</i> (Hufnagel, 1766)	x	x	x	x		4,5,6,7	rare		
<i>Helicoverpa armigera</i> (Hübner, 1808)	x	x	x	x	x	8,9,10	common		
<i>Acosmetia caliginosa</i> (Hübner, 1813)				x		6	very rare	Kopriva, 10.6.2011 (RŠ)	
<i>Callopolisria latreillei</i> (Duponchel, 1827)	x	x	x			8,9,10	very rare	Opatje selo, 11.9.1987 (MZ); Vojščica, 4.10.1991 (RŠ); Dutovlje, 15.9.1995 (MZ); Mali Dol, 4.10.2007 (RŠ)	
<i>Cryphia algae</i> (Fabricius, 1775)	x	x	x	x	x	7,8,9	very common		
<i>Bryophila raptricula</i> (Denis & Schiffermüller, 1775)	x					7,8	very rare	Trstelj – Vrtočka, 25.7.2010 (MZ); Komen, 5.8.2013 (MZ)	
<i>Nyctobrya muralis</i> (Forster, 1771)	x		x			7,8	rare	Kostanjevica na Krasu, 21.7.2001 (RŠ&BZ); Skopo, 28.7.2011 (RŠ)	
<i>Pseudeustrotia candidula</i> (Denis & Schiffermüller, 1775)	x	x	x			5,6	rare	Kobjeglava, 19.5.1997 (RŠ&MZ); Kopriva, 15.6.2012 (RŠ)	
<i>Spodoptera exigua</i> (Hübner, 1808)	x	x	x	x	x	7,8,9,10	not common		
<i>Elaphria venustula</i> (Hübner, 1790)	x	x	x			5,6,7	not common		
<i>Caradrina morpheus</i> (Hufnagel, 1766)	x					7	very rare	Tennica, 14.7.1994 (RŠ&MZ)	
<i>Caradrina kadenii</i> Freyer, 1836	x					9	very rare	Brestovica, 24.9.1994 (MZ); Brestovica, 26.9.1995 (MZ); Klariči, 27.9.2013 (RŠ&MZ)	
<i>Caradrina aspersa</i> Rambur, 1834	x	x	x			7,8,9	rare	Kostanjevica na Krasu, 25.7.1987 (RŠ&MZ); Lipa na Krasu, 18.7.1995 (RŠ&MZ); Trstelj, 16.7.2010 (RŠ)	

<i>Caradrina clavipalpis</i> Scopoli, 1763	x	x	x	x	x	6,7,8,9,10,11	not common	Zagrajec, 26.7.2008 (RŠ&MZ); Jirmanec, 19.8.2011 (RŠ&MZ); Komen, 5.8.2013 (MZ); Vrhovlje, 8.8.2014 (RŠ&MZ)
<i>Hoplodrina blanda</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	7,8	rare	
<i>Hoplodrina respersa</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	4,5,6,7	not common	
<i>Hoplodrina ambigua</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	5,6,8,9,10,11	not common	
<i>Charanyca trigrammica</i> (Hufnagel, 1766)	x	x	x	x	x	5,6	common	
<i>Charanyca ferruginea</i> (Esper, 1785)	x	x	x	x	x	6,7	common	
<i>Athetis gluteosa</i> (Tretschke, 1835)	x	x	x	x	x	8	very rare	Komen, 5.8.2013 (MZ) - local, at the deserted pond
<i>Athetis hospes</i> (Freyer, 1831)	x	x	x	x	x	8,9	rare	Brestovica, 10.9.1995 (MZ); Lokev, 4.9.2010 (RŠ&MZ&BZ); Kopriva, 20.8.2011 (RŠ); Kopriva, 3.9.2011 (RŠ)
<i>Dypterygia scabriscutula</i> (Linnaeus, 1758)	x	x	x	x	x	5,6,7,8,9	not common	
<i>Trachea atriplicis</i> (Linnaeus, 1758)	x	x	x	x	x	5,6,7,8,9	not common	
<i>Mormo maura</i> (Linnaeus, 1758)	x	x	x	x	x	7	very rare	Kostanjevica na Krasi, 4.7.1996 (RŠ); Pomikve, 29.6.2013 (RŠ&MZ&CM)
<i>Polyphaenias sericata</i> (Esper, 1787)	x	x	x	x	x	6,7,8,9	very common	
<i>Thalophilha matura</i> (Hufnagel, 1766)	x	x	x	x	x	7,8,9,10	very common	
<i>Actinotia polyodon</i> (Clerck, 1759)	x	x	x	x	x	7	very rare	Opatje selo, 19.7.1988 (RŠ&MZ); Kobjeglava - Jelena, 16.5.1996 (RŠ&ML)
<i>Chloantha hyperici</i> (Denis & Schiffermüller, 1775)	x	x	x	x	x	4,5,8,9,10	rare	Gorenja Brestovica, 10.9.1995 (RŠ&MZ); Zagrajec, 13.10.2008 (RŠ); Kopriva, 13.8.2012 (RŠ)
<i>Phlogophora meticulosa</i> (Linnaeus, 1758)	x	x	x	x	x	4,5,9,10,11	common	

<i>Euplexia lucipara</i> (Linnaeus, 1758)	x	x			x	5,6,7,8	very rare	Škrbina, 18.8.1994 (RŠ); Trstelj - Vrtovka, 23.7.2009 (RŠ&MZ&TL); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Auchmis detersa</i> (Esper, 1787)	x	x	x	x	x	7,8,9	rare	Škrbina, 15.8.1994 (RŠ&MZ); Jirmanec, 19.8.2011 (RŠ&MZ); Podbreže, 12.7.2013 (RŠ&MZ); Lokev, 25.8.2014 (RŠ)
<i>Cosmia diffinis</i> (Linnaeus, 1767)			x			7	very rare	Krajna vas, 18.7.2014 (RŠ&MZ)
<i>Cosmia affinis</i> (Linnaeus, 1767)	x	x	x	x		6,7,8,9	very rare	Komen, 22.9.1993 (RŠ&MZ); Skopo, 26.6.2011 (RŠ); Kazlje, 17.9.2011 (RŠ&MZ)
<i>Cosmia trapezina</i> (Linnaeus, 1758)	x	x	x	x	x	6,7,8,9	not common	
<i>Cosmia pyralina</i> (Denis & Schiffmüller, 1775)			x			6,7	very rare	Kopriva, 27.6.2012 (RŠ); Ponikve, 29.6.2013 (RŠ&MZ&CM); Kopriva, 6.7.2014 (RŠ&CM)
<i>Dicycla oo</i> (Linnaeus, 1758)	x	x	x	x	x	6,7	common	Brije pri Komnu, 15.6.2001 (MZ); Kopriva, 15.6.2012 (RŠ); Podbreže, 12.7.2013 (RŠ&MZ)
<i>Aethmia centrago</i> (Haworth, 1809)		x				9,10	rare	Mali Dol, 4.10.2007 (RŠ); Komen, 24.9.2013 (RŠ&MZ)
<i>Tiliacea citrago</i> (Linnaeus, 1758)	x	x	x	x	x	9,10,11	not common	
<i>Tiliacea aurago</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	9,10	not common	
<i>Tiliacea stiphurago</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	9,10,11	common	
<i>Xanthia icteritia</i> (Hufnagel, 1766)					x	9	very rare	Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Xanthia gilvago</i> (Denis & Schiffmüller, 1775)	x	x				10	very rare	Miren - Gmajna, 27.10.1992 (RŠ); Zagrajec, 25.10.2013 (RŠ&MZ)
<i>Xanthia ruiticilla</i> (Esper, 1791)	x		x			3	rare	Klariči, 18.3.1994 (RŠ); Dutovlje, 25.3.1994 (RŠ&MZ); Klariči, 15.3.2002 (RŠ&MZ)
<i>Agrochola lychnidis</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	9,10,11	very common	
<i>Agrochola nitida</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	9,10	common	

<i>Agrochola humilis</i> (Denis & Schiffermüller, 1775)	x	x	x	x	9,10	very rare	Štorje, 28.9.1996 (RŠ); Gorjansko, 11.10.1996 (RŠ); Sežana, 2.10.1997 (MZ)
<i>Agrochola litura</i> (Linnaeus, 1758)	x	x	x	x	9,10,11	very common	
<i>Agrochola hevola</i> (Linnaeus, 1758)	x	x	x	x	9,10,11	common	
<i>Agrochola lota</i> (Clerck, 1759)	x	x	x		10,11	very rare	Miren - Gmajna, 19.11.1987 (RŠ); Tublje pri Komnu, 29.10.1995 (RŠ&MZ); Brje pri Komnu, 25.9.2009 (RŠ&MZ); Klariči, 13.11.2009 (RŠ&MZ)
<i>Agrochola macilenta</i> (Hübner, 1809)	x	x	x	x	9,10,11	very common	
<i>Agrochola laevis</i> (Hübner, 1803)	x	x	x	x	9,10,11	common	Kostanjevica na Krasu, 19.9.1987 (RŠ&MZ); Gorjansko, 4.11.1996 (RŠ); Kazlje, 17.9.2011 (RŠ&MZ); Zagrajec, 2.10.2011 (RŠ); Komen - Jažmerca, 18.9.2012 (RŠ&MZ)
<i>Agrochola circellaris</i> (Hufnagel, 1766)	x	x	x	x	9,10,11	very common	
<i>Conistra vaccinii</i> (Linnaeus, 1761)	x	x	x	x	2,3,4,9,10,11	very common	
<i>Conistra ligula</i> (Esper, 1791)	x	x	x	x	3,4,10,11	rare	Vojšičica, 15.11.1995 (RŠ); Zagrajec, 30.10.2010 (RŠ&MZ); Gorjansko - Mavhinje, 29.9.2011 (RŠ); Jirmanec, 19.10.2013 (RŠ&MZ)
<i>Conistra rubiginosa</i> (Scopoli, 1763)	x	x	x	x	3,4,10,11	very common	
<i>Conistra veronicae</i> (Hübner, 1813)	x	x	x	x	3,4,5,9,10,11	common	
<i>Conistra rubiginea</i> (Denis & Schiffermüller, 1775)	x	x	x	x	2,3,4,5,9,10,11	very common	
<i>Conistra erythrocephala</i> (Denis & Schiffermüller, 1775)	x	x	x	x	2,3,4,5,9,10,11	very common	
<i>Jodia croceago</i> (Denis & Schiffermüller, 1775)	x	x	x		3,4	rare	Opatje selo, 15.3.1992 (RŠ&MZ); Dutovlje, 24.4.1994 (RŠ&MZ); Brestovica, 26.3.1995 (RŠ&MZ)
<i>Lithophane semibrunnea</i> (Haworth, 1809)	x				3	very rare	Klariči, 15.3.2014 (MZ)

<i>Lithophane socia</i> (Hufnagel, 1766)	x	x	x	x	3,4,9	rare	Miren - Gmajna, 19.3.1993 (RŠ); Dutovlje, 24.4.1994 (RŠ&MZ); Klariči, 15.3.2014 (MZ)
<i>Lithophane ornitopus</i> (Hufnagel, 1766)	x	x	x	x	3,4,5,9,10,11	common	
<i>Xylena exsoleta</i> (Linnaeus, 1758)	x	x	x	x	3,10,11	rare	Opatje selo, 27.10.1989 (RŠ&MZ); Vojštica, 26.10.1996 (RŠ&MZ); Jirmanec, 19.10.2013 (RŠ&MZ)
<i>Orbona fragariae</i> (Vieweg, 1790)	x				3,4,10,11	rare	Opatje selo, 15.3.1992 (RŠ&MZ); Kostanjevica na Krasu, 7.4.1993 (RŠ&MZ); Lokvica, 23.11.1994 (RŠ)
<i>Eupsilia transversa</i> (Hufnagel, 1766)	x	x	x	x	2,3,4,9,10,11,12	very common	
<i>Atypha pulmonaris</i> (Esper, 1790)	x	x	x	x	5,6,7	rare	Kostanjevica na Krasu, 1.7.1989 (RŠ&MZ); Jirmanec, 4.6.2011 (RŠ&MZ); Skopo, 10.6.2011 (RŠ); Povir, 29.6.2015 (RŠ&MZ)
<i>Mesogona acetosellae</i> (Denis & Schiffmüller, 1775)	x	x	x	x	9,10	rare	Kostanjevica na Krasu, 1.10.1990 (RŠ&MZ); Štorje, 28.9.1996 (RŠ)
<i>Rileyiana fovea</i> (Treitschke, 1825)	x	x	x	x	10,11	not common	Novelo, 20.10.1989 (RŠ); Škrbina, 27.11.1994 (RŠ); Temnica, 25.10.1995 (RŠ); Kobjeglava, 4.11.1996 (RŠ&MZ)
<i>Dryobota labecula</i> (Esper, 1788)	x	x			11	very rare	Miren - Gmajna, 13.11.1994 (RŠ&MZ); Gorjansko, 15.11.1995 (RŠ); Klariči, 13.11.1996 (RŠ&MZ); Zagrajec, 6.11.2004 (MZ)
<i>Dichonia convergens</i> (Denis & Schiffmüller, 1775)	x	x	x	x	10,11	very rare	Vojštica, 26.10.1996 (RŠ&MZ); Gorjansko, 4.11.1996 (RŠ); Jirmanec, 19.10.2013 (RŠ&MZ)
<i>Griposita aprilina</i> (Linnaeus, 1758)	x	x	x	x	9,10,11	common	
<i>Dryobotodes eremita</i> (Fabricius, 1775)	x	x	x	x	9,10,11	very common	
<i>Dryobotodes monochroma</i> (Esper, 1790)		x			10	very rare	Zagrajec, 13.10.2008 (RŠ); Zagrajec, 30.10.2010 (RŠ) - all inspection of the genital structures (RŠ)
<i>Dryobotodes carbonis</i> Wagner, 1931	x				10	very rare	Klariči, 7.10.2014 (RŠ&MZ)

<i>Dryobotodes tenebrosa</i> (Esper, 1789)	x	x			9,10	very rare	Kostanjevica na Krasu, 24.9.1993 (RŠ); Vojšičica, 30.10.1994 (RŠ)
<i>Antitype chi</i> (Linnaeus, 1758)	x				10	very rare	Kostanjevica na Krasu, 1.10.1990 (RŠ&MZ)
<i>Ammocoenia caecimacula</i> (Denis & Schiffmüller, 1775)	x	x	x	x	9,10,11	very common	
<i>Ammocoenia senex</i> (Geyer, 1828)	x	x			10,11	rare	Novelo, 20.10.1989 (RŠ); Klariči, 9.11.1991 (RŠ&MZ); Miren - Gmajna, 5.11.1994 (RŠ); Zagrajec, 25.10.2013 (RŠ&MZ)
<i>Trigonophora flammea</i> (Esper, 1785)	x	x	x	x	9,10,11	common	
<i>Aporophyla luteolata</i> (Denis & Schiffmüller, 1775)	x	x	x	x	9,10,11	common	
<i>Aporophyla nigra</i> (Haworth, 1809)	x	x	x	x	10,11	not common	
<i>Aporophyla canescens</i> (Duponchel, 1826)	x	x			9	very rare	Brestovica, 24.9.1994 (MZ); Kobjeglava, 27.9.1997 (RŠ&MZ)
<i>Polymixis rufocincta</i> (Geyer, 1828)	x	x	x		10,11	rare	Klariči, 13.11.1994 (RŠ&MZ); Gorjansko, 29.10.1995 (RŠ&MZ); Kobjeglava, 4.11.1996 (RŠ); Zagrajec, 25.10.2013 (RŠ&MZ)
<i>Mniotype adusta</i> (Esper, 1790)		x			6	very rare	Jirnanec, 4.6.2011 (RŠ&MZ); Kopriva, 27.6.2012 (RŠ)
<i>Mniotype solieri</i> (Boisduval, 1840)	x	x	x		9,10,11	rare	Kostanjevica na Krasu, 4.10.1993 (RŠ); Lipa na Krasu, 10.9.1995 (RŠ&MZ); Dutovlje, 14.10.1998 (RŠ); Povir, 11.10.2013 (RŠ&MZ)
<i>Mniotype satura</i> (Denis & Schiffmüller, 1775)	x	x	x	x	9,10,11	common	
<i>Episema glaucina</i> (Esper, 1789)	x	x			9,10	common	
<i>Cleoceris scoriacea</i> (Esper, 1789)					9	very rare	Diviša, 15.9.1999 (RŠ&MZ); Diviša, 15.9.2000 (RŠ&MZ)
<i>Calamia tridens</i> (Hufnagel, 1766)	x				7	very rare	Opatje selo, 17.7.1987 (MZ)
<i>Staurophora celsia</i> (Linnaeus, 1758)		x	x	x	9	common	Diviša, 15.9.1999 (RŠ&MZ); Kazlje, 17.9.2011 (RŠ&MZ); Komen - Jažmerca, 18.9.2012 (RŠ&MZ&BZ); Kopriva, 18.9.2014 (RŠ&MZ&CM)

<i>Gortyna puengelerei</i> (Turati, 1909)	x	x		x	9,10	rare	Vojštica, 10.10.1986 (RŠ&MZ); Presejše pri Komnu, 29.10.1995 (RŠ&MZ); Gorjansko, 20.10.1996 (RŠ&MZ); Lokev, 30.9.2011 (RŠ&MZ)
<i>Amphipoea oculatea</i> (Linnaeus, 1761)	x	x		x	8,9	very rare	Lipa na Krasu, 10.9.1995 (RŠ&MZ); Jirmanec, 19.8.2011 (RŠ&MZ); Komen, 5.8.2013 (MZ)
<i>Luperina dumerilii</i> (Duponchel, 1826)	x	x		x	8,9,10	common	
<i>Rhizedra lutosa</i> (Hübner, 1803)	x	x		x	10	very rare	Komen, 21.10.1987 leg. (ML) coll. (RŠ); Opatje Selo, 10.10.1991 (MZ)
<i>Photodes morrisii sohnretheli</i> (Püngeler, 1907)	x	x		x	6,7	rare	Opatje selo, 17.6.1994 (RŠ); Kopriva, 26.6.2011 (RŠ)
<i>Globia sparganii</i> (Esper, 1790)	x	x		x	7,8	rare	Komen, 5.8.2013 (MZ); Komen, 17.7.2015 (RŠ) - local, at the deserted pond
<i>Apamea epomidon</i> (Haworth, 1809)	x				7	very rare	Kostanjevica na Krasu, 11.7.1994 (RŠ)
<i>Apamea aquila</i> Donzel, 1837	x	x			7,8	very rare	Škrbina, 18.8.1994 (RŠ); Kostanjevica na Krasu, 19.8.1994 (RŠ); Kostanjevica na Krasu, 4.7.1996 (RŠ); Lipa na Krasu, 12.7.1996 (RŠ)
<i>Apamea crenata</i> (Hufnagel, 1766)	x				5,6	very rare	Opatje selo, 12.5.1989 (RŠ&MZ); Brestovica, 28.6.1995 (RŠ)
<i>Apamea sordens</i> (Hufnagel, 1766)	x	x		x	5	very rare	Kobjeglava - Jelenca, 16.5.1996 (RŠ&ML); Lokvica, 25.5.2002 (RŠ&BZ&SG)
<i>Apamea illyria</i> Freyer, 1846	x	x		x	5	very rare	Kobjeglava, 18.5.1996 (MZ); Lipa na Krasu, 12.5.2006 (RŠ&MZ); Lipa na Krasu, 19.5.2010 (RŠ&MZ); Jirmanec, 8.5.2015 (RŠ&MZ&BZ&SG)
<i>Apamea scolopacina</i> (Esper, 1788)	x	x		x	6,7	very rare	Vojštica, 11.7.1994 (RŠ); Skopo, 26.6.2011 (RŠ); Kopriva, 6.7.2014 (RŠ&CM)
<i>Apamea monoglypha</i> (Hufnagel, 1766)	x	x		x	6,7	rare	
<i>Apamea lithoxylaea</i> (Denis & Schiffermüller, 1775)	x	x		x	6,7	not common	

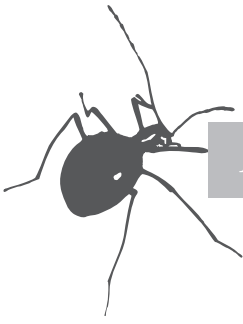
<i>Apamea sublustris</i> (Esper, 1788)	x	x	x	x	x	x	x	x	5,6,7,8	not common	Kopriva, 30.5.2011 (RŠ); Podbrežje, 28.5.2013 (RŠ&MZ); Krajna vas, 21.5.2014 (RŠ&MZ)
<i>Mesapamea secalis</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	6,7,8,9,10	common	Zagrajec, 2.10.1995 (RŠ) - the latest date
<i>Mesapamea secatella</i> Remm, 1983									7,9	very rare	Lipa na Krasu, 10.9.1995 (RŠ&MZ); Krajna vas, 18.7.2014 (RŠ&MZ)
<i>Mesoligia furuncula</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	7,8,9	rare	Dutovlje, 9.8.1994 (RŠ); Lipa na Krasu, 1.8.2009 (RŠ); Jirmanec, 28.7.2012 (RŠ&MZ)
<i>Oligia strigilis</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	5,6,7	not common	
<i>Oligia latruncula</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	4,5,6	common	Brije pri Komnu, 25.4.2014 (RŠ&MZ) - the earliest date
<i>Oligia dubia</i> (Heydemann, 1942)	x	x	x	x	x	x	x	x	4,5,6	common	Data in the Chapter regarding interesting species
<i>Anarta trifolii</i> (Hufnagel, 1766)	x	x	x	x	x	x	x	x	4,5,6,7,8,9,10	common	
<i>Polia nebulosa</i> (Hufnagel, 1766)									5	very rare	Komen, 19.5.2011 (RŠ&MZ)
<i>Pachetra sagittigera</i> (Hufnagel, 1766)	x	x	x	x	x	x	x	x	5,6	very common	
<i>Lacanobia w-latinum</i> (Hufnagel, 1766)	x	x	x	x	x	x	x	x	5,6,7	not common	
<i>Lacanobia suasa</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	4,5,6,7	rare	
<i>Lacanobia oleracea</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	5,7,8,9,10	rare	
<i>Hada plebeja</i> (Linnaeus, 1761)	x								5	very rare	Kostanjevica na Krasu, 23.5.1987 (RŠ&MZ)
<i>Mamestra brassicae</i> (Linnaeus, 1758)	x	x	x	x	x	x	x	x	5,6,7,8,9	not common	
<i>Sideridis rivularis</i> (Fabricius, 1775)									6	very rare	Gorjansko, 18.6.2007 e. 1.15.5.2007 (MZ)
<i>Sideridis reticulata</i> (Goeze, 1781)	x	x	x	x	x	x	x	x	6,7	rare	Kostanjevica na Krasu, 1.7.1989 (RŠ&MZ); Lokev, 25.6.2010 (RŠ&MZ&BZ&SG&SP); Jirmanec, 14.6.2013 (RŠ&MZ)
<i>Comisania luteago</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	x	x	5,6,7	not common	
<i>Hecatera dysodea</i> (Denis & Schiffmüller, 1775)									8	very rare	Veliki Dol, 13.8.2012 (RŠ)

<i>Hecatera cappa</i> (Hübner, 1809)	x					6	very rare	Kostanjevica na Krasi, 10.6.1989 (RŠ&MZ)
<i>Hadena capsincola</i> (Denis & Schiffermüller, 1775)		x				5	very rare	Kobjeglava, 18.5.1996 (MZ)
<i>Hadena albimaculata</i> (Borkhausen, 1792)	x	x				5	very rare	Komen, 19.5.2011 (RŠ&MZ); Kopriva, 15.5.2013 (RŠ&MZ)
<i>Hadena filograna</i> (Esper, 1788)	x	x				5,6	rare	Kobjeglava - Jelena, 16.5.1996 (RŠ&ML); Ponikve, 12.6.2013 (RŠ)
<i>Hadena perplexa</i> (Denis & Schiffermüller, 1775)	x	x				6,7	rare	Kostanjevica na Krasi, 11.7.1987 (RŠ&MZ); Gorjansko, 8.6.2007 ex l. (MZ)
<i>Tholera cespitis</i> (Denis & Schiffermüller, 1775)	x	x	x			9,10	not common	
<i>Tholera decimalis</i> (Poda, 1761)	x	x	x			9,10	very common	
<i>Mythimna turca</i> (Linnaeus, 1761)	x	x				5,8	very rare	Brje pri Komnu, 22.5.1993 (RŠ&MZ); Klariči, 28.8.1993 (RŠ)
<i>Mythimna conigera</i> (Denis & Schiffermüller, 1775)	x	x				6,7	rare	
<i>Mythimna vitellina</i> (Hübner, 1808)	x	x	x			5,6,9,10	not common	
<i>Mythimna unipuncta</i> (Haworth, 1809)	x	x				10,11	not common	
<i>Mythimna sicula</i> (Treitschke, 1835)	x	x	x			4,5,6,7,8,9	rare	Kostanjevica na Krasi, 15.8.1987 (RŠ&MZ); Opatje selo, 17.6.1994 (RŠ); Gorjansko, 22.5.2009 (RŠ&MZ); Zagrajec, 22.5.2009 (RŠ&MZ)
<i>Mythimna albipuncta</i> (Denis & Schiffermüller, 1775)	x	x	x	x		4,5,6,7,8,9,10, 11	common	
<i>Mythimna ferrago</i> (Fabricius, 1787)	x	x	x			6,7,8,9	not common	
<i>Mythimna l-album</i> (Linnaeus, 1767)	x	x	x	x		3,6,7,8,9,10, 11	common	
<i>Mythimna riparia</i> (Rambur, 1829)	x	x	x			4,5,6,7,8,9	rare	Opatje selo, 21.9.1990 (RŠ&MZ); Kobjeglava, 26.4.1997 (RŠ&MZ); Zagrajec, 22.5.2009 (RŠ&MZ); Jirmanec, 3.9.2015 (RŠ&MZ&CM)

<i>Leucania obsoleta</i> (Hübner, 1803)	x	x			5,6,8	very rare	Kostanjevica na Krasu, 15.8.1987 (RŠ&MZ); Kobjeglavca - Jelena, 16.5.1996 (RŠ&ML)
<i>Leucania putrescens</i> (Hübner, 1824)	x	x			8,9	rare	Kostanjevica na Krasu, 25.8.1989 (RŠ&MZ); Klariči, 7.9.1993 (RŠ&MZ); Brje pri Komnu, 25.9.2009 (RŠ&MZ)
<i>Leucania loreyi</i> (Duponchel, 1827)	x	x	x	x	10,11	not common	
<i>Panolis flammea</i> (Denis & Schiffmüller, 1775)	x	x	x	x	3,4,5	not common	
<i>Orthostia incerta</i> (Hufnagel, 1766)	x	x	x	x	2,3,4,5	very common	
<i>Orthostia minitosa</i> (Denis & Schiffmüller, 1775)	x	x	x	x	3,4,5	not common	
<i>Orthostia cerasi</i> (Fabricius, 1775)	x	x	x	x	2,3,4,5	very common	
<i>Orthostia cruda</i> (Denis & Schiffmüller, 1775)	x	x	x	x	2,3,4	very common	
<i>Orthostia gracilis</i> (Denis & Schiffmüller, 1775)	x	x	x	x	3,4	rare	Kostanjevica na Krasu, 19.3.1990 (RŠ&MZ); Dutovlje, 31.3.1994 (RŠ&MZ); Klariči, 26.3.1995 (RŠ&MZ); Krvavi Potok, 18.4.2013 (RŠ&BZ&SG)
<i>Orthostia opima</i> (Hübner, 1809)	x	x	x	x	3,4,5	rare	Dutovlje, 25.3.1994 (RŠ&MZ); Klariči, 26.3.1995 (RŠ&MZ); Kazlje, 28.3.2012 (RŠ&MZ); Krvavi Potok, 18.4.2013 (RŠ&BZ&SG)
<i>Orthostia gothica</i> (Linnaeus, 1758)	x	x	x	x	3,4,5	common	
<i>Anorthoa munda</i> (Denis & Schiffmüller, 1775)	x	x	x	x	2,3,4	very common	
<i>Perigrappa rorida</i> Frivaldszky, 1835	x				3,4	rare	Data in the Chapter regarding interesting species
<i>Perigrappa i-cinctum slovenica</i> (Micheli 1996)	x				4	very rare	Krvavi Potok, 18.4.2013 (RŠ&BZ&SG)
<i>Egira conspiciellaris</i> (Linnaeus, 1758)	x	x	x	x	3,4,5	common	
<i>Euxoa temera</i> (Hübner, 1808)	x	x	x	x	9	very rare	Klariči, 7.9.1993 (RŠ&MZ); Kostanjevica na Krasu, 22.9.1993 (RŠ&MZ); Lipa na Krasu, 10.9.1995 (RŠ&MZ); Kazlje, 17.9.2011 (RŠ&MZ)
<i>Euxoa cos</i> (Hübner, 1824)	x				8	very rare	Tennica, 29.8.2008 (MZ)
<i>Agrotis cinerea</i> (Denis & Schiffmüller, 1775)		x			5	very rare	Kobjeglavca, 18.5.1996 (MZ); Kobjeglavca - Jelena, 6.5.2014 (RŠ&MZ)

<i>Agrotis segetum</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	3,4,5,6,7,8,9, 10,11	common	
<i>Agrotis exclamatoris</i> (Linnaeus, 1758)	x	x	x	x	x	x	5,6,7,8,9,10	common	
<i>Agrotis ipsilon</i> (Hufnagel, 1766)	x	x	x	x	x	x	3,4,5,6,7,8,9, 10,11	common	
<i>Agrotis bigramma</i> (Esper, 1790)	x	x				x	8,9	rare	Opatje selo, 25.8.1989 (RŠ&MZ); Klariči, 7.9.1995 (RŠ&MZ); Jirmanec, 19.8.2011 (RŠ&MZ); Lokev, 25.8.2014 (RŠ)
<i>Peridroma saucia</i> (Hübner, 1808)	x	x	x	x	x	x	8,9,10,11	common	
<i>Axylia putris</i> (Linnaeus, 1761)	x	x	x				6,7,8	rare	
<i>Ochropleura plecta</i> (Linnaeus, 1761)	x	x	x	x	x	x	5,6,7,8,9	not common	
<i>Chersotis margaritacea</i> (Villiers, 1789)	x					x	9,10	very rare	Vojšiča, 16.10.1993 (MZ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Noctua pronuba</i> (Linnaeus, 1758)	x	x	x	x	x	x	5,6,7,8,9,10, 11	very common	
<i>Noctua fimbriata</i> (Schreber, 1759)	x	x	x	x	x	x	6,7,8,9,10	common	
<i>Noctua tirrenica</i> Biebinger, Speidel & Hanigk, 1983	x	x	x	x	x	x	9,10	rare	Zagrajec, 30.9.2010 (RŠ); Kazlje, 17.9.2011 (RŠ&MZ); Skopo, 12.10.2011 (RŠ); Jirmanec, 5.9.2013 (RŠ&MZ); Klariči, 27.9.2013 (RŠ&MZ)
<i>Noctua interposita</i> (Hübner, 1790)	x	x	x	x	x	x	7,8,9	rare	Lipa na Krasu, 10.7.1998 (RŠ); Kopriva, 13.8.2011 (RŠ); Jirmanec, 19.8.2011 (RŠ&MZ); Jirmanec, 5.9.2013 (RŠ&MZ)
<i>Noctua comes</i> Hübner, 1813	x	x	x	x	x	x	5,6,7,8,9,10	common	
<i>Noctua interjecta</i> Hübner, 1803	x	x	x	x	x	x	7,8,9	not common	
<i>Noctua janthina</i> Denis & Schiffmüller, 1775	x	x	x	x	x	x	6,7,8,9,10	not common	
<i>Noctua tertii</i> Mentzer & al., 1991						x	8		Jirmanec, 19.8.2011 (RŠ&MZ)
<i>Epilecta linogrisea</i> (Denis & Schiffmüller, 1775)	x	x	x	x	x	x	8,9	not common	

<i>Lycophotia porphyrea</i> (Denis & Schiffermüller, 1775)	x	x	x	x	5,6,7	rare	Lipa na Krasu, 29.5.1997 (RŠ); Lokvica, 25.5.2002 (RŠ&BZ&SG); Kopriva, 10.7.2013 (RŠ)
<i>Diarsia rubi</i> (Vieweg, 1790)	x				5	very rare	Opatje selo, 9.5.1987 (MZ)
<i>Eugnorisma depuncta</i> (Linnaeus, 1761)				x	9	very rare	Jirnanec, 3.9.2015 (RŠ&MZ&CM)
<i>Xestia c-nigrum</i> (Linnaeus, 1758)	x	x	x	x	5,6,7,8,9,10	common	
<i>Xestia triangulum</i> (Hufnagel, 1766)	x	x	x	x	6,7	rare	Gorjansko - Podklaneč, 3.7.2009 (RŠ&MZ); Ternica, 21.7.2009 (RŠ&MZ); Kopriva, 6.7.2014 (RŠ&CM)
<i>Xestia stigmatica</i> (Hübner, 1813)	x	x	x	x	8,9	not common	
<i>Xestia castanea</i> (Esper, 1798)	x	x	x	x	9,10	very common	
<i>Xestia xanthographa</i> (Denis & Schiffermüller, 1775)	x	x	x	x	8,9,10	very common	
<i>Cerastis rubricosa</i> (Denis & Schiffermüller, 1775)	x	x	x	x	3,4,5	common	



**NEW AND LITTLE KNOWN PLANT- AND LEAFHOPPERS
OF THE FAUNA OF SLOVENIA
(HEMIPTERA: FULGOROMORPHA AND CICADOMORPHA)**

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Abstract – In this account distribution data of 178 species of plant- and leafhoppers occurring in Slovenia are recorded; 81 of them are new to the fauna of Slovenia. Some rare and taxonomically and/or zoogeographically critical species like *Hyalesthes scottii*, *Conomelus sagittifer*, *Delphacodes mulsanti*, *Delphax meridionalis*, *Pastirosa clypeata*, *Dicranotropis hamata* group, *Hespericerus brusinae*, *Stegelytra putoni*, the genus *Aphrodes*, *Anoscopus albiger*, *A. albifrons* and *A. flavostriatus* complexes, *Notus italicus*, the genus *Chlorita* and many others are discussed. The distribution range and the demarcation line between the cis- and transalpine sibling species of the genus *Forcipata* in Slovenia is presented here more in detail. With this account the number of plant- and leafhopper species known for Slovenia has increased to 555 species.

KEY WORDS: Hemiptera, Fulgoromorpha, Cicadomorpha, fauna, Slovenia

Izvešček – NOVI IN MANJ ZNANI ŠKRŽATKI V FAVNI SLOVENIJE (HEMIPTERA: FULGOROMORPHA IN CICADOMORPHA)

Pregled prinaša podatke o razširjenosti 178 vrst malih škržatkov v Sloveniji; 81 vrst je omenjenih prvič in so nove za živalstvo Slovenije. Natančneje so obravnavane nekatere redke ter taksonomsko in/ali zoogeografsko zahtevne vrste, kot so: *Hyalesthes scottii*, *Conomelus sagittifer*, *Delphacodes mulsanti*, *Delphax meridionalis*, *Pastirosa clypeata*, *Dicranotropis hamata* skupina, *Hespericerus brusinae*, *Stegelytra putoni*, rod *Aphrodes*, kompleks vrst *Anoscopus albiger*, *A. albifrons* in *A. flavostriatus*, *Notus italicus*, rod *Chlorita*, in še številne druge. Natančneje je razdelana tudi razširjenost in zoogeografska razmejitev cis- in transalpskih parov vrst rodu *Forcipata*.

S tem pregledom je število poznanih škržatkov in škržadov v favni Slovenije naraslo na 555 vrst.

KLJUČNE BESEDE: Hemiptera, Fulgoromorpha, Cicadomorpha, favna, Slovenija

Introduction

In the previous literature, nearly 480 plant- and leafhopper species have been recorded for the territory of Slovenia (SCOPOLI, 1763; THEN, 1886 and 1896; MELICHAR, 1896; GRÄFFE, 1903; KIAUTA, 1962; TANASIJEVIĆ, 1965; ASCHE, 1982; GOGALA & GOGALA, 1999; HOLZINGER & SELJAK, 2001; SCHÜRRER & LÖCKER, 2003; SELJAK & al., 2003; SELJAK, 1987, 2002, 2004a, 2004b, 2011, 2013a and 2013b; SELJAK & PAGLARINI, 2004; HOLZINGER & al., 2011; HOLZINGER & al 2013). Since author's last more comprehensive contribution to the Auchenorrhyncha fauna of Slovenia (SELJAK, 2004a), a huge amount of material has been collected and many species new to the fauna of Slovenia have been discovered. This paper would rise too much in size, if all these data are included. Therefore only findings of new, less recorded and taxonomically or zoogeographically critical species are summarized here. With this account, together with the previous publications, a good base for a checklist of plant- and leafhoppers occurring in Slovenia is given.

Material and methods

Three different collecting methods have been used to provide specimens for faunistic and taxonomic study: sweep-netting, sampling with a suction sampler and light-trapping. For suction sampling, a leaf blower McCulloch BVM 240 was used. Insects were collected in a mesh net bag turned over the inlet hole of the suction tube. This bag retains the collected material inside the suction tube and prevents its damaging and passing through the fan. This suction method is especially advantageous for extracting species and specimens dwelling near the ground or inside the fit vegetation. For light-trapping a home-made UV insect trap was used. If not specified otherwise, the collector was the author himself.

Sample specimens were dry mounted on specimen cards of appropriate size and are deposited in the author's insect collection.

In addition, plant- and leafhoppers preserved in 70% ethanol from a non-sorted Hemiptera collection deposited at the Slovenian Museum of Natural History (PMS) was examined. These data are also included here. Collectors (mainly students of biology at Biotechnical Faculty - University of Ljubljana - BF) are often unknown. In these cases the collectors are specified as BF, but if known, they are explicitly cited.

Sampling sites are designated by topographic names and by 10 x 10 km UTM grid marks. As the whole territory of Slovenia goes into the grid zone 33T, the zone designation is omitted. Species new to the fauna of Slovenia are marked with an asterisk (*).

The names of food plants were taken from the database "The Plant List" (<http://www.theplantlist.org/>), therefore the authors of the plant names are also omitted.

Results

FULGOROMORPHA

CIXIIDAE Spinola 1839

Apartus michalki (Wagner 1948)

New records: Zadlaška jama - 300 m (VM01), 26.2.2005, leg. A. Kapla; Robič - 310 m (UM82), 18.6.2005, leg. A. Kapla; Trnovo ob Soči - 340 m (UM82), 14.4.2007; Slap Boka - 350 m (UM83), 14.4.2007; Rut - 1200 m (VM11), 12.6.2010; Izvir Soče - 900 m (VM04), 12.4.2011; Kolovrat - 1100 m (UM91), 16.6.2013, mostly swept from *Picea abies* trees, rarely from *Pinus sylvestris* as well.

In earlier publications, in Slovenia this endemic species of the south-eastern Alps was only recorded from a single locality near Bohinjska Bela (HOLZINGER, 1999, HOLZINGER & al. 2003). However, since 2005 it has been collected on several sites in north-western Slovenia, especially abundantly in the Upper Soča Valley. Adult specimens were mainly swept during spring months from young trees of *Picea abies* and in much lesser extent also from pines. In the cave Zabreška jama, an adult specimen was caught as early as in late February, which suggests that adults may hatch very early waiting then in underground refuges for appropriate meteorological conditions to leave them.

**Cixius sticticus* Rey 1891

Material examined: Planina Razor - 1300 m (VM02), 7.7.2005; Vučja Gomila (WM97), 27.4.2011, leg. B. Zadavec.

**Hyalesthes scotti* Ferrari 1882

Material examined: Solkan - 100 m (UL99), 7.7.2005, 17.8.2008 and 24.6.2014; Vale pri Brestovici - 130 m (UL97), 6.8.2005; Kromberk - 350 m (UL99), 14.8.2005; Gradišče nad Prvačino (VL08), 14.7.2006; Hrvatini - Brageti - 135 m (VL04), 25.7.2006; Dolga poljana - 350 m (VL18), 11.7.2007; Kubed (VL14), 17.7.2012; Golo brdo (UM80), 23.6.2014; Rebrnice (VL27), 1.8.2015; Sabotin - 570 m (UL99), 2.8.2015; Dragonja (UL93), 21.7.2016; mainly swept from *Fraxinus ornus* trees and from low vegetation.

This west-Mediterranean species is known to occur in Italy, France, Spain and Portugal, with its most eastern distribution range somewhere on Balkans (HOCH & REMANE, 1985). In Slovenia, this species is scattered distributed on xerothermic slopes in the sub-Mediterranean area. I have also collected it in Croatia: in Istria (Poreč) and in Dalmatia (Krk, Senj and Opuzen). According to our observations it populates strictly xerothermic habitats. Adults have mostly been swept from trees and shrubs of *Fraxinus ornus* or from low vegetation below. In the literature, *Ulmus* trees have mainly been recorded on which adults mostly dwell (HOCH & REMANE,

1985). In contrast, we only have found *Hyalesthes luteipes* on those plants, but never *H. scotti* so far.

Pentastiridius beieri (Wagner 1970)

A new record: Ajba - 110 m (UM90), 5.6.2005; a ♀ caught on *Salix eleagnos*.

This is the second record of this species for Slovenia (HOLZINGER & SELJAK, 2001). Both findings are from Soča Valley.

Reptalus quinquecostatus (Dufour 1833)

New records: Sebeborci (WM97), 25.8.2005; Seča (UL93), 4.6.2006; Stepani (VL14), 7.7.2006; Bertoki, 33 m (VL04), 25.7.2006; Izola (UL94), 24.7.2008; Lukini - 310 m (VL13), 20.8.2013; Ajševica (VL08), 17.7.2009, 8.7.2010, 13.7.2012, 22.06.2014; Vogrsko (UL98), 25.7.2012; Velike Žablje - 80 m (VL18), 1.8.2012; Lože - 110 m (VL17); Kromberk - 130 m (UL99), 11.8.2013; Nova Gorica - 100 m (UL99), 19.7.2014.

Previously less recorded species from Slovenia, which has proved, however, to be one of the most common Cixiids in south-western parts of the country. It has been largely collected in and around agricultural biotopes, especially on fields with maize and cereals. Adults fly from mid-June to mid-August.

Trigonocranus emmeae Fieber 1876

New records: Kromberk (UL99), 11.6.2005; Vogrsko (VL08), 14.6.2005; Kanalski vrh - 640 m (UM90), 6.7.2016.

ACHILIDAE Stål 1966

**Cixidia pilatoi* D'Urso & Guglielmino 1995

Material examined: Golo Brdo (UM80), 11.6.2006; Šmaver (UL99), 26.6.2012, leg. J. Kamin; Kubed (VL14), 17.7.2012; Klariči (UL97), 3.7.2013, Branik (Golec) - 370 m (VL07), 25.5.2014; Golo Brdo - 210 m (UM80), 31.5.2014; Petrinjski kras (VL14), 6.6.2014; Solkan (UL99), 24.6.2014; mostly swept from canopies of *Q. pubescens*.

These distribution data have already been published in the monographic account on the West Palaearctic Achilidae (ASCHE, 2015).

DELPHACIDAE Leach 1865

Kelisiinae Wagner 1963

**Kelisia irregularata* Haupt 1935

Material examined: Novakov Rovt - 660 m (VM23), 2.9.2005; Kanji dol - 1020 m (VL28), 30.7.2006; Trnovski gozd (Krnica) - 1000 m (VL08), 14.8.2011; Hotedršica - 550 m (VL38), 26.8.2016; Gorenji Novaki - 1090 m (VM21), 28.8.2016.

This species from the *K. guttula* group is characterized by the very short subanal processes that are half as long as the anal tube, by small serrated carina on halfway of the aedeagal shaft and by genal spots that do not extend beyond the median keel. Its

distribution range is apparently limited to Central Europe, being recorded from Germany, Austria, Slovakia, Switzerland and Luxemburg (NAST, 1987; REMANE & GUGLIELMINO, 2002; NIEDRINGHAUS & al. 2010). In Slovenia, it was found in five localities, on wet or temporarily dry sites, mainly at higher altitudes up to 1100 m or in cool sites with more continental climate. *Carex flacca* is recorded as the host plant (NICKEL, 2003). As this plant is common everywhere else, climate conditions apparently play an important environmental role in the establishment and development of this species. It has not been found in the area with sub-Mediterranean climate yet.

**Kelisia melanops* Fieber 1878

Material examined: Nova Gorica - 95 m (UL98), 18.6.2005 (6 ♂♂ and 1 ♀); 9.10.2005 (2 ♂♂ and 11 ♀♀); 30.10.2016 (2 ♂♂, 18 ♀♀); Gradišče pri Vipavi - 115 m (VL17) (29.9.2016, 4 ♂♂ and 8 ♀♀).

This species has a prevalently south-eastern European and Mediterranean distribution (NAST, 1987; HOLZINGER & al. 2003). *Carex* spp. is recorded as the host plant (DROSOPOULOS, 1982). Only two localities of this species are currently known in Slovenia. In both cases, it was collected in wet or temporarily flooded sites with lots of various *Carex* and *Juncus* species. It can be easily recognized by the rather small and stout appearance and in particular by the dark brown to black upper part of frons.

**Kelisia monoceros* Ribaut 1934

Material examined: Ajševica - 170 m (UL99), 15.9.2012 (3 ♂♂ and 2 ♀♀).

So far, this is the only known locality of this species in Slovenia. The specimens were collected on a semi-dry and slightly shady meadow in a forest clearing on calcareous ground. Sedges of the *Carex muricata* and *C. vulpina* complex are recorded as the host plants of this species (NICKEL, 2003). As several small species of this complex of sedges occur commonly in Slovenia, new findings of *K. monoceros* could be expected.

Kelisia praecox Haupt 1935

New records: Podnanos - 150 m (VL27), 17.7.2005; Prvačina (UL98), 10.6.2006; Ajševica (VL08), 2.7.2006; Vogrsko - 50 m (UL98), 8.8.2007 and 7.10.2007; Vrtojba (UL98), 15.6.2014; Spodnje Bukovo - 390 m (VM11), 24.7.2016.

Kelisia punctulum (Kirschbaum 1868)

New records: Ajševica (VL08), 8.9.2001 and 1.8.2004; Ajševica - Gmajna (UL98), 19.8.2004; Loke (UL98), 19.8.2004; Nova Gorica (UL99), 18.6.2005 and 30.10.2016; Gradišče pri Vipavi - 115 m (VL17), 17.7.2005 and 29.9.2016; Strunjan (UL94), 10.8.2005.

**Kelisia sima* Ribaut 1934

Material examined: Labinje, 800- 900 m (VM21), 22.8.2004 and 23.8.2004 on two different localities; Novakov Rovt - 660 m (VM23), 2.9.2005; Vojsko - Gačnik - 910 m (VM10), 3.8.2016.

The taxonomic position and separation of this species was clarified by REMANE & JUNG (1995). Because of the great similarity with *Kelisia guttula* (Germar 1818) earlier distribution records of the latter species became uncertain and need verification all over Europe. As both morphospecies may occur syntopically, the situation is getting even more complex (REMANE & JUNG, 1995), although, according to the more recent investigations, they develop on different host plants; *K. guttula* on *Carex flacca* and *K. sima* on sedges of the *C. flava* group (NICKEL, 2003). The main criteria that have been followed in discrimination of these two species among the material collected in Slovenia were: aedeagus length (in male), extent of the dark pattern in the apical region of fore wings, darkened or not darkened upper part of the frons. In all above mentioned localities specimens were collected on temporarily wet seeps and spring mires. In the locality Vojsko - Gačnik both sibling species occur, but it remains unknown whether syntopically. The species might be rather uncommon, as the number of specimens was scarce in all cases.

Kelisia vittipennis J. Sahlberg 1868

New records: Labinje - 800 m (VM21), 22.8.2004; Jelovica (Ledine) - 1150 m (VM32), 23.8.2004, 19.9.2004 and 3.9.2005; Pokljuka (Grajska planina) (VM23), 2.9.2005; Rakitna - 800 m (VL58), 12.9.2008; Vojsko - Gačnik - 915 m (VM10), 12.7.2016 and 3.8.2016; Hotedrščica - 560 m (VL38), 26.8.2016; Žejna dolina - 580 m (VL39), 26.8.2016; Gorenji Novaki - 1090 m (VM21), 28.8.2016.

Stenocraninae Wagner 1963

Stenocranus fuscovittatus (Stål 1858)

New records: Šempas (VL08), 22.3.2005; Nova Gorica (UL98), 18.6.2005 and 9.10.2005; Ajševica (VL08), 2.7.2006; on tall sedges.

Delphacinae Wagner 1963

**Chloriona vasconica* Ribaut 1934

Material examined: Škocjanski zatok (VL04), 14.4.2011 (4 ♂♂, leg. & det. I. Malenovský).

**Oncodelphax pullula* (Boheman 1852)

Material examined: Vojsko - Gačnik - 910 m (VM10), 3.8.2016 (5 ♂♂).

**Conomelus sagittifer* Remane & Asche 1979

Material examined: Gradišče pri Vipavi (Mlake) - 115 m (VL17), 17.7.2005 (2 ♂♂ and 7 ♀♀) on *Juncus effusus*.

So far, this species has only been recorded from Sicily, central Italy and Greece (REMANE & ASCHE, 1979; DROSOPOULOS, 1982). This new and apparently isolated occurrence in Vipava Valley is currently the northernmost in Europe and confirms the presumption of a possible wider distribution expressed already by REMANE & ASCHE (1979). Like in central Italy, both species - *C. sagittifer* and *C. lorifer dehneli* live syntopically on *Juncus effusus*.

Florodelphax leptosoma (Flor 1861)

New records: Postojna (VL37), 17.7.1979 (ASCHE, 1979); Volovjek - 1040 m (VM72), 30.7.2005; Panovec (UL98), 14.8.2005 and 24.6.2007; Spodnje Bukovo (VM11), 24.7.2016; Kanalski vrh (UM90), 29.7.2016; Vojsko - Gačnik - 910 m (VL10), 3.8.2016; Gorenji Novaki - 1090 m (VM21), 28.8.2016; Gradišče pri Vipavi - 115 m (VL17), 29.9.2016; mainly associated with *Juncus effusus*.

**Delphacodes capnodes* (Scott 1870) (Figure 1)

Material examined: Velika Polana (XM05), 26.7.2004 (1♂ and 1♀).

So far, this is the only known locality in Slovenia. It has not been found in western Slovenia yet, although systematically sought for years in wet habitats.

**Delphacodes venosus* (Germar 1830) (Figure 1)

Material examined: Muriša (XM24), 26.7.2004; Velika Polana (XM05), 26.7.2004; Panovec (UL98), 9.7.2005; Ajševica (UL98), 1.10.2016.

**Delphacodes mulsanti* (Fieber 1866) (Figure 1)

Material examined: Bilje (UL98), 14.7.1999; Orehek pri Postojni (VL36), 12.9.2004; Dolina Dragonje (UL93), 2.4.2005; Nova Gorica (UL98), 9.10.2005, 24.6.2007 and 30.10.2016 (10 ♂♂ - all brachypterous, 23 ♀♀ - brachypterous and 18 ♀♀ macropterous); Ajševica (UL98), 20.8.2006 and 31.7.2010; Volčja Draga - 50 m (UL98), 8.8.2007 and 7.10.2007; Sečoveljske soline (UL93), 23.7.2010; Staro Selo - 240 m (UM82), 24.8.2016; Gradišče pri Vipavi - 115 m (VL17), 29.9.2016.

In the past, the identity of this species was interpreted rather confused and controversially by several authors. Specimens from spatially distant populations were often

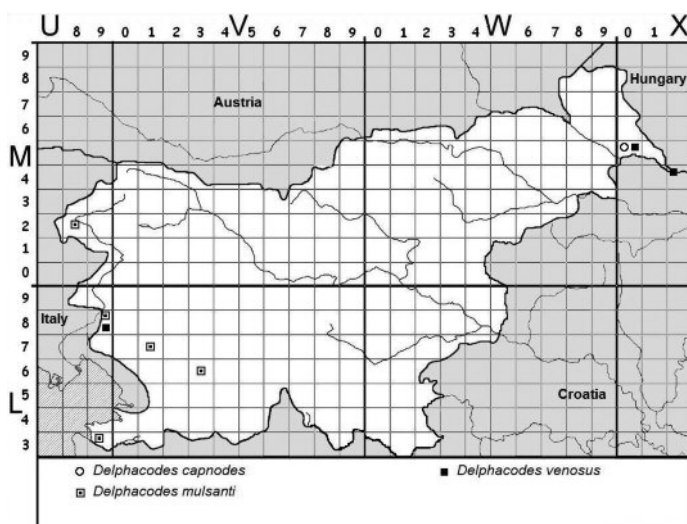


Fig. 1: The genus *Delphacodes* in Slovenia - currently known distribution.

considered as separate species and described under different names (ASCHE & REMANE, 1983). According to Manfred Asche (pers. comm.), after he examined all holotypes of this species group, the following names have to be considered as junior synonyms: *Megamelodes ornatipennis* Haupt 1927; *D. audrasi* Ribaut 1954; *Megamelodes linnavorii* Le Quesne 1960; *Calligypona fascia* Lindberg 1960 and *D. nastasi* Asche & Remane 1983. Thus, the valid name for this taxon is the oldest one, which is *D. mulsanti* (Fieber 1966). *D. mulsanti* has a Mediterranean distribution. In Slovenia its distribution is probably restricted to the south-western part of the country which is its northernmost occurrence in this part of Europe. It dwells in moist to temporarily moist sites with *Juncus* spp., *Carex* spp. and *Cyperus* spp. (ASCHE & REMANE, 1983). Both forms – brachypterous and macropterous appear. Males are mainly brachypterous, while in females the proportion between both forms is more equalized. It overwinters in adult stage.

**Delphax pulchellus* (Curtis 1833)

Material examined: Ankaran (VL04), 29.7.2004; Strunjan (UL94), 10.8.2005; Škocjanski zatok (VL04), 24.9.2005; Sečoveljske soline (UL93), 23.7.2010, always swept from plants of *Phragmites australis*.

Although a widely distributed species all over Europe, in Slovenia it has been collected only in coastal salt marshes.

**Delphax meridionalis* (Haupt 1924)

Material examined: Sečovlje (UL93), 10.6.2010 (1 ♂ and 1 ♀, leg. S. Gomboc), trapped at light in a marine salt marsh with *Phragmites australis* and other halophytic vegetation.

So far, this species has only been recorded from the type locality in Greece (HAUPT, 1924; ASCHE & DROSOPOULOS, 1982). NAST (1972) listed it also for Italy and former Yugoslavia. ASCHE AND DROSOPOULOS (1982) have considered records for former Yugoslavia to be rather uncertain suggesting a possible confusion with *D. ribautianus* Asche and Drosopoulos 1982, a species being described by same authors ten years after Nast's publication. A very disjunctive finding of *D. meridionalis* in the littoral area of Slovenia makes Nast's records for former Yugoslavia likely to be true, which, however, has to be verified by further faunistic investigations focussed especially on the area along the Adriatic Sea in Croatia and Montenegro.

Dicranotropis hamata group (Figure 2)

The existence of two morphologically slightly different populations of *Dicranotropis hamata* s.l in Slovenia has been well known for several years. In the continental part of Slovenia including the Dinaric mountain chain, specimens displaying characteristics of the typical species have always been collected. Populations occurring in western parts of Slovenia from the south Alpine slopes to the littoral region on the south, however, differ significantly in shape of genital styli and the chirality of the aedeagus. This entity has been described recently as a new species *Dicranotropis remaniaca* Guglielmino, d'Urso & Bückle 2016. The genital styles of this new species

are slightly curved apically and show a well-developed preapical tooth. In *D. hamata* this subapical bifurcation is lacking and the aedeagus including the phallosome (which is on the left side) is (with some rare exceptions) mirror-inverted to the latter (GUGLIELMINO & al., 2016). Among the material collected in Slovenia, no exceptions in this regard have been observed. The taxonomic relevance of the chirality of the aedeagus in the *D. hamata* group has been discussed for a long time. Nevertheless, a clear parapatric distribution in Slovenia strongly supports the arguments for two distinct taxonomic entities. They have to be considered as the result of the long-lasting separation of populations by the Dinaric mountain chain during the last glaciations in Europe. In context of this new knowledge, also all earlier records and data for Slovenia have been revised and are given here again (FLOR, 1961; THEN, 1886; GRAEFFE, 1903; KIAUTA, 1962; ASCHE, 1982; SELJAK & HOLZINGER, 2001). Graeffe's records cannot be discriminated with complete reliability, but according to current knowledge *D. remaniaca* should occur in the major part of the area he dealt with. Thus, his record will be treated here as *D. remaniaca*. All records by FLOR (1861), THEN (1886), KIAUTA (1962) and ASCHE (1982) should belong to *D. hamata*. Records given by HOLZINGER & SELJAK (2001) were divided according to the new knowledge.

Dicranotropis hamata (Boheman 1847)

Old records: Ljubljana (FLOR, 1861); Lesce (THEN, 1886); Škofja Loka (KIAUTA, 1962); Postojna, Žužemberk (ASCHE, 1982)

Material examined: Bohinjska Bistrica (VM12), 19.8.2002; Dolnje Lome - 680 m (VL28), 30.7.2006; Gorenji Novaki - 1090 m (VM21), 28.8.2016; Hotedršica - 550 m (VL38), 26.8.2016; Hrušica (VL37), 10.9.2008; Idrijska Bela - 412 m (VL29), 12.7.2016; Kneža (VM01), 1.8.1999; Kojca - 670 m (VM11), 8.8.2010; Kucej - 1140 m (VL08), 3.9.2000; Labinje (VM21), 7.8.1998, 14.8.1999, 20.7.2003 and 18.8.2012; Landol - 530 m (VL37), 18.7.2016; Lendavske gorice (XM15), 27.7.2004; Litmerk (WM84), 26.6.2002; Mali Brebrovnik (WM94), 22.7.2003; Marindol - 240 m (WL23), 3.6.2007; Mestni vrh pri Ptujju (WM64), 22.7.2003; Orešje (WL59), 4.8.2004; Podraga (VL17), 18.7.2016; Police pri Radgoni (WM76), 15.7.2003; Radgona (WM76), 6.9.2000; Sinji vrh - 980 m (VL18), 12.8.2001; Spodnje Bukovo (VM11), 1.8.1999 and 24.7.2016; Sremič (WL39), 25.9.2007; Sromlje (WL49), 2.8.2007; Stojnci (WM73), 31.7.2008; Strezetina (WM84), 20.9.2002 and 22.7.2003; Svetinje v Sl. goricah (WM94), 26.6.2002; Turški vrh (WM83), 26.6.2002 and 20.9.2002; Vetrnik, 700 m (WM40), 17.6.2006; Virštanj - 370 m (WM40), 16.6.2006; Vodiška planina - 1110 m (VM32), 3.9.2005; Vremščica - 840 m (VL25), 16.7.2011; Vučja Gomila (WM97), 27.4.2011; Zgornje Jezersko - 890 m (VM63), 15.8.2007.

**Dicranotropis remaniaca* Guglielmino, d'Urso & Bückle 2016

Old records: Primorje (Kras, Soča Valley) (GRAEFFE, 1903)

Material examined: Ajševica (UL98), 31.7.2010; Banjški Kuk - 770 m (VM00), 12.8.2014; Baske - 600 m (UL99), 22.5.2011; Bilje (UL98), 4.5.1999; Bizjaki (VL08), 14.7.2006; Breginj - 550 m (UM72), 22.8.2003; Gorjansko - 197 m (UL97), 6.8.2005; Grižnik - 299 m (VL07), 6.8.2005; Kamno - 200 m (UM91), 18.8.2006; Kanalski vrh

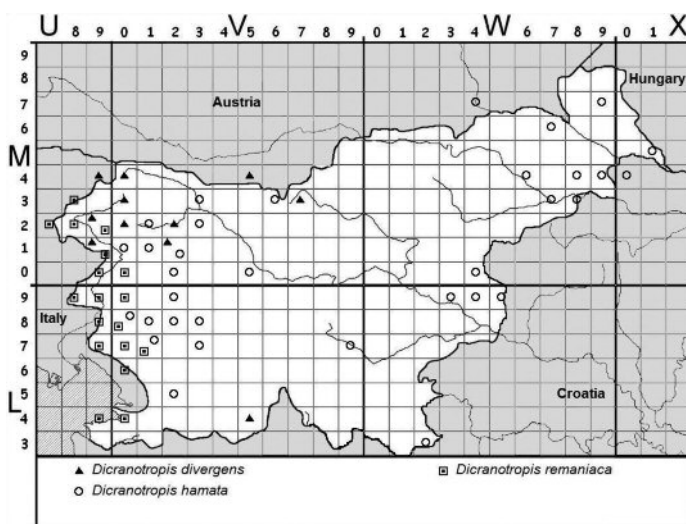


Fig. 2: Known distribution of the three *Dicranotropis* species in Slovenia

(UM90), 29.7.2016; Kozana (UL89), 17.5.2003; Krn - 1200 m (UM92), 26.8.2011; Kromberk (UL99), 17.7.1999 and 6.4.2007; Lepena - 700 m (UM92), 26.8.2001 and 22.8.2003; Loke (UL99), 19.8.2004; Nova Gorica (UL99), 12.8.1999; Nova Gorica (UL98), 17.7.1999, 12.7.2001 and 24.6.2007; Novo mesto (UL97), 1.9.2001; Osek (VL08), 16.7.2003; Pliskovica (VL06), 7.6.2003; Podčela (UM83), 16.9.2002 and 6.8.2004; Podlaka (VL09), 13.5.2006 and 13.7.2006; Prvačina (UL98), 1.4.1998 and 4.9.2003; Ravnica (UL99), 7.5.2000, 3.10.2004 and 25.5.2008; Spodnje Škofije (VL04), 19.9.2005; Staro Selo - 240 m (UM82), 24.8.2016; Strunjan (UL94), 23.4.2000; Šmihel (VL08), 13.7.2006; Vipolže (UL89), 26.7.2005; Vitovlje (VL08), 13.7.2006; Vogrsko (VL08), 2.7.2006 and 21.9.2014; Zalošče (VL08), 14.7.2006; Zavino - 190 m (VL17), 8.8.2007.

Dicranotropis divergens Kirschbaum 1868

New records: Kolovrat - 1100 m (UM91), 24.6.2016; Krnsko jezero - 1400 m (UM92), 1.8.2009; Logarska dolina - 790 m (VM73), 30.7.2005; Mangart - 2050 m (UM94), 15.7.2006; Planina Pungrat - 1440 m (VM54), 9.8.2014; Planina Razor (VM02), 7.7.2005 and 2.9.2006; Drežniške Ravne (Planina Zappleč) - 1200 m (UM92), 12.7.2015; Porezen - 1600 m (VM21), 3.7.2010 and 25.6.2011; Soriška planina - 1500 m (VM22), 3.8.2008; Vršič - 1620 m (VM04), 27.7.2008; Zadnja Trenta - 960 m (VM03), 24.7.2005 and 28.7.2007.

Euconomelus lepidus (Boheman 1847)

New records: Orehek pri Postojni (VL36), 12.9.2004; Zagorje (pri Pivki) (VL35), 9.7.2006; Rakitna 800 m (VL58), 12.9.2008.

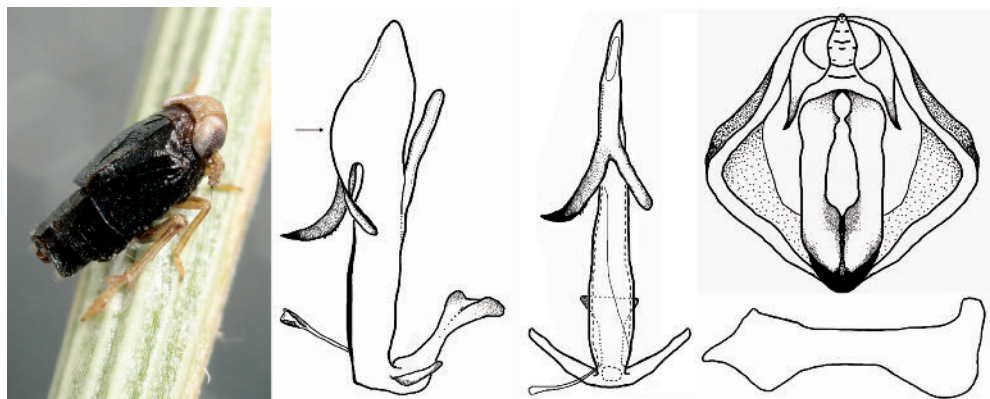


Fig. 3: *Eurysanoides flavobrunnea*, left: male (size: 1.8 - 2.0 mm); center: aedeagus – lateral and dorsal view (arrow); right: male pygofer and the right stylus ventral side

Eurysanoides flavobrunnea (Dlabola 1956) (Figure 3)

New records: Nanos - 900 m (VL27), 20.8.2004 and 4.9.2005; Kucelj - 1150 m (VL08), 4.9.2004; Ravnica - 400 m (UL99), 3.10.2004; Kastelec - 320 m (VL14), 21.9.2016.

This is a rare and little known Mediterranean species originally described from northern Italy (DLABOLA, 1956). Furthermore, it is recorded for Greece and France (DROSOPOULOS, 1982; ASCHE & HOCH, 1982) and also for former Yugoslavia (NAST, 1987), but the exact locality for the latter is not known to the author. In Slovenia it was first recorded in Trnovo (HOLZINGER & SELJAK, 2001), but later on it was found by myself in several localities on the exposed southern slopes of Nanos and Čaven mountains, sometimes in fairly significant numbers in altitudes up to 1150 m. Recently it was found on the Karst edge near Kastelec as well.

**Eurysula lurida* (Fieber 1866)

Material examined: Muriša (XM24), 26.7.2004; Ajševica (UL98), 1.8.2004; Maribor - Tezno (WM55), 16.9.2004; Grgar (UL99) 18.6.2005; Hotedršica - 550 m (VL38), 26.8.2016.

**Falcotoya minuscula* (Horvath 1897)

Material examined: Izola (UL94), 10.8.2005 and 27.07.2011; Ankaran (VL04), 31.7.2007

In Slovenia, this species has a strictly Sub-Mediterranean distribution range and lives on the grass *Cynodon dactylon*.

**Megamelodes lequesnei* Wagner 1963

Material examined: Muriša (XM24), 26.7.2004 (1 ♀); Nova Gorica (UL98), 31.10.2006 (21 ♂♂, 18 ♀♀, 1 nymph) and 10.5.2008 (1 ♂).

In Germany this species lives monophagously on *Juncus subnodulosus* in swamps and does not tolerate mowing (NICKEL 2015). In the last locality this species was swept from fen vegetation with *Carex pendula*, *Scirpus sylvaticus* and *Sparganium* sp. in an urban park, but no attention was paid whether *Juncus subnodulosus* was present there.

Mirabella albifrons (Fieber 1879)

A new record: Muriša (XM24), 26.7.2004.

Paradelphacodes paludosa (Flor 1861)

New records: Jelovica (Ledine) (VM32), 3.9.2005; Puščava - 240 m (WL18), 17.6.2006; Vojsko - Gačnik - 915 m (VM10), 12.7.2016; Landol - 530 m (VL37), 18.7.2016; Staro Selo - 240 m (UM82), 24.8.2016; Hotedršica - 560 m (VL38), 26.8.2016; Gorenji Novaki - 1090 m (VM21), 28.8.2016.

Muellerianella fairmairei (Perris 1857)

New records: Nova Gorica (UL98), 23.7.2005; Dolnji Zemon (VL44), 1.7.2007; Vogrsko (UL98), 21.9.2014; Gradišče pri Vipavi - 115 m (VL17), 29.9.2016.

Muellerianella extrusa (Scott 1871)

New records: Planinsko polje (VL47), 28.6.2001; Nova Gorica (UL98), 21.8.2001, 9.7.2005, 9.10.2005; Kobarid - 235 m (UM92), 15.9.2001; Pokljuka (Močila) - 1200 m (VM23), 14.8.2003 and 2.9.2005; Ajševica (UL98), 1.8.2004; Podčela - 350 m (UM83), 6.8.2004; Labinje - 800 m (VM21), 23.8.2004; Petelinjsko jezero 550 m (VL46), 12.9.2004; Jelovica (Ledine) - 1100 m (VM32), 19.9.2004 and 3.9.2005; Gradišče pri Vipavi (VL17), 17.7.2005; Novakov Rovt (VM23), 2.9.2005; Nanos (VL27), 4.9.2005; Puščava - 240 m (WL18), 17.6.2006; Preloge - 360 m (WL15), 31.5.2007; Dolnji Zemon (VL44), 1.7.2007; Čepovan (Kobilica) - 540 m (VM00), 8.7.2007; Lijak (VL08), 20.7.2008; Rakitna - 800 m (VL58), 12.9.2008; Vojsko - Gačnik - 915 m (VM10), 12.7.2016; Landol - 530 m (VL37), 18.7.2016; Kanalski vrh (UM90), 29.7.2016; Staro Selo - 240 m (UM82), 24.8.2016; Hotedršica - 560 m (VL38), 26.8.2016; Žejna dolina - 580 m (VL39), 26.8.2016.

**Pastiroma clypeata* (Horvath 1897)

Material examined: Strunjan (UL94), 6.7.2011 (2 ♂♂) on *Puccinellia festuciformis*.

More abundantly, this species has been collected in halophytic salt marshes near Poreč in Istria - Croatia (Červar-Porat (UL91), 10.8.2003, 11.8.2004, 22.8.2005; Vabriga - Santa Maria (UL91), 8.8.2006).

Metropis aris Ashe, Drosopoulos & Hoch 1983

New records: Branik - Branik (Golec) - 370 m (VL07), 8.6.2006 (11 ♀♀), 10.6.2008 (7 ♀♀), 25.5.2014 (70 ♀♀, 13 ♂♂), 21.04.2016 (2 ♀♀, 19 ♂♂); Petrinjski kras (VL14), 27.4.2008 (1 ♂); Rakitovec - 520 m (VL13), 6.6.2014 (1 ♂, 3 ♀♀).

This species occurs on very dry karstic pastures with various xerophilous grasses, mainly certain species from the *Festuca valesiaca* and *F. ovina* aggregate as well as *Stipa pennata*. Sometimes it may be found even a substantial number of specimens, especially by the suction sampling method. It develops one generation per year. Adults appear in spring from April to June. Males usually prevail at the beginning (April, early May), while in June only females can be found.

**Struebininganella lugubrina* (Boheman 1847)

Material examined: Žagorje pri Pivki (VL35), 9.7.2006 on *Glyceria notata*.

TETTIGOMETRIDAE Germar 1821

**Tettigometra leucophaea* (Preysslér 1799)

Material examined: Petelinjsko jezero - 550 m (VL46), 12.9.2004; Strunjan - 50 m (UL94), 14.10.2007; Unec - 540 m (VL47), 31.8.2008; Izola - 130 m (UL94), 3.11.2008; Dragonja - 20 m (UL93), 26.5.2016; on dry xerothermic pastures and low-intensity meadows with calcareous soil.

CICADOMORPHA Evans 1946

APHROPHORIDAE Amyot & Serville 1943

Aphrophora major Uhler 1896

New records: Ljubljana (VL60), 19.7.1988; Jarše (VM60), 8.6.1989; Dolga vas pri Kočevju (VL95), 15.9.1991; Stražišče pri Kranju (VM42), 4.7.1995 (all leg. BF); Podčela - 350 m (UM83), 6.8.2004; Labinje - 800 m (VM21), 22.8.2004 and 18.8.2012; Baske - 600 m (UL99), 25.7.2009; Koseze (IB) (VL44), 11.7.2014; Vojsko - Gačnik - 920 m (VM10), 12.7.2016; Hotedršica - 560 m (VL38), 26.8.2016.

Neophilaenus limpidus Wagner 1935

New records: Kucelj - 1170 m (VL08), 13.8.2006; Volovja reber - 1080 m (VL44), 1.7.2007; Rakitovec - 520 m (VL13), 6.6.2014.

In Slovenia, this species has been recorded earlier only from the type locality on the mountain Nanos (WAGNER, 1935). It may be more common along the Dinaric mountain chain, but hitherto little faunistic attention has been paid to this species. All localities recorded here belong to this geographic area. This species is confined to a few isolated populations on the southern side of the Alps. Outside of Slovenia, which is "terra typica", this species is only recorded from the North-Italian regions Piedmont and Trento-Alto Adige (SERVADEI, 1967).

Neophilaenus minor (Kirschbaum 1868)

New records: Golo brdo (UM80), 23.6.2014; Branik - 380 m (VL07), 30.6.2002 and 10.6.2008; Sinji vrh - 1000 m (VL18), 12.8.2001; Turški vrh (WM83), 26.6.2002.

CICADELLIDAE Latreille 1825

Macropsinae Evans 1935

Macropsis fragilicola Holzinger, Nickel & Remane 2013

Records: Stanošina (WM62), 27.5.2013; on *Salix fragilis* (HOLZINGER & al., 2013)

No other records are known from the territory of Slovenia. This species has not been collected yet by the author himself.

Macropsis notata (Prohaska 1923)

New records: Planinsko polje - 450 m (VL47), 31.8.2008 on *Salix triandra*; Hruševje pri Postojni - 535 m (VL36), 12.9.2015 on *Salix fragilis*.

Species recorded earlier only from Kungota pri Ptuj (SCHÜRRER & LÖCKER, 2003).

Macropsis gravesteini Wagner 1953

New records: Nova Gorica (UL98), 28.5.2006; Golubinjek - 200 m (WM40), 16.6.2006, in both places on *Salix alba*. Species also recorded earlier from Dolnja Počehova (SCHÜRRER & LÖCKER 2003).

**Macropsis remanei* Nickel 1999

Material examined: Kamno - 200 M (UM91) 18.8.2006; Zadnja Trenta - 970 M (VM03), 28.7.2007; Idrijska Bela - 410 m (VL29), 12.7.2016; - on *Salix eleagnos*

Macropsis haupti Wagner 1950

New records: Logarska dolina - 790 m (VM73), 30.7.2005; Podsreda - Socko - 300 m (WL49), 17.6.2006; Kranjska gora - 850 m (VM04), 27.7.2008; Vojsko - Gačnik - 915 m (VM10), 12.7.2016; Podraga (VL17), 18.7.2016; on *Salix purpurea*.

Macropsis scutellata (Boheman 1845)

New records: Čentiba (XM15), 27.7.2004; Bizjaki (VL08), 14.7.2006; Oševljek (UL98), 14.7.2006 and 12.6.2007; Nova Gorica (UL98), 30.8.2011. On *Urtica dioica*.

**Macropsis vicina* (Horvath 1897)

Material examined: Kanal (UM90), 5.6.2005; Kromberk (UL99), 27.6.2007; on *Populus alba*

**Hephathus freyi* (Fieber 1868)

Material examined: Debeli rtič (VL04), 27.7.2011, swept from plants of *Artemisia caerulescens*.

This species has been collected more abundantly in the Croatian part of Istria (Červar - Porat (UL91), 25.8.2008 and 20.8.2015; Antenal (UL91), 7.8.2001), mainly swept from *Artemisia caerulescens* plants. Its most likely association with *Artemisia* spp. plants has already been reported by Tishechkin (TISHECHKIN, 1999).

Agalliinae Kirkaldy 1901

**Agallia consobrina* Curtis 1833

Material examined: Čentiba and Lendavske gorice (XM15), 27.7.2004 on *Urtica dioica*.

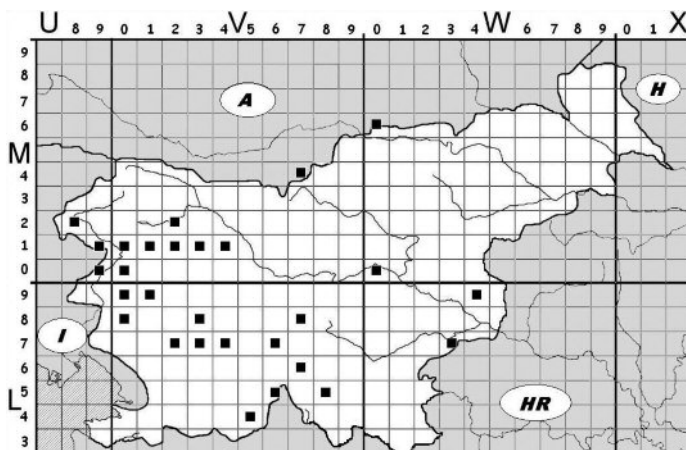


Fig. 4: Known distribution of *Indigallia limbata* in Slovenia

Indigallia limbata (Kirschbaum 1868)

New records: Nanos - 1040 m (VL27), 16.7.2004; Podsreda - Socko, 300 m (WL49), 17.6.2006; Cimprovka - 1240 m (VM21), 24.6.2006; Soriška planina - 1400 m (VM22), 3.8.2008; Grant - 700 m (VM11), 12.6.2010; Rut - 1200 m (VM11), 12.6.2010; Spodnje Bukovo - 388 m (VM11), 12.6.2010; Cimprovka - 1180 m (VM21), 26.6.2010; Porezen - 1620 m (VM21), 3.7.2010; Porezen - 1300 m (VM21), 25.6.2011; Kalce - Ruska rajda (VL38), 15.5.2012; Ravhar (UM90), 18.5.2013; Volčanski Ruti - 560 m (UM91), 16.6.2013; Grčarice (VL85), 21.7.2013; Košenjak (WM06), 8.7.1973 (leg. B. Sket - coll. PMS); Podolševa - Sveti Duh (VM74), 20.7.1974 (leg. B. Sket - coll. PMS).

This south-alpine and dinaric species is fairly common in Slovenia, especially along the Dinaric mountain chain (Figure 4). According to the current knowledge, it is absent in the sub-Mediterranean area as well as in the extreme eastern parts of Slovenia (Prekmurje). We usually have found it associated with the plant *Lamium orvala*, which is most likely its preferred if not the only host plant. Namely, if distribution maps of *Indigallia limbata* and *Lamium orvala* are compared, an almost perfect overlap is gained, which could additionally support this preferred relationship. Adults occur from end of April to the end of July with the maximum in June.

Dryodurgades dlabolai Wagner 1963

New records: Podkraj - 870 m (VL27), 10.9.2008; Vitovski vrh - 880 m (VL08), 28.9.2008; food plant *Trifolium medium*.

Idiocerinae Baker 1915

**Hespericerus brusinae* (Horvath 1895)

Material examined: Lokvica - 215 m (UL97), 8.5.2005 and 7.5.2016; Klariči (UL97), 19.5.2006 (nymphs) and 3.7.2013; Vale pri Brestovici -140 m (UL97), 8.5.2005; Kromberk (UL99), 9.7.2005; Lijak (VL09), 20.5.2006 (nymphs and adults),

4.5.2008 and 3.4.2007 (nymphs); Solkan (UL99), 21.5.2006 (1 ♂, many nymphs); Golo brdo (UM80) - 200 m, 11.6.2006 and 31.5.2014; Osp (VL14), 27.4.2008; Črni kal (VL14), 14.4.2011; always on *Pistacia terebinthus*.

The type locality of this species is the island of Hvar ('Lesina' in Horvath's original paper) in Dalmatia, but recorded by the same author also from Bakar and Novi Vinodolski in the northern Adriatic area (HORVATH, 1895). According to DLABOLA (1981: 225) this species is an arboreal-east-Mediterranean fauna element distributed from Tajikistan through Turkmenistan, Iran, western Caucasus to the Black Sea area and then along the eastern Adriatic coast, where it reaches the most western and northern range in western Slovenia and in Friuli-Venezia Giulia (Northeast Italy). Various plant species have been recorded as to be the host plants of this species: *Pistacia* spp. (DLABOLA, 1981), *Ailanthus altissima* (LOGVINENKO, 1984), *Rhus coriaria* (GNEZDILOV, 1999). Records on *Salix* and *Celtis* in Turkey seem to be somehow ambiguous (LODOS & KALKANDELEN, 1982). We always found this species to be strictly associated with *Pistacia terebinthus*. Its life history is poorly known. We found first adults in April when its host plant starts budding. This suggests that this species most probably overwinters in the adult stage. Larvae and nymphs have been observed very abundantly in May and June, rarely even in early July. They feed on young leaves and shoots of *Pistacia terebinthus*. Adults of the new generation have been collected on the host plant during July and then they disappeared completely. It remains a mystery where they move after this period.

**Populicerus albicans* (Kirschbaum 1868)

Material examined: Kromberk (UL99), 27.6.2007; Nova Gorica (UL99), 5.6.2010; on *Populus alba*.

Populicerus laminatus (Flor 1861)

New records: Kot pri Semiču - 370 m (WL15), 31.5.2007; Baske - 600 m (UL99), 25.7.2009; on *Populus tremula*.

Iassinae Amyot & Serville 1843

Iassus mirabilis Orosz 1979

New records: Rodik (VL15), 6.7.2008; Dobravlje na Krasu (VL16), 23.6.2010; Rebrnice - 540 m (VL26), 5.7.2014 - on *Quercus cerris*.

Aphrodinae Haupt 1927

Aphrodes bicincta (Schrank 1776) group

Opinions on species delimitation in this group were controversive in the past because of very vague morphological differences between the sibling species. Since they often may live syntopically, the situation becomes even more complicated. Important improvements in this regard have been done in the recent time by using multiple diagnostic criteria (vibrational signals, molecular and morphological characteristics) in order to provide more information needed for reliable species identification (TISHECHKIN, 1998; BLUEMEL & AL., 2014; DERLINK & al., 2014). In the latest two studies also a huge

amount of material from Slovenia was elaborated. It has been corroborated that four species from this group occur in Slovenia - *A. bicincta* (Schrank 1776), *A. makarovi* Zachvatkin 1948, *A. diminuta* Ribaut 1952 and a new one that still needs to be described, temporarily named *Aphrodes* type "Dragonja" (DERLINK & AL., 2014). In the light of these recent studies, the correctness of all older data on *Aphrodes* species in Slovenia become dubious (GRAEFFE, 1903; HOLZINGER & SELJAK, 2001) and require complete verification. Hence, the only reliable distributional data in Slovenia derive from BLUEMEL & al. (2014). After the complete morphological revision of *Aphrodes* material in my collection, my own data can only be contributed for *A. diminuta*, which is morphologically well-defined, but not for *A. bicincta* s.str. and *A. makarovi*. On the basis of our observations and data, in Slovenia *A. diminuta* seems to have a more mountainous distribution, being collected mainly at altitudes between 600 - 1400 m.

Aphrodes diminuta Ribaut 1952

Material examined: Porezen - 1300 m (VM21), 19.8.2000; Blegoš (VM21), 29.7.2001, 6.9.2008, 8.8.2009; Črni vrh over Cerkno - 1270 m (VM21), 5.8.2007; Kojca - 670 m (VM11), 8.8.2010; Bohinjska Bistrica (VM12), 19.8.2002; Bohinjsko jezero - (VM12), 3.8.1999; Jelovica 1100 m (VM32), 23.8.2004, 3.9.2005; Logarska dolina - 790 m (VM73), 30.7.2005; Mlinarjevo sedlo - 1250 m (VM63), 15.8.2007; Mojstrana (VM24), 27.7.2011; Nanos - 900 m (VL27), 20.8.2004 and 4.9.2005; Planina Razor (VM02), 2.9.2006; Dolnji Zemon (VL44), 1.7.2007; Trbovlje (WM00), 11.7.1990 (PMS).

Anoscopus albifrons (Linnaeus 1758)

Material examined: Murska Sobota (WM87), 4.7.1974

**Anoscopus albifrons mappus* Guglielmino & Bückle, 2015

Material examined: Solkan - 90 m (UL99), 30.8.2008; Kromberk (UL98), 9.7.2005; Grgar (UL99), 18.6.2005; Skalnica - 160 m (UL99), 21.5.2005; Zagomila - 360 m (UL99), 16.6.2008; Kobariški Stol - 1135 m (UM82), 20.7.2014; Livek - 850 m (UM91), 16.7.2005; Kucelj - 1200 m (VL08), 4.9.2004; Čaven - 1240 m (VL18), 14.8.2011; Socerb - 440 m (VL14), 6.7.2008; Jelšane (VL43), 1.7.2007; Čepovan (Kobilica) - 540 m (VM00), 8.7.2007; Vodiška planina - 1110 m (VM32), 3.9.2005.

According to the most recent investigations made by GUGLIELMINO & BÜCKLE (2015) the whole material in my collection collected in western Slovenia belongs to the subspecies *A. a. mappus*. Also records published by me in 2004 as *A. albifrons* refer to this subspecies (SELJAK, 2004a). Only a male specimen found in the collection of PMS, meets aedeagus characteristics of the typical *A. albifrons* (Linnaeus) s.str. This specimen was collected by B. Sket near Murska Sobota (Pannonian region) on 04.07.1974.

* *Anoscopus carlebippus* Guglielmino & Bückle, 2015

Material examined: Rožna dolina (UL98), 23.7.2005 and 22.7.2011; Nova Gorica (UL98), 30.7.2004 and 24.6.2007; Kromberk (UL99), 16.7.2004; Mark (UL98),

20.7.2004; Ajševica (UL98), 1.8.2004, 20.8.2006 and 31.7.2010; Semič (WL15), 6.7.1981; Gederovci (WM87), 21.7.1974; in temporary wet to swampy places rich on sedges.

The recently published studies by GUGLIELMINO and BÜCKLE (2015) showed that the populations of *Anoscopus albiger* (Germar 1821) species complex distributed in the Balkans as well as those from western Slovenia differ from the typical species in the shape of the aedeagus appendages, the terminal ones being "very broad, leaf-shaped" and the proximal ones "diverging in ventral view". Specimens from this region have been recognized as a separate species and described under the name above. Among the paratypes also material from western Slovenia was studied and documented. According to these changes the typical *Anoscopus albiger* (Germar 1821) has not been collected in Slovenia yet.

Anoscopus flavostriatus (Donovan, 1799) s. l.

According to the recent account on the species *A. flavostriatus* two subspecies occur in Europe; the typical one being widely distributed all around the vast part of Europe and *A. f. dubius* Gebicki & Bednarczyk 2002 till now only recorded from central and northern Italy (GUGLIELMINO & BÜCKLE, 2015). The differences between two subspecies are small, but seem to be stable and largely consider the shape and orientation of proximal aedeagal appendages. Specimens from Slovenia included in this study originate from the eastern part of the country (Muriša) and belong to *A. flavostriatus* s. str. The subsequent re-examination of specimens in my collection has shown, however, that both subspecies occur in Slovenia. Because of the scarcity of material from the central and eastern part of the country being available for the examination, general conclusions on the distribution and demarcation situation of both subspecies in Slovenia have to be omitted for now. Available distributional data of both subspecies that suggest a much commoner occurrence of *A. f. dubius* are gathered below.

Anoscopus flavostriatus (Donovan 1799) s. str.

Material examined: Gederovci (WM87), 21.7.1974 (leg. B. Sket); Dolina pri Lendavi (XM15), 26.7.2004; Muriša (XM24), 26.7.2004; Dolnji Zemon (VL44), 1.7.2007; Hrušica pri Podgradu - 550 m (VL34), 6.7.2008.

Anoscopus flavostriatus dubius (Gebicki & Bednarczyk 2002)

Material examined: Zabraška planina -1050 m (VM34), 2.8.2003; Soriška planina - 1300 m (VM22), 14.8.2003 and 23.8.2004;; Podčela - 350 m (UM83), 6.8.2004; Cimprovka - 1250 m (VM21), 23.8.2004 and 28.8.2016; Jelovica - 1150 m (VM32), 23.8.2004 and 3.9.2005; Kucelj - 1200 m (VL08), 4.9.2004; Mala Lazna - 1100 m (VL09), 4.9.2004; Logarska dolina - 790 m (VM73), 30.7.2005; Novakov rovt (VM23), 2.9.2005; Planina Kuk - 1150 m (VM01), 2.9.2006; Zadnja Trenta - 970 m (VM03), 28.7.2007; Blegoš - 1230 m (VM21), 6.9.2008; Kojca - 1300 m (VM11), 27.8.2009; Vremščica - 840 m (VL25), 16.7.2011; Landol - 530 m (VL37), 18.7.2016; Vojsko - Gačnik - 910 m (VM10), 8.8.2016; Črni vrh nad Cerknim - 1220 m (VM21), 28.8.2016;

**Anoscopus alpinus* (Wagner 1955)

Material examined: Peca - 1900 m (VM85), 22.7.1974 (1 ♂; leg. B. Sket - coll. PMS)

**Planaphrodes trifasciata* (Geoffroy 1785)

Material examined: Čaven - 1240 m (VL18), 14.8.2011(1 ♂); Sabotin (UL99), 14.8.2012 (2 ♂♂, leg. J. Kamin); Golo brdo (UM80), 23.6.2014 (1 ♂).

**Stroggylocephalus agrestis* (Fallen 1806)

Material examined: Nova Gorica - Barje (UL98), 18.6.2005, 9.10.2005, 23.8.2010; Rožna dolina (UL98), 23.7.2005; Orehek pri Postojni (VL36), 12.9.2004; Landol - 530 m (VL37), 18.7.2016; Velika Polana (XM05), 26.7.2004; Muriša (XM24), 26.7.2004; in wet or temporary dry straw meadows on tall sedges, mainly on *Carex acutiformis*.

**Stroggylocephalus livens* (Zetterstedt 1840)

Material examined: Ajševica (VL08), 20.8.2006, 20.9.2009 and 31.7.2010; Nova Gorica - 100 m (UL99), 30.10.2016; in wet meadows.

Stegelytrinae Baker 1915

**Stegelytra putoni* (Mulsant & Rey 1875) (*Figure 5 and Figure 6*)

Material examined: Nova Gorica (UL99), 11.9.2010, 2.10.2010, 2.10.2011, 29.10.2011 and 6.7.2013, 15.7.2016; always in the same place on *Quercus ilex*.



Fig. 5: *Stegelytra putoni* - female (size: 5.0-5.7 mm)



Fig. 6: *Stegelytra putoni*
– nymph

This is a Mediterranean species distributed in the Pyrenean Peninsula, southern France, and Italy (RIBAUT, 1952; GUGLIELMINO & BÜCKLE, 2007). In the East Adriatic region it was recorded from Dalmatia (Croatia) (RIBAUT, 1952; NAST, 1987), but marked in Fauna Europaea as a vague data (JACH & HOCH, 2016). In Dalmatia (Croatia), I only found a female on the island Korčula, 30.06.2005, therefore uncertainty, which species occurs there - *S. putoni* or *S. erythronaura*, remains unsolved. However, repeated collections of this species on the above given locality for several years unambiguously confirm the presence of *S. putoni* in the East-Adriatic region. According to our observations this species develops at least two generations per year, one in summer and another one in early autumn. According to RIBAUT (1952), it is strictly associated with evergreen oaks, especially *Quercus ilex* and *Q. suber*. We always collected it from *Q. ilex* only.

Cicadellinae Latreille 1825

**Graphocephala fennahi* Young 1977

Material examined: Maribor (WM45), 25.7.2005, leg. J. Miklavc; a specimen trapped on a yellow sticky trap (SELJAK, 2013).

Errhomenus brachypterus Fieber 1866

New records: Kojca - 670 m (VM11), 8.8.2010; Krnica - 990 m (VL09), 29.7.2012, leg. J. Kamin; Deskle (UM90), 4.10.2012, leg. J. Kamin; Rimske Toplice (WM10), 7.4.2016 (leg. B. Zadavec).

Collection PMS: leg. BF: Ig (VL68), 14.5.1984 (leg. ?); Kočevski Rog (WL05), 18.6.1986 (leg. ?); Pevno (VM41), 27.5.1987 (leg. R. Borisov); Planinsko polje (VL47), 23.6.1993; Planinsko polje (VL48), 23.6.1993; Planinca (VL59), 9.9.1996 (leg. M. Pistotnik); Turjak (VL68), 15.6.1997 (leg. P. Presetnik); Šmarna gora (VM50),

19.6.1997 (leg. S. Strgulc) and 17.6.1998 (leg. Š. Štrekelj); Laze (WL16), 22.6.1997 (leg. A. Gregorčič); Podutik (VM50), 12.7.1997 (leg. U. Kozina) and 25.6.1998 (leg. A. Skoberne); Postojna (VL37), 20.7.1997 (leg. B. Fajdiga); Doblar (UM90), 1.6.1998 (leg. B. Del Fabbro); Dragatuš (WL14), 14.6.1998 (leg. N. Planinc); Vrhnika (VL49), 15.6.1998 (leg. M. Zagmajster); Gorenja Kanomlja (VM10), 22.6.1998 (leg. D. Erjavec); Iški Vintgar (VL68), 22.6.1998 (leg. T. Korenčič); Sedlo Davovec (Cerklje) (VM62), 22.6.1998 (leg. E. Močnik); Smladnik (VM51), 22.6.1998 (leg. A. Žunič); Stari Grad v Podbočju (WL37), 22.6.1998 (leg. A. Zorko); Trnovec (VM50), 22.6.1998 (leg. G. Šubic); Vikrče (VM50), 10.6.1999 (leg. ?); Žlebe (VM50), 20.6.1999 (leg. P. Glogovačan).

Typhlocybinae Kirschbaum 1868

Dikraneura variata Hardy 1850

New records: Šempas (VL08), 28.9.2002; Lijak (VL09), 9.11.2003; Stara Gora (UL98), 25.6.2007; Sabotin - 370 m (UL99), 16.6.2008; Kojca - 1300 m (VM11), 27.8.2009; Kolovrat - 1100 m (UM91), 8.9.2012 and 16.6.2013; Ravnica - Vratca (UL99), 18.6.2015; Malo Polje (VL28), 27.6.2015; Mala Lazna - 1110 m (VL09), 23.10.2015.

The genus *Forcipata* DeLong & Caldwell 1936 in Slovenia (*Figure 7*)

The zoogeographical situation of the genus *Forcipata* in Slovenia has already been discussed in earlier papers (SELJAK, 2004a; SELJAK, 2012). Four species occur in the territory - *F. citrinella* (Zetterstedt 1828), *F. major* (Wagner 1948), *F. forcipata* (Flor 1861) and *F. obtusa* Vidano 1965. However, there are clear parapatric distributional patterns between the vicariant species pairs, the cisalpine (*F. major* and *F. obtusa*) and transalpine (*F. citrinella* and *F. forcipata*) ones (SELJAK, 2012).

Beside the Alps, the Dinaric mountain chain that runs from the north-west towards the south of the country greatly determines the distribution ranges of *Forcipata* species in Slovenia. It is quite obvious that during the last glaciations previously unique populations became spatially completely divided for a period of time which was long enough for gradual development of separate species pairs.

Till now *F. forcipata* has only been found in the Alpine regions of the northern part of Slovenia, usually at higher altitudes between 900 - 2200 m. In contrast, *F. obtusa* has only been collected south of the Julian Alps, along the Dinaric mountain chain and to the west of it. This species also seems to be more common at submontane and higher altitudes than in the plain. According to the current knowledge there is no geographic overlap of these two species in Slovenia.

F. citrinella occurs in the continental part of Slovenia to the east and north of the Dinaric mountain chain. It has never been collected to the west, where it is completely replaced by *F. major*. Slightly overlapping areas in the southern slopes of the Julian Alps show a possible geographic co-occurrence, but according to our observations they do not live syntopically.

Because of some misinterpretations of *Forcipata* species in an earlier work (HOLZINGER & SELJAK, 2001) that resulted in erroneous interpretations of distribution patterns all earlier distributional data from Slovenia are listed here again.

Forcipata citrinella (Zetterstedt 1828)

Material examined: Borovška gora (VL84), 20.7.2013; Dolga vas (XM16), 31.7.2008; Golubinjek - 200 m (WM40), 16.6.2006; Ljubljana (VM60), 5.6.1971 (leg. B. Sket); Lopata - 260 m (WM12), 28.9.2010; Mala Polana (XM05), 17.5.2000 (leg. S. Gomboc); Murska Sobota (WM86), 4.6.1974 (leg. B. Sket); Novakov rovt (VM23), 2.9.2005; Planina Stador - 1040 m (VM01), 7.7.2005; Preloge - 360 m (WL15), 31.5.2007; Preval pri Podutiku - 330 m (VM50), 6.6.2012; Puščava - 240 m (WL18), 17.6.2006; Radenci (WM86), 23.3.2001; Ravne nad Šoštanjem (WM03), 3.9.1997 (leg. S. Gomboc); Rogaška Slatina (WM42), 2.8.2013; Soriška planina - 1400 m (VM22), 3.8.2008; Turški vrh (WM83), 20.9.2002; Vršič - 1500 m (VM04), 15.8.2012; Zgornje Jezersko - 890 m (VM63), 15.8.2007; Žitkovci (XM06), 31.7.2008.

Forcipata major (Wagner 1948)

Material examined: Ajševica (VL08), 6.5.2001, 8.9.2001, 1.8.2004; Bate - 650 m (UM90), 2.7.2000; Bilje (UL98), 28.7.1998, 27.5.1999, 19.7.1999; Blegoš - 1400 m (VM31), 6.9.2008; Bohinjska Bistrica (VM12), 19.8.2002; Cerkniško jezero (VL56), 14.8.2001; Gojače (VL08), 20.5.1998; Gorje - 580 m (VM21), 8.8.2010; Gradišče pri Vipavi (VL17), 17.7.2005, 13.6.2006; Grgar (UL99), 22.10.2000, 27.5.2012; Horjul (VL49), 19.9.2007; Hotedršica - 560 m (VL38), 26.8.2016; Hruševje pri Postojni - 535 m (VL36), 12.9.2015; Hrušica (VL37), 10.9.2008; Idrija pri Bači (VM00), 23.8.1998; Idrsko (UM91), 10.9.2001; Kalce - 500 m (VL38), 29.8.2001; Kobarid - 235 m (UM92), 15.9.2001; Kromberk (UL99), 10.10.1999, 14.7.2013; Labinje - 500-900 m (VM21), 7.8.1998, 9.9.2006, 18.8.2012; Jelovica (Ledine) - 1100 m (VM32), 19.9.2004; Lijak (VL09), 20.7.2008; Log Čezsoški (UM82), 16.9.2002; Mala Lazna - 1100 m (VL09), 23.8.2003; Miren (UL98), 2.5.2012; Nemški rovt - 750 m (VM22), 14.8.2003; Nova Gorica (UL98, UL99), 5.10.1997, 16.10.1997, 29.8.1998, 22.5.1999, 23.10.1999, 12.7.2001, 21.9.2001, 18.6.2005, 29.6.2011, 19.7.2014, 11.7.2001, 9.10.2005, 24.6.2007, 6.6.2010; Novelo - 370 m (UL97), 16.9.2010; Orehek (VM11), 5.6.2015; Orehek pri Postojni (VL36), 12.9.2004; Paljevo (UL93), 20.9.2003; Panovec - 110 m (UL98), 11.6.2000, 13.9.2000, 21.8.2001, 14.8.2005; Planinsko polje - 450 m (VL47), 17.6.1983 (leg. B. Sket), 28.6.2001, 31.8.2008; Podraga (VL17), 18.7.2016; Poljubin (VM01), 27.4.2007; Pri Peči (VL09), 18.10.1997, 21.9.2015; Rakitna - 800 m (VL58), 12.9.2008; Ravnica (UL99), 9.5.1998; Sečoveljske soline (UL93), 23.7.2010; Senik - 550 m (UM80), 11.6.2006; Soriška planina (VM22), 23.8.2004; Spodnje Bukovo - 400 m (VM11), 28.8.2011 and 24.7.2016; Stara Gora (UL98), 21.5.2005, 10.9.2011, 25.5.2012, 9.5.2014; Staro Selo - 240 m (UM82), 24.8.2016; Studeno (VL37), 6.6.1999; Tolmin (VM01), 13.10.2002 and 24.6.2016; Vetrnik - 700 m (WM40), 17.6.2006; Vipava (VL17), 10.8.2000; Vitovlje (VL08), 25.10.2001; Vodice (UL99), 20.9.2003; Vojsko - 1050 m (VL19), 23.8.2003; Vojsko

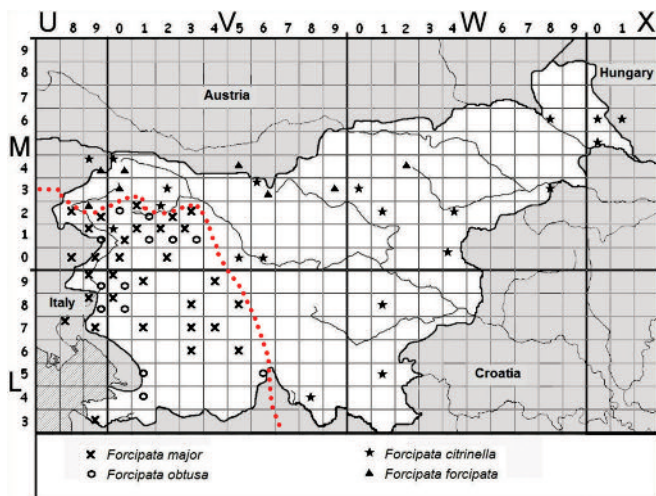


Fig. 7: *Forcipata* spp. - distribution map and the rough demarcation line (red dotted) between cis- and transalpine species in Slovenia

- Gačnik - 915 m (VM10), 12.7.2016; Zagomila - 360 m (UL99), 16.6.2008; Zalošče (VL08), 7.9.1999; Žejna dolina - 580 m (VL39), 26.8.2016.

**Forcipata forcipata* (Flor 1861)

Material examined: Krnsko jezero - 1400 m (UM92), 1.8.2009; Mangart - 1770 m (UM94), 15.7.2006; Mangart - 2050-2100 m (UM94), 15.7.2006, 28.8.2015; Mlinarjevo sedlo - 1250 m (VM63), 15.8.2007; Planica (VM04), 15.8.2012; Planina Pungrat - 1440 m (VM54), 9.8.2014; Rogla - 1500 m (WM24), 13.8.2000; Smrekovec - 1350 m (VM93), 22.6.2002; Vršič - 1500-1620 m (VM04), 15.8.2012, 27.7.2008; Zadnja Trenta - 960 m (VM03), 24.7.2005, 28.7.2007.

Forcipata obtusa Vidano 1965

Material examined: Baske - 600 m (UL99), 22.5.2011; Blegoš - 1300 m (VM21), 8.8.2009, 29.7.2001; Cimprovka - 1250 m (VM21), 24.6.2006; Črni vrh nad Cerknem - 1270 m (VM21), 5.8.2007; Gorje - 580 m (VM21), 8.8.2010; Kolovrat - 1100 m (UM91), 8.9.2012; Komna - 1520 m (VM02), 2.8.1999; Labinje 700-900 m (VM21), 21.8.1997, 23.8.2004, 17.9.2011, 18.8.2012; Lokve - 920 m (VL09), 19.7.2009; Loški potok (VL65), 23.6.2001; Porezen - 1350 m (VM21), 7.8.1998; Slavnik - 1000 m (VL14), 6.7.2004; Spodnje Bukovo - 388 m (VM11), 12.6.2010; Stara Gora (UL98), 21.5.2005, 10.9.2011, 19.9.2015; Trnovo (VL09), 6.9.2015; Vitovski vrh - 880 m (VL08), 28.9.2008; Vogel - 1500 m (VM12), 5.8.1999; Zakriž (VM11), 5.6.2015.

Micantulina micantula (Zetterstedt 1840)

New records: Kobariški Stol - 1230 m (UM82), 8.9.2013 (1 ♂); in a montane forest clearing.

As already stated earlier, this species may be very rare in Slovenia (SELJAK, 2004a). In my collection there are only a male and a female, both from the Upper Soča Valley, but from two rather distant localities. Both specimens were swept from tall vegetation in montane forest clearings. *Thalictrum minus* is recorded as to be the host plant (NICKEL, 2003). This plant species is rather common in that area (JOGAN & al., 2001), but I could not find the association with *M. micantula* yet.

**Notus flavipennis* (Zetterstedt 1828)

Material examined: Cerkniško jezero (VL56), 23.6.2001; Planinsko polje (VL47), 28.6.2001; Juršinci (WM74), 16.9.2004; Puščava (WL18), 17.6.2006; Planinsko polje - 450 m (VL47), 31.8.2008; Rakitna - 800 m (VL58), 12.9.2008; Koseze (VL44), 11.7.2014; Juršinci (WM74), 16.9.2004; Puščava (WL18), 17.6.2006.

The problem of Graeffe's records on "*Dicraneura flavipennis* Fabricius" and the possibility of confusion with the following species was discussed in an earlier paper (SELJAK, 2004a).

**Notus italicus* Wagner 1954

Material examined: Vojsko - Gačnik - 915 m (VM10), 12.7.2016.

This endemic species described from the Laguna of Venetia for the first time is widely distributed throughout northern and central Italy (WAGNER, 1954; SERVADEI, 1967). Several records from the adjacent region Friuli Venezia Giulia have suggested that the distribution range of *N. italicus* could extend also into the territory of western Slovenia, which turned out to be true. The above mentioned locality is the only known so far and interestingly very isolated and rather far away from the nearest known localities in Friuli Venezia Giulia in Italy.

**Wagneriala incisa* (Then 1897)

Material examined: Stara Gora (UL98), 17.6.2011 and 10.9.2011; Socerb - 330 m (VL14), 23.9.2011.

Empoasca ossiannilssoni Nuorteva 1948

New records: Sabotin - 600 m (UL99), 10.9.2002; Bukovščica - 460 m (VM42), 17.7.2010.

The genus *Chlorita* Fieber 1872 in Slovenia (*Figure 8*)

Till now, five *Chlorita*-species have been found in Slovenia: *Ch. paolii* (Ossiannilsson 1939), *Ch. beieri* Dlabola 1959, *Ch. mendax* (Ribaut 1933), *Ch. dumosa* (Ribaut 1933) and *Ch. szelenica* Dlabola 1967. While *Ch. paolii*, *Ch. beieri* and *Ch. mendax* are morphologically and trophically well characterized (SELJAK, 2004a), the situation is not so clear for *Ch. szelenica* and *Ch. dumosa*, seemingly both dwelling on *Thymus*-plants. According to DLABOLA (1967) the basic difference between these two species is in the shape and arrangement of the appendages at the base of the aedeagus shaft. In *Ch. dumosa* the distal two appendages arise laterally from the base of the shaft and are set closer to each other than the proximal one and mostly have

some kind of a common base; the proximal appendage is clearly widely spaced, but still shifted rather close to the base of the shaft. In contrast, in *Ch. szelenica* the three appendages are more or less evenly spaced and the proximal two displaced from the shaft base. These criteria were used for separating both species. However, among populations swept from *Thymus* mats in south-western Slovenia, also specimens with somewhat intermediate arrangement of these appendages have been observed which may complicate a reliable identification. In such cases several specimens have to be examined.

Chlorita beieri Dlabola 1959

New records: Nanos - 900 m (VL27), 20.8.2004; Škrljevica - 576 m (VL26), 19.6.2005; Kromberk (UL99), 9.7.2005; Gorjansko - 197 m (UL97), 6.8.2005; Grižnik - 299 m (VL07), 6.8.2005; Vale pri Brestovici - 130 m (UL97), 6.8.2005; Črni kal (VL14), 24.9.2005; Golo brdo (UM80), 11.6.2006; Volovja reber - 1080 m (VL44), 1.7.2007; Dolga poljana - 340 m (VL18), 11.7.2007; Lokvica na Krasu (UL97), 7.10.2007; Branik (Golec) - 370 m (VL07), 10.6.2008; Spodnje Škofije (VL04), 24.7.2008; Korte - 100 m (UL93), 17.5.2009; Kastelec (VL14), 17.7.2012; Kubed (VL14), 17.7.2012; Rakitovec - 520 m (VL13), 6.6.2014; Rebrnice - 390 m (VL27), 5.7.2014; Lokovec - 850 m (VM00), 12.8.2014; Beka (VL15), 30.6.2016.

The species is strictly monophagous on *Satureja montana* species complex. In Slovenia it has been collected mainly on *S. montana* s.str., rarely on *S. subspicata*, too.

Chlorita mendax (Ribaut, 1933)

New records: Planina (VL17), 8.6.2006; Ajševica (VL09), 4.5.2008; Golo brdo (UM80), 23.6.2014; Otlica - 830 m (VL18), 27.6.2015; Sabotin - 570 m (UL99), 2.8.2015; Socerb (VL14), 30.6.2016.

The majority of above-listed localities belong to the type area, which is somewhere around Gorizia in Italy and Nova Gorica in Slovenia (RIBAUT, 1933; RIBAUT, 1936). Here, this species is strictly associated with *Artemisia alba*. Most probably it overwinters in the egg stage. First adults appear at the beginning of May with maximum numbers in June and July, but some specimens can be found until to end of September.

**Chlorita dumosa* (Ribaut 1933)

Material examined: Dragonja (UL93), 27.4.2012; Nova vas over Dragonja (UL93), 27.4.2012; Socerb (VL15), 26.5.2016; swept from mats of various *Thymus* species.

Chlorita szelenica Dlabola 1967

New records: Podnanos (VL17), 5.7.2014; swept from mats of various *Thymus* species.

Chlorita paolii (Ossiannilsson 1939)

New records: Šared - 260 m (UL94), 23.9.2011; Nova vas nad Dragonjo (UL93), 27.4.2012; Škocjanski zatok (VL04), 24.9.2005; Divača (VL25), 24.9.2005; Podnanos

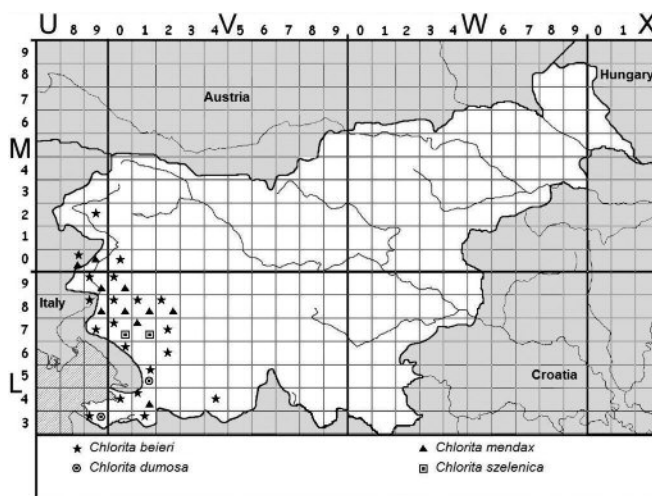


Fig. 8: The genus *Chlorita* in Slovenia: known distribution of four species (the widely distributed species *Ch. paolii* is not mapped out here)

(VL17), 5.7.2014; Malo polje (VL28), 21.9.2003; Idrijski Log - 650 m (VL28), 30.7.2006; Nanos - 900 m (VL27), 26.7.2002; Dolnje Lome - 680 m (VL28), 30.7.2006; Hrušica - 850 m (VL37), 19.9.2007; Baske - 600 m (UL99), 22.5.2011; Vodice nad Grgarjem (UL99), 20.9.2003; Pri Peči - 400 m (VL09), 21.9.2015; Kanal-ski Kolovrat - 650 m (UM90), 19.10.2013; Kolovrat - 1150 m (UM91), 16.6.2013; Zatoľmin (VM01), 3.7.2008; Ljubin (VM01), 27.4.2007; Trebuša - 460 m (VM00), 17.8.2006; Spodnje Bukovo - 440 m (VM11), 28.8.2011; Labinje - 800 m (VM21), 23.8.2004; Blegoš - 1300 m (VM21), 8.8.2009; Rateče (VM05), 15.8.2012; Kranjska gora - 850 m (VM04), 27.7.2008; Gora pri Krškem (WL39), 25.9.2007; Golubinjek - 200 m (WM40), 16.6.2006; Maribor - Tezno (WM55), 16.9.2004; Jareninski dol (WM56), 25.7.2004; Turški vrh (WM83), 20.9.2002; mainly on *Achillea* spp.

* *Kybos lindbergi* (Linnavuori 1951)

Material examined: Črni vrh nad Cerknem - 1270 m (VM21), 5.8.2007; Baske - 600 m (UL99), 25.7.2009; Preval pri Podutiku (VM50), 6.6.2012, on *Betula pendula*.

Ossiannilssonola callosa (Then 1886)

New records: Črni log (XM05), 7.6.2003; Gorenji Novaki - 1028 m (VM21), 4.7.2009; Kozja peč - 400 m (WL59), 16.6.2006; Laniše (VL38), 23.6.2002; Ljubljana (VM60), 17.6.1971 (leg. B. Sket).

* *Edwardsiana bergmani* (Tullgren 1916)

Material examined: Planina Stador - 1040 m (VM01), 7.7.2005 on *Alnus alnobetula*

* *Edwardsiana lamellaris* (Ribaut 1931)

Material examined: Nova Gorica (UL98), 11.7.2011 and 14.7.2013, trapped on light; Miren (UL98), 2.5.2012 on *Rosa arvensis*.

Edwardsiana lethierryi (Edwards 1881)

New records: Gorenje pri Divači (VL16), 22.9.2001; Lokev (VL15), 22.9.2001; Kromberk (UL99), 25.4.2003; Ljubljana (VL69), 22.5.2003; Krn - pl. Kašina - 1100 m (UM92), 5.7.2003; Nemški rovt - 750 m (VM22), 14.8.2003; Most na Soči (VM01), 16.8.2003; Kanal (UM90), 5.6.2005; Preval pri Podutiku (VM50), 6.6.2012; collected on *Acer campestre*, *Tilia cordata* and *T. platyphyllos*.

Edwardsiana nigriloba (Edwards 1924)

Previous records: Tkalca jama (VL47), 22.6.2001 (Schürer & Löcker, 2003);

New records: Nova Gorica (UL99), 27.5.2010 (5 ♂♂, 5 ♀♀), on *Acer platanoides*.

Edwardsiana platanicola (Vidano 1961)

Material examined: Nova Gorica (UL99), 19.5.2007, 14.7.2007 and 02.08.2014 on *Platanus x hispanica* (SELJAK, 2013).

* *Edwardsiana rosaesugans* (Cerutti 1939)

Material examined: Kobarid - 270 m (UM92), 5.8.2006;

This record is based on a male collected at the above-mentioned locality and meets morphological characteristics of this species. However, the aedeagus stem enlargement terminates apically rather sharply angulate, pronounced even slightly more than in Lauterer's drawing (LAUTERER, 1983).

* *Edwardsiana soror* Linnavuori 1950

Material examined: Lepena - 700 m (UM92), 22.8.2003 (1 ♂); Zgornje Jezersko - 890 m (VM63), 15.8.2007 (1 ♂) on *Alnus glutinosa*; Gorenji Novaki - 1028 m (VM21), 4.7.2009 (1 ♂) on *Alnus incana*.

Linnavuoriana sexmaculata (Hardy 1850)

New records: Tuniši (VL13), 30.9.2004; Pregara (VL13), 20.10.2005; Vogrsko (VL08), 31.3.2006; Panovec (UL98), 7.4.2006; Ajševica (VL08), 28.4.2006 and 2.7.2006; Slap Boka (UM83), 15.7.2006; Horjul (VL49), 19.9.2007; Rut - 1200 m (VM11), 12.6.2010; Ljubljana - Rožna dolina (VM50), 20.7.2010; Nova Gorica (UL99), 24.3.2012; Vršič - 1400 m (VM04), 15.8.2012; mainly on various broad-leaved *Salix* spp.

Ribautiana alces (Ribaut 1931)

New records: Lijak (VL09), 9.11.2003; Pregara (VL13), 20.10.2005; Kozja peč - 400 m (WL59), 16.6.2006; Novelo (UL97), 16.9.2010; Kromberk (UL99), 23.10.2011; Planina pri Ajdovščini (VL17), 19.7.2012; mainly on *Quercus pubescens*

* *Ribautiana ognevi* (Zachvatkin 1948)

Material examined: Planinsko polje - 450 m (VL47), 31.8.2008 (3 ♂♂, 2 ♀♀) on *Ulmus glabra*

**Eupteryx adspersa* (Herrich-Schaeffer 1838)

Material examined: Divača (VL25), 24.9.2005; Kastelec (VL14), 6.7.2008; on *Artemisia absinthium*

Eupteryx austriaca (Metcalf 1968)

New records: Vojsko - 1040 m (VL19) 18.8.2001 and 23.8.2003; Soriška planina (VM22), 23.8.2004; Maribor - Kalvarija (WM45), 25.8.2005; Kromberk (UL99), 1.6.2006, 9.7.2011 and 14.7.2013; Vitovlje (VL08), 8.6.2006; Gradišče pri Vipavi (VL17), 13.6.2006; Podsreda - Socko, 300 m (WL49), 17.6.2006; Straška gora - 300 m (WL07), 31.5.2007; Blegoš - 1500 m (VM31), 8.8.2009; Kojca - 670 m (VM11), 8.8.2010; Nova Gorica - Pristava (UL99), 12.9.2010 on *Knautia* spp. (mainly *K. drymeia*).

**Eupteryx collina* (Flor 1861)

Material examined: Duplje - 120 m (VL17), 30.9.1999; Lijak - 90 m (VL09), 4.5.2008; Šempeter pri Gorici - 100 m (UL98), 25.9.2011; Ajševica - 60 m (UL99), 15.9.2012; Rogaška Slatina - 260 m (WM42), 2.8.2013; Podnanos - 140 m (VL17), 5.7.2014; on *Mentha longifolia*.

Eupteryx lelievrei (Lethierry 1874)

New records: Ajševica (UL98), 1.8.2004, 2.7.2006 and 20.8.2006 - on *Stachys officinalis*.

Eupteryx melissae Curtis 1837

New records: Spodnje Škofije (VL04), 28.9.2004, 20.10.2005 and 23.10.2006; Pregara (VL13), 12.10.2005; Parecag (UL93), 20.10.2005; Sečoveljske soline (UL93), 23.7.2010.

So far, it has only been caught on yellow sticky traps or on light, therefore no own data on the host plant(s) are available. Its distribution pattern concentrated in the littoral area suggests, however, that *Nepeta* spp. (*N. cataria* and *N. nuda*) might be the main host plant (NICKEL, 2003).

**Eupteryx origani* Zachvatkin 1948

Material examined: Planina Kuk - 1270 m (VM01), 2.9.2006 - 1 ♀; Borovška gora - 1000 m (VL84), 20.7.2013 - 1 ♀; on *Origanum vulgare*.

It is obviously a rare or perhaps only little collected species in Slovenia, although its host plant is common all over (JOGAN & al., 2001); only two females have been found so far.

Eupteryx ribauti Dworakowska 1972

New records: Trstelj (UL97), 29.5.2004; Solkan (UL99), 25.9.2005; Kromberk (UL99), 16.10.2005 and 18.5.2008; Lijak (VL09), 1.10.2005, 20.5.2006 and 4.5.2008; Golo Brdo (UM80), 11.6.2006; Spodnje Bukovo - 440 m (VM11), 9.9.2006 and

28.8.2011; Hudajužna (VM11), 28.8.2013; Lokovec (VM00), 12.8.2014 - host plants *Clinopodium menthifolium* and *C. nepeta*.

**Eupteryx salviae* Arzone & Vidano 1994

Material examined: Petrinje (VL14), 17.7.2012 and 06.06.2014 on natural population of *Salvia officinalis*

Zyginella pulchra Löw 1885 (Figure 9)

Material examined: Food plant *Cotinus coggygia*: Ravnica (UL99), 18.10.1997; Črni kal (VL14), 5.6.2001; Strunjan (UL94), 22.6.2001; Kostanjevica (UL97), 1.9.2001; Opatje selo (UL98), 1.9.2001; Lokev (VL15), 22.9.2001; Lijak - 450 m (VL09), 2.5.2002; Sabotin - 600 m (UL99), 10.9.2002; Skalnica (UL99), 30.8.2003 and 30.10.2011; Ravnica (UL99), 12.10.2003; Podsabotin (UL99), 25.4.2004; Vale pri Brestovici -140 m (UL97), 8.5.2005; Ajdovščina (VL18), 14.5.2005; Lukini - 320 m (VL13), 24.9.2005; Pregara (VL13), 12.10.2005; Parecag (UL93), 20.10.2005; Gradišče nad Prvačino (VL08), 14.7.2006; Hrvatini (VL04), 25.7.2006; Črni kal (VL14), 14.4.2011; Kromberk (UL99), 9.7.2011 and 14.7.2013; Branik (VL07), 21.9.2014.

On other food plants or the food plant not specified: Bled (VM33), 19.8.2002 (*Acer platanoides*); Ljubljana - Rožna dolina (VL59), 23.7.2004 (leg. V. Mazzoni); Kozja peč - 400 m (WL59), 16.6.2006; Idrijski Log - 650 m (VL28), 30.7.2006; Vitovski vrh - 880 m (VL08), 28.9.2008; Labinje (VM21), 18.8.2012 (*Juglans regia*); Vodranci (WM94), 28.10.2013.

On winter shelter plants: Nova Gorica (UL99), 7.2.1998, 10.12.2000, 8.2.2001, 13.03.2005 (*Taxus baccata*, *Picea abies*); Lijak - 450 m (VL09), 1.12.2002, 11.2.2007 and 2.3.2008 (*Quercus ilex*); Sabotin - 200 m (UL99), 4.2.2007 (*Quercus ilex*); Selo pri Prosenjakovcih - 260 m (WM97), 4.2.2016 (*Pinus sylvestris*).

Cotinus coggygia is the main food plant of this species in the sub-Mediterranean area of south-western Slovenia. Larvae and adults provoke the characteristic stippling of leaves just like the majority of mesophyll feeding Typhlocybinæ. The populations are often rather considerable and consequently the visibility of injuries on leaves, too. In addition, this species is the only Typhlocybinæ we have ever found feeding on *C. coggygia*.

However, there were also certain hesitations expressed whether these populations belong to *Z. pulchra* at all or another perhaps still undescribed species may be involved (REMANE, pers. comm.) I myself have examined a vast number of specimens collected on *C. coggygia* and those swept from *Acer platanoides* and *Juglans regia*. At the morphological level no differences have been observed between compared populations. Fifth instar nymphs were also compared and again both display the same morphological features. Perhaps, combined molecular, vibrational and/or rearing assays would be advantageous to remove the last shadows from this question.

Zyginella pulchra graeffei Melichar 1901

Material examined: Škodelin (UL93), 20.5.2005; Bilje (UL98), 16.4.2009; Miren (UL98) 18.4.2012; Kromberk - 300 m (UL99), 24.4.2013 and 15.05.2016 - in all cases trapped on yellow sticky traps.



Fig. 9: *Zyginella pulchra*, top: adult female; center: 5th instar nymph; bottom: feeding signs on a leaf of *Cotinus coggygria*

This variety has mainly not been accepted as a valid taxonomic entity although externally it differs quite clearly from the typical species by a distinct black quadrangular spot in the costal region of the fore wings just behind the wax area. Good drawings of this feature were published by MELICHAR (1901) and DLABOLA (1977). More material and further studies will be needed to establish the taxonomic value of this pattern variation. All specimens (altogether 7) found by us were captured on yellow or blue sticky traps always in spring, only from April to May.

Arboridia pusilla (Ribaut 1936)

New record: Solkan - 90 m (UL99), 30.8.2008 (7 ♂♂).

Earlier, this species has only been recorded once from Fijesa (HOLZINGER & SELJAK, 2001). Specimens from the new locality were swept from the vegetation along a railway bank. *Geranium sanguineum* is recorded as its food plant (NICKEL, 2003)

Hauptidia distinguenda (Kirschbaum 1868)

New records: Nova Gorica (UL99), 26.4.2005 and 2.4.2006 on *Arabis caucasica*, 8.9.2016 on *Nicotiana* sp. (leg. J. Kamin); Črniče (VL08), 29.4.2005 on *Geranium robertianum*; Kozana (UL89), 25.5.2007 on tomato plants; Tolmin (VM01), 16.10.2011 on *Fuchsia corymbiflora*; Ljubljana (VM60), 6.8.2013 on *Sedum maximum*. In all cases nymphs were also present and obvious injuries on leaves observed.

Zygina frauenfeldi Lethierry 1880

Material examined: Branik (Golec) - 370 m (VL07), 8.6.2006; Socerb (VL14), 23.9.2011; Šempeter pri Gorici (UL98), 25.9.2011; Dragonja (UL93), 27.4.2012; Nova Gorica (UL99), 7.10.2012; Golo brdo (UM80), 23.6.2014, Koper - Sermin (VL04), 26.5.2016; Beka (VL15), 30.6.2016; part of these data have already been published in HOLZINGER & al. (2011).

This species occurs scattered in extremely dry and hot habitats, often along road margins, in stone and sand pits always associated with *Sanguisorba minor* s.l. Until now, all findings in Slovenia are from the sub-Mediterranean region.

Zygina hyperici (Herrich-Schaeffer 1836)

New records: Mala Lazna - 1100 m (VL09), 4.9.2004; Hrušica - 850 m (VL37), 19.9.2007; Rožna dolina (UL98), 30.8.2011; Solkan (UL99), 16.9.2011; Kastelec (VL14), 17.7.2012; on *Hypericum perforatum*.

**Zygina lunaris* (Mulsant & Rey 1885)

Material examined: Nova Gorica (UL98), 26.3.2006, 5.7.2008 and 27.9.2008; Nova Gorica (UL99), 29.10.2011 and 24.3.2012; Loke (UL99), 8.7.2010; Miren (UL98), 18.4.2012, 2.5.2012 and 15.06.2014; on *Salix purpurea* and *S. eleagnos*; adults overwinter on evergreen trees, locally often swept from *Quercus ilex*.

Zygina ordinaria (Ribaut 1936)

New records: Lijak (VL09), 1.12.2002 on *Salix purpurea*; Slap Boka (UM83), 15.7.2006 on *S. eleagnos*; Dragonja (UL93), 14.4.2011 and Preval pri Podutiku - 330 m (VM50), 6.6.2012, both on *Salix alba*.

Zygina suavis Rey 1891

New records: Tolmin (VM01), 12.10.2002; Labinje (VM21), 1.11.2003, both on *Frangula alnus*; Krn - 1100 m (UM92), 5.7.2003; Planina Razor (VM02), 2.9.2006 both on *Rhamnus alpina* subsp. *fallax*.

Zyginidia servadeii Vidano 1982

New records: Parecag (UL93) 18.10.2004 and 4.6.2006; Seča (UL93), 4.6.2006; Strunjan (UL94), 14.10.2007; Korte (UL93), 17.5.2009 and 17.5.2009; on various grasses, by us confirmed feeding of adults and nymphs on *Arundo donax*.

**Zyginidia franzi* (Wagner 1944)

Material examined: Vršič - 1600 m (VM04), 29.7.2001, leg. C. Chersi (pers. comm.); Mangartsko sedlo - 2100 m (UM94), 28.8.2015 on *Sesleria caerulea*.

Deltocephalinae Fieber 1869

Fieberiellini Wagner 1951

**Phlogotettix cyclops* (Mulsant & Rey 1855)

Material examined: Podnanos - 150 m (VL17), 17.7.2005; Nova Gorica (UL98), 8.8.2005; Novo mesto - Kandija (WL17), 23.8.2005; Trebče (WL49), 25.8.2005; Izvir Lijaka (VL09), 1.10.2005; Spodnje Škofije (VL04), 23.10.2006; Zavino - 190 m (VL17), 8.8.2007.

Synophropsis lauri (Horvath 1897)

Widely distributed in the sub-Mediterranean region on various especially evergreen trees and shrubs; found also in Ljubljana (VM60), 25.7.2010 on a bonsai tree of *Olea europaea* (leg. T. Trilar).

Goniagnathini Wagner 1951

Goniagnathus brevis (Herrich-Schaeffer 1835)

New records: Socerb (VL14), 2.10.2001 and 30.5.2004; Debeli rtič (UL94), 6.10.2001; Sanabor - Zavetniki (VL28), 10.5.2002; Kromberk (UL99), 29.8.2003; Črniške Ravne (VL08), 3.7.2004; Lokvica - 215 m (UL97), 8.5.2005; Vipolže (UL89), 26.7.2005; Gaberje (VL17), 9.6.2006; Šempeter pri Gorici (UL98), 25.9.2011; Lukini - 310 m (VL13), 20.8.2013.

Opsini Emeljanov 1962

**Circulifer opacipennis* (Lethierry 1876)

Črni kal (VL14), 24.9.2005 (2 ♂♂ and 2 ♀♀); Solkan (UL99), 17.8.2008 (1 ♀); Socerb - 330 m (VL14), 23.9.2011 (2 ♂♂) and 30.6.2016 (1 ♀).

This species is subject to diverging interpretations among various authors. While it is recognised as a variety of *C. haematoceps* (Mulsant & Rey 1855) by some authors (RIBAUT, 1952) or is suggested it might probably be just an "ecomorph", others consider it a good species or even "two different species complexes, namely the *C. haematoceps* and the *C. opacipennis* complex" (KLEIN & RACCAH, 1992).

Without delving deeper into this matter, I decided to publish specimens found in Slovenia as *C. opacipennis* because they meet all characters of this taxonomic entity described by RIBAUT (1952) and DELLA GIUSTINA (1989). All specimens in my collection are rather small not exceeding 2.7 mm in males and 3.0 mm in females, greenish-yellow in colour and mostly devoid of any dark markings on fore wings.

Hishimonus hamatus Kuoh 1976

New records: Gažon - 170 m (UL94), 9.7.2015; Renče (UL98), 4.9.2015; Debeli rtič (VL04), 19.12.2015; Dragonja (UL93), 21.7.2016.

For the first time, this East-Palaeartic species has been recorded to occur in Slovenia and in Europe in 2012 (SELJAK, 2013). Some web forums have reported its occurrence in several Italian provinces since 2008. However, no officially published data are available. I myself found a specimen in the city park in Catania (Sicily) on June 15, 2016. There are also documented findings in the surroundings of Poreč in Croatia. In south-western parts of Slovenia it is spreading rather fast, although the population densities are still moderate everywhere. The species seems to be very polyphagous. Recently, it has been collected particularly often on olive trees.

Macrostelini Kirkaldy 1906

**Aconurella prolixa* (Lethierry 1885)

Material examined: Seča (UL93), 16.8.2004 and 14.10.2007; Spodnje Škofije (VL04), 19.9.2005; Valdoltra (VL04), 31.7.2007; Strunjan (UL94), 14.10.2007; Izola - Livade (UL94), 24.7.2008; Solkan (UL99), 16.9.2011; Vedrijan (UL89), 21.9.2011; Vipolže - 60 m (UL89), 1.8.2012, mainly on *Cynodon dactylon*.

**Balclutha calamagrostis* Ossiannilsson 1961

Material examined: Selovec - 1200 m (VL08), 13.8.2006; Krnica - 1000 m (VL08), 14.8.2011; Preval pri Podutiku (VM50), 6.6.2012.

Nesoclutha erythrocephala (Ferrari 1882) (Figure 10)

Material examined: Antenal (UL91) - Croatia, 20.8.2011 (23 ♂♂ and 22 ♀♀), on grasses (perhaps *Bothriochloa ischaemum*) in an extremely hot and dry stone-pit.

In Slovenia this extremely thermoxerophilous species has not been found yet, but it may be expected in the coastal region.

**Erotettix cyane* (Boheman 1845)

Material examined: Blagovna (WM22), 24.7.2004 (1 ♂, 8 ♀♀) on *Trapa natans* (leg. T. Trilar).

**Macrosteles alpinus* (Zetterstedt 1828)

Material examined: Mangartsko sedlo - 2100 m (UM94), 28.8.2015;

**Macrosteles horvathi* (Wagner 1935)

Material examined: Jelovica (Ledine) - 1150 m (VM32), 23.8.2004 and 19.9.2004.

**Macrosteles maculosus* (Then 1897)

Material examined: Zadnja Trenta - 960 m (VM03), 24.7.2005 and 28.7.2007; Robič - 250 m (UM82), 13.8.2008.

Macrosteles ossianilssoni Lindberg 1954

New records: Žejna dolina - 580 m (VL39), 26.8.2016;

**Macrosteles septemnotatus* (Fallen 1806)

Material examined: Loški potok (VL65), 23.6.2001; Jelovica (Ledine) - 1150 m (VM32), 23.8.2004, 19.9.2004 and 3.9.2005; Grobišče (ob Pivki) (VL36), 12.9.2004; Orehek pri Postojni (VL36), 12.9.2004; Puščava - 240 m (WL18), 17.6.2006; Planinsko polje - 450 m (VL47), 31.8.2008; Landol - 530 m (VL37), 18.7.2016; host plant *Filipendula ulmaria*.

**Macrosteles sexnotatus* (Fallen 1806)

Material examined: Staro Selo - 240 m (UM82), 24.8.2016;

Under the name *Cicadula sexnotata* Fallen, this species was recorded by Graeffe as very common in the whole littoral region that includes the present-day's Slovenian part as well. He recorded: "*Im ganzen Küstenlande verbreitet, liebt besonders nasse Wiesen und findet sich vom April bis October dort in grosser Anzahl*" (GRAEFFE, 1903). According to our observations, this species is rather uncommon being found only once on a very wet meadow with lots of *Juncus effusus*, *Molinia coerulea* and various *Carex*-species near Kobarid. Graeffe's record obviously includes several by external appearances similar species like *M. cristatus*, *M. laevis*, *M. ossianilssoni* which dominate in this area. Hence, this record cannot be accepted as reliable. This old record has already been marked as questionable in an earlier paper (HOLZINGER & SELJAK, 2001).

Macrosteles variatus (Fallen 1806)

New records: Lepena - 700 m (UM92), 22.8.2003; Dolina Idrije (UM80), 11.6.2006; Kucelj - 1180 m (VL08), 13.8.2006; possibly on *Urtica dioica*

**Macrosteles viridigriseus* (Edwards 1922)

Material examined: Nova Gorica (UL98), 9.10.2005, 27.9.2008 and 22.7.2011; Kamno - 200 m (UM91) 18.8.2006; Lokve v Beli krajini (WL14), 31.5.2007; Preloge - 360 m (WL15), 31.5.2007; Straška gora - 300 m (WL06), 31.5.2007; Marindol - 240 m (WL23), 3.6.2007; Sečje selo - 170 m (WL13), 3.6.2007; Podlisec (VL98), 7.8.2007; Ajševica (VL08), 11.5.2012.

Deltocephalini Fieber 1869

Maiestas horvathi (Then 1896)

New record: Vogrsko (VL08), 2.7.2006 (1 ♂); in Slovenia previously only recorded by Then from Kočevje (THEN, 1896; HOLZINGER & SELJAK, 2001).

Doraturini Ribaut 1952

* *Doratura exilis* Horvath 1903

Material examined: Branik (Golec) - 380 m (VL07), 30.6.2002; Petelinjsko jezero - 550 m (VL46), 12.9.2004; Zagorje (pri Pivki) (VL35), 9.7.2006; Gabrje pri Tolminu (UM91), 3.7.2008; Vipava (VL17), 1.8.2012; Kobariški Stol - 1380 m (UM82), 8.9.2013; Drežniške Ravne (Planina Zapleč) - 1200 m (UM92), 12.7.2015; Beka (VL15), 30.6.2016; Socerb (VL14), 30.6.2016; Spodnji Kras (VL14), 21.9.2016.

Chiasmus conspurcatus (Perris 1886)

New records: Prvačina (UL98), 4.9.2003; Panovec - 110 m (UL98), 14.8.2005; Vogrsko (UL98), 7.10.2007 and 10.8.2008; Kromberk (UL99), 12.10.2007; Strunjan (UL94), 14.10.2007; Izola (UL94), 24.7.2008; Rožna dolina - 84 m (UL98), 10.8.2008; Solkan - 90 m (UL99), 30.8.2008 and 16.9.2011; Vipolže - 60 m (UL89), 1.8.2012 and 01.09.2016; Nova Gorica - 100 m (UL99), 30.10.2016; mostly in anthropogenic environment, on sunny and warm sites, often in vineyards and orchards among the ground vegetation.

Tetartostylini Wagner 1951

Tetartostylus illyricus (Kirschbaum 1868)

New records: Lukovec (VL07), 30.6.2002; Pri peči (VL09), 12.7.2002; Sabotin - 360 m (UL99), 28.6.2007; Kuk nad Desklami - 640 m (UL99), 25.7.2009; Golo brdo (UM80), 23.6.2014; Podnanos - 150 m (VL17), 2.7.2011 and 5.7.2014; Podraga (VL17), 18.7.2016; Socerb (VL14), 30.6.2016; monophagous on *Chrysopogon gryllus*.

This species has a South-eastern European distribution range. Its habitats are dry low-intensity karstic meadows and pastures with *Chrysopogon gryllus* as the host plant. It is scattered distributed in south-western Slovenia, but locally it may occur rather abundantly. Adults occur from the beginning of June to the mid of July. In the database Fauna europaea (JACH & HOCH, 2016) it is recorded as doubtfully present in Italy. Specimens in my collection from Vivaro (Magredi) (UM20), 7.6.2008 (Friuli Venezia Giulia) as well as earliest record by GRAEFFE (1903) definitely confirm its presence in Italy.

Athysanini Van Duzee 1892

Allygidius commutatus (Scott 1872)

New records: Labinje - 700 m (VM21), 22.8.2004 and 18.8.2012; Logarska dolina - 790 m (VM73), 30.7.2005; Zadlog - 710 m (VL28), 30.7.2006; Čepovan (Kobilica) - 680 m (VM00), 17.8.2006; Čezsoča (UM83), 28.7.2007; Dolenja Trebuša (VM00), 4.7.2009; Lokve - 920 m (VL09), 19.7.2009; Kojca - 1300 m (VM11), 27.8.2009; Kromberk (UL99), 9.7.2011 and 14.7.2013; Vremščica - 900 m (VL25), 16.7.2011; Borovška gora - 1000 m (VL84), 20.7.2013; Osilnica - 825 m (VL74), 20.7.2013; Mirtovički potok (VL84), 21.7.2013; Grčarice (VL85), 21.7.2013.

Allygus maculatus Ribaut 1948

New records: Lokve - 920 m (VL09), 19.7.2009; Utovlje (VL16), 23.6.2010;

**Artianus manderstjernii* (Kirschbaum 1868)

Material examined: Šembije - 580 m (VL45), 9.7.2006 and 11.7.2014; Zagorje (pri Pivki) (VL35), 9.7.2006; Jelšane (VL43), 1.7.2007; Zavino - 190 m (VL17), 8.8.2007; Hrušica pri Podgradu - 550 m (VL34), 6.7.2008; Kastelec - 420 m (VL14), 6.7.2008 and 17.7.2012; Beka (VL15), 30.6.2016; Socerb (VL14), 30.6.2016; Lukovec (VL07), 21.8.2016; Rakitovec - 520 m (VL13), 11.9.2016; on hot xerothermic pastures or partly overgrown places; the host plant(s) not known to me.

**Athysanus argentarius* Metcalf 1955

Material examined: Limbuš (WM45), 20.7.1997 (2 ♀♀, leg. L. Božič - coll. PMS); Dolnja Bistrica (WM95), 26.7.2004 (1 ♀); Muriša (XM24), 26.7.2004 (2 ♀♀).
In Slovenia this species has so far only been collected in the eastern part.

**Colobotettix morbillosus* (Melichar 1896)

Mala Lazna - 1100 m (VL09), 1.8.2010. Lives on *Picea abies*.

Conosanus obsoletus (Kirschbaum 1858)

New records: Ajševica (VL08), 8.9.2001 and 2.7.2006; Ankaran (VL04), 29.7.2004; Nova Gorica (UL99) 18.6.2005; Gradišče pri Vipavi (VL17), 17.7.2005; Dolnji Zemon (VL44), 1.7.2007; Vogrsko - 50 m (UL98), 8.8.2007; Rakitna - 800 m (VL58), 12.9.2008; Strunjan (UL94), 6.7.2011; Koseze (Ilirska Bistrica) (VL44), 11.7.2014; Landol - 530 m (VL37), 18.7.2016; Gorenji Novaki - 1090 m (VM21), 28.8.2016.

**Euscelis venosus* (Kirschbaum 1868)

Material examined: Topla - Črna na Koroškem (VM84), 21.7.1974 (1 ♂, leg. B. Sket - coll. PMS).



Fig. 10: *Nesoclutha erythrocephala* – female (size: 2.6-3.2 mm)



Fig. 11: *Laburrus quadratus* – male
(size: 3.1-4.0 mm)

**Euscelidius variegatus* (Kirschbaum 1858)

Material examined: Nova Gorica (UL99), 31.7.2002; Vedrijan (UL89), 21.9.2011; Miren (UL98), 2.5.2012; Vipolže - 70 m (UL89), 1.9.2016.

**Hardya tenuis* (Germar 1821)

Material examined: Gederovci (WM87), 21.7.1974 (1 ♂; leg. B. Sket - coll. PMS)

Idiodonus cruentatus (Panzer 1799)

New records: Čepovan (Kobilica) - 680 m (VM00), 17.8.2006; Zadnja Trenta - 970 m (VM03), 28.7.2007; Planica (VM04), 15.8.2012; Mangartsko sedlo - 1770 m (UM94), 28.8.2015.

**Laburrus quadratus* (Forel 1864) (*Figure 11*)

Kubed (VL14), 17.7.2012; Solkan (UL99), 24.6.2014; Golo brdo (UM80), 23.6.2014, Puštale - 520 m (VL09), 12.8.2014; Sabotin - 570 m (UL99), 2.8.2015; Rakitovec - 520 m (VL13), 11.9.2016; always associated with *Artemisia alba*; on the same plant also collected on the island Krk (Croatia), 10.07.2014.

Lamprotettix nitidulus (Fabricius 1787)

New records: Kucelj - 1100 m (VL08), 3.9.2000 and 13.8.2006; Marno pri Hrastniku (WM10), 25.8.2005; Mlinarjevo sedlo - 1250 m (VM63), 15.8.2007; Hrušica - 850 m (VL37), 19.9.2007; Mala Lazna (VL09), 1.8.2010; Godnje (VL06), 20.7.2011; Lendavske gorice (XM15), 28.7.2011; Soriška planina - 1500 m (VM22), 23.10.2012; Pivola (WM45), 22.7.2014.

**Macustus grisescens* (Zetterstedt 1828)

Črno jezero on Pohorje - 1200 m (WM34), 25.7.2004; among tall sedges in a montane peat bog.

**Mocydiopsis parvicauda* Ribaut 1939

Dolina pri Lendavi (XM15), 26.7.2004; Dolnja Bistrica (WM95), 26.7.2004; Muriša (XM24), 26.7.2004.

Ophiola cornicula (Marshall 1866)

New records: Pokljuka (Močila) - 1200 m (VM23), 14.8.2003; Pokljuka (Grajska planina) - 1200 m (VM23), 2.9.2005; subalpine peat bog with lots of diverse Eriaceae.

Limotettix striola (Fallen 1806)

New record: Staro Selo - 240 m (UM82), 24.8.2016 on *Eleocharis* sp.

Ophiola decumana (Kontkanen 1949)

New records: Gornje Cerovo (UL89), 16.6.2005; Gaberje (VL17), 8.6.2006; Preloge - 360 m (WL15), 31.5.2007; Brič (VL03), 8.7.2007; Gora pri Krškem (WL39), 25.9.2007; Bilje (UL98), 28.7.2008; Stojnci (WM73), 31.7.2008; Vogrsko - 115 m (UL98), 10.8.2008; Kromberk (UL99), 21.7.2011; Vedrijan (UL89), 21.9.2011; Potoče - 75 m (VL08), 1.8.2012; Lukini - 310 m (VL13), 20.8.2013; Korada - 615 m (UM80), 31.5.2014; Vipolže - 70 m (UL89), 1.9.2016; mainly swept from plants of *Polygonum aviculare*; Petrinjski kras (VL14), 6.6.2014 abundantly on *Geranium robertianum*;

**Ophiola russeola* (Fallen 1826)

Material examined: Zadnja Trenta - 960 m (VM03), 24.7.2005 and 28.7.2007; Tolmin (VM01), 24.06.2016 on limestone gravel near the river Soča.

Orienteus ishidae (Matsumura 1902)

New records: Gornje Cerovo (UL89), 10.7.2005; Kojško (UL89), 20.7.2009; Neblo (UL89), 5.7.2008; Snežatno (UL89), 10.7.2005; Vipolže (UL89), 10.7.2005; Ajševica (UL98), 31.7.2010; Renče (UL98), 23.7.2015; Stara Gora (UL98), 29.6.2011 and 18.7.2006; Vogrsko (UL98), 10.8.2008; Grgar (UL99), 29.7.2012; Kromberk (UL99), 9.7.2011, 13.7.2013; Ravnica (UL99), 1.8.2010; Sabotin (UL99), 14.8.2012 and 2.8.2015; Morsko (UM90), 6.7.2016; Spodnje Bukovo (VM11), 24.7.2016; Staro Selo (UM82), 17.7.2012 and 24.8.2016; Banjšice (UM90), 17.8.2012; Osek (VL08), 8.7.2011; Spodnja Idrija (VL29), 5.8.2005; Ljubljana - Rudnik (VL69), 25.9.2007; Ljubljana - Bežigrad (VM60), 25.7.2010; Smlednik (VM51), 29.7.2015; Zadlog (VM70), 13.7.2015; Krško (WL49), 3.7.2013; Pečica (WM42), 30.7.2013; Zbelovo (WM42), 30.7.2013; Zgornji Gabrnik (WM42), 30.7.2013; Kalvarija nad Mariborom (WM45), 26.7.2007; Pivol (WM45), 11.8.2014; Počehova (WM55), 12.7.2011; Negova (WM55), 21.7.2016.

Since 2004 this species has spread rapidly in various parts of Slovenia. In the recent time it has occurred in very high population densities on various trees around Nova Gorica and in apple orchards around Maribor (e.g. Pivol, Negova, Počehova).

Phlepsius intricatus (Herrich-Schaeffer 1838)

New records: Podsreda - Socko - 300 m (WL49), 17.6.2006 (2 ♀♀); Osp - 40 m (VL14), 27.4.2008 (1 ♀); Spodnje Škofije (VL04), 22.10.2010 (1 ♀); Kastelec (VL14), 17.7.2012 (1 ♀) and 21.9.2016 (1 ♂, 1 ♀); Solkan (UL99), 24.6.2014 (1 ♂); on hot xerothermic pastures and overgrown grassland.

Pithyotettix abietinus (Fallen 1806)

New records: Zadnja Trenta - 960 m (VM03), 24.7.2005; Mangartska planina - 1400 m (UM94), 15.7.2006; Kucelj - 1150 m (VL08), 13.8.2006; Trnovo ob Soči (UM82), 14.4.2007; Mlinarjevo sedlo - 1300 m (VM63), 15.8.2007; Čaven - 1240 m (VL18), 14.8.2011; Mala Lazna - 1100 m (VL09), 9.5.2015; Nemci - 880 m (VL09), 13.6.2015; Trnovo (VL09), 6.9.2015; monophagous on *Picea abies*.

Rhopalopyx adumbrata (J. Sahlberg 1842)

New records: Col - 720 m (VL28), 14.7.2001; Soriška planina - 1300 m (VM22), 19.8.2002; Zabreška planina - 1050 m (VM34), 2.8.2003; Rakitna - 900 m (VL58), 6.8.2004; Cimprovka - 1250 m (VM21), 23.8.2004; Livek - 850 m (UM91), 16.7.2005; Logarska dolina - 790 m (VM73), 30.7.2005; Pokljuka (Grajska planina) (VM23), 2.9.2005; Vodiška planina - 1110 m (VM32), 3.9.2005; Divača (VL25), 24.9.2005; Dolnje Lome - 680 m (VL28), 30.7.2006; Idrijski Log - 650 m (VL28), 30.7.2006; Kanji dol - 1020 m (VL28), 30.7.2006; Planina Kuk (VM01), 2.9.2006; Planina Razor - 1400 m (VM02), 2.9.2006; Zadnja Trenta - 970 m (VM03), 28.7.2007; Mlinarjevo sedlo - 1250 m (VM63), 15.8.2007; Blegoš - 1230 m (VM21), 6.9.2008; Kobariški Stol - 1380 m (UM82), 8.9.2013.

**Rhopalopyx preysleri* (Herrich-Schaeffer 1838)

Material examined: Dolina pri Lendavi (XM15), 26.7.2004; Muriša (XM24), 26.7.2004; Zagorje (pri Pivki) (VL35), 9.7.2006; Vremščica - 840 m (VL25), 16.7.2011.

**Selenocephalus pallidus* Kirschbaum 1868

Material examined: Hrvatini - Brageti, 135 m (VL04), 25.7.2006 (1 ♀); Spodnje Škofije (VL04), 24.7.2008 (1 ♂); Kastelec (VL14), 17.7.2012 (1 ♂); in all cases swept from *Quercus pubescens*.

Stictocoris picturatus (J. Sahlberg 1842)

New records: Lepena - 600 m (UM92), 26.8.2001; Krim - 1050 m (VL58), 6.8.2004; Rakitna - 900 m (VL58), 6.8.2004; Sromlje (WL49), 2.8.2007; Ručetna vas (WL15), 23.8.2007; Bohinjsko jezero (VM12), 12.8.2008; Nanos (VL27), 2.7.2011; Kromberk (UL99), 1.10.2012.



Fig. 12: *Thamnotettix zelleri* (size: 6.5 - 8.0 mm)

Streptanus aemulans (Kirschbaum 1868)

New records: Strezetina (WM84), 20.9.2002; Nova Gorica (UL98), 1.7.2003; Mala Lazna - 1100 m (VL09), 4.9.2004; Trnovski gozd (Smrečje) - 1050 m (VL09), 4.9.2004; Slamnjak (WM95), 25.6.2007 (leg. M. Lukman); Dolnji Zemon (VL44), 1.7.2007; Landol - 530 m (VL37), 18.7.2016; Gorenji Novaki - 1090 m (VM21), 28.8.2016.

Thamnotettix exemtus Melichar 1896

New records: Radenci (WM86), 23.5.2001; Nanos - Rebernice (VL26), 26.7.2002; Boharina - 700 m (WM23), 25.7.2004; Branik (Golec) - 370 m (VL07), 8.6.2006; Senik - 550 m (UM80), 11.6.2006; Virštanj - 370 m (WM40), 16.6.2006; Vetrnik, 700 m (WM40), 17.6.2006; Lokve v Beli krajni (WL14), 31.5.2007; Straška gora - 300 m (WL06), 31.5.2007; Sabotin - 360 m (UL99), 28.6.2007; Jelšane (VL43), 1.7.2007; Ravnica - 500 m (UL99), 25.5.2008; Bukovščica - 450 m (VM41), 31.5.2008; Zagomila - 360 m (UL99), 16.6.2008; Kromberk (UL99), 7.7.2008 and 2.5.2016; Planina pri Ajdovščini (VL17), 19.7.2012; Osilnica - 825 m (VL74), 20.7.2013; Pečica (WM42), 30.7.2013; Lokvica (UL98), 7.5.2016.

Thamnotettix zelleri (Kirschbaum 1868) (fig. 12)

New records: Višnjevik (UL89), 1.6.2005; Spodnje Škofije (VL04), 20.7.2011; Gaberje (VL17), 27.4.2014; Bertoki (VL04), 26.4.2015.



Fig. 13: *Ebarrius interstinctus* - female (size 3.5 - 3.9 mm)

Paralimnini Distant 1908

Adarrus exornatus Ribaut 1952

New records: Kromberk (UL99), 26.5.2001; Blegoš - 1550 m (VM31), 29.7.2001; Bohinjska Bistrica (VM12), 19.8.2002; Most na Soči (VM01), 16.8.2003; Vodice (UL99), 20.9.2003; Kucelj - 1200 m (VL08), 4.9.2004; Livek - 850 m (UM91), 16.7.2005; Zadnja Trenta - 970 m (VM03), 28.7.2007; Zagomila - 360 m (UL99), 16.6.2008; Hrušica pri Podgradu - 550 m (VL34), 6.7.2008; Bohinjsko jezero (VM12), 12.8.2008; Bukovščica - 460 m (VM42), 17.7.2010; Krnica - 1000 m (VL08), 14.8.2011; Labinje (VM21), 18.8.2012; Cimprovka - 1250 m (VM21), 28.8.2016.

Calamotettix taeniatus (Horvath 1911)

New records: Lazaret (VL04), 29.7.2004 and 25.7.2006, on *Phragmites australis* on the margin of a sea lagoon.

Cosmotettix aurantiacus (Forel 1859)

New records: Jelovica (Ledine) - 1100 m (VM32), 19.9.2004; Vojsko (Gačnik) - 910 m (VM10), 12.7.2016 and 3.8.2016; in wet straw meadows and fens on *Carex elata* (NICKEL, 2003 and pers. comm.)

**Cosmotettix costalis* (Fallen 1826)

Material examined: Jelovica (Ledine) - 1100 m (VM32), 23.8.2004 (2 ♀♀, 1 ♂); 19.9.2004 (5 ♂♂, 19 ♀♀) and 3.9.2005 (2 ♂♂, 11 ♀♀).

This species has a predominantly north-European distribution ranging then towards the Trans-Caucasian region. The locality given above is currently the most southern known occurrence of this species in Europe. The nearest locality is recorded from Carinthia (HOLZINGER, 1995). Several dozens of specimens were obtained in an Alpine bog by using the suction method.

**Ebarrius cognatus* (Fieber 1869)

Material examined: Škrbina - 1660 m (VM54), 9.8.2014 (1 ♂); a single male was found among the material collected on the south slopes of the mountain Škrbina (Karavanke).

Ebarrius interstinctus (Fieber 1869) (*Figure 13*)

Material examined: Mangart - 1770 m (UM94), 28.8.2015 (1 ♂, 3 ♀♀);

THEN (1886) recorded this species from Kočevska reka and from three localities on the Italian site close to the Slovene border (Basovizza, Sant'Antonio in Bosco - Borst and Cave di Predil - Raibl). After 130 yers, this is the first finding of this species in the territory of Slovenia. The new locality is rather close to THEN's record in Raibl.

Emeljanovianus medius (Mulsant & Rey 1855)

New records: Blegoš - 1350 m (VM31), 29.7.2001; Nanos - 950 m (VL27), 6.7.2002 and 2.7.2011; Vojsko - 1050 m (VL19), 23.8.2003; Virštanj - 370 m (WM40), 16.6.2006; Vetrnik - 700 m (WM40), 17.6.2006; Cimprovka - 1250 m (VM21), 24.6.2006; Petelinjsko jezero - 550 m (VL46), 9.7.2006; Kanji dol - 1020 m (VL28), 30.7.2006; Marindol - 240 m (WL23), 3.6.2007; Starod - 660 m (VL33), 25.6.2008; Log pod Mangartom - 620 m (UM93), 12.7.2008; Hrušica - 830 m (VL37), 10.9.2008; Vremščica - 800 m (VL25), 16.7.2011;

This species obviously reaches in Slovenia the most northern distribution range in this part of Europe. The majority of findings are from the area of the High Dinaric Karst, but it has also been collected at lower altitudes in alpine valleys and on sub-Pannonian hills. It usually occurs on sunny moderately dry pastures and low-intensity meadows on calcareous substrates, often synoptically with *Turrutus socialis*. The grass *Bromus inermis* has been recorded as the host plant in Russia (EMELJANOV, 1964), but probably also some other grasses may serve it for food.

Henschia collina (Boheman 1850)

Material examined: Črnotiče (VL14), 29.7.2004; Slap pri Vipavi (VL17), 30.7.1998; Maribor (Tezno) (WM55), 16.9.2004; Nova Gorica (UL98), 18.6.2005; Brestovica - 50 m (UL97), 6.8.2005; Kamno - 200 m (UM91), 18.8.2006; Sremič (WL39), 25.9.2007; Stojnci (WM73), 31.7.2008; Miren (UL98), 2.5.2012; Kastelec (VL14), 17.7.2012.



Fig. 14: *Quartausius hamatus* (size: 2.5 - 3.0 mm)

Nanosius chloroticus (Melichar 1896)

New records: Kucelj - 1150 m (VL08), 4.9.2004; Kobariški Stol - 1135 m (UM82), 20.7.2014; Drežniške Ravne (Planina Zapleč) - 1200 m (UM92), 12.7.2015; Sabotni - 570 m (UL99), 2.8.2015 - on *Sesleria tenuifolia*.

**Paralimnus lugens* (Horváth 1897); syn.: *P. zachvatkini* Emeljanov 1964

Material examined: Škocjanski zatok (VL04), 24.9.2005; Bertoki, 4 M (VL04), 25.7.2006; Nova Gorica (UL98), 27.9.2008; Sečoveljske soline (UL93), 23.7.2010 - *Phragmites australis*.

Quartausius hamatus (Then 1896) (Figure 14)

A new record: Kastelec - 320 m (VL14), 11.9.2016 (3 ♂♂, 1 ♀).

Until now, only one male specimen of this apparently rare species was available to me. Recently, I obtained additional four specimens by using the suction method. Both known localities in Slovenia are fairly close to each other and both belong to the type area, which is around Bazovica near Trieste (Italy), just about 6 km away (THEN, 1896). Nothing is known about its biology. THEN collected it in June and July, while all specimens collected by me were found later in the season (September, October), which suggests that two generations may occur. The apparent conspecificity of *Q. dalmatinus* Dlabola 1974 with this species was discussed in an earlier paper (SELJAK, 2004a).

Jassargus alpinus (Then 1896) s.str.

New records: Snežnik - 1680 m (VL54), 21.7.2002; Zadlog, 710 m, (VL28), 30.7.2006; Trnovski gozd (Smrečje) - 1050 m, (VL09), 4.9.2004; Voglarji - 770 m (VL09), 1.8.2010; Čepovan (Kobilica) - 680 m, (VM00), 17.8.2006 and 8.7.2007; Planina Kuk - 1150 m (VM01), 2.9.2006; Kojca - 1300 m, (VM11), 27.8.2009; Porezen -1400-1630 m (VM21), 25.6.2011; Črni vrh over Cerkno - 1220 m, (VM21), 28.8.2016; Blegoš - 1230 m (VM31), 29.7.2001; Matajur - 1300 m, (UM81), 24.8.2016; Planina Razor - 1400 m (VM02), 2.9.2006; Soriška planina - 1300 m, (VM22), 19.8.2002, 14.8.2003 and 29.7.2016; Jelovica (Ledine) - 1150 m, (VM32), 23.8.2004; Vodiška planina - 1110 m, (VM32), 3.9.2005; Breginj (Planina na Klinu) - 900 m, (UM72), 22.8.2003; Kobariški Stol - 1400 m, (UM82), 8.9.2013 and 20.7.2014; Krnsko jezero - 1400 m, (UM92), 1.8.2009; Drežniške Ravne (Planina Zapleč) - 1200 m, (UM92), 12.7.2015; Zadnja Trenta - 960 m, (VM03), 24.7.2005 and 28.7.2007; Vršič - 1400 m, (VM04), 23.7.2002 and 27.7.2008; Javorniški rovt - 1100 m, (VM24), 11.8.2004; Planina Pungrat -1440 m, (VM54), 9.8.2014.

**Jassargus alpinus neglectus* (Then 1896)

Material examined: Košenjak (WM06), 8.7.1973 (1 ♂, leg. B. Sket); Rogla - 1500 m (WM24), 13.8.2000 (2 ♂♂ and 1 ♀).

Along with the typical *J. alpinus* s.str., four additional subspecies are recognized, which slightly differ in the shape of the aedeagus. Furthermore, they have a more or less clear parapatric distribution in Europe. A detailed taxonomic account on this species was made by W. WAGNER (1958), who also drew rough demarcation lines between different subspecies. Accordingly, in much of the Slovenian territory the typical *J. alpinus* s. str. should occur, but the subspecies *J. alpinus neglectus* cannot be excluded in the most eastern parts. Our faunistic investigations confirm in some way these delineations, although there are still insufficient data from the eastern part of Slovenia for a general conclusion. However, two male specimens collected on Rogla display well the aedeagus characteristics of *J. alpinus neglectus*. More field studies will be needed to clarify this faunistic question. In western parts, however, only *J. alpinus* s.str. occurs and is fairly common at higher altitudes above 1000 m.

Discussion and conclusions

With this account, the fauna of plant- and leafhoppers is getting fairly well known regarding the western part of Slovenia (Dinaric mountain chain included). In contrast, the central and eastern parts remain almost a white area with only scattered records from the earlier published papers or data gathered during the author's occasional trips. With this account the number of plant- and leafhoppers hitherto known to occur in Slovenia has risen to 555 species. 81 species recorded here are new to the fauna of Slovenia. With the interpolation of Italian, Austrian and Hungarian checklists a rough indication can be obtained, which further species may occur in the territory of Slovenia.

From the taxonomic and zoogeographic point of view, several representatives of the subfamily Aphrodinae have revealed to be very complicated in the studied area. Morphological identification down to the species level has revealed as rather unconfident for the genus *Aphrodes* except for *A. diminuta*. Hence, additional vibrational or/and molecular methods are necessary to obtain reliable results for this group (BLUEMEL & al. 2014). Also the majority of material belonging to the species *Anoscopus albifrons* and *A. flavostriatus* collected in the western part of Slovenia display some aberrations in the aedeagus morphology in comparison to the typical species. However, they share the characteristics with the subspecies recently recorded from Italy, namely *Anoscopus albifrons mappus* and *Anoscopus flavostriatus dubius* respectively (GUGLIELMINO & BÜCKLE, 2015). The species *Anoscopus albiger* is completely replaced here by a newly described species *Anoscopus carlebippus*. In spite of some hesitation concerning the taxonomic significance of the morphological aberrations of aedeagi that have been applied for the creation of these new entities, they have been accepted here in order to point out the differences and to preserve distributional data separately.

The Auchenorrhyncha fauna of western Slovenia shares a significant number of typical Mediterranean species. The majority of them can be encountered in the Adriatic littoral area (Slovenska Istra), as well as in a larger area around Nova Gorica (Vipava Valley, Goriška Brda). Such species are: Cixiidae: *Hyalesthes scotti*; Delphacidae: *Kelisia melanops*, *Conomelus sagittifer*, *Delphax meridionalis*, *Delphacodes mulsanti*, *Eurysanoides flavobrunnea*, *Metropis aris*, *Ribautodelphax fanari*; Issidae: *Latilica maculipes*, *Bubastia obsoleta*; Cicadellidae: *Hephathus freyi*, *Hespericerus brusinae*, *Stegelytra putoni*, *Notus italicus*, *Chlorita szelenica*, *Ch. beieri*, *Ch. mendax*, *Eupteryx ribauti*, *E. zelleri*, *E. salviae*, *Zyginidia servadeii*, *Synophropsis lauri*, *Goniagnathus brevis*, *Selenocephalus pallidus*, *Aconurella prolixa*, *Opsius heydeni*, *Laburrus quadratus*, *Thamnotettix zelleri*, *Quartausius hamatus*. Some of these species achieve here the most northern distribution range in Europe.

So far, nine non-European alien species are recorded for Slovenia. The majority of them have spread into Slovenia in the last three decades. They are: *Prokelisia marginata* (SELJAK, 2004), *Metcalfa pruinosa* (ŠIVIC, 1991), *Stictocephala bisonia* (SELJAK, 2002), *Graphocephala fennahi* (SELJAK, 2013b), *Scaphoideus titanus* (SELJAK, 1987), *Orientalus ishidae* (SELJAK, 2004a), *Erasmoneura vulnerata* (SELJAK, 2011), *Hishimonus hamatus* (SELJAK, 2013a), *Edwardsiana platanicola* (SELJAK, 2013b). *Scaphoideus titanus* has become a serious pest transmitting the grapevine flavescence dorée phytoplasma, one of the most harmful plant pathogens of vine. *Orientalus ishidae* is rapidly spreading in several parts of Slovenia. It has been recognised as the carrier of certain phytoplasmas, but its ability to transmit them between plants has not been established yet (MEHLE & al, 2012). *Prokelisia marginata* seriously threatens the already scarce populations of the grass *Spartina maritima* in Lazaret and Sečovlje.

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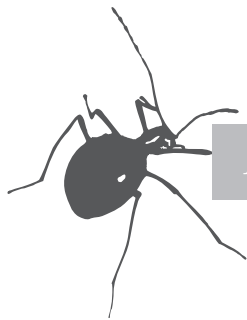
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**NEW OR INTERESTING RECORDS OF SEVEN MOTH SPECIES
(NOCTUIDAE & GEOMETRIDAE) FOR THE FAUNA
OF BOSNIA AND HERZEGOVINA**

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Abstract – Data on seven rare moth species from two families (Noctuidae and Geometridae) are given in the present paper. Specimens were collected on two mountains, Zelengora and Ljubuša. The following species are reported as new for the fauna of Bosnia and Herzegovina: *Chersotis margaritacea*, *Autographa bractea*, *Crypsedra gemmea*, *Episema tersa* and *Thera cognata*. As Bosnia and Herzegovina remains one of the least studied countries in the north-western Balkans, further records of other rare and interesting moth species are to be expected.

KEY WORDS: Lepidoptera, rare species, Zelengora, Ljubuša

Izvešček – NOVE ALI ZANIMIVE NAJDBE SEDEM VRST VEŠČ (NOCTUIDAE IN GEOMETRIDAE) ZA FAVNO BOSNE IN HERCEGOVINE

Podatki o sedmih vrstah redkih večč dveh družin (Noctuidae in Geometridae) so predstavljeni v tem članku. Osebkni so bili zbrani na dveh hribih, Zelengori in Ljubuši. Naslednje vrste so nove najdbe za favno Bosne in Hercegovine: *Chersotis margaritacea*, *Autographa bractea*, *Crypsedra gemmea*, *Episema tersa* in *Thera cognata*. Glede na to, da je Bosna in Hercegovina najmanj raziskana država severnega Balkana, pričakujemo dodatne najdbe redkih in zanimivih vrst.

KLJUČNE BESEDE: Lepidoptera, redke vrste, Zelengora, Ljubuša

Introduction

The moth fauna of Bosnia and Herzegovina has been studied in the past by the leading European lepidopterologists, the most important works being those of Hans

Rebel (Rebel 1898, 1901, 1904, 1906) who collected and revised the material collected by his contemporaries and created the first checklist of Lepidoptera for the country. After him, the comprehensive contributions were done by Schawerda (1908-1922). Between the beginning of the 20th century and the last decade, the extensive moth surveys have ceased. In the last few years, several small contributions were made, usually containing data for one or several moth species recorded in the country (e.g. Žujo Zekić et al. 2009, Đurić et al. 2012, Hanjalić & Lelo 2014, Karabeg & Lelo 2014, Kurz & Horvat 2010). The most important recent contribution was the revision of the systematic list of Lepidoptera of Bosnia and Herzegovina (Lelo 2004), however, it does not present new data, but is solemnly based on the already mentioned published data. Nevertheless, it is a good starting point for any entomologist wanting to conduct surveys in Bosnia and Herzegovina.

Here we want to present the data of several rare or local moth species recorded during several visits to Bosnia and Herzegovina in 2016. When compared to the online database Fauna Europaea (de Jong et al. 2014) the occurrence of some species in Bosnia and Herzegovina is marked on the maps and lists, but the origin of the data is unknown and, due to this, certain species presented here as new for the country could already be listed in some literature unknown to us. However, we think that the inclusion of such species is indeed beneficial, as they have not been listed in the current Lepidoptera checklist of the country (Lelo 2004).

Materials and methods

This study took place at two mountain complexes, Zelengora and Ljubuša. Both are in northern Herzegovina and are a part of the Dinaric Alps. They are characterised by Late Pleistocene unconsolidated clastids and morphological forms. Limestone is the predominant rock type (Hrvatović 2005). Zelengora Mt. is located in the Sutjeska National Park. The highest peak is Bregoč (2014 m a.s.l.). It is situated on the border between the SE Bosnian (Igman-Zelengora Region) and the Submediterranean-Mountain ecological-vegetation zones. As a result, the vegetation communities are quite diverse. Additionally, there are quite a few lakes on the mountain. Ljubuša Mt.'s SE part, which intersects with the NE part of Vran Mt., falls within the Blidinje Nature Park. The highest peak is Velika Ljubuša (a.k.a. Ljubuša or Crnovrh, 1797 m a.s.l.). Its numerous dolines give it its characteristic moon-like landscape. It is within the Submediterranean-Mountain ecological-vegetation zone.

This work was carried out on one location per mountain (Fig. 1). The first location, on Zelengora, is situated at the camp site just above Orlovačko Lake, at the humid meadows, N: 43.375109°, E: 18.549857°, 1477 m a.s.l. We visited it between 18-20 August 2016. Swaths of deciduous beech forest border the location to the north, between the camping site and the lake, and to the south. The camp site itself and other immediate areas are covered in wet grasslands and the occasional bush, with the bushes becoming more frequent near the forest edge. The immediate camping area is regularly mown every year, while all grasslands in the area are used as pastures in the traditional way, grazed by a large number of sheep and the occasional cow. The

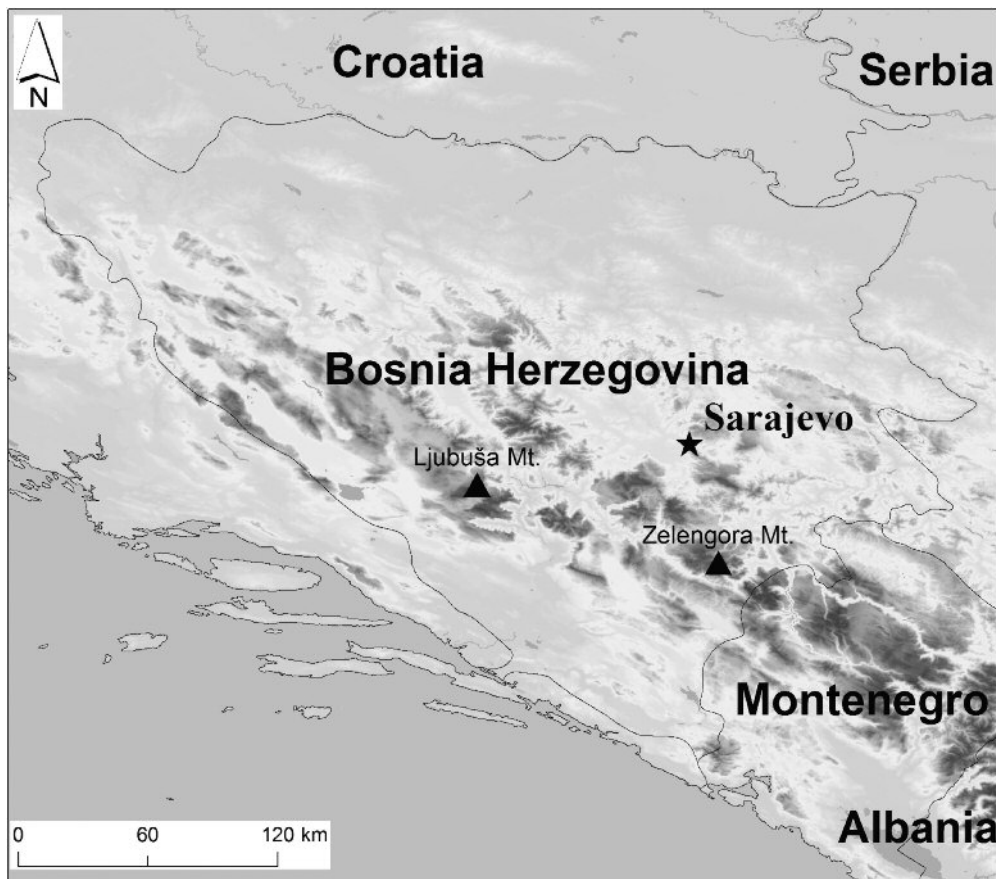


Fig. 1. Surveyed localities in Bosnia and Herzegovina.

second location, on the SE outcrop of Ljubuša Mt., north-west from the village Lagumovići, on dry karstic meadows, N: 43.699326°, E: 17.546090°, 1480 m a.s.l., was visited on 6.9.2016. The locality is composed of a large grassland, mostly used as a pasture by local shepherds. Succession is evident in some areas.

On average, four hours were spent on each locality on each date, depending on the time-of-year and climate conditions. Six UV light tents were used per locality to attract moths. Most of the attracted moths were identified in the field and released. The nomenclature follows the online database Fauna Europaea (de Jong et al. 2014).

Results and discussion

During our visit we recorded several species which either represent new country records, or represent rare or local species worth mentioning. For each species basic

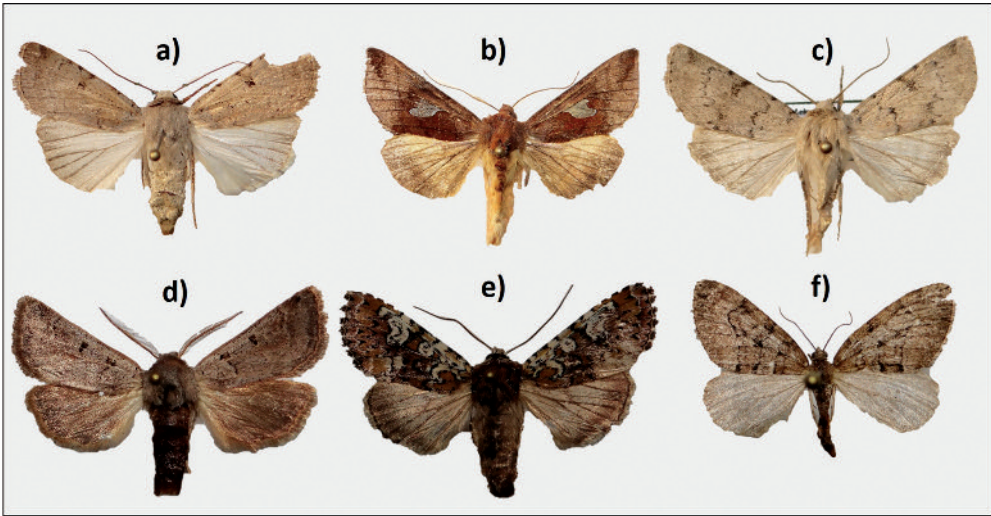


Fig. 2. Newly recorded or rare moth species for the fauna of Bosnia and Herzegovina: a) *Chersotis margaritacea*, b) *Autographa bractea*, c) *Epipsilia grisescens*, d) *Crypsedra gemmea*, e) *Episema tersa*, f) *Thera cognata*.

information about their occurrence, biology and presence in the neighbouring countries is given. The six newly recorded species are presented in Fig. 2 (a-f).

Noctuidae

Chersotis margaritacea (Villers, 1789)

Material examined: Zelengora Mt., 1 ex.

Note: A Palearctic species, present in central and southern Europe towards central Asia (Macek et al. 2012). It can be found on xerothermophilous rocky terrains, mostly on karstic surfaces. The moth flies in a single generation from June to September depending on the location. The occurrence of this species in Bosnia and Herzegovina was not mentioned by Lelo (2004). While several records of this species exist for Croatia (Stauder 1925, Kučinić & Lorković 1999) no records from Bosnia and Herzegovina are known to us. In Fibiger (1997), the range of this species includes also Bosnia and Herzegovina, but this may indeed just represent the presupposed distribution.

Chersotis cuprea ([Denis & Schiffermüller], 1775)

Material examined: Zelengora Mt., 10 ex.

Note: Euro-Siberian, boreal species, inhabiting mountainous areas of Europe. Adults fly in a single generation between July and September. Records from the northern Balkans are fairly scarce. Carnelutti (1992) lists it for Slovenia, Kučinić & Lorković (1999) for Croatia. In B&H it is known only from Vlačić Mt. (Rebel 1904), so, accordingly, ours is the second known locality for this species in the country.

Autographa bractea ([Denis & Schiffermüller], 1775)

Material examined: Zelengora Mt., 3 worn ex.

Note: A Palearctic species present in most parts of Europe, from the Pyrenees in the west, across Eastern Europe to Altai in the east. Adults fly in a single generation between June and August. This species was not recorded in Bosnia and Herzegovina in the past but its occurrence was expected. During our visit to Zelengora Mt. we recorded three worn specimens, probably at the end of their flight season. This is the first record for Bosnia and Herzegovina.

Epipsilia grisescens (Fabricius, 1794)

Material examined: Zelengora Mt., 1 m, 6 f.

Note: A western Palearctic species with fragmented distribution in Europe, in northern Spain, the Alps, Apennines and the Balkans. This xeromontane species inhabits open, dry, rocky habitats of the alpine and subalpine zone. It flies between June and September. Caterpillars feed on different grasses. This is the only species of the genus *Epipsilia* present in Bosnia and Herzegovina, known from Kalinovik and Jablanica (Rebel 1904). A similar species, *Epipsilia latens* (Hübner, 1809) is present in nearby countries, so the correct species identification was confirmed by the examination of the male genitalia (according to Fibiger 1997) (Figure 3). This is a rare and local species, with a limited number of records in the northern Balkans, and as such, is included in this manuscript.



Fig. 3. Male genitalia of *Epipsilia grisescens* from Mt. Zelengora.

Crypsedra gemmea (Treitschke, 1825)

Material examined: Zelengora Mt., 2 ex.

Note: A predominantly montane species distributed in most parts of Europe. While its occurrence in Bosnia and Herzegovina was expected, its presence in the country was not confirmed in any former works dealing with moths of Bosnia and Herzegovina (Lelo 2004).

Episema tersa (Denis & Schiffermüller, 1775)

Material examined: Ljubuša Mt., 2 m, 10 f.

Note: A Ponto-Mediterranean species, distributed from south-eastern Europe to central Asia. Adults fly in a single generation from the second half of August till October. This is a sister species of *Episema glaucina* (Esper, 1789) from which it can be reliably distinguished only based on the genital morphology. On Ljubuša Mt. we collected ten females and two males belonging to this species. The identification was confirmed by the dissection of the male genitalia and comparison with *E. glaucina* (Nowacki 1998). According to Lelo (2004) this is a new country record for Bosnia & Herzegovina.

Geometridae

Thera cognata (Thunberg, 1792)

Material examined: Zelengora Mt., 3 ex.

Note: A Western Palearctic species. Adults fly between July and August, mainly in moorlands in northern Europe and mountainous areas in the southern Europe (Macek et al. 2012). This species was not previously recorded from Bosnia and Herzegovina (Lelo 2004, Hausmann & Viidalepp 2012) therefore it can be regarded as the first country record.

Conclusions

The moth fauna of Bosnia & Herzegovina has for a long period been neglected in terms of systematic moth surveys, and is probably one of the least surveyed countries in Europe. This is partially due to the last war that occurred in the region, as well as because of the lack of experts and amateurs within the country. Our results contribute only slightly to the knowledge about the moth fauna, but may indeed be a next step towards more systematic surveys of moths of the country.

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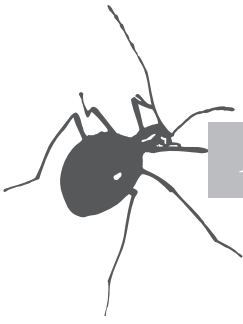
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**FIRST RECORD OF *LIMNEPHILUS CENTRALIS* CURTIS, 1834
(INSECTA: TRICHOPTERA) FROM THE REPUBLIC OF KOSOVO**

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Abstract - The Limnephilid species *Limnephilus centralis* is present mostly in Western and Central Europe and has been rarely sampled in Southeastern Europe. In this paper we present first record of this species from the Republic of Kosovo, more precisely from Mokna Mountain. In some European countries or areas during the last decades *Limnephilus centralis* has been assessed as extinct, vanished or rare. In Kosovo it belongs to the group of rare species. *Limnephilus centralis* is the ninth species of the genus *Limnephilus* reported from Kosovo.

Other species associated with *Limnephilus centralis* in investigated locality are: *Rhyacophila laevis*, *Philopotamus montanus*, *Potamophylax luctuosus*, *Limnephilus bipunctatus* and *Beraea pullata*.

KEY WORDS: *Limnephilus centralis*, Kosovo, Trichoptera, Balkan Peninsula.

**Izvešček – PRVI PODATKI O VRSTI *LIMNEPHILUS CENTRALIS* CURTIS, 1834
(INSECTA: TRICHOPTERA) V REPUBLIKI KOSOVO**

Limnephilus centralis, vrsta družine Limnephilidae, je razširjena predvsem v zahodni in srednji Evropi, v jugovzhodni Evropi je bila redko najdena. V prispevku predstavlja prvo najdbo te vrste v Republiki Kosovo, natančneje na gori Mokna. V nekaterih evropskih državah ali območjih je bila v zadnjih desetletjih vrsta *Limnephilus centralis* opredeljena za izumrlo, izginulo ali redko. Na Kosovu pripada skupini redkih vrst. Je deveta vrsta rodu *Limnephilus*, zabeležena na Kosovu. Druge vrste, pridružene vrsti *Limnephilus centralis* na preiskanem najdišču, so *Rhyacophila laevis*,

Philopotamus montanus, *Potamophylax luctuosus*, *Limnephilus bipunctatus* in *Beraea pullata*.

KLJUČNE BESEDE: *Limnephilus centralis*, Kosovo, Trichoptera, Balkanski polotok.

Introduction

The Integripalpi family Limnephilidae is one of the most species rich families of caddisflies, distributed mostly in northern temperate regions. All species have aquatic larvae with the exception of the genus *Enoicyla* Rambur, 1842, whose larvae are terrestrial. Their aquatic larvae are notable for constructing portable cases from different material of plant, mineral and even animal origin.

The genus *Limnephilus* Leach, 1815 has more than 200 known extant species worldwide (Morse 2016) distributed mostly across Holarctic region. Adults usually fly from May to October. Larvae of *Limnephilus centralis* Curtis, 1834 are found mostly in eucrenal and hypocrenal zone but sometimes in epirhithral zone as well (Graf *et al.* 2008). This species is found in a wide variety of altitudes with adults emerging mostly in spring and autumn, but in lesser number in summer as well. While widespread in some countries of Western and Central Europe, it is rarely sampled in most part of the Southeastern Europe. The goal of this paper is to contribute to the knowledge of the distribution of *Limnephilus centralis* in this part of the European continent where large and systematic inventories of caddisflies are still missing.

Material and methods

Data sampling and processing

Adult caddisfly specimens were collected with entomological net and ultraviolet light trap three times during 2015. Ultraviolet light was placed above the white pan of 60 cm in diameter filled 10 cm with water with a few drops of detergent. The light trap was placed on stream bank and operated from dusk until next morning. Collected samples were preserved in 80 % ethanol. The specimens were identified under a stereomicroscope with determination keys from Malicky (2004) and Kumanski (1985, 1988). The collection is deposited at the Laboratory of Zoology of the Faculty of Natural and Mathematical Sciences, University of Prishtina, Kosovo.

Study area

The sampling site is located at Mokna Mountains in northwestern part of Kosovo. This mountain area is part of Bjeshkët e Nemuna Mountains and is shared by Kosovo, Serbia and Montenegro.

The sampling site (Figure 1) is located in a stream originating from this range of mountains above the Istog town (42.88737°N, 20.56192°E, and 1669 m above sea level). The streambed is moderately shaded by nearby vegetation and consists of gravel, sand and stones of different sizes.

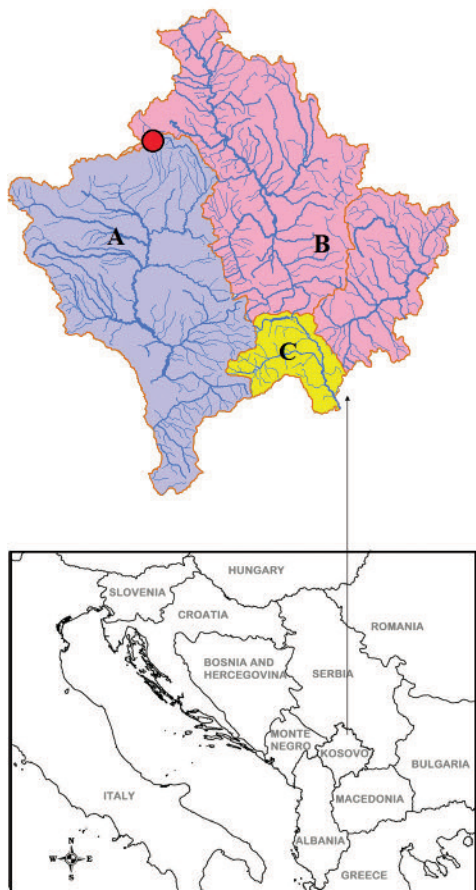


Fig. 1: Sampling site in Mokna Mountain with indicated watersheds in the Republic of Kosovo: A – Adriatic Sea watershed, B – Black Sea watershed, C – Aegean Sea watershed.

Results

Material examined:

Family Limnephilidae

Limnephilus Leach, 1815

***Limnephilus centralis* Curtis, 1834**

One adult male specimen was caught with UV light trap on 21st of July 2015.

Other species associated with *Limnephilus centralis* in this sample are: *Rhyacophila laevis* Pictet, 1834 (1♂), *Philopotamus montanus* (Donovan, 1813) (2♂♂, 2♀♀), *Potamophylax luctuosus* (Piller & Mitterpacher, 1783) (1♂), *Limnephilus bipunctatus* Curtis, 1834 (2♀♀) and *Beraea pullata* (Curtis, 1834) (7♂♂, 2♀♀).

One adult female specimen was caught with entomological net on 23rd of July 2015.

Other species associated with *Limnephilus centralis* in this sample are: *Rhyacophila laevis* (1♂), *Philopotamus montanus* (9♂♂, 2♀♀), and *Beraea pullata* (12♂♂, 3♀♀).

One adult male specimen was caught with UV light trap on 26th of August 2015.

Other species associated with *Limnephilus centralis* in this sample are: *Philopotamus montanus* (1♂♂), *Potamophylax cingulatus/luctuosus* (1♀), *Potamophylax pallidus* (Klapalek, 1899) (1♀), *Beraea pullata* (2♂♂) and *Hydropsyche* spp. (2♀♀).

Discussion

During this investigation we found *Limnephilus centralis* for the first time in the Republic of Kosovo. The species belongs to the group of rare species in Kosovo. From more than 150 localities all over Kosovo sampled during the last years (e.g. Gashi *et al.* 2015, Gashi and Ibrahim 2008, Ibrahim *et al.* 2013, 2014, 2015a, 2015b, 2015c, 2015d, 2016, Ibrahim and Gashi 2008, Olah *et al.* 2014, 2015) *Limnephilus centralis* is found in one locality only. The species is sampled rarely elsewhere in Southeastern Europe as well. Only in Bulgaria this species has been found in considerably more localities (Figure 2, DAET 2016). In Figure 2 are summarized major findings of *L. centralis* in Europe according to DAET (2016). In addition, this species is also present in Slovenia and Serbia (Krušnik and Urbanič 2002, Živić *et al.* 2006). In several European countries during the last decades *L. centralis* has been assessed as extinct, vanished or rare. In Hungary and some parts of Germany it hasn't been

840 *Limnephilus centralis* CURTIS, 1834

LIMNEPHILIDAE

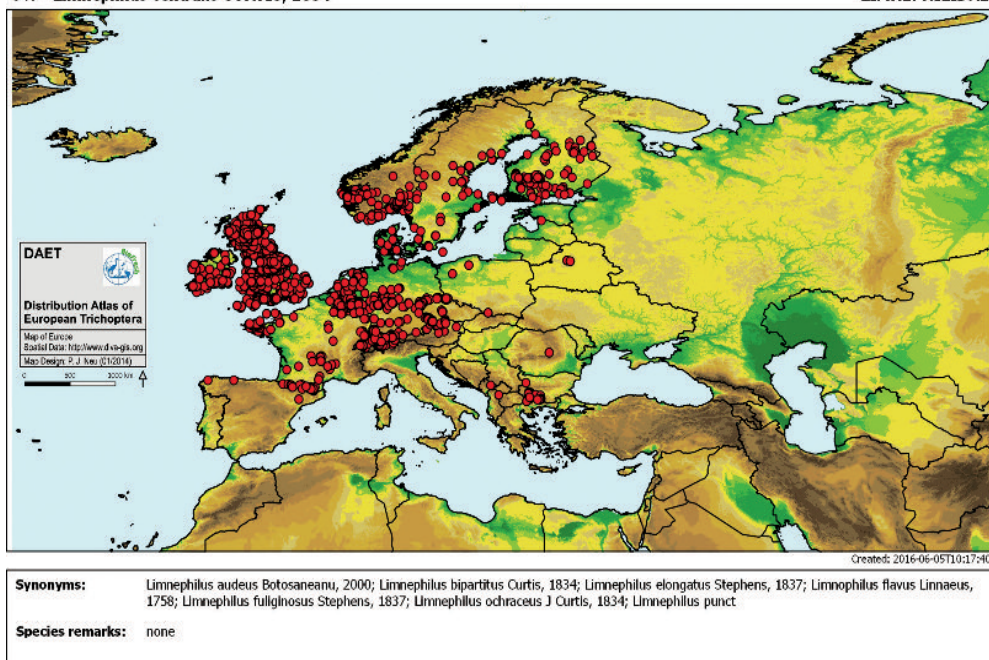


Fig. 2: Distribution of *Limnephilus centralis* in Europe prior to the current investigation, according to the Distribution Atlas of European Trichoptera (DAET 2016).

recorded during the past several decades and is thus categorized as extinct/vanished species (Nograd and Uherkovich 1999, Klima 1991). *L. centralis* has been rarely sampled in Czech Republic, some parts of Germany, France, Luxemburg and some Balkan countries (Maradova and Soldan 2012, Neu 2005, DAET 2016). *L. centralis* is the ninth species of the genus *Limnephilus* registered in the Republic of Kosovo.

Three other species collected during this investigation together with *L. centralis* also belong to the group of rare species in Kosovo: *Beraea pullata*, *Rhyacophila laevis* and *Potamophylax luctuosus*. Prior to this investigation *B. pullata* has only been found in one locality, upper stream of Lloqan River in Bjeshkët e Nemuna (Ibrahim *et al.* 2015d). *R. laevis* and *P. luctuosus* previously have been found in less than 5 localities in Kosovo (Ibrahim *et al.* 2014).

This investigation contributes to the inventory of the caddisfly fauna of the Republic of Kosovo and especially emphasizes Mokna Mountain as area rich with rare species of caddisflies.

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