



Ole Karsholt
Giorgio Baldizzone
Stanislav Gomboc

OVERVIEW OF THE GELECHIIDAE MOTHS (LEPIDOPTERA) OF KRK ISLAND, CROATIA: DIVERSITY, DISTRIBUTION, AND ECOLOGICAL INSIGHTS

PANORAMICA SUI MICROLEPIDOTTERI DELLA FAMIGLIA GELECHIIDAE (LEPIDOPTERA) DELL'ISOLA DI KRK, CROAZIA: DIVERSITÀ, DISTRIBUZIONE E ASPETTI ECOLOGICI

Abstract - In this contribution, all together 121 Gelechiidae species are reported for the Croatian Island of Krk. Almost half, 61 species, were already covered in other publications. After the revision of published data from other authors and additional surveys, we were able to confirm additional 60 species for the island and add additional biogeographic data for the already known species. For all species information on host-plants and general distribution is presented. To our knowledge, 11 species which we documented on Krk are novel records for Croatia: *Aproaerema wormiella* (Wolff, 1958), *Hypatima rhomboidella* (Linnaeus, 1758), *Dactylotula altithermella* (Walsingham, 1903), *Lanceoptera panochora* Janse, 1960, *Tiranimia epidolella* (Chrétien, 1908), *Monochroa hornigi* (Staudinger, 1883), *Scrobipalpa pauperella* (Heinemann, 1870), *Scrobipalpa ergasima* (Meyrick, 1916), *Caryocolum proxima* (Haworth, 1828), *Teleiodes italicica* Huemer, 1992, and *Carpatolechia fugacella* (Zeller, 1839). *Lanceoptera panochora* and *Tiranimia epidolella* are recorded for the first time from Europe, and the latter species is also new to Spain. Thanks to its diverse habitats and rich flora, with over 1543 plant species, the island has rich gelechid fauna. Despite the significant improvement of knowledge on gelechiids fauna of Krk, we believe that some more species are yet to be discovered there. Identification of some species in unrevised genera are regarded as tentative, awaiting forthcoming revisions. We hope that this contribution will encourage further research on this interesting group not only on Krk Island but also on other Croatian islands and this revised and updated list will be served as a basis for further studies. The Lepidoptera fauna of Krk Island now counts impressive 1663 confirmed species.

Key words: Gelechiidae, Lepidoptera, Krk Island, Croatia, diversity, distribution, ecology, host plants, Mediterranean.

Riassunto - In questo lavoro vengono elencate e commentate complessivamente 121 specie di Gelechiidae dell'isola di Krk (Croazia). Quasi la metà, 61 specie, erano già state segnalate in altre pubblicazioni. Dopo la revisione dei dati pubblicati da altri autori e ulteriori ricerche, siamo stati in grado di aggiungere ulteriori 60 specie per l'isola e fornire ulteriori dati biogeografici per le specie già note. Per tutte le specie vengono presentate informazioni sulle piante ospiti e sulla distribuzione generale. Secondo le nostre conoscenze, 11 specie che abbiamo scoperto a Krk rappresentano nuovi reperti per la Croazia: *Aproaerema wormiella* (Wolff, 1958), *Hypatima rhomboidella* (Linnaeus, 1758), *Dactylotula altithermella* (Walsingham, 1903), *Lanceoptera panochora* Janse, 1960, *Tiranimia epidolella* (Chrétien, 1908), *Monochroa hornigi* (Staudinger, 1883), *Scrobipalpa pauperella* (Heinemann, 1870), *Scrobipalpa ergasima* (Meyrick, 1916), *Caryocolum proxima* (Haworth, 1828), *Teleiodes italicica* Huemer, 1992, *Carpatolechia fugacella* (Zeller, 1839). *Lanceoptera panochora* e *Tiranimia epidolella* sono segnalate per la prima volta per l'Europa, e quest'ultima specie è anche nuova per la Spagna. In conseguenza dei suoi habitat diversificati e della ricca flora, con oltre 1543 specie di piante, la fauna dei gelechidi dell'isola risulta piuttosto abbondante. Questa lista di specie non è certamente definitiva per l'isola, poiché ci sono ancora numerosi esemplari in attesa di identificazione, soprattutto nei gruppi più difficili che richiedono una revisione. È auspicabile che questa pubblicazione stimoli ulteriori ricerche su questo interessante gruppo non solo sull'isola di Krk, ma anche su altre isole adriatiche. Questa lista aggiornata e rivista potrà servire come base per ulteriori ricerche. La fauna di Lepidotteri dell'isola di Krk conta ora 1663 specie confermate.

Parole chiave: Gelechiidae, Lepidoptera, isola di Krk, Croazia, biodiversità, distribuzione, ecologia, piante nutritive, Mediterraneo.

1. Introduction

The Gelechiidae (Lepidoptera) constitute a diverse family of small to medium-sized moths with worldwide distribution. With about 5,000 described species in ca. 500 genera the family Gelechiidae is among the most diverse families of so-called Microlepidoptera. They are especially diverse in semi-arid areas and mountains. Gelechiidae are overall rather small, often

dull-coloured, and are considered difficult to identify. Several genera are still not revised.

Croatia is a diverse country, and the knowledge of the Gelechiidae fauna in Croatia is still incomplete. According to GUMHALTER (2020), there are 195 species of this family published for Croatia. We clarified this list, excluding two synonymous species (*Megacraspedus separatellus* (Fischer von Röslerstamm, 1843) and *Megacraspedus subdolellus* (Staudinger, 1859)),

removing one repetition (*Carpatolechia decorella* (Haworth, 1812), and excluding *Oxypteryx libertinella* (Zeller, 1872) *Megacraspedus tristictus* Walsingham, 1910, *Pectinophora gossypiella* (Saunders, 1844), which are not occurring in Croatia. Additionally, two recently described species, *Anarsia innoxiella* Gregersen & Karsholt, 2017 and *Brachmia cretica* Berggren, Aarvik, Karsholt & Slagsvold 2023, have been added to the list based on material from Croatia (GREGERSEN & KARSHOLT 2017; BERGGREN et al. 2023). Missing from the list are also *Caryocolum blandulella* (Tutt, 1887), *Dichomeris neatodes* Meyrick, 1923, *Metzneria diffusella* Englert, 1974 and *Sophronia grandii* Hering, 1933 (KARSHOLT 2004-2023). Therefore, to our knowledge, the total number of published gelechid species for Croatia is 201.

Most of these are found along the coastline to the Adriatic Sea and some kilometers inland. This can be attributed to the favorable climate of the region as well as the increased collecting activity conducted by foreign lepidopterists who frequently visit the coastal areas.

The Microlepidoptera fauna of Krk Island was mainly studied by the late Austrian lepidopterist Heinz Habeler (1933-2017). He listed 64 species of Gelechiidae from the island (HABELER 1998, 2008) with some inconsistencies, also one synonym, therefore only 61 gelechid species were reported for the island. His collection is now stored in the Tiroler Landesmuseum in Innsbruck, Austria, and with the help of Peter Huemer working in this museum, we were able to check Habeler's specimens and revise some of his identifications. We also clarify the publication year of the book "Die Schmetterlinge der Adria-Insel Krk". Despite being labeled with a publication year of 2003, the book by HABELER (2008) was actually published in 2008. Delays in the preparation and printing process led to the discrepancy between the intended and actual publication dates. Hence, for accuracy, we refer to the true year of publication.

Most of the Gelechiidae found in Krk Island are living in dry forests and in pastures with low, mainly herbaceous vegetation, sometimes in the steppe type on calcareous soil, with larvae feeding on deciduous trees or lower plants. There are no high mountains, only few wetland localities and salt marshes on Krk. For more information on habitat types, see BALDIZZONE (2019). Larvae of some common gelechiid species feed on or in grasses (Poaceae), e.g. *Megacraspedus* and *Ephysteris* species, many others are more specialized, feeding on herbaceous plants, trees, shrubs or mosses. The Gelechiidae fauna of the island is dominated by small species, which is a characteristic of dry areas.

There is no endemic species of Gelechiidae for Krk. However, two species, which are endemic to Croatia, are known from this island: *Megacraspedus tokari*

Huemer & Karsholt, 2018 and *Scrobipalpa tokari* Huemer & Karsholt, 2010.

The island of Krk is the best-studied Croatian island in term of Lepidoptera. As the island is close to Central and Middle Europe and easily accessible via a bridge it is frequently visited by Lepidopterists. As a result of continuous exploration and collection, especially of Microlepidoptera, many specimens have been added to the lists of paratypes of new species, for instance, *Coleophora mareki* Tabell & Baldizzone, 2014. Furthermore, Krk is designated as locus typicus for the species which holotypes come from the island: *Elachista vegliae* Parenti, 1978, *Eudarcia dalmaticum* (Gae-dike, 1988), *Coleophora curictae* Baldizzone, 2016. The majority of species were published by HABELER (2008) in his book dedicated to the Krk Lepidopera fauna, with 1502 species. In addition, TREMATERRA & BALDIZZONE (2004) published 91 species of Tortricidae and GAEDIKE & BALDIZZONE (2008) provided data on 49 species of Tineidae, Epermeniidae and Acrolepiidae. The last contribution of the Coleophoridae of the island (BALDIZZONE 2019) mentioned 94 species for the island, of which 70 species were new records for the island. Taking into account all these publications, Krk remains the best-researched area in Croatian in respect to Lepidoptera fauna, with 1603 species, excluding data from the present contribution.

In this study, we investigated the diversity, distribution, and ecological aspects of Gelechiidae moths on Krk Island, located in the northern Adriatic Sea, Croatia. Through extensive field surveys and analysis of collected specimens, we provide insights into the moth fauna of this Mediterranean island and compiled an exhaustive check-list of Gelechiidae of Krk. Our findings contribute to the existing knowledge of the Croatian Lepidoptera fauna, by adding species that have not been previously recorded in the country, and by presenting new data on already known species.

2. Materials and Methods

2.1 Study area

The island of Krk, also known as Curicum or Veglia historically, is situated in the Kvarner Bay of the Northern Adriatic, along with several other islands, belonging to the so called Kvarner islands. It covers an area of 405.22 km², slightly smaller than Cres with 405.7 km² (KRK 2021). Krk Island stretches 38 km in length and up to 18 km in width, running almost parallel to the mainland. It is separated from the mainland by the Velebit Channel and Mala vrata, and it is surrounded by neighboring islands such as Plavnik, Cres, Prvić, Sveti Grgur, Goli otok, and Rab. The highest peak on the island is Obzova, reaching an elevation of 568

m. The relief of the island is diverse (fig. 1, 2). There are three basic geomorphological units: karst plateau in the northeast; hilly southeastern part; and lower undulating karst plateau in the west. It is composed mainly of carbonate rocks predominantly from the Cretaceous period. Limestone Paleogene breccia and foraminiferal limestone can be observed in smaller areas (BONACCI & VRSALOVIĆ 2022).

The landscape of Krk Island is diverse, with a significant portion of the island covered by pastures, predominantly utilized for sheep grazing. Being so far in north it does not belong totally to the Mediterranean vegetation zone but it has mixed, Mediterranean and Dinaric floristic elements, what makes the island very diverse in habitat types and their structure. The stony dry pastures, situated on a calcareous bedrock, are characterized by low vegetation consisting of Mediterranean herbs and grasses especially *Stipa pennata*. In the southern part of the island dry stony pastures with aromatic Mediterranean plants prevail, while the northern part features grass-dominated pastures, which can be dry or semi-dry, particularly in the valleys. One of the distinctive features of the Krk landscape is the terraced dry-stone walls covering the entire island. The eastern region of the island exhibits occasional springs and surface streams like Ričina or Vela rika, and it is also home to two larger freshwater lakes: Omišaljsko jezero in the north and Ponikve in the central area, serving as drinking water reservoirs. Vegetation in this part of the island includes marshy areas and reed beds, along with numerous ponds with marshy vegetation and watering holes for livestock.

Approximately 30% of Krk Island's surface is covered by forests, primarily sub-Mediterranean oak forests. However, the previously dominating black pine forests in the southern part of the island are declining due to climate change and pine tree diseases, as per our observations. With the abandonment of pastures, shrubland is gradually expanding, dominated by species such as *Juniperus oxycedrus*, *Cotinus coggygria*, *Rubus* spp., *Crataegus* spp., *Fraxinus ornus*, *Erica arborea*, *Pistacia terebinthus*, and *Paliurus spina-christi*. A small area of the island is covered by Mediterranean maquis, mainly found along the coast between Risika (Sv. Marek) and Vrbnik.

Coastal areas of Krk Island are characterized by halophytic vegetation adapted to withstand salt spray and clay soils (fig. 1 F). Common plant species found in these habitats include *Limonium* spp., *Salicornia* spp., *Atriplex* spp., *Artemisia* spp., *Limbara crithmoides*, *Chritmum maritimum*, *Juncus* spp., and others. Arable land can be found around Dobrinj, in the Vrbnik field, and in the Baška valley, where agriculture, livestock farming, vineyards, olive groves are practiced. Krk Island is home to 68 settlements (fig. 5), two of which are uninhabited. The island has a long history of hu-

man habitation, dating back to the Neolithic period. During the Roman era Krk (Curicum) and Fulfinij (Fulfinium) near Omišalj were significant settlements. Throughout history, the island's inhabitants primarily relied on agriculture, fishing, and salt production. Today, Krk Island has become a popular tourist destination, easily accessible from the mainland via a bridge. However, the rapid growth of tourism infrastructure is causing the destruction of primary natural habitats, particularly along the coast. Agricultural areas, such as pastures, are being abandoned, with tourism becoming the main source of income. Additionally, sheep pastures are gradually being replaced by cattle grazing practices or abandoned. This abandoned shrubland is now more and more dominating on the island, especially in the interior of the island.

The island of Krk is located in a zone of moderate and mild Mediterranean climate. The average summer temperature is 23°C, with the average sea temperature ranging around 20°C from June to September (CROATIAN METEOROLOGICAL AND HYDROLOGICAL SERVICE 2023, LONELY PLANET 2023, WEATHER AND CLIMATE.COM 2023). The climate on the island is characterized by hot, dry summers and mild, rainy winters. Krk reflects the general characteristics of the Mediterranean climate found along the coastal areas of the Adriatic Sea. According to the Köppen-Geiger climate classification, Krk falls under the climate type designation Cfa. This means that summers are warm, with average temperatures ranging between 23°C and 28°C, while winters are mild with average temperatures between 6°C and 11°C. Northern part of the island is cooler, and the south part from Punat to Stara Baška is warmer up to 4 to 5°C in average. This small climate differences are also influencing diversification of habitats and vegetation on the island. Krk Island is also among the sunniest parts of Europe, with 2500 sunny hours per year.

The most frequent winds on Krk Island are the "bura" (northeastern wind), "jugo" (southern wind), and maestral (northwestern wind). The jugo wind blows more often in the northern and southwestern parts of the island, while the bura wind prevails in certain central and northern areas. The bura is a strong and dry north wind that can significantly influence temperature and weather conditions on the island, thus impacting the Lepidoptera fauna. Krk Island has an average annual precipitation of 1513 mm. The wettest month is November, with 178 mm of precipitation, while July is the driest month with 88 mm of precipitation. The northern part of the island, closer to the mainland, tends to be wetter than the southern part, and the same applies to temperature variations, where southern part is significantly warmer than the northern part.

A study conducted by BONACCI VRSALOVIĆ (2022) on climate change on the island of Krk suggests that



A



B



C



D



E



F



G



H

Fig. 1 - Habitats characteristics on the island of Krk. A – Malmašuta, border between pine forest and sheep pastures, 19.VI.2021; B – Hrusta close to Stara Baška, 19.VI.2021; C - 20.VII.2018; D – Sheep pastures on Veli vrh, 14.VI.2004; E - Malmašuta, 14.VI.2004; F – Soline, 9.IX.2005; G – view from Malmašuta to Baška valley, 19.VI.2021; H - Sheep pastures on Veli vrh with ponds, 14.VI.2004. Photo: S. Gomboc.

- Habitat caratteristici dell'isola di Krk. A – Malmašuta, confine tra la pineta e i pascoli ovini, 19.VI.2021; B – Hrusta presso Stara Baška, 19.VI.2021; 20.VII.2018; D – Pascoli ovini sul Veli vrh 14.VI.2004; E - Malmašuta, 14.VI.2004; F – Soline, 9.IX.2005; G – Vista della valle di Baška da Malmašuta; H – Pascoli ovini con stagni sul Veli vrh 14.VI.2004. Foto: S. Gomboc.

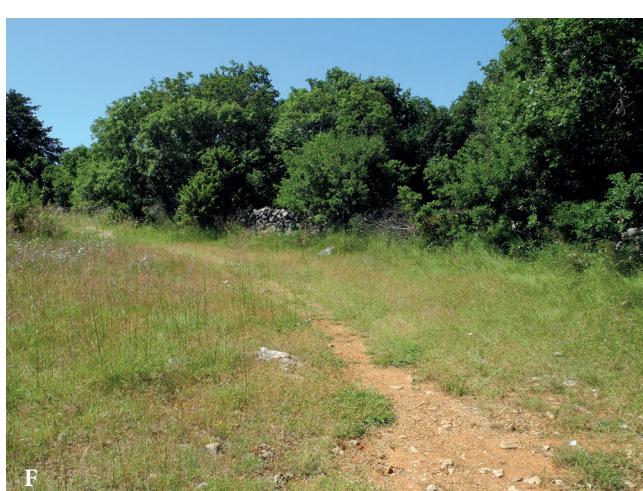


Fig. 2 - Habitats characteristics on the island of Krk. A – Black pine forest above Baška, Sv. Ivan, 1.VII.2007; B – The mixed steppe grassland and shrubland, Negrit, 14.V.2021; C – Young forest succession on Malmašuta, 25.IX.2003; D – Sheep pastures in northern part of the island near Čižići, 25.III.2002; E – Sheep pasture on southern part on Veli vrh, 2.X.2002; F – Dry meadow with oak forest, Mestinjak, 15.V.2021. Photo: S. Gomboc (A, C, E), G. Baldizzone (B, D, F).

- Habitat caratteristici dell'isola di Krk. A. – Pineta di pino nero sopra Baška, Sv. Ivan, 1.VII.2007; B – Steppa mista erbacea e arbustiva, Negrit, 14.V.2021; C – Giovane successione forestale a Malmašuta, 25.IX.2003; D – Pascoli ovini nella parte settentrionale dell'isola presso Čižići, 25.III.2002; E – Pascoli ovini nella parte meridionale del Veli vrh, 2.X.2002; F – Prato arido con bosco di querce, Mestinjak, 15.V.2021. Foto: S. Gomboc (A, C, E), G. Baldizzone (B, D, F).

the island's climate is changing rapidly, primarily due to global warming. The analysis of sea and air temperatures indicates that global warming has a greater impact in the northern Adriatic than in the southern Adriatic. Air and sea surface temperatures show a more pronounced upward trend on Krk compared to the Dalmatian island of Lastovo. Similarly, the Adriatic region exhibits a more positive trend in sea temperatures compared to the Mediterranean Sea as a whole.

The study by BENAC et al. (2021) also observes changes in precipitation patterns occurring during different seasons, with increased rainfall in autumn and decreased precipitation during summer, resulting in drier and hotter summer conditions on the island. These climate changes on the island of Krk can have significant implications for the environment, agriculture, and tourism. Rising temperatures are already impacting the island's fauna as we observed in Orthoptera fauna, with significant decline of some species (*Prionotropis hystrix*, *Arcyptera brevipennis*, *Oedaleus decorus*) in the southern part of the island.

2.2 Data collection, fieldwork and data presentation

For this contribution, we studied data in the literature known to us, which is quite recent (HABELER

1998, 2008; ŠUMPICH & SKYVA 2012; ŠUMPICH 2013). We reviewed the published findings in the literature and checked the species identifications based on our records and revised collection data of Heinz Habeler, stored in Tiroler Landesmuseum Ferdinandeum, Innsbruck, Austria. Additionally, we included our unpublished data, collected during previous several decades. The review of gelechid species, thus, includes the first comprehensive review of Gelechiidae recorded on the island.

The second author has been regularly visiting Krk Island since 1967, collecting moths intensively. Since retiring from professional work in 2001, he has been spending a few months on the island every year. The third author has been studying the island's fauna since 1996, making numerous visits to gather data on fauna and collect additional specimens of poorly known species.

The gelechids were collected mainly at night time. During day time, the moths were searched on the vegetation across the island by observing vegetation and sweeping the vegetation by net, especially before dusk. For the night observations, pyramidal-shape tents with 2 UV super actinic tubes (Philips TLD 05/15 W), powered with Lead acid batteries were used. This pyramidal tents were placed in a long transects to cover larger area in possibly different habitat types for better results. Alltogether, from 2 to 17 pyramids

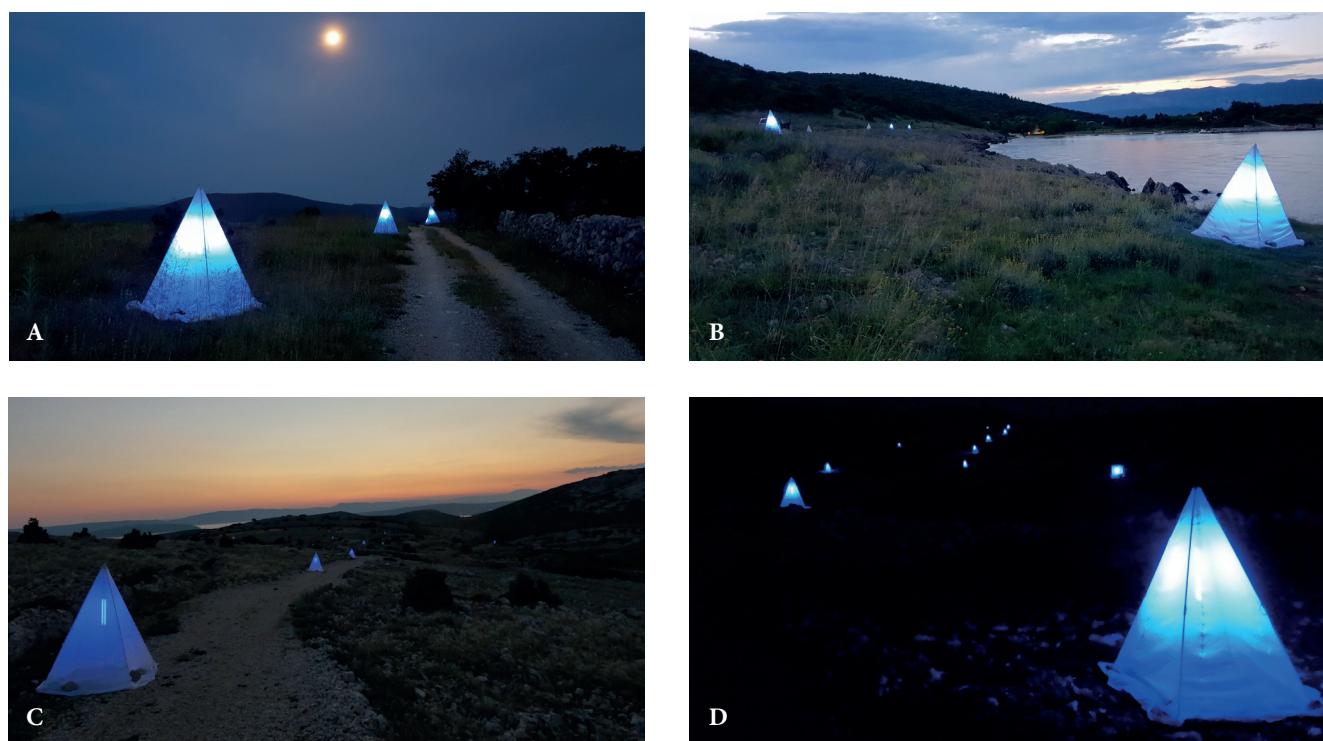


Fig. 3 - Pyramidal-shaped tents designed to attract night active moths. A – Garica, 15.VI.2019; B – Risika, Sv. Marek, 19.VI.2020; C, D - Stara Baška, Hrusta, 6.V.2016. Photo: S. Gomboc.
- Tende piramidali per attirare i lepidotteri notturni. A - Garica, 15.VI.2019; B - Risika, Sv. Marek, 19.VI.2020; C, D - Stara Baška, Hrusta, 6.V.2016. Foto: S. Gomboc.

were placed in a locality per night to attract the moths (fig. 3).

The second author used the "Jäckh lamp" for moth attraction purposes between 1970 and 2016 (fig. 4). This trap consisted of an aluminum structure with three neon tubes: one actinic, one Wood's light, and one white, each with a power of 15 W. Only two tubes could be turned on simultaneously, and the most effective combination for attraction was the actinic and Wood's light tubes. The lamps were powered with a motorcycle battery (Lead acid batteries), with capacity at least 18 Ah. The lamp was attached to a wire supported by two uprights, and a cloth was stretched behind it, hanging from a parallel wire. The four ends of the two wires were secured to the ground with pegs, creating a structure resembling a tent. The white sheet, measuring 150 cm in height and 140 cm in width, was divided into two flaps at its base, resting on the ground and extending 70 cm on each side. Additionally, in biotopes that were difficult to access, the second author occasionally utilized a trap with a Wood's light lamp featuring an 8 W tube, powered by a small lithium battery.

Most of easily recognizable specimens were identified on-site. For documentation and further identifi-

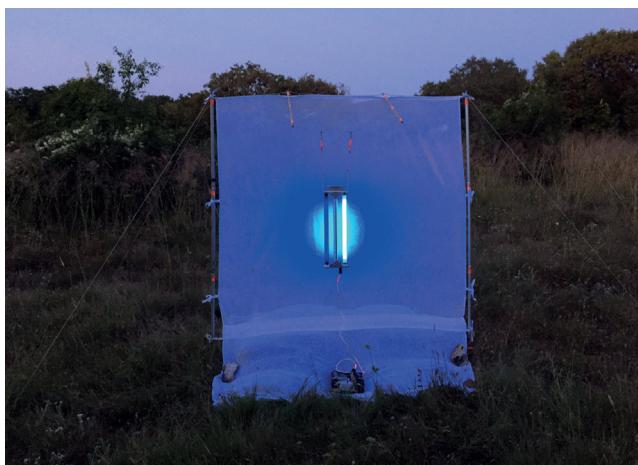


Fig. 4 - "Jäckh lamp" for attraction of night active moths, Mestinjak, 7.VII.2016. Photo: G. Baldizzone.
- "Lampada di Jäckh" per attirare i lepidotteri notturni, Mestinjak, 7.VII.2016. Foto: G. Baldizzone.

cation, many species were photographed. In problematic groups, specimens were collected and set for further identification. This material is preserved in the authors' private collections and several specimens are kept in the ZMUC (Zoological Museum, Natural History Museum of Denmark, Copenhagen). The specimens were identified by adult external characters, based on the comparative collection and different identification keys; in case of closely related species, male or female genitalia were dissected. The identifica-

tion of the material was a collaborative effort involving all authors. However, the first author, being specialist of the family, particularly focused on confirming the identification of the majority of the material, especially challenging and closely related species, and he checked at least one specimen of each species in the checklist below.

Overall, 31 localities were visited across the island for studying the gelechids (fig. 2), mostly interesting habitats and places accessible by vehicles for night observations.

We used ESRI ArcGIS Pro 3.1 software for mapping sampling localities (fig. 5). For the base map, ESRI topographic map layers from ArcGIS online version were utilized (<https://www.arcgis.com/>).

Field research was carried out in accordance with the permits of the Ministry of Environmental Protection and Energy, for several years of research, for example CLASS: UP/I-612-07/20-48/103, UR NO: 517-05-1-1-20-4 and Ministry of Economy and Sustainable Development CLASS: UP/I-352-04/22-08/73, UR NO: 517-10-1-1-22-3.

The photos of live specimens, which are inserted between the species list, are sourced from Thierry Varenne's website, PATHPIVA. We are grateful to Thierry Varenne for making these photos available for this contribution. All specimens were photographed in southern France and closely resemble those of the same species collected on the island of Krk. The wing-span of each specimen is indicated in brackets.

Species in the checklist are listed systematically. Systematics and species names used in this contribution are following the most recent checklist of European Gelechiidae (HUEMER & KARSHOLT 2020).

3. Results

3.1 General part

This contribution discusses and reports a total of 121 Gelechiidae species found on the Croatian Island of Krk. The species number could be slightly higher as some specimens are still awaiting identification. Out of these, 61 species have previously been documented in earlier studies (HABELER 1998, 2008; ŠUMPICH & SKYVA 2012; ŠUMPICH 2013). However, through revision and additional surveys, we have confirmed the presence of an additional 60 species on the island, and have also gathered supplementary data for the known species. Three species already mentioned in HABELER (2008) were misidentified: *Recurvaria thomeriella* (Chrétien, 1901) mentioned already in HABELER (2008), *Anacampsis scintillella* (Fischer von Röslers-tamm, 1840) and *Pectinophora gossypiella* (Saunders, 1844) and one was reported as a synonym.



Fig. 5 - A map of Croatia and the island of Krk, highlighting the settlements and investigated localities.

- Mappa della Croazia e dell'isola di Krk con l'indicazione degli insediamenti abitativi e le località in cui si sono svolte le ricerche.

It is also important to note that out of this 121 confirmed species, 11 are reported for Croatia for the first time. They are: *Aproaerema wormiella*, *Hypatima rhomboidella*, *Dactyloptula altithermella*, *Lanceoptera panochora*, *Tiranimia epidolella*, *Monochroa hornigi*, *Scrobipalpa pauperella*, *Scrobipalpa ergasima*, *Caryocolum proxima*, *Teleiodes italicica* and *Carpatolechia fugacella*.

The species richness varied among different habitats, with higher diversity observed in forested areas and

meadows. Several Gelechiidae moths showed specific associations with particular host plants, highlighting their role as specialized herbivores. These associations are presented at each species in the continuation of the paper.

The highest number of species, 42 and 38, respectively, were observed in Hrusta and Misučajnica. Another interesting locality is Malmašuta, where 34 species were recorded. These localities are known for their dry steppe-like meadows, featuring a diverse

range of vegetation such as meadows, pastures, shrubs, and partially forested areas

We also confirmed a three non-native or alien gelechid species on the island, which have been introduced with agricultural products. One, which was recently established in Croatia, is *Tuta absoluta* on tomato (GOTLIN ČULJAK et al. 2010); the other two were introduced much earlier with potato tubers (*Phthorimaea operculella*) or grains (*Sitotroga cerealella*). In addition, *Lanceoptera panochora* may have originated from South Africa, as discussed below.

We obtained additional bionomic and flight period data for many gelechid species. Findings of many species provided an important contribution to the knowledge of the distribution of moth species in Croatia. Here we present an updated list of gelechid species found on the island. The list of recorded species on the island is given below in brief species essays.

3.2 A Systematic checklist of Gelechiidae of the island of Krk

Gelechiidae

Anacampsinae

Anacampsini

1. *Stomopteryx basalis* Staudinger, 1876

Records: Hlam, Branušine, 25.VII.2008, leg. Baldizzone; Krk (town), 10.VIII.1972, 6.VII.2011, leg. Baldizzone.

Host plants: Unknown.

Distribution: Iberian Peninsula, France, incl. Corsica, Italy, incl. Sicily, Malta, Greece, incl. Crete, Cyprus. Krk (HABELER 2008: 108; ŠUMPIČH & SKYVA 2012: 173).



Fig. 6 - *Stomopteryx basalis* (14 mm). Photo: Th. Varenne.

2. *Stomopteryx remissella* (Zeller, 1847)

Records: Čižići-Rudine, 25.VII.1996, leg. Gomboc;

Str. Vrnik, Sv. Marek, 19.VI.2020, 26.VI.2022, leg. Baldizzone; Hlam, Branušine, 25.VII.2018, leg. Baldizzone; Obzova, Malmašuta, 16.VII.2001, leg. Baldizzone; Picik, 21.V.2018, 10.VI.2019, leg. Baldizzone; Punat, 11.VII.1999, 14.VII.1999, 16.VII.1999, leg. Gomboc; Punat, footpath to Veli vrh, 20.VII.1999, leg. Gomboc; Punat, Konobe, 26.V.2018, leg. Baldizzone; Str. Punat-Stara Baška, Trstenova, 18.VI.2013, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 13.VI.1997, 19.VII.1999, leg. Gomboc, 18.VI.2021, leg. Baldizzone; Vrnik, Sv. Marek, 19.VI.2020, leg. Gomboc.

Host plants: Not known with certainty.

Distribution: Widely distributed in Europe, especially in the Mediterranean countries and Balkan, northwards to Sweden and eastwards to Russia. Krk (HABELER 2008: 108).

3. *Aproaerema patruella* (Mann, 1857)

Records: Vrnik, Sv. Marek, 19.IV.2014, leg. Baldizzone; Str. Garica-Vrnik, Kolmanica, 12., 21.VII.2021, leg. Baldizzone; Obzova, Vrske, 13.VII.2018, leg. Baldizzone; Punat, Negrit area, 8.VI.2021, 10.VIII.2021, leg. Baldizzone; Punat, Konobe, 26.V.2018, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 19.VII.1999, leg. Gomboc, 3.V.2017, 27.V.2018, leg. Baldizzone, 20.VII.2018, leg. Gomboc & Baldizzone, 8.VI.2021, 11.VI.2021, 19.V.2022, leg. Baldizzone.

Host plants: *Hippocrepis comosa* (Fabaceae).

Distribution: Widely distributed in Central, East and South Europe. Krk (HABELER 2008: 108).

4. *Aproaerema coronillella* (Treitschke, 1833)

Records: Picik, 6.V.2002, 29.IV.2007, leg. Baldizzone.

Host plants: *Securigera varia* (Fabaceae).

Distribution: Central and South Europe from Spain to Russia; Turkey.

5. *Aproaerema sangiella* (Stainton, 1863)

Records: Kras, 27.VII.1977, leg. Baldizzone; Vrh, 26.VII.1977, leg. Baldizzone; Obzova, Malmašuta, 2.VI.2018, leg. Gomboc & Baldizzone.

Host plants: *Lotus corniculatus*, in the Alps also *L. delortii* (Fabaceae).

Distribution: Most of Europe including Russia; Turkey.

6. *Aproaerema wormiella* (Wolff, 1958)

Records: Misučajnica, 11.VIII.1974, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; Punat, Negrit area, 16.VIII.2020, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 27.V.2018, leg. Baldizzone.

Host plants: *Lotus corniculatus* (Fabaceae).

Distribution: Disjunctive in North and Central Europe, Italy and Ukraine, Croatia (this study). Also recorded from Far East Russia.



Fig. 7 - *Aproaerema wormiella* (10 mm). Photo: Th. Varenne.

7. *Aproaerema taeniolella* (Zeller, 1839)

Records: Čižići-Rudine, 20.VIII.2001, leg. Gomboc; Čižići, 18.VII.1999, leg. Gomboc; Vrbnik, 5.VIII.1969, leg. Baldizzone; Vrbnik, Mali Hlam, 24.VIII.2001, leg. Gomboc; Misučajnica, 11.VIII.1974, leg. Baldizzone; Hlam, Branušine, 10.VII.2015, leg. Baldizzone; Obzova, Malmašuta, 17.VII.1999, leg. Gomboc; Krk city surroundings, 19.VI.2001, leg. Gomboc; Punat, 17.VI.1997, 11.VII.1999, 14.VII.1999, leg. Gomboc; Punat, Konobe, 12.VII.1999, leg. Gomboc.

Host plants: *Lotus corniculatus*, *L. pedunculatus*, *Medicago* spp., *Tetragonolobus* spp. and *Trifolium* spp. (Fabaceae).

Distribution: Almost all of Europe, Turkey, Near East. Krk (HABELER 2008: 108; ŠUMPICH 2013: 25).

8. *Aproaerema captivella* (Herrich-Schäffer, 1854)

Records: Kampelje, Matjev Stan, 1., 18.VIII.2006, leg. Baldizzone.

Host plants: *Cytisus scoparius* and *Genista hystrix* (Fabaceae).

Distribution: Central Europe, southwards to Portugal, Croatia, Romania.

9. *Aproaerema polychromella* (Rebel, 1902)

Records: Str. Garica-Vrbnik, Kolmanica, 18.VII.2018, 20.VII.2022, leg. Baldizzone; Str. Stara Baška, Hrusta,



Fig. 8 - *Aproaerema polychromella* (10 mm). Photo: Th. Varenne.

23.IV.2000, leg. Gomboc, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec.

Host plants: *Astragalus unifoliolatus* A. turczanicowii (Fabaceae, not recorded for the island Krk); probably also *Cytisus scoparius* and *Lotus* spp. (Fabaceae).

Distribution: Mediterranean countries; Africa, Near East and India. In recent years mostly as singletots in several areas in NW Europe, probably due to migration. Krk (HABELER 2008: 108).

10. *Aproaerema anthyllidella* (Hübner, 1813)

Records: Njivice, Jezero, 15.VII.2008, leg. Baldizzone; Čižići, 18.VII.1999, leg. Gomboc; Vrbnik, Sv. Marek, 6., 12.IX.2022, leg. Baldizzone; Vrbnik, Mali Hlam, 18.VIII.2001, leg. Gomboc; Str. Garica-Vrbnik, Kolmanica, 1.VIII.2017, 18.VII.2018, leg. Baldizzone, 15.IX.2019, leg. Gomboc, Baldizzone & Zadravec, 21.VII.2020, 12.VIII.2020, leg. Baldizzone; Kampelje, south pastures, 24.X.1999, leg. Gomboc; Kampelje, Matjev Stan, 17.VIII.2001, 2.VIII.2002, 30.IV.2004, 28.VII.2005, 18.VIII.2006, 15.VII.2007, 18.VII.2017, leg. Baldizzone; Kampelje, Bačini-Drmuni, 9.IX.2021, leg. Baldizzone; Misučajnica, 18.VIII.1973, 13-19.VIII.1974, leg. Baldizzone; Hlam, Branušine, 10.VI.2010, 5., 10., 16.VII.2015, 11.VIII.2015, 3.IX.2015, leg. Baldizzone; Str. Poljica-Čavlena, 30.VIII. 2018, leg. Baldizzone; Picik, 19.VIII.2001, 6.V.2002, 22.VIII.2002, 2.V.2004, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; Obzova, Vrske, 13.VII.2018, leg. Baldizzone; Draga Baščanska, 31.VII.1977, leg. Baldizzone; Punat, 30.IX.2003, 7.V.1999, 10.X.1999, 22.IV.2000, 20.IX.2003, 27.IX.2003, leg. Gomboc; Punat, surroundings, 11.VI.2004, leg. Gomboc; Punat, Konobe, 16.VI.2004, 18.VI.2001, leg. Gomboc; Punat, Negrit area, 16.VIII.2020, 6.IX.2020, 10.VIII.2021, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 27.VII.1996, 23.IX.2003, leg. Gomboc, 25.VI.2016, 26.V.2017, leg. Baldizzone, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec, 14.X.2017, leg. Gomboc & Zadravec, 31.V.2018, 20.VII.2018, 10.V.2022, leg. Baldizzone.

Host plants: *Anthyllis vulneraria*, *Chamaecytisus* spp., *Coronilla* spp., *Dorycnium* spp., *Galega officinalis*, *Lathyrus* spp., *Lotus corniculatus*, *Medicago sativa*; *Melilotus* spp., *Onobrychis viciifolia*, *Ononis campestris*, *O. repens*, *Oxytropis pilosa*, *Phaseolus vulgaris*, *Medicago monspeliaca*, *Trifolium pratense* and *T. repens* (Fabaceae).

Distribution: Widely distributed in Europe, extending to Korea and Japan. Krk (HABELER 2008: 108).

11. *Iwaruna klimeschi* Wolff, 1958 (Fig. 34 A)

Records: Njivice, Jezero, 15.VII.2008, leg. Baldizzone; Kras, 27.VII.1977, leg. Baldizzone; Str. Poljica-Čavlena, 2.VII.2007, leg. Baldizzone; Draga Baščanska, 1.VIII.1977, leg. Baldizzone.

Host plants: *Dorycnium germanicum*, *Lotus corniculatus*, *Medicago falcata*, *M. sativa* and *Trifolium pratense* (Fabaceae).

Distribution: Central and eastern Europe.

12. *Anacampsis timidella* (Wocke, 1887)

Records: Čižići, 18.VII.1999, leg. Gomboc; Dolo-vo, 12.VII.2007, leg. Baldizzone; Paprata, 8.VIII.1983, leg. Baldizzone; Vrbnik, Mali Hlam, Treskavac, 17.VI.2001, leg. Gomboc; Str. Garica-Vrbnik, Kol-manica, 12.VIII.2020, 16.VII.2021, leg. Baldizzone; Kampelje, Bačini-Drmuni, 25.VIII.2022, leg. Baldiz-zone; Hlam, Branušine, 20., 22.VI.2013, leg. Baldiz-zone; Hlam, Mestinjak, 14.VII.2015, leg. Baldizzone; Str. Poljica-Čavlena, 27.VII.2020, 30.VIII.2020, leg. Baldizzone; Picik, 19.VIII.2001, leg. Baldizzone; Obzova, Malmašuta, 16.VII.2001, leg. Baldizzone; Draga Bašćanska, 3.VIII.1976, 28.VII.1999, leg. Baldizzone; Punat, 4.VI.1999, 11.VII.1999, leg. Gomboc; Punat, Negrit area, 10.VIII.2021, leg. Baldizzone; Punat, Konobe, 21.VII.1996, 15.VI.1997, 16.VI.2001, leg. Gom-boc; Str. Punat-Stara Baška, Trstenova, 18.VI.2013, leg. Baldizzone.

Host plants: *Quercus* spp. (*robur*, *pubescens*, *cerris*, etc.) (Fagaceae).

Distribution: South, South-West and West Europe; Near East, Caucasus. Krk (HABELER 2008: 108, as *A. querrella*).



Fig. 9 - *Anacampsis timidella* (15 mm). Photo: Th. Varenne.

13. *Anacampsis obscurella* (Denis & Schiffermüller, 1775)

Records: Čižići-Rudine, 20.VIII.2001, leg. Gomboc; Kampelje, Matjev Stan, 28.VII.2003, 13.VIII.2004, leg. Baldizzone; Hlam, Branušine, 18.VII.2016, leg. Baldiz-zone; Obzova, Malmašuta, 10.VII.2020, leg. Baldizzo-ne; Punat, 16.VII.1999, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 27.VII.2018, leg. Baldizzone.

Host plants: *Salix* spp. (Salicaceae), *Cerasus avium*, *C. vulgaris*, *Cotoneaster integerrimus*, *Crataegus laevigata*, *Prunus domestica*, *P. spinosa*, *Sorbus* spp. (Rosaceae).

Distribution: Central and South Europe, eastwards to the Urals and Caucasus. Krk (HABELER 2008: 108).

14. *Mesophleps corsicella* Herrich-Schäffer, 1856

Records: Punat, Konobe, 12.VII.1999, leg. Gomboc.

Host plants: *Cistus* spp. and *Helianthemum* spp. (Cistaceae).

Distribution: Southern Europe from Portugal to Croatia and Greece; Morocco, Lebanon. Krk (HABELER 2008: 108).

15. *Mesophleps silacella* (Hübner, 1796)

Records: Draga Bašćanska, 14.VIII.1974, leg. Baldiz-zone.

Host plants: *Helianthemum nummularium*, *H. tuberosum* and *Fumana procumbens* (Cistaceae).

Distribution: Disjunctive in North Europe; widely distributed in Central and South Europe to Russia; North Africa, Turkey. Krk (HABELER 2008: 108).



Fig. 10 - *Mesophleps corsicella* (12 mm). Photo: Th. Varenne.

16. *Mesophleps oxycedrella* (Millière, 1871)

Records: Hlam, Mestinjak, 14.VII.2015, leg. Baldiz-zone; Hlam, Branušine, 10.VII.2015, 24.VII.2019, leg. Baldizzone; Misučajnica, 12.VIII.1974, 30.VII.1975, 30.VII.1976, 4.VIII.1976, 29.VII.1977, leg. Baldizzo-ne; Obzova, Malmašuta, 16.VII.2001, leg. Baldizzone; Draga Bašćanska, 13.VIII.1978, leg. Baldizzone; Str. Punat-Stara Baška, Konobe, 26.V.2018, leg. Baldizzone.

Host plants: *Juniperus oxycedrus*, *J. phoeniceus*, *J. macrocarpus* (Cupressaceae).



Fig. 11 - *Mesophleps oxycedrella* (12 mm). Photo: Th. Varenne.

Distribution: Spain, Portugal, France, Italy, Croatia, and the Canary Islands. Krk (HABELER, 1998: 38; HABELER 2008: 109).

17. *Mesophleps trinotella* (Herrich-Schäffer, 1856)

Records: Str. Garica-Vrnik, Kolmanica, 6.VII.2019, leg. Baldizzone; Kampelje, Bačini-Drmuni, 8.VI.2021, 28.VII.2021, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 27.VII.2018, 8.VI.2021, 15., 19.V.2022, leg. Baldizzone.

Host plants: *Erysimum cheiri*, *E. marschallianum*, *E. hieracifolium*, *Moricandia arvensis* (Brassicaceae).

Distribution: Southern Europe, Croatia, Czech Republic, Hungary, Cyprus, Turkey, North Africa.

Chelariini

18. *Nothris congressariella* (Bruand, 1858)

Records: Obzova, Malmašuta, 16.VI.1997, leg. Gomboc; Punat, 4.VI.1999, leg. Gomboc.

Host plants: *Scrophularia scorodonia* (Scrophulariaceae).

Distribution: SW Europe, northwards to south-western part of the British Isles; Croatia, North Macedonia, Greece; Turkey, Canary Islands, Tunisia. Krk (HABELER 2008: 109).



Fig. 12- *Nothris congressariella* (20 mm). Photo: Th. Varenne.

19. *Nothris lemniscellus* (Zeller, 1839)

Records: Obzova, Malmašuta, 23.VIII.1997, leg. Gomboc.

Host plants: *Globularia punctata* (Plantaginaceae) and *Anthyllis vulneraria* (Fabaceae).

Distribution: Central and South Europe. Also recorded from the Ural Mountains, Altai Mountains and southern Siberia. Krk (HABELER, 1998: 38; HABELER 2008: 109).

20. *Nothris verbascella* (Denis & Schiffermüller, 1775)

Records: Hlam, Branušine, 24.VII.2019, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 4.VI.2018, leg. Baldizzone.

Host plants: *Verbascum* spp. (Scrophulariaceae).

Distribution: Europe, northwards to central Scandi-

navia, Russia; North Africa, Middle East, Turkey and Turkmenistan. Krk (Habeler 2008: 109).

21. *Hypatima rhomboidella* (Linnaeus, 1758)

Records: Punat, 26.VIII.2008, leg. Gomboc.

Host plants: *Betula pendula* and *Corylus avellana* (Betulaceae).

Distribution: Northern and Central Europe, eastwards to East Asia. Croatia (this study).



Fig. 13- *Hypatima rhomboidella* (19 mm). Photo: Th. Varenne.

22. *Anarsia lineatella* Zeller, 1839

Records: Vrnik, Mali Hlam, Treskavac, 17.VI.2001, leg. Gomboc; Str. Garica-Vrnik, Kolmanica, 18.VII.2018, leg. Baldizzone, 15.VI.2019, leg. Gomboc & Baldizzone; Punat, Konobe, 16.VI.2001, leg. Gomboc.

Host plants: *Amygdalus communis*, *Cerasus* spp., *Malus sylvestris*, *Persica vulgaris*, *Prunus domestica*, *P. armeniaca*, *P. spinosa* (Rosaceae), *Acer campestre* and *A. tataricum* (Sapindaceae).

Distribution: Widespread in Central and southern Europe and North Africa, eastwards through the Middle East and Turkey to Central Asia and China; introduced to North America. Krk (HABELER 2008: 108).

23. *Anarsia innoxiella* Gregersen & Karsholt, 2017

Records: Vrnik, Sv. Marek, 22.VI.2022, leg. Baldizzone; Str. Garica-Vrnik, Kolmanica, 16.VII.2021, leg. Baldizzone; Kampelje, Bačini-Drmuni, 28.VII.2021, leg. Baldizzone; Hlam, Branušine, 20.VI.2013, 5.VII.2015, 7.VII.2015, leg. Baldizzone; Punat, footpath to Veli vrh, 20.VII.1999, leg. Gomboc.



Fig. 14 - *Anarsia innoxiella* (14 mm). Photo: Th. Varenne.

Host plants: *Acer* spp. (Sapindaceae).
Distribution: Widespread in Europe from Finland to Greece; Turkey and Iran.

24. *Anarsia spartiella* (Schrank, 1802)

Records: Str. Vrbnik-Garica, Kolmanica, 15.VI.2019, leg. Gomboc & Baldizzone; Punat, surrounding, 11.VI.2004, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 18.VI.2021, leg. Baldizzone.

Host plants: *Cytisus scoparius*, *Genista pilosa*, *G. tinctoria*, *Ulex europaeus* and other Fabaceaeae.

Distribution: West-, South-West and Central Europe, Turkey, the Caucasus, Near East.

Remarks: *A. spartiella* is part of a species complex, and the identity of the Croatian specimens should be considered as tentative. Krk (HABELER 1998: 108).

Dichomeridinae

25. *Dichomeris acuminatus* (Staudinger, 1876)

Records: Kampelje, Matjev Stan, 29.VIII.2020, leg. Baldizzone; Punat, 10.X.1999, leg. Gomboc; Punat, Konobe, 9.X.1999, leg. Gomboc; Punat, Negrit area, 6.IX.2020, leg. Baldizzone.

Host plants: *Medicago sativa*, *Dorycnium rectum* and probably also other Fabaceae.

Distribution: Widely distributed in subtropical and tropical parts of the world. In Europe in the Mediterranean countries and on the Macaronesian islands.

26. *Dichomeris marginella* (Fabricius, 1781)

Records: Hlam, Branušine, 3.VIII.2015, 3.IX.2016, leg. Baldizzone; Misučajnica, 17., 20.VIII.1973, leg. Baldizzone; Punat, 25.VIII.1997, 19.VIII.2001, leg. Gomboc.

Host plants: *Juniperus communis* (Cupressaceae). Since *Juniperus oxycedrus* is widespread on the island Krk, it is probable that the species develops on this plant.

Distribution: Widespread in Europe, W Russia to the Caucasus, Transcaucasia and Altai; introduced to N America. Krk (HABELER 2008: 109).



Fig. 15 - *Dichomeris marginella* (18 mm). Photo: Th. Varenne.

27. *Dichomeris derasella* (Denis & Schiffermüller, 1775)

Records: Soline, 30.IV.2007, leg. Baldizzone; Poljica, 15.VII.2012, leg. Baldizzone; Punat, 11.VII.1999, leg. Gomboc.

Host plants: Rosaceae, such *Cerasus* spp., *Crataegus* spp., *Malus sylvestris*, *Prunus spinosa* and probably also *Rubus* spp.

Distribution: Central and southern Europe; Turkey; throughout Russia to Korea and Japan. Krk (HABELER 1998: 38; HABELER 2008: 109).

28. *Dichomeris alacella* (Zeller, 1839)

Records: Vrbnik, Sv. Marek, 12.IX.2022, leg. Gomboc, Baldizzone; Vrh, 1.VIII.1975, leg. Baldizzone; Kampelje, 5.VIII.2004, 28.VII.2005, leg. Baldizzone, Kampelje, 22.VII.2016, leg. Gomboc, Baldizzone & Zadravec; Hlam, Branušine, 26.VII.2015, leg. Baldizzone; Punat, 17.VI.1997, 11.VII.1999, leg. Gomboc.

Host plants: Moss and lichens growing on tree trunks and fences.

Distribution: Widespread in Europe, W Russia, the Caucasus to Iran. Krk (HABELER 2008: 109).

29. *Acompsia cinerella* (Clerck, 1759)

Records: Hlam, Branušine, 10.VII.2015, leg. Baldizzone; Punat, 26.VIII.2008, leg. Gomboc; Punat, Kono-be, 12.VII.1999, 26.X.1999, leg. Gomboc.

Host plants: Imperfectly known, probably on mosses and/or lower plants.

Distribution: Widespread in Europe except the arctic, to Turkey and Kazakhstan. Krk (HABELER 2008: 109).

30. *Brachmia blandella* (Fabricius, 1798)

Records: Soline, 24.VIII.1997, leg. Gomboc.

Host plants: Not fully clarified; most likely decayed or dry plant material.

Distribution: Widespread in Europe to the Middle East; in Russia northwards to the Arkhangelsk oblast.

31. *Helcystogramma triannulella* (Herrich-Schäffer, 1854)



Fig. 16 - *Helcystogramma triannulella* (16 mm). Photo: Th. Varenne.

Host plants: *Convolvulus arvensis*, *Ipomoea batatas*, *I. alba*, *I. aquatica*, *Pharbitis nil*, *Calystegia sepium* (Convolvulaceae) and *Hibiscus syriacus* (Malvaceae).

Distribution: Widely distributed in South and Central Europe; throughout Asia to China, Japan and India. Krk (HABELER 2008: 109; ŠUMPICH 2013: 26).

32. *Helcystogramma lutatella* (Herrich-Schäffer, 1854)

Records: Čižići, 18.VII.1999, leg. Gomboc; Soline, 25.VII.1977, leg. Baldizzone (ZMUC); Garica, 24.VII.1977, leg. Baldizzone; Obzova, Malašuta, 17.VII.1999, leg. Gomboc; Draga Bašćanska, 31.VII.1975, leg. Baldizzone; Punat, 11.VII.1999, 14.VII.1999, 16.VII.1999, leg. Gomboc; Punat, Konobe, 12.VII.1999, leg. Gomboc.

Host plants: *Calamagrostis epigejos*, *Elytrigia repens*, *Elymus repens* and *Dactylis glomerata*. (Poaceae).

Distribution: Scattered in most of Europe, W Russia and the Caucasus. Krk (HABELER 1998: 38; HABELER 2008: 109).

Apatetrinae
Pexicopiini

33. *Pexicopia malvella* (Hübner, 1805)

Records: Soline, 14.VIII.1976, leg. Baldizzone.

Host plants: *Alcea rosea*, *Althaea officinalis*, *Malva alcea*, *M. sylvestris*, *M. multiflora*, *M. pusilla*, *Hibiscus syriacus* (Malvaceae).

Distribution: Widespread in Europe except the far north, to the Urals.

34. *Sitotroga cerealella* (Olivier, 1789)

Records: Soline, 10.VIII.1978, leg. Baldizzone; Vrbnik, 3.VIII.1968, leg. Baldizzone; Str. Poljica-Čavlena, 2.VII.2007, leg. Baldizzone; Krk (town) 27.VII.1975, leg. Baldizzone.

Host plants: Different types of cultivated, stored cereals and legumes such as barley, rye, oats, maize, wheat, rice, millet, buckwheat and bamboo.

Distribution: Tropical species, naturalised and widely distributed in southern Europe; worldwide in tropical and warmer temperate regions. Krk (HABELER 2008: 107).

Apatetrini

35. *Dactylotula altithermella* (Walsingham, 1903)

Records: Soline, 10.VIII.1977, 24.VII.1977, 31.VII.1978, leg. Baldizzone; Draga Bašćanska, 27.VII.1976, 30.IV.2000, leg. Baldizzone.

Host plants: Unknown (probably Poaceae).

Distribution: Spain, France, Austria, Czech Republic, Hungary, Croatia (this study).

Remarks: New to Croatia, although record of *D. kin-*

kerella (Snellen, 1876) from Croatia (KARSHOLT 2004-2023) may refer to this species.



Fig. 17 - *Dactylotula altithermella* (9 mm). Photo: Th. Varenne.

36. *Lanceoptera panochora* Janse, 1960 (fig. 34 B)

Records: Vrbnik, Sv. Marek, 6., 12.IX. 2022, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 1.VIII.2017, 14.VII.2018, 5.VI.2019, 21.VII. 2019, 15.IX. 2019, 21.VII.2020, 16.VII.2021, leg. Baldizzone; Kampelje, 29.VIII.2020, leg. Baldizzone; Punat, Negrit area, 16.VIII. 2020, 6.IX.2020, 8., 16.VI.2021, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 25.VI.2016, 27.V.2017, 20., 31.VIII.2017, 29.V.2018, 27.VII.2018, leg. Baldizzone;

Host plants: Unknown.

Distribution: Italy, Croatia (this study), Bulgaria, Macedonia, Greece (including Crete) to Turkey; South Africa.

Remarks: This species has been known for many years by specialists as "Apatetris sp.". Recent research by BIDZILYA & KARSHOLT (unpublished) has shown that it is probably conspecific with *Lanceoptera panochora*, which was described from South Africa. The species was first found in Krk Island in 2016, but has since occurred commonly, and it may, therefore, be a recent introduction.

Thiotrichinae

37. *Thiotricha majorella* (Rebel, 1910)

Records: Misučajnica, 16.VIII.1982, leg. Baldizzone; Draga Bašćanska, 16.VIII.1979, leg. Baldizzone; Punat,



Fig. 18 - *Thiotricha majorella* (12 mm). Photo: Th. Varenne.

14.IX.1996, 30.IX.2003, 7.IX.2005, leg. Gomboc.

Host plants: Unknown.

Distribution: France, Italy, Switzerland, Balkan. Krk (HABELER 2008: 108).

38. *Palumbina guerinii* (Stainton, 1858)

Records: Vrbnik, Sv. Marek, 12.IX.2022, leg. Gomboc & Baldizzone; Vrbnik, Mali Hlam, 18.VIII.2001, leg. Gomboc; Str. Vrbnik-Garica, 15.VI.2019, leg. Gomboc & Baldizzone, 15.IX.2019, leg. Gomboc, Baldizzone & Zadravec; Kampelje, Matjev Stan, 10.VII.2010, leg. Baldizzone; Hlam, Branušine, 17., 27.VIII.2007, 29.VIII.2008, 3., 13.VIII.2015, 30.VIII.2018, leg. Baldizzone; Punat, 30.IX.2003, 29.VIII.2008, leg. Gomboc; Punat, footpath to Veli vrh, 27.IX.2003, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 21.IX.2003, leg. Gomboc, 25.VI.2016, leg. Baldizzone, 26.VIII.2017, 8.VI.2021, leg. Gomboc, Baldizzone & Zadravec, 14.X.2017, leg. Gomboc & Zadravec, 18.VI.2021, leg. Gomboc & Baldizzone.

Host plants: Pistacia spp. (Anacardiaceae).

Distribution: Widely distributed in southern Europe and from the Canary Islands through North Africa to the Near East. Krk (HABELER 2008: 108; ŠUMPIČH 2013: 25).

Anomologinae

39. *Bryotropha domestica* (Haworth, 1828)

Records: Krk (town), 23.VII.2001, 15., 20.VIII.2006, leg. Baldizzone; Draga Baščanska, 30.VII.1986, leg. Baldizzone.

Host plants: *Tortula muralis* and other mosses growing on walls.

Distribution: Widely distributed in Europe, except for northern parts. Common in the whole of the Mediterranean including North Africa and the Middle East; the Canary Islands, Turkmenistan.

40. *Bryotropha terrella* ([Denis & Schiffermüller], 1775)

Records: Str. Poljica-Čavlena, 30.VIII.2018, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 21.VIII.2020, leg. Baldizzone; Kampelje, Matjev Stan, 17.VIII.2001, 10.VII.2010, 29.VIII.2020, leg. Baldizzone; Hlam, Branušine, 11.VIII.2015, 3.IX.2015, leg. Baldizzone; Misučajnica, 12., 19.VIII.1974, 13.VIII.1977, 16.VIII.1992, leg. Baldizzone; Picik, 6.V.2002, 29.IV.2007, 14.VI.2010, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; Draga Baščanska, 15.VIII.1974, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 29.V.2017, leg. Baldizzone, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec, 31.VIII.2017, leg. Baldizzone. Krk (HABELER 2008: 106).

Host plants: Mosses: *Rhytidadelphus squarrosus*, *Syntrichia ruraliformis*, *Hypnum jutlandicum*, *Cal-*

liergonella cuspidata and the grass *Agrostis capillaris* (Poaceae).

Distribution: Most of Europe to South-West Asia.

41. *Bryotropha plebejella* (Zeller, 1847)

Records: Punat, Negrit area, 6.IX.2020, leg. Baldizzone; Punat, Konobe, 22.V.2013, leg. Baldizzone.

Host plants: Unknown.

Distribution: Portugal, Spain, south France, Corsica, Sardinia, Sicily, Croatia, North Macedonia, Greece, Aegean Islands, Crete, Cyprus, Turkey, Syria, Israel, North Africa; also present in Madeira and the Canary Islands.

42. *Bryotropha dryadella* (Zeller, 1850)

Records: Kampelje, Bačini-Drmuni, 9.IX.2021, leg. Baldizzone; Hlam, Branušine, 29.VIII.2008, 29.VIII.2016, leg. Baldizzone; Misučajnica, 11., 13.VIII.1977, 16.VIII.1982, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone.

Host plants: Mosses: *Ctenidium molluscum*, *Barbula unguiculata*, *Homalothecium lutescens* and *Bryum* sp.

Distribution: Great Britain, Portugal, Spain, France, Corsica, Sardinia, Sicily, Italy, Croatia, Albania, North Macedonia, Bulgaria, Greece, Crete.



Fig. 19- *Bryotropha dryadella* (11 mm). Photo: Th. Varenne.

43. *Bryotropha senectella* (Zeller, 1839)

Records: Kampelje, Matjev Stan, 10.VII.2010, 22.VII.2016, leg. Baldizzone; Hlam, Branušine, 29.VIII.2008, 20.VI.2013, 24.VII.2019, leg. Baldizzone; Misučajnica, 6.VII.1976, 11.VIII.1988, leg. Baldizzone

Picik, 18.VI.2019, leg. Baldizzone; Obzova, Malmašuta, 16.VII.2001, 10.VIII.2020, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec.

Host plants: Mosses: *Homalothecium lutescens* and *Bryum* sp.

Distribution: Widespread throughout Europe.

44. *Tiranimia epidolella* (Chrétien, 1908) (Fig. 34 C)

Records: Str. Čizići-Omišalj, 13.VI.2019, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 15.VI.2019, 21.VIII.2020, 20.VII.2022, leg. Baldizzone; Hlam, Bra-

nušine, 20.VI.2013, 30.VIII.2018, leg. Baldizzone; Misučaynica, 17.VIII. 2007, leg. Baldizzone; Punat, Krásina, 22.VI.2013, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 27.V.2018, 4.VI.2018, 20.VII.2018, 8.VI.2021, leg. Baldizzone.

Host plants: Unknown.

Distribution: Spain (prov. Almeria, 4 km SE Pulpi, 250 m, 14.V.2006, leg. P. Skou; prov. Huesca, Barranco de Valcuerna, 8 km S Candasnos, 175 m, 15.VII.2003, leg. P. Skou; prov. Murcia, Alhama de Murcia, 19.IX.1974, leg. M. & W. Glaser (all ZMUC)), Croatia (this study, Krk Island), North Africa.

Remarks: The genitalia of this species resemble those of the genus *Epidola* Staudinger, 1859. However, a formal synonymization is pending revisional work on that genus (KARSHOLT unpublished).

45. Aristotelia decurrella (Hübner, 1813)

Records: Čizići, 10.VIII.1978, leg. Baldizzone; Vrbnik, 10.VIII.1969, 22.VIII.1973, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 12.VIII.2020 leg. Baldizzone; Kampelje, Matjev Stan, 17.VIII.2001, 29.VIII.2020, leg. Baldizzone; Kampelje, Bačini-Drmuni, 25.VIII.2022, leg. Baldizzone; Misučajnica, 11., 13.VIII.1974, leg. Baldizzone.

Host plants: *Rosa pimpinellifolia*, *Sanguisorba officinalis* (Rosaceae), *Eryngium campestre* (Apiaceae).

Distribution: Central and southern Europe to the Middle East; North Africa. Krk (HABELER 2008: 105).

46. Aristotelia decoratella (Staudinger, 1879)

Records: Str. Poljica-Čavlena, 27.VII.2020, 30.VIII.2020, leg. Baldizzone; Kampelje, 22.VII.2016, leg. Gomboc, Baldizzone & Zadravec; Hlam, Branušine, 23.VIII.2015, leg. Baldizzone; Punat, 14.VII.1999, leg. Gomboc; Punat, Konobe, 22.VIII.1997, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 8.VI.2021, leg. Gomboc, Baldizzone & Zadravec, 15.V.1922, leg. Gomboc & Baldizzone.

Host plants: Unknown.

Distribution: Southern part of Central Europe and South Europe to Turkey.

47. Aristotelia subericinella (Duponchel, 1843)

Records: Vrbnik, VIII.1969, leg. Baldizzone; Vrbnik, Mali Hlam, 18.VIII.2001, leg. Gomboc; Str. Garica-Vrbnik, Kolmanica, 21.VIII.2020, 20.VII.2022, leg. Baldizzone; Kampelje, Matjev Stan, 2.VIII.2002, 18.VIII.2006, leg. Baldizzone; Hlam, Branušine, 22.VI.2013, leg. Baldizzone; Misučajnica, 12.VIII.1974, 13.VIII.1974, 28.VII.1975, 30.VII.1975, leg. Baldizzone; Obzova, Malmašuta, 2.VI.2018, leg. Gomboc & Baldizzone, 10.VIII.2020, leg. Baldizzone; Obzova, Vrske, 13.VII.2018, leg. Baldizzone; Punat, Negrit area, 16.VIII.2020, 6.IX.2020, 8.VI.2021, 10.VIII.2021,

leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 19.VII.1999, leg. Gomboc, 24.V.2017, 29.V.2017, leg. Baldizzone, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec, 4.VI.2018, leg. Baldizzone, 20.VII.2018, leg. Gomboc & Baldizzone; 8.VI.2021, 11.VI.2021, 18.VI.2021, 10.V.2022, 15.V.2022, 19.V.2022, leg. Baldizzone.

Host plants: Fabaceae.

Distribution: The type locality of *A. subericinella* is Austria, but as it is unclear if Croatian specimens are conspecific, the distribution of the latter cannot be stated. Krk (HABELER 2008: 105).

Remarks: *A. subericinella* is part of a species complex, which is currently under revision by HUEMER et al. (in prep.), and the identity of the species occurring in Krk Island can only be confirmed after the publication of that revision.

48. Aristotelia sp.

Records: Soline, 12., 14.VIII.1976, 10.VIII.1977, 13.VIII.2007, leg. Baldizzone.

Host plants: Unknown.

Distribution: The distribution of this species outside of Croatia is still under study.

Remarks: The genus *Aristotelia* is under revision by HUEMER et al. (in prep.), and this species can only be correctly determined after the publication of that revision.

49. Megacraspedus lanceolellus (Zeller, 1850)

Records: Poljica, 10.VII.2012, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 6.VI.2018, 15.VI.2019, leg. Baldizzone; Kampelje, Matjev Stan, 18.VII.2017, 10.VII.2010, leg. Baldizzone; Hlam, Mestinjak, 14.VII.2015, 20.VI.2016, 24.VI.2016, 30.VI.2016, 7.VII.2016, leg. Baldizzone; Hlam, Branušine, 20-22.VI.2013, 18.VII.2015, leg. Baldizzone; Misučajnica, 5.VII.1967, 30.VII.1975, 6.VIII.1976, 1.VIII.1978, 16.VIII.1982, 20.VII.1998, leg. Baldizzone; Obzova, Vrske, 2.VI.2018, 13.VII.2018, leg. Baldizzone; Punat, Negrit area, 15.VI.2021, leg. Baldizzone; Punat, Malmašuta, 2.VI.2018, leg. Gomboc & Baldizzone; Punat, 11.VII.1999, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 18.VI.2021, leg. Baldizzone.

Host plants: The larva feeds within the stem of *Festuca* sp. (Poaceae).

Distribution: Southern parts of Europe, from the Balkan Peninsula to Spain, France, Italy, South Germany. Krk (HUEMER & KARSHOLT 2018: 32).

50. Megacraspedus tokari Huemer & Karsholt, 2018 (Fig. 34 D)

Records: Misučajnica, 20.VII.1988, leg. Baldizzone; Hlam, Branušine, 22.VI.2013, leg. Baldizzone; Obzova, Vrske, 2.VI.2018, leg. Gomboc & Baldizzone, 13.VII.2018, leg. Baldizzone; Str. Punat-Stara Baška,

Trstenova, 18.VII.2013, leg. Baldizzone; Punat, Negrit area, 8.VI.2021, 15.VI.2021, leg. Baldizzone; Punat, Konobe, 5.VI.1999, leg. Gomboc, 27.V.2017, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 25.VI.2016, 24.V.2017, 1.VI.2017, 29.V.2018, 4.VI.2018, leg. Baldizzone.

Host plants: Unknown (probably Poaceae).

Distribution: Only known from Croatia. Krk (HUEMER & KARSHOLT 2018: 49).

51. *Megacraspedus teriolensis* Huemer & Karsholt, 2018

Records: Str. Garica-Vrnik, Kolmanica, 15.IX.2019, leg. Gomboc, Baldizzone & Zadravec, 18.IX.2019, 12.VIII.2020, 21.VIII.2020, leg. Baldizzone; Kampelje, Matjev Stan, 29.VIII.2020, 15.IX.2020, leg. Baldizzone; Kampelje, Bačini-Drmuni, 9.IX.2021, 28.VIII.2022, leg. Baldizzone; Misučajnica, 13.VIII.1977, leg. Baldizzone; Punat, Negrit area, 16.VIII.2020, 6.IX.2020, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec, 20.VII.2017, leg. Gomboc & Baldizzone, 3.VIII.2017, leg. Baldizzone.

Host plants: Unknown (probably Poaceae).

Distribution: Italy, Slovenia, Croatia, Greece. Krk (HUEMER & KARSHOLT 2018: 168).

52. *Psamathocrita dalmatinella* Huemer & Tokár, 2000 (Fig. 34 E)

Records: Str. Čizići-Omišalj, 6.V.2002, leg. Baldizzone; Vrnik, Sv. Marek, 4., 5.V.2015, leg. Baldizzone; Kampelje, Matjev Stan, 6., 8.V.2015, leg. Baldizzone; Hlam, Branušine, 3.VI.2016, leg. Baldizzone; Misučajnica, 28.IV.2000, leg. Baldizzone; Picik, 29.IV.2008, 8.V.2008, 2.V.2016, leg. Baldizzone; Draga Baščanska, 30.IV.2000, leg. Baldizzone.

Host plants: Unknown (probably Poaceae).

Distribution: Croatia.

53. *Ivanauskiella occitanica* (Nel & Varenne, 2013)

Records: Soline, 11-15.VIII.1976, 10.VIII.1978, 15.VIII.1979, 13.VIII.2007, leg. Baldizzone.

Host plants: Unknown (probably *Limonium* sp., Plumbaginaceae).



Fig. 20 - *Ivanauskiella occitanica* (9 mm). Photo: Th. Varenne.

Distribution: Spain, France, Italy, Croatia, Greece, Turkey. Krk (BIDZILYA et al. 2023: 160).

54. *Ptocheuusa paupella* (Zeller, 1847)

Records: Soline, 15.VIII.1976, 17.VIII.1977, leg. Baldizzone; Vrnik, Sv. Marek, 19.VI.2020, 26.VI.2022, 12.IX.2022, leg. Baldizzone; Kampelje, Matjev Stan, 28.VII.2005, leg. Baldizzone; Misučajnica, 6.VIII.1976, leg. Baldizzone; Draga Baščanska, 14., 15., 16., 21.VIII.1974, 15.VIII.1975, 3.VIII.1976, 23.VII.1977, 7., 14.VIII.1977, leg. Baldizzone; Punat, 29.VIII.2008, 20.IX.2003, leg. Gomboc; Punat, Negrit area, 10.VIII.2021, leg. Baldizzone.

Host plants: *Pulicaria dysenterica*, *Limbara crithmoides* and sometimes also *Centaurea nigra* (Asteraceae) and *Mentha* spp. (Lamiaceae).

Distribution: Widely distributed in West, South and South-East Europe, including the Mediterranean islands. Krk (HABELER 2008: 106).

55. *Ptocheuusa minimella* (Rebel, 1936) (Fig. 34 F)

Records: Vrnik, Sv. Marek, 19.VI.2020, leg. Baldizzone; Kampelje, 22.VII.2016, leg. Baldizzone; Hlam, Mestinjak, 24.VI.2016, leg. Baldizzone; Misučajnica, 2.VIII.1975, 30.VII.1976, 6.VIII.1976, 23., 29.VII.1977, 2.VII.1978, 9.VIII.1981, 4.VIII.1986, 30.VII.1990, leg. Baldizzone; Punat, Krasina, 22.VI.2013, leg. Baldizzone; Obzova, Malmašuta, 16.VII.2001, leg. Baldizzone; Picik, 10.VI.2019, leg. Baldizzone; Draga Baščanska, 7.VIII.1977, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 4.VI.2018, leg. Baldizzone.

Host plants: Unknown.

Distribution: Scattered records from the Mediterranean countries: Spain (Balearic Islands), Italy (incl. Sardinia), Croatia, Greece (Crete).

56. *Isophrictis anthemidella* (Wocke, 1871)

Records: Str. Garica-Vrnik, Kolmanica, 15.IX.2019, leg. Gomboc, Baldizzone & Zadravec.

Host plants: *Achillea ptarmica*, *Anthemis tinctoria*, *Leucanthemum vulgare*, *Serratula tinctoria*, *Tanacetum corymbosum* (Asteraceae).

DISTRIBUTION: Widely distributed in most of Europe to the Caucasus and Central Asia. Krk (HABELER 2008: 105).

57. *Pyncostola bohemiella* (Nickerl, 1864)

Records: Misučajnica, 2.VIII.1975, leg. Baldizzone. Host plants: *Achillea millefolium* (Asteraceae).

Distribution: Central and South Europe: Spain, France, Italy, Austria, Croatia, Czech Republic, Hungary, Greece, Russia. Krk (HABELER 2008: 105).

58. *Metzneria paucipunctella* (Zeller, 1839)

Host plants: *Centaurea stoebe* (Asteraceae).

Distribution: Eastern and central parts of Europe,

including the Mediterranean region, Russia, Turkey and C Asia; introduced to North America. Krk (HABELER 2008: 106).

59. *Metzneria neuropterella* (Zeller, 1839)

Records: Misučajnica, 11.VIII.1974, 10.VIII.1975, leg. Baldizzone; Draga Baščanska, 14.VIII.1977, leg. Baldizzone.

Host plants: *Carlina acaulis*, *Centaurea jacea*, *C. nigra* and *Cirsium acaule* (Asteraceae).

Distribution: Eastern and central parts of Europe, including the Mediterranean region, Russia, Turkey and C Asia to southern and south-eastern Siberia and Mongolia, North Africa. Introduced to North America. Krk (HABELER 2008: 105).



Fig. 21- *Metzneria neuropterella* (21 mm). Photo: Th. Varenne.

60. *Metzneria aestivella* (Zeller, 1839).

Records: Str. Garica-Vrnik, Kolmanica, 2.VII.2016, 21.VII.2020 leg. Baldizzone; Kampelje, Matjev Stan, 2.VIII.2002, 28.VII.2005, 27.VII.2008, leg. Baldizzone; Hlam, Branušine, 7.VII.2015, 10.VII.2015, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 27.VII.2018, 31.VII.2018, leg. Baldizzone.

Host plants: *Carlina acaulis*, *C. corymbosa* and *C. vulgaris* (Asteraceae).

Distribution: Widespread in Europe to Russia, Turkey and the Near East.

61. *Metzneria lappella* (Linnaeus, 1759)

Records: Punat, 11.VII.1999, leg. Gomboc; Punat, Konobe, 12.VII.1999, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 23.VII.1996, 27.VII.1996, 19.VII.1999, leg. Gomboc.

Host plants: *Arctium* spp.

Distribution: Widespread in Europe to Russia and Central Asia; introduced to North America. Krk (HABELER 2008: 106).

62. *Metzneria littorella* (Douglas, 1850)

Records: Baška, Zarok, 3.V.2004, leg. Baldizzone.

Host plants: *Plantago coronopus* (Plantaginaceae).

Distribution: Southern Europe including the Mediterranean islands, southernmost England, North Africa and Israel.

63. *Metzneria diffusella* Englert, 1974 (Fig. 35 A)

Records: Čižići-Rudine, 20.VIII.2001, leg. Gomboc; Vrnik, Sv. Marek, 26.VI.2022, leg. Baldizzone; Str. Garica-Vrnik, Kolmanica, 21.VII.2020 leg. Baldizzone; Kampelje, Matjev Stan, 1.VIII.2006, leg. Baldizzone; Kampelje, Bačini-Drmuni, 28.VII.2021, leg. Baldizzone; Misučajnica, 30.VII.1976, 6.VIII.1976, leg. Baldizzone; Obzova, Malmašuta, 16.VII.2001, 10.VIII.2020, leg. Baldizzone; Punat, 14.VII.1999, leg. Gomboc; Punat, footpath to Veli vrh, 20.VII.1999, leg. Gomboc; Stara Baška, Hrusta, 27.VII.1996, 19.VII.1999, 21.VII.1999, leg. Gomboc, 20.VII.2018, leg. Gomboc & Baldizzone.

Host plants: *Centaurea diffusa* and *C. paniculata* (Asteraceae).

Distribution: Spain, France, Italy, Croatia, Greece, Hungary, North Macedonia, Bulgaria, Ukraine, and Russia.

64. *Metzneria artificella* (Herrich-Schäffer, 1861)

Records: Vrnik, Sv. Marek, 19.VI.2020, leg. Gomboc & Baldizzone, 22.VI.2022, 6.IX.2022, leg. Baldizzone; Str. Garica-Vrnik, Kolmanica, 15.VI.2019, leg. Gomboc & Baldizzone, 21.VII.2020, 12.VII.2020 leg. Baldizzone; Hlam, Branušine, 3.IX.2016, leg. Baldizzone; Misučajnica, 11.VIII.1977, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; Punat, Negrit area, 16.VIII.2020, 8.IX.2020, 8.VI.2021, leg. Baldizzone; Str. Punat-Stara Baška, Konobe, 27.V.2017, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 27.VII.1996, leg. Gomboc, 6.V.2016, 25.VI.2016, 3.IX.2016, 3., 24., 29.V.2017, 1.VI.2017, leg. Baldizzone, 26.VIII.2017, leg. Gomboc, Baldizzone& Zadravec, 20.VII.2018, leg. Gomboc, Baldizzone, 27.VII.2018, 11.VI.2021, 10.V.2022, leg. Baldizzone.

Host plants: *Echinops philistaeus* (Asteraceae).

Distribution: Central Europe northwards to Austria. Widespread in southern Europe, eastwards to Iran. Krk (HABELER 2008: 106).

65. *Huemeria campicolella* (Mann, 1857) (Fig. 35 B)

Records: Njivice, Jezero, 15.VII.2008, leg. Baldizzone; Vrnik, Sv. Marek, 19.VI.2020, leg. Baldizzone; Misučajnica, 1.VII.1978, 23.VII.1988, leg. Baldizzone; Hlam, Branušine, 29.VIII.2008, 3.IX.2015, 27.VIII.2016, leg. Baldizzone; Picik, 10.VI.2019, leg. Baldizzone; Punat, Krasina, 22.VI.2013, leg. Baldizzone; Draga Baščanska, 2.VII.1978, leg. Baldizzone; Punat, Negrit area, 8.VI.2021, leg. Baldizzone.

Host plants: Unknown.

Distribution: Widespread in southern Europe.

Fig. 22 - *Huemeria campicolella* (9 mm). Photo: Th. Varenne.**66. *Apodia bifractella* (Duponchel, 1843)**

Records: Soline, 12., 15.VIII.1976, leg. Baldizzone, 24.VIII.1997, leg. Gomboc; Vrbnik, Sv. Marek, 26.VI.2022, leg. Baldizzone; Kampelje, Matjev Stan, 29.VII.2020, leg. Baldizzone; Hlam, Branušine, 17.VIII.2007, leg. Baldizzone; Misučajnica, 13., 19.VIII.1974, 11.VIII.1988, leg. Baldizzone; Draga Bašćanska, 21.VII.1974, 3.VIII.1976, leg. Baldizzone; Punat, 2.IX.2005, 25.VIII.1997, leg. Gomboc; Punat, Negrit area, 16.VIII.2020, leg. Baldizzone.

Host plants: *Inula conyza* and *Pulicaria dysenterica* (Asteraceae).

Distribution: Central and South Europe, North Africa. Krk (HABELER 2008: 106).

67. *Argolamprotes micella* (Denis & Schiffermüller, 1775)

Records: Misučajnica, 6.VIII.1976, leg. Baldizzone
Host plants: *Rubus* spp. (Rosaceae).

Distribution: Widespread in Central and North Europe; Russia to the Far East; China and Japan.

68. *Monochroa nomadella* (Zeller, 1868)

Records: Misučajnica, 3.VII.1978, leg. Baldizzone; Punat, Konobe, 26.V. 2018, leg. Baldizzone.

Host plants: Unknown.

Distribution: Mediterranean species spread from Spain to Russia, present in a few xerothermic localities of Central Europe.

69. *Monochroa hornigi* (Staudinger, 1883)

Records: Kampelje, Matjev Stan, 18.VII.2017, leg. Baldizzone; Kampelje, Bačini-Drmuni, 28.VII.2021,

Fig. 23 - *Monochroa hornigi* (12 mm). Photo: Th. Varenne.

leg. Baldizzone; Str. Poljica-Čavlena, 30.VIII.2018, leg. Baldizzone.

Host plants: *Persicaria lapathifolia* (Polygonaceae).

Distribution: Widely distributed in North and Central Europe, more scattered in southern Europe. Croatia (this study).

70. *Oxypteryx nigritella* (Zeller, 1847)

Records: Str. Čizići-Omišalj, 13.VI.2019, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 6.VI.2018, leg. Baldizzone; Hlam, Branušine, 11.VIII.2015, 13. VIII.2015, 14.VIII.2015, 30.VIII.2018, leg. Baldizzone; Misučajnica, 11.VIII.1977, 28.IV.2007, leg. Baldizzone; Picik, 14.VI.2010, 18.VI.2019, leg. Baldizzone; Draga Bašćanska, 14.IV.1990, leg. Baldizzone.

Host plants: Unknown.

Distribution: France, Italy, Austria, Croatia, Czech Republic, Hungary, North Macedonia, and Russia.

Remarks: *O. nigritella* belongs to the *O. atrella* complex, which is in need of revision, and the identity of the Croatian specimens should be considered as tentative.

Gelechiinae
Gelechiini

71. *Athrips rancidella* (Herrich-Schäffer, 1854)

Records: Str. Garica-Vrbnik, Kolmanica, 21.VII.2019, 16.VII.2021, leg. Baldizzone; Kampelje, Bačini-Drmuni, 28.VII.2021, leg. Baldizzone; Hlam, Mestinjak, 14.VII.2015, 30.VI.2016, leg. Baldizzone; Hlam, Branušine, 25.VII.2008, 20.VI.2013, 5.VII.2015, 7.VII.2015, 10.VII.2015, 16.VII.2015, 18.VII.2015, 24.VII.2019, leg. Baldizzone; Misučajnica, 12.VIII.1978, 23.VII.1988, leg. Baldizzone; str. Poljica-Čavlena, 2.VII.2007, leg. Baldizzone; Obzova, Malmašuta, 15.VI.2004, leg. Gomboc, 10.VIII.2020, leg. Baldizzone; Punat, 11.VII.1999, leg. Gomboc; Punat Negrit area, 15.VI.2021, 10.VIII.2021, leg. Baldizzone; Punat, Konobe, 27.V.2017, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 26.V.2017, 29.V.2017, 27.V.2018, 29.V.2018, 31.V.2018, 4.VI.2018, 8.VI.2021, leg. Baldizzone.

Host plants: *Prunus spinosa*, *Crataegus monogyna* and *Cotoneaster horizontalis* (Rosaceae).

Distribution: Central and southern parts of Europe, the Near East to Central Asia. U.S.A. Krk (HABELER 2008: 107).

72. *Prolita solutella* (Zeller, 1839)

Records: Čizići, 16.VI.1990, leg. Habeler.

Host plants: *Genista tinctoria*, *G. pilosa* and *Cytisus* spp. (Fabaceae).

Distribution: Central and southern Europe from Portugal to western Russia, Turkey. Northwards to Denmark and Sweden. Krk (HABELER 2008: 107).

73. *Sophronia grandii* Hering, 1933

Records: Kras, 28.VII.1977, leg. Baldizzone; Mi-

sučajnica, 29.VII.1977, 2.VIII.1978, leg. Baldizzone.

Host plants: Unknown.

Distribution: Italy, Austria, Germany, Croatia, Slovenia, Czech Republic, Slovakia, Hungary and Romania.

74. *Sophronia sicariellus* (Zeller, 1839)

Records: Hlam, Mestinjak, 4.VI.2016, leg. Baldizzone; Hlam, Branušine, 22.VI.2013, 1.VII.2015, leg. Baldizzone; Picik, 14.VI.2010, leg. Baldizzone.

Host plants: *Achillea millefolium*, *Artemisia campestris* and *Tanacetum vulgare* (Asteraceae).

Distribution: Widespread in most of Europe to western Russia.

75. *Mirificarma maculatella* (Hübner, 1796)

Records: Draga Bašćanska, 28.VIII.1978, leg. Baldizzone.

Host plants: *Securigera varia* and *Coronilla emerus* (Fabaceae).

Distribution: Central and southern parts of Europe from France to Ukraine and Turkey. Krk (HABELER 2008: 107).



Fig. 24 - *Mirificarma maculatella* (19 mm). Photo: Th. Varenne.

76. *Mirificarma eburnella* (Denis & Schiffermüller, 1775)

Records: Hlam, Branušine, 9.VI.2010, leg. Baldizzone; Punat, 4.VI.1999, leg. Gomboc; Punat, Konobe, 17.VI.1997, leg. Gomboc.

Host plants: *Medicago sativa*, *M. lupulina*, *M. polymorpha*, *Trifolium repens*, *T. hirtum*, *Vicia americana*, and *Hippocrepis comosa* (Fabaceae).

Distribution: Europe except northern parts; Turkey, Middle East, North Africa, introduced to the USA. Krk (HABELER 2008: 107).

77. *Filatima spurcella* (Duponchel, 1843)

Records: Obzova, Malmašuta, 16.VI.1997, leg. Gomboc; Punat, Negrit area, 8.VI.2021, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 24.V.2017, 26.V.2017, 1.VI.2017, 24.V.2018, 27.V.2018, 31.V.2018, 8.VI.2021, 11.VI.2021, 18.VI.2021, 15.V.2022, leg. Baldizzone.

Host plants: *Crataegus* spp., *Amelanchier* spp. and *Prunus spinosa* (Rosaceae).

Distribution: Southern parts of Central Europe and South Europe; Turkey and Armenia. Krk (HABELER 2008: 107).

78. *Gelechia senticetella* (Staudinger, 1859)

Records: Str. Garica-Vrnik, Kolmanica, 18.VII.2018, 20.VII.2022, leg. Baldizzone; Kampelje, Matjev Stan, 28.VII.2005, 15.VII.2007, leg. Baldizzone; Hlam, Branušine, 24.VII.2019, leg. Baldizzone; Misučajnica, 6.VIII.1976, leg. Baldizzone; Skrbčiči, 4.VIII.1977, leg. Baldizzone; Punat, Negrit area, 31.VIII.2017, 16.VIII.2020, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 31.VIII.2017, leg. Baldizzone.

Host plants: *Chamaecyparis* spp., *Juniperus communis*, *Thuya* sp. (Cupressaceae). Probably on the island of Krk it develops on *Juniperus oxycedrus*.

Distribution: Widespread in most of Europe (apart from northern parts) to western Russia.

79. *Gelechia turpella* (Denis & Schiffermüller, 1775]

Records: Soline, 25.VII.1977, leg. Baldizzone.

Host plants: *Populus nigra*, *P. pyramidalis*, *P. balsamifera* and *P. laurifolia* (Salicaceae).

Distribution: Most of Europe, eastwards throughout the Palaearctic region. Krk (HABELER, 1998: 38; HABELER 2008: 107).

80. *Gelechia dujardini* Huemer, 1991

Records: Čižići-Rudine, 20.VIII.2001, leg. Gomboc; Vrh, 1.VIII.1975, leg. Baldizzone; Vrnik, Mali Hlam, 18.VIII.2001, 24.VIII.2001, 18.VI.2004, leg. Gomboc; Kampelje, south pastures, 7.IX.2005, leg. Gomboc; Kampelje, Matjev Stan, 17.VIII.2001, 18.VIII.2006, leg. Baldizzone; Kampelje, Bačini-Drmuni, 9.IX.2021, leg. Baldizzone; Hlam, Mestinjak, 14.VII.2010, 24.VI.2016, leg. Baldizzone; Hlam, Branušine, 17.VIII.2007, 20.VI.2013, 8.IX.2013, 18.VII.2015, 3.IX.2015, 30.VIII.2018, leg. Baldizzone; Misučajnica, 30.VII.1975, 2.VIII.1975, 9.VIII.1986, 2.VIII.1987, leg. Baldizzone; Str. Poljica-Čavlena, 30.VIII.2018, leg. Baldizzone; Obzova, Malmašuta, 23.VIII.1997, 17.VII.1999, 22.VIII.2001, leg. Gomboc; Punat, Krasina, 22.VI.2013, leg. Baldizzone; Punat, 7.IX.2005,



Fig. 25 - *Gelechia dujardini* (13 mm). Photo: Th. Varenne.

8.IX.2005, 17.VI.1997, 11.VII.1999, 16.VII.1999, leg. Gomboc; Punat, Konobe, 21.VII.1996, 12.VII.1999, leg. Gomboc.

Host plants: Probably *Acer* sp. (Sapindaceae).

Distribution: France, Italy, Croatia, Nort Macedonia, Greece and Turkey. Krk (HABELER 2008: 107).

81. *Psoricoptera gibbosella* (Zeller, 1839)

Records: Punat, 26.VIII.2008, leg. Gomboc.

Host plants: *Quercus* spp. (Fagaceae), occasionally also *Salix* spp. (Salicaceae).

Distribution: Most of Europe, except the large Mediterranean islands. Throughout the Palaearctic region. Krk (HABELER 2008: 107).

Gnorimoschemini

82. *Scrobipalpa acuminatella* (Sircom, 1850)

Records: Str. Garica-Vrbnik, Kolmanica, 6.VI.2018, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; 1 km N Stara Baška, 1.V.2008, leg. Skou (ZMUC).

Host plants: *Carduus* spp., *Carlina vulgaris*; *Cirsium* spp., *Tussilago farfara* (Asteraceae).

Distribution: In most of the European countries, the species is only absent in the northernmost part of Scandinavia and not recorded from Bulgaria and Crete. Also known from western and Central Asia (incl. Afghanistan), Siberia and China.

83. *Scrobipalpa obsoletella* (Fischer von Röslers-tamm, 1841)

Records: Hlam, Branušine, 3.IX.2015, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 24.V.2017, 1.VI.2017, 8.VI.2021, leg. Baldizzone.

Host plants: *Atriplex* spp., e.g. *A. glabriuscula*, *A. littoralis*, *A. halimus*, *A. tatarica* and also *Chenopodium* spp. (Chenopodiaceae).

Distribution: In Europe from Portugal to the southern Ural Mountains and from Scandinavia to the Mediterranean, though mainly occurring along the coasts; Turkey and Iran to Asian Russia (Trans-baikalia) and Mongolia.

84. *Scrobipalpa tokari* Huemer & Karsholt, 2010 (Fig. 35 D)

Records: Str. Punat-Stara Baška, Hrusta, 6.V.2016, 24., 29.V.2017, 20.VIII.2017, 20.VII.2018, 8.VI.2021, 10., 15., 19.V.2022, leg. Baldizzone.

Host plants: Unknown.

Distribution: Only known from Croatia.

85. *Scrobipalpa pauperella* (Heinemann, 1870)

Records: Kampelje, Matjev Stan, 18.VIII.2006, leg. Baldizzone.

Host plants: *Centaurea scabiosa*, *C. phrygia*, *Cirsium*

palustre, *C. helenioides*, *Petasites albus*, *Serratula tinctoria* (Asteraceae).

Distribution: England, southern Scandinavia, Spain, France to Slovakia and Hungary, Croatia (this study), Ukraine, Russia; Afghanistan, Asian Russia (Transbaikalia), and China.

86. *Scrobipalpa arenbergeri* Povolný, 1973 (Fig. 35 C)

Records: Hlam, Mestinjak, 21.VIII.2012, 24.VI.2016, leg. Baldizzone; Hlam, Branušine, 8.IX.2013, 7.VII.2015, 11., 13.VIII.2015, 3.IX.2015, leg. Baldizzone.

Host plants: *Centaurea scabiosa* (Asteraceae).

Distribution: Italy, Austria, Croatia, Slovakia, Hungary, Ukraine, and Russia.

87. *Scrobipalpa artemisiella* (Treitschke, 1833)

Records: Soline, 11.VIII.1976, leg. Baldizzone; Mi-sučajnica, 11.VIII.1976, 9., 29.VII.1977, leg. Baldizzone.

Host plants: *Thymus pulegioides*, *T. praecox* and *T. serpyllum* (Lamiaceae).

Distribution: Widely distributed throughout Europe. In Asia known from Syria to Mongolia and China.

88. *Scrobipalpa ocellatella* (Boyd, 1858)

Records: Soline, 25.VII.1977, leg. Baldizzone; Vrbnik, Sv. Marek, 19.VI.2020, 22.VI.2022, 12.IX.2022, leg. Baldizzone; Kampelje, Matjev Stan, 28.VII.2005, 15.IX.2020, leg. Baldizzone; Krk (town), 10.VIII.1998, leg. Baldizzone; Str. Poljica-Čavlena, 21.VIII.2016, 30.VIII.2018, leg. Baldizzone; Punat, 22.IV.2000, 20.IX.2003, 30.IX.2003, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 23.IX.2003, leg. Gomboc, 31.VIII.2017, leg. Baldizzone.

Host plants: *Beta vulgaris maritima* and cultivated forms of *Beta vulgaris*, *Halimione portulacoides*, *Suaeda maritima*, *Suaeda vera*, *Salicornia europaea* agg., and *Camphorosma monspeliaca* (Amaranthaceae).

Distribution: Widely distributed from Portugal to Greece and southern Russia. In the North-West along the coasts of the Atlantic Ocean and North Sea from Ireland to Norway. Canary Islands through North Africa to the Middle East. Krk (HABELER 2008: 107).

89. *Scrobipalpa salinella* (Zeller, 1847)

Records: Soline, 30.VII.1976, 12., 15.VIII.1976, 25.VII.1977, 9., 10.VIII.1977, leg. Baldizzone [1 specimen, ex larva *Salicornia* sp. in ZMUC].

Host plants: *Salicornia fruticosa* and *Arthrocaulon macrostachyum* (Amaranthaceae).

Distribution: Widely distributed in the Mediterranean parts of Europe. Outside Europe known from North Africa, the Middle East and Mongolia.

90. *Scrobipalpa ergasima* (Meyrick, 1916)

Records: Punat, Negrit area, 10.VIII.2021, leg. Baldizzone.

Host plants: *Hyoscyamus albus*, *Solanum nigrum* and *S. melongena* (Solanaceae).

Distribution: Mediterranean parts of Europe and eremic parts of Africa to South Africa and south-eastern Asia and Japan. Croatia (this study).



Fig. 26 - *Scrobipalpa ergasima* (13 mm). Photo: Th. Varenne.

91. *Phtorimaea operculella* (Zeller, 1873)

Records: Soline, 3.VIII.1997, leg. Baldizzone; Vrbnik, 10.VIII.1969, leg. Baldizzone; Misučajnica, 11.VIII.1977, leg. Baldizzone; Skrbčići, 4.VIII.1977, leg. Baldizzone; Punat, 10.X.1999, leg. Gomboc.

Host plants: *Solanum melongena*, *S. dulcamara*, *S. tuberosum*, *Nicotiana glauca* and *N. tabacum* (Solanaceae).

Distribution: Neotropical species which has been introduced to many countries. In Europe mainly restricted to the southern parts, but occasionally recorded from Central and North Europe. Krk (HABELER 2008: 107).

92. *Tuta absoluta* (Meyrick, 1917)

Records: Vrbnik, Sv. Marek, 12.IX.2022, leg. Baldizzone; Punat, 10.X.1999, leg. Gomboc; Punat, Negrit area, 10.VIII.2021, leg. Baldizzone;

Host plants: Many species of the genera *Solanum*, including *S. esculentum* (= tomato), *Datura* and *Nicotiana* (Solanaceae).

Distribution: Neotropical species which has been introduced to many countries. First it was recorded in Europe in 2007 and since then spread to most European countries (apart from northernmost areas). Also widely distributed in Africa and Asia.

93. *Ephysteris promptella* (Staudinger, 1859)

Records: Vrbnik, Sv. Marek, 22., 26.VI.2022, 6., 12.IX.2022, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 5., 16.IX.2019, 12., 21.VIII.2020, 16.VII.2021, 20.VII.2022, leg. Baldizzone; Kampelje, Matjev Stan, 29.VIII.2020, 15.IX.2020, leg. Baldizzone; Kampelje, Bačini-Drmuni, 28.VII.2021, leg. Baldizzone; Poljica, 15.VII.2012, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; Punat, Negrit area, 16.VIII.2020, 6.IX.2020, 8.VI.2021, leg. Baldiz-

zone; Punat, Konobe, 22.V.2018, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 29.V.2017, 31.VIII.2017, 20.VII.2018, leg. Baldizzone.

Host plants: Grasses of the genera *Andropogon*, *Oryza*, *Panicum*, *Saccharum*, *Sorghum*, *Stipa* and *Triticum* (Poaceae).

Distribution: Southern parts of Europe to southern Russia; South and East Africa, Canary Islands and Madeira to the Middle East, Pakistan and China; Indoaustralian region.

94. *Ephysteris diminutella* (Zeller, 1847) (Fig. 35 E)

Records: Punat, Negrit area, 16.VIII.2020, 6.IX.2020, 8., 15.VI.2021, 10.VIII.2021, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 6.V.2016, 25.VI.2016, 3., 24., 26., 29.V.2017, 1.VI.2017, 20., 31.VIII.2017, 24., 27.V.2018, 4., 8.VI.2021, 10., 15., 19.V.2022, leg. Baldizzone; Obzova, Vrske, 13.VII.2018, leg. Baldizzone.

Host plants: Unknown.

Distribution: Southern Europe, ranging from Spain to the Balkans and South Russia. Krk (HUEMER & KARSHOLT 2010: 216).



Fig. 27 - *Ephysteris diminutella* (10 mm). Photo: Th. Varenne.

95. *Caryocolum tischeriella* (Zeller, 1839)

Records: Hlam, Branušine, 8.IX.2013, leg. Baldizzone; Punat, 2.IX.2005, 20.IX.2003, leg. Gomboc; Str. Stara Baška, Hrusta, 23.IX.2003, leg. Gomboc.

Host plants: *Silene nutans* (Caryophyllaceae).

Distribution: Central and South Europe, North Africa, Russia (Caucasus and Siberia).

96. *Caryocolum leucomelanella* (Zeller, 1839)

Records: Vrbnik, Sv. Marek, 6.IX.2022, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 15.IX.2019, leg. Baldizzone; Kampelje, Bačini-Drmuni, 9.IX.2021, leg. Baldizzone; Hlam, Branušine, 29.VII.2008, 8.IX.2013, 13.VIII.2015, 3.IX.2016, 30.VIII.2018, leg. Baldizzone; Obzova, Malmašuta, 15.VI.2004, leg. Gomboc; Punat, Negrit area, 6., 8.IX.2020, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 10.V.2022, leg. Baldizzone.

Host plants: *Petrerhagia saxifraga*, *Dianthus carthusianorum*, *D. sylvestris*, *D. gratianopolitanus* and *D. seguieri* (Caryophyllaceae).

Distribution: Central and southern parts of Europe, Turkey, Asian Russia (Transbaikalia) and China. Krk (HABELER 2008: 107).

97. *Caryocolum marmorea* (Haworth, 1828)

Records: Obzova, Punat, Malmašuta, 15.VI.2004, leg. Gomboc; Obzova, Vrske, 13.VII.2018, leg. Baldizzone; Punat, 30.IX.2003, leg. Gomboc.

Host plants: *Cerastium fontanum vulgare*, *C. semidecandrum* and *Silene nocteolens* (Caryophyllaceae).

Distribution: From the Canary Islands, Madeira and north-western Africa through most of Europe except the north-east. Krk (HABELER 2008: 107).

98. *Caryocolum proxima* (Haworth, 1828)

Records: Misučajnica, 20.VII.1988, 11.VIII.1988, leg. Baldizzone; Poljica, 26.VII.2005, leg. Baldizzone.

Host plants: *Stellaria media* and *Cerastium fontanum* (Caryophyllaceae).

Distribution: Widely distributed in Europe except the northernmost parts. Croatia (this study). Turkey, Israel and USA.



Fig.28 - *Caryocolum proxima* (10 mm). Photo: Th. Varenne.

99. *Caryocolum blandulella* (Tutt, 1887)

Records: Kampelje, Matjev Stan, 28.VII.2005, 1., 18.VIII.2006, leg. Baldizzone; Hlam, Mestinjak, 29.VIII.2008, 14.VII.2016, leg. Baldizzone; Hlam, Branušine, 29.VII.2008, leg. Baldizzone; Misučajnica, 30.VII.1975, 29.VII.2007, leg. Baldizzone, 6-8.VIII.1975, leg. Jäckh (ZMUC).

Host plants: *Cerastium pumilum* and *C. semidecandrum* (Caryophyllaceae).

Distribution: From Spain and Great Britain through the southern parts of northern Europe, Central Europe and the Balkan Peninsula to Turkey. Krk (HUEMER & KARSHOLT 2010: 282).

Litini

100. *Teleiodes italicica* Huemer, 1992

Records: Str. Poljica-Čavlena, 27.VII.2020, leg. Baldizzone.

Host plants: *Crataegus laevigata*, *Cydonia oblonga*

(Rosaceae).

Distribution: Portugal, Spain, France, Italy, Switzerland, Croatia (this study).



Fig.29 - *Teleiodes italicica* (13 mm). Photo: Th. Varenne.

101. *Teleiodes luculella* (Hübner, 1813)

Records: Str. Poljica-Čavlena, 2.VII.2007, leg. Baldizzone; Kampelje, Matjev Stan, 27.VII.2008, leg. Baldizzone; Draga Bašćanska, 15.VIII.1988, leg. Baldizzone; Punat, Konobe, 12.VII.1999, leg. Gomboc.

Host plants: Mainly *Quercus* spp., but also *Castanea sativa* (Fagaceae), *Betula* spp. (Betulaceae) and *Acer* spp. (Sapindaceae).

Distribution: Most of Europe to Trans-Caucasus. Krk (HABELER 2008: 106).

102. *Neotelphusa sequax* (Haworth, 1828)

Records: Pinezići, 5.IX.2011, leg. May.

Host plants: *Helianthemum nummularium* and *H. oelandicum* (Cistaceae).

Distribution: Scattered in Europe including Russia northwards to southern Fennoscandia. North America (probably introduced).

103. *Neotelphusa cisti* (Stainton, 1869)

Records: Vrbnik, Sv. Marek, 6.IX.2022, leg. Baldizzone.

Host plants: *Cistus salviifolius*, *C. albidus*, *C. monspeliensis*, and *Halimium alyssoides* (Cistaceae).

Distribution: Mediterranean parts of Europe, from Portugal to Greece. Turkey and the Canary Islands.



Fig.30 - *Neotelphusa cisti* (12 mm). Photo: Th. Varenne.

104. *Carpatolechia decorella* (Haworth, 1812)

Records: Vrnik, Sv. Marek, 4.V.2015, 19.VI.2015, leg. Baldizzone; Vrnik, 29.IV.2001, leg. Baldizzone; Str. Garica-Vrnik, Kolmanica, 15.VI.2019, leg. Gomboc, Baldizzone; Kampelje, Matjev Stan, 17.VIII.2001, leg. Baldizzone; Hlam, Mestinjak, 24.VI.2016, leg. Baldizzone; Hlam, Branušine, 10.VII.2015, 16.VII.2015, 18.VII.2015, 13.VIII.2015, leg. Baldizzone; Picik, 18.VI.2019, leg. Baldizzone; Skrbčiči, 25.III.2002, leg. Gomboc. Obzova, Malmašuta, 11.X.1999, leg. Gomboc, 28.IV.2001, 16.VII.2001, leg. Baldizzone; Obzova, Vrske, 2.VI.2018, leg. Gomboc & Baldizzone, 13.VII.2018, leg. Baldizzone; Punat, 7.IV.2000, 25.III.2002, leg. Gomboc; Punat, Konobe, 5.VI.1999, 8.IV.2000, 18.VI.2001, 1.X.2003, leg. Gomboc, 27.V.2017, 22.V.2018, leg. Baldizzone; Punat-Stara Baška, Hrusta, 14.X.2017, 1.IV.2018, leg. Gomboc & Zadravec, 18.VI.2021, leg. Baldizzone.

Host plants: *Abies alba* (Pinaceae), *Quercus ilex*, *Q. coccifera*, *Q. robur* (Fagaceae), *Cotinus coggygria* Scop., *Pistacia vera*, *P. terebinthus*, *Rhus* spp. (Anacardiaceae), *Cornus mas*, *C. sanguinea* (Cornaceae) and *Phillyrea* spp. (Oleaceae).

Distribution: Widely distributed throughout Europe. North Africa, the Canary Islands, Turkey, Middle East to Kazakhstan and Iran. Krk (HABELER 2008: 106).

105. *Carpatolechia fugacella* (Zeller, 1839) (Fig. 35 F)

Records: Vrnik, Sv. Marek, 4.V.2015, leg. Baldizzone; Kampelje, Matjev Stan, 29.VIII.2020, leg. Baldizzone; Hlam, Branušine, 17.VIII.2007, 11.VIII.2015, 30.VIII.2018, leg. Baldizzone; Misučajnica, 11.VIII.1974, leg. Baldizzone; Str. Poljica-Čavlena, 26.VII.2005, 8.VII.2007, 30.VIII.2018, leg. Baldizzone; Picik, 18.VI.2019, leg. Baldizzone.

Host plants: *Ulmus minor* (Ulmaceae).

Distribution: Europe, from Spain to south Russia, and in the north to southern Denmark and Sweden. Croatia (this study).



Fig. 31 - *Carpatolechia fugacella* (13 mm). Photo: Th. Varenne.

106. *Pseudotelphusa scalella* (Scopoli, 1763)

Records: Čižići, 18.VII.1999, leg. Gomboc; Str. Ga-

rica-Vrnik, Kolmanica, 21.VII.2019, leg. Baldizzone; Kampelje, Matjev Stan, 28.VII.2003, leg. Baldizzone; Str. Poljica-Čavlena, 2.VII.2007, leg. Baldizzone; Punat, Konobe, 12.VII.1999, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 21.VII.1999, leg. Gomboc.

Host plants: Probably *Quercus* sp. (Fagaceae).

Distribution: Europe, except the northern parts. Turkey. Krk (HABELER 1998: 38; HABELER 2008: 107).

107. *Pseudotelphusa istrella* (Mann, 1866)

Records: Skrbčiči, 4.VIII.1977, leg. Baldizzone; Punat, Konobe, 12.VII.1999, leg. Gomboc.

Host plants: *Quercus* spp. (Fagaceae).

Distribution: From northern Italy and Slovakia to the Balkans, Crimea and Turkey. Krk (HABELER 2008: 107).

108. *Pseudotelphusa paripunctella* (Thunberg, 1794)

Records: Str. Garica-Vrnik, Kolmanica, 21.VII.2020, leg. Baldizzone; Vrh, 1.VIII.1975, leg. Baldizzone.

Host plants: *Quercus* spp., *Fagus* spp. (Fagaceae), *Betula* spp. (Betulaceae), *Myrica gale* (Myricaceae), and *Hippophae rhamnoides* (Elaeagnaceae).

Distribution: Widespread in Europe, eastwards to Siberia. Krk (HABELER 2008: 106).

109. *Itrianis femoralis* (Staudinger, 1876) (= *I. angustipennis* Rebel, 1931)

Records: Soline, 25.VII.1977, leg. Baldizzone; Vrnik, Sv. Marek, 4.V.2015, leg. Baldizzone; Str. Garica-Vrnik, Kolmanica, 1.VIII.2017, 15.IX.2019, 21.VII.2020, 12.VIII.2020, 16.VII.2021, leg. Baldizzone; Kampelje, Bačini-Drmuni, 9.IX.2021, 25.VII.2022, 26.VIII.2022, leg. Baldizzone; Hlam, Branušine, 17.VIII.2007, 29.VII.2008, 7.VII.2015, 13.VIII.2015, 29.VIII.2016, 3.IX.2016, 20.VII.2018, 30.VIII.2018, leg. Baldizzone; Misučajnica, 30.VII.1975, 30.VII.1990, leg. Baldizzone; Krk (town), 18.VIII.1975, leg. Baldizzone; Punat, Krasina, 22.VI.2013, leg. Baldizzone; Punat, 30.IX.2003, 29.VIII.2008, 20.IX.2003, leg. Gomboc; Str. Punat-Stara Baška, Hrusta, 20.VII.2018, leg. Baldizzone, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec.

Host plants: *Pistacia mutica*, *P. vera*. Probably on the island of Krk it feeds on *P. terebinthus* (Anacardiaceae).

Distribution: Spain, Italy (incl. Sicilia), Slovenia, Croatia, North Macedonia, Bulgaria, Crimea, Greece, Cyprus, Palestine, Turkey, Turkmenistan, Kyrgyzstan, and Iran. Krk (HABELER 1998: 37; HABELER 2008: 106; BIDZILY & KARSHOLT 2015: 430).

110. *Teleiopsis terebinthinella* (Herrich-Schäffer, 1856)

Records: Vrnik, Sv. Marek, 26.VI.2022, leg. Baldizzone; Misučajnica, 29.VII.1977, leg. Baldizzone; Punat, 22.-26.VII.1984, leg. Schnack (ZMUC); Punat, 23.VII.1996, 11.VII.1999, 14.VII.1999, 16.VII.1999, leg.

Gomboc; Punat, footpath to Veli vrh, 20.VII.1999, leg. Gomboc.

Host plants: *Pistacia terebinthus* and *Rhus coriaria* (Anacardiaceae).

Distribution: Southern and south-eastern Europe, Turkey and the Near East. Krk (HUEMER & KARSHOLT 1999: 198; HABELER 2008: 106).

111. *Teleiopsis rosalbella* (Fogone, 1862)

Records: Str. Punat-Stara Baška, Hrusta, 26.VIII.2017, leg. Gomboc, Baldizzone & Zadravec.

Host plants: *Rumex scutatus* (Polygonaceae).

Distribution: Local in Central and south-eastern Europe, from Belgium to Bosnia-Herzegovina, Turkey. Krk (HABELER 2008: 106; ŠUMPICH 2013: 24).

112. *Altenia scriptella* (Hübner, 1796)

Records: Kampelje, Matjev Stan, 28.VII.2003, 28.VII.2005, 27.VII.2008, 18.VII.2017, 29.VIII.2020, leg. Baldizzone; Hlam, Mestinjak, 20.VI.2013, 14.VII.2015, 24.VI.2016, leg. Baldizzone; Hlam, Branušine, 30.VIII.2018, leg. Baldizzone; Misučajnica, 30.VII.1976, 18.VIII.1987, leg. Baldizzone; Poljica, 25.VII.2006, leg. Baldizzone; Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone.

Host plants: *Acer campestre*, *A. pseudoplatanus*, and *A. platanoides* (Sapindaceae).

Distribution: Most of Europe, except northernmost territories. Krk (HABELER 2008: 106).



Fig.32 - *Altenia scriptella* (13 mm). Photo: Th. Varenne.

113. *Altenia elsnieriella* Huemer & Karsholt, 1999

Records: Vrbnik, Sv. Marek, 19.VI.2020, 22.VI.2022, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 2.VII.2016, leg. Baldizzone; Hlam, Branušine, 20.VI.2013, 5.VII.2015, leg. Baldizzone; Punat, 22.-26.VII.1984, leg. Schnack (ZMUC), 14.VII.1999, leg. Gomboc; Punat, Konobe, 12.VII.1999, leg. Gomboc.

Host plants: Unknown.

Distribution: Balkan, from Croatia to Greece; Cyprus and Iran. Krk (HABELER 2008: 107; HUEMER & KARSHOLT 1999: 102, 200; ŠUMPICH & SKYVA 2012: 172).

114. *Altenia wagneriella* (Rebel, 1926)

Records: Punat, 25.VIII.1997, 7.V.1999, 9.V.1999, 22.IV.2000, leg. Gomboc; Punat, Konobe, 23.IV.2000, leg. Gomboc; Str. Stara Baška, Hrusta, 23.IV.2000, leg. Gomboc.

Host plants: Unknown.

Distribution: South-eastern Europe. Turkey to Iran, Tadzhikistan and Turkmenia. Krk (HUEMER & KARSHOLT, 1999: 200; HABELER 2008: 107).

115. *Altenia modesta* (Danilevsky, 1955)

Records: Punat, 22.-26.VII.1984, leg. Schnack (ZMUC), 11.VII.1999, leg. Gomboc; 1 km N Stara Baška, 1.V.2008, leg. Skou (ZMUC).

Host plants: *Pistacia vera*. Probably on the island of Krk it feeds on *P. terebinthus* (Anacardiaceae).

Distribution: Italy, Croatia, Greece and Cyprus; Central Asia and North Africa. Krk (HUEMER & KARSHOLT, 1999: 200).

116. *Recurvaria nanella* (Denis & Schiffmüller, 1775)

Records: Str. Garica-Vrbnik, Kolmanica, 15.VI.2019, 21.VIII.2020, leg. Baldizzone; Kampelje, Matjev Stan, 2.VIII.2002, 15.VII.2007, leg. Baldizzone; Hlam, Branušine, 29.VII.2008, leg. Baldizzone; Obzova, Malmašuta, 16.VII.2001, leg. Baldizzone; Str. Punat-Stara Baška, Hrusta, 23.VII.1996, leg. Gomboc.

Host plants: Polyphagous species, reported from many species of the genera *Betula*, *Corylus* (Betulaceae), *Chaenomeles*, *Cotoneaster*, *Crataegus*, *Cydonia*, *Malus*, *Prunus*, *Pyrus*, *Sorbus* (Rosaceae).

Distribution: Most of the European countries, extending to Central Asia and North Africa; USA and Canada, where it was possibly introduced.

117. *Exoteleia dodecella* (Linnaeus, 1758)

Records: Malmašuta, 16.VI.1997, 21.VI.2001, 15.VI.2004, leg. Gomboc; Obzova, Vrske, 2.VI.2018, leg. Gomboc & Baldizzone.

Host plants: *Larix decidua*, *Pinus sylvestris* and other species of genus *Pinus* (Pinaceae).

Distribution: Almost all Europe to North Africa and the Caucasus; Siberia; introduced to North America. Krk (HABELER 1998: 37; HABELER 2008: 106).

118. *Stenolechia gemmella* (Linnaeus, 1758)

Records: Hlam, Branušine, 8.IX.2013, 3.IX.2015, leg. Baldizzone.

Host plants: *Quercus* spp. (Fagaceae).

Distribution: Most of Europe, except northernmost parts; Caucasus.

119. *Parastenolechia nigrinotella* (Zeller, 1847)

Records: Vrbnik, Sv. Marek, 22.VI.2022, leg. Baldizzone; Str. Garica-Vrbnik, Kolmanica, 6.VI.2018,

leg. Baldizzone; Hlam, Branušine, 22.VI.2013, leg. Baldizzone; Vrh, 9.VIII.1975, leg. Baldizzone; Picik, 18.VI.2019, leg. Baldizzone; Str. Punat-Stará Baška, Trstenova, 18.VI.2013, leg. Baldizzone.

Host plants: *Quercus pubescens* (Fagaceae).

Distribution: Central and southern parts of Europe, from Spain to Romania. Krk (HABELER 2008: 106).



Fig. 33 - *Parastenolechia nigrinotella* (14 mm). Photo: Th. Varenne.

120. *Stenolechiodes pseudogemmellus* Elsner, 1996

Records: Vrnik, Sv. Marek, 22.VI.2022, leg. Baldizzone; Paprata, 28.VI.2016, leg. Baldizzone; Hlam, Branušine, 30.VI.2016, 7.VII.2016, leg. Baldizzone.

Host plants: Probably *Quercus* spp. (Fagaceae).

Distribution: Central and south-eastern Europe to Turkey.

121. *Parachronistis albiceps* (Zeller, 1839)

Records: Picik, 10.VI.2019, leg. Baldizzone; Punat, Konobe, 5.VI.1999, leg. Gomboc; Punat, Negrit area, 8.VI.2021, leg. Baldizzone.

Host plants: *Corylus avellana* (Betulaceae), *Ulmus minor* (Ulmaceae) and *Prunus persica* (Rosaceae).

Distribution: Known from most European countries. In Russia, throughout Siberia. Krk (HABELER 2008: 106).

4. Discussion

Krk Island, with its diverse flora and ecosystems, serve as a great habitat for many Gelechiidae moths. With this contribution, we considerably increased the knowledge of the Gelechiidae fauna of the island of Krk, from 61 to 121 known species. With 11 additional species for the fauna of Croatia, we have now raised the number of known Gelechiidae species for Croatia to 212 species. We consider that the gelechiid fauna of Krk Island, with 121 confirmed species, is now relatively well studied. However, some species have only been recorded from a single specimen. The species number could be a bit higher as some specimens are still awaiting identification, and also some species

even needs to be defined, as they are part of groups of species currently under revision. It is also important to note that out of this 121 confirmed species, 11 are reported for the Croatia for the first time. With the confirmation of an additional 60 gelechiid species on the island, the Lepidoptera fauna of Krk Island now counts an impressive 1663 confirmed species. This makes the island the most extensively studied region of Croatia in terms of Lepidoptera diversity. The second most studied region is Krapinsko-Zagorska županija, with 1251 confirmed Lepidoptera species (Gomboc personal database). In contrast, on the smaller Dalmatian Šolta Island 563 Lepidoptera species have been confirmed till present (GOMBOC & SULE 2022; GOMBOC et al. 2023).

In previous contributions (HABELER 1998, 2008; ŠUMPICH & SKYVA 2012; ŠUMPICH 2013) 61 Gelechiidae species were mentioned for the island; 3 of those published by HABELER (2008) were misidentifications as explained in the results. For the comparison, on the much smaller Dalmatian island of Šolta 19 Gelechiidae species were reported till now (GOMBOC & SULE 2022; GOMBOC et al. 2023). The collected data confirm a high gelechiid diversity on the Krk Island. There are certainly more gelechiid species present on the island, especially in non-visited places, and additional species can most probably be found by focused searching. Some additional species could probably also be found in other collections not studied by us, as Krk Island is visited by many lepidopterist, and this contribution can therefore encourage other lepidopterologists to review and publish their data.

Because the island, due to its size, is diverse in terms of habitat types and vegetation, boasting an impressive 1543 confirmed plant species according to ROTENSTEINER et al. (2020), and the presence of related families like Coleophoridae, with 94 species (BALDIZZONE 2019), it is likely that the island harbors an even more diverse fauna of Gelechiidae species. A part of material is still waiting for proper identification/revision. Documenting the fauna of this highly specialised group is of utmost importance considering the significant habitat changes that have occurred in recent years. Factors such as the abandonment of sheep grazing and agriculture, rapid urbanization, and the impacts of climate change have had drastic effects on the island's ecosystems. As Krk Island remains one of the most popular tourist destinations in the North Adriatic, the conservation of its ecological balance becomes increasingly crucial. By studying the Gelechiidae moths and broader Lepidoptera fauna, we can gain valuable insights into the current state of biodiversity and contribute to effective conservation measures that can mitigate the environmental impacts of these transformative processes. Emphasizing the significance of nature protection, it is crucial for the island to

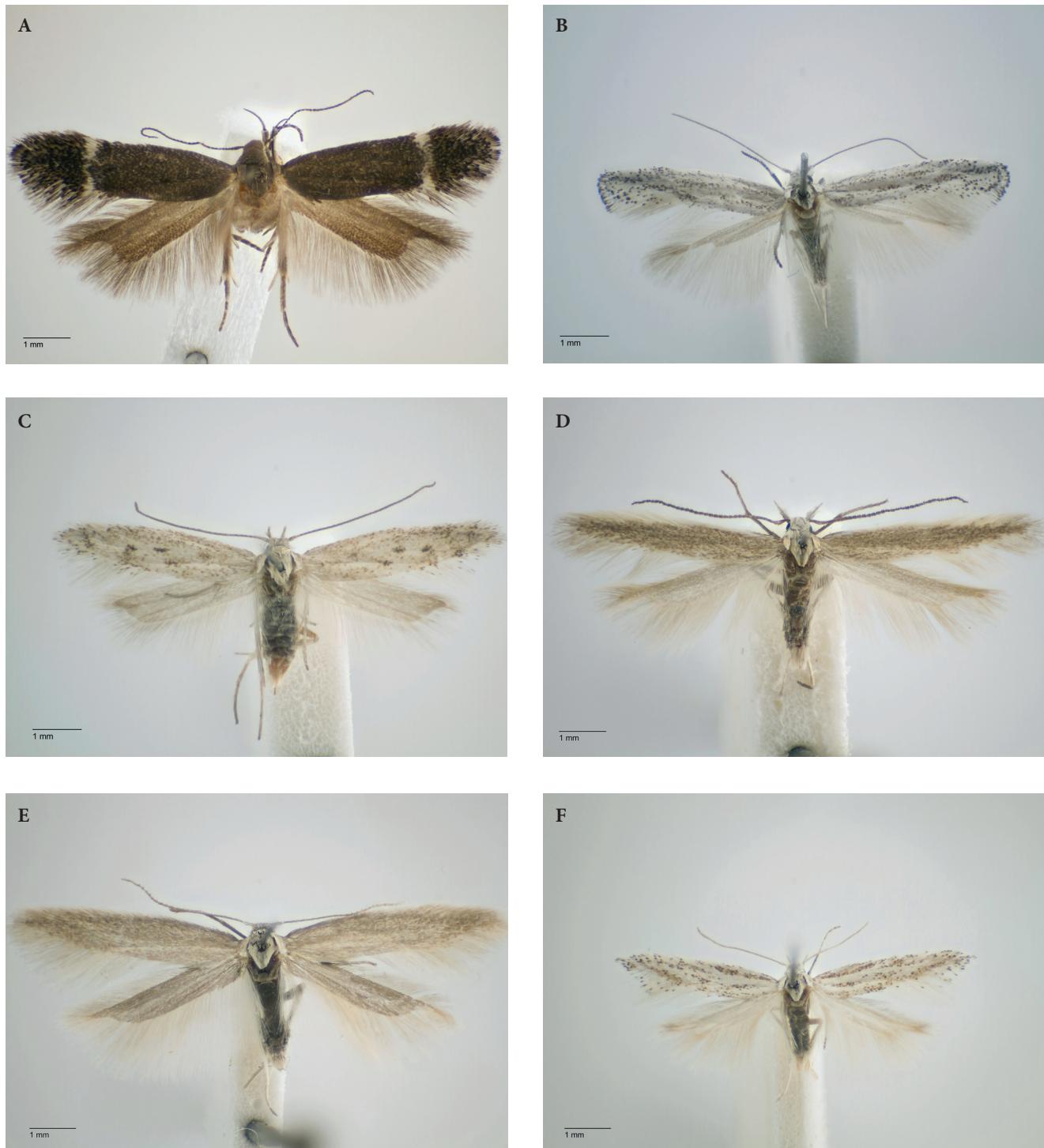


Fig.34 - Interesting species of Gelechiidae found on the island. A - *Iwaruna klimeschi*, ♀, Kras, 27.VII.1977, leg. Baldizzone; B - *Lanceoptera panochora*, ♂, Punat, Negrit area, 6.IX.2020, leg. Baldizzone; C - *Tiramimia epidolella*, ♀, Str. Garica-Vrbnik, Kolmanica, 15.VI.2019, leg. Baldizzone; D - *Megacraspedus tokari*, ♂, Str. Punat-Stara Baška, Hrusta 24.V.2017, leg. Baldizzone; E - *Psamathocrita dalmatinella*, ♂, Misučajnica, 28.IV.2000, leg. Baldizzone; F - *Ptocheuusa minimella*, ♂, Risika, Sv. Marek, 19.VI.2020, leg. Baldizzone. Photo: S. Selvantharan.

- Interessanti specie di Gelechiidae raccolte nell'isola. A - *Iwaruna klimeschi*, ♀, Kras, 27.VII.1977, leg. Baldizzone; B - *Lanceoptera panochora*, ♂, Punat, Negrit area, 6.IX.2020, leg. Baldizzone; C - *Tiramimia epidolella*, ♀, Str. Garica-Vrbnik, Kolmanica, 15.VI.2019, leg. Baldizzone; D - *Megacraspedus tokari*, ♂, Str. Punat-Stara Baška, Hrusta 24.V.2017, leg. Baldizzone; E - *Psamathocrita dalmatinella*, ♂, Misučajnica, 28.IV.2000, leg. Baldizzone; F - *Ptocheuusa minimella*, ♂, Risika, Sv. Marek, 19.VI.2020, leg. Baldizzone. Foto: S. Selvantharan.

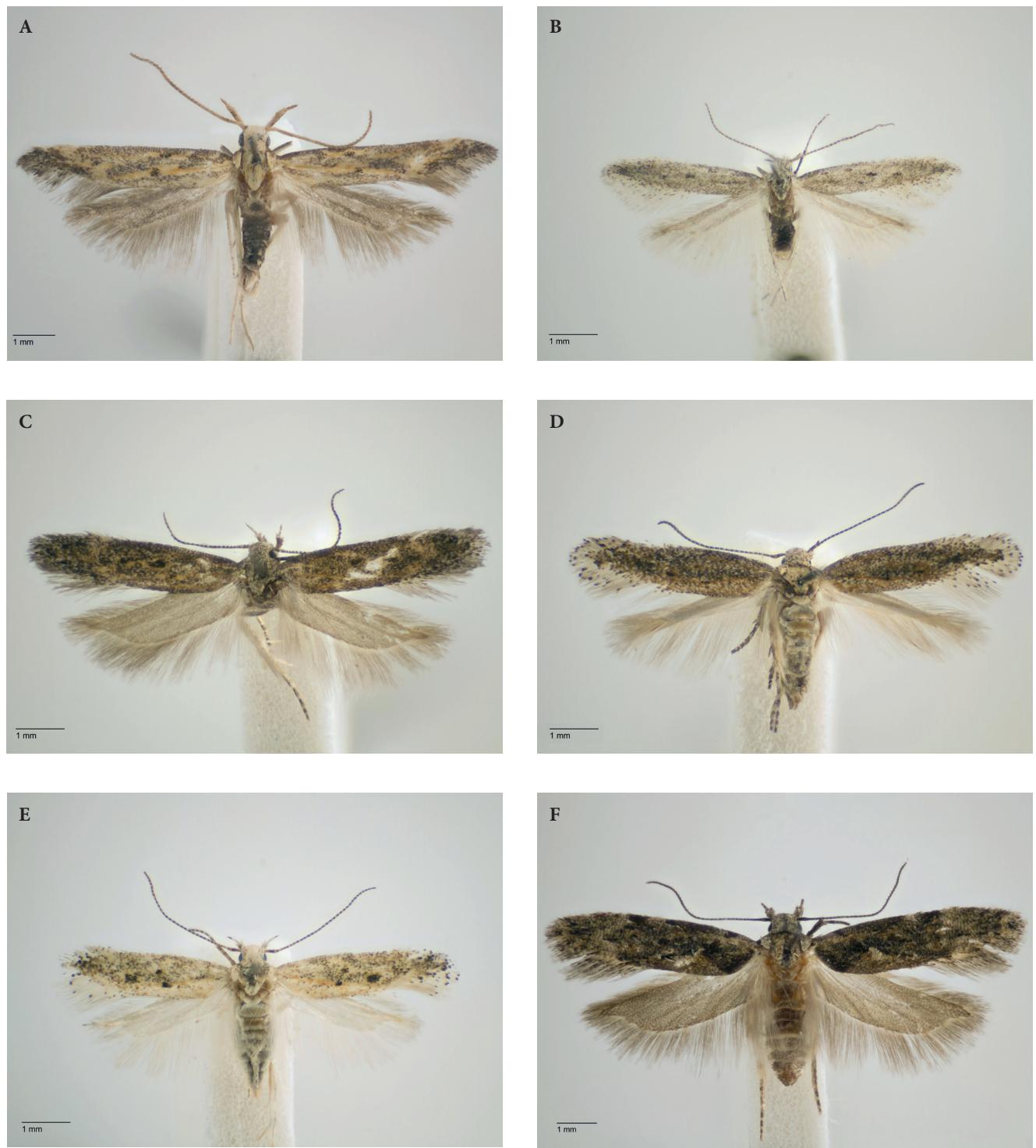


Fig. 35 - Interesting species of Gelechiidae found on the island. A - *Metzneria diffusella*, ♂, Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; B - *Huemeria campicolella*, ♂, Picik, 10.VI.2019, leg. Baldizzone; C - *Scrobipalpa arenbergeri*, ♂, Hlam, Branušine, 8.IX.2013, leg. Baldizzone; D - *Scrobipalpa tokari*, ♀, Str. Punat-Stara Baška, Hrusta, 18.V.2022, leg. Baldizzone; E - *Ephysteris diminutella*, ♀, Str. Punat-Stara Baška, Hrusta, 31.VIII.2017, leg. Baldizzone; F - *Carpatolechia fugacella*, ♀, Picik, 18.VI.2019, leg. Baldizzone. Photo: S. Selvantharan.

- Interessanti specie di Gelechiidae raccolte nell'isola. A - *Metzneria diffusella*, ♂, Obzova, Malmašuta, 10.VIII.2020, leg. Baldizzone; B - *Huemeria campicolella*, ♂, Picik, 10.VI.2019, leg. Baldizzone; C - *Scrobipalpa arenbergeri*, ♂, Hlam, Branušine, 8.IX.2013, leg. Baldizzone; D - *Scrobipalpa tokari*, ♀, Str. Punat-Stara Baška, Hrusta, 18.V.2022, leg. Baldizzone; E - *Ephysteris diminutella*, ♀, Str. Punat-Stara Baška, Hrusta, 31.VIII.2017, leg. Baldizzone; F - *Carpatolechia fugacella*, ♀, Picik, 18.VI.2019, leg. Baldizzone. Foto: S. Selvantharan.

allocate additional financial resources towards nature preservation, ensuring the retention of its traditional landscape in order to safeguard the exceptional biodiversity it harbors, not only Lepidoptera.

This study provides an overview of the Gelechiidae moths of Krk Island, Croatia, including their diversity, distribution patterns, and ecological associations. The findings enhance our understanding of the moth fauna on the island and contribute to a broader knowledge of Gelechiidae moths in the Mediterranean region. Further research is highly recommended to comprehensively investigate various aspects related to Gelechiidae moths. Specifically, it would be valuable to study their life cycle, population dynamics, and potential interactions within the island's diverse ecosystem.

The current landscape of the island is undergoing significant changes primarily due to mass urbanization driven by rapid tourism growth. The shift from traditional practices such as grazing and mowing of meadows to the pursuit of more lucrative opportunities in tourism has resulted in the abandonment of these practices. Consequently, there has been an extensive overgrowth of vegetation on the island. Additionally, the replacement of sheep grazing with cattle grazing has altered the composition of vegetation, further exacerbating the changes. Furthermore, the effects of climate change, including higher temperatures and prolonged drought periods, have also contributed to shifts in vegetation patterns. These collective factors have had a substantial impact on the Lepidoptera fauna inhabiting the island.

The invasion of non-native plant species, such as *Ailanthus altissima*, poses an additional threat to the island's landscape. *Ailanthus altissima* is spreading rapidly and covering significant areas, gradually displacing native plant species. The proliferation of invasive plants further complicates the ecological dynamics and poses a considerable challenge to the preservation of native biodiversity, including the Lepidoptera fauna.

In light of these complex ecological transformations, further research is necessary to gain a comprehensive understanding of the Gelechiidae moths and their ecological roles within the island's ecosystem. Lepidoptera, especially Microlepidoptera, serve as highly reliable biological indicators, capable of providing precise and verifiable management insights through subsequent and systematic investigations. Investigating their life cycle, population dynamics, and interactions with the changing environment will aid in formulating effective conservation strategies to protect the Lepidoptera fauna and mitigate the adverse effects of urbanization, altered grazing practices, climate change, and invasive species.

Manuscript received on 20.VI.2023, accepted on 2.VIII.2023.

5. Acknowledgements

We thank Peter Huemer (TLMF - Tiroler Landesmuseum Ferdinandeum, Innsbruck, Austria) for his assistance in the information he provided and for the review of the Heinz Haberer collection at TLMF. We would also like to extend our thanks to Bojan Zadravec (Nova Gorica, Slovenia), Leo Kusmits (Graz, Austria), Rupert Fauster (Graz, Austria) and Neda Zoppi Baldizzone (Asti, Italy), for their participation in field research on the island. Many thanks to Jacques Nel (La Ciotat, France) for his expertise in identifying numerous specimens collected by the second author over the years. We are especially grateful to Thierry Varenne (L'Epine, France) for providing the photographs of some gelechids captured in their natural habitats. We are grateful to Sree Gayathree Selvanthanar (Natural History Museum of Denmark, Copenhagen, Denmark) for photographing set specimens, and to Oleksiy Bidzilya (Academy of Sciences of Ukraine, Kyiv, Ukraine), for valuable discussions. Rudi Keller (Esslingen, Germany), Karsten Schnack (Copenhagen, Denmark) and Peder Skou (Aamosen, Denmark) kindly donated specimens of Gelechiidae from Krk to the collection of ZMUC. We also thank Toni Koren (Zagreb, Croatia) for assisting the second author in obtaining the official permits to collect Lepidoptera in accordance with the country's legal regulations. Natalia Kirichenko (Krasnoyarsk, Russia) provided valuable comments on the text and helped improving the English. Lastly, we extend our thanks to Paolo Glerean (Museo Friulano di Storia Naturale, Udine, Italy) for his help in the text layout, arrangement of photographs, and his overall collaborative and friendly assistance.

6. References

- BALDIZZONE G. 2016, *Coleophora curictae Baldizzone: a new species of the C. zelleriella Heinemann, 1854 group. Contribution to the knowledge of Coleophoridae. CXXXVI (Lepidoptera: Coleophoridae)*. SHILAP – Rev. Lepidopt., 44 pp. 455-462.
- BALDIZZONE G. 2019, *Contribuzioni alla conoscenza dei Coleophoridae (Lepidoptera). CXL. I Coleophoridae dell'Isoala di Krk (Croatia)*. Gortania. Botanica, Zoologia, 41, pp. 73-98.
- BENAC Č., TADIĆ A., PETROVIĆ V., JAKUPOVIĆ D., LJUBIČIĆ G., KRVAVICA N., RUŽIĆ I. 2021, *Ranjivost Obala Otoka Krka*. Hrvatske vode, 29, pp. 187-200.
- BERGGREN K., AARVIK L., KARSHOLT O., SLAGSVOLD P.K., MARTHINSEN G. 2023, *A new species of Brachmia Hübner (Lepidoptera, Gelechiidae) from South Europe*. Norwegian Journal of Entomology, 70, pp. 34–41.
- BONACCI O. & VRSALOVIĆ A. 2022, *Differences in Air and Sea Surface Temperatures in the Northern and Southern Part of the Adriatic Sea*. Atmosphere, 13, 1158, pp. 1-19. [url: <https://doi.org/10.3390/atmos13071158>]
- CROATIAN METEOROLOGICAL AND HYDROLOGICAL SERVICE 2023, Krk climate, consulted 31.V.2023. [url: <https://meteo.hr/>]
- GAEDIKE R. 1988, *Beitrag zur Kenntnis der lichenophagen Tineiden (Lepidoptera)*. Beiträge zur Entomologie, 38 (2), pp. 327-336.
- GAEDIKE R. & BALDIZZONE G. 2008, *Records of Lepidoptera Tineidae, Epermeniidae, and Acrolepiidae, from Krk*

- Island (Croatia)*. Entomologia Croatica, 12 (1), pp. 65-80.
- GOMBOC S., SULE D., KIRICHENKO N. 2023, *Leptiri otoka Šolte*. In SULED D. (ed.), *Gljive, lišajevi, flora i fauna otoka Šolte*. Općina Šolta, Grohote (cds).
- GOMBOC S. & SULE D. 2022, *Contribution to the moth fauna of the Croatian island of Šolta, with some interesting findings for the country*. Baćina, 31, pp. 38-138.
- GOTLIN ČULJAK T., RAŽOV J., GOMBOC S., GRUBIŠIĆ D., JURAN I., ŽANIĆ K. 2010, *Prvi nalaz lisnog minera rajčice Tuta absoluta Povolny, 1994 (Lepidoptera: Gelechiidae) u Hrvatskoj (The first record of tomato leaf miner Tuta absoluta Povolny, 1994 (Lepidoptera: Gelechiidae) in Croatia)*. Glasilo biljne zaštite, 4, pp. 273-281.
- GREGERSEN K. & KARSHOLT O. 2017, *Taxonomic confusion around the Peach Twig Borer, Anarsia lineatella Zeller, 1839, with description of a new species (Lepidoptera, Gelechiidae)*. Nota lepidopterologica, 40 (1), pp. 65-85.
- HABELER H. 1998, *Neue und bemerkenswerte Arten fur die Schmetterlingsfauna Kroatiens von der Insel Krk (Lepidoptera)*. Entomologia Croatica, 3, pp. 33-44.
- HABELER H. 2008, *Die Schmetterlinge der Adria-Insel Krk - Eine ökofaunistische Studie*. Esperiana. Schwanfeld, Buchreihe zur Entomologie (2003), pp. 1-221.
- HUEMER P. & KARSHOLT O. 1999, Gelechiidae I (Gelechiidae: Teleiodini, Gelechiini). In P. HUEMER P. KARSHOLT O., LYNEBORG L. (eds), *Microlepidoptera of Europe*, 3, Stenstrup, Apollo Books, 356 p.
- HUEMER P. & KARSHOLT O. 2010, Gelechiidae II (Gelechiinae: Gnorimoschemini). In HUEMER P., KARSHOLT O., NUSS M. (eds), *Microlepidoptera of Europe* 6, Stenstrup, Apollo Books, 586 pp.
- HUEMER P. & KARSHOLT O. 2018, *Revision of the genus Megacraspedus Zeller, 1839, a challenging taxonomic tightrope of species delimitation (Lepidoptera, Gelechiidae)*. ZooKeys, 800, pp. 1-278.
- HUEMER P. & KARSHOLT O. 2020, *Commented checklist of European Gelechiidae (Lepidoptera)*. ZooKeys, 921, pp. 65-140.
- LONELY PLANET 2023, *Krk climate*. Retrieved 31.V.2023. [url: <https://www.lonelyplanet.com/croatia/kvarner-gulf/krk>].
- KARSHOLT O. 2004-2023, Gelechiidae. In KARSHOLT O. & VAN NIEUKERKEN E. J. (eds). *Lepidoptera*. Fauna Europa-e, last update of Lepidoptera: version 2.4 January 2011, consulted 3.VI.2023. [url: <http://www.faunaeur.org>]
- KRK. *Hrvatska enciklopedija, online version*. Leksikografski zavod Miroslav Krleža, consulted 31.V.2023. [url: <http://www.enciklopedija.hr/Natuknica.aspx?ID=34101>]
- PARENTI U. 1978, *Nuove specie paleartiche del Genere Elachista Treitschke (Lepidoptera, Elachistidae)*, Bollettino del Museo di Zoologia dell'Università di Torino, 4, pp. 15-26.
- ROTTENSTEINER W.K., ZERNIG K., JAKELY D., SCHEUER C. 2020, *Beiträge zur Flora von Istrien VI: Eine kommentierte Prüfliste der Gefäßpflanzen als Grundlage für eine "Flora und Vegetation der Insel Krk (Veglia/Vögl) in der Quarner Bucht"*, Fritschiana, 95, pp. 1-75.
- ŠUMPIČ J. 2014, *Faunistic records of some Microlepidoptera from Croatia*, Entomologia Croatica, 17 (1-4) (2013), pp. 13-33.
- ŠUMPIČ J. & SKYVA J. 2012, *New faunistic records for a number of Microlepidoptera, including description of three new taxa from Agonoxenidae, Depressariidae, and Gelechiidae (Gelechioidea)*, Nota lepidopterologica, 35 (2), pp. 161-179.
- TABELL J. & BALDIZZONE G., 2014, *Coleophora mareki Tabell & Baldizzone, sp. n., a new coleophorid moth of the serpylletorum species-group* (Lepidoptera: Coleophoridae). SHILAP Rev. Lepidopt., 42: 399-408.
- TREMATERRA P. & BALDIZZONE G. 2004, *Records of Lepidoptera Tortricidae from Krk Island (Croatia)*, Entomologia Croatica, 8 (1-2), pp. 25-44.
- PATHPIVA, site des lépidoptères de France méridionale et de Corse, consulted 3.VI.2023. [url: <http://pathpiva.fr/>]
- WEATHER AND CLIMATE 2023, Krk, consulted 31.V.2023, [url: <https://weather-and-climate.com/average-monthly-precipitation-Rainfall-inches,krk,Croatia>]

Author's address - Indirizzo degli autori

- Ole KARSHOLT

Zoological Museum, Natural History Museum of Denmark, Universitetsparken 15, DK-2100 Copenhagen, Denmark.
e-mail: okarsholt@smm.ku.dk; <https://orcid.org/0000-0002-6969-2549>

- Giorgio BALDIZZONE

Via Manzoni 24, I-14100 ASTI
e-mail: baldizzonegiorgio@gmail.com
Muséum d'histoire naturelle de Genève, C.P. 6434, CH-1211 Genève 6, Suisse (Membre correspondant)
ORCID 0000-0001-8127-0843- Stanislav GOMBOC
Gančani 110, 9231 Beltinci, Slovenia
e-mail: stanislav.gomboc@siol.net