

THREE MONTANE GRASS MOTHS (LEPIDOPTERA: CRAMBIDAE) NEW TO THE FAUNA OF CROATIA

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Abstract

Three species of grass moths (Crambidae) were recorded for the first time in Croatia. *Udea alpinalis* and *Crambus ericella* were found on the peaks of Mts. Guslica and Snježnik in Gorski Kotar region, while *Catoptria pyramidellus* was recorded on various mountain chains across the country. The discovery of three montane species in Croatia demonstrates the lack of Microlepidoptera surveys in these areas and the need for further research.

KEY WORDS: *Udea alpinalis*, *Crambus ericella*, *Catoptria pyramidellus*, diversity, Gorski Kotar, mountains

Introduction

Grass moths (Crambidae) belong to one of the best studied Microlepidoptera groups in Europe, with a surprising number of available publications (Leraut, 2012; Slamka, 2006, 2008, 2013). However, the Crambidae fauna of many countries, especially in eastern Europe, has remained poorly studied. This is easily noticeable from the distribution maps published in a book series "Pyraloidea of Europe" (Slamka, 2006, 2008, 2013, 2019). Here, the highest occurrence of species is shown for Croatia, with a very limited number of records in eastern Europe. Only recently, a tentative checklist of all Pyraloidea of Croatia was published (Gumhalter, 2019). Although the checklist is based almost entirely on published papers and the examination of several smaller collections, it is useful as a good starting point to explore the Crambidae and Pyralidae fauna of the country.

Materials and Methods

During the faunistic surveys of the moths of Croatia in the past few years, a rich collection of Pyraloidea material was gathered (private collection Koren). While the correct identification of all the material is still underway, the first results have indicated a very diverse Crambidae fauna with several species noted as new to the country (Koren & Zadravec, 2018). In this paper, three additional species, previously unrecorded for Croatia, are presented.

Moths were surveyed using pyramidal UV light traps. Between two and five traps were usually in operation 4h after dusk at each locality. The collected specimens were set, identified and stored in the private collection of the author (Koren, Zagreb). For identification of species, we used Slamka (2006, 2008, 2013, 2019), both for the external morphology as well as the morphology of the male reproductive organs. For each species, the exact locality, coordinates, date and additional notes are provided.

Results

Catoptria pyramidellus (Treitschke, 1832)

Material examined: Croatia, NP Risnjak, Guslica, forest edge and grasslands, 19.07.2019, 15.08.2019, 45.452950 N, 14.571800 E, 1190 m a.s.l., 11 ♀♂, leg. Toni Koren; Croatia, NP Risnjak, Gerovski Kraj, Lazac meadows, 31.06.2019, 17.07.2019, 45.451449 N, 14.601518 E, 1254 m a.s.l., 2 ♀♂, leg. Toni Koren; Croatia, Mt. Klek, Bjelsko, beginning of the hiking path to Klek peak, 19.07.2014, 45.644312 N, 14.572766 E, 770 m a.s.l., 1 ♀♂, leg. Toni Koren; Croatia, Mt. Velebit, southeast of Štirovača, forest edge, 30.07.2015, 44.675356 N, 15.087906 E, 1185 m a.s.l., 6 ♀♂, leg. Toni Koren; Croatia, Mt. Velebit, Visočica, Jadrina Poljana, edge of *Fagus* forest, 12.08.2015, 44.438161 N, 15.353560 E, 1185 m a.s.l., 6 ♀♂, leg. Toni Koren; Croatia, Mt. Velebit, Visočica, Siljevača, dry grasslands and forest edge, 44.467207 N, 15.294623 E, 1126 m a.s.l., 3 ♀♂, leg. Toni Koren; Croatia, Mt. Velebit, Mali Alan, pastures and forest edge, 09.07.2018, 44.290438 N, 15.654049 E, 949 m a.s.l., 4 ♀♂, leg. Toni Koren; Croatia, Mt. Velebit, Zavižan forest edge, 18.8.2017, 44.808956 N, 14.971988 E, 1488 m a.s.l., 1 ♀♂, leg. Toni Koren; Croatia, Lička Plješevica, Mt. Poštak, Ljubina Poljana, grassland near the forest edge 11.07.2016, 44.261158 N: 16.103383 E, 1091 m a.s.l., 1 ♀♂, leg. Toni Koren; Croatia, Lička Plješevica, Stare Paljevine, 27.07.2015, 44.810291 N, 15.715729 E, 1169 m a.s.l., 1 ♀♂, leg. Mladen Zadravec; Croatia, Lička Plješevica, Mt. Poštak, grasslands near small quarry at Ljubina Poljana, 11.07.2016, 44.261227 N, 16.102745 E, 1094 m a.s.l., 10 ♀♂, leg. Toni Koren; Croatia, Lička Plješevica, Bijeli Potoci, Poljane, grasslands and forest edge, 02.07.2018, 44.679579 N, 15.845102 E, 1294 m a.s.l., 1 ♀♂, leg. Toni Koren; Croatia, Mt. Dinara, Brezovac, meadows and *Fagus* forest edge, 24.07.2018, 44.096325 N, 16.346750 E, 1232 m a.s.l., 4 ♀♂, leg. Toni Koren.

Note: This predominantly montane species (Fig. 1a) is distributed in the Alps, Apennines and adjacent regions (Slamka, 2008). Regarding its external morphology, it is very similar to *Catoptria margaritella* ([Denis & Schiffermüller], 1775), a species already recorded in Croatia (Slamka, 2008). In the most cases, it can be distinguished by the coloring of the fringes on the fore-wing outer edge. In *C. margaritella*, the edge is uniform, while in *C. pyramidellus* there is an interchange of lighter and darker areas (Lepiforum, 2020). However, it is easily separated on the basis of both male and female genital structures (see Slamka, 2008). Several males were dissected (Fig. 1b), and their morphology was in accordance with the figures given in Slamka (2008). Surprisingly, it seems that *C. pyramidellus* was overlooked in Croatia. The current distribution of this species in Croatia extends from the mountains of Gorski Kotar (Snježnik, Guslica, Klek) in the west, across Mts. Velebit, Lička Plješevica and Dinara. Since it was recorded on the mountains bordering Bosnia &

Herzegovina, records from that country are to be expected in the future. The closest records to those in Croatia are from Slovenia (Lesar & Govedič, 2010).

Crambus ericella (Hübner, 1813)

Material examined: Croatia, NP Risnjak, Guslica, forest edge and grasslands, 19.07.2019, 45.452950 N, 14.571800, 1190 m a.s.l., 1 ♀♂, leg. Toni Koren; Croatia, NP Risnjak, alpine meadows, 19.07.2019, 45.438365 N, 14.584635 E, 1254 m a.s.l., 3 ♀♂, leg. Toni Koren.

Note: This species (Fig. 1c) is present in the countries of central and northern Europe (Slamka, 2013). It is regarded as a local species inhabiting mountain areas (Slamka, 2008). According to Slamka (2008), it is present in dry habitats covered by heather in open pine forests. Several specimens of *C. ericella* were collected on Mt. Snježnik from a habitat matching this description, mainly grassland covered with short bushes at the edge of a beech forest. As the area is inaccessible for light trapping, specimens were collected during the day by beating the vegetation. Further visits to other mountains of Gorski Kotar or Velebit will probably result in more records of this species. The closest records to those in Croatia are from Slovenia (Lesar & Govedič, 2010).

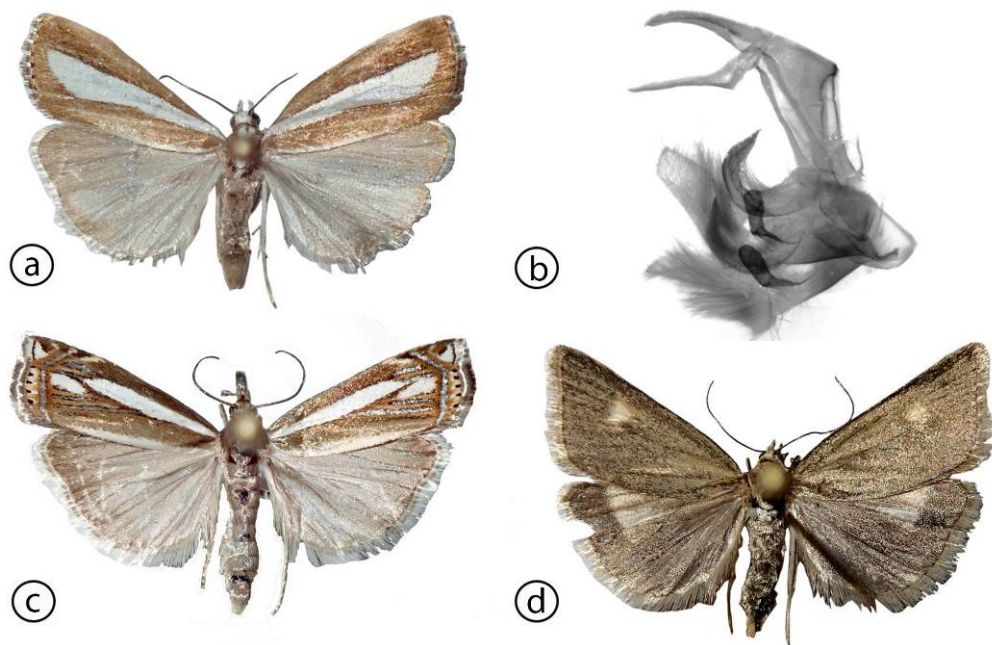


Figure 1. **a.** *Catoptria pyramidellus* from Mt. Velebit, Štirovača. **b.** Male genitalia of *C. pyramidellus* from Mt. Velebit, Štirovača. **c.** *Crambus ericella* from Snježnik peak in Risnjak National Park. **d.** *Udea alpinalis* from Snježnik peak in Risnjak National Park. (photos by Toni Koren).

Udea alpinalis (Denis & Schiffermüller, 1775)

Material examined: Croatia, NP Risnjak, Guslica, forest edge and grasslands, 19.7.2019, N: 45.452950, E: 14.571800, 1190 m a.s.l., 3 ♀♂, leg. Toni Koren; Croatia, NP Risnjak, alpine meadows, 19.7.2019, N: 45.438365, E: 14.584635, 1254 m a.s.l., 2 ♀♂, leg. Toni Koren.

Note: This montane species (Fig. 1d) is distributed on mountain ridges across western, central and eastern Europe (Slamka, 2013). Neighboring Croatia, it is present in both Slovenia and Bosnia & Herzegovina (Slamka, 2013). Several specimens were observed on two mountain peaks of Risnjak National Park: Guslica and Snježnik. On Mt. Guslica, specimens were observed during the day and on light traps during the night. On Mt. Snježnik, several specimens were collected during the day, flying away from disturbed vegetation. As with *Crambus ericella*, further records are expected in the neighboring mountain ridges. The closest records to those in Croatia are from Slovenia (Lesar & Govedič, 2010) and Serbia (Jakšić, 2016).

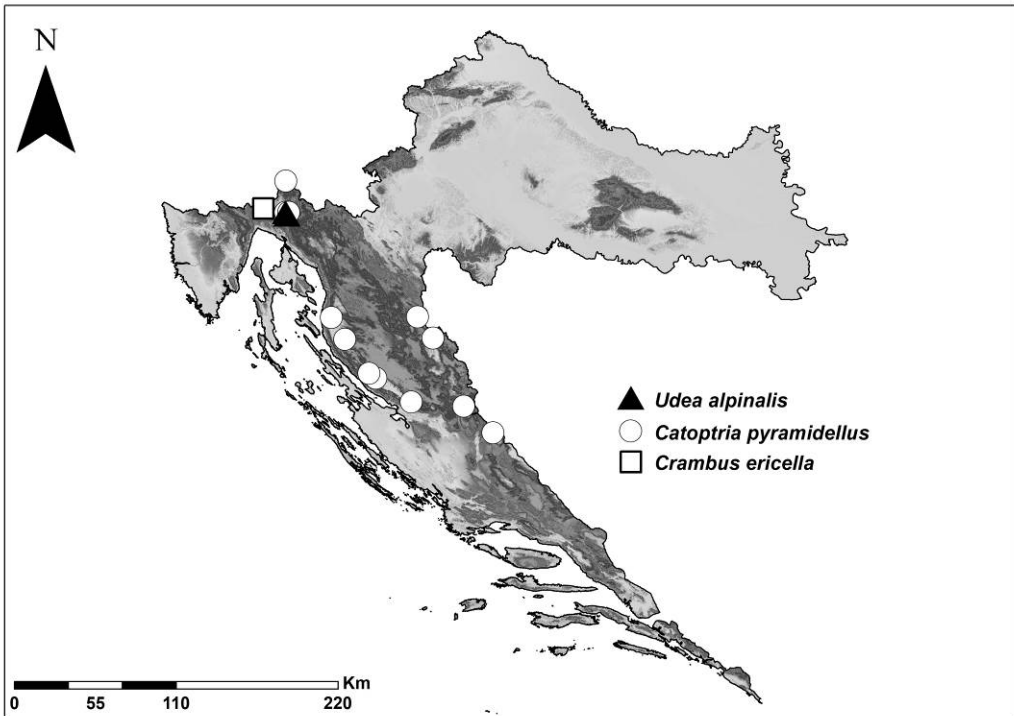


Figure 2. The distribution of three mountain Crambidae species in Croatia.

All three recorded species belong to the montane Microlepidoptera fauna (Fig. 2). While *C. pyramidellus*, according to the new records, is shown to be widespread across the alpine part of Croatia, *C. ericella* and *U. alpinalis* were recorded only from the Gorski Kotar region. This further emphasizes the importance of Gorski Kotar as a refugium of alpine species and indicates that more high-mountain Microlepidoptera as well as Macrolepidoptera (Lorković & Mladinov, 1985) will be recorded in the future. Additionally, the occurrence of

many species known in Croatia only from the old literature records (Gumhalter, 2019) need to be checked. This should help in assessing the current Crambidae diversity of the country.

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ТРИ ПЛАНИНСКЕ ВРСТЕ МОЉАЦА ТРАВА (LEPIDOPTERA: CRAMBIDAE) НОВЕ ЗА ФАУНУ ХРВАТСКЕ

ТОНИ КОРЕН

Извод

Три врсте мољаца трава (Crambidae) забележене су први пут у земљи. *Udea alpinalis* и *Crambus ericella* пронађени су на врховима Гуслица и Сњежник у Горском котару, док је врста *Catoptria pyramidellus* регистрована на разним планинским ланцима широм земље. Откриће три монтанске врсте у Хрватској указује на недовољну истраженост Микролепидоптера и потребу за даљим истраживањем тих подручја.

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