**ADDITIONS TO THE PYRALOIDEA MOTH FAUNA
(LEPIDOPTERA: PYRALOIDEA) OF CROATIA**Toni Koren¹

¹Association Hyla, Lipovac I no. 7, HR-10000 Zagreb, Croatia;
email: toni.koren@hhdhyla.hr

Abstract - Two Pyraloidea species are reported as new members of the fauna of Croatia. *Acentria ephemerella* ([Denis & Schiffermüller], 1775) from the Crambidae family was documented in Kopački rit Nature Park, while *Hypsotropa unipunctella* Radonot, 1888 from Pyralidae family was observed on three locations across eastern Slavonia and Baranja regions of Croatia. The presence of both species in the area was anticipated due to their established presence in neighbouring Serbia and Hungary. With these additions, the number of known Pyraloidea species in Croatia now counts 399 species.

KEY WORDS: *Acentria ephemerella*, Crambidae, *Hypsotropa unipunctella*, Pyralidae, distribution, Kopački rit Nature Park

Izveček DOPOLNITEV K FAVNI PYRALOIDEA (LEPIDOPTERA: PYRALOIDEA) HRVAŠKE

V prispevku poročamo o najdbah dveh dodatnih vrst Pyraloidea za favno Hrvaške. *Acentria ephemerella* ([Denis & Schiffermüller], 1775) iz družine Crambidae je bila zabeležena v Naravnem parku Kopački rit, medtem ko je bila *Hypsotropa unipunctella* Radonot, 1888 iz družine Pyralidae zabeležena na treh lokacijah v vzhodni Slavoniji in Baranji na Hrvaškem. Zaradi prisotnosti obeh vrst v sosednji Srbiji in na Madžarskem sta najdbi vrst na tem območju pričakovani. Z zadnjima najdbama število znanih vrst Pyraloidea na Hrvaškem sedaj šteje 399 vrst.

KLJUČNE BESEDE: *Acentria ephemerella*, Crambidae, *Hypsotropa unipunctella*, Pyralidae, razširjenost, Naravni park Kopački rit

Introduction

The members of the superfamily Pyraloidea are typically small to medium moths, with a wingspan ranging from 5 to 80 mm, usually between 20 and 30 mm. They are characterized by the presence of paired tympanic organs in abdominal segment 2

(Leraut 2014). Within this superfamily, two families are distinguished: Pyralidae and Crambidae. Pyralidae can be distinguished from Crambidae by the closed tympanic cavities and the tympanic frame positioned at the level of the free part of the sternite (Leraut 2014).

The superfamily Pyraloidea is among the most well-studied Microlepidoptera superfamilies in Europe, with several books and identification guides available (Slamka 2006, 2008, 2013, 2019; Leraut 2012, 2014).

Worldwide, the superfamily comprises more than 16,700 described species, while in Europe, 1060 have been recorded thus far (Slamka 2022). In the Balkan peninsula, 569 species are known to occur (Plant & Jakšić 2018), although this number varies by country. Croatia stands out as one of the best-studied micromoth superfamilies, with 397 species recorded to date (Gumhalter 2019, 2021).

In this study, we present the first country records two additional species, *Hypsotropa unipunctella* Radonot, 1888, and *Acentria ephemerella* ([Denis & Schiffermüller], 1775).

Materials and methods

The survey was conducted in Croatia from 2021 to 2022. Two main light-trapping methods were utilised. The primary method involved light tent pyramids comprising a metal frame, and UV lamps connected to a 12 V battery, and covered with a white canvas. Six tent pyramids were positioned approximately ten meters apart. The second method involved the use of a 6 W 12 V Portable Heath Moth Trap which were deployed on site and retrieved the following morning. Three Portable Heath Moth Traps were utilised per locality and night. Field data were recorded using the android application and digital platform Biologer (Popović et al. 2020). Specimens were collected, identified, and preserved in the private collection Koren. For each record, the exact locality, coordinates, altitude, and dates are provided. Genital preparation and identification for the genus *Hypsotropa* were conducted using the genital slide photos on Lepiforum (Lepiforum e.V. 2023).

Results and discussion

For each recorded species, the data for the records are provided, and their distribution is illustrated in Figure 1.

Acentria ephemerella ([Denis & Schiffermüller], 1775)

Examined material: **Croatia**, Kopački rit Nature Park, south of Zlatna greda, banks of the small stream, 45.706994° N, 18.870102° E, 81 m a.s.l., 20.6.2021, 1 ex, leg. TK.

This is the only species of the genus *Acentria* present in Europe. It is a small moth species with the wingspan ranging between 13 and 16 mm. It is easily recognizable due to its narrow and elongate forewings. This Holarctic species is distributed across Europe (Leraut 2012). In the Balkan peninsula, it is so far known from Slovenia, Serbia, Romania, Bulgaria, and Greece (Plant & Jakšić 2018). Although present in



Fig. 1. Distribution of two newly recorded Pyraloidea species in Croatia; *Acentria ephemerella* ([Denis & Schiffermüller], 1775) (green circle) and *Hypsotropa unipunctella* Radonot, 1888 (red circles).

Slika 1. Karta razširjenosti novo zabeleženih vrst Pyraloidea na Hrvatskom; *Acentria ephemerella* ([Denis & Schiffermüller], 1775) (zeleni krog) i *Hypsotropa unipunctella* Radonot, 1888 (rdeći krog).

the countries surrounding Croatia, it has not been recorded in the country previously (Gumhalter 2019).

This species is one of several Crambidae with aquatic larvae that can inhabit depths of up to 2 m in water, feeding on different water plants such as *Zostera maritima* and *Elodea canadensis* (Leraut 2012). In this species, females can be winged and similar to males, or they can be micropterous and live in the water (Leraut 2012). Despite being a common species, it is often overlooked due to its aquatic habitats, and adults tend to stay close to water bodies. This was observed in Croatia as well, as surveys were performed directly close to water courses. In this study, the Heath trap was positioned within the *Phragmites* vegetation in the stream bed and left overnight. However, only a single specimen was collected in the area. Further targeted surveys near water bodies are necessary to assess its status in the region. The discovery of *Acentria ephemerella* represents a new genus and species record for the fauna of Croatia.

Hypsotropa unipunctella Radonot, 1888

Examined material: Croatia, Donji Miholjac, Koška, a forest north of the settlement, 45.567860° N, 18.241458° E, 95 m a.s.l., 12.7.2022, 1 ex, leg. TK; Baranja, Draž, edge of the vineyards south of the settlement, 45.825591° N, 18.798062° E, 118 m a.s.l., 1 ex, leg. TK; Kopački rit Nature Park, west of Zlatna greda, banks of the stream, 45.72269° N, 18.841284° E, 79 m a.s.l., 4.8.2021, 1 ex, leg. TK.

The genus *Hypsotropa* Zeller, 1848 in Europe comprises three species (Leraut, 2014); *Hypsotropa limbella* (Zeller, 1848), *Hypsotropa unipunctella* Radonot, 1888 and *Hypsotropa vulneratella* (Zeller, 1847). Among these, *H. limbella*, and *H. vulneratella* have previously been recorded in Croatia (Plant & Jakšić, 2018). However, there is a significant disparity in the number of records for these two species. While many records exist for *H. limbella* in Croatia (Mann 1857, 1869; Staudinger & Wocke

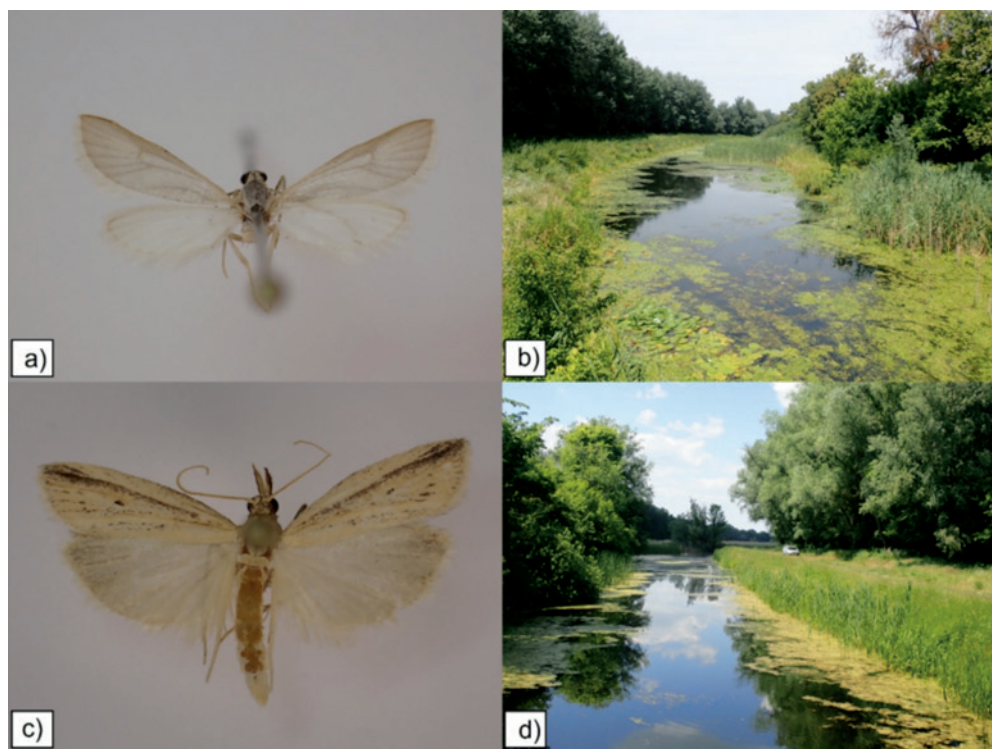


Fig. 2. a) *Acentria ephemerella* from Kopački rit Nature Park, b) Habitat of *A. ephemerella* at Kopački rit Nature Park, south of Zlatna greda, c) *Hypsotropa unipunctella* from Kopački rit Nature Park, d) Habitat of *H. unipunctella* at Kopački rit Nature Park, west of Zlatna greda.

Fig. 2. a) *Acentria ephemerella* iz Naravneg parka Kopački rit, b) Habitat vrste *A. ephemerella* v Naravnem parku Kopački rit, južno od Zlatne grede, c) *Hypsotropa unipunctella* z Naravneg parka Kopački rit, d) Habitat vrste *H. unipunctella* Naravneg parka Kopački rit, zahodno od Zlatne grede.

1871, Abafy-Aigner et al. 1896; Rebel 1910, 1913; Schawerda 1921; Koča 1925; Klimesch 1942; Neustetter 1956; Habeler 2003), only a single record exists for *H. vulneratella* (Mann, 1869).

With this study, the third species, *H. unipunctella*, is now confirmed to be present in Croatia. Currently, its distribution covers the parts of eastern Slavonia and Baranja regions, bordering Hungary and Serbia. Given its known to occurrence in Hungary (Leraut 2014), its presence in Croatia represents a natural extension of its known range in Europe. In neighbouring Serbia, no published records exist for this species (Plant & Jakšić 2018) but numerous unpublished records are accessible through the online database Alciphron (HabiProt 2014-2023).

The distribution of this species is very wide, from central Europe to China (Leraut 2014). It is a local species active from July to September. The larvae are unknown and probably feed on grasses (Slamka 2022). This species is most similar to *H. limbella*, differing from it by forewings more strongly marked with brown and creamy scales and the fringe being concolorous on the wing (Leraut 2014).

Conclusions

Both recorded species have been found in north-eastern Croatia, regions Slavonia, and Baranja, which are among the least studied parts of Croatia regarding moth diversity. An exception is Kopački rit Nature Park, where a preliminary moth survey has been conducted (Vignjević et al. 2010). Both species discussed in this study were found, among other localities, in Kopački Rit Nature Park. This area is significant for hygrophilous moth species and should be subject to further surveys in the future.

With addition of these species, the known number of Pyraloidea species in Croatia has increased to 399 (Gumhalter 2019, 2021). The current number surpasses that of other Balkan countries, with Greece having the closest count of 395 species and Bulgaria with 394 species (Plant & Jakšić 2018). However, it is likely that the checklist is still incomplete, and many additional species, known to inhabit neighboring countries, especially Slovenia and Hungary, are anticipated to be recorded in Croatia.

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Autor(en)/Author(s): Koren Toni

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