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Ecpyrrhorrhoe diffusalis (Guenée, 1854) is a relict species in Hungary (Lepidoptera: Crambidae)

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Fazekas, I.: *Ecpyrrhorrhoe diffusalis (Guenée, 1854) is a relict species in Hungary (Lepidoptera: Crambidae).*

Abstract: The postglacial relict species *Ecpyrrhorrhoe diffusalis* (Guenée, 1854) is a very rare crambid species in Hungary. The distribution of this species in Hungary and Europe is reviewed based on collection and literature data.

Keywords: Lepidoptera, Crambidae, *Ecpyrrhorrhoe diffusalis*, relict species, biology, distribution, Hungary.

Introduction

All available information on the distribution of *Ecpyrrhorrhoe diffusalis* in Hungary and Europe is collected. The published data based on faunistic papers and lepidopterological collections. In the last years (1980-2012), the author intensively surveyed the Hungarian habitats of this moth. These data comprise 22 years field works.

Ecpyrrhorrhoe diffusalis was described from France (Guenée 1854). So far, this species has been hardly studied. The distribution of this species is disjunct. The moth is relatively widespread but occurs always locally and rare from India and Asia Minor to southern Europe and Canary Island; from about 150 m up to 1600 m altitudes (Szent-Iványi & Uhrik 1942, Klimesch 1968, Mathew 2006).

Taxonomy
Lepidoptera
Crambidae
Pyraustinae
Ecpyrrhorrhoe Hübner, [1825], 1816
Harpadispar Agenjo, 1952
Pyraustegia Marion, 1963
Yezobotys Munroe & Mutuura, 1969,

Ecpyrrhorrhoe diffusalis (Guenée, 1854)
Botys diffusalis Guenée, 1854, Historie naturelle de insects 8, p. 340. Locus typicus: "France méridionale, envrions de Nimes et Montpellier".

References: Agenjo 1952, Borhidi 2003, Daniel et al. 1951, Fazekas 1996, 2002, Guenée 1854, Klimesch 1968, Mann 1854, Maes 1994, Mathew 2006, Nuss et al.

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2012, OSTHELDER & PFEIFFER 1940, POPESCU-GORJ 1964, REBEL 1899, REBEL & ZERNY 1931, SLAMKA 2010, 2013, SZABÓKY 1980, 2000, SZENT-IVÁNY & UHRIK-MÉSZÁROS 1942.

Diagnosis: Variable species. Wingspan: 19-22mm. Forewings colouration brownish-ochreous or reddish; with more distinct ante- and postmedial lines. Antemedian line brownish white and wide, especially in middle. Postmedial line in middle part less bulging and continues on the hind wings where paler. Medial area darker with c-shaped distal spot. External area of wings slightly darker.

Distribution: According to NUSS et al. (2012), it's distribution in Europe is restricted to Albania, Bosnia and Herzegovina, Bulgaria, Canary Is, Croatia, France, Greek, Hungary, Italia, Macedonia, Romania, Spain, and Switzerland. Known outside of Europe: Morocco, Turkey, Syria, Transcaucasia, Iran, Afghanistan, Pakistan, the United Arab Emirates and India (SLAMKA 2013).

One old record for Western Ukraine (Lvov) is not confirmed by recent data, probably it is erroneous or misidentified (see SLAMKA 2010). *E. diffusalis* is apparently a very rare and local species in central and Mediterranean Europe. It is not present on Mediterranean islands.

Biology: No detailed information is available on habitat preference. Adults attracted to light or flying in the daytime between plants in Hungary. SZABÓKY (2000) wrote "*Differentially from the related Crambidae species, it flies only in daytime. So far, it has been collected by light only*". This is a misstatement. In the last years (2000-2012), I intensively surveyed the moth's habitats and found thought the light-trap and light attracts the moth but it flies daytime as well. It is probably bivoltine, flies from May to mid-September. According to the literature the larva oligophagous on *Lavatera* and *Marrubium* species.

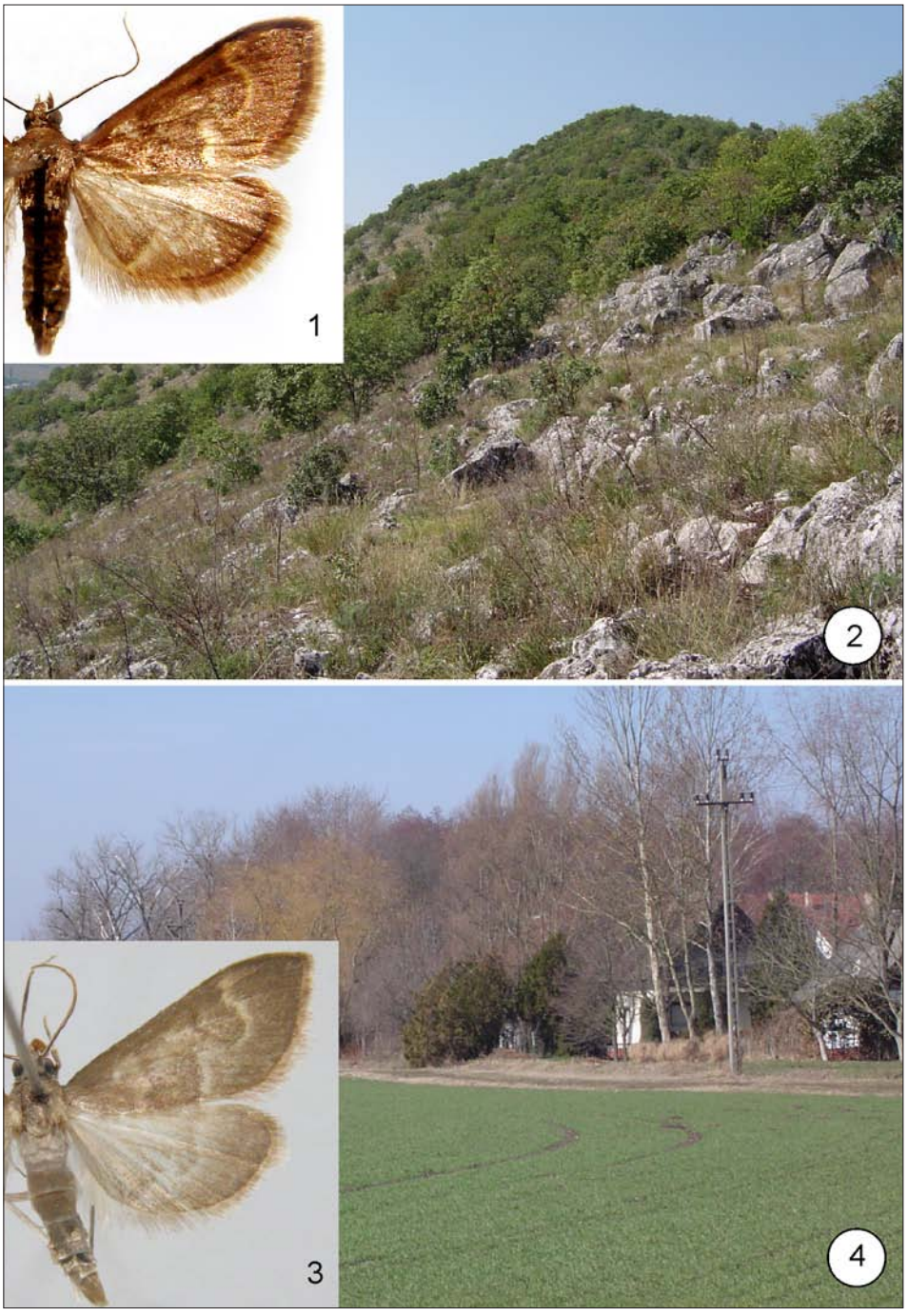
Investigation in Hungary

SZENT-IVÁNY and UHRIK-MÉSZÁROS (1942) published it from several localities outside the present Hungary: „Herkulesfürdő" (in Romania: Baile Herculeane) and Zengg (in Croatia: Senj). SZABÓKY (1980) recorded firstly from Hungary: South Hungary, Villány Hills, Nagyharsány, near Croatian border.

The localities of *E. diffusalis* are situated in 190 m altitude and the habitats are typically calcareous open rock grasslands with numerous endemic and relict plant species (e.g. *Trigonella gladita*, *Colchicum hungaricum*, *Medicago orbicularis*, *Orobanche nana*, *Sempervivum tectorum*). The characteristic association is *Sedo sopianae-Festucetum dalmaticae* on Triassic and Jurassic limestone SIMON 1964. The following other rare micro-moth species were also captured here: *Hepialus amasinus*, *Ecpyrrhorrhoe diffusalis* and *Jordanita fazekasi*.

The isolated, relict and xerothermophilous *Ecpyrrhorrhoe diffusalis* population in southern Hungary lives dominantly in this protected area (Natura 2000 site).

Collected data from Hungary: 2 males, "Villányi hg., Szársomlyó, 1979.VI.24. leg. Szabóky Cs., in coll. HNHM Budapest and Szabóky Cs.; 3 ex, Szársomlyó, szoborpark, 2003.VII.22. leg. Szabóky Cs. et Takács A., in coll. Buschmann F., Jászberény.



Figs. 1-4: Adult and habitat of *Ecpyrrhorrhoe diffusalis* in Hungary: 1) adult, Villány Hills, Szársomlyó hill; 2) habitat in Szársomlyó hill; 3) adult, Dombóvár-Gunaras; 4) habitat in Dombóvár-Gunaras.

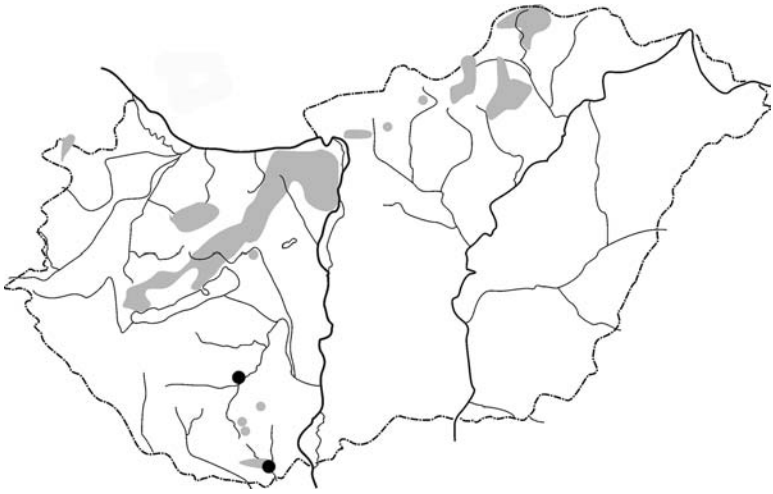


Fig. 5: The distribution of relict *Ecpyrrhorrhoe diffusalis* in Hungary. Distribution of calcareous open rocky grasslands in country (grey colour): the potential range of species.

New results: 1-1 males, H-Nagyharsány, Szársomlyó, 230 m (N45°51'22,38"; E18°25'3,91"), 2000.07.02; 2003.07.12; 2010.08.; 2012.07.18., leg. Fazekas I., in coll. Regiograf Institute, H-Komló; Finally, Dombóvár: Gunaras is a very surprising new occurrence in south Hungary (outside the protected area). Dombóvár, Gunaras, 1 male, 20.07.2007, leg. et in coll. A. Schreurs (NL-Kerkrade), det. J. Asselbergs, revid. I. Fazekas. The species is new for Tolna county and was unknown there to 2012.

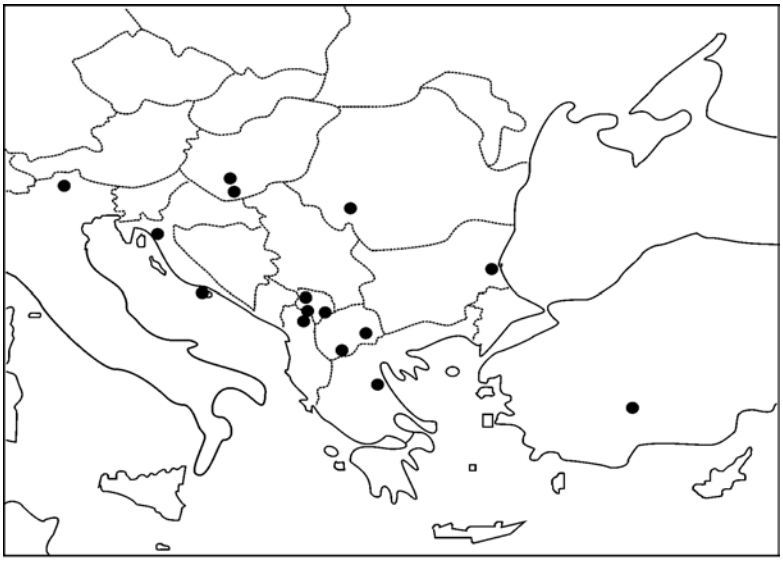


Fig. 6: Dot map of the distribution data of *Ecpyrrhorrhoe diffusalis* southeast in Europe was made on the basis of collection and literature data (schematic).

Discussion

Ecpyrrhorrhoe diffusalis is very rare but the Hungarian Red Data Book does not mention this (RAKONCZAY 1989), and does not protected by law. According to author, *Ecpyrrhorrhoe diffusalis* is a regressive postglacial relict element.

Many micro-moths exist only in isolated colonies as relict populations, separated from their relatives by climatic or ecological effects in the Pannonian region. Their unique relict populations located in Hungarian middle hills and in the Great Hungarian Plain are typically placed on limestone or dolomite mountains and sand-hill areas.

The Villány Hills, with xerothermophilous post-glacial vegetation, certainly provides optimal conditions for the Mediterranean and for other sub-Mediterranean fauna elements. The populations of *Ecpyrrhorrhoe diffusalis* restricted to limited areas in Hungary would deserve greater attention of the nature conservation authorities. I am working on a proposal to protect the habitats of this moth.

Acknowledgements

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