

First record of *Euzophera alpherakyella* Ragonot, 1887 (Lepidoptera: Pyralidae: Phycitinae) from Uzbekistan

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Abstract

This study presents the first confirmed record of *Euzophera alpherakyella* Ragonot, 1887 (Lepidoptera: Pyralidae: Phycitinae: Phycitini) from Uzbekistan. The species was identified based on two specimens collected from the Chimган foothills in the southern part of the Fergana Valley. In addition to a detailed morphological description of adult moths, diagnostic images of the male and female genitalia are provided to support the identification of the species.

Keywords

Phycitinae, *Euzophera alpherakyella*, *Elaeagnus*, first record, Uzbekistan, Fergana Valley, Chimган

Introduction

The *Euzophera* Zeller, 1867 belongs to the subfamily Phycitinae within the family Pyralidae. The Phycitinae is the largest subfamily, consisting mostly of small moths around the world. The Phycitinae subfamily comprises 3,529 species worldwide, which belong to 675 genera. Within this subfamily, the genus *Euzophera* includes 97 species distributed globally (Nuss et al. 2003-2023). This subfamily is characterized by larvae possessing a sclerotized ring at the base of the seta sD1 on the mesothorax. A defining morphological trait of Phycitinae is the presence of a single bristle in the female *frenulum*, similar to that of males. In contrast, pyralines and epipaschiines have two bristles, while galleriines and chrysaugines possess three. Additionally, the seminalis ductus in the Phycitinae originates from the corpus bursae, whereas in other pyralid subfamilies, it arises from the ductus bursae. Several taxonomic revisions of the Phycitinae have been conducted. The subfamily includes numerous species that are important pests of stored products, such as *Plodia* Guenée, 1845, *Cadra* Walker, 1864, *Ectomyelois* Heinrich, 1956, and *Etiella* Zeller, 1839. The larvae are leafrollers and borers in various plant parts, although some of them are known as predators of Homoptera Boisduval, 1852, such as *Laetilia* Ragonot, 1889 (Solis 2007).

Euzophera alpherakyella is a species within the subfamily Phycitinae. It was first described by Émile Louis Ragonot in 1887 (Ragonot, 1887). The presence of this species has been recorded in Russia, Ukraine, Turkey, Syria, Iran, Pakistan, China, Afghanistan, Kazakhstan, Turkmenistan, Kyrgyzstan, and Tajikistan (Roesler 1973; Anikin et al. 2003; Koçak and Kemal 2012; Kemal and Koçak 2017; Anikin et al. 2019; Sinev and Korb 2022; Yepishin et al. 2020; Rajaei et al. 2023; Jashenko et al. 2025). To date, there have been no documented occurrences of *E. alpherakyella* in Uzbekistan. This study represents the first record of *E. alpherakyella* for the entomofauna of Uzbekistan.

Materials and methods

The available material was collected from the Chimган foothills in the south of the Fergana Valley of Uzbekistan in 2024. The specimens were caught by light traps (DRL-250). After killing the sample with ethyl acetate, it was pinned and labeled. The samples were identified according to their external characteristics and genital structure (Kemal and Koçak 2017; Sinev and Korb 2022). Robinson (1976) method was used for the dissection and extraction of genitalia from specimens. Approximately 10% potassium hydroxide (KOH) was used to macerate the entire abdomen. The cleaned abdominal segments and genital organs were dehydrated overnight in 96% ethanol prior to mounting on Euparal. The male and female were dissected and prepared under a Leica S8APO stereo microscope (Shanghai MSS International Trade Co., Ltd., China). An adult specimen of the species was photographed with

a Canon EOS 1100D camera mounted on the Olympus BX41 stereomicroscope (Shanghai MSS International Trade Co., Ltd., China). The material is deposited at the Zoology Research Laboratory of Fergana State University (FSU).

Results

Superfamily Pyraloidea Latreille, 1802

Family Pyralidae Latreille, 1809

Subfamily Phycitinae Zeller, 1839

Tribe Phycitini Zeller, 1839

Genus *Euzophera* Zeller, 1867

***Euzophera alpherakyella* Ragonot, 1887**

Fig. 1

Euzophera alpherakyella Ragonot, 1887:254. Type locality: Kouldja, Schahkuh

Material: FSU 2024106001, 1♂; 1♀ Uzbekistan, Fergana province, Chimgan village, 40°16'27.1"N 71°31'55.8"E, 10–12.VI.2024, leg. Muminjon Mukhammedov.

Distribution. Turkey, Russia, Ukraine, China, Syria, Iran, Pakistan, Afghanistan, Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, *Uzbekistan (this study).

Host plant. The larvae are phytophagous and their known primary host is *Elaeagnus angustifolia* L. In Tajikistan and Kazakhstan, *E. alpherakyella* penetrated the young shoots from *Elaeagnus* species and damaged the growth tips of the plants (Jashenko et al. 2025). This can lead to wilting of the twigs and potentially reduced fruit or seed production of the host plant.

Natural enemies. In its ecosystem, *E. alpherakyella* also interacts with natural enemies. In particular, it is the host of the parasitoid tachinid fly *Germaria angustata* (Zetterstedt, 1844) (Ziegler 2014). In fact, *E. alpherakyella* is the only globally documented host of this tachinid; the fly larvae develop inside the caterpillars of the moth. This host-parasitoid relationship was recorded in China (Tschorsnig 2017). Apart from this, other interactions are not well documented, but as a borer living inside plant tissue, the larvae probably have some protection from common predators.

Description. Male (Fig. 1A). Forewing length 10 mm, width 5 mm, forewing span 22 mm. General coloration reddish-brown. Distinguished from congeners by the presence of characteristic transverse dark grayish band in the medial part of the forewing; black line separates the outer edge of the transverse band. The space

between the marginal lines narrowed medially. The basal part of the forewing and the area between the transverse band are relatively bright reddish. Basal band of the wing blackish, while margin regions brown or dark reddish-brown. Hindwing length 9 mm, width 7 mm. The central area of the hindwing is light gray, the margins dark brown. Wing veins distinct.

Female (Fig. 1B). Forewing length 11 mm, width 6 mm, forewing span 24 mm. Hindwing length 10 mm, width 8 mm. External morphological characteristics of the female almost identical to those of the male.

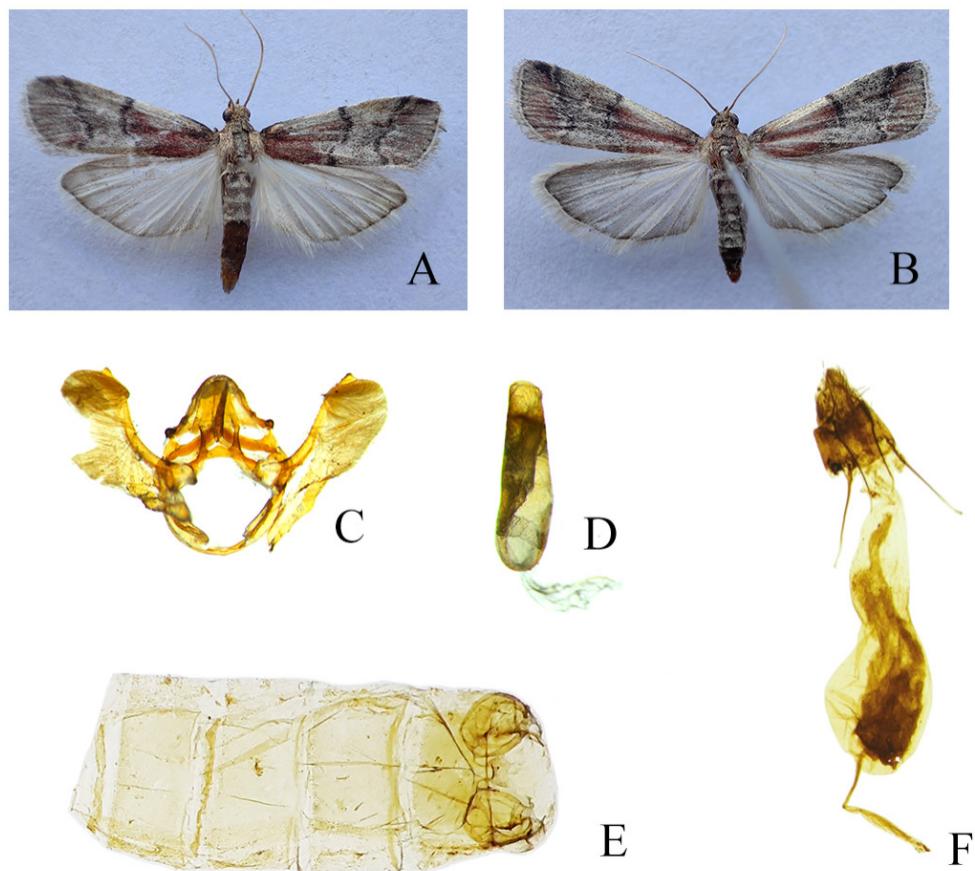


Figure 1. *Euzophera alpherakyella*: A – adult male; B – adult female; C – male arm genitals; D – aedeagus; E – female abdomen with tympanal organ; F – female genitalia.

Discussion

Several studies conducted to date have reported the presence of 62 species of the Phycitinae subfamily in Uzbekistan (Ragonot 1887; Koçak and Kemal 2012; Liu and Li 2012; Alipanah 2019; Tsvetkov 2024). However, since most of these records were not based on samples collected within the region, verified data on the number of species and the faunistic composition of this lepidopteran group in Uzbekistan remain limited. Therefore, systematic faunistic studies are necessary to clarify the actual species diversity and faunistic composition of Phycitinae within Uzbekistan. The first record of *E. alpherakyella* from Uzbekistan, particularly from the southern regions of the Fergana Valley, indicates that the diversity of the family Pyralidae in Uzbekistan is greater than previously assumed and highlights the need for continued investigations.

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