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# SPECIES COMPOSITION AND DISTRIBUTION OF PYRALIDAE FAMILY REPRESENTATIVES IN THE OQBILOL ADYRS

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**Abstract.** Existing published records on Pyralidae of Oqbilol in the southern Fergana Valley are reviewed to show what is known about the local fauna and what awaits field confirmation. A recent study of Fergana Valley agroecosystems in the 2020s records only two pyralid species from Oqbilol: Oncocera semirubella (Scopoli, 1763) by one female collected on 7 July 2022; and Euzophera bigella (Zeller, 1848) by two males collected on 10 June 2017. Both are from the cotton agroecosystem, not the natural adyr. For some context, the GBIF dataset "Fauna and ecology of pyralid moths (Lepidoptera: Pyralidae) of Southern Fergana" contains 231 records for 31 species. This is a useful supplement, but a reliable checklist and ecological characterization of the Oqbilol Adyrs will require that we do the fieldwork.

**Keywords**: Pyralidae, Lepidoptera, Oqbilol Adyrs, Fergana Valley, species composition, distribution, agroecosystem, Phycitinae.

## INTRODUCTION

Pyralidae is one of two families comprising the superfamily Pyraloidea, the other being Crambidae, a grouping that is supported by molecular phylogenetic analyses (Regier and others, 2012). Members of Pyralidae can be found in a wide range of natural and human-modified environments, and a number of species are found within agroecosystems, where they utilize cultivated plants and stored products. In the Fergana Valley the majority of published work has addressed the agroecosystems, leaving the organismic diversity of the foothill and adyr landscapes poorly known. Therefore, a major aim of this paper is to separate the recent records of Pyralidae found in cultivated areas, such as this study's contents, from those whose sourcing was in natural environments, meaning the adyrs.

Included in the coverage of this field work in the Fergana Valley published in 2022 is Oqbilol at 40°19′17.4″ N, 71°40′12.8″ E. In that paper locality No. 3 is given as a cotton agrocenosis. The observations reported herein therefore describe the fauna of the Oqbilol agroecosystem but not of the surrounding adyr land.

Additional information for the region can be found in Shermatov and others (2025, "Invertebrate fauna of Chimgan mountains"). The authors reported the first record of Euzophera alpherakyella Ragonot, 1887 in Uzbekistan from two specimens collected from the foothills of Chimgan in the southern Fergana Valley, confirming the presence of the species in this region of the valley. However, although the presence of E. alpherakyella in the Oqbilol Adyrs has not yet been demonstrated, the authors add useful context to this section of the map of the southern Fergana Valley.

The present review thus places emphasis on the species composition and the distribution of Pyralidae in Oqbilol and the surrounding region. Three levels of evidence are held separate: what is

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known from directly from the Oqbilol locality, what is known from on a broader basis over the southern Fergana Valley and what is known from ecological traits that require further sampling in the Oqbilol Adyrs.

## RESEARCH MATERIAL AND METHODS

The work area covered in this paper is the adyr region around Oqbilol village, located in Fergana District, Fergana Region. The relevant location of Oqbilol (Oqbilal) is given in the agroecosystem study (Todorov 2016) as followed with the referential coordinates (national geodetic grid system) (Oqbilol 40°19′17.4″ N, 71°40′12.8″ E [84°04′12.8″ E]) of locality. In the present paper these referential coordinates mark the centre of the locality. They are not intended to mark the perimeter of the Oqbilol Adyr.

The review draws on three main source groups. The records collected directly form Oqbilol were identified by a thorough literature scan and cross-checking with Shermatov (2023) which also helped to confirm record dates. The first record of E. alpherakyella from Uzbekistan was taken from Shermatov et al. (2025). The Oqbilol records were compared with all the Pyralidae records from Southern Fergana, listed in the GBIF occurrence data published by Mukhammedov and Alieva (2025) which included 31 species and 231 records. The agroecosystem of the Fergana Valley was discussed in the paper by Shermatov, Botirov and Abdikakhorov (2022), which contributed contextual information about the Oqbilol records.

A future survey designed specifically for the Oqbilol Adyrs should combine several standard entomological methods:

Light trapping – nocturnal sampling with a standardized light source, with trap type, lamp type, sampling time, weather conditions and coordinates recorded for each session.

Hand collection – collection of adults resting on vegetation and, where possible, immature stages associated with identified host plants.

Bait trapping – use of standardized fermenting or sugar-based baits when appropriate, with sampling effort recorded consistently.

Each specimen must be labeled with the collection date, precise locality, coordinates, elevation, biotope, method, and collector; host plant if known. The voucher material should be housed in an institutional or otherwise traceable collection. This will be crucial for distinguishing specimens collected within the natural Oqbilol adyr habitats from those collected from nearby field cropping and/or other agro-ecosystems.

Species identification must be based on external morphology and, when necessary, examination of the genital structures with the aid of relevant taxonomic literature. Scientific names and author-year should be verified against reliable nomenclatural references prior to publication. For Pyraloidea, the Global Information System on Pyraloidea (GlobIZ) is a valuable resource (Nuss et al., 2003–2024).

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Relative abundance in a standard sample of catches can be calculated as follows: $P = n/N \times 100$, where n represents the number of specimens of a given species and N the total number of specimens collected in the Pyralidae. For terms such as dominant, sub-dominant, and rare, thresholds must be predetermined and applied only to samples collected with similar effort. GBIF records are not produced following a standard protocol and are therefore assessed here as mere regional frequency of occurrence rather than abundance measures.

## RESULTS AND DISCUSSION

Shermatov (2023) records one female Oncocera semirubella (Scopoli, 1763) from 7 July 2022 and two males of Euzophera bigella (Zeller, 1848) from 10 June 2017. The locality is a cotton agrocenosis, so this establishes both species as present on Oqbilol, albeit in an agroecosystem context rather than a natural one.

Shermatov (2023) also records other Pyralidae from the Fergana Valley, but unless these specimens are known specifically to come from this collection, they cannot be considered indisputably present on Oqbilol. This dataset also includes Pasiphilitis communitaria (Eversmann, 1834) and Depressaria plutella (Hübner, 1817) among others, not found elsewhere in this paper.

A total of 31 species of Pyralidae are reported from the Southern Fergana valley, as per the 231 GBIF records listed in the Supplementary material (S1). Mukhammedov and Alieva (2025) provide no information on locality coordinates for any of these records, but this is a separate dataset and the frequency of each species in this dataset should not be read as an estimate of their abundance on Oqbilol Adyrs.

| No. | Species scientific name | GBIF records |
|---|---|---|
| 1 | *Oncocera semirubella* | 66 |
| 2 | *Pyralis farinalis* | 36 |
| 3 | *Euzophera bigella* | 15 |
| 4 | *Homoeosoma nebulella* | 15 |
| 5 | *Sciota rhenella* | 10 |
| 6 | *Etiella zinckenella* | 9 |
| 7 | *Merulempista amoenella* | 8 |
| 8 | *Psorosa dahliella* | 7 |
| 9 | *Merulempista cingillella* | 7 |
| 10 | *Ancylosis oblitella* | 6 |
| 11 | *Susia uberalis* | 5 |
| 12 | *Apomyelois ceratoniae* | 4 |
| 13 | *Ancylosis hellenica* | 4 |
| 14 | *Cadra furcatella* | 4 |
| 15 | *Plodia interpunctella* | 4 |
| 16 | *Lamoria zelleri* | 4 |
| 17 | *Lamoria anella* | 4 |

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|---|---|---|
| 18 | *Epischnia prodromella* | 3 |
| 19 | *Vietteia terstrigella* | 3 |
| 20 | *Phycita diaphana* | 2 |
| 21 | *Gymnancyla hornigii* | 2 |
| 22 | *Cadra figulilella* | 2 |
| 23 | *Synaphe bombycalis* | 2 |
| 24 | *Aglossa asiatica* | 2 |
| 25 | *Bradyrrhoa gilveolella* | 1 |
| 26 | *Gymnancyla gilvella* | 1 |
| 27 | *Euzophera alpherakyella* | 1 |
| 28 | *Ancylosis sareptalla* | 1 |
| 29 | *Phycitodes binaevella* | 1 |
| 30 | *Hypotia massilialis* | 1 |
| 31 | *Hypsopygia costalis* | 1 |

Note: The figures in the table are record counts from the Southern Fergana GBIF dataset, not specimen totals from a standardized survey of the Oqbilol Adyrs. The dataset was published on 12 October 2025 and is cited under DOI 10.15468/cegrmm.

At present, the regional dataset is not detailed enough to assign all 31 species to particular Oqbilol Adyr biotopes. The published Oqbilol material comes from a cotton agrocenosis and includes only the two species noted above. Ecological observations from other parts of the Fergana Valley, such as records of *Oncocera semirubella* from natural meadows and its association with alfalfa in cultivated habitats, can help shape field hypotheses, but these patterns still need to be tested locally.

Shermatov, Botirov and Abdikakhorov (2022) documented trophic relationships between 22 Pyralidae and Crambidae species and 30 cultivated plant species in Fergana Valley agrocenoses. Their findings highlight the potential importance of the transition between adyr vegetation and cultivated land around Oqbilol, where future sampling could compare natural and agricultural habitats directly.

The published Oqbilol records currently provide only two collection dates: 10 June 2017 for *Euzophera bigella* and 7 July 2022 for *Oncocera semirubella*. Shermatov (2023) reports *Oncocera semirubella* from April to October across the Fergana Valley, but this regional flight period cannot be assumed to represent Oqbilol. Establishing local seasonal activity will require repeated sampling throughout the vegetation season.

Shermatov and others (2025) confirmed *Euzophera alpherakyella* Ragonot, 1887 in Uzbekistan from two specimens collected in the Chimgan foothills. The Southern Fergana GBIF dataset also contains one record under this name. Neither source places the species at Oqbilol, so a local voucher or another verifiable record would be needed before it could be included in an Oqbilol checklist.

## CONCLUSION

Published evidence currently confirms two Pyralidae species from the Oqbilol locality: *Oncocera semirubella* and *Euzophera bigella*. Both were collected in a cotton agroecosystem. The

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Southern Fergana GBIF dataset adds a much broader regional picture, with 31 species represented by 231 records, but these records should be used as context rather than as a ready-made checklist for the Oqbilol Adyrs.

A fuller picture of the local fauna will depend on systematic fieldwork across clearly defined adyr biotopes and seasons. Well-documented voucher specimens would make it possible to prepare a defensible local checklist and to examine habitat distribution, seasonal activity and dominance patterns. In this way, future work can move from regional background data to an evidence-based account of the Pyralidae fauna of the Oqbilol Adyrs.

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