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BIOECOLOGICAL CHARACTERISTICS OF EREBINAE MOTHS (LEPIDOPTERA) DISTRIBUTED IN DESERT BIOCENOSES

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Annotation:
This article presents an overview of the distribution, biology, and ecological characteristics of moths belonging to the subfamily **Erebinae**, which are found in desert biocenoses. It includes a literature review on the topic, as well as a list of 28 species belonging to five tribes (Anydrophilini, Euclidiini, Pandesmini, Melipotini, and Pericymini), along with data on their collection time and location, phenological aspects, and developmental stages.

Keywords: Lepidoptera, Erebinae, Anydrophilini, Euclidiini, Pandesmini, Pericymini, desert, monovoltine, bivoltine, multivoltine.

Introduction

The fauna of the Republic of Uzbekistan is distinguished by its significant species diversity and zoogeographical variety. In particular, the desert biocenoses of the Republic of Karakalpakstan are noteworthy for the high diversity of moth species. Based on this, the present research is devoted to studying the moth fauna during the autumn-winter period in the desert biocenoses of Karakalpakstan.

In recent years, there has been growing interest in the study of local faunas and the individual biological characteristics of certain Lepidoptera species (Kononenko, 2005; Barbarich, 2012; Barbarich & Dubatolov, 2012; Matov & Kononenko, 2012).

Accordingly, we set out to study the Erebinae subfamily of moths distributed in desert biocenoses.

Study Area. The research was primarily conducted in the following regions: Oqqamish-1 (41°20'23.07"N, 61°17'32.84"E), Sarimoy (41°1'3.81"N, 62°6'54.27"E), Uch-Uchak (41°4'48.06"N, 61°58'50.00"E), Nukus Massif (41°10'10.48"N, 61°58'50.00"E), Pakhtaobod (41°53'35.78"N, 61°29'18.76"E), Zhanbakala (41°51'32.08"N, 61°16'41.76"E), and Nazarkhan (42°20'17.24"N, 59°59'55.57"E).

Materials and Methods

The material for this study was collected by the author between 2019 and 2024, using the following methods: to collect nocturnal moths, various artificial light sources were used during nighttime surveys. These included power generators, flashlights, electric grid lights, and mercury vapor lamps (DRL 400, DRL 200, DRL 150). In addition, ultraviolet (UV) lamps (UV-36W GLEECON) imported from the Russian Academy of Sciences were placed in specially designed entomological traps, following the methodologies described by I.M. Kirpichnikova (2001) and M.I. Falkovich (1979).

The collection and processing of Lepidoptera were carried out based on the procedures outlined by O.I. Merzheevskaya (1965), A.P. Kuzyakin (1993), and I.M. Kirpichnikova (2001). Species identification and taxonomic classification were conducted using the global reference "Lepidopterorum Catalogus: Fascicle 118 Noctuidae Part 1, 2, 3" by Robert W. Poole (1989). For the European part of the fauna, the works of M. Fibiger and H. Hacker (1990, 2004), as well as F. Hartig and V. Heinicke (1973), were extensively utilized.

Results and Discussion

The study presents data on the distribution, biological, and ecological characteristics of moths belonging to the subfamily Erebinae, observed in desert biocenoses. In particular, 28 species representing four tribes—Anydrophilini, Euclidiini, Pandesmini, and Pericymini—were identified. The list below provides detailed

information on each species, including the time and location of capture, phenological aspects, and developmental stages.

Phenology and Annual Developmental Stages of Moths of the Subfamily Erebinae Distributed in Desert Biocenoses

№	Taxon Name	Collection Date	Phenological Aspect	Annual Developmental Stage
	Subfamily: Erebinae			
	Tribe: Anydrophilini (Wiltshire, 1976)			
	Genus: Anydrophila			
1	Anydrophila imitatrix (Christoph, 1887)	17.VI. 2019 22.V. 2021 04.V.2022	spring–summer type	Monovoltine
2	Anydrophila mirifica (Ershov, 1874)	17.VI. 2019 22.V. 2023	spring–summer type	Monovoltine
3	Anydrophila simiola (Pungeler, 1900)[	17.VI. 2020 22.V. 2019	spring–summer type	Monovoltine
4	Anydrophila stuebeli (Calberla, 1891)	17.VI. 2020 22.V. 2023	spring–summer type	Monovoltine
5	Anydrophila sirdar (Brandt, 1939)	17. VI. 2020 22.V. 2022;	spring–summer type	Monovoltine
	Tribe: Euclidiini Guenée, 1852			
	Genus: Gonospileia Hubner, [1823]			
6	Gonospileia munita (Hubner, 1813)	1.VIII.2021 27.VIII.2022	spring–summer type	Bivoltine
	Tribe: Melipotini Grote, 1895			
	Genus: Drasteria (Hubner, 1818)			
7	Drasteria tenera (Staudinger, 1877)	17.VI.2019 17.VI.2020 04. V.2024	spring–summer type	Bivoltine
8	Drasteria sesquillina (Staudinger, 1888)	27.VIII.2019	spring–summer type	Monovoltine
9	Drasteria saisani (Staudinger, 1882)	05.VI.2024 12.V.2024	spring–summer type	Bivoltine
10	Drasteria sesquistria (Eversmann, 1854)	17.VI.2020 04.VI. 2023 04.VIII. 2024	spring–autumn type	Bivoltine
11	Drasteria picta (Christoph, 1877)	17.VI. 2021 22.VIII.2022 04.V.2023	spring–autumn type	Bivoltine
12	Drasteria cailino (Lefebvre, 1827)	23.IX.2019 04.IX.2020	spring–autumn type	Bivoltine

		28.VI.2022		
13	Drasteria rada (Boisduval, 1848)	10.VI.2019 14.VI.2020 17. IX.2021	spring–autumn type	Bivoltine and multivoltine
14	Drasteria catocalis (Staudinger, 1882)	10.VI.2019 14.VI.2020 08. VI.2024	spring–autumn type	Bivoltine and multivoltine
15	Drasteria chinensis (Alpheraki, 1892)	10.VI.2019 14.VI.2020 08. VI.2024	spring–autumn type	Bivoltine and multivoltine
16	Drasteria flexuosa (Menetries, 1848)	10.VI.2019 14.II.2020 08. VI.2024	winter–autumn type	Bivoltine
17	Drasteria hyblaeoides (Moore, 1878)	10.VI.2019 14.VI.2020 08. VI.2024	winter–autumn type	Bivoltine
18	Drasteria indecora (John, 1910)	10.VI.2019 14.VI.2020 08. VI.2024	spring–autumn type	Bivoltine
19	Drasteria kusnezovi (John, 1910)	10.VI.2019 14.VI.2020 08. VI.2024	spring–autumn type	Bivoltine
	Genus: Dysgonia (Hubner, 1823)			
20	Dysgonia rogenhoferi (Bohatsch, 1880)	28.VII.2022	spring–autumn type	Monovoltine
	Tribe: Pandesmini Kuhne & Speidel, 2004			
	Genus: Pandesma (Guenée in Boisduval & Guenée, 1852)			
21	Pandesma robusta (Walker, 1858)	10.VI. 2019 04.V. 2021 21.VI. 2020	spring–summer type	Monovoltine
	Genus: Clytie (Hubner, 1823)			
	Subgenus: Clytie Hubner, [1823]			
22	Clytie syriaca (Bugnion, 1837)	03.IX. 2019 27.VII. 2020 28. IX. 2021	spring–autumn type	Bivoltine
23	Clytie illunaris (Hubner, 1813)	27.VII.2020 23.IX. 2020	spring–autumn type	Bivoltine
24	Clytie gracilis (Bang– Haas, 1907)	12.07.2018 29.05.2019	spring–autumn type	Bivoltine
25	Clytie delunaris (Staudinger, 1889)	04.IX. 2019 27.VII. 2023 18.IX. 2023	spring–autumn type	Bivoltine

26	Clytie distincta (Bang–Haas, 1907)	04. VI. 2019 18.VI.2023	spring–autumn type	Bivoltine
27	Clytie terrulenta (Christoph, 1893)	22.V.2022 04. V.2024	spring–autumn type	Bivoltine
	Tribe: Pericymini Wiltshire, 1976			
	Genus: Pericyma			
28	Pericyma albidentaria (Freyer, 1842)	22.V.2022 04.V.2024	spring–autumn type	Bivoltine

An analysis of the taxonomic composition of the collected material revealed that the tribe Melipotini, particularly the genus Drasteria, includes the highest number of species. In contrast, the total number of species belonging to other tribes represents a relatively smaller proportion. Such distribution patterns are considered typical for desert fauna during the phenological period extending from the three winter months through to autumn.

Conclusion

In conclusion, based on the analysis of the collected material, a total of 28 species of moths belonging to the subfamily Erebinae were recorded in the desert areas of southeastern Karakalpakstan. These species were found to belong to 5 tribes, 6 genera, and 1 subgenus. According to phenological aspects, the species were distributed as follows: Spring–summer: 5 species, Spring–autumn: 16 species, Summer–autumn: 5 species, Winter–autumn: 2 species. According to their annual developmental stages: Monovoltine (one generation per year): 7 species, Bivoltine (two generations): 17 species, Multivoltine (multiple generations): 1 species, Bivoltine or multivoltine: 3 species.

References

1. Bekchanov, K.U. The Lepidoptera Fauna of the Badai-Tugay State Reserve of the Republic of Uzbekistan. – Moscow: Sputnik+, 2007. – p. 72–75.
2. Gorbunov, P.Yu. Higher Lepidoptera (Macrolepidoptera) of the Deserts and Southern Steppes of Western Kazakhstan. – Moscow, 2011. – p. 101.
3. Dunaev, E.A. Methods of Ecological and Entomological Research. // Textbook. – Moscow, 1997. – p. 3–41.

4. Kirpichnikova, I.M. Energy-saving Systems of Air Purification in Agricultural Premises with High Air Cleanliness Requirements: Doctoral Dissertation Abstract (Chemical Sciences). – Chelyabinsk, 2001. – p. 20.
5. Pesenko, Yu.A. Principles and Methods of Quantitative Analysis in Faunistic Research. – Moscow: Nauka, 1982. p – 288.
6. Sineva, S.Yu. Catalogue of Lepidoptera of Russia. – KMK Publishing House, 2008. – 424 p.
7. Falkovich, M.I. Seasonal Development of Desert Lepidoptera (Lepidoptera) of Central Asia and Its Historical-Faunistic Analysis. // Entomological Review. – Vol. 58, No. 2. – St. Petersburg, 1979. – p. 260–281.
8. Shchetkin, Yu.L. Higher Lepidoptera of the Sands of the Vakhsh Valley. – Academy of Sciences of the Tajik SSR, Dushanbe, 1965. – 194 p.
9. Fibiger, M., Hacker, H. Systematic List of the Noctuidae of Europe. // Esperiana, Volume 2. – Staffelstein and Schwanfeld, Germany, 1990.
10. Kravchenko, V.D., Miller, G., Orlova, O.B., Seplyarskaya, V.N. The Catocalinae (Lepidoptera: Noctuidae) of Israel. – Russian Entomological Journal, 2004.
11. Matov, A.Yu., Korb, S.K. A Revision of the Genus Drasteria of Central Asia and Kazakhstan with Special Attention to the Adjacent Areas (Lepidoptera: Erebidae). // Zootaxa. – Magnolia Press, Auckland, New Zealand, 2019. – p. 8–72.
12. Püngeler, R. New Macrolepidoptera from Central Asia. // Deutsche Entomologische Zeitschrift "Iris", Vol. XII. – Berlin, 1899. – p. 288–299, 177–191, Plates VIII–IX.