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Lepidoptera of Azerbaijan (Southern Transcaucasia). Family Coleophoridae

Lepidoptera Азербайджана (Южное Закавказье). Семейство Coleophoridae

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КЛЮЧЕВЫЕ СЛОВА: биоразнообразие, фауна, Кавказ, Coleophoridae, чехлоноски.

ABSTRACT. A checklist of casebearer moths (Coleophoridae, Lepidoptera) of Azerbaijan is presented. In total, 42 species from 22 genera within the family are recorded. Eleven species are reported for Azerbaijan for the first time. The following new combinations are proposed: *Orthographis santolinella* (Constant, 1890) **comb.n.** and *Orthographis santonici* (Baldizzone & Takács, 2022) **comb.n.**

РЕЗЮМЕ. Мы представляем фаунистический список Coleophoridae (Lepidoptera) Азербайджана, включающий 42 вида из 22 родов. Одиннадцать видов молей-чехлоносок приводятся для фауны Азербайджана впервые. Были установлены *Orthographis santolinella* (Constant, 1890) **comb.n.** и *Orthographis santonici* (Baldizzone & Takács, 2022) **comb.n.**

Introduction

A detailed revision of the family Colephoridae Hübner, 1825 of the Caucasus and Transcaucasia [Anikin, Shchurov, 2001], along with recent studies [Ustjuzhanin *et al*., 2022; Yakovlev *et al*., 2022; Sinev *et al*., 2023] has significantly expanded the knowledge of the casebearer moth fauna of the region. However, data on Coleophoridae of the Caucasus and Transcaucasia remain incomplete. The present paper is based on material collected by N.Yu. Snegovaya, N.A. Shapoval and R.V. Yakovlev in five localities in Azerbaijan [Streltzov *et al*., 2024] (Fig. 1).

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Material and methods

The moths were collected manually during daytime and at dusk, as well as using Naturaliste-180 light screen (equipped with an OSRAM-160, 250 W lamp) and autonomous light traps (ENTOSPHINX UV LED 12 V/19.2 W lamps with 240 UV LEDs). The base map of Azerbaijan was sourced from an open-access online resource (https://www.bluegreenatlas.com). The generic names of Coleophoridae in Table 1 follow the taxonomic order presented in the second edition of the "Catalog of Lepidoptera Russia" [Anikin, 2019]. Species within each genus are listed alphabetically. All identifications were based on genital morphology, analysed according to standard methodology [Robinson, 1976], and performed by the first author using specialized literature on the Coleophoridae family. Species newly recorded for Azerbaijan are marked with an asterisk (*) in the list (Table 1). Voucher specimens are deposited in the Zoological Institute of the Russian Academy of Sciences and the authors' private collections.

List of collecting localities

1. Azerbaijan, Salyan District, Shirvan Nature Reserve, 39°39′38″N, 49°20′25″ E, –20 m, 13–14.05.2023, N. Shapoval & R. Yakovlev leg.

2. Azerbaijan, vicinity of Mingechaur, Kura Valley, 40°47′47″ N, 47°3′12″ E, 100 m, 16–17.05.2023, N. Snegovaya, N. Shapoval & R. Yakovlev leg.

3. Azerbaijan, Agdash District, Bozdag Ridge, vicinity of Turianchai, 40°43′17″ N, 47°30′11″ E, 140 m, 18–19.05.2023, N. Snegovaya, N. Shapoval & R. Yakovlev leg.

4. Azerbaijan, Talysh Mts., Masalli District, 25 km SW of Masalli, 38°56′53″ N, 48°28′42″ E, 380 m, 21.05.2023, N. Snegovaya, N. Shapoval & R. Yakovlev leg.

5. Azerbaijan, Garadagh District, vicinity of Gobustan, 40°12′42″ N, 49°12′33″ E, 310 m, 22.05.2023, N. Shapoval & R. Yakovlev leg.

Faunistic and systematic notes

1. *Augasma uljanovi* Anikin, 2017.

Previously, the species was known only from the type locality in European Russia (Middle Volga region) [Anikin, 2017].

2. *Orthographis santolinella* (Constant, 1890) **comb.n.**

DNA barcoding of specimens from Hungary led to the description of a new species — *O. santonici* (Baldizzone et Takács, 2022) **comb.n.** [Baldizzone *et al*., 2022]. The new species belongs to the *O. ptarmicia* (Walsingham, 1910) group based on shared genital morphology, and is most similar to *O.*

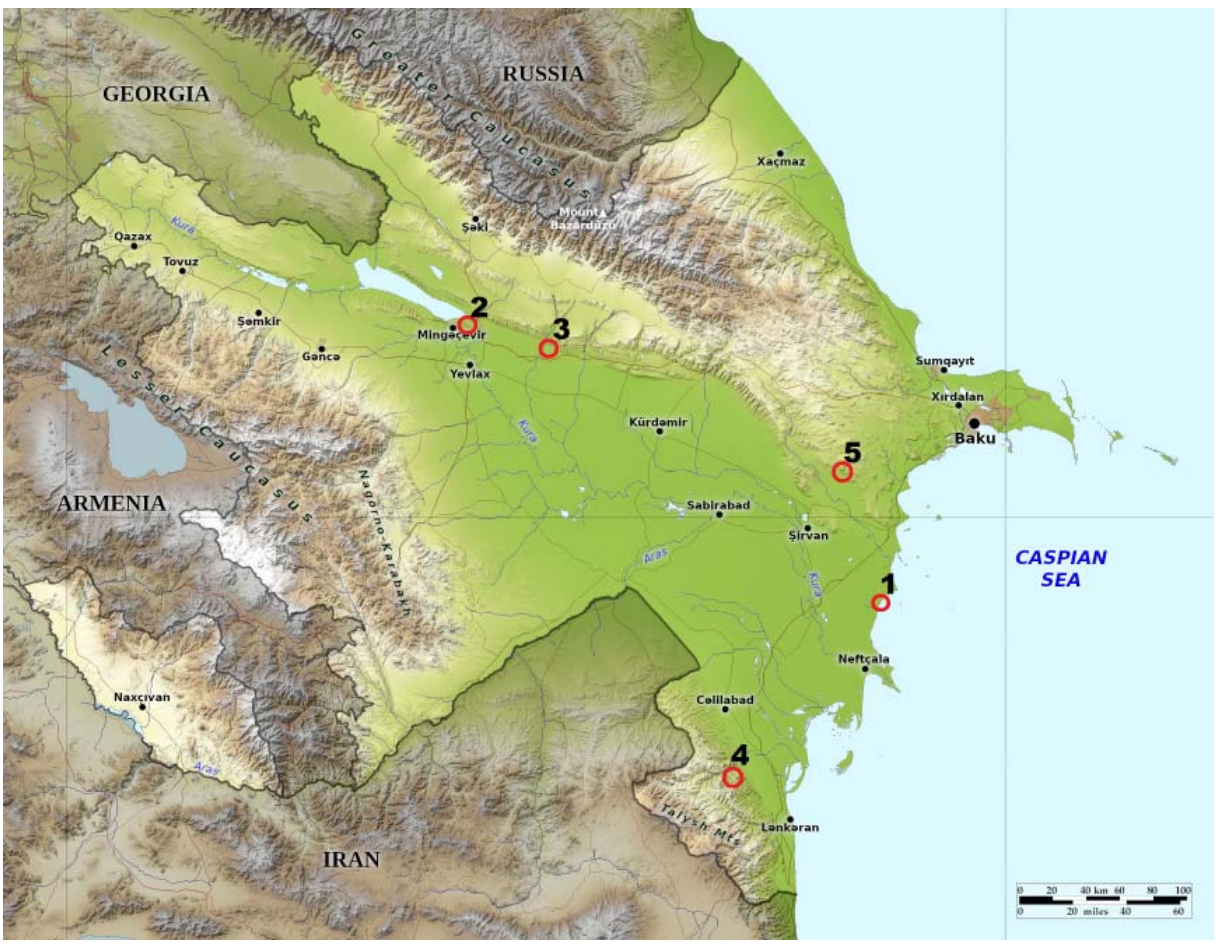

Fig. 1. Map of Azerbaijan with collecting localities of Coleophoridae.
Рис. 1. Карта Азербайджана с местами находок Coleophoridae.

Table 1. Checklist of Coleophoridae species recorded in Azerbaijan.
Таблица 1. Виды семейства Coleophoridae Азербайджана.

Species	Locality				
	1	2	3	4	5
**Augasma uljanovi* Anikin, 2017[1]	–	+	–	–	–
Casas zernyi (Toll, 1944)	Azerbaijan: Bilav, Ordubad distr. [Anikin, Shchurov, 2001: 172]				
Frederickoenigia flavipennella (Duponchel, 1843)	Azerbaijan: Alasha, Astara distr., Lerik [Anikin, Shchurov, 2001: 173]				
Haploptilia drymophila Falkovitsh, 1991	Azerbaijan: Adzhikend, Kedabek [Falkovitsh, 1991: 591]				
Cepurga hemerobiella (Scopoli, 1763)	Azerbaijan: Alasha, Astara distr., [Anikin, Shchurov, 2001: 173]				
Symphypoda parthenica (Meyrick, 1891)	–	+	+	–	–
	Azerbaijan: Lerik [Anikin, Shchurov, 2001: 174]				
Chnoocera botaurella (Herrich-Schäffer, 1861)	Azerbaijan: Apsheron lighthouse [Christoph, 1876–1877: 229]				
Bourgogneja pennella (Denis et Schiffermiiller,1775)	Azerbaijan: Gosmaljan, Lerik distr. [Anikin, Shchurov, 2001: 175]				
Coleophora albidella (Denis et Schiffermliller, 1775)	Azerbaijan: Zagatala Nature Reserve [Anikin, Shchurov, 2001: 174]				
Coleophora bedella Falkovitsh, 1976	Azerbaijan: Kuba [Anikin, Shchurov, 2001: 174]				
**Orthographis santolinella* (Constant, 1890)[2]	–	–	+	–	–
Valvulongia denigrella (Gerasimov, 1930)	Azerbaijan: Ordubad [Gerasimov, 1930: 41]				
Damophila mayrella (Hubner, 1813)	Azerbaijan: Gek-Gel (=Goy-Gol) [Anikin, Shchurov, 2001: 173]				
Damophila deauratella (Lienig et Zeller, 1846)	Azerbaijan: Chananab (= Channab) Ordubad distr., Gek-Gel (=Goy-Gol) Gel-Gel [Anikin, Shchurov, 2001: 174]				
Damophila alcyonipennella (Kollar, 1832)	Azerbaijan: Lerik, Alekseevka, Lenkoran distr., Kuba, Talysh Mts Avrora, Lenkoran distr. [Anikin, Shchurov, 2001: 174]				
Eupista ornatipennella (Hubner, 1796)	Azerbaijan: Bilav, Ordubad distr., Gosmaljan, Lerik distr.Belab, Gosmaljan [Anikin, Shchurov, 2001: 175]				
Eupista lixella (Zeller, 1849)	Azerbaijan: Dustaur (=Dustair), Gusar distr. [Anikin, Shchurov, 2001: 175]				
**Amseliphora niveicostella* (Zeller, 1839)	–	–	+	–	–
Multicoloria berlandella (Toll, 1956)	Azerbaijan: Gosmaljan, Lerik distr. [Reznik, 1989: 33]				
**Multicoloria ditella* (Zeller, 1849)	–	+	+	–	+
Multicoloria dubiella (Baker, 1888)	–	–	–	–	+
	Azerbaijan: Gosmaljan, Lerik distr. [Reznik, 1989: 38]				
Multicoloria guttella Reznik, 1979	Azerbaijan: Gosmaljan, Lerik distr. [Reznik, 1989: 38]				
Multicoloria partitella (Zeller, 1849)	Azerbaijan: Gosmaljan, Lerik distr. [Reznik, 1989: 38]				
Multicoloria symphistropha Reznik, 1976	Azerbaijan: Negram, Babek distr. [Reznik, 1976: 653]; Gosmaljan, Lerik distr. [Reznik, 1989: 36]				
Razowskia coronillae (Zeller, 1849)	Azerbaijan: Lerik [Anikin, Shchurov, 2001: 174]				
Apista gallipennella (Hubner, 1796)	Azerbaijan: Belokany, Lerik [Anikin, Shchurov, 2001: 174]				
Perygra alticolella (Zeller, 1849)	Azerbaijan: Kuba [Anikin, Shchurov, 2001: 175]				
Perygra taeniipennella (Herrich-Schäffer, 1855)	Azerbaijan: Gosmaljan, Lerik distr. [Anikin, Shchurov, 2001: 175]				
**Ecebalia eichleri* (Patzak, 1977)	–	+	–	–	–
Ecebalia lassella (Staudinger, 1859)	Azerbaijan: Alekseevka, Lenkoran distr. [Anikin, Shchurov, 2001: 176]				
Ecebalia therinella (Tengstriim, 1848)	Azerbaijan: Zagatala Nature Reserve [Anikin, Shchurov, 2001: 176]				
Ecebalia versurella (Zeller, I849)	Azerbaijan: Zagatala Nature Reserve, Alekseevka, Lenkoran distr. [Anikin, Shchurov, 2001: 176]				
**Ecebalia* sp.n. 1[3]	–	+	–	–	+
**Casignetella granulatella* (Zeller, 1849)	–	–	+	–	–
Casignetella majuscula Falkovitsh, 1991	Azerbaijan: Gosmaljan, Lerik distr. [Falkovitsh, 1991: 599]				
**Casignetella stuposa* (Falkovitsh, 1973)	–	–	–	–	+
**Casignetella* sp.n. 1[4]	–	+	–	–	–
**Ionescumia dilabens* Falkovitsh, 1982	–	–	–	–	+
Ionescumia isomoera (Falkovitsh, 1972)	Azerbaijan: Yardumly [Anikin, Shchurov, 2001: 177]				
Klinzigedia onopordiella (Zeller, I849)	Azerbaijan: Gosmaljan, Lerik distr. [Anikin, Shchurov, 2001: 177]				
Klinzigedia implicitella (Fuchs, 1903)	Azerbaijan: Gosmaljan, Lerik distr. [Anikin, Shchurov, 2001: 177]				
**Klinzigedia sultankutensis* Anikin, 2020[5]	–	–	–	–	+

Footnote numbers refer to notes provided below.
* species newly recorded in the fauna of Azerbaijan.

santolinella (Constant, 1890). Moroccan *O. santolinella* specimens have not been barcoded; however, three barcoded specimens from Spain and France exhibit a maximum intraspecific variation of 2.47%, suggesting possible cryptic diversity [Tabell *et al*., 2023]. For reliable identification of collected males, DNA barcoding of new material is required.

3. *Ecebalia* sp.n. 1

The male genitalia of the new species resemble those of *E. charadriella* [Baldizzone, 1988], a species described from the Volga-Ural region (Kazakhstan, Uralsk). It differs in the ventral and dorsal angles of the sacculus, as well as the number and shape of outgrowths on the strands of the phallotheca.

4. *Casignetella* sp.n. 1

The male genitalia are similar to those of *C. eltonica* Anikin, 2005, described from the Caspian Lowland (Russia, Lower Volga) [Anikin, 2005]. The new species differs from *C. eltonica* in the size of the gnathos, as well as the shape of the transtilla and cucullus.

5. *Klinzigedia sultankutensis* Anikin, 2020.

Prior to this study, the species was known only from the type locality in Iran (Mazandaran Province) [Anikin et Kolesnichenko, 2020].

Discussion

Eleven species are recorded in Azerbaijan for the first time, including two new for science: *Ecebalia* sp. and *Casignetella* sp. Thus, the current Coleophoridae fauna of Azerbaijan, taking into account previously published data [Christoph, 1876–1877; Reznik, 1976, 1989; Falkovitsh, 1991; Baldizzone, 1994; Anikin, Shchurov, 2001], comprises 42 species from 22 genera, based on the revised classification of the family proposed by I. Căpuşe, M. Falkovitsh, S. Reznik, V. Anikin and others [Căpuşe, 1971, 1973, 1975; Falkovitsh, 1972, 1987, 2003, 2005; Reznik, 1977; Anikin *et al*., 2015, 2016a, b, 2017]. The regional fauna is likely far richer, as neighboring Turkey and Iran hosts 200 and 188 species of Coleophoridae, respectively [Baldizzone *et al*., 2006; Baldizzone, 2023].

Competing interests. The authors declare no competing interests.

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References

Anikin V.V. 2005. [New and little known species of casebearers (Lepidoptera, Coleophoridae) associated with Chenopodiaceae in Russia] // Entomologicheskoe Obozrenie. Vol.84. No.2. P.387−406 [in Russian].

Anikin V.V. 2017. A new species of the genus *Augasma* from the Volga-Ural Region and re-description of a female of *Casignetella genviki* Anikin, 2002 (Lepidoptera: Coleophoridae) // Proceedings of the Museum Witt Munich. Vol.7. P.526–528.

Anikin V.V. 2019. [Coleophoridae] // S.Yu. Sinev (ed.). Catalogue of the Lepidoptera of Russia. Edition 2. St. Petersburg: Zoological Institute RAS. P.70–85 [in Russian].

Anikin V.V., Dyomin A.G., Knushevitskaya M.A. 2015. [Molecular genetic analysis of the suprageneric system of casebearer moths, with a description of a new genus from the tribe Carpochenini Căpuşe, 1973 (Lepidoptera, Coleophoridae)] // Entomologicheskoe Obozrenie. Vol.95. No.2. P.275−284 [in Russian].

Anikin V.V., Dyomin A.G., Knushevitskaya M.V. 2016a. Phylogeny and taxonomy of casebearer moths (Lepidoptera, Coleophoridae) based on morphological and molecular genetic data. 1. Reconstruction of phylogeny of Coleophoridae using analysis of COI gene variability // Entomological Review. Vol.96. No.1. P.15−27. DOI 10.1134/S0013873816010036

Anikin V.V., Dyomin A.G., Knushevitskaya M.V. 2016b. Phylogeny and taxonomy of casebearer moths (Lepidoptera, Coleophoridae) based on morphological and molecular genetic data. 2. Reconstruction of divergence time for major taxa of Coleophoridae based on COI gene variability // Entomological Review. Vol.96. No.2. P.137−143. DOI 10.1134/S0013873816020019

Anikin V.V., Demin A.G., Knushevitskaya M.V. 2017. Description of a new subfamily of casebearer moths, Omphalopodinae subfam. n. (Lepidoptera, Coleophoridae), based on morphological and molecular genetic characters // Entomological Review. Vol.97. No.6. P.818−825. DOI: 10.1134/S001387381706001X

Anikin V.V., Kolesnichenko K.A. 2020. A new species of the genus *Klinzigedia* Căpuşe, 1971 (Lepidoptera: Coleophoridae) from Iran // Caucasian Entomological Bulletin. Vol.16. No.2. P.219–223.

Anikin V.V., Shchurov V.I. 2001. Casebearers from Caucasus (Lepidoptera: Coleophoridae) // Zoosystematica Rossica. Vol.10. P.171–179.

Baldizzone G. 1988. Contributions à la connaissance des Coleophoridae. XLVIII. Quatre nouvelles espèces du genre Coleophora Hübner de l'URSS // Beiträge zur Entomologie. T.38. P.74−82.

Baldizzone G. 1994. Contribuzioni alla conoscenza dei Coleophoridae. LXXV. Coleophoridae dell'Area Irano-Anatolica e regioni limitrofe (Lepidoptera) // Memorie dell'Associazione Naturalistica Piemontese. Vol.3. P.1–424.

Baldizzone G. 2023. 41. Family Coleophoridae Bruand, 1851 // H. Rajaei, O. Karsholt (eds.): Lepidoptrera Iranica. Integrative Systematics. Vol.6. (Special Issue). P.186−189. DOI: 10/18476/2023.997558.7

Baldizzone G., Takács A., Szabóky C., Bozsó M. 2022. *Coleophora santonici* Baldizzone & Takács (Lepidoptera, Coleophoridae), new species from Hungary bred from *Artemisia santonicum* // Revue suisse de Zoologie. T.129. Fasc.2. P.309−322. DOI: 10.35929/RSZ.0078

Baldizzone G., van der Wolf H., Landry J.-F. 2006. World catalogue of insects. Vol.8. Coleophoridae, Coleophorinae (Lepidoptera). Stenstrup: Apollo Books. 215 p.

Căpuşe I. 1971. Recherches morphologiques sur la famille des Coleophoridae (Lepidoptera). Bucarest. 66 pp.

Căpuşe I. 1973. Sur la taxonomie de la famille des Coleophoridae (Clés de détermination des taxa superspécifiques). Bucarest. 24 pp.

Căpuşe I. 1975. Complément systématique à la famille des Coleophoridae (Lepidoptera) // Fragmenta Entomologica. T.11. P.1–64.

Christoph H.T. 1876–1877. Sammelergebnisse aus Nordpersien, Krasnowodsk in Turkmenien und dem Daghestan // Horae Societatis entomologicae Rossicae. Vol.12. S.181–299.

Falkovitsh M.I. 1972. [New genera of Palaearctic casebearer moths (Lepidoptera, Coleophoridae)] // Entomologicheskoe Obozrenie. Vol.51. No.2. P.369–386 [in Russian].

Falkovitsh M.I. 1987. [New genera of casebearer moths (Lepidoptera, Coleophoridae) from the desert zone of the Palaearctic Region] // Entomologicheskoe Obozrenie. Vol.66. No.4. P.817–826 [in Russian].

Falkovitsh M.I. 1991. [New species of casebearers (Lepidoptera, Coleophoridae) of the fauna of the USSR] // Entomologicheskoe Obozrenie. Vol.70. No.3. P.586−599 [in Russian].

Falkovitsh M.I. 2003. [On the classification of the casebearers (Lepidoptera, Coleophoridae), with descriptions of the new taxa] // Entomologicheskoe Obozrenie. Vol.82. No.4. P.860–885 [in Russian].

Falkovitsh M.I. 2005. [New taxa of casebearers (Lepidoptera, Coleophoridae) from the desert zone of the Palaearctic Region] // Entomologicheskoe Obozrenie. Vol.84. No.1. P.167–176 [in Russian].

Gerasimov A. 1930. Zur Lepidopteren-Fauna Mittel-Asiens. I Microheterocera aus dem Distrikt Kaschka-Darja (SO-Buchara) // Annuaire du Musée Zoologique de l'Académie des Sciences de l'URSS. Vol.31. S.21−48.

Reznik S.Ya. 1976. [New species of the genus *Multicoloria* Căp. (Lepidoptera, Coleophoridae) from the USSR and adjacent countries] // Entomologicheskoe Obozrenie. Vol.55. P.648−656 [in Russian].

Reznik S.Ya. 1977. [A brief review of the genus *Multicoloria* Cap. (Lepidoptera, Coleophoridae)] // Taksonomiya i faunistika. Leningrad: Nauka. P.78–88 [in Russian].

Reznik S.Ya. 1989. [New and little known species of casebearers of the genus *Multicoloria* Cap. (Lepidoptera, Coleophoridae) from aride zones of the USSR] // Trudy Zoologicheskogo Instituta AN SSSR. Vol.200. P.33−39 [in Russian].

Robinson G. 1976. The preparation of slides of Lepidoptera genitalia with special reference to the Microlepidoptera // Entomologist's Gazette. Vol.27. P.127–132.

Sinev S.Yu., Anikin V.V., Piskunov V.I., Streltzov A.N., Ustjuzhanin P.Y., Yakovlev R.V. 2023. Lepidoptera of South Ossetia (Northern Transcaucasia). Part IV. Microlepidoptera: Adelidae to Choreutidae // Acta Biologica Sibirica. Vol.9. P.1061–1072. DOI: 10.5281/zenodo.10213217

Streltzov A.N., Snegovaya N., Shapoval N.A., Humbatov M.F.-O., Mammadov I.B.-O., Yakovlev R.V. 2024. New data on the Lepidoptera of Azerbaijan (Southern Transcaucasia). Superfamily Pyraloidea Latreille, 1809 // Acta Biologica Sibirica. Vol.10. P.767−790. DOI: 10.5281/zenodo.13337063

Tabell Ju., Kullberg Ja., Mutanen M., Tokar Z., Sihvonen P. 2023. New and little known *Coleophora* Hübner, 1822 species from Morocco. Part I. (Lepidoptera, Coleophoridae) // Zootaxa. Vol.5374. No.2. P.151–195. DOI: 10.11646/zootaxa.5374.2.1

Ustjuzhanin P.Ya., Teimurov A.A., Anikin V.V., Matov A.Yu., Naydenov A.E., Streltsov A.N., Yakovlev R.V. 2022. Materials on the Lepidoptera fauna of the Dagestan Republic (Northeastern Caucasus, Russia): autumn aspect (Insecta: Lepidoptera) // SHILAP Revista de lepidopterologia. Vol.50. No.198. P.213−228.

Yakovlev R.V., Teymurov A.A., Kurbanova N.S., Anikin V.V., Matov A.Yu., Morozov P.S., Naydenov A.E., Spitsyn V.M., Streltsov A.N., Ustjuzhanin P.Ya. 2022. [Materials on the Lepidoptera fauna of the Dagestan Republic (Northeastern Caucasus, Russia): spring aspect. Families Coleophoridae, Pterophoridae, Pyralidae, Crambidae, Drepanidae, Geometridae, Sphingidae, Saturniidae, Notodontidae, Erebidae & Noctuidae] // Yugh Rossii: ekologiya, razvitie. Vol.17. No.2. P.19−27 [in Russian] DOI: 10.18470/1992-1098-2022-2-19-27