

Lepidoptera of South Ossetia (Northern Transcaucasia). Part III. Tortricidae, Pterophoridae and Alucitidae (Insecta: Lepidoptera)

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Abstract

In the third part of the publication, we present the faunal list of four families of the Microlepidoptera of South Ossetia, including 64 species of Tortricidae, 17 species of Pterophoridae and 5 species of Alucitidae. All species are reported for South Ossetia for the first time. *Phtheochroa purana* (Guenée, 1845), *Gynnidomorpha minimana* (Caradja, 1916), *Eupoecilia sanguisorbana* (Herrich-Schäffer, 1856), *Cochylis pallidana* Zeller, 1847, *Ancylis unguicella* (Linnaeus, 1758), *A. paludana* (Barrett, 1871) (Tortricidae), and *Capperia salanga* Arenberger, 1995 (Pterophoridae) are found in the Caucasus for the first time. *Stenoptilia arida* (Zeller, 1847), *Stangeia siceliota* (Zeller, 1847) (Pterophoridae), and *Alucita ordubadi* Zagulajev, 2000 (Alucitidae) are found in the Greater Caucasus for the first time.

Keywords: Insecta, Lepidoptera, biodiversity, Caucasus, species richness, fauna, South Ossetia, Transcaucasia.

Lepidoptera de Osetia del Sur (Transcaucasia del Norte). Parte III. Tortricidae, Pterophoridae y Alucitidae (Insecta: Lepidoptera)

Resumen

En la tercera parte de la publicación, presentamos la lista faunística de cuatro familias de Microlepidoptera de Osetia del Sur, que incluye 64 especies de Tortricidae, 17 especies de Pterophoridae y 5 especies de Alucitidae. Todas las especies se registran por primera vez en Osetia del Sur. *Phtheochroa purana* (Guenée, 1845), *Gynnidomorpha minimana* (Caradja, 1916), *Eupoecilia sanguisorbana* (Herrich-Schäffer, 1856), *Cochylis pallidana* Zeller, 1847, *Ancylis unguicella* (Linnaeus, 1758), *A. paludana* (Barrett, 1871) (Tortricidae) y *Capperia salanga* Arenberger, 1995 (Pterophoridae) se encuentran por primera vez en el Cáucaso. *Stenoptilia arida* (Zeller, 1847), *Stangeia siceliota* (Zeller, 1847) (Pterophoridae) y *Alucita ordubadi* Zagulajev, 2000 (Alucitidae) se encuentran por primera vez en el Gran Cáucaso.

Palabras clave: Insecta, Lepidoptera, Biodiversidad, Cáucaso, riqueza de especies, fauna, Osetia del Sur, Transcaucasia.

Introduction

The Lepidoptera of Southern Ossetia are very poorly studied. In the first and second parts of this series of articles, we provided 111 species of Pyraloidea, including 96 species new for this territory (Streltsov et al. 2022a, 2022b) and 82 species of Macroheterocera (Streltsov et al. 2022c). In the

second part, we publish the data on three Microlepidoptera families (Tortricidae, Pterophoridae and Alucitidae) of South Ossetia. This information has not been published before.

Material and methods

The specimens were collected in South Ossetia in seven localities (Figures 1-2). The list of collection sites was chosen by Alexandr Fomichev (Barnaul), for the most complete overview of the altitudinal belts and plant communities of Southern Ossetia.

The collections were carried out by manual collection during the daytime and at dusk, as well as on light screens Naturaliste-150 and Naturaliste-180 (using lamps OSRAM-160, 250 W), powered by the inverter generator Honda EU10i and autonomous light traps ENTOSPHEX lamp UV LED 12 V/19,2W (equipped with diodes 240 UV LED). Deadening of the specimens was carried out using ethyl acetate. The material was mounted on entomological pins.

The examined material is kept in the collections:

CUK collection of Petr Ustjuzhanin and Vasilij Kovtunovich (Novosibirsk, Moscow, Russia); ZISP Zoological Institute of the Russian Academy of Sciences (Saint-Petersburg, Russia).

List of collecting localities (Figure 2)

1. South Ossetia, Tskhinval Distr., 2 km NW Grom, 42°10'6" N / 44°11'53" E, 930 m, 22-25-VI-2021, A. Streltsov, P. Ustjuzhanin & R. Yakovlev leg.
2. South Ossetia, Leningor Distr., 4 km E Leningor, 42°08'45"N, 44°30'55"E / 1200 m, 26-27-VI-2021, A. Streltsov, P. Ustjuzhanin & R. Yakovlev leg.
3. South Ossetia, Dzaus Distr., 4 km NNE Kvaisa, Koz lake, 42°33'32" N / 43°37'59" E, 1580 m, 28-30-VI-2021, A. Streltsov, P. Ustjuzhanin & R. Yakovlev leg.
4. South Ossetia, Dzaus Distr., Rachinsky Range, near Dodtota, 42°27'25" N / 43°43'18" E, 1750 m, 1-2-VII-2021, A. Streltsov, P. Ustjuzhanin & R. Yakovlev leg.
5. South Ossetia, Dzaus Distr., Dvalet Range, near Kherusel't, 42°32'37" N / 43°47'32" E, 1760 m, 3-5-VII-2021, A. Streltsov, P. Ustjuzhanin & R. Yakovlev leg.
6. South Ossetia, Dzaus Distr., Mtiulet Range, near Erman, 42°31'2" N / 44°14'10" E, 2140 m, 7-9-VII-2021, P. Ustjuzhanin & R. Yakovlev leg.
7. South Ossetia, Znaur Distr., 2 km W Dzagina, 42°14'34" N / 43°43'11" E, 1100 m, 11-12-VII-2021, P. Ustjuzhanin & R. Yakovlev leg.

Results

Table 1. Distribution of the Lepidoptera species in South Ossetia.

#	Taxa	localities						
		1	2	3	4	5	6	7
	TORTRICIDAE							
1	<i>Acleris bergmanniana</i> (Linnaeus, 1758)	+	-	-	+	-	-	-
2	<i>Acleris schalleriana</i> (Linnaeus, 1761)	+	-	-	-	-	-	+
3	<i>Acleris variegana</i> ([Denis & Schiffermüller], 1775)	-	+	-	-	-	-	-
4	<i>Phtheochroa purana</i> (Guenée, 1845)	-	-	-	-	-	-	+
5	<i>Phtheochroa unionana</i> (Kennel, 1900)	-	-	-	-	+	-	-
6	<i>Gynnidomorpha minimana</i> (Caradja, 1916)	-	+	-	-	+	-	-
7	<i>Agapeta hamana</i> (Linnaeus, 1758)	+	-	-	-	+	-	-
8	<i>Agapeta zoegana</i> (Linnaeus, 1767)	-	+	+	-	-	-	+

9	<i>Eupoecilia sanguisorbana</i> (Herrich-Schäffer, 1856)	-	-	-	-	+	-	-
10	<i>Aethes moribundana</i> (Staudinger, 1859)	-	-	-	-	+	-	-
11	<i>Aethes nefandana</i> (Kennel, 1899)	+	+	-	+	-	-	-
12	<i>Aethes margaritana</i> (Haworth, 1811)	-	-	+	-	-	-	-
13	<i>Cochylis pallidana</i> Zeller, 1847	+	-	-	-	-	-	-
14	<i>Falseuncaria degreyana</i> (McLachlan, 1869)	-	+	-	-	-	-	-
15	<i>Eana osseana</i> (Scopoli, 1763)	-	-	+	+	+	-	-
16	<i>Eana argentana</i> (Clerck, 1759)	-	-	+	+	+	+	-
17	<i>Cnephasia asseclana</i> ([Denis & Schiffermüller], 1775)	-	-	-	-	+	-	-
18	<i>Cnephasia genitalana</i> Pierce & Metcalfe, 1922	-	-	-	-	-	-	+
19	<i>Epagoge grotiana</i> (Fabricius, 1781)	+	+	-	-	-	-	+
20	<i>Periclepsis cinctana</i> ([Denis & Schiffermüller], 1775)	-	+	-	-	-	-	-
21	<i>Philedone gerningana</i> ([Denis & Schiffermüller], 1775)	+	-	-	-	-	-	-
22	<i>Archips rosana</i> (Linnaeus, 1758)	-	-	-	-	-	-	+
23	<i>Ptycholoma erschoffi</i> (Christoph, 1877)	-	-	+	-	-	-	-
24	<i>Pandemis heparana</i> ([Denis & Schiffermüller], 1775)	-	-	+	-	-	-	+
25	<i>Dichelia histrionana</i> (Frölich, 1828)	-	-	+	-	-	-	-
26	<i>Isotrias rectifasciana</i> (Haworth, 1811)	+	-	-	-	-	-	-
27	<i>Endothenia gentianaana</i> (Hübner, [1799])	+	-	-	-	-	-	-
38	<i>Endothenia nigricostana</i> (Haworth, 1811)	-	-	+	-	-	-	-
29	<i>Lobesia abscisana</i> (Doubleday, 1849)	+	-	-	-	-	-	-
30	<i>Hedya salicella</i> (Linnaeus, 1758)	+	-	+	-	-	-	-
31	<i>Hedya nubiferana</i> (Haworth, 1811)	+	+	-	-	+	-	+
32	<i>Hedya pruniana</i> (Hübner, [1799])	+	-	-	-	+	-	-
33	<i>Metendothenia atropunctana</i> (Zetterstedt, 1839)	-	-	-	-	-	-	+
34	<i>Orthotaenia undulana</i> ([Denis & Schiffermüller], 1775)	+	+	+	-	-	-	+
35	<i>Apotomis turbidana</i> Hübner, [1825]	-	+	+	-	-	-	-
36	<i>Olethreutes arcuella</i> (Clerck, 1759)	-	-	+	-	-	-	-
37	<i>Celypha rufana</i> (Scopoli, 1763)	+	+	-	-	+	-	-
38	<i>Celypha cespitana</i> (Hübner, [1817])	-	-	+	+	+	-	-
39	<i>Syricoris rivulana</i> (Scopoli, 1763)	+	-	-	-	-	-	-
40	<i>Phiaris delitana</i> (Staudinger, 1880)	+	-	+	+	+	-	+
41	<i>Ancylis unguicella</i> (Linnaeus, 1758)	+	-	-	-	-	-	-
42	<i>Ancylis comptana</i> (Frölich, 1828)	-	+	-	-	-	-	-
43	<i>Ancylis paludana</i> (Barrett, 1871)	-	-	-	-	-	-	+
44	<i>Ancylis badiana</i> ([Denis & Schiffermüller], 1775)	-	-	-	-	-	-	+
45	<i>Ancylis achatana</i> ([Denis & Schiffermüller], 1775)	+	+	-	-	-	-	+
46	<i>Thiodia torridana</i> (Lederer, 1859)	-	+	-	-	-	-	-
47	<i>Thiodia citrana</i> (Hübner, [1799])	-	+	-	-	+	-	-
48	<i>Spilonota ocellana</i> ([Denis & Schiffermüller], 1775)	-	-	+	-	-	-	+
49	<i>Zeiraphera griseana</i> (Hübner, [1799])	-	+	-	-	-	-	-
50	<i>Pelochrista mollitana</i> (Zeller, 1847)	+	+	-	-	-	-	-
51	<i>Gypsonoma obratzsovi</i> Amsel, 1959	+	-	-	-	-	-	-
52	<i>Gypsonoma dealbana</i> (Frölich, 1828)	+	-	-	-	-	-	-
53	<i>Epiblema graphana</i> (Treitschke, 1835)	-	+	-	-	-	-	-
54	<i>Notocelia uddmanniana</i> (Linnaeus, 1758)	+	-	+	-	-	-	+
55	<i>Notocelia roborana</i> [Denis & Schiffermüller], 1775	+	+	-	-	-	-	+
56	<i>Notocelia rosaecolana</i> (Doubleday, 1850)	+	-	-	-	-	-	+
57	<i>Cydia succedana</i> ([Denis & Schiffermüller], 1775)	+	-	-	-	-	-	+

58	<i>Cydia medicaginis</i> (Kuznetsov, 1962)	-	+	-	-	-	-	-
59	<i>Cydia pomonella</i> (Linnaeus, 1758)	-	+	-	-	-	-	-
60	<i>Cydia fagiglandana</i> (Zeller, 1841)	-	+	+	-	-	-	+
61	<i>Cydia ulicetana</i> (Haworth, 1811)	+	+	-	-	-	-	+
62	<i>Lathronympha strigana</i> (Fabricius, 1775)	-	-	+	-	+	-	-
63	<i>Grapholita funebrana</i> (Treitschke, 1835)	+	-	-	-	-	-	-
64	<i>Dichrorampha gruneriana</i> (Herrich-Schäffer, 1851)	+	-	-	-	-	-	-
	PTEROPHORIDAE							
65	<i>Gillmeria pallidactyla</i> (Haworth, 1811)	+	-	-	+	+	-	-
66	<i>Paraplatyptilia metzneri</i> (Zeller, 1841)	-	+	-	-	-	-	-
67	<i>Cnaemidophorus rhododactyla</i> ([Denis & Schiffermüller], 1775)	+	+	-	-	-	-	+
68	<i>Stenoptilia arida</i> (Zeller, 1847)	+	-	+	-	-	-	-
69	<i>Stenoptilia graphodactyla</i> (Treitschke, 1833)	-	-	-	+	-	-	-
70	<i>Stenoptilia pterodactyla</i> (Linnaeus, 1761)	-	-	-	+	+	-	-
71	<i>Crombrugghia distans</i> (Zeller, 1847)	+	-	-	-	-	-	-
72	<i>Oxyptilus parvidactylus</i> (Haworth, 1811)	-	-	+	-	+	-	-
73	<i>Procapperia linariae</i> (Chrétien, 1922)	-	-	+	-	-	-	-
74	<i>Capperia maratonica</i> Adamczewski, 1951	-	-	-	-	-	-	+
75	<i>Capperia salanga</i> Arenberger, 1995	-	-	-	-	-	-	+
76	<i>Stangeia siceliota</i> (Zeller, 1847)	-	+	-	-	-	-	-
77	<i>Pselnophorus poggei</i> (Mann, 1862)	-	-	-	+	+	-	-
78	<i>Hellinsia didactylites</i> (Strom, 1783)	-	-	-	+	+	-	-
79	<i>Hellinsia tephradactyla</i> (Hübner, [1813])	+	-	-	-	-	-	-
80	<i>Emmelina monodactyla</i> (Linnaeus, 1758)	+	-	+	+	+	-	-
81	<i>Pterophorus pentadactyla</i> (Linnaeus, 1758)	+	-	+	+	-	-	-
	ALUCITIDAE							
82	<i>Alucita grammodactyla</i> Zeller, 1841	+	-	-	-	-	-	-
83	<i>Alucita huebneri</i> Wallengren, 1859	+	-	-	-	-	-	-
84	<i>Alucita ordubadi</i> Zagulajev, 2000	+	-	-	-	-	-	-
85	<i>Alucita zonodactyla</i> Zeller, 1847	-	-	-	-	-	-	+
86	<i>Pteropteryx synnephodactyla</i> (Alphéraky, 1876)	+	-	-	+	+	-	-

Faunistic and systematic notes

TORTRICIDAE

All species new for South Ossetia.

Acleris bergmanniana (Linnaeus, 1758), *Acleris schalleriana* (Linnaeus, 1761), *A. variegana* ([Denis & Schiffermüller], 1775), *Phtheochroa unionana* (Kennel, 1900), *Agapeta hamana* (Linnaeus, 1758), *A. zoegana* (Linnaeus, 1767), *Aethes moribundana* (Staudinger, 1859), *A. nefandana* (Kennel, 1899), *A. margaritana* (Haworth, 1811), *Falseuncaria degreyana* (McLachlan, 1869), *Eana osseana* (Scopoli, 1763), *E. argentana* (Clerck, 1759), *Cnephasia asseclana* ([Denis & Schiffermüller], 1775), *C. genitalana* Pierce & Metcalfe, 1922, *Epagoge grotiana* (Fabricius, 1781), *Periclepsis cinctana* ([Denis & Schiffermüller], 1775), *Philedone gerningana* ([Denis & Schiffermüller], 1775), *Archips rosana* (Linnaeus, 1758), *Ptycholoma erschoffi* (Christoph, 1877), *Pandemis heparana* ([Denis & Schiffermüller], 1775), *Dichelia histrionana* (Frölich, 1828), *Isotrias rectifasciana* (Haworth, 1811), *Endothenia gentianaeana* (Hübner, [1799]), *E. nigricostana* (Haworth, 1811), *Lobesia abscisana* (Doubleday, 1849), *Hedya salicella* (Linnaeus, 1758), *H. nubiferana* (Haworth, 1811), *H. pruniana*

(Hübner, [1799]), *Metendothenia atropunctana* (Zetterstedt, 1839), *Orthotaenia undulana* ([Denis & Schiffermüller], 1775), *Apotomis turbidana* Hübner, [1825], *Olethreutes arcuella* (Clerck, 1759), *Celypha rufana* (Scopoli, 1763), *C. cespitana* (Hübner, [1817]), *Syricoris rivulana* (Scopoli, 1763), *Phiaris delitana* (Staudinger, 1880), *Ancylis comptana* (Frölich, 1828), *A. badiana* ([Denis & Schiffermüller], 1775), *A. achatana* ([Denis & Schiffermüller], 1775), *Thiodia torridana* (Lederer, 1859), *T. citrana* (Hübner, [1799]), *Spilonota ocellana* ([Denis & Schiffermüller], 1775), *Zeiraphera griseana* (Hübner, [1799]), *Pelochrista mollitana* (Zeller, 1847), *Gypsonoma dealbana* (Frölich, 1828), *Epiblema graphana* (Treitschke, 1835), *Notocelia uddmanniana* (Linnaeus, 1758), *N. roborana* [Denis & Schiffermüller], 1775, *N. rosaecolana* (Doubleday, 1850), *Cydia succedana* ([Denis & Schiffermüller], 1775), *C. medicaginis* (Kuznetsov, 1962), *C. pomonella* (Linnaeus, 1758), *C. fagiglandana* (Zeller, 1841), *Lathronympha strigana* (Fabricius, 1775), *Grapholita funebrana* (Treitschke, 1835), and *Dichrorampha gruneriana* (Herrich-Schäffer, 1851) are known from the boundary territory of the West or/and Northern Caucasian Region (SINEV et al. 2019).

Phtheochroa purana (Guenée, 1845)

New for Caucasus. Previously was recorded from South Europe and Asia Minor (Razowski, 2009).

Gynnidomorpha minimana (Caradja, 1916)

New for Caucasus. Previously was known from Europe to Kuril Is., China, Japan, Korea, and Taiwan (Razowski, 2009; Sun & Li, 2013).

Eupoecilia sanguisorbana (Herrich-Schäffer, 1856)

New for Caucasus. Previously was recorded from Europe to South Siberia, West Kazakhstan, Kyrgyzstan, and China (Razowski, 2009; Trematerra, 2010; Sinev et al. 2019).

Cochylis pallidana Zeller, 1847

New for Caucasus. Previously was noted from Europe to Sakhalin Is., North Africa, Asia Minor, Kazakhstan, Mongolia (Razowski, 2009).

Ancylis unguicella (Linnaeus, 1758)

New for Caucasus. Previously was known from Europe to Kuril Is., North Kazakhstan, Korea, Japan, Nearctic Region (Razowski, 2003).

Ancylis paludana (Barrett, 1871)

New for Caucasus. Previously was noted from Europe to Kuril Is., Mongolia, China (Razowski, 2003).

Cydia ulicetana (Haworth, 1811)

Grapholitha conjunctana Möschler, 1866 was treated as a junior synonym of *ulicetana* Haworth by Gilligan et al. (2018). However, our material from South Ossetia shows clear differences in male genitalia between *conjunctana* and *ulicetana* sensu Razowski (2003). Revision of the type material of *ulicetana* and a molecular study of our material are needed to resolve this problem.

PTEROPHORIDAE

All species new for South Ossetia.

Gillmeria pallidactyla (Haworth, 1811), *Paraplattylia metzneri* (Zeller, 1841), *Cnaemidophorus rhododactyla* ([Denis & Schiffermüller], 1775), *Stenoptilia graphodactyla* (Treitschke, 1833), *S. pterodactyla* (Linnaeus, 1761), *Crombrugghia distans* (Zeller, 1847), *Oxyptilus parvidactylus* (Haworth, 1811), *Procapperia linariae* (Chrétien, 1922), *Capperia maratonica* Adamczewski, 1951,

Pselnophorus poggei (Mann, 1862), *Hellinsia didactylites* (Strom, 1783), *H. tephradactyla* (Hübner, [1813]), *Emmelina monodactyla* (Linnaeus, 1758), and *Pterophorus pentadactyla* (Linnaeus, 1758) are known from the boundary territory in the West, Northern and Eastern Caucasian region (Ustjuzhanin & Kovtunovich, 2019a).

Stenoptilia arida (Zeller, 1847)

New for Greater Caucasus. Known from Northern Africa, Yemen, France, Spain, Switzerland, Italy, Corse, Sardinia, Sicily, Malta, Croatia, Serbia, Albania, Bulgaria, Greece, Turkey, Kazakhstan (Gielis, 2003), Iran (Zerny, 1940; Arenberger, 2005; Alipanah & Gielis, 2010), Armenia (Ustjuzhanin et al. 2015).

Capperia salanga Arenberger, 1995

New for Caucasus. Known from Afghanistan, Iran, Tajikistan, Turkey, Turkmenistan, and Uzbekistan (Arenberger, 1995, 2002a; Gielis, 2003; Ustjuzhanin & Kovtunovich, 2016; Ustjuzhanin et al. 2016).

Stangeia siceliota (Zeller, 1847)

New for Greater Caucasus. Known from Arabian Peninsula, Armenia, Afghanistan, Canary Islands, China, Iran, Iraq, South Europe, China, and Turkey (Arenberger, 1986, 1998, 2002b; Gielis, 2009; Ustjuzhanin & Kovtunovich, 2011; Ustjuzhanin et al. 2015; De Prins & De Prins, 2022).

ALUCITIDAE

All species new for South Ossetia.

Alucita grammodactyla Zeller, 1841, *A. huebneri* Wallengren, 1859, *A. zonodactyla* Zeller, 1847, and *Pteropteryx synnephodactyla* (Alphéraky, 1876) are known from the boundary territory in the West, Northern and Eastern Caucasian region (Ustjuzhanin & Kovtunovich, 2019b).

Alucita ordubadi Zagulajev, 2000

New for Greater Caucasus. Known from Azerbaijan and Iran (Zagulajev, 2000; Alipanah & Ustjuzhanin, 2014).

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Figures 1-2. 1. South Ossetia on the map of Caucasus. 2. Map of South Ossetia with collecting localities.