The cochylid fauna of the Southern Ural Mountains, with
description of Cochylimorpha ignicolorana Junnilainen & K.
Nupponen sp. n. (Lepidoptera: Tortricidae: Cochylini)

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A list of 78 species of the tortricoid tribe Cochylini from the southern Ural Mountains is presented. The material was collected during 1996–2000 on nine different Finnish-Russian expeditions. Cochylimorpha ignicolorana Junnilainen & K. Nupponen sp. n. is described. The new taxon occurs on dry steppe slopes in the headland region of the southern Urals, and it is rather easy to separate from closely related taxa both externally and by the male genitalia. In addition, 7 species are reported as new for Europe and 4 species as new for Russia. The known distribution range of each species is given as well as further notes on some poorly known taxa.

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Received 2 January 2001, accepted 3 March 2001

1. Introduction

There is a long tradition of lepidopterological studies in the southern Ural region, the southeasternmost corner of Europe. Prof. Eduard Eversmann (1844) made thorough faunistic investigations in the area in the 19th century and described numerous new species, among them several cochylids. The cochylid fauna is very rich in the headlands of the southern Ural Mountains and the adjacent lowland steppes, and many further cochylids were described from there and adjacent regions at the end of the 19th century by several authors (Christoph, Kennel, Möscher, Staudinger). However, since the beginning of the 20th century there has not been any serious collecting activities in the region for almost one hundred years and many of the previously discovered species have been considered great rarities to date.

The recently changed political situation in Russia has made visits to the southern Urals possible again. The present article is based on our own studies of the cochylid fauna in that area.

2. The investigated area, material and methods

The investigated area is situated in Cheliabinsk and Orenburg oblasts and Bashkiria in the southern Ural Moun-
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The majority of collecting places was located on the eastern-southern foothill region and at low altitude. The habitats were mainly different kinds of steppes, but also taiga forests, alpine meadows and mountain tundra. The lowest locality was in the valley of the river Ilek, Novoiletzk (100 m a.s.l.) and the highest one the Iremel Mountain (1580 m a.s.l.). Most localities were lying at an elevation of 200–450 m.

The present article is based on the material collected during 1996–2000 on 9 different expeditions. The dates, areas visited and collectors on each of the trips are as follows:

5: 11.–20.V.1999; Orenburg oblast, Cheliabinsk oblast; K. Nupponen.
7: 19.VI.2000; Sverdlovsk oblast (near Ekaterinburg); K. Nupponen, T. Nupponen.
8: 25.VII.–04.VIII.2000; Orenburg oblast, Cheliabinsk oblast, Bashkiria; T. Nupponen.

The material was collected both by artificial light at night and by sweeping and netting during daytime. Altogether over 2000 specimens of cochylids were collected, and a large amount of additional specimens were observed and determined in the field. The majority of the material was examined by Kari Nupponen. The following colleagues also determined parts of the material and/or confirmed the determination of some critical taxa: J. Itämies, J. Junnilainen, J.-P. Kaitila, M. Mutanen and T. Nupponen. The collected material is mostly deposited in the private collections of the observers.

The collecting localities are mentioned below. Brief variants of locality names are given in uppercase letters before each locality and used later in the species list. The italicized dates indicate daytime collecting only in the locality. The number given to each of the localities is connected with that on the map (Fig. 1).

2: Arkaim.
3: Bajmak.
4: Berlin.
5: Chalk Hills.
6: Iremel.
7: Kidriasovo.
8: Kizilskoye.
9: Kuvandyk.
10: Kuvandyk 2.
11: Miass.
12: Moskovo.
13: Burannoe, Novoiletzk.
14: Sakmara river.
15: Verblijushka.
16: Zirgan.
17: Shkunovka.
18: Bishtryak.
19: Sanarski Bor.
20: Uchaly.
21: Ekaterinburg biol.st.
22: Kosmokovo.
23: Tavatui.

and a large *Artemisia* steppe. 03.–05.VII.1997, 24.25.–VII.1998, 04.05.IX.2000.


— 10: KUVANDYK 2: Orenburg oblast, 51°37’N 57°34’E, 300 m, Kuvandyk 30 km NE. Rocky hills and meadows, at the slopes some blackish coloured, hot, gravelly spots with sparse vegetation. 16.–17.VI.1998, 03.VIII.2000.


— 13: NOVOILETZK: Cheliabinsk oblast, 50°59’N 54°17’–22’E, 100 m, Novoiletzk 8 km E, Ilek river valley. Sandy dune region with few *Artemisia* steppe spots, wet meadows and wetlands. 08.–09.VI.1998.


— 15: SANARSKII BOR: Cheliabinsk oblast, 54°06’N 60°30’E, 400 m, Sanarskiy bor near Sanarka village. Old conifer forest. 26.–27.VII.1997.

— 16: SHKUNOVKA: Cheliabinsk oblast, 50°48’N 55°18’E, 200 m, Malaja Hobda river near Shkunovka village. Large lowland steppes, rocky hills and wet meadows along the riverside. 01.–02.IX.2000.

— 17: TAVATUI: Bashkiria, 54°33’N 59°41’E, 500 m, Uchaly village 30 km NE. Foothills with different kinds of meadows. 25.VII.2000.


— 19: TAVATUI: Bashkiria, 54°33’N 59°41’E, 500 m, Uchaly village 30 km NE. Foothills with different kinds of meadows. 25.VII.2000.

— 20: UCHALY: Bashkiria, 54°33’N 59°41’E, 500 m, Uchaly village 30 km NE. Foothills with different kinds of meadows. 25.VII.2000.

— 21: UCHALY: Bashkiria, 54°33’N 59°41’E, 500 m, Uchaly village 30 km NE. Foothills with different kinds of meadows. 25.VII.2000.


3. List of cochylid species

The nomenclature follows that of Razowski (1996). The known distribution for each species is given, as well as further notes on some poorly known species. The data on the distribution range of the species originate from Razowski (1970, 1996) and Kuznetsov et. al. (1998). The term S Russia is used for the lower Volga region, the southernmost part of European Russia.

**Phtheochroa inopiana** (Haworth, 1811)


*Distribution.* Holarctic.

**Phtheochroa pulvillana** (Herrich-Schäffer, 1851)


*Distribution.* W Palaeartic.

**Phtheochroa decipiens** (Walsingham, 1900)


*Distribution.* Widely distributed in the south, from Asia Minor to C Asia.

*Remark.* New to Europe and Russia.

**Phtheochroa sodaliana** (Haworth, 1811)


*Distribution.* Europe, Asia Minor.

**Phtheochroa kenneli** (Obraztsov, 1944)


*Distribution.* S Russia, S Ukraine, N Caucasus.

**Phtheochroa krulikovskii** (Obraztsov, 1944)


*Distribution.* S Russia, Kazakhstan, C Asia, Mongolia.


**Phtheochroa vulneratana** (Zetterstedt, 1839)


*Distribution.* Holarctic, boreomontane.

*Remark.* In S Ural the taxon occurs only in the highest mountains at an elevation of over 1300 m.

**Cochylimorpha hilarana** (Herrich-Schäffer, 1851)


*Distribution.* Europe, Asia Minor.

**Cochylimorpha halophilana** (Christoph, 1882)


*Distribution.* S Russia, S Ural, Transcaucasia, Iran, Afghanistan.

**Cochylimorpha asiana** (Kennel, 1899)


*Distribution.* W Palaeartic; from NE Africa and SE Europe to C Asia, Mongolia and Tuva.
Remarks. *C. asiana* is externally a very variable species. However, we recorded two different forms of the species in the same locality (Verbljushka 30.V.–02.VI.1998), one paler form with dark, distinct pattern on the forewings (Fig. 2), and another with narrower, apically more elongate forewings having darker brown ground colour and more indistinct pattern (Fig. 3). *C. asiana* might contain two different species, but the genitalia of the two forms are very close to each other. The existing material should be examined more carefully. The revision of the asiana-cultana complex may solve the problem (see also Remark of *C. cultana* below).

*Cochylimorpha cultana* (Lederer, 1855)

Chalk Hills 03.VI.1998 1 ♂, 05.VI.1998 1 ♂, 03.–07.VI.1998 1 ♂.

*Distribution.* W Palaeartic; from NW Africa and SW Europe to Altai, Tuva and China.

*Remark.* Both *C. asiana* and *C. cultana* are very variable species, and this group might be a species-complex.

*Cochylimorpha elongana* (Fischer v. Röselstamm, 1839)


*Distribution.* SW and C Europe, Asia Minor, S Ural.

*Cochylimorpha meridiana* (Staudinger, 1859)


*Common.*

*Distribution.* W Palaeartic; from SW Europe to C Asia.

*Cochylimorpha nodulana* (Möschler, 1862)


*Distribution.* S Russia, S Ural, Transcaucasia, C Asia, Mongolia, Tuva.

*Remark.* The female is smaller (wingspan 15.5–16.5 mm) than male and probably it does not fly much.

*Cochylimorpha blandana* (Eversmann, 1844)

Ajat river 03.VII.1997 1 ♂, 24.VII.1998 1 ♂, 1 ♀.

*Distribution.* S Ural, S Ukraine, Libanon.

*Remarks.* The species has been described from S Ural. The female is smaller (wingspan 14 mm) than male and probably it does not fly much.

*Cochylimorpha perturbatana* (Kennel, 1900)


*Distribution.* S Ukraine, S Russia, S Ural, Kazakhstan, C Asia, Tuva.

*Remark.* The species has been described from S Ural.

*Cochylimorpha fucata* (Snellen, 1883)


*Distribution.* E Palaeartic; from S Ural to Russian Far East, C Asia, Mongolia.

*Cochylimorpha woliniana* (Schleich, 1868)


*Distribution.* S Ukraine, S Russia, S Ural, Kazakhstan, C Asia, Tuva.

*Remarks.* The species has been described from S Ural.

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**Cochylimorpha subwoliniana** (Danilewski, 1962)


*Distribution*. C Asia.


**Cochylimorpha hedemanniana** (Snellen, 1883)


*Distribution*. E Siberia, Amur, China.

*Remark*. New to Europe.

**Cochylimorpha discolorana** (Kennel, 1899)


*Distribution*. Widely distributed in the south, from SE- and E Europe to C Asia and Tuva.

*Remark*. This species has been recorded from the European part of S Russia (Razowski 1970), but it is absent in the new list of the European cochylids (Razowski 1996).

**Cochylimorpha fuscimacula** (Falkovitch, 1963)

Shkunovka 01.IX.2000 1 ♂.

*Distribution*. S Russia, Turkestan, E Kazakhstan.

**Cochylimorpha discopunctana** (Eversmann, 1844)


*Distribution*. Portugal, Romania, S Russia, S Ural, Transcaspia (Kirgisiensteppe), Mongolia.

**Cochylimorpha obliquana** (Eversmann, 1844)

*Remark*. The species has been described from S Ural.

**Cochylimorpha ignicolorana** Junnilainen & K. Nupponen sp. n.

*Type material*. Holotype: ♂ (Fig. 4): Russia, southern Urals, Orenburg oblast, 51°23’N, 56°49’E, 200 m, Donskoje village 6 km W, Mount Verbljushka, 11.VI.1998, T. & K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 6/03.1.1999. In coll. T. & K. Nupponen. Paratypes (11 ♂♂, 1 ♀): Same data as holotype, except for

Diagnosis. C. ignicolorana Junnilainen & K. Nupponen sp. n. belongs to the jucundana-group of Cochylimorpha, which includes four species: C. jucundana (Treitschke, 1835), C. pyramidana (Staudinger, 1870), C. emiliana (Kennel, 1919) and C. obliquana (Eversmann, 1844). The typical characteristic for this group is a bifurcate aedeagus without cornuti. Externally C. ignicolorana is easy to separate from close relatives by its unicoloured, silky white hindwings (in male) and the reddish brown coloration of the forewings. In the male genitalia, the robust portion of the bifurcate aedeagus is very long, about 1.7× length of the thin portion, while the length ratio of these portions is between 1–1.2 in the other species of the jucundana-group; the rectangular distal extension of sacculus is also a good characteristic for the new taxon. The female genitalia are close to those of C. pyramidana, but differ from the latter by longer and narrower ductus bursae and broader stergima.

Description. Wingspan 11–14.5 mm. Head, collar, tegula, neck tuft and thorax reddish brown, more or less mixed with whitish yellow scales. Labial palp: length 2× diameter of eye, broadest at middle, segment III short; outer surface reddish brown, otherwise whitish yellow. Antenna ciliate, scape and flagellum pale reddish brown. Legs greyish white, except upper surface of forelegs and midlegs pale reddish brown. Abdomen pale grey, ventrally and terminally paler. Forewing moderately narrow, apex more or less pointed; ground colour pale yellow; oblique dark reddish brown band from 1/3 of dorsal margin over midwing, then angled 30°, costal 1/3 of band paler and more indistinct, continues perpendicularly to costa at 0.5; subterminal area suffused with reddish brown; same colour occurs at basal area around veins and at costa, as well as at tomus forming more or less indistinct tornal spot; three dark reddish brown costal spots at 0.8, 0.9 and at apex; very small but distinct, dark brown discal spot at 0.7; cilia line distinct, reddish brown; fringe reddish brown, basally paler. Hindwing in male silky white, much paler than forewing; in female fuscous, cilia line distinct, fringe white.

Male genitalia (Figs. 6–7). Socii moderately small, apex rounded. Medial portion of transtilla
large, subquadrangular, distal margin concave. Juxta broad, quadrangular, posterior margin medially incised. Vinculum broad and rounded. Valva broad, distal half tapered, apex rounded. Sacculus 0.5× length of valva, robust but narrow, distal 1/5 rectangularly extended. Aedeagus bifurcate; robust portion long and bent, tapered towards apex, distal half with minute spines; thin portion 0.6× length of robust one, basally curved 80°, distal 4/5 straight; coecum penis broad and rounded, length of caulis equals to diameter of coecum penis.

Female genitalia (Fig. 8). Papillae anales moderately broad, subtriangular. Apophyses posteriors and apophyses anteriores of equal length. Antrum weakly sclerotized. Sterigma broad, posterior margin convex. Ductus bursae narrow, 0.4× length of corpus bursae. Corpus bursae longish, anteriorly with weak sclerite; at middle about 20 minute spines.

Bionomy. The specimens were collected by artificial light on warm southern steppe slopes. The flight period is from the first third of June to the second half of July. The biology is unknown.

Distribution. Russia (S Ural). The species is known from two different places, both of them located in the headland region of the Ural Mountains (see also Remarks).

Etymology. Lat. ignis = fire; color = colour. From the coloration of the forewings of the moth.

Remarks. Systematically C. ignicolorana Junnilainen & K. Nupponen sp. n. should be placed near C. pyramidana, its closest relative. One doubtful specimen collected from former Yugoslavia might be the same taxon as ignicolorana (J. Razowski pers. comm.). However, the abdomen of that specimen has been lost and therefore it is impossible to confirm its determination.
**Cochylimorpha pyramidana** (Staudinger, 1871)


*Distribution*. S Russia, S Ural, S Caucasus, W Kazakhstan, Tuva.

*Remarks*. The specimen was collected by artificial light. The habitat was a steppe slope with large wet meadows in the nearest lowland. New to Europe.

**Cochylimorpha clathrana** (Staudinger, 1871)

Verbljushka 30.–31.V.1998 about 60 exx.

*Distribution*. S Ural, S Russia.

**Cochylimorpha clathratana** (Staudinger, 1880)


*Distribution*. S Ural.

*Remark*. The species has been described from S Ural.

**Cochylimorpha alternana** (Stephens, 1834)


*Distribution*. NE Africa, Asia Minor, Europe eastward to S Ural.

**Phalonidia manniana** (Fischer v. Röslerstamm, 1839)


*Distribution*. Transpalaearctic.

**Phalonidia affinitana** (Douglas, 1846)


*Distribution*. C and S Europe, S Russia, Caucasus.

**Phalonidia latifasciana** Razowski, 1970

Moskovo 10.VII.1997 1 ♀.

**Phalonidia albibalpiana** (Zeller, 1847)

Ajat river 03.VII.1997 1 ♂; Chalk Hills 03.VI.1998 1 ♂, 05.VI.1998 1 ♂, 07.VI.1998 1 ♂, 03.–07.VI.1998 1 ♂, 1 ♀; Burannoe 30.VII.2000 5 exx.; Kuvandyk 13.–15.VII.1998 1 ex.

*Distribution*. W Palaearctic; from SW Europe to C Asia.

**Phalonidia contractana** (Zeller, 1847)


*Distribution*. W Palaearctic; from SW Europe to C Asia.

*Remark*. This species has been recorded from the European part of S Russia (Razowski 1970) but the record has not been mentioned in the new list of the European cochylids (Razowski 1996).

**Gynnidomorpha vectisana** (Humphreys & Westwood, 1845)


*Distribution*. Europe eastward to S Ural.

**Gynnidomorpha minimana** (Caradja, 1916)

Berlin 30.VI.1997 6 exx.

*Distribution*. Transpalaearctic.

**Gynnidomorpha alismana** (Ragonot, 1883)

Distribution. Europe eastward to S Ural.

Remark. According to the new list of the European cochylids (Razowski 1996), this taxon has not been recorded from the European part of Russia.

**Agapeta hamana** (Linnaeus, 1758)


Distribution. Europe eastward to S Ural; Asia Minor.

**Eugnosta hydrargyra** (Eversmann, 1842)


Distribution. W Palaearctic; from eastern C Europe to C Asia, Mongolia and Altai.

Remark. The species has been described from C Asia.

**Eugnosta magnifica** (Rebel, 1914)


Distribution. From C Europe to S Ural.

**Eugnosta albiguttula** (Hübner, 1799)

Miass 15.–28.VI.1999 1 cx.

Distribution. Transpalaearctic.
Aethes hartmanniana (Clerck, 1758)
Locally not rare.

Distribution. From W Europe to S Ural; Asia Minor, Caucasus.

Aethes margarotana (Duponchel, 1836)


Remark. According to the new list of the European cochylids (Razowski 1996), this taxon has not been recorded from the European part of Russia.

Aethes moribundana (Staudinger, 1859)

Distribution. W Palaearctic; from SW Europe and N Africa to C Asia, Mongolia and Tuva.

Aethes caucasica (Amsel, 1959)

Distribution. S Ural, Caucasus, Italy.

Remarks. Rare and local, occurs in calcareous steppe slopes. The flight period is from early June to the end of July, and the moth is more frequent in July. There are three females in our material (Verbljushka 10.–12.VI.1998 1 ex. and Chalk Hills 17.VI.1998 2 exx.). The hindwings of female are unicoloured, fuscous, darker than in male.

Aethes margaritifera Falkovitch, 1963


Distribution. S Ural, S Russia, Transcaucasia, C Asia.

Remark. Very rare, occurs in different kinds of steppe habitats.

Aethes margaritana (Haworth, 1811)

Distribution. W Palaearctic; from W Europe to C Asia.

Aethes triangulana (Treitschke, 1835)

Distribution. Transpalaearctic.

Aethes smeathmanniana (Fabricius, 1781)

Distribution. Holartic.

Aethes tesserana (Denis & Schiffermüller, 1775)

Distribution. Europe eastward to Ural; Asia Minor.

Remark. This species has been recorded from the European part of S Russia (Razowski 1970) but the record has not been mentioned in the new list of the European cochylids (Razowski 1996).

Aethes dilucidana (Stephens, 1852)
Aethes flagellana (Duponchel, 1836)
\textit{Distribution.} N Africa, S Europe, Asia Minor, Iran, W Turkestan, S Ural.

Aethes francillana (Fabricius, 1794)
\textit{Distribution.} W Palaearctic; from NW Africa, SW Europe to C Asia.

Aethes bilbaensis (Rössler, 1877)
\textit{Distribution.} W Palaearctic; from NW Africa, SW Europe to C Asia.

Aethes fennicana (M. Hering, 1924)
Ajat river 03.VII.1997 1 ♂, 24.VII.1998 1 ♀; Miass 28.VI.1997 2 ♂♂.
\textit{Distribution.} C and N Europe, S Ural.
\textit{Remark.} According to the new list of the European cochlids (Razowski 1996), this taxon has not been recorded from the European part of Russia.

Aethes cnicana (Westwood, 1854)
\textit{Distribution.} From C Europe to S Ural.

Aethes hoenei Razowski, 1964
\textit{Distribution.} China.
\textit{Remark.} New to Europe and Russia.

Aethes xanthina Falkovitch, 1963
\textit{Distribution.} Iran, Turkmenia.
\textit{Remark.} New to Europe and Russia.

Aethes prangana (Kennel, 1900)
Chalk Hills 03.VI.1998 1 ♀.
\textit{Distribution.} Caucasus, Armenia, N Iran.
\textit{Remark.} New to Europe and Russia.

Aethes kindermanniana (Treitschke, 1830)
\textit{Distribution.} From W Europe to S Ural; Asia Minor.

Cochylidia moguntiana (Rössler, 1864)
Ajat river 04.VII.1997 1 ♂, 05.VII.1997 2 ♂♂; Arkaim 09.VII.1997 1 ♂; Moskovo 10.VI.1997 1 ♂.
\textit{Distribution.} W Palaearctic; from W Europe to C Asia, China and Tuva.

Cochylidia heydeniana (Herrich-Schäffer, 1851)
\textit{Distribution.} From W Europe to S Ural; Syria.

Cochylidia implicitana (Wocke, 1856)
Ajat river 05.VII.1997 1 ♂; Berlin 01.VII.1997 1 ♂; Miass...
Cochylis nana (Haworth, 1811)

Distribution. W Palaearctic.

Cochylis roseana (Haworth, 1811)
Kuvandyk 02.IX.2000 1 φ.

Distribution. C and S Europe, S Ural, Asia Minor, Iran.

Cochylis hybridella (Hübner, 1813)

Distribution. Transpalaearctic.

Cochylis dubitana (Hübner, 1799)

Distribution. Holarctic.

Cochylis atricapitana (Stephens, 1852)

Distribution. From N Africa and W Europe to Ural.

Cochylis pallidana Zeller, 1847
Miass 27.–29.VI.1997 4 exx.

Distribution. Europe, S Russia, Asia Minor.

Cochylis posterana Zeller, 1847

Distribution. From W Europe to Ural and N Iran; N Africa.

Cochylis defessana (Mann, 1861)

Distribution. SE Europe, Asia Minor, S Russia, N Iran, Transcaspia.

Falseuncaria degreyana (McLachlan, 1869)

Distribution. From W Europe to C Asia.

Remark. Occurs everywhere in steppe habitats, often abundant.

Falseuncaria ruficiliana (Haworth, 1811)

Distribution. W Palaearctic; from W Europe to C Asia.

4. Discussion
The cochylid fauna is very rich in the region studied. However, many of the species are very locally distributed and difficult to record during a few expeditions. On the other hand, new collecting methods such as effective light catching has enabled the collecting of night-active moths that were not easily observed in the past. Razowski
C. ignicolorana Junnilainen & K. Nupponen sp. n. might be endemic to the southern Ural Mountains (see Remarks of ignicolorana above).

Many cochylid species occur in various kinds of steppe types in the Ural, and in many cases it is impossible to connect a species with any specific habitat. In several species the larva feeds on Artemisia spp., which are dominant plants everywhere in steppe regions. A few species are restricted to chalk slopes and/or they use some rare host plant (e.g. Phtheochroa krulikovskii, Cochylimorpha chlatrana and Aethes caucasica). Many species prefer rocky slopes where the microclimate is very hot (e.g. Cochylimorpha blandana, C. perturbatana, C. pyramidalana and Eugnosta hydrargyrana). Usually such habitats are not threatened, because it is difficult to use them for agricultural purposes. Only a few species prefer grassy lowland steppes, where Artemisia spp. are growing in rocky spots only (e.g. Cochylimorpha discopunctana). Some species have an extremely long flight period from early spring to late autumn (e.g. Cochylimorpha chlatrata, Eugnosta lathioniana and Falseuncaria degreyana). Possibly such species have two generations during the season, although the specimens can be met through the summer.

Acknowledgements. We thank the following persons for guide services, assistance, company or other kind of help during our expeditions: Mr. Matti Ahola (Reisjärvi, Finland), Mr. Vladimir Basov (Ijevsk, Russia), Mr. Pavel Gorbunov (Ekaterinburg, Russia), Mr. Jari-Pekka Kaitila (Vantaa, Finland), Mr. S. V. Kornev (Orenburg, Russia), Mr. L. V. Korshikov (Orenburg, Russia), Dr. Alexander Lagunov (Miass, Russia), Mr. Alexander Malozemov (Ekaterinburg, Russia), Mr. Yuri Mikhailov (Novouralsk, Russia), Mrs. Elena Nupponen (Espoo, Finland). Our thanks are also due to Dr. Juhani Itämies (Oulu, Finland) and Mr. Marko Mutanen (Oulu, Finland) for the determination of Aethes hoenei Raz., as well as to Dr. Jozef Razowski (Krakow, Poland) for comments of some problematic taxa and to Mr. Kimmo Silvonen (Espoo, Finland) for his help in processing the photographs of the moths. Finally, we are grateful to the Lepidopterological Society of Finland for a partial grant to two expeditions.

References