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Elachista adelpha sp. n., *E. coeneni titanella* ssp. n, and other Elachistidae (Lepidoptera) from North Caucasus

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Five species belonging to the Elachistidae are reported from North Caucasus. Three of these species have previously been known only from the mountains of Central and Southeastern Europe. New taxa: *Elachista adelpha* sp. n. and *Elachista coeneni titanella* ssp. n.

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The Elachistidae fauna of the Palaearctic region, apart from Europe, is still rather poorly known. From other parts of this large region only fragmentary information is available (e.g. Parenti 1981, 1983, 1991, Budashkin & Sinev 1991, Sruoga & Puplesis 1992, Kaila 1992), and no records from large areas are available. No species included in the Elachistidae have previously been reported from the Great Caucasus. In this paper we report five species from this region collected by J. Jalava in July 1990. One of them we describe as a new species. Three of the other four species have previously been known only from Central Europe, while *Cosmiotes freyerella* is widespread in Europe.

The material was collected during 7.–26.7. 1990 in a small area in the Kabardino-Balkar nature reserve. The collecting site is situated on the northern slopes of the Great Caucasus mountain ridge, at an elevation of 2300–2600 m above sea level. The timber line in this region lies at approximately 2300 m. On the western and southern slopes the timber line tree is *Pinus silvestris*, whereas on the eastern and northern slopes *Betula* forms the timber line. The subalpine and alpine meadows are almost ungrazed by sheep and cattle within the nature reserve, and these meadows are floristically very rich. Some specimens were collected in the city parks of the town Essentuki situated at an altitude of 700 m.

The terminology used follows Traugott-Olsen & Nielsen (1977). The material is preserved in the Zoological Museum, University of Helsinki.

Stephensia abbreviatella (Stainton, 1851)

Material: C.-Caucasus 43°N 43°E Kabardino-Balkar Nat. p. 35 km SE mt. Elbrus, 2300–2500 m, 9.–21.7.1990, 6 ♂♂, J. Jalava leg.

Previously recorded from mountains of Eastern and Central Europe (Nielsen & Traugott-Olsen 1978).

***Elachista adelpha* sp. n.**

Fig. 1–3

Holotype. ♂, C.-Caucasus 43°N 43°E Kabardino-Balkarskij Nat. p. 35 km SE mt. Elbrus, 2300 m, 24.7.1990 J. Jalava leg. L. Kaila prep. nro 514. — Paratypes: C.-Caucasus 43°N 43°E Kabardino-Balkarskij Nat. p. 35 km SE mt. Elbrus, subalp. meadows, 2300 m, 9.7.1990 1♂, 10.7.1990 2 ♂♂ 1♀, 24.7.1990 11 ♂♂. 44°N 43°E Essentuki, 700 m, 3.–4.7.1990 2 ♂♂ J. Jalava leg.

Fig. 1. *Elachista adelpha* sp. n., ♂ holotype.

Diagnosis

E. adelpha sp. n. is a close relative of *E. bifasciella* Treitschke, 1833, *E. dimicatella* Rebel, 1903 and *E. elegans* Frey, 1859. Externally it can be separated from all these species by the creamy tint of the light pattern in forewings, head and thorax. From *E. bifasciella* it can be distinguished by the separate costal and tornal spots. From *E. dimicatella* it is distinguished by the smaller size and the colour of head and neck tufts. The head of *E. dimicatella* is unicolorous white, whereas the head of *E. adelpha* is more or less mottled with grey scales, and the neck tufts are entirely mottled grey. *E. elegans*, the male genitalia of which are in many respects similar to these of *E. adelpha*, can be distinguished externally by the more unicolorous tegulae and by the lack of the white patch at the base of forewing. The light pattern in the forewing of *E. elegans* is less pronounced compared to *E. adelpha.*

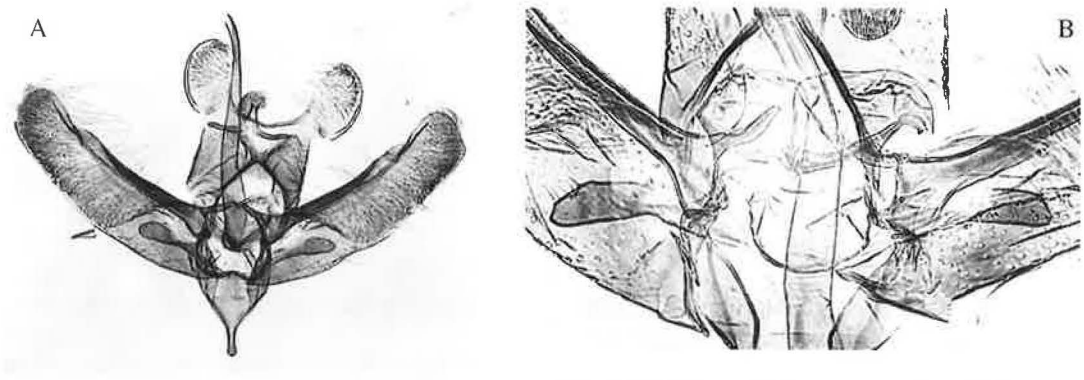
According to characters in the male genitalia *E. adelpha* is readily distinguished from *E. bifasciella* and *E. dimicatella* by the rounded form of uncus lobes and the broad indentation between them. The uncus lobes are straight and parallel-sided in *E. bifasciella* and *E. dimicatella*, and the indentation between the lobes is narrow and V-shaped in these species. The male genitalia more closely resemble those of *E. elegans*, but in the aedeagus there are no cornuti in *E. adelpha*, while the aedeagus of *E. elegans* contains two cornuti. *E. adelpha* lacks the strong median ridge of saccus, which is typical to *E. elegans*. Juxta lobes are laterally prolonged in *E. adelpha*, while in *E. elegans* the juxta lobes are medially prolonged.

The most distinct character in the female genitalia of *E. adelpha* compared to *E. elegans* is the much shorter colliculum. The length of colliculum is about half of the length of apophyses posteriores in *E. adelpha*, while in *E. elegans* the length is almost twice that of apophyses posteriores. Moreover, *E. adelpha* lacks the oval chitinized plates in ductus bursae typical to *E. elegans*. The female of *E. bifasciella* has no signum in the bursa copulatrix, and the colliculum of this species is very long.

Description

Male. Colour of head varying from greyish or creamy white to mottled grey, neck tufts mottled grey. Labial palpi porrect, almost straight, grey, upper side lighter. Antenna unicolorous grey. Thorax and anterior part of tegulae grey, posterior part of tegulae whitish. Abdomen grey, anal tuft ochreous. Legs leaden grey, tibia and femora with large white patches, tarsal segments with whitish distal rings.

Forewing. Ground colour dark grey, with slight bronzy sheen, slightly mottled with darker tips of scales; base at least on tornal side creamy white, an almost straight fascia of same colour just before middle, inner margin of fascia slightly outward angled; costal spot large, creamy white, beyond triangular tornal spot which is of same size and colour. Cilia line indistinct, cilia grey. Hindwing and underside of wings unicolorous grey. Forewing length 3–3.5 mm. — Male genitalia. Uncus lobes rather small, inner margin almost straight, apex and outer margin rounded; between the lobes a very broad U-shaped indentation. Gnathos small, slightly elongate; the stalk of gnathos long and stiff. Costa of valva almost straight, with a very smooth hump; cucullus apically produced; outer margin almost straight; sacculus slightly rounded, distally with a spine.



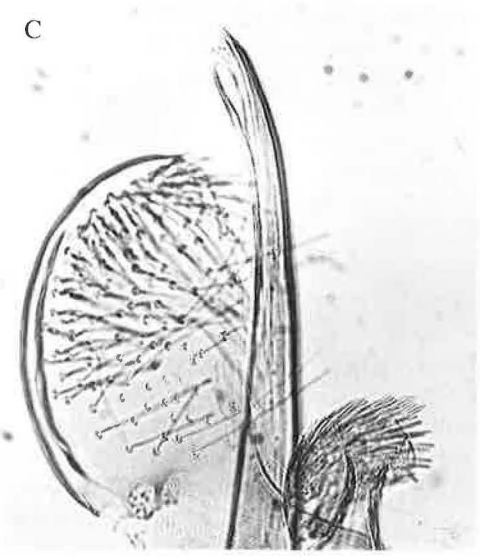


Fig. 2. *Elachista adelpha* sp. n., male genitalia. — A: holotype. — B: digitate process and juxta lobes (paratype). — C: tip of aedeagus (holotype).

Digitate process widest beyond middle, very narrow at base; apex blunt, with a few setae. Inner margin of juxta lobes slightly rounded, apical margin straight, outer margin rounded, prolonged, with some distal setae. Vinculum rather short, U-shaped, produced into a narrow, distinct saccus. Median ridge absent. Aedeagus broadest near caecum, gradually tapering; slightly bent at 1/4 from caecum and near apex; distal end indentated, a large opening in ventral side; without cornuti.

Female. Externally otherwise like male, but the white patch at base of forewing larger. The head of the only known female specimen is unicolorous yellowish white, the neck tufts are greyish. — Female genitalia. Apophyses rela-

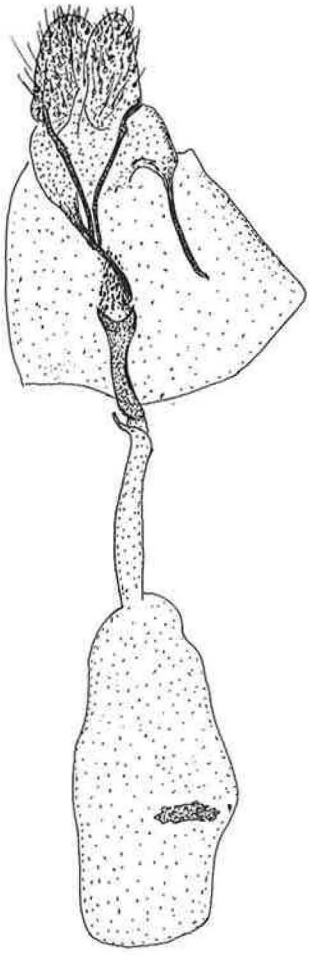


Fig. 3. *Elachista adelpha* sp. n., female genitalia (paratype).

tively long, posteriores slightly longer than anteriores, swollen near apex. Antrum short, bowl-shaped, ventral margin strong, dorsal wall with large internal spines, inside antrum the spines are minute. Colliculum short and broad, about half as long as apophyses posteriores. Membranous portion of ductus bursae more than twice as long as colliculum. Ductus seminalis arises from ductus bursae close to anterior margin of colliculum; ductus bursae without chitinized plates. Corpus bursae with few minute internal spines; signum elongate, margins sparsely dentated.

Biology: The specimens were flying in the afternoon sunshine on a meadow in a Pinus forest; the specimens from Essentuki were caught in a shady park. Immature stages remain unknown.

Elachista habeleri Traugott-Olsen, 1990

Material: C.-Caucasus 43°N 43°E Kabardino-Balkarskij Nat. p. 35 km SE mt. Elbrus, alpine meadow 2500 m, 15.7. 1990, 2 ♂♂ J. Jalava leg.

The specimens were collected on an alpine meadow on a slope of eastern exposition, just above the timber line.

This species is related to *E. argentella* Clerck, from which it can externally be separated by its grey hindwings and dirty white forewings. The genitalia also contain good diagnostic characters. For further details, see Traugott-Olsen (1990). *E. habeleri* has previously been reported only from Austria and the previous Yugoslavia (Traugott-Olsen 1990).

Elachista coeneni titanella ssp. n.

Fig. 4–5

Holotype ♂ C.-Caucasus 43°N 43°E Kabardino-Balkarskij Nat. p. 35 km SE mt. Elbrus, subalp. meadows, 2300 m, 9.7.1990 J. Jalava leg. L. Kaila prep. nro 371. — Paratypes: same locality, 9.–14. 7. 1990 33 ♂♂. J. Jalava leg.

Elachista coeneni Traugott-Olsen, 1985 was originally described from specimens collected from North Spain and South France. Later it has also been reported from Rheinland, Germany (Biesenbaum 1989). This species is a close relative of *E. bedellella* Sircom, 1848. The two species are most easily distinguished by the larger size and lighter, though very variable, wing pattern of *E. coeneni*.

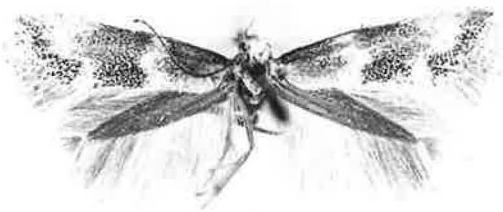
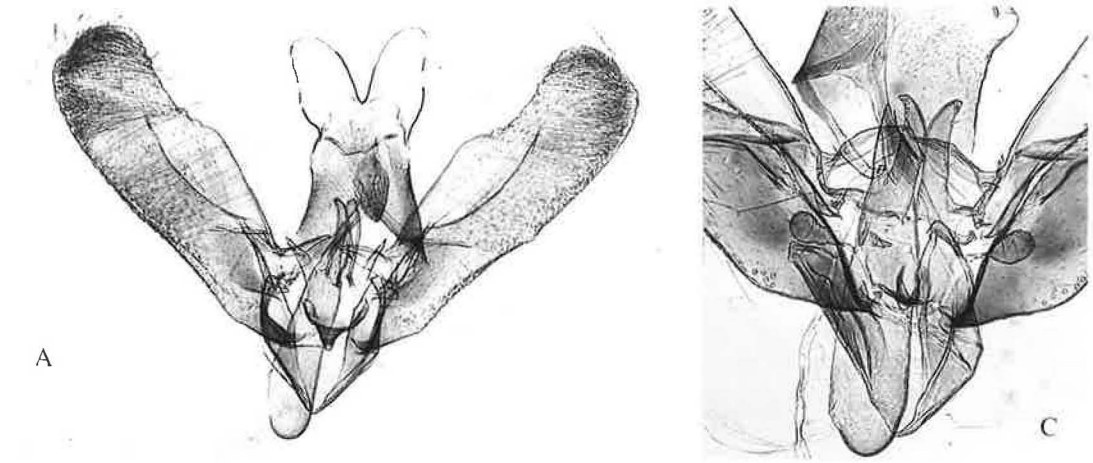


Fig. 4. *Elachista coeneni titanella* ssp. n., ♂ holotype.

In the original description of *E. coeneni* Traugott-Olsen (1985) states: "The juxta lobes are much longer and have quite another shape than the juxta lobes of *Elachista bedellella* Sirc. which are curved almost circular, whereas those of *E. coeneni* are stretched posteriorly and the lateral processes are much longer and slender. The distal spine was never observed by *Elachista bedellella* Sirc."

These characters are, however, in practice difficult to interpret, as the juxta lobes appear to be identical in their length in both species, and the curved shape of these in *E. bedellella* is easily straightened in preparations. The lateral process of juxta lobes in *E. bedellella* is longer than those of the European specimens of *E. coeneni*, which can also be seen in Traugott-Olsen's (1985) figures, (though his written account obviously contains an error in this respect). The distal spine is not always present in *E. coeneni*. Despite these reservations we are convinced of the specific status of *E. coeneni*.

The Caucasian population is in general externally similar to the European specimens of *E. coeneni*, but the specimens from Caucasus are very large, the forewing length being 5–6 mm and wingspan 11–12.5 mm (34 exx. measured) whereas same numbers are 3.5–4 mm and 8–9 mm, respectively, in European specimens of *E. coeneni*. In addition, the Caucasian specimens lack cilia line in forewing, which is a distinct character in specimens of the European populations. The male genitalia are otherwise similar to these of European *E. coeneni*, with e.g. similar relatively straight juxta lobes. However, the lateral processes of juxta lobes



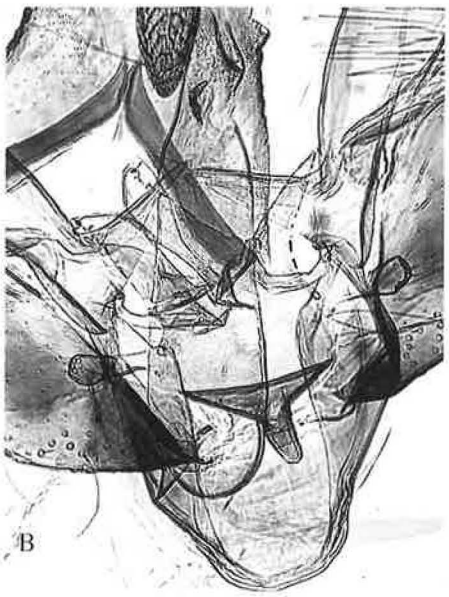


Fig. 5. *Elachista coeneni titanella* ssp. n., male genitalia. — A: paratype. — B: digitate process and juxta lobes (holotype). — C: digitate process and juxta lobes (paratype).

more closely resemble those of *E. bedellella* in being relatively long and broad at base (Fig. 5). We base our opinion that the Caucasian specimens belong to *E. coeneni* instead of *E. bedellella* mainly on the great external similarity and similar variation in the wing colour to *E. coeneni*, as well as on the form of apical processes of juxta lobes.

We hold the opinion that the differences between the Central European and the Caucasian populations of *E. coeneni* are so large that they entitle us to taxonomically separate the Caucasian population from the European one and describe it as a new subspecies.

Description

Male. Forewing length 5–6 mm. Head, labial palpi, neck tufts and scape of antennae white; flagellum of antennae annulated greyish. Tegulae ochreous white. — Forewing. Colour varying from almost unicolorous ochreous white to greyish brown; in darker specimens a whitish fascia visible before middle and another near apex of forewing. Cilia line absent, cilia bone white except the region of tornus where the cilia are grey. — Male genitalia. Uncus lobes rather long, outer margin almost straight or slightly concave, apex rounded, without angle to inner margin; along outer margin 0–3 small setae. Indentation between uncus lobes rather deep and steep. Gnathos oval, apex rather sharp. Valva relatively broad, broadest in the middle; costa wide, rounded; cucullus apically slightly produced, outer margin almost straight; sacculus almost straight. Digitate process very small and narrow at base, clavated; tip with 2–4 short setae. Juxta lobes with distinct tapering lateral processes, apical margins medially produced into long, weakly curved processes with some short apical setae. Vinculum short, rounded, without saccus. Anellus ventrally with a tapering process. Aedeagus short, straight, broad, distal end obliquely cut, with one thorn-shaped cornutus.

The female of *E. coeneni* ssp. *titanella* is unknown. The female of the nominate subspecies has been described by Traugott-Olsen (1985).

Cosmiotes freyerella (Hübner, 1825)

Material: C.-Caucasus 43°N 43°E Kabardino-Balkarskij Nat. p. 35 km SE mt. Elbrus, subalp. meadows, 2300 m, 13.–14.7.1990, 2 ♂♂, J. Jalava leg.

The species is widespread throughout Europe (Traugott-Olsen & Nielsen 1977), but not reported from outside Europe.

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