Biselachista arnoldi n. sp. from The Netherlands (Lepidoptera: Elachistidae)

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Abstract: Biselachista arnoldi n. sp. is described from The Netherlands. The differences with the closely related *B. freyi* and *B. juliensis* are discussed.

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Introduction

Mr. Schreurs, Kerkrade, drew my attention to a small series of unknown elachistid moths, which he collected in 1990 by sweeping *Carex* sp. growing underneath alder (*Alnus glutinosa* (L.) Gaertner) near Vlodrop Station (Limburg). A total of seven moths were obtained, most of them rather worn by the sweeping. One specimen was in fairly good condition and showed a vary dark ground colour of the forewing, with pale-golden metallic fascia and spots. The dark colour of the forewings in combination with the pale-golden metallic markings refer to the species of *Elachista* Treitschke.

Dissection of the male and female genitalia made clear that the moths undoubtedly belong to a species of the genus *Biselachista*. This is a rather small genus represented by 15 species in Europe (Traugott-Olsen & Nielsen, 1977), but the new species does not match any of these.

In the spring of 1992 Mr. Schreurs returned several times to Vlodrop Station and collected ten more specimens of this unknown *Biselachista* species. The locality is situated just on the border with Germany.

The striking appearance, in combination with the male and female genitalia, suggested that it would be rather easy to identify this species, but consultation of all the available literature referring to the genus *Biselachista* (Gozmany, 1952; Parenti, 1972, 1973, 1977; Traugott-Olsen & Nielsen, 1977) did not bring any solution. Examination of the larger collections of Elachistidae in The Netherlands did not solve the problem either. After this I sent several specimens to Mr. Traugott-Olsen, Marbella, Spain. He wrote that he had never seen this species before and that he was quite sure it was an undescribed species (Traugott-Olsen, pers. comm.). Since then the species has also been examined by Mr. Kaila, Helsinki, Finland, and it was unknown to him as well (Kaila, pers. comm.).

***Biselachista arnoldi* n. sp.**

(figs. 1-9)

Type material

Holotype ♂: The Netherlands, Vlodrop Station, UTM 32U LB 0170, 24.v.1990, swept from *Carex* sp. in alder brake forest, leg. A. Schreurs, genitalia slide J. C. Koster No. 3459, akvarel, 22.ii.92, Traugott-Olsen, National Museum of Natural History, Leiden (RMNH). Paratypes: 3 ♂, 3 ♀, same data as holotype (coll. Traugott-Olsen, coll. Koster, coll. Schreurs); 5 ♂, 5 ♀: same locality as holotype, 23.v.1992, 31.v.1992, 3.vi.1992 (RMNH, Zoological Museum, Amsterdam (ZMA), coll. Traugott-Olsen, coll. Koster, coll. Schreurs).

Diagnosis

The species is characterized by the pale-golden metallic markings on the forewing and the

Fig. 1. *Biselachista arnoldi* n. sp., habitus ♂.

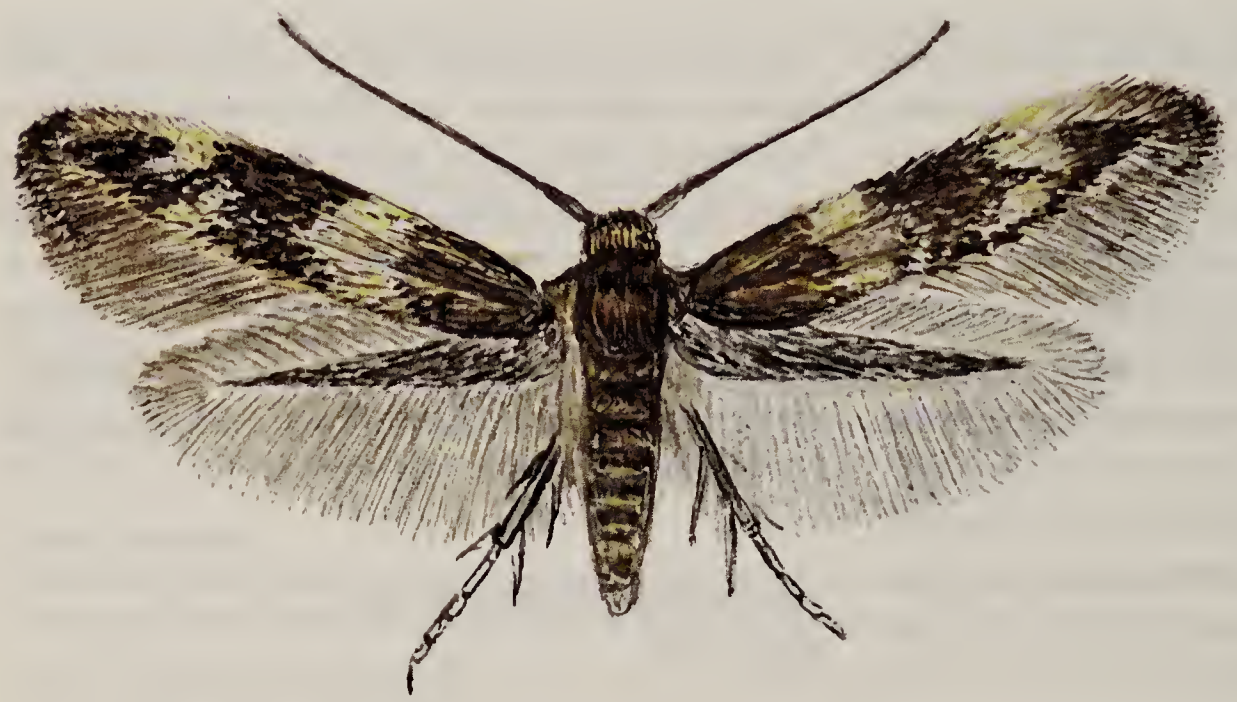


Fig. 2. *Biselachista arnoldi* n. sp., habitus ♀.

blackish hindwings; in the male genitalia by the sclerotized basal half of the aedeagus.

The species closely resembles *B. freyi* (Staudinger) in the male and female genitalia. It differs, however, from this species by the shining blackish-brown ground colour and the pale-golden metallic markings on the forewing.

The venation in *Biselachista* is rather uniform (Traugott-Olsen & Nielsen, 1977), but in *B. arnoldi* the venation differs from other *Biselachista*-species.

In the fore and hindwing the veins M2 and CuA1 are completely coalesced. In *B. freyi* only the bases of these veins are melted together in the forewing.

The male genitalia differ from *B. freyi* and the closely resembling *B. juliensis* (Frey) by the more slender valvae, a more slender digitate process, the round top of the juxta lobes and the slightly bent aedeagus with a spoon-shaped apex and a sclerotized basal half.

The female genitalia differ from *B. freyi* by the long and fine setae on the papilles anales, the larger bowl-shaped antrim, and a less elongated, coarser dentated signum.

Description

Male (fig. 1): Wingspan 6-7.5 mm.

Head: appressedly scaled; frons shining grey; vertex and collar shining bronze; palpae drooping, almost straight, diverging, upperside shining grey, underside bronze-coloured, third segment four-fifth of the length of second; scape blackish-brown, underside with pecten consisting of a few hairs; antenna four-

fifth of the forewing length, blackish-brown, slightly serrate distally.

Thorax and tegulae shining bronze. Legs: outside blackish-brown, inside shining grey, ringed whitish at joints, spurs white, inner spur of mid-tibia almost twice as long as outer, hind tibia with medial spurs at one-third, inner medial twice as long as outer, inner apical slightly longer than outer; hind tibia with a comb of long hairs dorsally and a few ventrally.

Forewing ground colour shining blackish-brown, base shining bronze, an irregular pale-golden metallic, slightly outward bent, fascia just before middle, a long irregular, outwardly oblique, pale-golden metallic costal spot, often suffused on inside by blackish-brown scales near costa, opposite a pale-golden metallic tornal spot, suffused or sometimes divided by blackish-brown scales, sometimes a few pale-golden metallic scales towards termen, between costal and tornal spots; the shape of the costal and tornal spot varies due to the extension of the blackish-brown suffusion; cilia line distinct, black, cilia dark grey. Hindwing blackish, cilia dark grey; underside of fore and hindwing dark grey.

Abdomen shining blackish-brown dorsally, grey laterally, greyish-white ventrally, anal tuft blackish-brown.

Female (fig. 2). Wingspan 7.5-8.5 mm. Very similar to male. Scape and antennae greyish ventrally. Forewing narrower, fascia broader than in male.

Male genitalia (fig. 3). Uncus lobes deeply indented, base of incision sclerotized, lobes almost parallel-sided, tips with long, slightly clavate, setae. Valva slightly bent, with almost parallel margins, hump before the middle of the costa, cucullus rounded and as wide as base of the valva. Digitate process long, slender and straight, tapering at base and apex, with setae on distal half. Juxta lobes short and rounded, with a small tuft of long setae (fig. 4). Vinculum triangular. Aedeagus, base bulbous, cylindrical, tapering distally, slightly bent, basal half sclerotized, apex dorso-ventrally spoon-shaped, tip with a blunt point, a very weak sclerotized ridge in distal part (figs. 5-6).

Female genitalia (fig. 7). Papillae anales with long and fine setae. Apophyses short, of almost equal length. Antrum bowl-shaped, rounded anteriorly, ventral margin almost straight, dorsal wall and inner side of antrim with spines; colliculum narrow, about four times as long as apophyses posteriores. Signum elongate, with coarse and widely separated teeth (fig. 8).

Etymology: The species is named after its collector, Mr. Arnold Scheurs.

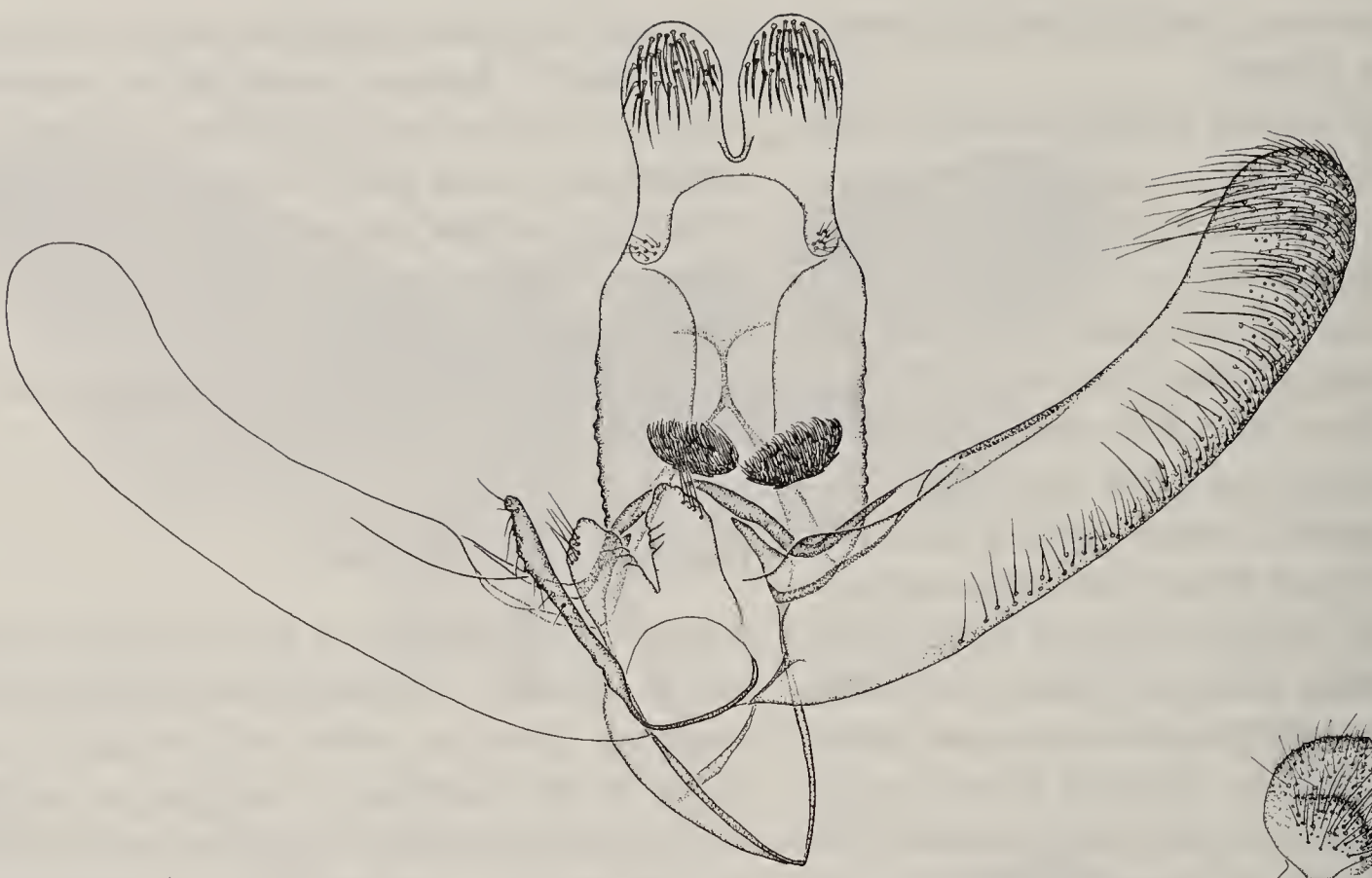
Habitat and distribution

Adults were collected in May between 13.00 and 15.00 hours. The moths were obtained by sweeping *Carex* sp., which will probably turn out to be the foodplant. Collecting at twilight or at night with a light source was unsuccessful.

The habitat is a very beautiful mixed brake of *Alnus glutinosa, Betula pubescens* Ehrh., *Corylus avellana* L., *Salix* sp. and *Frangula alnus* Mill. with an undergrowth of, amongst others, *Carex* sp., *Lysimachia thyrsiflora* L., *Calamagrostis canescens* (Web.) Roth and *Molinia caerulea* (L.) Moench. The stream that flows through this alder brake (Rode beek) is a typical lowland stream and one of the last remaining relatively undisturbed lowland streams in The Netherlands. This type of streams nowadays has become extremely rare in The Netherlands because of the regulation of most streams. The stream forms the border with Germany, probably one of the reasons why it still exists in its present status. Other interesting species collected there recently are: *Bohemannia quadrimaculella* Boheman, *Micropterix mansuetella* Zeller, *M. aureatella* Scopoli and *Olethreutes umbrosana* Frey.

Remarks

Traugott-Olsen & Nielsen (1977) divided the genus *Elachista* into the genera *Elachista* Treitschke and *Biselachista* Traugott-Olsen & Nielsen. They described the genus *Biselachista* on the basis of the different wing-pattern, the divided gnathos, the presence of coarse setae on the ventral side of the papillae anales and the membranous zone between the distinct antrum and the long tube-shaped colliculum.



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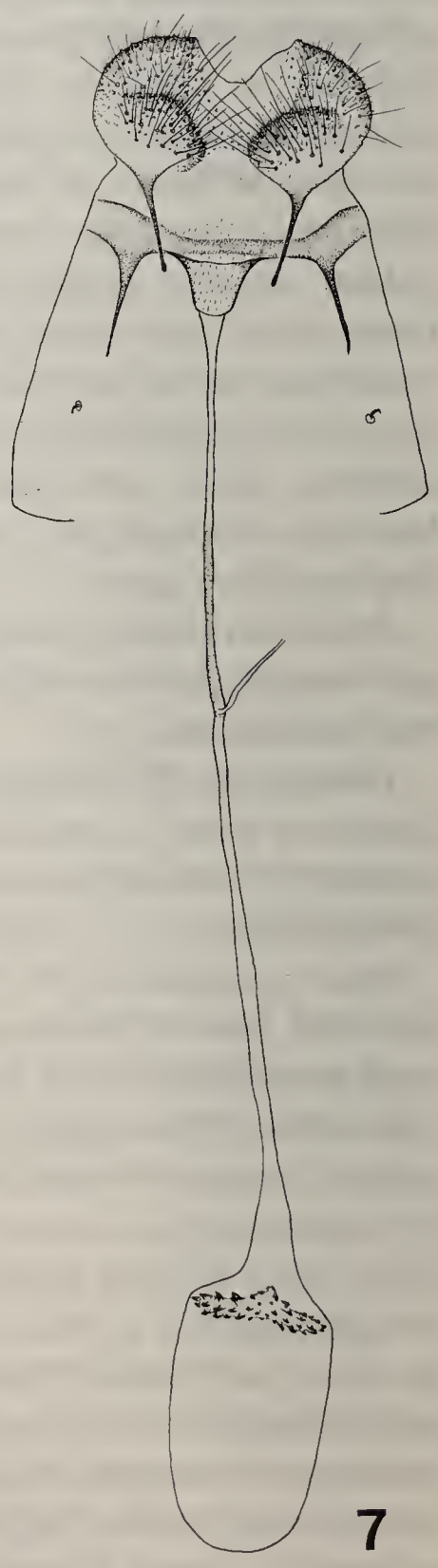

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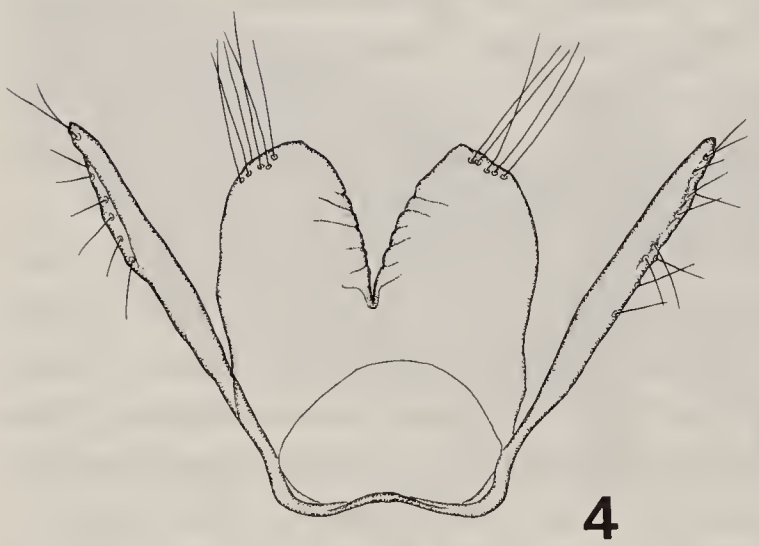

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Figs. 3-8. *Biselachista arnoldi* n. sp.; 3-6, male genitalia holotype, slide JCK 3459 (right digitate process missing); 3, overview; 4, juxta and digitate process, slide JCK 3323; 5, aedeagus, dorsal aspect; 6, adeagus, lateral aspect; 7-8, female genitalia, slide JCK 3460; 7, overview; 8. signum.

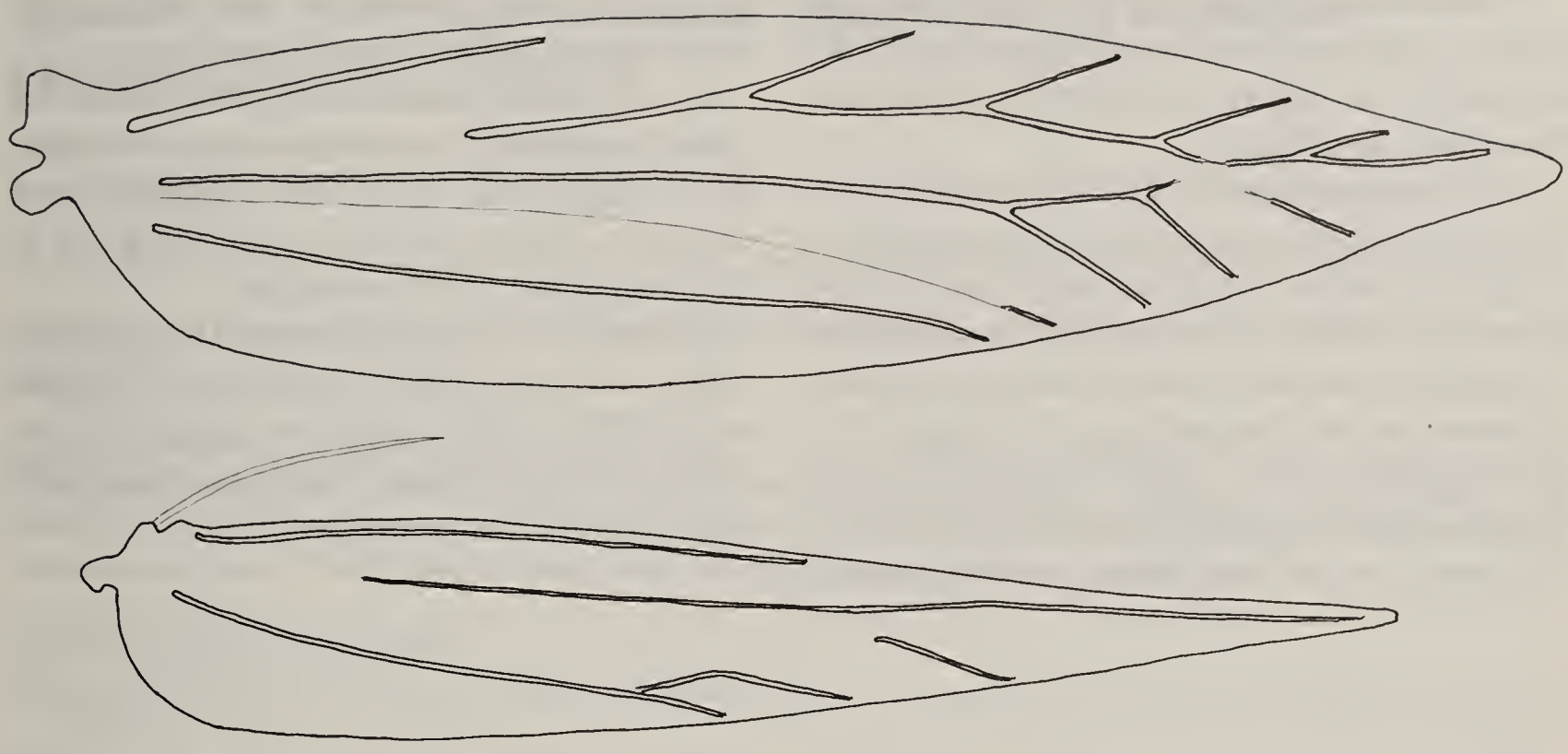

Fig. 9. *Biselachista arnoldi* n. sp., wing venation.

pattern of the forewing, which has no black streak in the fold, plical spots and no apical spot. In the female genitalia it has long and fine setae on the ventral side of the papillae anales instead of short and coarse setae.

Although it is a fact that the venation of Elachistidae may vary within the species, it seemed useful to compare the venation of this species to those of others in the genus *Biselachista.*

Venation (fig. 9). Forewing with R4 and R5 stalked, M1 probably to stem of R4 and R5, only distal part present, M2 and CuA1 completely coalesced, only most distal part of CuP present. Hindwing Sc + R1 extends beyond the middle, Rs simple, only distal part of M1 present, M2 and CuA1 coalesced.

The coalescence of M2 and CuA1 in both wings has not been reported before from the genus *Biselachista.*

Acknowledgements

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Note

This paper was already in the press when Mr. Kaila drew my attention to Parenti's paper: Elachistidi del Giappone (Lepidoptera, Elachistidae). – *Boll. Mus. Reg. Sci. Nat. Torino* 1: 1-20 (1983). In this paper he describes *Elachista fulgens* and according to this description *Biselachista arnoldi* could be conspecific. At my request Prof. Parenti kindly sent me 2 ♂ and 2 ♀ specimens of *E. fulgens* reared from *Carex acutiformis* Ehrh. in Italy!

I have compared the morphological features as well as the male and female genitalia with *B. arnoldi*, from which the following differences have been concluded:

In *E. fulgens* the colour of the metallic spots on the forewing is pure silver. The costal spot forms an almost complete fascia to the dorsum. The female of *B. arnoldi* is obviously larger than the male and the wings are more elongate (in the description of *E. fulgens* Parenti mentions also a larger wingspan in the females, but in the specimens of Italy they have the same size and wing shape as in the males). Female abdomen ventrally dark brown, segments greyish-white banded posteriorly.

In the male genitalia the juxta lobes are apically tapering, the aedeagus is more slender and stronger bent before the gradually tapering apex. The cornutus is a thin long rod in the middle part of the aedeagus.

In the female genitalia tergit VIII is hardly visible and interrupted dorsally (in *B. arnoldi* tergit VIII is clearly visible as a small uninterrupted sclerotized band). Antrim smaller with ventral margin clearer defined.