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On species related to *Elachista hedemanni* Rebel (Lepidoptera: Elachistidae: Elachistinae), with descriptions of three new Palearctic species

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Abstract

The taxonomy of *Elachista* (*Aphelosetia*) *hedemanni* Rebel, 1899, and its relatives is clarified. The following species are described as new: *Elachista gilvula* **sp. n.** from Russia: Tuva with additional record from Kazakhstan, *Elachista galbina* **sp. n.** from Kazakhstan and *Elachista cirrhoplica* **sp. n.** from Spain. The systematics of an assemblage of species related to *Elachista* (*Aphelosetia*) *pollinariella* Zeller is discussed, and characters possibly enabling the further division of the subgenus *Aphelosetia* to more manageable units are suggested.

Key words: Taxonomy, Elachistinae, *Elachista*, *Aphelosetia*

Introduction

Elachista hedemanni Rebel, 1899 is a relatively small species of *Elachista* (Elachistidae: Elachistinae). It is characterized by creamy white, glossy forewings with black irroration and the dark underside penetrating through, giving a faint leaden grey impression. It has been reported from several southern and Central European countries, and has a wide distribution extending to Tuva area in Russia and Crimea in Ukraine in the east (Budashkin & Sinev 1991 as *E. tauricella*; Kaila 2009; Kaila *et al.* 2003).

E. hedemanni belongs to the subgenus *Aphelosetia* of *Elachista* Treitschke, 1833 (Kaila 1999; Kaila & Sugisima 2011). The interrelationships within *Aphelosetia* are to some extent unclear; the matter has been discussed by Albrecht & Kaila (1997), Kaila (1997, 2007) and Kaila & Junnilainen (2002), but even a recent phylogenetic analysis could not satisfactorily resolve interrelationships within the subgenus (Kaila & Sugisima 2011). In this paper the classification of Kaila (1997), supported by the recent analysis of Kaila & Sugisima (2011) is followed, and *Elachista hedemanni* is considered to belong to the apparently paraphyletic *E. argentella* group. The evidence that supports this placement is the lack of a dorsoposterior tongue-shaped pocket in the median plate of the juxta; the pocket is present in the *E. bedellella* and *dispilella* groups of sg. *Aphelosetia* (Kaila 2007, 2011a, b). The *E. argentella* group sensu Kaila (1997) is heterogeneous, and some species complexes have been identified within it: the *E. collitella* complex by Traugott-Olsen (1996), and the *E. cingillella* complex by Kaila & Junnilainen (2002). On the basis of the structure of both male and female genitalia, *E. hedemanni* can be attributable to an assemblage of species related to *E. pollinariella* Zeller, 1839. The species are usually white with sparse, irregular, black irroration, and often yellow or orange bands or other pattern on their forewings. The genitalia of the *E. pollinariella* assemblage are best characterized by plesiomorphies within *Aphelosetia*, following the phylogeny by Kaila & Sugisima (2011). The median plate of the juxta is simple, excluding the *E. bedellella* and *E. dispilella* groups. The female genitalia are lacking a Y-shaped sclerotization between papillae anales on the ventral side; the presence of such a sclerotization unites most of *Aphelosetia*, including the *E. cingillella* and *E. collitella* complexes, *E. dispilella* and *E. bedellella* groups, as well as the Nearctic species of *E. argentella* group (Kaila 1997). The female genitalia, although generally uniform, may provide some means of further dividing the *E. pollinariella* assemblage into smaller units. The papillae anales are modified as distinctly sclerotized piercing structures e.g. in *E. pollinariella* Zeller, 1839, *E. heringi* Rebel, 1899 and *E. szocsi* Parenti, 1978. The papillae anales of most other species represent the usual, membranous type.

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