

Revision of *Chlorionidea* Löw (Hemiptera: Delphacidae) with the description of two new species from Italy, and comments on anti-symmetry in male genitalia of Delphacidae

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The genus *Chlorionidea* Löw until now contained two species: *C. flava* Löw and *C. bromi* Emeljanov. Recently we discovered two new species of this genus in Italy, which we describe in this paper as *C. apenninica* sp. nov. and *C. sibillinica* sp. nov. For all four *Chlorionidea* taxa we provide descriptions and an identification key. Details of male and female genitalia, aspects of head morphology and the fifth instar nymph of *C. sibillinica* are shown. In addition we discuss phylogenetic relationships between the four taxa. In three of the four species anti-symmetry in male genitalia is observed. We discuss this phenomenon and compare similar cases in other Delphacidae. Finally we summarize the available data on life cycle, food plants and geographical distribution of *Chlorionidea* species.

Keywords: *Chlorionidea*; taxonomy; phylogeny; biogeography; ecology; *Sesleria*

Introduction

The Palaearctic genus *Chlorionidea* was described by Löw (1885) with *Chlorionidea flava* as type species. Until now the genus contained two species, *C. flava* Löw, 1885 (syntypes from Austria: Mödling and Pernitz, and from Slovenia) and *Chlorionidea bromi* Emeljanov, 1964 (type locality: Kazakhstan, Koksengir Mountains). In Italy only *C. flava* was known to occur, in Friuli-Venezia Giulia (Graeffe, 1903) and Trentino-Alto Adige (Remane and Fröhlich, 1994). In June 2005 we found in the Central Apennines (Monti Sibillini) a single brachypterous male of *Chlorionidea* (in the following years we collected additional specimens at the same locality), the genitalia of which were very different from those of *C. flava* with regard to aedeagus, styles, anal tube and pygofer, whereas its general morphology corresponded quite precisely to that of the other species.

In the same year we collected three female specimens of *Chlorionidea* in the Northern Apennines, but it was unclear whether those females were *C. flava*, already known from the Italian Alps, or the new taxon found in Central Italy.

In 2006 we collected additional material from the same site. With male specimens now also available, we discovered that they belonged neither to our new species from the Monti Sibillini nor to *C. flava*, but to another undescribed species, closely related to *C. flava*, but with clear differences in the morphology of the anal tube and, to a

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