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Croatian aquatic dance flies (Diptera: Empididae: Clinocerinae and Hemerodromiinae): species diversity, distribution and relationship to surrounding countries

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Abstract

A checklist of aquatic Empididae (dance flies) from Croatia (36 species in subfamily Clinocerinae and 14 species in subfamily Hemerodromiinae) is presented, including information related to the Ecoregions in which species were found and specific species traits. Clinocerinae are represented by five genera, with *Wiedemannia* Zetterstedt being most species rich (20 species) and *Clinocerella* Engel least numerous with only one species. In Hemerodromiinae there are 8 species of *Cheelifera* Macquart and 6 species and *Hemerodromia* Meigen. In addition, a discussion related to the species included and excluded from the list is provided. Most species are univoltine with adults emerging in Spring and Summer, although *Kowarzia barbatula* Mik and *Wiedemannia (Eucelidia) zetterstedti* (Fallén) are present throughout the year and *Wiedemannia (Chamaedipsia) aequilobata* Mandaron occurs in Winter. The Croatian species assemblage is similar to the well-studied fauna of neighboring Slovenia (63 spp.). It is recommended that some rare species and the streams they inhabit should be considered for greater protection.

Key words: Clinocerinae, Hemerodromiinae, species list, biodiversity, Ecoregions, Croatia

Introduction

The subfamilies Clinocerinae and Hemerodromiinae, also known as aquatic dance flies, belong to the family Empididae. Both larvae and adults are predators, primarily feeding on the larvae of Simuliidae (Vaillant 1952, 1953; Werner & Pont 2003) and Chironomidae (Vaillant 1967; Harkrider 2000; Ivković *et al.* 2007). Adult Hemerodromiinae are relatively poor fliers with raptorial legs. They mainly live and hunt in riparian vegetation. On the other hand, adult Clinocerinae are good and active fliers. They are also found walking over the surface of wet stones or in moss mats (Wagner 1997; Ivković *et al.* 2007).

The aquatic dance fly fauna of Croatia has been sporadically investigated during the last 120 years. The first record was noted by Becker (1889). Since then Wagner (1981, 1995), Horvat (1990, 1993a) and Sivec and Horvat (2002) have made contributions to the knowledge of dance fly systematics and taxonomy, including the description of new species from Croatia. The senior author has also contributed additional distribution records from Croatia resulting from research conducted in the last six years (Ivković & Horvat 2007a; Ivković & Horvat 2007b; Ivković *et al.* 2007, 2010, 2012).

Regional biodiversity and distribution surveys are of immense importance for determining conservation status of species and in studying factors that influence diversity (de Silva & Medellín 2001; DeWalt *et al.* 2012). In addition, reviews such as this are crucial to various state and international agencies interested in the biodiversity and conservation of aquatic dance flies in Croatia. The present paper is based on detailed analysis of all publications on aquatic dance flies known to the authors. The authors have also contributed additional records of Croatian aquatic dance flies resulting from unpublished research conducted over the last two decades.