



## Revision of Madeiran mayflies (Insecta, Ephemeroptera)

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### Abstract

A comprehensive revision of the mayflies (Ephemeroptera) inhabiting the island of Madeira (Portugal) is presented, based on newly collected specimens and DNA sequence analysis. Disregarding a report of a single *Centroptilum* female subimago that is very likely a misidentification, the Madeira mayfly fauna encompasses three species, all belonging to the Baetidae. Previous reports of the continental species *Cloeon dipterum* Linnaeus, 1758 are erroneous, as all examined specimens belong to the new species *Cloeon peregrinator* n.sp. Gattolliat and Sartori. *Baetis atlanticus* Soldán & Godunko, 2006 is by far the most common and abundant species on the island. A second new species, *B. enigmaticus* n.sp. Gattolliat and Sartori is established for larvae presenting rheophilous adaptations similar to those of *B. pseudorhodani* Müller-Liebenau, 1971 from the Canary Islands.

**Key words:** Madeira, *Cloeon dipterum*, *Baetis rhodani*, revision, new species

### Introduction

The earliest known reference to Ephemeroptera from the island of Madeira (Portugal) is attributed to Hagen (1865), who mentioned two species of Baetidae, *Cloe dipterum* (Linnaeus, 1758) and a new species, *Cloe maderensis* Hagen, 1865. Eaton (1871) later proposed the synonymy of *Cloe maderensis* with *Baetis rhodani* (Pictet, 1843). More than 75 years later, *Cloeon dipterum* and *Baetis rhodani* were again confirmed as the only two species occurring on the island (Brinck & Scherer 1961). A third species, *Centroptilum* sp., was mentioned based on a single female subimago (Classey 1966). In her revision of European *Baetis* species, Müller-Liebenau (1969) confirmed the presence of *B. rhodani* in Madeira, and again in a separate study of the mayflies from the Canary Islands (Müller-Liebenau 1971). Malmqvist (1988) was the first to provide ecological data for *B. rhodani* on Madeira, followed by studies of distribution and ecology by Stauder (1991; 1995). In addition to *C. dipterum* and *B. rhodani*, Stauder (1991) also reported the occurrence of *B. pseudorhodani* Müller-Liebenau, 1971, a species described from the Canary Islands, in two streams on Madeira. These four species were included in the first comprehensive catalogue of Madeiran freshwater macroinvertebrates (Hughes *et al.* 1998). Most recently, Soldán & Godunko (2006) suggested that *B. pseudorhodani* on Madeira was a misidentification, and proposed the name *Baetis atlanticus* for this species.