

First contribution to the mayflies of Jordan

(Insecta: Ephemeroptera)

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Abstract. Up to now, the mayfly fauna of Jordan has been completely unknown. Based on material recently collected at approximately 30 localities, a first contribution is provided. At least seven species of Ephemeroptera belonging to three different families occur in Jordan. With four species, the Baetidae is by far the most common and diversified family. Two new species, *Nigrobaetis vuatazi* Gattolliat & Sartori n.sp. and *Baetis monnerati* Gattolliat & Sartori n.sp., are described in both larval and imaginal stages. The association of the ontogenetic stages was based on mitochondrial DNA (COI gene). *Nigrobaetis vuatazi* is closely related to *Nigrobaetis arabiensis* Gattolliat & Sartori, 2008, recently described from United Arab Emirates, but differs notably from European species especially *Nigrobaetis niger* (Linnaeus, 1761) and *Nigrobaetis digitatus* (Bengtsson, 1912). *Baetis monnerati* belongs to the *bucerus* species-group, which is known to be very common in the Levant but less frequent in Central Europe. The two other baetid species, *Cloeon dipterum* (Linnaeus, 1761) and *Procloeon pennulatum* (Eaton, 1870), are widely distributed in the Western Palaearctic and have already been reported from the Levant. Caenidae are represented by *Caenis antoniae* Malzacher, 1992 and *Caenis parabrevipes* Malzacher, 1992, and Leptophlebiidae by *Choroterpes (Euthraulius) ortali* Sartori, 1992. These three species were originally described from Israel and have not been reported since then. These reports increase their geographic range to the east and are of significant importance for conservation purposes as their former distribution was extremely restricted.

Key words. Systematics, faunistics, Levant, new species, Baetidae, Caenidae, Leptophlebiidae.

Introduction

Mayflies (Ephemeroptera) are merolimnic insects: the larval stage is dominant and is strictly aquatic, while the imaginal stage is extremely brief and on the wing. Mayflies are able to colonise every kind of freshwater habitat but are mainly diversified in lotic habitats (streams and rivers). They are distributed worldwide with the highest diversity in tropical areas. The order encompasses over 3000 species, over 400 genera and 42 families (BARBER-JAMES et al. 2008). The fauna of desert and arid areas is obviously poorly diversified, as suitable habitats are very limited.

Jordan is part of the Levant. The climate is considered Mediterranean with dry summers and rainfall mainly occurring from November to March. The western part of the country is mountainous and includes the Great Rift Valley of the Jordan River with negative altitudes. The majority of the country consists of arid plateaux with sporadic oases and seasonal water streams. A great part of the country receives less than 400 mm of rain a year and may be classified as a semi-arid region (TARAWNEH & KADIOGLU 2002). Most of the suitable areas for mayflies are therefore located in the western part.

Jordan remains the only country of the Levant from which no report of mayflies is available. KOCH (1980, 1981, 1988) provided the first global overview of mayflies from the Levant. He reported 36 species of mayflies belonging to eight families (Baetidae, Caenidae,