

# Cranefly (Diptera, Tipuloidea & Ptychopteridae) fauna of Limhamn limestone quarry (Sweden, Malmö) – diversity and faunistics viewed from a NW European perspective

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This article elucidates a cranefly assemblage of special interest, a limestone quarry of Limhamn, a man-made habitat in southernmost Sweden (Skåne: Malmö). The studied material was collected with two Malaise traps, situated in close proximity to each other in the western part of the quarry. The traps were placed near groundwater-fed ponds, ditches and vertical seepages on limestone. A total of 2613 specimens and 69 species were identified (67 Tipuloidea and 2 Ptychopteridae). Five of the most abundant species (all limoniids) accounted for 71% of the total catch. Species richness of the study site was compared to four other Fennoscandian localities that had been sampled with similar sampling effort. According to rarefaction analysis, the cranefly assemblage of Limhamn was inferior to two species rich sites of southern Finland but superior to a high altitude site and equal to another high latitude assemblage. Limoniids *Idiocera (Idiocera) bradleyi* (Edwards, 1938) and *Dicranomyia (Idiopyga) melleicauda complicata* de Meijere, 1918 are reported for the first time from Sweden; the former species is also new for Fennoscandia. The studied site harbored several rare and ecologically demanding species, including species of calcareous seepages and brackish water habitats; three of the tipulids are currently red-listed in Sweden.

Keywords: Species richness, Fennoscandia, calcareous habitats, semiaquatic dipterans

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## Introduction

Craneflies (Diptera, Tipuloidea) are small to large sized nematoceran insects, occurring in all major biogeographic realms, except Antarctica (de Jong et al. 2008). Craneflies are the most species rich dipteran family in the world, having over 15 000 valid species or subspecies (de Jong et al. 2008, Oosterbroek 2010). Systematic classification of the craneflies has been rather controversial. Most European workers have recognized four families (Tipulidae or long-palped craneflies, Limoniidae or short-palped craneflies, Pediciidae or hairy-eyed craneflies and Cylindrotomidae or long-bodied craneflies), whereas most North American authors have supported a classification of one

family, Tipulidae, with corresponding subfamilies or tribes (e.g. Limoniinae, Pedicini) (Byers 1992, Petersen et al. 2010). According to a recent phylogeny of craneflies, based on molecular and morphological data, Limoniidae and its subfamilies sensu Starý (1992) are not considered to be monophyletic taxonomic groups (Petersen et al. 2010). Instead, limoniids are part of the Tipulidae clade together with cylindrotomids. Thus, only Tipulidae and Pediciidae are held as valid families (Petersen et al. 2010). However, for practical reasons, and due to long history of usage in Fennoscandian literature, the “old” four family Tipuloidea classifications are used in this text. Craneflies vary considerably with respect to their larval habitats. A majority of the species