



# Article

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## Description of a new subgenus *Neophylidorea* (Diptera: Tipulidae) and a new species

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### Abstract

A group of 15 species from the genus *Euphylidorea* (Alexander, 1972) is identified based on distinct morphology and described as the new subgenus *Neophylidorea*. Characters of the aedeagus and male genitalia in general allow for unequivocal recognition of this subgenus. Comparisons among other species-groups within *Euphylidorea* and *Neophylidorea* subgen. n. Petersen are made. A new species, *Neophylidorea vannimwegeni* Petersen is described based on two male specimens collected in Michigan, USA. This species can be distinguished by the unique structure of the ventral parameres in the male hypopygium.

**Key words:** “Limnophilinae”, Tipuloidea, *Euphylidorea*

### Introduction

Crane flies (Diptera: Tipuloidea) are the most taxonomically diverse superfamily of flies (>15,000 species, 10% of all Diptera; Oosterbroek 2012). Although taxonomically diverse, little modern revisionary taxonomy has been completed on most subgroups. This is especially true for the “Limoniidae” (*sensu* Petersen *et al.* 2010) where many taxa are poorly defined, lacking fundamental systematic information such as phylogenetic hypotheses, taxonomic keys and life-history information (Pritchard 1983). The paucity of basic biological information may have profound effects on ecological studies where, without the ability to identify species, research cannot progress despite a potentially large role in ecosystem processing (Gathmann & Williams 2006). One goal of modern cladistics is to describe or redescribe taxa such that they represent monophyletic evolutionary lineages (de Queiroz & Gauthier 1994). While practicing taxonomists recognize the same fundamental groups of flies, there is disagreement with regards to classification and taxonomic ranks of crane fly-groups. Although we will not reiterate what has been described in detail elsewhere (Ribeiro 2008; Petersen *et al.* 2010), it is important to note that the classification used throughout this manuscript follows that of the most recent phylogenetic analysis of the group (Petersen *et al.* 2010), which recognizes the crane flies, Tipuloidea, as a superfamily containing two families, Tipulidae and Pediciidae, and various subfamilies within. Regardless of semantics, the crane flies are an extremely diverse and complex group of insects (de Jong *et al.* 2008). What is needed are comprehensive works aimed at revising the existing taxonomic hypotheses and providing discrete character sets (molecular and morphological) for recognized taxonomic groups. The “Limnophilinae” is a group that is in particular need of attention to better align the taxonomy to monophyletic lineages (Ribeiro 2008).

Here, we formally describe *Neophylidorea* subgen. n. within *Euphylidorea* based on a species group proposed by Alexander (1972) in the original generic description, with modifications. We define the group based on morphological characters and discuss its relationship to other species of *Euphylidorea*.

**Classification of “Limnophilinae”.** The “Limnophilinae” are represented by 53 genera and 56 subgenera (Oosterbroek 2012). In the most robust analysis of the group, Ribeiro (2008) described “Limnophilinae” as poorly understood and classified, with all group-defining characters plesiomorphic or apomorphic. Of the four