



A revision of Oriental Teloganodidae (Insecta, Ephemeroptera, Ephemeroidea)

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Table of contents

Abstract	2
Introduction	2
Redescription of <i>Cloe tristis</i> Hagen, 1858	3
Cladistic analysis.....	4
<i>Teloganodes</i> Eaton, 1882	9
<i>Teloganodes tristis</i> (Hagen, 1858)	9
<i>Teloganodes dentatus</i> Navás, 1931	11
<i>Teloganodes insignis</i> (Wang & McCafferty, 1996) comb. nov.	12
<i>Teloganodes tuberculatus</i> Sartori sp. nov.	12
<i>Teloganodes kodai</i> Sartori sp. nov.	15
<i>Teloganodes jacobusi</i> Sartori sp. nov.	20
<i>Teloganodes hubbardi</i> Sartori sp. nov.	21
General remark on <i>Teloganodes</i> species and stages.....	23
<i>Dudgeodes</i> Sartori gen. nov.	25
<i>Dudgeodes hutanis</i> Sartori sp. nov.	27
<i>Dudgeodes lugens</i> (Navás, 1933) comb. nov.	35
<i>Dudgeodes stephani</i> Sartori sp. nov.	35
<i>Dudgeodes ulmeri</i> Sartori sp. nov.	37
<i>Dudgeodes pescadori</i> Sartori sp. nov.	39
<i>Dudgeodes celebensis</i> Sartori sp. nov.	43
<i>Derlethina</i> Sartori gen. nov.	44
<i>Derlethina eloisae</i> Sartori sp. nov.	45
Notes on Teloganodidae egg structure	47
Key to known nymphs of Oriental Teloganodidae	47
Conclusions	48
Acknowledgments	49
References	49

Abstract

Based on the examination of the type series of *Cloe tristis* Hagen, 1858 (type species of the genus *Teloganodes* Eaton, 1882) and material housed in several institutions, a revision of Oriental Teloganodidae is proposed. A lectotype is designated for *Teloganodes tristis* (Hagen, 1858) and the genus is redefined. The species *T. major* Eaton, 1884, is a subjective junior synonym of *T. tristis* Hagen, 1858 (**syn. nov.**). The genus *Macafertiella* Wang, 1996 is a subjective junior synonym of *Teloganodes* Eaton, 1882 (**syn. nov.**). A phylogenetic analysis is performed on all available nymphs. *Teloganodes* is restricted to Sri Lanka and the Western Ghats of India and encompasses the type species and *T. dentatus* Navás, 1931, *T. insignis* (Wang & McCafferty, 1996) (**comb. nov.**), and the following new species: *T. tuberculatus* **sp. nov.** (Sri Lanka), *T. kodai* **sp. nov.** (India), *T. jacobusi* **sp. nov.** (Sri Lanka) and *T. hubbardi* **sp. nov.** (Sri Lanka). The type material of *T. dentata* is redescribed. Species from Southeast Asia are assigned to two new genera. *Dudgeodes* **gen. nov.** includes the type species *D. pescadori* **sp. nov.** (Philippines) and *D. lugens* (Navás, 1933) **comb. nov.** (China), *D. hutanis* **sp. nov.** (Borneo), *D. stephani* **sp. nov.** (Borneo), *D. ulmeri* **sp. nov.** (Java, Sumatra), and *D. celebensis* **sp. nov.** (Sulawesi). The genus *Derlethina* **gen. nov.** is established for *D. eloisae* **sp. nov.** (Borneo). The egg morphology is presented for the first time for the family Teloganodidae. Affinities within the family and between related families are discussed and a key to distinguish all species known at the larval stage is proposed.

Key words: Systematics, new species, new genus, Sri Lanka, India, China, Indonesia, Malaysia, Philippines

Introduction

Currently, the family Teloganodidae (Allen 1965) encompasses a restricted number of ephemeropteroid mayflies with a disjunct distribution through the Afrotropical and Oriental realms. In Africa, according to McCafferty & Wang (2000), four genera are known only from the southernmost part of the continent (South Africa, Cape Province): *Ephemerellina* Lestage, 1924 (1 species), *Lithogloea* Barnard, 1932 (1 species), *Lestagella* Demoulin, 1970 (1 species) and *Nadinetella* McCafferty & Wang, 1998 (2 species). One genus, *Manohyphella* Allen, 1973, is found in Madagascar, with tentatively 3 species (McCafferty & Benstead 2002). The Oriental Realm is home to two genera: *Teloganodes* Eaton, 1882 (4 species) widespread from India and Sri Lanka to the Philippines and Borneo and *Macafertiella* Wang, 1996 (1 species) recorded only from Sri Lanka at the moment.

In the nymphal stage, the Teloganodidae can be separated from other families of Ephemeroptera by the presence of gills on abdominal segment II (contrary to Ephemerellidae), the absence of gills on segment VII (contrary to Austremereleididae, Ephemerellidae and Vietnamellidae), glossae only partially fused with paraglossae (contrary to Tricorythidae), general shape of the body (contrary to Machadorythidae), male eyes divided in two parts (contrary to Ephemerithidae, Teloganellidae and most Leptohiphidae). A unique character shared by all teloganodid nymphs is the presence of stout spatulate setae on margins of coxal projections (Jacobus & McCafferty 2006). The Oriental lineage of Teloganodidae can be separated from the Afrotropical lineage by the absence of gills on abdominal segment I and the reduction of the median caudal filament giving the nymphs a two-tailed appearance.

Historically, the first species of the family was described as *Cloe tristis* by Hagen (1858) on the basis of female subimagos, caught at Rambodde on the island of Ceylon (see Hagen 1859 for a discussion of the type locality name). *Cloe tristis* was used by Eaton (1882) to establish the genus *Teloganodes*. Later Eaton (1884) described another species, *T. major*, from the same locality as *T. tristis* and also from female subimagos. Finally, two other species were described in the 1930's, namely *Teloganodes dentata* Navás, 1931 from Khandala (India), based on numerous adult specimens, and *T. lugens* Navás, 1933 from Chekiang, Chusan (China) based on a single female subimago (Navás 1931; 1933). Except for *T. tristis*, none of these species have been reported since their original description.