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A review of the genus *Parorthocladius* Thienemann, 1935 (Diptera: Chironomidae: Orthoclaadiinae) from the Russian Far East

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Abstract

Three new species of the genus *Parorthocladius* Thienemann, *P. lazovskiensis* sp. nov., *P. plolabius* sp. nov., and *P. tyurkini* sp. nov. from the Russian Far East are described and figured. Descriptions of pupae and larvae of one indeterminate species, *Parorthocladius* sp. 1, are also presented. Keys to determination of adult males, pupae and fourth instar larvae of Far-Eastern species *Parorthocladius* are provided.

Key words: Chironomidae, Orthoclaadiinae, *Parorthocladius*, new species, key, Russian Far East

Introduction

The genus *Parorthocladius* was established by Thienemann (1935) for *Dactylocladius nudipennis* Kieffer, 1908, mainly based on the original structure of the larva and pupa. At the present time the genus includes 7 species distributed in the Palaearctic and Oriental regions—*P. concretus* Liu et Wang, *P. cristatus* Liu et Wang, *P. furudoquartus* (Sasa et Arakawa), *P. korneyevi* Baranov, *P. negoroi* Yamamoto, *P. nudipennis* (Kieffer) and *P. unacentrus* Liu et Wang (Brundin 1956; Rossaro 1978; Serra-Tosio 1981; Liu & Wang 2005; Baranov 2011; Yamamoto 2004, 2011; Ashe & O'Connor 2012). Three indeterminate species are recorded from Nearctic, Oriental and Afrotropical regions (Cranston et al. 1983, Roback & Coffman 1987, Oliver et al. 1990, Ashe & O'Connor 2012). Immature stages were known only for *P. nudipennis* (Kieffer & Thienemann 1908, Dorier 1933, Pankratova 1970, Schmid 1993, Langton & Visser 2003) and, therefore, all species of *Parorthocladius*, we have defined earlier in the Far East based on larvae, were incorrectly ascribed to *P. nudipennis* (Makarchenko & Makarchenko 2011). In this paper we present a systematic revision of *Parorthocladius* from the Russian Far East. As a result of our study, three new species: *P. lazovskiensis*, *P. plolabius*, *P. tyurkini* are described and figured. The first species has been described only as adult male, for *P. plolabius* and *P. tyurkini* pupae and larvae are herein presented as well. Also, descriptions of pupae and larvae for indeterminate species *Parorthocladius* sp. 1 are given. Keys to adult males, pupae and fourth instar larvae of the *Parorthocladius* species of the Russian Far East are provided.

Material and methods

The adult specimens were collected mainly with a sweep net near rivers and streams; a few specimens were taken in emergence traps and some pupae and exuviae - in drift net. The larvae were associated with pupae based on larval heads sticking to the mature pupae; the males were associated with pupae based on hypopygia extracted from mature pupae.

The material was preserved in 70% ethanol and Oudemans' mixture, and mounted on slides following the procedure outlined by Makarchenko (1985). The terminology follows Sæther (1980).

Holotypes and paratypes of the new species are deposited in the Institute of Biology and Soil Sciences, Far East Branch of the Russian Academy of Sciences, Vladivostok, Russia (IBSS FEBRAS).