

## Japanese *Pseudosmittia* Edwards (Diptera: Chionomidae)

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### Abstract

The types of species previously placed in *Pseudosmittia* Edwards and some related genera in the Sasa collection at The National Museum of Sciences, Tokyo, Japan, have been examined. Twenty-four new synonyms are given: *Pseudosmittia ogasatridecima* Sasa et Suzuki, 1997a is a synonym of *P. bifurcata* (Tokunaga, 1936); *P. jintuvicesima* Sasa, 1996, and *P. seiryupequea* Sasa, Suzuki et Sakai, 1998 of *P. danconai* (Marcuzzi, 1947); *P. mongolzeaea* Sasa et Suzuki, 1997b of *P. forcipata* (Goetghebuer, 1921); *P. hachijotertia* Sasa, 1994 of *P. holsata* Thienemann et Strenzke, 1940; *P. itachibifurca* Sasa et Kawai, 1987, *P. furudobifurca* Sasa et Arakawa, 1994, *P. hibaribifurca* Sasa, 1993, and *P. (Nikismittia) shofukuundecima* Sasa, 1998 of *P. mathildae* Albu, 1968; *P. yakymenea* Sasa et Suzuki, 2000a, and *P. yakyneoa* Sasa et Suzuki, 2000a of *P. nishiharaensis* Sasa et Hasegawa, 1988; *P. kurobeokasia* Sasa et Okazawa, 1992a, *P. togarisea* Sasa et Okazawa, 1992b, *P. hachijosecunda* Sasa, 1994, *P. toyamaresea* Sasa, 1996, *P. yakyopea* Sasa et Suzuki, 2000a, *P. yakypequea* Sasa et Suzuki, 2000a, *Parakiefferiella hidakagehea* Sasa et Suzuki, 2000b, and *Parakiefferiella hidakaheia* Sasa et Suzuki, 2000b of *Pseudosmittia oxoniana* (Edwards, 1922); *P. famikelea* Sasa, 1996a of *P. tokaraneoa* Sasa et Suzuki, 1995; *P. ikemaensis* Sasa et Hasegawa, 1988, and *P. amamiagina* Sasa et Suzuki, 1993 of *P. topei* Lehmann, 1979;

*P. toyanigra* Sasa, 1988 of *Camptocladius stercorarius* (De Geer, 1776); *P. kurojekeus* Sasa, 1996 of *Prosmittia jemtlandica* (Brundin, 1947); and *P. tobaunvicesima* Kikuchi et Sasa, 1990 of *Pseudosmittia guineensis* (Kieffer, 1918). Two new combinations are given: *Pseudosmittia mongolzebea* Sasa et Suzuki, 1997b belongs in *Pseudorthocladius* and *Parakiefferiella yakytriangulata* Sasa et Suzuki, 2000a is placed in *Rheosmittia*.

Thirteen species are recognized for Japan. Among these, five species are known only from Japan, one is known from Christmas Island and the Bonin (Ogasawara) Islands (Japan), one from Africa, Okinawa and the Nansei Archipelago (Japan), and one species is Palaearctic and Oriental but in Japan known only from Okinawa. The remaining five species are widespread in the Holarctic with one also being Afrotropical and the others occurring in the Pacific parts of Japan and in Oriental China. Of the two species described as *Pseudosmittia* from Mongolia, *Pseudosmittia mongolzebea* Sasa et Suzuki belongs to *Pseudorthocladius*, whereas *P. mongolzeaea* Sasa et Suzuki is a synonym of *P. forcipata* (Goetghebuer). *Pseudosmittia tobaunvicesima* Kikuchi et Sasa, from Indonesia is a synonym of the Afrotropical *P. guineensis* (Kieffer).

*Pseudosmittia bifurcata* (Tokunaga), *P. jintuocitava* (Sasa) comb. n., *P. kisotriangulata* Sasa et

Kondo and *P. tokaraneoa* Sasa *et* Suzuki, are redescribed as male imagines, and *P. togadistalis* Sasa, Watanabe *et* Arakawa as male and female imago. The description of *P. littoralis* (Tokunaga) is reiterated. A key to male imagines of the known Japanese species of *Pseudosmittia* is presented.

**Key words:** *Pseudosmittia*, new synonyms, keys, Chironomidae, Japan

## Introduction

Aquatic species of non-biting midges (Chironomidae) are among the most important members of freshwater invertebrates. They occupy key positions in aquatic systems from an ecological perspective and are very valuable indicators in biogeographical, faunal-history, and phylogenetic patterns. Much less emphasis has, however, been placed on rearing, associating and describing semiaquatic and semiterrestrial species as well as species from temporary freshwater habitats and marine intertidal zones. Consequently, the biodiversity of such midges is much less well known. These groups, however, are very important, phylogenetically as well as biogeographically, since they show adaptations found both among the more primitive and among the most derived groups of Chironomidae. Most of the semiaquatic species of midges are found within the subfamily Orthocladiinae where one of the larger genera remaining to be revised is the genus *Pseudosmittia* Edwards. This genus is particularly interesting since it contains a diverse range from a few purely aquatic species to species that are terrestrial, semiaquatic, or even intertidal marine as larvae and pupae. The genus is worldwide in distribution.

Numerous species of *Pseudosmittia* has been described from Japan by Dr. Masaaki Tokunaga and, more recently, especially by Dr. Manabu Sasa and co-workers. However, since the genus has not been well defined or recently revised several of these species have been described under various synonyms or should be allotted to other genera. Vice versa, some species that belong to *Pseudosmittia*, have been placed in other genera. A paper describing the Neotropical members of the genus together with a world revision of the genus are under preparation and are showing that the variation within some widespread species is very large.

## Methods and morphology

Morphological nomenclature follows Sæther (1980) with the modifications and additions given in Sæther (1989, 1990). Measurements are given as ranges followed by a mean when 4 or more measurements were made, followed by the number of measurements in parentheses (n).

In several species the wing shows an extra vein formed by a preapical bifurcation of the postcubitus (e.g. Fig. 1). A new ratio  $VR_2$ , which is the distance from the arculus to the