



Taxonomic study of the family Ptychopteridae of Japan (Diptera)

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Abstract

Japanese species of the family Ptychopteridae are revised. Two species of the genus *Bittacomorphella*, and ten species of the genus *Ptychoptera* are recognized in Japan. Four new species, *Ptychoptera yamato* sp. nov., *P. kyushuensis* sp. nov., *P. ichitai* sp. nov. and *P. pallidicostalis* sp. nov., were described. Keys to Japanese genera and species, descriptions, and illustrations are provided for all species. Systematics and zoogeography of the Japanese species of *Ptychoptera* are discussed.

Key words: *Ptychoptera*, *Bittacomorphella*, classification, zoogeography, new species

Introduction

The family Ptychopteridae includes medium-sized tipulid-like slender flies. Adults appear in early spring to autumn, and are usually found in marshes or in dark and wet forests. This family comprises approximately 70 species in the world, assigned to three genera; *Ptychoptera* Meigen, 1803, *Bittacomorpha* Westwood, 1835 and *Bittacomorphella* Alexander, 1916. They are known to be distributed in all the zoogeographical regions, except for the Australian and the Neotropical Regions (Alexander 1981; Rozkošný 1997).

The Japanese fauna of the family Ptychopteridae was studied intermittently in the early days by Alexander (1913, 1921, 1924), Matsumura (1916), and Tokunaga (1938, 1939a). Then, Tokunaga (1939b) made the first revision on Japanese Ptychopteridae, and enumerated seven species from Japan; *Bittacomorphella nipponensis* Alexander, 1924, *B. esakii* Tokunaga, 1938, *Ptychoptera japonica* Alexander, 1913, *P. subscutellaris* Alexander, 1921, *P. daimio* Alexander, 1921, *P. takeuchii* Tokunaga, 1938, and *P. yasumatsui* Tokunaga, 1939. In these studies, the color pattern of legs was treated as one of the most reliable features for identifications of the *Bittacomorphella* species, and wing marking for the *Ptychoptera* species. Tokunaga (1938) in the original description of *P. takeuchii*, and Tokunaga (1939b) in that of *P. yasumatsui*, presented descriptions accompanied with only the figures of the wings. Tokunaga (1939a, b) offered keys to Japanese species of *Ptychoptera* based mainly on wing markings. In these works, the characters of male genitalia and female terminalia were only briefly described.

After these works, Peus (1958), in his monograph of the Palaearctic Ptychopteridae (as Liriopeidae), redescribed all the seven Japanese species, following the principle of Tokunaga (1938b). Krzeminsky and Zwick (1993) presented redescrptions and illustrations of *P. japonica*, *P. daimio*, and *P. subscutellaris*. However, their redescription of *P. japonica* was made basing on a mistakenly identified specimen. Rozkošný (1992) added a Chinese species *P. clitellaria* Alexander, 1935, and Saigusa and Nakamura (2005) added a Taiwanese species *P. formosensis* Alexander, 1935 to the Japanese fauna. However, the former species is omitted in this study.