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New species and records of black flies (Diptera: Simuliidae) from Vinh Phuc Province, Vietnam

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Abstract

Four new species of black flies are described, and three others are reported as newly recorded, based on adults reared from pupae, pupae and larvae collected in and near Tam Dao National Park, Vinh Phuc Province, Vietnam. New species include *Simulium* (*Gomphostilbia*) *hongthaii* sp. nov., *S. (G.) tamdaoense* sp. nov. (both species placed in the *asakoe* species-group), *S. (Simulium) taythienense* sp. nov. and *S. (S.) xuandai* sp. nov. (the two latter species placed in the *striatum* species-group). Newly recorded species are *S. (G.) brinchangense* Takaoka, Sofian-Azirun & Hashim, *S. (Nevermannia) aureohirtum* Brunetti and *S. (S.) brevipar* Takaoka & Davies. These discoveries increase the number of species of black flies known in Vietnam from 21 to 28.

Key words: *Simulium*, black fly, Vietnam, new species

Introduction

The fauna of black flies in Vietnam has been scarcely studied. Until recently, it was represented by 16 species of two subgenera, *Gomphostilbia* and *Simulium*, of the genus *Simulium* (Adler & Crosskey 2014), of which seven were reported by Crosskey & Howard (1997) and nine were recorded by Pham (1998, 1999). Recently, we carried out surveys of black flies in and near Tam Dao National Park, Vinh Phuc Province and collected 15 species consisting of three known species (*Simulium* (*Gomphostilbia*) *asakoe* Takaoka & Davies, *Simulium* (*Simulium*) *nodosum* Puri and *Simulium* (*Simulium*) *tani* Takaoka & Davies), five new species and seven newly recorded species, of which one new species was described as *Simulium* (*Simulium*) *vietnamense* Takaoka, Sofian-Azirun & Chen and four (*Simulium* (*Simulium*) *chungi* Takaoka & Huang, *Simulium* (*Simulium*) *grossifilum* Takaoka & Davies, *Simulium* (*Simulium*) *maenoi* Takaoka & Choochote and *Simulium* (*Simulium*) *rufibasis* Brunetti) were reported as new records for Vietnam, based on female black flies captured on humans (Takaoka *et al.* 2014b). In this paper, four new species are described and three newly recorded species are noted, based on adults reared from pupae, pupal exuviae and larvae.

The methods of collection, description and illustration, as well as terms for morphological features used here, follow those of Takaoka (2003).

The holotypes and paratypes of the new species are deposited in the Institute of Biological Sciences, Faculty of Science, University of Malaya, Kuala Lumpur, Malaysia.

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