



***Simulium (Nevermannia) khunklangense*, a new species of black fly (Diptera: Simuliidae) from Chiang Mai, Thailand**

HIROYUKI TAKAOKA^{1,5}, WICHAI SRISUKA^{2,3}, ATIPORN SAEUNG³,
YASUSHI OTSUKA⁴ & WEJ CHOOCHOTE³

¹*Institute of Biological Sciences, Faculty of Science, University of Malaya, Kuala Lumpur, 50603, Malaysia*

²*Entomology Section, Queen Sirikit Botanic Garden, P.O. Box 7, Chiang Mai, 50180, Thailand*

³*Department of Parasitology, Faculty of Medicine, Chiang Mai University, Chiang Mai, 50200, Thailand*

⁴*Department of Infectious Disease Control, Faculty of Medicine, Oita University, Yufu City, Oita, 879-5593, Japan*

⁵*Corresponding author. E-mail: takaoka@oita-u.ac.jp*

Abstract

Simulium (Nevermannia) khunklangense sp. nov. is described from females, males, pupae and larvae collected in Doi Inthanon National Park, Chiang Mai, Thailand. This new species is placed in the *vernum* species-group of the subgenus *Nevermannia* and is similar to *S. (N.) chomthongense* Takaoka & Srisuka described from Doi Inthanon National Park, Thailand, but is distinguished in the male by the number of enlarged upper-eye facets and the relative width of the hind basitarsus against the hind tibia and femur, and in the pupa by the short common basal stalk of the gill and the cocoon with an anterodorsal bulge or a short anterodorsal projection. Taxonomic notes are provided to separate this new species from five other known species of the *vernum* species-group, which share an accessory sclerite on the larval abdomen, a rare characteristic in this species-group.

Key words: Diptera, Simuliidae, new species

Introduction

The *Simulium (Nevermannia) vernum* species-group, which consists of about 130 species, is widely distributed in the Holarctic Region and extends its distribution southward into the Oriental Region where 24 species are recorded (Adler & Crosskey 2013). In Thailand, this species-group is represented by one species, *S. (N.) chomthongense* Takaoka & Srisuka (Takaoka *et al.* 2012), which was first reported as *Simulium (Eusimulium)* sp. A (Takaoka & Suzuki 1984), and later tentatively identified as *S. (N.) caudisclerum* Takaoka & Davies originally described from Peninsular Malaysia (Takaoka & Choochote 2004).

Females of the *vernum* species-group are considered ornithophilic, as judged by the claws with a large basal tooth (Adler *et al.* 2004). In Asian countries, species of this group have not been investigated for their role as a vector of human and animal disease agents except one species, *S. (N.) uchidai* Takahasi, a common species in Japan, which was reported to be a vector of an unnamed filarial species, probably of a bird (Fukuda *et al.* 2005) and a potential vector of *Leucocytozoon lovati*, a haematozoan parasite of an endangered rock ptarmigan (Sato *et al.* 2009).

Recently, we collected another species of the *vernum* species-group, which is similar to *S. (N.) chomthongense* in many characters including an accessory sclerite on the larval abdomen, a rare character in this species-group, but it is distinguished from the latter species in the male by the number of upper-eye facets and the relative width of the hind basitarsus against the hind tibia and femur, and in the pupa by the short common basal stalk of the gill filaments relative to the interspiracular trunk, and the cocoon with a triangular anterodorsal bulge or a short anterodorsal projection.

In this paper, this species is described as new to science based on females, males, pupae and mature larvae collected in Doi Inthanon National Park, Chiang Mai, Thailand. Taxonomic notes are provided to separate this new