Zootaxa 3793 (5): 538–544
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3793.5.2
http://zoobank.org/urn:lsid:zoobank.org:pub:B64F9B30-948D-4FA6-96E3-CA662E690027

New additions to the genus *Kisaura* Ross (Trichoptera: Philopotamidae) from the Indian Himalaya

MANPREET SINGH PANDHER[1,3] & MALKIAT SINGH SAINI[2]

[1]*Department of Zoology, Desh Bhagat University, Mandi Gobindgarh, Punjab. India*
[2]*Asian Institutions, Patiala, Punjab, India.*
[3]*Corresponding author. E-mail: mpandher.iari@gmail.com*

Abstract

Four new species of genus *Kisaura* Ross are added to the philopotamid fauna of India. The newly described species are *K. holiensis* **sp. nov.**, *K. holzenthali* **sp. nov.**, *K. morsei* **sp. nov.** (all from Uttarakhand) and *K. golitarensis* **sp. nov.** from Sikkim.

Key words: new species, Uttarakhand, Sikkim, Oriental, *Dolophilodes*

Introduction

The genus *Kisaura* Ross 1956 was established as a subgenus of *Sortosa* Navás 1918, based on *Sortosa obrussa* Ross 1956. In his study of the systematics and Japanese distribution of its species, Kuhara (1999) considered it a subgenus of *Dolophilodes* Ulmer 1909 based on the precedence of the generic name *Dolophilodes* over that of *Sortosa. Kisaura* was considered a distinct genus by Malicky (1993b), Sun and Malicky (2002), and Blahnik (2005). The phylogeny and historical biogeography of the genus was discussed also by Ross (1956) and Sun (2008).

The genus *Kisaura* Ross is currently represented by about 56 species globally and most of these are confined to the Oriental and Palearctic Regions (Morse 2012). Thirty-three species of this genus occur in the Oriental Region alone, many of which were transferred to it from *Dolophilodes* when *Kisaura* was elevated to the status of a distinct genus. Most of the recent additions to this genus were made by Malicky and co-workers (Malicky 1993a, 1993b, 1995, 2007, 2009; Malicky & Chantaramongkol 1993a, 1993b; Sun & Malicky 2002), who added 17 new species to this genus from Thailand, Bhutan, China, Laos and Vietnam. Recently, Pandher and Saini (2011) reported this genus for the first time from India, with descriptions of six new species from the Indian Himalaya.

Material and methods

Adult caddisflies were collected during 1–4 hours after dusk in 2008–2011 (April–October) with light traps, either 135-W, ultraviolet, mercury-vapour bulbs (with alternating current) or 22-W Circline fluorescent BL tubes (each operated by a 12-V chargeable, sealed battery). The specimens were preserved in 70% ethyl alcohol with a drop of glycerol added. Pertinent collection and locality data were recorded. For species-level identification it is essential to observe the lateral processes of tergum X which are hidden below the preanal appendages in lateral view and are also not clearly visible even in dorsal view. To view these processes, the male genitalia were removed from the specimens and put in 10% KOH solution overnight. After this treatment the genitalia were put in glacial acetic acid. After washing with glacial acetic acid the genitalia were transferred to 80% ethyl alcohol with a drop of glycerol and observed for morphological characters. The drawings of various aspects were done with the aid of a zoom-magnification, stereoscopic, binocular microscope (with maximum magnification of 120×) fitted with an

 Accepted by J. Morse: 25 Mar. 2014; published: 2 May 2014

V. Ramamurthy under grant NPIB-21-17 is also thankfully acknowledged. Thanks are also due to various forest officials, especially Mrs. U.G. Lachungpa., Senior Research Officer, Wildlife Sikkim and staff of the District Forest Offices in Uttarakhand and Sikkim for providing necessary facilities during expeditions. Last but not least we are thankful to the Editor for Trichoptera in Zootaxa and anonymous reviewers for critically evaluating the manuscript and providing their valuable suggestions.

References

Blahnik, R.J. (2005) *Alterosa*, a new caddisfly genus from Brazil (Trichoptera: Philopotamidae). *Zootaxa*, 991, 1–60.

Kimmins, D.E. (1955) Entomological results from the Swedish expedition 1934 to Burma and British India. Trichoptera (Philopotamidae, genera *Wormaldia* McLachlan, *Doloclanes* Banks and *Dolophilodes* Ulmer). *Arkiv for Zoologi* (*N.S.*), 9, 67–92.

Kuhara, N. (1999) Notes on the subgenus *Kisaura* of the genus *Dolophilodes* (Trichopera: Philopotamidae) in Japan, with descriptions of three new species. *In*: Malicky, H. & Chantaramongkol, P. (Eds.), *Proceedings of the 9th International Symposium on Trichoptera 1998*. Chiang Mai University, Chiang Mai, Thailand, pp. 175–184.

Malicky, H. (1993a) Neue asiatische Köcherfliegen (Trichoptera: Philopotamidae, Polycentropodidae, Psychomyiidae, Ecnomidae, Hydropsychidae, Leptoceridae). *Linzer Biologische Beiträge*, 25, 1099–1136.

Malicky, H. (1993b) Neue asiatische Köcherfliegen (Trichoptera: Rhyacophilidae, Philopotamidae, Ecnomidae und Polycentropodidae). *Entomologische Berichte Luzern*, 29, 77–88.

Malicky, H. (1995) Neue Köcherfliegen (Trichoptera, Insecta) aus Vietnam. *Linzer Biologische Beiträge*, 27, 851–885.

Malicky, H. (2007) Kocherfliegen aus Bhutan (Insecta, Trichoptera). *Linzer Biologische Beiträge*, 39, 475– 517.

Malicky, H. (2009) Beiträge zur Kenntnis asiatischer Trichopteren. *Braueria*, 36, 11–58.

Malicky, H. & Chantaramongkol, P. (1993a) Neue Trichopteren aus Thailand. *Linzer Biologische Beiträge*, 25, 433–487.

Malicky, H. & Chantaramongkol, P. (1993b) Neue Trichopteren aus Thailand. Teil 2: Rhyacophilidae, Philopotamidae, Polycentropodidae, Ecnomidae, Psychomyiidae, Xiphocentronidae, Helicopsychidae, Odontoceridae. *Linzer Biologische Beiträge*, 25, 1137–1187.

Morse, J.C. & Hur, J.M. (2006) Two new species of caddisflies from East Asia (Trichoptera: Philopotamidae, Psychomyiidae). *Insect Science*, 13, 217–220.
http://dx.doi.org/10.1111/j.1744-7917.2006.00085.x

Morse, J.C. (2012) Trichoptera World Checklist. Available from: http://entweb.clemson.edu/database/trichopt/index.htm (accessed 2 July 2012)

Navas, L. (1918) Insectos Chilenos. *Boletin de la Sociedad Aragonesa de Cinencias Naturales*, 17, 212–230.

Pandher, M.S. & Saini, M.S. (2011) First report of the genus *Kisaura* Ross (Trichoptera, Philopotamidae) from India with the description of six new species. *ZooKeys*, 152, 71–86.
http://dx.doi.org/10.3897/zookeys.152.1125

Ross, H.H. (1956) *Evolution and classification of mountain caddisflies*. University of Illinois Press, Urbana, Illinois, 213 pp.

Sun, C.-H. (2008) Preliminary study on phylogeny and biogeography of genus *Kisaura* (Trichoptera: Philopotamidae). *In*: Wang, X. (Ed.), *Contemporary Aquatic Entomological Study in East Asia—Proceedings of the 3rd International Symposium on Aquatic Entomology in East Asia* (*AESEA*). Nankai University Press, Nankai, China, p. 212.

Sun, C. & Malicky, H. (2002) 22 new species of Philopotamidae (Trichoptera) from China. *Linzer Biologische Beiträge*, 34 (1), 521–540.

Ulmer, G. (1909) Einige neue exotische Trichopteren. *Notes from the Leyden Museum*, 31, 125–142.