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*Biodiversity and Biogeography of the Kuril Islands and Sakhalin (2004) 1, 81-84.*

# A new species of the genus *Kisaura* (Trichoptera: Philopotamidae) from the east Palaearctic

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Abstract The male and female of a new philopotamid species, *Kisaura dichotoma*, is described from the islands of Kunashir, Hokkaidô, Honshû, Shikoku and Kyûshû in the east Palaearctic.

## Introduction

The genus *Kisaura*, a member of the caddisfly family Philopotamidae, is distributed in the Oriental and east Palearctic biogeographical regions. Up to the present, fourteen species have been recorded from the east Palaearctic region: seven species from China, one from the continental part of Russia to the Korean Peninsula and six from the Japanese Archipelago and the Kuril Archipelago.

We discovered an undescribed *Kisaura* species, which has quite unique male genitalia, in collections from Kunashir through the International Kuril Island Project (IKIP) and from the four main Japanese islands. In this paper, we describe the male and female of this new species.

Terminology for male genitalia largely follows Kuhara (1999). Type specimens are deposited in the collections of Laboratory of Systematic Entomology, Hokkaido University, Sapporo, Japan (SEHU), the Natural History Museum and Institute, Chiba, Japan (CBM), California Academy of Sciences, San Francisco, USA (CAS) and Institute of Biology and Soil Science, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia (IBSS). Specimens without indication of depositories in the list of types below are deposited in SEHU. Unless otherwise stated, types are preserved in alcohol.

### *Kisaura dichotoma* n. sp.

Figs. 1–3

*Dolophilodes* (*Kisaura*) sp. 3: Kuhara 1997: 58 (listed).
*Dolophilodes* (*Kisaura*) sp. 4: Ito *et al.* 1997: 23 (listed).
*Dolophilodes* (*Kisaura*) sp. 2: Ito *et al.* 2000: 21 (listed).
*Dolophilodes* (*Kisaura*) sp.: Kuhara 2001: 14 (listed).

*Adult*. Forewing length male 4.7–6.6 mm (mean = 5.8 mm, n = 24), female 5.5–7.3 mm (mean = 6.3 mm, n = 28). Color and general appearance similar to those of *Kisaura tsudai* Botosaneanu, 1970 (see Kuhara 1999).

*Male genitalia* (Fig. 1). Abdominal segment IX slightly wider than high in lateral view; anterolateral margins somewhat expanded anteriorly; posterolateral margins oblique with shallow excision; anteroventral and posteroventral margins concave mesally in ventral view. Tergum X overall membranous, tapering abruptly to digitate apex in dorsal view. Preanal appendages knob-like with rounded apex. A pair of spiniform processes, arising from base of tergum X, very long, curved ventrad in lateral view, protruding beyond tergum X and base of terminal segment of inferior appendage; in dorsal view sword-like, each with a filiform process arising from base, which is shorter than main processes; all processes with long sclerotized dark apices. Basal segment of inferior appendages with well-developed subtriangular posteroventral expansions bearing several long setae apically; long sclerotized articulation process emerging from inner face of expansion, directed dorsocaudally. Terminal segment of inferior appendages shorter than basal segment, enlarged basally, bearing a basoventral semi-membranous process with dark apical spine curved ventrocaudally. Comb of black sclerotized teeth present on inner surface of terminal segment, curved inward in basal 1/3, and sometimes slightly curved outward in distal half in ventral view. Phallus consists of phallotheca and invaginated endotheca; phallotheca broad-based, semi-membranous, with ventral sclerotized plate having mesal ridge along basal 2/3; endotheca including small, weakly sclerotized armatures.

*Female genitalia* (Fig. 2). Tergum VII with long setae posteriorly. Sternum VII setose; posterolateral margins expanded. Segment VIII swollen anterodorsally, with paired apodemes on anterior margin; 2 or 3 prominent elongate setae emerging from each dorsolateral patch along posterior margin; posteroventral corner weakly extended caudally. Tergum IX lightly pigmented dorsally, with sclerotized band anteriorly; paired long apodemes emerging from anterolateral margins, as long as segment VIII. Sternum IX protruded caudally. Segment X composed of paired, setose bulbous lobes, each with apical cercus. Vaginal apparatus consists of membrane and sclerite complex; distal half with elongate mesal sclerite, paired lateral sclerites and transverse sclerite

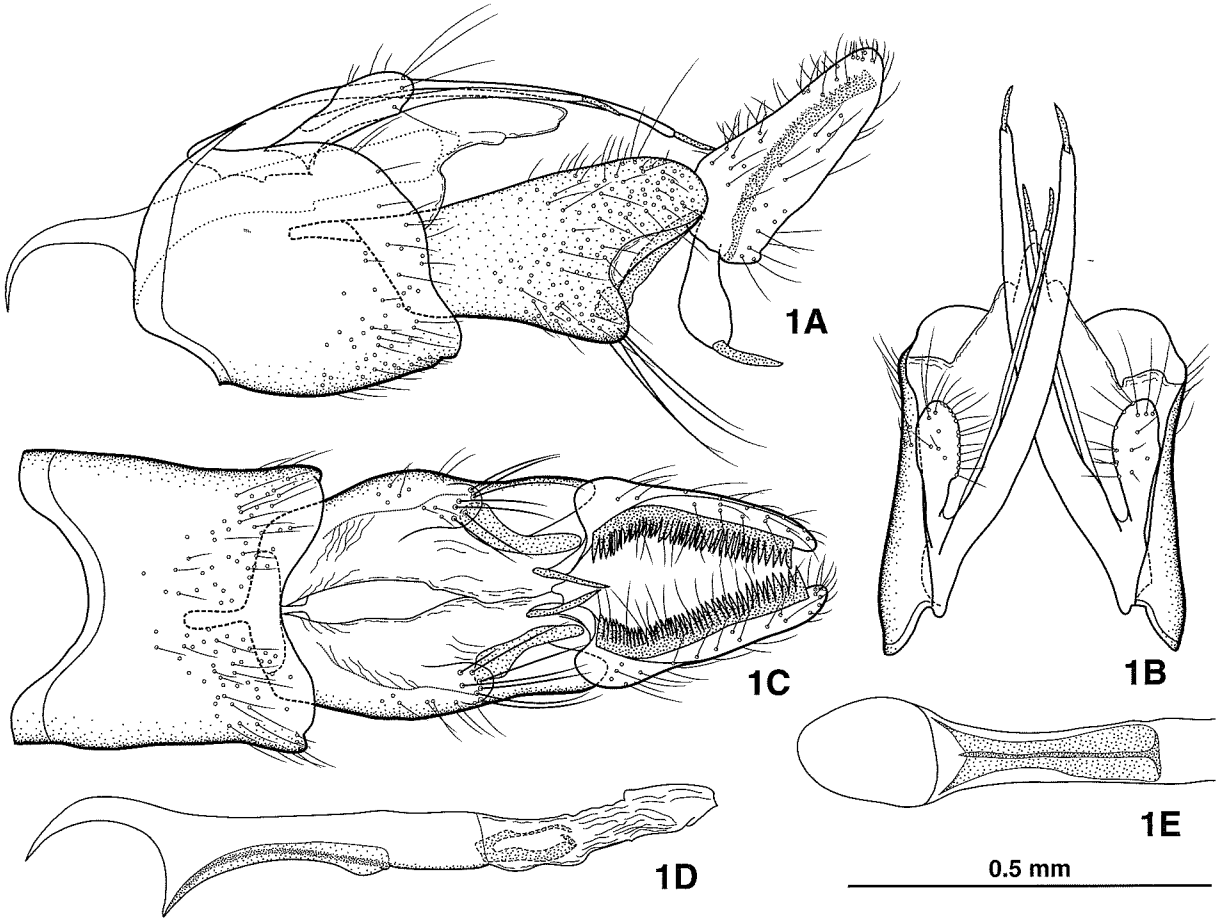


Figure 1. *Kisaura dichotoma* n. sp., male genitalia: A, lateral view; B, dorsal view; C, ventral view; D, phallotheca and endotheca, lateral view, endotheca everted; E, phallotheca, ventral view.

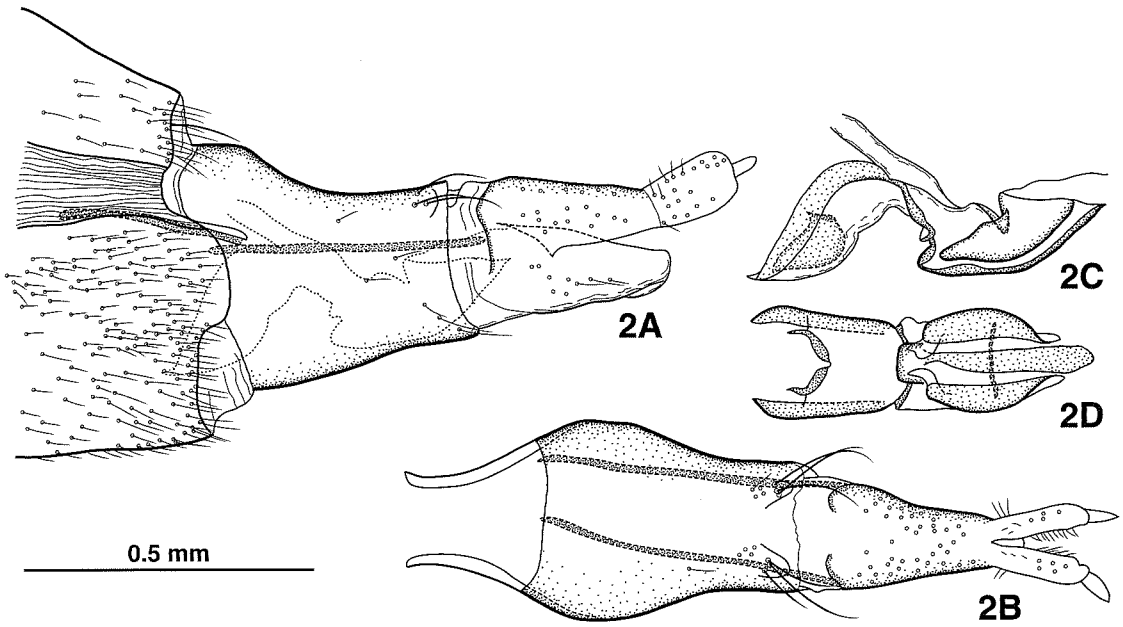


Figure 2. *Kisaura dichotoma* n. sp., female genitalia: A, lateral view; B, dorsal view; C, vaginal apparatus, lateral view; D, vaginal apparatus, ventral view.

Figure 3. Collection sites of *Kisaura dichotoma* n. sp.

connected to both lateral sclerites; anterior half strongly bowed ventrad in lateral view, with paired lateral sclerites connected with each other posteriorly and mesal sclerite, which is V- or U-shaped in ventral view.

*Holotype*. ♂, Shiriuchi-chô, Oshima, Hokkaidô, Japan, 8–13.VII.1976, T. Kumata (pinned).

*Paratypes*. KURIL ISLANDS. [Kunashir] 4♂8♀, small stream by geothermal pools, about 14 km west of Yuzhno-Kurilsk, 27.VII.1997, N. Minakawa & T. I. Ritchie (CAS); 2 ♂, ditto (IBSS). JAPAN. [Hokkaidô] Shiribeshi: 11 ♂ 3 ♀, Shirai-zawa, Okusawa-suigenchi, Otaru-shi, 9.VIII.1996, Y. Sasaki & F. Takahashi; 3 ♂ 1 ♀, ditto, 19.VIII.1996, Y. Sasaki & F. Takahashi; 1 ♂, ditto, 13.IX.1996, M. Ôhara & Y. Sasaki. Hiyama: 9♂5 ♀, Iwafuchi-zawa, Ken'ichi-gawa Riv., Kumaishi-chô, 10–20.VII.1995, Y. Ito & T. Ito; 4 ♂ 4 ♀, ditto, 20.VII–1.VIII.1995, Y. Ito & T. Ito; 4 ♂ 3 ♀, ditto, 1–10.VIII.1995, Y. Ito & T. Ito. [Honshû] Iwate: 2 ♂ 2 ♀, small stream tributary to Ôkawa Riv., Osada, Iwaizumi-chô, 12.VII.1997, N. Kuhara. Niigata: 1 ♂ 1 ♀, Irikon-zawa, el. 450 m, Kotaki, Itoigawa-shi, 16.VIII.1996, T. Hattori. Gifu: 2♂, Ogawabayashi, el. 600–700 m, Maze-mura, 16.VIII.1990, T. Hattori (pinned); 2 ♂, Hassô-gawa Riv., el. 600 m, Sakauchi-mura, 7.VI.1998, T. Hattori; 1♂, Nagara-gawa Riv., el. 870 m, Kamagahora, Takasu-mura, 30.VII.1995, T. Hattori (pinned). [Shikoku] Ehime: 1 ♂, Namakusa-dani, el. 1200 m, Odamiyama, Oda-chô, 4.VII.1998, E. Yamamoto (CBM); 1 ♂, ditto, 24.VII.2000, E. Yamamoto; 6♂, ditto, 15.VIII.2000, E. Yamamoto; 5♂6♀, ditto, 21.VIII.2000, E. Yamamoto; 1 ♂, ditto, 27.VIII.2000, E. Yamamoto; 1 ♀, ditto, 2.IX.2000, E. Yamamoto.

*Other material examined*. JAPAN. [Hokkaidô] Abashiri: 4 ♂ 1 ♀, Nukamappu-gawa Riv., Shari-chô, 30.VI–17.X.1992, K. Uesugi. Ishikari: 9 ♂ 2 ♀, brooklet, el. 240 m, Ichankoppe-zawa, Eniwa-shi, 11.VII–1.IX.1995, T. Ito; 1 ♀, Kan'non-zawa, Misumai, Sapporo-shi, 27.VII.1992, N. Kuhara; 1 ♂, ditto, 15.IX.1992, N. Kuhara. Shiribeshi: 6♂, brooklet, Anataki, Okusawa-suigenchi, Otaru-shi, 26.VII.1995, N. Kuhara; 1 ♂, Katsunai-gawa Riv., Anataki, Okusawa-suigenchi, Otaru-shi, 26.VII.1995, N. Kuhara; 24 ♂ 5 ♀, Shirai-zawa, Okusawa-suigenchi, Otaru-shi, 29.VII–27.IX.1996, M. Ôhara et al. Oshima: 1♂, Goyô-no-sawa, Namari-kawa Riv., Yakumo-chô, 22.VII.1997, A. Ohkawa. Hiyama: 8 ♂ 5 ♀, Iwafuchi-zawa, Ken'ichi-gawa Riv., Kumaishi-chô, 15.VI–21.IX.1995, Y. Ito & T. Ito. [Honshû] Aomori: 1♂, Yahazuyama, Kazamaura-mura, 27.VII.1999, N. Kawase. Iwate: 1 ♂ 1 ♀, Udore-sawa, Miyama-gawa Riv., Kadoma, Kawai-mura, 13.VII.1997, N. Kuhara; 1 ♂, Kuji-shi, 22.VII.1995, T. Murakami. Ibaraki: 3♂2♀, Uratsukuba, Mt. Tsukuba-san, 21.VII.1998, N. Kawase. Saitama: 1 ♂, Kudonosawa, el. 750 m, Ôtaki-mura, 7–28.VIII.1998, T. Kagaya et al. Shizuoka: 1 ♀, Nishiyama-zawa, el. 950 m, Ikawa, Shizuoka-shi, 25.VI.1994, T. Hattori. Mie: 12 ♂ 2 ♀, Ishigure-minami, Daian-chô, 1.VI–15.VIII.2001, H. Morita; 1 ♂, Kameyama-shi, 3.VII.1994, H. Morita. [Shikoku] Tokushima: 1 ♂, Kuwadaira, el. 1240 m, Ichiu-son, 25.IX.2002, T. Hattori. Ehime: 1♂, Hondani-keikoku, Odamiyama, Oda-chô, 10.VI.2001, E. Yamamoto; 1 ♂, Koya-yama, Odamiyama, Oda-chô, 7.VII.2000, E. Yamamoto & M. Doi; 2 ♂, ditto, 18.IX.2000, E. Yamamoto & M. Doi; 4 ♂ 2 ♀, Namakusa-dani, Odamiyama, Oda-chô, 14.VII–16.VIII.1998, E. Yamamoto & M. Doi; 3♂, small stream beside Miyama-sô, Odamiyama, Oda-chô, 15–16.VIII.2000, E. Yamamoto; 2 ♂, small stream, Oda-chô, 20.IX.2000, E. Yamamoto. Kôchi: 1 ♂, Teragawa, Hongawa-mura, 1.VII.1995, K. Konishi et al. [Kyûshû] Nagasaki: 1 ♂, Tara-dake, Takaki-chô, 16.VII.1998, S. Tsukaguchi.

*Distribution* (Fig. 3). Kuril Islands (Kunashir), Japan (Hokkaidô, Honshû, Shikoku, Kyûshû).

*Etymology*. *Kisaura dichotoma*, taken from the Greek for dichotomous, in reference to the two-branched male spiniform processes of this species.

*Diagnosis*. The new species shows quite unique specialization in male genitalia within the genus. The male of this species somewhat resembles *Kisaura euphemos* Sun and Malicky, 2002 in the shape of the inferior appendages, but can be easily recognized among all known *Kisaura* species by a pair of dichotomous spiniform processes associated with tergum X, and the semi-membranous process bearing an apical spine arising from the base of the terminal segment of the inferior appendages.

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