

Description of a New Species of the *yosiiana*-Group of the Genus *Rhyacophila* (Trichoptera, Rhyacophilidae) from Chiba Prefecture, Central Japan

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Abstract A new species of the *yosiiana*-group of the genus *Rhyacophila* is described from Boso Peninsula, Chiba Pref., central Japan. Adults (male and female), pupae and larvae are described and illustrated.

Key words: *Rhyacophila kiyosumiensis* sp. nov., *yosiiana*-group, Rhyacophilidae.

Up to the present, twelve species of the *yosiiana*-group of the genus *Rhyacophila* have been known from eastern Asia (Navas, 1907; Tsuda, 1940, 1942; Ross, 1956; Botosaneanu, 1970; Kobayashi, 1973, 1976). In this paper I describe a new species of the *yosiiana*-group from Japan under the name of *Rhyacophila kiyosumiensis*.

Methods

The association between adult and larva was established by dissecting the mature pupa which shows fully developed genitalia and has larval exuviae in the cocoon. The head, prothorax and anal proleg of the exuviae were compared with the homologous sets of sclerites in the larval specimens. Primary setal numbers used in this paper are adopted from Williams and Wiggins (1981).

Rhyacophila kiyosumiensis sp. nov.

(Japanese name: kiyosumi-nagare-tobikera)

Male (Figs. 1-4). Body length: 5.2-6.3 mm; fore wings: 8.1-8.6 mm long and ca. 3.1 mm wide; hind wings: 7.1-7.5 mm long and ca. 2.8 mm wide.

Head dark brown to black; thorax brown to dark brown; legs almost yellowish brown except brown coxae. Fore wings blackish brown with black veins, pterostigmae somewhat blackish, r-m and m-cu cross veins absent, instead white and small spots replacing. Hind wings blackish brown, with indistinct white spots. Abdomen blackish brown to black; a ventral process present on each of segments VI and VII.

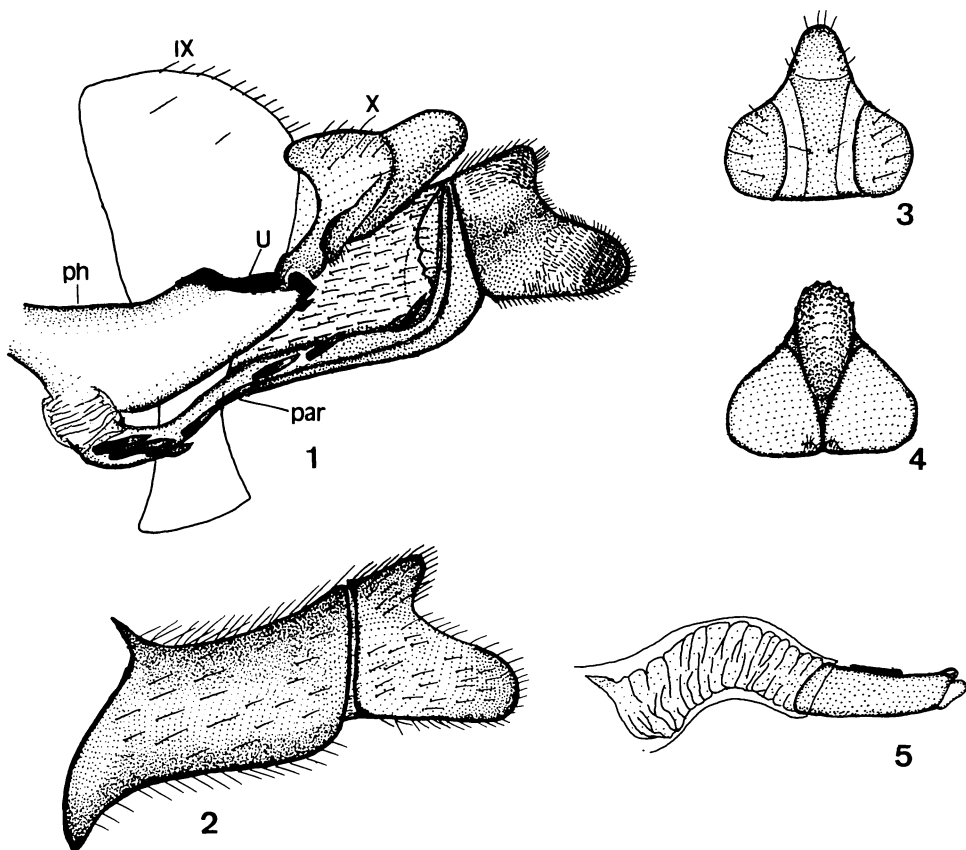
Genitalia : Segment IX broader at dorsal part

than at ventral part in lateral view. Segment X thick and stout, projecting dorsocaudally, with rounded apex in lateral view, convex and gradually narrowed apically; granular processes situated in the median area and elongate oval in ventral view. Apical band situated horizontally at ventral base of segment X, overlapping with dorsal portion of aedeagus in lateral view, and base of apical band attached directly to aedeagus. Small vestige of the anal sclerite present at base of segment X. Aedeagus almost membranous except in dorsal and ventral portions which are moderately sclerotized. Parameres long and slender, curved dorsally at the apical parts and extending under the apex of segment X, each with about 8 fairly large dark brown spines, apical part of spine like garden trowel. Inferior appendages composed of a long basal segment and a short mitten-shaped apical segment with two processes which are curved inward at apices and covered with short stout setae on inner sides, ventral process rounded at apex, larger than dorsal one, emargination between ventral and dorsal processes moderate in depth.

Female (Fig. 5). Body length: 6.1-8.0 mm; fore wing: 9.3-9.7 mm long and ca. 3.5 mm wide; hind wing: 8.5-8.8 mm long and ca. 3.0 mm wide.

Coloration similar to male. Ventral process present on abdominal segment VI. Segment VIII long, cone-shaped, with truncate apex and short internal fold.

Genitalia: Vaginal apparatus with a terminal piece parallelogram in shape in lateral view, with a small hump on dorsal apex in lateral view, distal part almost membranous; basal piece weak-



Figs. 1-5. Male (1-4) and female (5) of *Rhyacophila kiyosumiensis* sp. nov. 1, genitalia, lateral view; 2, inferior appendage, lateral; 3, segment X, dorsal; 4, segment X, ventral; 5, vaginal apparatus, lateral. Abbreviations. IX, segment IX; X, segment X; ph, phallus; U, apical band; par, paramere.

ly sclerotized and bellows-shaped.

Pupa (Fig. 6). Mandibles yellowish brown except for brown apices. Cocoon translucent, yellowish brown. First segment of antenna with 5 setae. Left mandible with two teeth, without distinct incision between them, right mandible with three teeth. Dorsal plates of abdominal segments symmetric, anterior plates present on segment III to VI, posterior ones on segment III to V. Number of hooks on the dorsal plates, 0 on IIIa, 3 on IIIp, 3 on IVa, 7 on IVp, 6 on Va, 8 on Vp and 5 on VIa.

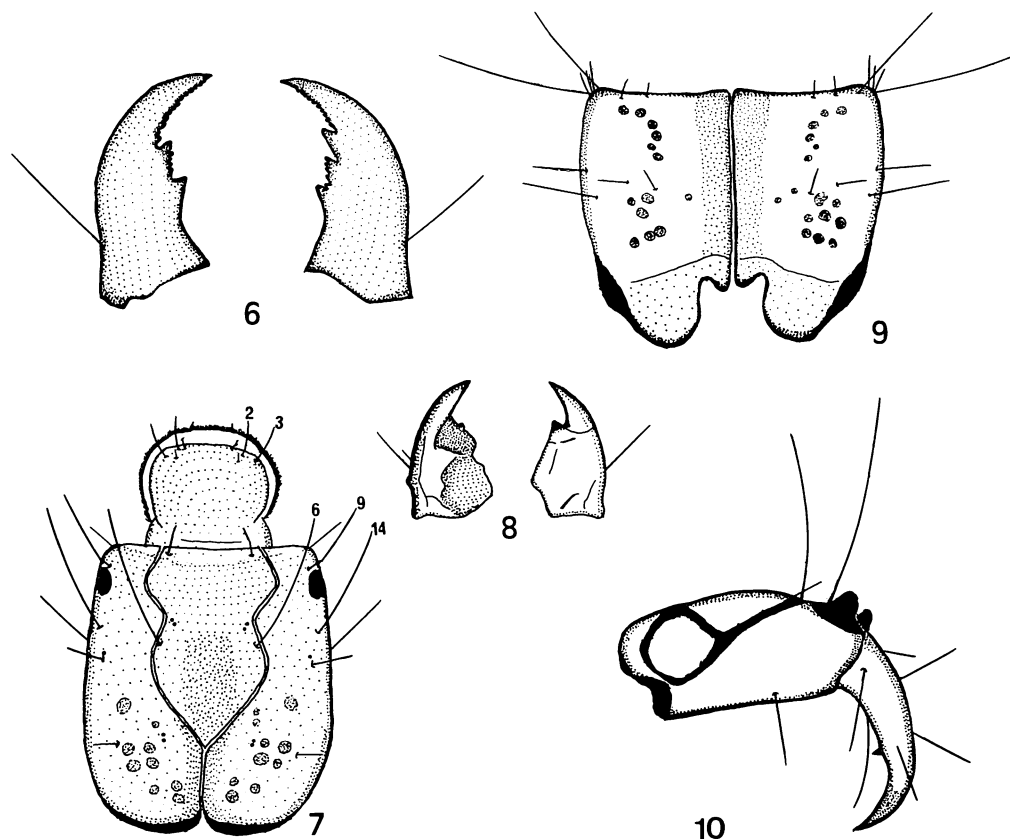
Cocoon case typical dome-shaped, composed of granules and small amounts of pebbles.

Final instar larva (Figs. 7-10). Up to 14.3 mm long. Ground color of sclerites on body pale yellow to pale brown. Head with dark posterior margins, distinct brown dots present on dorsum,

dark small dots present on ventral side. Pronotum with black postero-lateral corner and black posterior margin.

Head slightly longer than wide, setae 6 and 14 longer and seta 9 a little longer than others. Labrum rounded at anterior margin, setae 2 and 3 thick and long. Mandibles stout, left mandible with a small subapical tooth on middle of lower blade; right mandible with an acute subapical tooth on distal end of lower blade. Maxillary palpi with 2nd segment twice longer than the 1st.

Thorax without gill. Pronotum with anterior margin slightly wider than the posterior, two distinctly longer setae present on anterolateral corner, outer one of the two much longer than the inner. Trochantin not produced into a digitate process. Fore legs slightly wider and shorter than mid and hind legs.



Figs. 6-10. Pupa (6) and final instar larvae (7-10) of *Rhyacophila kiyosumiensis* sp. nov. 6, mandibles, dorsal view; 7, head, dorsal; 8, mandibles, dorsal; 9, pronotum, dorsal; 10, anal proleg, lateral.

Abdomen without gill, moderately constricted between segments. Dorsal sclerite of segment IX with nearly rectangular, black at anterior margin. Anal proleg with a black dorsal hump on the postero-dorsal corner; anal claw with a black hump at basodorsal corner and a large ventral tooth near the middle.

Holotype: ♂, CBM-ZI 13006, Fudagou, Kimitsu, Chiba Pref., 19-v-1989, R.B.Kuranishi (RBK).

Paratypes: 7♂♂, ZI 13007-13013 & 3♀♀, ZI 13054-13056, same data as holotype; 10♂♂, ZI 13014-13023 & 2♀♀, ZI 13057-13058, type locality (TL), 29-iv-1989, RBK; 12♂♂, ZI 13024-13035 & 2♀♀, ZI 13059-13060, TL, 10-v-1989, RBK; 1 larva, ZI 13065, TL, 10-v-1989, Tr.Ito; 3♂♂, ZI 13036-13038, 1 pupa, ZI 13063 & 1 larva, ZI 13066, Yomogi, Kimitsu, Chiba Pref., 10-v-1989, RBK; 3♂♂, ZI 13039-13041, Fukurokura, Kimitsu, Chiba Pref., 10-v-1989, RBK; 5♂♂, ZI 13042-13046 & 1

♀, ZI 13061, TL, 18-v-1989, RBK; 7♂♂, ZI 13047-13053 & 1♀, ZI 13062, TL, 6-vii-1989, RBK; 2 larvae, ZI 13067-13068, TL, 6-vii-1989, Tr. Ito; 1 pupa, ZI 13064, TL, 21-v-1989, Tr.Ito; 2 larvae, ZI 13069-13070, TL, 12-viii-1989, Tr.Ito.

Remarks. This species resembles *R. kohnoae* Ross 1956, but differs from the latter in the male genitalia: segment X convex and gradually narrowed apically in dorsal view, with granular processes situated in the median area and elongate oval in ventral view, and dorsal process of distal segment of inferior appendage wide in base and gradually narrowed apically.

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千葉県産ナガレトビケラ科 ナガレトビケラ属(*yosiiiana*-種群)の1新種の記載

倉西良一

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ナガレトビケラ科ナガレトビケラ属(*yosiiiana*-種群)の1新種の成虫(雌雄)、蛹及び幼虫を千葉県産の標本に基づき記載した。既知種の中では *Rhyacophila kohnoae* に似るが、雄交尾器の第10節を側面から見ると凸状で先端に向かって狭くなっていること、下方からみると粒状突起が中央の楕円形部に限られていること、そして下部附属器の末端節背面部の突起が基部で広く、先端に向かって細くなることにより区別された。成虫、蛹及び幼虫とも分布は、山地溪流の細流に局限されていた。