

## New Species of Rhyacophilidae (Trichoptera : Insecta)

Mineo KOBAYASHI

### ナガレトビケラ科の新種について

著者はトビケラ目（昆虫）の標本を分類整理している過程において、新種と思われる個体を数個体見出した。そこでこれらの個体を既知種と比較した結果、明らかに新種であることが判明したので、ここに新種として発表する。（小林峯生）

During the past twenty years many specimens of Japanese caddisflies have been studied, most of which are in the collection of the Kanagawa prefectural Museum in Yokohama, Japan. Many others, however, been submitted by other institutions for identification. Inevitably many undescribed species have been found in these materials. This paper is presented to provide names for these species so that this material may be disposed of properly, and to facilitate future identification of caddisflies in this family.

### Family RHYACOPHILIDAE

The Rhyacophilidae are composed of two very distinct subfamilies. The subfamily Rhyacophilinae temperate in distribution and is known many species from the Japanese Region. The genus *Rhyacophila* is widespread over most of the region.

The larvae are all free-living, and apparently primarily predaceous. They live in fast-flowing, and generally, cool water, which limits their distribution to hill or mountainous areas.

### Genus *Rhyacophila* Pictet.

This genus is known from the Japan and China, Sibelia, and Southeast Asia. There are numerous species in the genus, 38 having been described previously to the 5 herein described. Few, however, are known from enough localities to give a clear indication of their overall geographic range.

### *Rhyacophila asahiensis* sp. nov.

#### Figures 1-3.

ADULT.-Insect brownish, of medium size. Length of forewing 8 mm. Head blackish brown; ocelli black. Antennae blackish brown, paler than the head. Basal joint of the same colour as the remaining joints. Legs and palpi pale brown.

Maxillary palpi five-jointed, the first two joints short, and the third longer and thinner, terminal joint as long as the fourth joint, not articulated. Labial palpi four-jointed, the first joint short and stout, the third joint long, as long as the terminal one. Anterior wing blackish brown, elongated. Stigma darker than the rest of the wing; the usual white patches at r-m and m-cu. Posterior wing blackish brown, paler than the anterior wing, narrowed. Stigma darker than the rest of the wing. Male abdomen with numerous small patches of dark on the tergites, the third and the fourth sternite with one cross-lines; the fifth sternite with broad plate; ventral plate of the eighth sternite short, and acuted at apex. Male genitalia: Ninth segment with ventral portion much shorter, middle and dorsal portion much moderately long, apical margin with a few bristles. Tenth tergites short, apical margin with the apical portion sinuate to produce a slender apex. Anal sclerite much small. Clasper with basal segment almost parallel side, apical segment narrowed apically, almost projectile-shaped. Aedeagus with base broad, apical portion divided to two lobes, stigam-shaped.

MATERIAL.—Holotype, male: Asahimura, Niigata Pref., 25 September 1968: Mus. No. 2206; M. Kobayashi leg. Paratype, male: Same data, 4 ♂: Mus. No. 2204.

*Rhyacophila hayakawai* Kobayashi, *R. shiraishiensis* Kobayashi, and *R. asahiensis*, new species, from a closely related group of species hardly differing in shape of clasper or aedeagus. From its congeners *R. asahiensis* may be easily recongnized by the structure of clasper and aedeagus.

*Rhyacophila nagaokaensis* sp. nov.

Figures 4-6.

ADULT.—Length of forewing 7.5 mm. Head dark brown. Antennae yellowish brown. Legs and palpi yellowish brown, paler than the antennae. Maxillary palpi five-jointed, the first two joints short, clothed with long stout hairs, and third longer, terminal long, not articulated, acuted at apex. Labial palpi four-jointed, the first joint shortest, with a few long hairs. Anterior wing dark brown, broadened. Stigma darker than the rest of the wing; the radius jointed to the mid by a transparent vein. Posterior wing dark brown, paler than the anterior wing. Stigma darker than the rest of the wing. Tergite of male abdomen dark brown, sternite yellowish brown; ventral plate much long produced, rounded at apex. Male genitalia: Ninth segment dorsal and ventral portion short, medial portion long. Tenth tergites broad, long, apical margin rounded, lateral margin emarginated at basal portion. Anal sclerite with fairly broad base and having its apical margin a triangle incision the midline. Aedeagus divided to two long lobes; aedeagus tubular tapering to a slender apex. Clasper with basal segment constricted in middle flattened at apex; apical margin broad, posterior margin gently incurved the midline.

MATERIAL.—Holotype, male: Nagaoka, Niigata Pref., 15 May 1966: Mus. No.

2250: K. Baba leg.

This new species resembled to *Rhyacophila shikigawana* Kobayashi in structure of body and wings, but it is easily distinguished from *R. shikigawana* by in shape of clasper and aedeagus.

*Rhyacophila kawarabensis* sp. nov.

Figures 7-9.

ADULT.—Length of forewing 8,5 mm. Head dark brown; ocelli black. Antennae dark brown, paler than the head. Legs and palpi dark brown, paler than the head. Maxillary palpi five-jointed, the first two joints short and the third longer, terminal joint as long as the fourth joint, not articulated, terminal joint acuted at apex. Labial palpi four-jointed, the first joint shorter and thicker than the other joints, terminal joint as long as the third one, acuted at apex. Anterior wing dark brown, narrowed. Stigma darker than the rest of the wing; the radius jointed to the mid by a transparent vein; m-cu become transparent. Posterior wing dark brown, paler than the anterior wing, narrowed. Stigma darker than the rest of the wing. Male abdomen without patches on tergite; ventral plate slightly processed. Male genitalia: Ninth segment enlarged laterally; the tenth tergite much elongated backwardly. Anal sclerite long, stout, with a fairly narrow base and broadened apex. Clasper with basal segment almost parallel side, apical segment narrowed apically. Aedeagus with a small rounded base; ventral with a pair of hook-like processes.

*Rhyacophila vercunda* Tsuda, *R. parata* Tsuda, and *R. kawarabensis*, new species, from a closely related group of species hardly differing in shape of clasper or aedeagus. From its congeners *R. kawarabensis* may be easily distinguished from the above species by the structure of male genitalia.

MATERIAL.—Holotype, male: Kawarabo, Mt. Hayachine, Iwate pref., 4 July 1973 Mus. No. 4990: M Kobayashi leg.

*Rhyacophila hayachinensis* sp. nov.

Figures 10-12.

ADULT.—Length of forewing 7,7mm. Head dark brown; ocelli black. Antennae blackish brown, paler than the head. Legs and palpi pale brown. Maxillary palpi five-jointed, the first two joints short, and third longer and thinner, terminal joint as long as the fourth one, not articulated. Labial palpi four-jointed, the first joint shortest and stout, the third joint long, as long as terminal one, terminal joint acuted at apex. Anterior wing dark mosky. Stigma darker than the rest of the wing. Posterior wing dark mosky. Stigma dark. Male abdomen dark brown above, slightly lighter brown below: the fifth sternite with large plate; ventral plate of the eighth sternite slightly processed, acuted at apex. Male genitalia: Ninth segment with dorsal portion much longer, medial and ventral portion



moderally short, apical margin with a fairly broad base and slightly bulbous sharpened apex. Tenth tergites short, acuted at apex in the side. Anal sclerite slender, rounded at apex. Clasper stout, with basal segment almost parallel side, apical segment bean-shaped in the side. Aedeagus with broad, narrowed apically, medial portion with a pair of small spines.

MATERIAL.—Holotype, Male: Kawarabo, Mt. Hayachine, Iwate Pref., 4 July 1973: Mus. No. 4992: M. Kobayashi leg.

This new species resembled to *Rhyacophila ulmeri* Navas in shape of clasper, but it is easily distinguished from *R. ulmeri* by the structure of Aedeagus.

*Rhyacophila niizakiensis* sp. nov.

Figures 13-15.

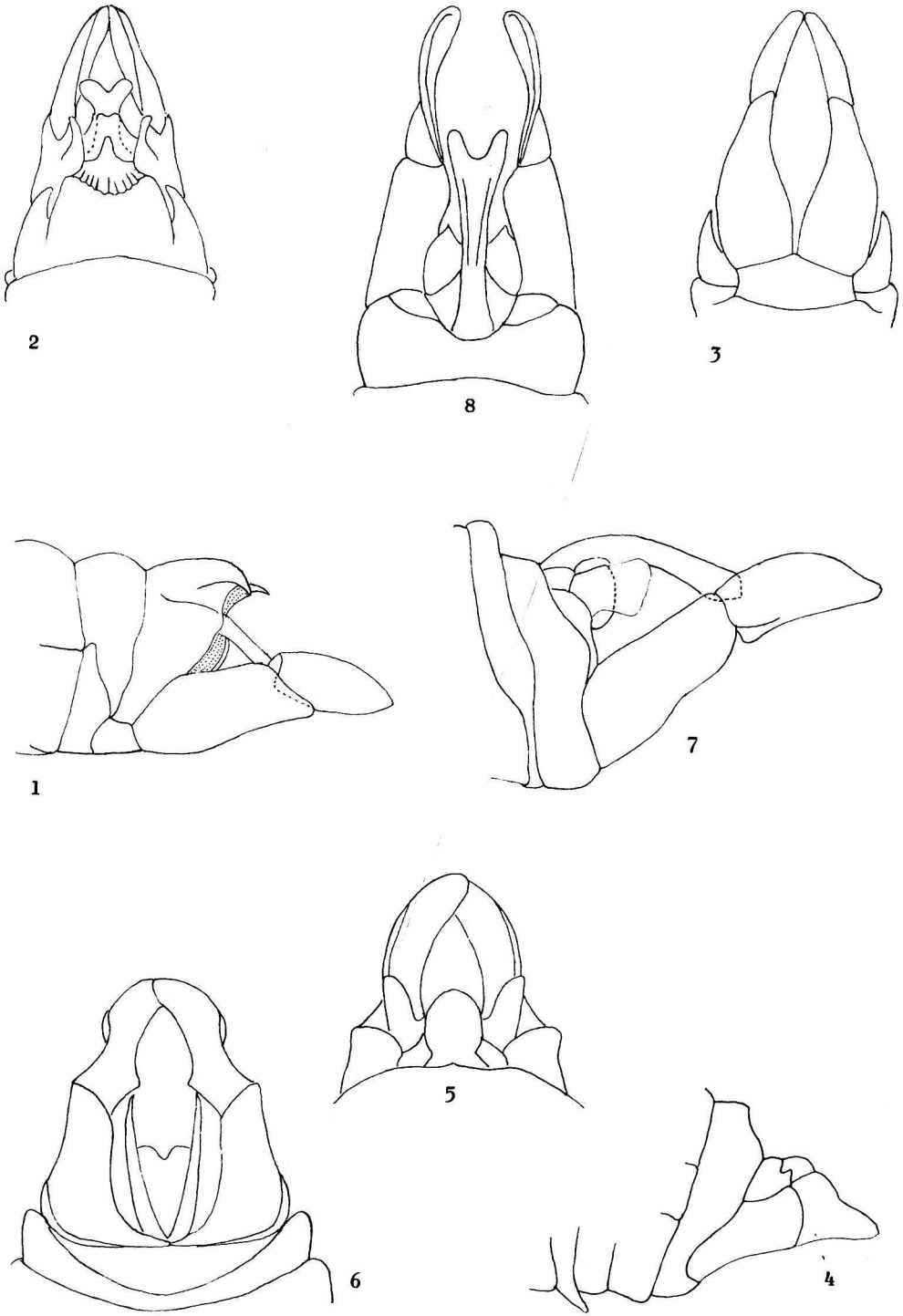
ADULT.—Length of forewing 8.5 mm. Head dark brown. Antennae dark brown. Legs and palpi dark brown, paler than the antennae. Maxillary palpi five-jointed, the first two joints short, with a few long hairs, and third longer, terminal long, not articulated, acuted at apex. Labial palpi four-jointed, the first joint shortest, with a few long hairs. Anterior wing dark brown, broadened. Stigma darker than the rest of the wing; radius jointed to the mid by a transparent vein; m-cu become transparent. Posterior wing dark brown, paler than the anterior wing. Stigma darker than the rest of the wing. Tergite with brown numerous patches; ventral plate slightly processd. Male genitalia: Ninth segment broad dorsal and ventral portion short, median portion slightly long. Tenth segment typical; Anal sclerite with broad base and rounded apex. Clasper with basal segment almost parallel side, apical segment broadened, apical margin rounded. Aedeagus with small basal cup, the sagittate process well-developed, lateral processes of aedeagus simple.

MATERIAL.—Holotype, male: Riv. Niizaki, Yugawara, Kanagawa Pref., 24 June 1973: Mus. No. 5036: M. Kobayashi leg.

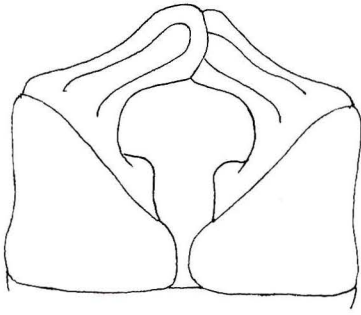
This new species is easily distinguished from the other species by the structure of male genitalia.

**Literatur Cited**

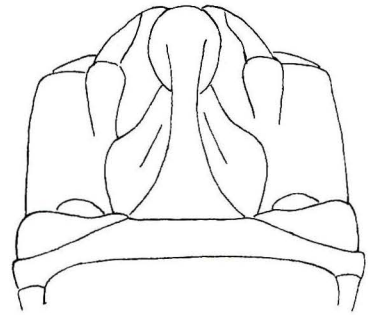
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Figures 1-9. Male genitalia. *Rhyacophila asaniensis*, new species: 1, lateral; 2, dorsal; 3, ventral. *R. nagaokaensis*, new species: 4, lateral; 5, dorsal; 6, ventral. *R. kawaraboensis*, new species: 7, lateral; 8, dorsal; 9, ventral.

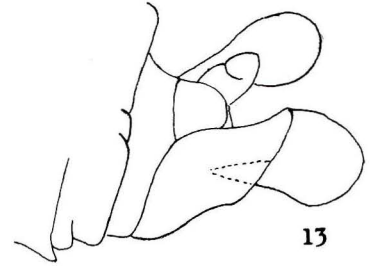
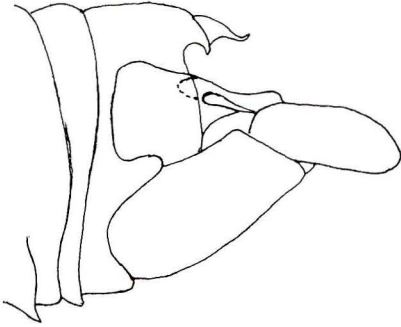


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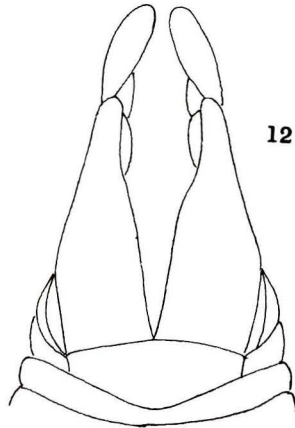
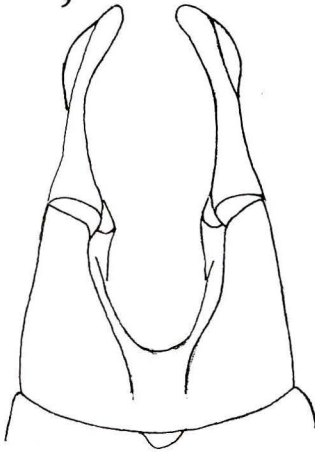
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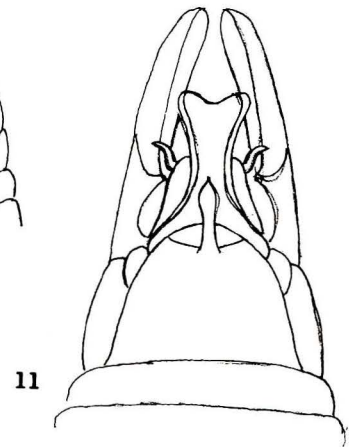


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Figures 10-15. Male genitalia. *Rhyacophila R.hayachinensis*, new species: 10, lateral; 11 dorsal; 12, ventral. *R. niizakiensis*, new species: 13, lateral; 14, dorsal; 15, ventral.