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A New Species and a New Record of Rhyacophilid Caddisflies from Taiwan (Trichoptera: Rhyacophilidae) 【Scientific note】

臺灣產流石蛾之一新種與一新記錄種(毛翅目：流石蛾科)【科學短訊】

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Abstract

Rhyacophila kaoshiungensis Hsu & Chen n. sp. is described as new to science. *Rhyacophila remingtoni* Ross is reported for the first time from Taiwan.

摘要

本文描繪臺灣產毛翅目流石蛾科流石蛾屬之一新種與一新記錄種，新種為高雄流石蛾 *Rhyacophila kaoshiungensis* Hsu & Chen n. sp., 新記錄種為雷氏流石蛾 *Rhyacophila remingtoni* Ross.

Key words: taxonomy, new species, new record, *Rhyacophila*, Taiwan

關鍵詞: 分類、新種、新記錄、流石蛾、臺灣

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A New Species and a New Record of Rhyacophilid Caddisflies from Taiwan (Trichoptera: Rhyacophilidae)

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ABSTRACT

Rhyacophila kaohsiungensis Hsu & Chen n. sp. is described as new to science. *Rhyacophila remingtoni* Ross is reported for the first time from Taiwan.

Key words: taxonomy, new species, new record, *Rhyacophila*, Taiwan

Introduction

Rhyacophila is the largest genus in the Trichoptera, with close to 500 species widely distributed through the Holarctic and Oriental regions (Wiggins, 1996), and 13 species have been reported from Taiwan (Hsu and Chen, 1996; Hsu, 1997). *Rhyacophila* larvae live in running-water habitats, and are free-living with no case or retreat until the pupa stage. When pupating, larvae construct a pupal enclosure of small stones. Herein, 1 new species and 1 new record are added to the rhyacophilid caddisfly fauna of Taiwan.

Materials and Methods

Insects were captured by light traps or by net sweeps along riversides. Specimens were preserved in 75% alcohol. The abdomens of both male and female caddisflies were cleared in a 10% potassium hydroxide (KOH) solution at 90°C for 15 minutes, and then examined

and drawn under a stereomicroscope (Zeiss, Stemi SV 11). The terminology of this paper followed that of Ross (1956) and Schmid (1970). The type species are deposited in the Insect Lab of the Liberal Arts Center, Dayeh University.

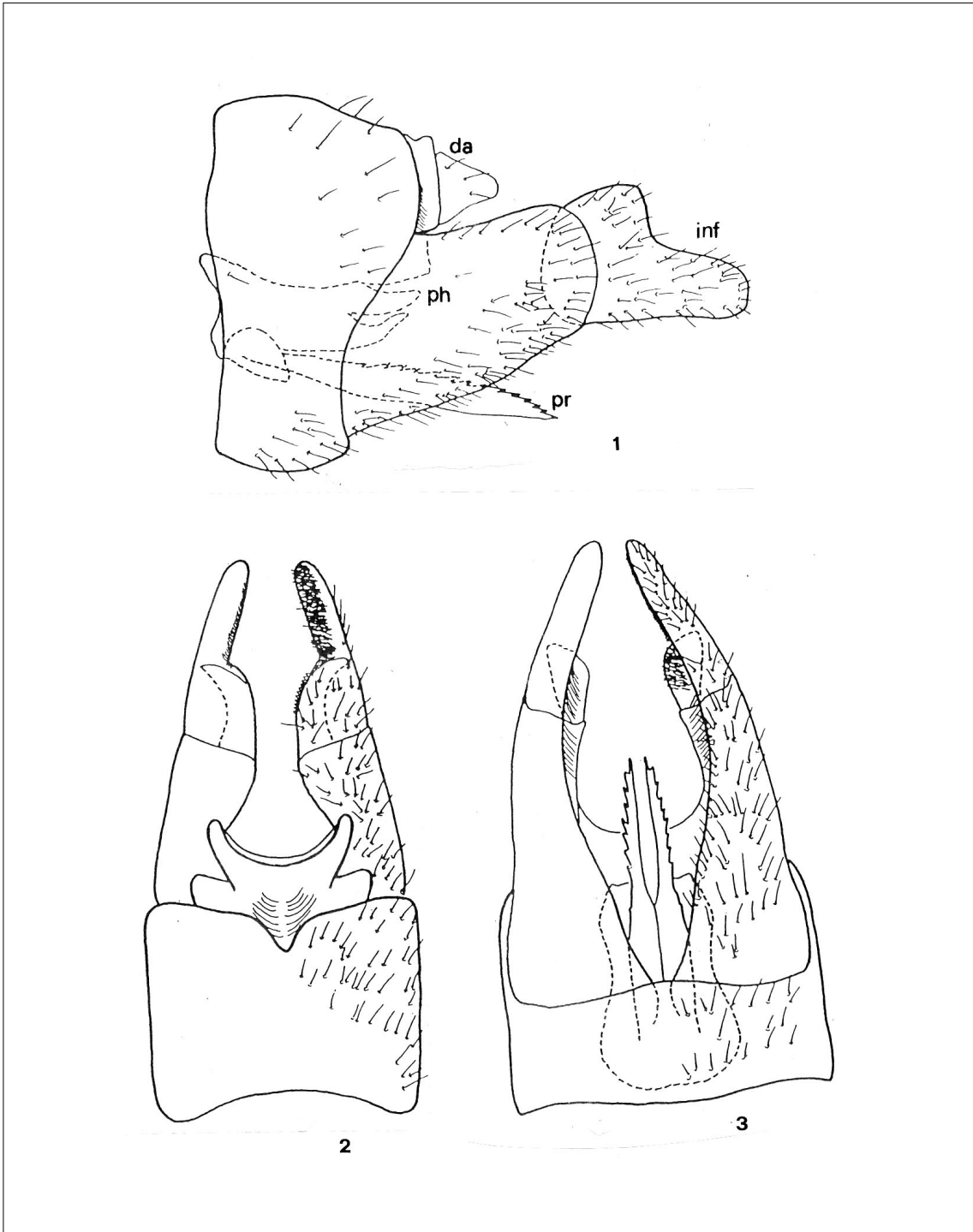
Descriptions

Rhyacophila kaohsiungensis Hsu & Chen n. sp. (Figs 1-3)

Body brown to dark brown, length 5.6~6.7 mm. Antenna shorter than forewing. Forewing oval, length 6.4~7.2 mm, hindwing slender, length 6.0~6.4 mm; venation similar to that of other rhyacophilid species.

Male genitalia: Tergite of segment IX broader than sternite, with a small triangular incision at median of posterior margin. Apical dorsal lobe of segment IX triangular in lateral view, base rectangular in dorsal view, lateral extended posteriorly, finger-shaped, median of posterior margin circularly

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Figs. 1-3. *Rhyacophila kaoshiungensis* n. sp. Male genitalia. 1. Lateral view; 2. Dorsal view; 3. Ventral view.
Abbreviations: da, apical dorsal lobe of segment IX; inf, inferior appendage; ph, phallus; pr, parameres.

excised. Segment X small, rectangular. Inferior appendage stout, basal segment longer than apical one, apical segment truncated dorsally, inner margins densely covered with dark setae. Phallosome small, base rectangular; phallus apex subdivided; parameres paired, blade-shaped, serrations on dorsal margins.

Female: Unknown

Materials examined; Holotype: ♂, KAOHSIUNG: Weirjein Stream, 1200 m, 11-XI-1995, L. P. Hsu. Paratypes: 1 ♂, same data as holotype, L. P. Hsu. NANTOU: Gaundaushi LTER site, 1 ♂, 28-VIII-2002, L. P. Hsu. Renai, Lishin, 1500 m, 1 ♂, 10-VII-2001, L. P. Hsu. TAICHUNG: Wushikang, 460 m, 2 ♂, 3-VI-1995, L. P. Hsu.

Etymology: Latinization, *kaohsiungensis*, from Kaohsiung, the type locality.

Diagnosis: This new species is similar to *Rhyacophila ulmeri* Navas (Ross, 1956), but the shapes of the apical dorsal lobe of segment IX and the paramere of the phallus differ.

***Rhyacophila remingtoni* Ross 1956**

Rhyacophila remingtoni Ross, 1956. p. 122, fig. 270. Holotype: ♂, Sapporo, Hokkaido, Japan. Collection of the Illinois Natural History Survey.

Rhyacophila similis Kabayshi, 1959. p. 343, fig. 1. Synonymy by Schmid 1970, p.128.

Rhyacophila remingtoni; Schmid, 1970. p.128, pl. XXVII, figs. 8, 9.

Body light brown, length 9.0-10.3 mm. Wings brown, forewing length 11.3-12.6 mm, hindwing length 9.7-10.6 mm; forewing with hyaline area at the m-cu crossvein. Both wings with obvious pterostigma. Venation similar to that of other rhyacophild species.

Male genitalia (Figs. 4-6): Abdominal segments VI and VII with small triangular ventral process. Segment IX round, tergite small, subdivided posteriorly; lateral plate extended posteriorly; sternite rectangular. Apical dorsal lobe of

segment IX oval in dorsal view, apical portion excavatus, with sclerited teeth at margin. Segment X small, anal sclerite base broad, finger-shaped, with bulbous apex, slightly curved upward. Basal segment of inferior appendage rectangular, apical segment oval, with a small circular incision at posterior margin, inner side densely covered with small, black setae. Phallosome cuplike; aedeagus with a pair of dorsal processes, phallus elongated, apex slender; parameres slender and long.

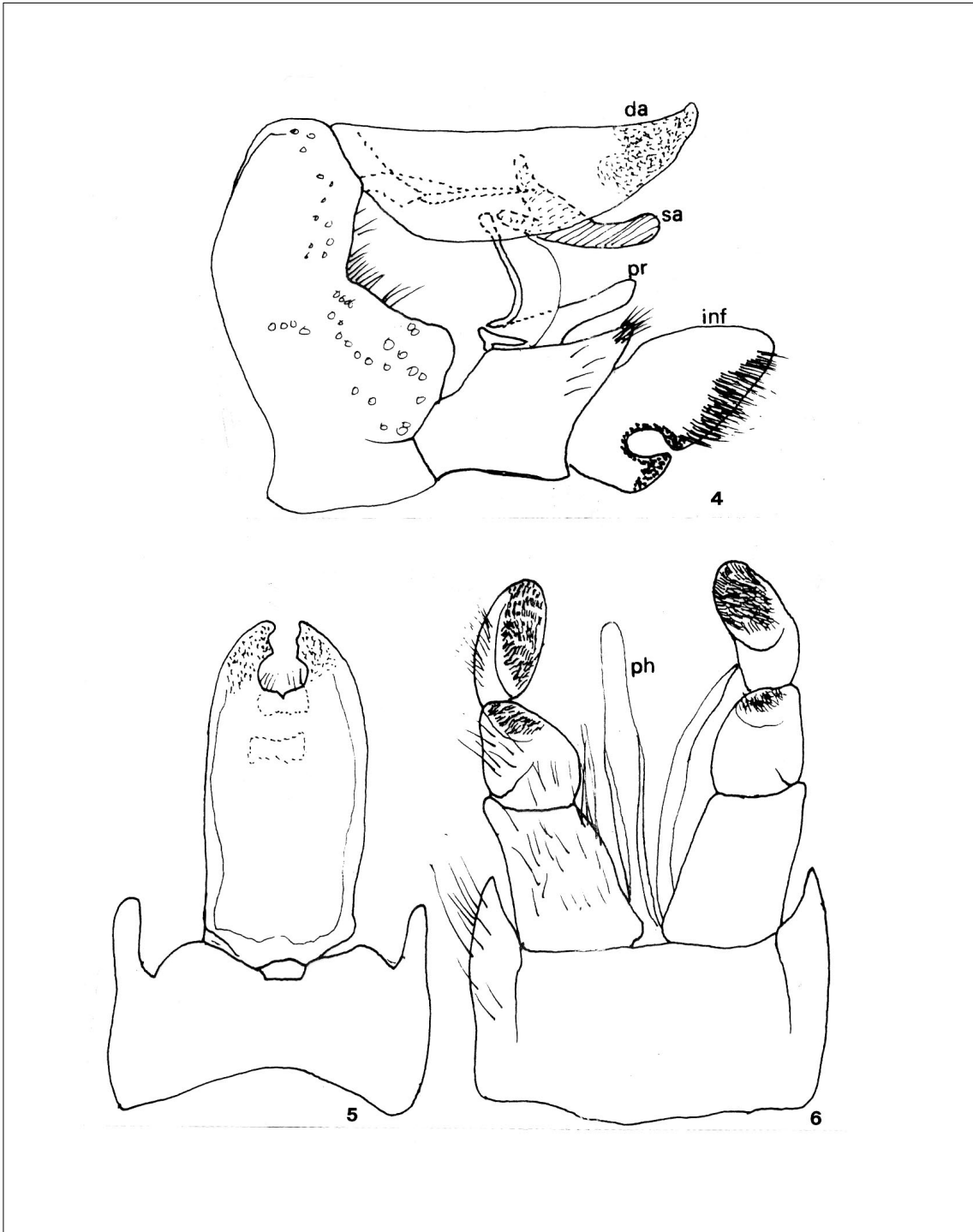
Female genitalia: General aspect similar to that of other rhyacophilid species. Spermatheca base bulbous, anterior with a small process, tapering posteriorly.

Material examined; HUALIEN: Dayuling, 2800 m, 7 ♂ 2 ♀, 10-X-2001, L. P. Hsu. NANTOU: Renai, Lishin Bridge No. 2, 1550 m, 1 ♂ 4 ♀, 28-II-2002, L. P. Hsu.

Note: This species was formerly described from Hokkaido, Japan by Ross (1956). This is the first record outside Japan. The male genitalia of this species are similar to those of *R. kimmisi* Ross (Ross, 1956), but differ in the shapes of the apical dorsal lobe of segment IX and the inferior appendage. The inferior appendage and the apical dorsal lobe of segment IX of this species are unique in Taiwan, and can be easily recognized.

Acknowledgements

We give our thanks to Dr. Hans Malicky for his valuable opinion on the new species. The financial support of the National Science Council of the Republic of China (NSC-91-2621-B-212-001) is also acknowledged.



Figs. 4-6. *Rhyacophila remingtoni* Ross. Male genitalia. 4. Lateral view; 5. Dorsal view; 6. Ventral view. Abbreviations: da, apical dorsal lobe of segment IX; inf, inferior appendage; ph, phallus; pr, parameres; sa, anal sclerite.

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臺灣產流石蛾之一新種與一新記錄種(毛翅目：流石蛾科)

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摘 要

本文描繪臺灣產毛翅目流石蛾科流石蛾屬之一新種與一新記錄種，新種為高雄流石蛾 *Rhyacophila kaoshiungensis* Hsu & Chen n. sp., 新記錄種為雷氏流石蛾 *Rhyacophila remingtoni* Ross.

關鍵詞：分類、新種、新記錄、流石蛾、臺灣