

## An Additional New Species of *Cyphonocerus* (Coleoptera, Lampyridae, Psilocladinae) from Taiwan

**Ming-Luen JENG, Ping-Shih YANG**

Laboratory of Insect Conservation, Department of Entomology, National Taiwan University,  
Taipei 106, Taiwan

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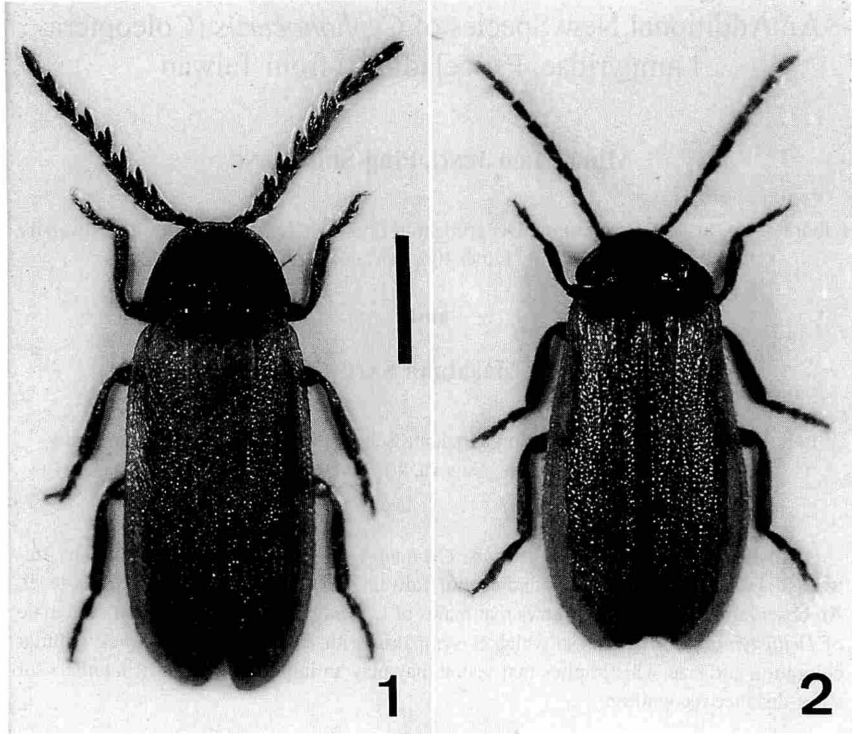
**Masataka SATÔ**

Laboratory of Nature Conservation, Graduate School of Nagoya Women's University,  
Mizuho-ku, Nagoya, 467–8610 Japan

**Abstract** A new firefly species, *Cyphonocerus jenniferi*, is described from Taiwan. It is distributed in northern and central Taiwan about 1,500–2,100 m above sea-level. An observation in laboratory shows that males of *C. jenniferi* try to copulate with a female of *Drilaster atricollis* NAKANE which is sympatric with the former and has very similar coloration and size. This implies that vision may play an important role in *C. jenniferi* for short-distance recognition.

### Introduction

The genus *Cyphonocerus* of Taiwan and Japan was recently reviewed by JENG *et al.* (1998). There were eleven species known from the world and three of them were recorded from Taiwan. When surveying the firefly fauna of the Taroko National Park in the spring of 1999, we found an undescribed species in the middle-elevation mountain areas in the park. In the meanwhile, our colleague also collected the species from northern Taiwan. Herein we are going to describe the new species and to modify our previous key to include it. The methods, terms and abbreviations are identical with those in JENG *et al.* (1998). The type series is deposited in the National Museum of Natural Science (NMNS), Taichung, Taiwan, the Department of Entomology, National Taiwan University (NTU), Taipei, Taiwan, and Nagoya Women's University (NWU), Nagoya, Japan, respectively. We wish to thank Jennifer LAI (National Taiwan University) and C. F. LEE (Ohio State University, Columbus, U.S.A.) for sending us material, and Dr. J. S. ASHE (University of Kansas) for reading the manuscript. The study was financially supported by the National Scientific Council of the Republic of China with grant no. NSC88–2313–B002–007.



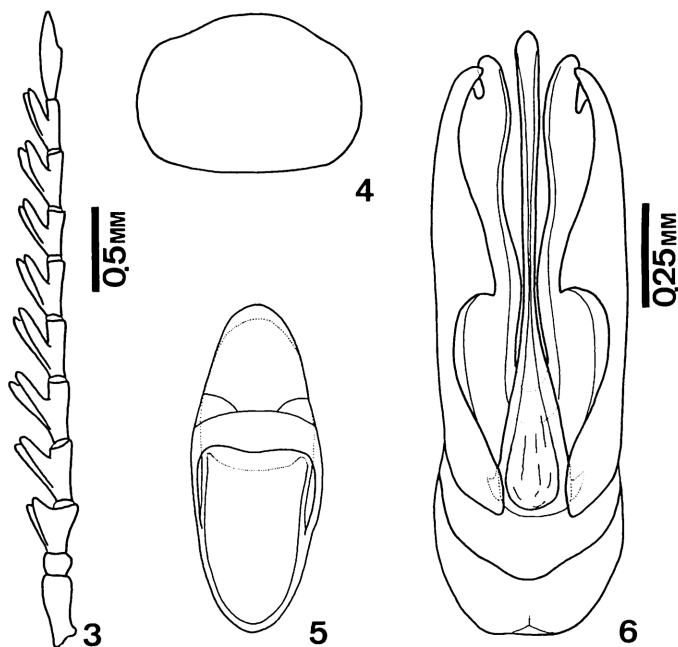
Figs. 1–2. Habitus — 1, *Cyphonocerus jenniferi* sp. nov., ♂; 2, *Drilaster atricollis* NAKANE, ♀. Note their similar body size and coloration. Scale=2 mm.

*Cyphonocerus jenniferi* JENG et M. SATÔ, sp. nov.

(Figs. 1, 3–6)

Type locality. Between Tsuen and Bilu Sacred Tree (ca. 2,050 m above sea-level), Hwalien County, eastern Taiwan.

*Description.* BL: 7.0–7.8 mm, BW: 2.9–3.3 mm. Coloration black, slightly shining, except pronotum with yellowish brown margins and elytra orange red throughout (Fig. 1). Epicranium densely and coarsely punctate. Antennal segments 3–10 somewhat stout, each with a pair of rami; antennomere 3 with rami short, nearly serrate laterally; antennomere 4–10 with rami longer than their own segments; last segment longer than the preceding one by about 1.5 times (Fig. 3). Pronotum 1.6–1.7 times broader than long, with apical margin weakly rounded and hind angles prominently expanded; surface coarsely and densely punctate and covered with dense pubescence; central disc weakly convex. Scutellum sparsely punctate in basal 1/4 but coarsely in the remaining part. Elytra finely but densely punctate, clothed with suberect pubescence; margins reflexed and elytral carinae distinct. EL/EW=2.0, EL/PL=4.2–4.4. T8 (Fig. 4) arched



Figs. 3–6. Morphological characters of *Cyphonocerus jenniferi* sp. nov. — 3, Antenna of male, left side view; 4, abdominal tergite 8 of male, dorsal view; 5, aedeagal sheath, dorsal view; 6, male genitalia, dorsal view. Figs. 3–5 in the same scale.

and slightly sinuate at apex, with a pair of obscure luminous organ laterally.

Aedeagal sheath (Fig. 5) about 1.5 mm long, 0.6 mm wide, oblong. TS about a half as long as sheath, with T10/T9 in length about 3.0. Male genitalia (Fig. 6) about 1.4 mm long. Medial lobe slender in apical 2/3 and thence broadened toward base. Paramere a little shorter than medial lobe, bifurcate apically; outer fork acute and inner fork blunt; inner sides of parameres sharply curved in apical half. Basal piece crescent-shaped dorsally, about 1/4 as long as paramere, slightly emarginate at apex.

Female. Unknown.

*Type series.* Holotype ♂ (NMNS), Tsuen-Bilu, 2,050 m a.s.l., Hwalien Co., Taiwan, 25, 26-V-1999, sweeping by M. L. JENG & J. LAI. Paratypes: 8 ♂♂, data identical with the holotype (NMNS, NTU); 1 ♂, ditto, M. SATŌ leg. (NWU); 8 ♂♂, Lalashan, 1,500–1,700 m a.s.l., Taoyuan Co., Taiwan, 22-V-1999, C. F. LEE leg. (NTU), 7 ♂♂, ditto, M. SATŌ leg. (NWU).

*Diagnosis.* This species is similar to *C. taiwanus* NAKANE. Like many other cases of the genus, it is very difficult to distinguish their male genitalia from each other. However, they can be easily distinguished by their coloration: *C. jenniferi* has black pronotum and orange red elytra which is unique in *Cyphonocerus*, while *C. taiwanus* has dark brown pronotum and yellowish brown elytra. In addition, the antennal

rami of *C. jenniferi* are more robust than those of *C. taiwanus*, and the antennomere 3 of *C. jenniferi* is nearly serrate laterally rather than pectinate as in *C. taiwanus*.

*Ecological remarks.* This species is seen flying around or resting on ground vegetation beside broadleaved forests at the type locality. The males usually erect their antennae in a V-shape to detect scents (maybe sex pheromone emitted by female) when resting on leaves. A sympatric firefly species, *Drilaster atricollis* NAKANE (Fig. 2) which belongs to the Otoretinae, has very similar coloration and size with *C. jenniferi* and is very common at the locality. In the laboratory, we observed that several males of *C. jenniferi* kept trying to copulate with a female of *D. atricollis* in a transparent plastic container (8 cm in diameter and 5 cm in height) and lasted for 2–3 days. This suggests that vision may play an important role in *C. jenniferi* for short-distance recognition.

*Distribution.* This species is known from Taiwan and distributed in northern and central montane areas (Taoyuan and Hwalien Counties) ranging from 1,500–2,100 m above sea-level.

*Flight periodicity.* May (and June?).

*Etymology.* We are pleased to name this new firefly after Miss Jennifer LAI who found the species together with us.

### Remarks

The key of JENG *et al.* (1998) is modified to include the new species:

- 4. Coloration of pronotum more or less darker or lighter than that of elytra . . . . . 5.
- Coloration of pronotum and elytra almost the same . . . . . 10.
- 5. Pronotum yellowish brown, elytra dark brown or brownish black . . . . .
- . . . . . *C. okinawaus* NAKANE.
- Pronotum dark or blackish brown, elytra yellowish brown or orange red . . . . . 7.
- 7. Elytra orange red . . . . . *C. jenniferi* sp. nov.
- Elytra yellowish brown . . . . . 8.

The original couplet 7 is modified into 8, 8 into 9 and 9 into 10.

### 要 約

鄭 明倫・楊 平世・佐藤正孝：台湾産クシヒゲボタル属の追加新種。—— わたしたちは、台湾および日本のクシヒゲボタル属 *Cyphonocerus* を昨年まとめたが、1999年の調査で台湾の北部中央高地帯でさらに1新種を発見したので、雄だけではあるがここに記載した。なお、同時に採集した色彩と体長がほぼ同じの *Drilaster atricollis* NAKANE ♀を同じ容器に入れておいたら交尾行動を試みたのは興味深い。

### Reference

- JENG, M. L., P. S. YANG & M. SATÔ, 1998. The genus *Cyphonocerus* (Coleoptera, Lampyridae) from Taiwan and Japan, with notes on the subfamily Cyphonocerinae. *Elytra, Tokyo*, **26**: 379–398.