

Cantharid Beetles of the Genus *Stenothemus*  
(Coleoptera, Cantharidae) from Taiwan

Yûichi OKUSHIMA

Kurashiki Museum of Natural History,  
Chûô 2–6–1, Kurashiki-shi, Okayama Pref., 710–0046 Japan

and

Masataka SATÔ

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

**Abstract** Two new species of the genus *Stenothemus* are described and illustrated from Taiwan under the names of *S. wittmeri* and *S. mamorui*. A key is provided to all the *Stenothemus* species from Taiwan.

WITTMER (1974) enumerated twenty-two species of the genus *Stenothemus* BOURGEOIS, 1907 which had been known up to that time. However, no Taiwanese species were included in his paper. He (1984) recorded an obscure cantharid species from Taiwan as “*Stenothemus* spec.”, though it was based on only one female which was not sufficient for determining the specific name. After that, *Stenothemus furcatus* WITTMER, 1986 was described from Taiwan, but it would be transferred to the genus *Habronychus* in view of the characteristics of the antennae, the 9th abdominal sternite, the genitalia and so on in the male in our forthcoming paper (OKUSHIMA & SATÔ, in preparation). On the other hand, OKUSHIMA and SATÔ (1997) described two new *Stenothemus* members, *S. owadai* and *S. taiwanus* from Taiwan.

Recently, we had reexamined the collections of the National Science Museum (Nat. Hist.), Tokyo, and our institutions, and were fortunate to have been able to find two new additional species of the genus from Taiwan. After a careful examination, it has become clear that they must be new to science, as will be described in the present paper.

All the four species of the genus *Stenothemus* hitherto known from Taiwan, including the two new species, are summarized in a key.

We wish to express our hearty thanks to the late Dr. Walter WITTMER of the Naturhistorisches Museum Basel, who unfortunately passed away in the course of this study, for constant guidance and cooperation to our studies, and to Dr. Shun-Ichi UÉNO

of the National Science Museum (Nat. Hist.), Tokyo, for his critical reading of the original manuscript. Our thanks are also due to Dr. Mamoru OWADA, Dr. Masaaki TOMOKUNI, Dr. Shūhei NOMURA, the late Dr. Kintaro BABA, Dr. Yutaka ARITA, Dr. Masahiro ÔHARA, Messrs. Ban TANAKA, Naoki TAKAHASHI and Masahiro SUEYOSHI for their kind support of invaluable materials.

The specimens examined in the present study, including the type series, were deposited in the following institutions and personal collection, which are referred to in the text by the following abbreviations; KURA: Kurashiki Museum of Natural History, Kurashiki; NSMT: National Science Museum (Nat. Hist.), Tokyo; NWU: Nagoya Women's University, Nagoya, and NTC: Naoki TAKAHASHI's Collection.

This study was supported (in part) by the Grant-in-aid for Scientific Research No. 01041099 for Field Research of the Monbusho International Scientific Research Program, Japan.

#### Genus *Stenothemus* BOURGEOIS

*Stenothemus* BOURGEOIS, 1907, Anns. Soc. ent. Belg., **51**: 292. — WITTMER, 1974, Mitt. schweiz. ent. Ges., **47**: 49.

Type species: *Themus harmandi* BOURGEOIS, 1902, by original designation.

The thirty-three species hitherto known of the genus *Stenothemus* are recorded from the Oriental and the Eastern Palearctic Regions, though many species have been described from the Himalayan district. In the present paper, only the Taiwanese species are dealt with.

Most cantharid adults in the Oriental and the Palearctic Regions are collected mainly in the spring to the summer (March to July). However, most species of *Stenothemus* are collected in the late summer to the late autumn (August to November). Moreover, some Taiwanese species were collected in the winter (December and January).

#### *Stenothemus owadai* OKUSHIMA et M. SATŌ

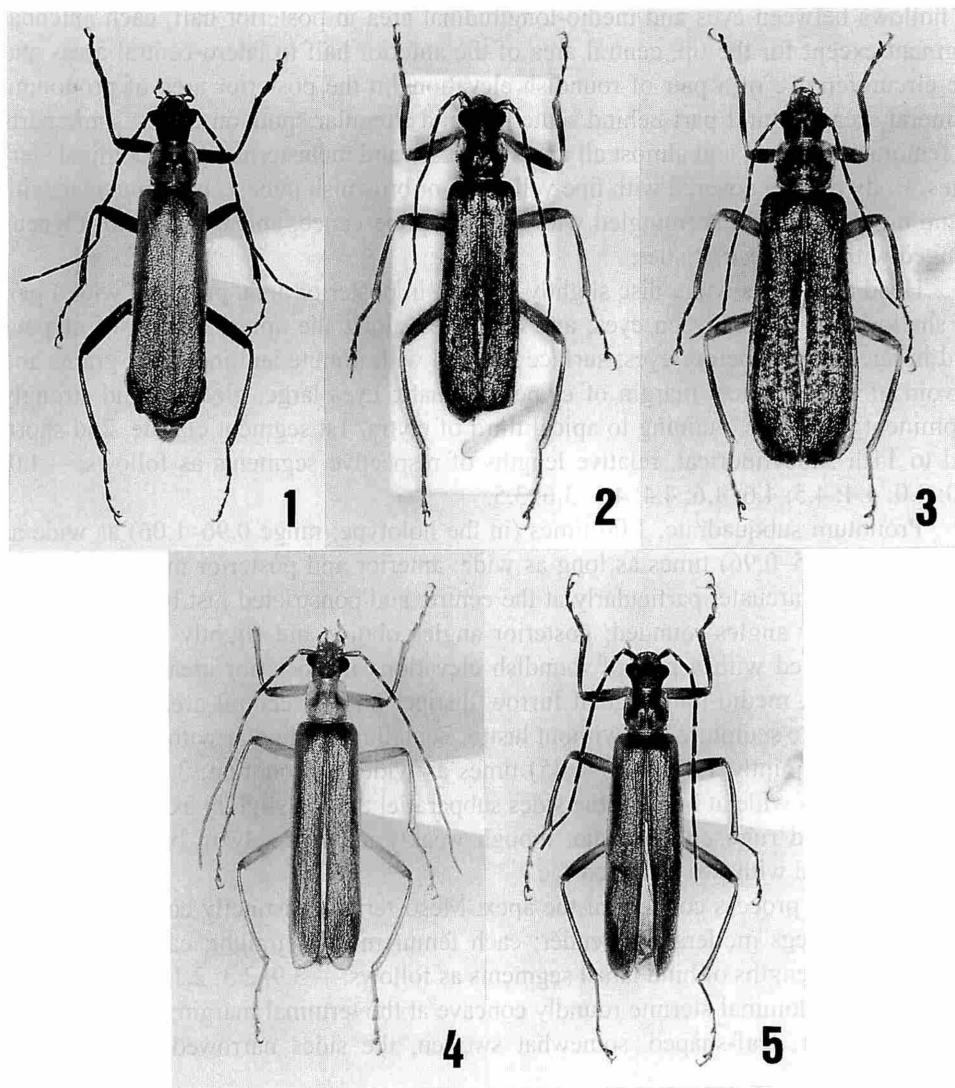
(Fig. 1)

*Stenothemus owadai* OKUSHIMA et M. SATŌ, 1997, Elytra, Tokyo, **25**: 85, figs. 1–4.

*Specimens examined.* Taiwan (KURA): 18 ♂♂, Meifeng, alt. 2,100 m, Jen-ai, Nantou Hsien, 26–XI–1995, M. OWADA leg. (holotype and paratypes); 19 ♂♂, Hohuanchi, alt. 1,900 m, Taichung Hsien, 12–XII–1998, M. OWADA leg.

*Distribution.* Central Taiwan.

*Notes.* The habitus of the holotype is as shown in Fig. 1. Recently, many males of this species were additionally collected by a light trap in December, but no females have been obtained until now.



Figs. 1-5. *Stenothemus* spp. from Taiwan. — 1, *S. owadai* OKUSHIMA et M. SATÔ, ♂ (holotype); 2-3, *S. wittmeri* OKUSHIMA et M. SATÔ, sp. nov.; 2, ♂ (holotype), 3, ♀ (allotype); 4, *S. taiwanus* OKUSHIMA et M. SATÔ, ♂ (holotype); 5, *S. mamorui* OKUSHIMA et M. SATÔ, sp. nov., ♂ (holotype).

*Stenothemus wittmeri* OKUSHIMA et M. SATÔ, sp. nov.

(Figs. 2-3, 7-10)

Male. Body mostly yellowish brown and provided with dark brown spots all over. Eyes blackish, mandibles and claws reddish brown. Following parts in the holotype are dark brown: head except for the anterior area before antennal sockets, a pair

of hollows between eyes and medio-longitudinal area in posterior half, each antennal segment except for the tip, central area of the anterior half to latero-central areas and the circumference of a pair of roundish elevations in the posterior area of pronotum, humeral areas, sutural part behind scutellum and irregular spots on elytra, some parts of femora and tibiae, and almost all areas of meso- and metasterna and abdominal sternites. Body closely covered with fine yellowish or brownish pubescence; antennae with some brown bristles intermingled with primary pubescence; apical margin of clypeus fringed with yellowish bristles.

Head as long as wide; disc slightly swollen in posterior area, provided with a pair of shallow hollows between eyes, and depressed along the apical margin of clypeus and in lateral areas before eyes; surface covered with minute and indistinct grains and devoid of lustre; apical margin of clypeus arcuate; eyes large, globular and strongly prominent; antennae attaining to apical third of elytra, 1st segment clavate, 2nd short, 3rd to 11th subcylindrical, relative lengths of respective segments as follows:— 4.0: 2.0: 3.0: 4.4: 4.5: 4.6: 4.6: 4.4: 4.1: 3.6: 3.5.

Pronotum subquadrate, 1.06 times (in the holotype; range 0.96–1.06) as wide as head, 0.93 (0.85–0.96) times as long as wide; anterior and posterior margins arcuate; lateral margins arcuate, particularly at the centre, and constricted just before posterior angles; anterior angles rounded; posterior angles obtuse and slightly projected; disc swollen, provided with a pair of roundish elevations in posterior area; antero-lateral areas hollowed; medio-longitudinal furrow distinct only in central area; surface covered with minute sculpture and without lustre. Scutellum triangular with rounded apex.

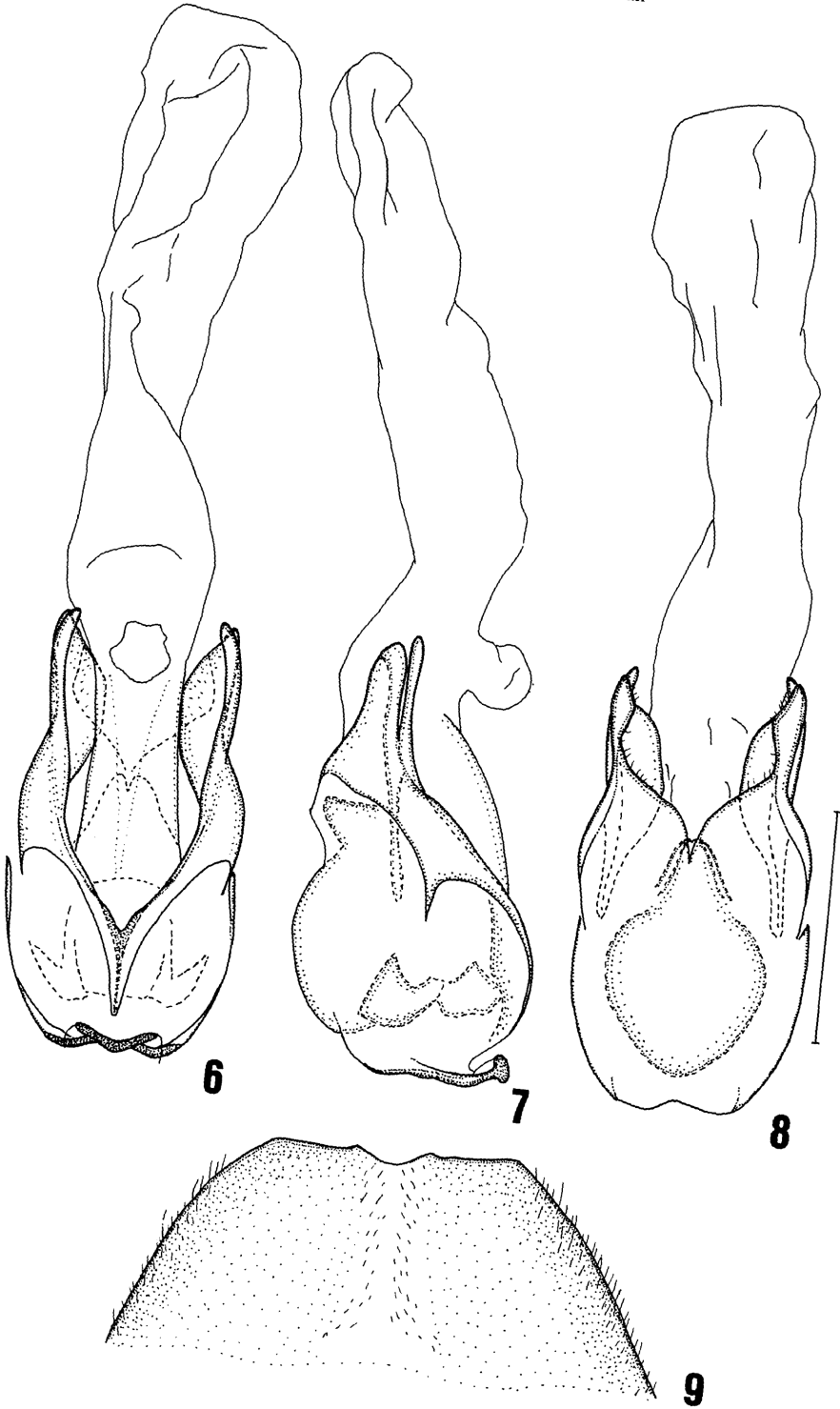
Elytra conjointly 1.32 (1.28–1.45) times as wide as pronotum, 3.26 (3.26–3.51) times as long as wide at humeri, the sides subparallel though slightly expanded apicad; disc closely and rugosely punctate, though weakly and sparsely in basal part; each elytron provided with two vague costae.

Prosternal process concave at the apex. Mesosternum distinctly convex along the median line. Legs moderately slender; each femur mostly straight; each tibia feebly bent. Relative lengths of hind tarsal segments as follows:— 3.9: 2.3: 2.1: 1.8: 2.0.

Eighth abdominal sternite roundly concave at the terminal margin; 9th abdominal sternite slender, leaf-shaped, somewhat swollen, the sides narrowed apically, with pointed tip.

Male genitalia:— Each ventral process of paramere slender and feebly arcuate, the tip extending slightly beyond apex of dorsal plate, each dorsal plate widely and roundly emarginate inside and provided with a large lobe at the inner side, the space between ventral process and dorsal plate being very narrow. Laterophyses short and stout, the apices acute with rounded angles, barely seen from dorsal notch of parameres in dorsal view, basal part globular and swollen. Inner sac lengthened behind, much longer than tegmen. Basal piece squeezed at the base (Figs. 6–8).

Figs. 6–9. *Stenothemus wittmeri* OKUSHIMA et M. SATŌ, sp. nov., from Taiwan. — 6–8, Male genitalia (6, ventral view; 7, lateral view; 8, dorsal view); 9, 8th abdominal sternite in female. (Scale: 1.0 mm.)



Length of body: 10.2 mm (in the holotype; range 8.48–10.2, measured from the anterior margin of clypeus to the apices of elytra); breadth of body: 2.59 (1.95–2.78) mm; length of hind tibia: 3.56 (2.88–3.56) mm.

Female. Body somewhat wider than in the male. Eyes not so large as in the male. Antennae a little shorter than in the male.

Pronotum 1.07–1.19 times as wide as head, 0.82–0.92 times as long as wide. Elytra conjointly 1.36–1.46 times as wide as pronotum, 3.10–3.23 times as long as wide at humeri. Eighth abdominal sternite subtruncated and slightly emarginate at the centre of terminal margin (Fig. 9).

Length of body: 8.72–11.9 mm (measured as in the male); breadth of body: 2.44–3.65 mm; length of hind tibia: 2.68–3.59 mm.

*Type series.* Holotype: ♂, Sungkang, alt. 2,200 m, Nantou Hsien, Taiwan, 6–IX–1986, K. BABA leg. (NWU). Allotype: ♀, Pi Lu Chieh, alt. 2,400 m, Nantou Hsien, Taiwan, 6–IX–1986, K. BABA leg. (NWU). Paratypes: Taiwan: 1 ♀, Kuang Yen, alt. 2,400 m, Hualien Hsien, 5–IX–1986, K. BABA leg. (NWU); 2 ♂♂, same data as for the holotype (NWU); 1 ♀, same data as for the allotype (KURA); 2 ♂♂, Chiilin Lindao, alt. 2,250 m, Nanhutashan Mts., Taichung Hsien, 1–VIII–1990, M. TOMOKUNI leg. (NSMT); 2 ♂♂, 1 ♀, Yunleng-shanchuang, alt. 2,500 m, Nanhutashan Mts., Taichung Hsien, 4–VIII–1990, M. OWADA leg. (NSMT); 3 ♂♂, Anmashan, alt. 2,300 m, Taichung Hsien, 30–VII–1997, B. TANAKA & Y. ARITA leg. (KURA).

*Distribution.* Central Taiwan.

*Notes.* The spots on the body vary from small to large and pale to dark in the type series, and they are more blackish in the four specimens collected on Anmashan than in the specimens from the other localities.

This new species somewhat resembles *S. kuatunensis* WITTMER, 1979 from Fukien, China, but can easily be distinguished from the latter by the peculiarities of male genitalia with slender ventral process and short and stout laterophyses.

On the other hand, the male genitalia of this new species closely resemble those of *S. badius* (KIESENWETTER, 1874) from Japan except for slight differences, but it can easily be distinguished from the latter by the pattern of dark brown spots on the body and subtruncated terminal margin of the 8th abdominal sternite in the female.

The specific name is given in honour of the late Dr. Walter WITTMER who passed away in June 1998, for his great achievement on taxonomic studies of the Asian Cantharidae.

### *Stenothemus taiwanus* OKUSHIMA et M. SATÔ

(Fig. 4)

*Stenothemus taiwanus* OKUSHIMA et M. SATÔ, 1997, Elytra, Tokyo, **25**: 88, figs. 5–8.

*Specimens examined.* Taiwan: 1 ♂, Meifeng, alt. 2,100 m, Jen-ai, Nantou Hsien, 26–XI–1995, M. OWADA leg. (holotype, KURA); 1 ♂, Hungshan, Taichung Hsien, 25–XI–1997, M. SUEYOSHI leg. (NTC).

*Distribution.* Central Taiwan.

*Notes.* The habitus of the holotype is as shown in Fig. 4. OKUSHIMA and SATÔ (1997) commented that "Only one available specimen of this new species may possibly be a teneral individual, because of its pale colour of the body". However, the additional individual from Mt. Hungshan is also pale-coloured as the holotype. The individual has dusky markings on the pronotum which are somewhat larger and darker than in the holotype, but we prefer to regard it as a mere individual variation within the same species.

*Stenothemus mamorui* OKUSHIMA et M. SATÔ, sp. nov.

(Figs. 5, 11–13)

Male. Colour almost dark brown; eyes black; mandibles and claws reddish brown; maxillary and labial palpi, joints of antennal segments, parts of pronotum particularly in posterior area, scutellum, humerus to lateral side of each elytron, coxae, trochanters, basal parts of femora, knees, tips of tibia, pro-, meso- and metasterna and abdominal sternites somewhat pale and mostly yellowish brown.

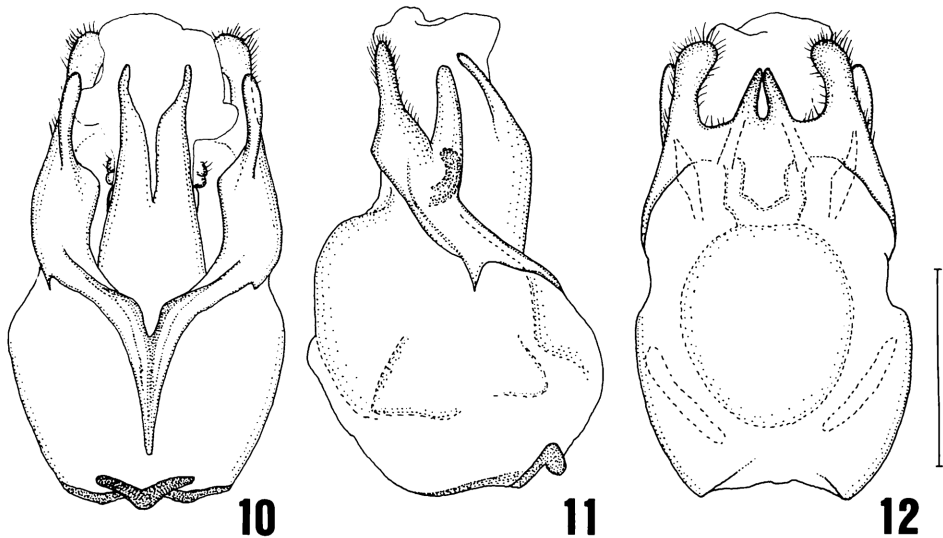
Body closely covered with fine and pale pubescence; antennae intermingled with some brown bristles in addition to primary pubescence; apical margin of clypeus fringed with pale bristles; each elytron with pale bristles intermingled with primary pubescence, though they are scarce in anterior half.

Head as long as wide; disc provided with light elevation at the centre of posterior area, and depressed along the apical margin of clypeus, in lateral areas before eyes and behind the elevation in posterior area; central area between eyes lightly and longitudinally depressed; surface covered closely with rugoso-punctures; apical margin of clypeus arcuate; eyes large, globular and strongly prominent; antennae attaining to apical third of elytra, 1st segment clavate, 2nd short, 3rd to 11th subcylindrical, relative lengths of respective segments as follows:— 3.5: 2.0: 2.4: 3.7: 3.9: 4.0: 4.0: 3.8: 3.8: 3.3: 3.2; 11th of the left antenna missing.

Pronotum subquadrate, 1.01 times as wide as head, 0.99 times as long as wide; anterior margin feebly arcuate; posterior margin mostly arcuate, but feebly indented at the centre; lateral margins arcuate, particularly behind the centre, and constricted before posterior angles; anterior angles rounded; posterior angles acute; disc swollen, provided with a pair of roundish elevations in the posterior area; antero-lateral areas hollowed; medio-longitudinal furrow distinct in central to posterior areas; surface covered with minute sculpture, indistinctly punctured, and without lustre. Scutellum triangular with rounded apex.

Elytra conjointly 1.48 times as wide as pronotum, 3.54 times as long as wide at humeri, the sides subparallel; disc closely and rugosely punctate, though weakly and sparsely so in basal part; each elytron provided with two vague costae.

Prosternal process concave at the apex. Mesosternum distinctly convex along the median line. Legs very slender, mostly straight, but slightly and partially bent in mid-



Figs. 10–12. Male genitalia of *Stenothemus mamorui* OKUSHIMA et M. SATÔ, sp. nov.; 10, ventral view; 11, lateral view; 12, dorsal view. (Scale: 1.0 mm.)

dle and hind tibiae. Relative lengths of hind tarsal segments as follows:— 3.8: 2.2: 2.0: 1.6: 2.0. Eighth abdominal sternite roundly concave at the terminal margin; 9th abdominal sternite somewhat stout, leaf-shaped and somewhat swollen, with pointed tip.

Male genitalia:— Ventral process of each paramere somewhat broad and lightly arcuate; dorsal plate of each paramere with rounded apex, extending beyond apex of ventral process, roundly emarginate on the inner side, with a thin process on the inner side which gradually approaches to the other one; the two processes touching each other near their tips. Each laterophysis strongly bent dorsad with somewhat pointed apex towards the inner tubercle of paramere; basal part of laterophyses globular and swollen. Inner sac short and stout, expanded near the apex of median lobe. Basal piece squeezed at the base (Figs. 10–12).

Length of body: 13.12 mm; breadth of body: 3.22 mm; length of hind tibia: 4.27 mm.

Female. Unknown.

*Type specimen.* Holotype: ♂, Hsitsun, alt. 1,050 m, Fuhsing, Taoyuan Hsien, Taiwan, 19 or 24–I–1992, M. OWADA leg. (NSMT).

*Distribution.* Northern Taiwan.

*Notes.* This new species is very similar to *S. taiwanus* OKUSHIMA et M. SATÔ, 1997, from Taiwan, but can easily be distinguished from the latter by somewhat dark-coloured body and differently shaped male genitalia, above all in a pair of thin processes of the dorsal plates touching each other.

The specific name is given in honour of Dr. Mamoru OWADA for his kindness in



submitting the interesting specimen to us for taxonomic study.

### Key to the Species of the Genus *Stenothemus* from Taiwan

1. Pronotum reddish brown . . . . . *S. owadai* OKUSHIMA et M. SATÔ.
- Pronotum yellowish or brownish with dark marking . . . . . 2.
2. Elytra with irregularly dark brown spots. . . . . *S. wittmeri* sp. nov.
- Elytra without clear spots . . . . . 3.
3. Body wholly yellowish brown; a pair of thin processes of dorsal plates of male genitalia separated from each other. . . . . *S. taiwanus* OKUSHIMA et M. SATÔ.
- Body wholly dark brown; a pair of thin processes of dorsal plates of male genitalia touching each other near apices. . . . . *S. mamorui* sp. nov.

### 要 約

奥島雄一・佐藤正孝：台湾のクリイロジョウカイ属。——台湾のクリイロジョウカイ属の種は、これまで *Stenothemus furcatus* WITTMER, *S. owadai* OKUSHIMA et M. SATÔ および *S. taiwanus* OKUSHIMA et M. SATÔ の3種が知られていたが、このうち、*S. furcatus* は検討の結果、雄の触角、第9腹板、交尾器の形態などからヒゲナガジョウカイ属 *Habronychus* に移されるべきものと考えられたので、この論文では扱わなかった。

一方、国立科学博物館と筆者らの手元の標本を調べた結果、新たに2新種を認め、それぞれ、*S. wittmeri* OKUSHIMA et M. SATÔ, sp. nov., *S. mamorui* OKUSHIMA et M. SATÔ, sp. nov. と命名して記載した。*S. wittmeri* は中国福建省から知られている *S. kuatunensis* WITTMER に近縁だと考えられるが、雄交尾器の腹面突起がより細長いこと、側突起が短くて太いことなどによって区別できる。また、本種の雄交尾器は、日本から知られているクリイロジョウカイ *S. badius* (KIESENWETTER) のそれによく似ているが、体に黒茶色のはん点をもつことと、雌の第8腹板がやや裁断状であることで容易に区別できる。*S. mamorui* はその形態からすでに台湾から記載されている *S. taiwanus* にきわめて近縁な種であると考えられるが、体の色彩が濃いことと、雄交尾器の背板の1対の細い突起が先端近くでたがいに接することで容易に区別できる。

なお、東洋区、旧北区に分布するジョウカイボン科の多くの種は、成虫の出現期が春から夏に限られるのに対し、本属には夏から秋にかけて得られている種が多い。さらに、台湾産の *S. owadai* は11月下旬から12月、*S. mamorui* は1月に成虫が活動していることが明らかになった。

### References

- BOURGEOIS, J., 1902. Trois nouvelles espèces de Malacodermes de l'Himalaya. *Bull. Mus. Hist. nat., Paris*, **8**: 426–427.
- 1907. Sur quelques Malacodermes de l'Inde. *Annls. Soc. ent. Belg.*, **51**: 291–293.
- KIESENWETTER, H., 1874. Die Malacodermen Japans nach dem Ergebnisse der Sammlungen des Herrn G. LEWIS während der Jahre 1869–1871. *Berl. ent. Z.*, **18**: 241–288.
- OKUSHIMA, Y., & M. SATÔ, 1997. Two new species of the genus *Stenothemus* (Coleoptera, Cantharidae) from Taiwan. *Elytra, Tokyo*, **25**: 85–91.

- OKUSHIMA, Y., & M. SATÔ (in preparation). Cantharid beetles of the genus *Habronychus* (Coleoptera, Cantharidae) from Taiwan, with description of a new subgenus.
- WITTMER, W., 1974. Zur Kenntnis der Gattung *Stenothemus* BOURG. (Col. Cantharidae). *Mitt. schweiz. ent. Ges.*, **47**: 49–62.
- 1979. 64. Beitrag zur Kenntnis der palaearktischen Cantharidae Phengodidae und Malachiidae (Col.). *Ent. basil.*, **4**: 327–346.
- 1984. Die Familie Cantharidae (Col.) auf Taiwan (3. Teil). *Ent. Rev. Japan*, **39**: 141–166, pls. 4–9.
- 1986. Nachtrag zu den Fam. Cantharidae und Malachiidae (Col.) auf Taiwan. *Ibid.*, **41**: 131–135.

---

*Elytra, Tokyo*, **27** (1): 140, May 15, 1999

## Additional Localities of *Lychnuris atripennis* (Coleoptera, Lampyridae) from the Yaeyama Islands

**Itsuro KAWASHIMA**

Nagasawa 1–50–9, Yokosuka-shi, Kanagawa, 239–0842 Japan

A large-sized lampyrine beetle, *Lychnuris atripennis* (LEWIS, 1897) has been known to occur on Ishigaki-jima Is. and Iriomote-jima Is. However, it has not been formally recorded so far from Taketomi-jima Is. and Kuro-shima Is. located between Ishigaki-jima Is. and Iriomote-jima Is. I was able to examine the materials of the species from the two islands, and record them below as its new localities.

*Materials examined.* [Taketomi-jima Is.] 2 ♂♂, 25–XII–1995, H. SUZUKI & Y. SATO leg.; [Kuro-shima Is.] 37 ♂♂, 28–XII–1995, Y. GOTO & I. KAWASHIMA leg.

*Distribution.* Yaeyama Isls., Ryukyus: Ishigaki-jima Is., Iriomote-jima Is., Taketomi-jima Is. and Kuro-shima Is.

I am indebted to Dr. Hirobumi SUZUKI, Messrs. Yoshimasa GOTO and Yasushi SATO for their supplying with the materials.