

Redescription of *Cassena sasajii* Kimoto, 1969 (Insecta: Coleoptera: Chrysomelidae: Galerucinae)

Chi-Feng Lee^{1,*}

Abstract

Lee, C. F. 2017. Redescription of *Cassena sasajii* Kimoto, 1969 (Insecta: Coleoptera: Chrysomelidae: Galerucinae). J. Taiwan Agric. Res. 66(1):9–14.

The single species within the genus *Cassena* occurring in Taiwan, *C. sasajii* Kimoto, 1969, is redescribed. Depositories of types of the species are reported. Diagnostic characters of both sexes are illustrated, including antennae, aedeagus, gonocoxae, spermatheca, ventrite V in males, and ventrite VIII in females. Host plants, distributional information, and overwintering behavior of adults are provided.

Key words: Leaf beetles, Taxonomy, Host plant, Fabaceae.

INTRODUCTION

The genus *Cassena* was revised recently by Medvedev (2009) and comprises 2 subgenera: *Nepalocassena* Medvedev, 2009 (2 wingless species) and *Cassena* (s. str.) (45 winged species), widely distributed throughout the Oriental Region. One additional species, *Cassena bengalensis* (Jacoby 1900), was transferred from the genus *Taphinellina* Maulik by Bezděk (2016). Thus, *Cassena* includes a total of 48 species. *Cassena sasajii* Kimoto is the only species of the genus currently known from Taiwan. It was described by Kimoto (1969) with only the male aedeagus illustrated. Additional records were reported by Kimoto (1987, 1989, 1991) but no further information regarding the species is published.

Specimens of this species have been extensively collected and studied, and host plants have been recorded by the Taiwan Chrysomelid Research Team (TCRT) which was founded in 2005 including 10 members. All are amateurs who are interested in inventorying all species of Chrysomelidae in Taiwan. Diagnostic char-

acters were assessed based on a large series of specimens, and the results are reported here.

MATERIALS AND METHODS

Nearly 200 specimens have been examined. About half were collected by TCRT and deposited at the Taiwan Agricultural Research Institute (TARI). The remainders belong to the historical collection at the same institute. For illustrations of the adult reproductive systems, abdomens of adults were separated and boiled in 10% KOH solution, rinsed in distilled water, then placed in glycerin on microscope slides under cover slips for observation. Specimens were examined and drawings were made using a Leica M165 stereomicroscope and a Nikon ECLIPSE 50i compound microscope. Body parts were then stored in glycerin tubes with the dry mounted specimens.

Host plants are recorded by observing adult feeding behavior in the field. Host plants were identified by Chih-Kai Yang (The Experimental Forest, College of Bio-Resources and Agriculture, National Taiwan University).

Received: March 28, 2016; Accepted: May 27, 2016.

* Corresponding author, e-mail: chifeng@tari.gov.tw

¹ Associate Research Fellow, Applied Zoology Division, Taiwan Agricultural Research Institute, Taichung, Taiwan, ROC.

Specimens examined are deposited in the following collections:

BPBM: Bernice Pauahi Bishop Museum, Hawaii, USA [James Boone]

KMNH: Kitakyushu Museum of Natural History and Human History, Kitakyushu, Japan [Yūsuke Minoshima]

KUEC: Faculty of Agriculture; Kyushu University, Fukuoka, Japan

TARI: Taiwan Agricultural Research Institute, Taichung, Taiwan

Verbatim label data are cited for all type specimens; a double slash (//) divides the data on different labels and a single slash (/) divides the data in different rows. Other comments and remarks are indicated as follows: (p) preceding data are printed, (h) preceding data are handwritten, (w) white label, (b) blue label, and (r) red label.

RESULTS AND DISCUSSION

Genus *Cassena* Weise, 1892

Diagnosis. Pronotum with one pair of short longitudinal grooves starting from base, procoxal cavities closed, prosternal process wide and separating procoxae, all tibiae without apical spine.

Cassena sasajii Kimoto, 1969

Cassena sasajii Kimoto, 1969: 55; Kimoto, 1987: 190; Kimoto, 1989: 258; Kimoto, 1991: 15.

Type locality. Chihpen [知本], Taitung Hsien, 22°43' 30"N 121°02' 02"E, 40 m.

Type series. Holotype ♂ (KUEC), labeled: "(TAIWAN) / Chihpen [知本] / Taitung Hsien [p] / 10[h]. VIII. 1966 / H. Kamiya leg. [p, w] // Cassena / sasajii / Kimoto, n. sp. [h, w] // HOLOTYPE [p, r]". Paratypes: 2♂♂ (KMNH): "(TAIWAN) / Chihpen [知本] / Taitung Hsien [p] / 10[h]. VIII. 1966 / H. Kamiya leg. [p, w] // Cassena / sasajii / Kimoto, n. sp. [h, w] // PARATOPOTYPE [p, b]"; 2♀♀ (KMNH): "(TAIWAN) / Chuchi [竹崎] / Chiayi Hsien / 21[h]. VII. 1966 / H. Kamiya leg. [p, w] // Cassena / sasajii / Kimoto, n. sp. [h, w] // PARATYPE [p, b]"; 1♂ (KMNH), 1♀ (BPBM):

"(TAIWAN) / Chulu [初鹿] / Taitung Hsien / 9. VIII. 1966 / H. Kamiya leg. [p, w] // Cassena / sasajii / Kimoto, n. sp. [h, w] // PARATYPE [p, b]"; 1♀ (KMNH): "(TAIWAN) / Nihonmatsu [松安] - / Hokuko [北坑] / Byoritsu-ken / 10. Iv. 1967 / T. Shirozu [p, w] // Cassena / sasajii / Kimoto, n. sp. [h, w] // PARATYPE [p, b]".

Male. Length 3.7–4.2 mm; width 1.9–2.1 mm. Coloration (Figs. 1A–1C) yellowish brown except head (including antenna) blackish brown, tibiae, and tarsi brown. Antenna (Fig. 2A) extremely elongate, about 0.9× as long as body; length ratios of antennomeres II to XI approx. 1.0 : 1.2 : 1.9 : 1.9 : 1.9 : 1.9 : 1.9 : 1.8 : 1.7 : 2.1, and length to width ratios of antennomeres II to XI 2.0 : 1.9 : 3.1 : 3.3 : 3.3 : 3.4 : 3.4 : 3.4 : 3.2 : 4.1. Pronotum transverse, 1.6× wider than long; anterior and posterior margins almost straight; lateral margins moderately rounded; disc finely punctured. Elytra narrow, about 1.3× longer than wide; densely and randomly punctate, elytral calli well developed. First tarsomeres of middle and hind legs enlarged. Apical margin of abdominal ventrite V trilobed (Fig. 2H), median lobe extremely wide; median longitudinal, internal ridge absent. Aedeagus (Figs. 2C–2D) wide in dorsal view, 5.3× longer than wide; parallel-sided, apically tapering; apex rounded; opening apically narrowed, widest near base; strongly curved in lateral view, apex slightly recurved; endophallic sac covered with dense, stout setae; with one longitudinal sclerite, two pairs of erect processes at middle.

Female. Length 4.3–4.6 mm; width 2.4–2.5 mm. Similar to males, but antennae (Fig. 2B) shorter, about 0.8× as long as body; length ratio of II to XI approx. 1.0 : 1.2 : 1.6 : 1.7 : 1.6 : 1.6 : 1.7 : 1.7 : 2.0, and length to width ratios of II to XI 2.0 : 2.2 : 2.9 : 2.9 : 2.8 : 2.8 : 2.8 : 3.0 : 3.0 : 3.5. First tarsomeres of middle and hind legs normal. Apical margin of last abdominal ventrite rounded. Gonocoxae (Fig. 2E) elongate, about 7.7× longer than wide, joined from base to apical 3/10, sides narrowed at middle and basal 1/4, apices narrowly rounded, apex with nine or ten setae.

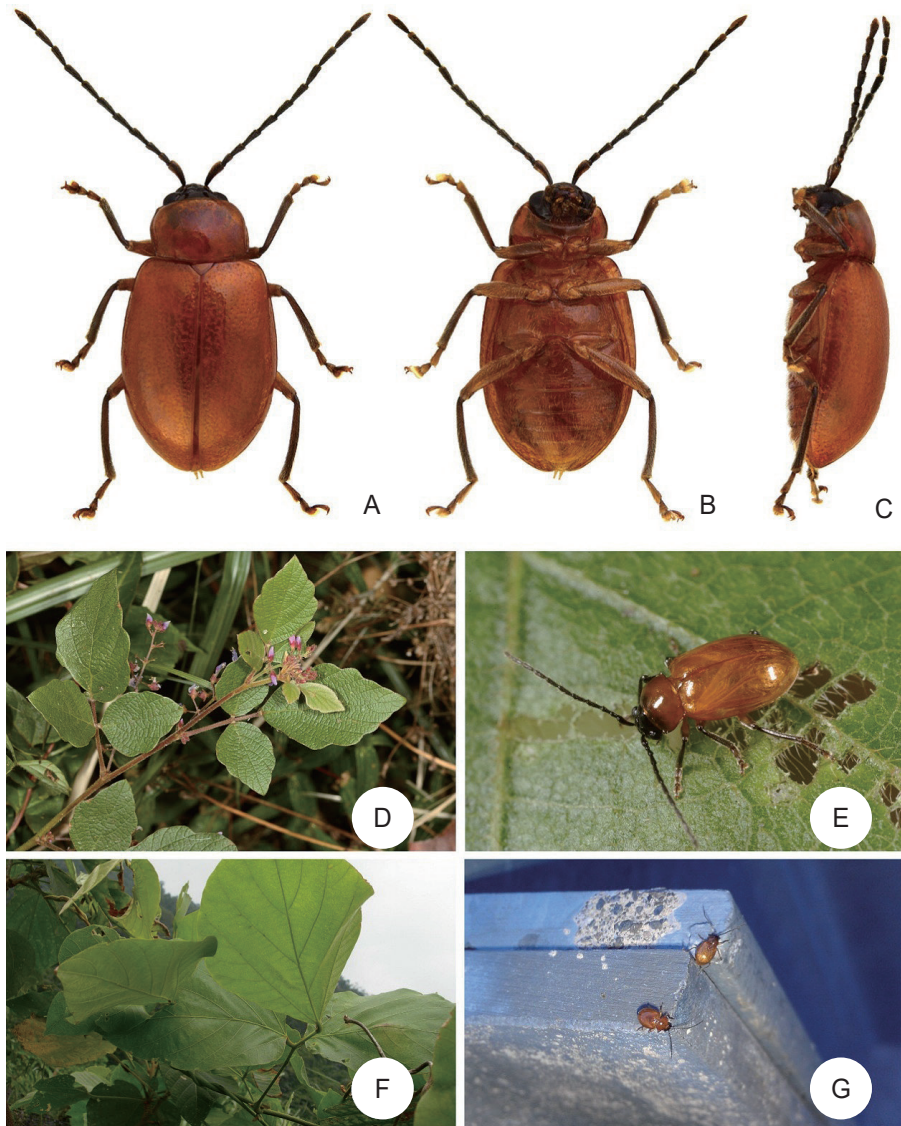


Fig. 1. *Cassena sasajii* adult specimens and field photographs. (A) Female, dorsal view; (B) Ditto, ventral view; (C) Ditto, ventral view; (D) Host plant, *Desmodium sequax*; (E) Adult feeding leaves of *Pueraria montana*; (F) *Pueraria montana*; and (G) Overwintering adults becoming active as temperature increased.

Ventrite VIII (Fig. 2F) well sclerotized basally; spiculum extremely long; apical margin widely rounded and lined with dense short and long setae. Receptacle of spermatheca (Fig. 2G) strongly swollen and transverse, pump slender and strongly curved, proximal spermathecal duct long and slender.

Diagnosis. *Cassena sasajii* is superficially similar to *C. uniformis* (Bryant) from Myanmar, which also possesses yellow elytra

and pronotum, but *C. uniformis* differs by its yellow head and legs.

Other material examined ($n = 191$). **Hsin-chu:** 1♂, 2♀♀, Lupi [魯壁], 1,450 m, 19.VII.2008, leg. M.-H. Tsou; **Ilan:** 1♀, Chinyang [金洋], 120 m, 23.X.2011, leg. C.-H. Hsieh; 1♂, 1♀, Suchi [四季], 1,700 m, 1.VIII.2009, leg. M.-H. Tsou; 2♀♀, same locality, 8.VI.2015, leg. H. Lee; 1♂, Taipingshan [太平山], 1,980 m, 6.VII.2007, leg. Y.-C. Chang; 2♀♀, Yuan-

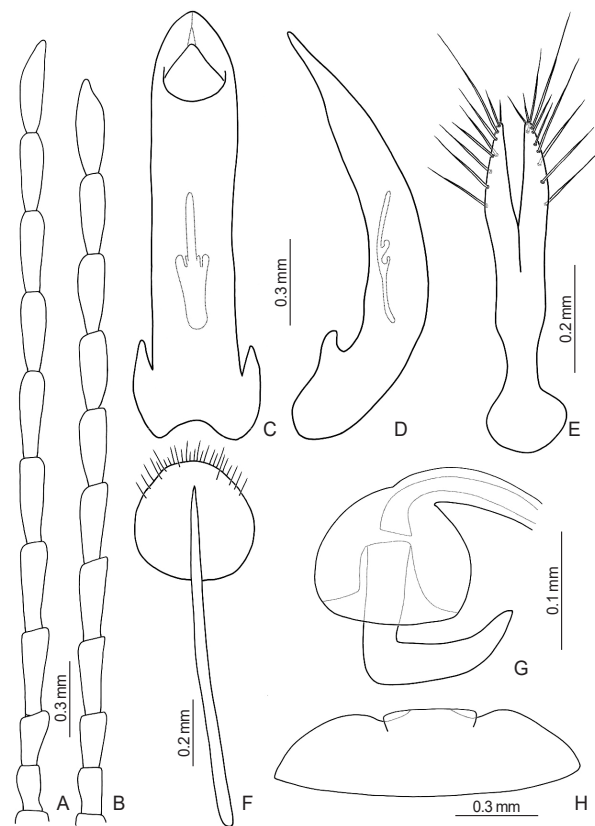


Fig. 2. Diagnostic characters of *Cassena sasajii*. (A) Antenna, male; (B) Antenna, female; (C) Aedeagus, dorsal view; (D) Aedeagus, lateral view; (E) Gonocoxae; (F) Ventrite VIII; (G) Spermatheca; and (H) Ventrite V.

shan [員山], 40 m, 17.V.2009, leg. H.-J. Chen; **Kaohsiung:** 2♀♀, Liukuei [六龜], 850 m, 27-28.VI.1981, leg. L. Y. Chou & C. H. Yang; 1♂, Tengchih [藤枝], 1,650 m, 2.X.2008, leg. C.-F. Lee; 1♀, same locality, 4.VII.2011, leg. M.-H. Tsou; 1♀, same locality, 7.IX.2012, leg. W.-C. Liao; 1♀, same locality, 8.VI.2013, leg. W.-C. Liao; 2♀♀, same locality, 6.VIII.2013, leg. B.-X. Guo; 1♀, Tona [多納], 450 m, 28.III.2009, leg. C.-F. Lee; **Nantou:** 1♀, Hoshe [和社], 1,000 m, 22.VII.1982, leg. L. Y. Chou & T. Lin; 5♂♂, 16♀♀, Lushan [廬山], 1,000 m, 27-31.V.1980, leg. K. S. Lin & L. Y. Chou; 1♂, Nanshanchi [南山溪], 700 m, 10.VII.2010, leg. Y.-T. Wang; 6♂♂, 2♀♀, same locality, 25.XI.2011, leg. J.-C. Chen; 8♂♂, 6♀♀, Tatachia [塔塔加], 1,800 m, 28-30.X.2009, leg. C.-F. Lee, H. Lee & Y.-C. Lin; 1♀, Tungpu [東埔], 1,200 m, 20-22.VI.1980, leg. C. C. Chen; 1♂, 1♀, same locality, 5-8.X.1981, leg. T. Lin &

W. S. Tang; 5♂♂, 5♀♀, same locality, 18-23.XI.1981, leg. T. Lin & W. S. Tang; 3♂♂, 5♀♀, same locality, 19-23.VII.1982, leg. L. Y. Chou & T. Lin; 1♀, same locality, 22-25.XI.1982, leg. K. C. Chou & S. P. Huang; 1♀, same locality, 23-27.VII.1984, leg. K. C. Chou & C. H. Yang; 1♀, Wanfengtsun [萬豐村], 900 m, 10.VII.2007, leg. Y.-C. Chang; 1♀, same locality, 25.IV.2008, leg. W.-T. Liu; 1♀, same locality, 7.VII.2008, leg. W.-T. Liu; 2♂♂, Wushe [霧社], 1,150 m, 19-23.VI.1979, leg. K. S. Lin & B. H. Chen; 2♂♂, 2♀♀, same locality, 23-28.VI.1981, leg. K. S. Lin & W. S. Tang; 1♂, 1♀, same locality, 4.VIII.1981, leg. T. Lin & W. S. Tang; 2♀♀, same locality, 26-28.VIII.1981, leg. L. Y. Chou & S. C. Lin; 3♀♀, same locality, 14.VII.1982, leg. S. C. Lin & C. N. Lin; 1♂, 1♀, same locality, 7-8.1982, leg. K. C. Chou; 2♀♀, same locality, 19-22.IV.1983, leg. K. C. Chou & S. P. Huang;

6♂♂, 4♀♀, same locality, 17.VIII.1984, leg. K. C. Chou; 1♀, same locality, 11-15.IX.1984, leg. K. S. Lin; **Pingtung**: 1♀, Machia [瑪家], 1,100 m, 17.III.2013, leg. W.-C. Liao; 1♂, Peitawushan [北大武山], 1,000 m, 22.XII.2012, leg. W.-C. Liao; 2♂♂, 1♀, Shuangliu [雙流], 450 m, 19.X.2013, leg. J.-C. Chen; 1♂, 7♀♀, same locality, 31.X.2013, leg. J.-C. Chen; 23♂♂, 15♀♀, Tahanshan [大漢山], 1,000 m, 11.X.2013, leg. Y.-T. Chung; 1♀, same locality, 27.VI.2014, leg. J.-C. Chen; 1♀, Wutai [霧台], 1,000 m, 12.V.2009, leg. Uika Ong; **Taichung**: 1♀, Anmashan [鞍馬山], 1800 m, 27.VI.2009, leg. W.-T. Liu; **Taipei**: 1♀, Fushan [福山], 800 m, 18.IV.2010, leg. M.-H. Tsou; 4♂♂, 7♀♀, Wulai [烏來], 700 m, 13.X.2008, leg. H.-J. Chen; 2♀♀, same locality, 10.XII.2008, leg. H.-J. Chen; 1♀, same locality, 31.I.2009, leg. H.-J. Chen; **Taitung**: 1♀, Chihpen [知本], 17-18.II.1982, leg. L. Y. Chou & K. C. Chou; **Taoyuan**: 1♀, Junghua [榮華], 510 m, 31.V.2010, leg. W.-T. Liu; 1♀, Lalashan [拉拉山], 1,900 m, 22.VI.2014, leg. H. Lee; 1♀, Paling [巴陵], 650 m, 19.VI.2010, leg. H.-J. Chen.

Host Plants. *Pueraria Montana* (Lour.) Merr., 1935 [山葛] (Fig. 2E–2F) and *Desmodium sequax* Wall., 1832 [波葉山螞蝗] (Fig. 2D) (Fabaceae). Overwintering adults were observed at Tahanshan [大漢山] on October 11, 2013. Many adults were gathered at corners of structures such as bridges and fences. They came out and were walking around these structures as the temperature increased (Fig. 2G).

Distribution. Endemic to Taiwan. This species is widespread from lowlands to approx. 1,500 m elevation (Fig. 3).

ACKNOWLEDGMENTS

I thank the Taiwan Chrysomelid Research Team for assisting in collecting materials, including Yu-Chi Chang, Hou-Jay Chen, Jung-Chang Chen, Yi-Ting Chung, Bo-Xin Guo, Hsueh Lee, Wen-Chuan Liao, Wei-Ting Liu, and Mei-Hua Tsou. I especially thank Hsueh Lee, Hsing-Tzung Cheng, Mei-Hua Tsou, Hou-Jay Chen, Yi-Ting Chung, and Jung-Chang



Fig. 3. Distribution map of *Cassena sasajii*, solid line: 1,000 m, broken line: 2,000 m.

Chen for taking field and specimen photographs. I thank Chris Carlton for reading the draft and editing for English style.

REFERENCES

- Bezděk, J. 2016. Redescription and identity of *Taphinella bengalensis* Jacoby, 1900 (Coleoptera: Chrysomelidae: Galerucinae). *Turk. J. Zool.* 40:120–124.
- Kimoto, S. 1969. Notes on the Chrysomelidae from Taiwan II. *Esakia* 7:1–68.
- Kimoto, S. 1987. The Chrysomelidae (Insecta: Coleoptera) collected by the Nagoya University Scientific Expedition to Taiwan in 1986. *Kurume Univ. J.* 36:183–194.
- Kimoto, S. 1989. The Taiwanese Chrysomelidae (Insecta: Coleoptera) collected by Dr. Kintaro Baba, on the occasion of his entomological survey in 1983 and 1986. *Kurume Univ. J.* 38:237–272.
- Kimoto, S. 1991. The Taiwanese Chrysomelidae (Insecta: Coleoptera) collected by Dr. Kintaro Baba, on the occasion of his entomological survey in 1987, 1988 and 1989. *Kurume Univ. J.* 40:1–27.
- Medvedev, L. N. 2009. A revision of the genus *Cassena* Weise, 1892 (Coleoptera, Chrysomelidae). *Entomol. Basil. Coll. Frey* 31:219–238.

黑額盔螢金花蟲的重新描述 (鞘翅目：金花蟲科：螢金花蟲亞科)

李奇峰^{1,*}

摘要

李奇峰。2017。黑額盔螢金花蟲的重新描述 (鞘翅目：金花蟲科：螢金花蟲亞科)。台灣農業研究 66(1):9-14。

本文針對黑額盔螢金花蟲 (*Cassena sasajii* Kimoto, 1969) 做重新描述，追蹤模式標本的館藏地，並對不同性別的診斷特徵以線圖描繪，包括雄性生殖器、生殖突基節、儲精囊、雄蟲的腹部第五節及雌蟲的第八節腹板，並對其食草、分布及越冬行為做進一步的探討。

關鍵詞：金花蟲、分類學、寄主植物、豆科。

投稿日期：2016 年 3 月 28 日；接受日期：2016 年 5 月 27 日。

* 通訊作者：chifeng@tari.gov.tw

¹ 農委會農業試驗所應用動物組聘用副研究員。台灣 台中市。