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## TWO NEW SPECIES OF THE GENUS *CAMPTOLOMA* (LEPIDOPTERA: NOCTUIDAE) FROM CHINA

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### ABSTRACT

Two colorful medium-sized moths, *Camptoloma kishidai* **sp. nov.** and *C. bella* **sp. nov.**, from South China, are described and illustrated. *C. kishidai* can be recognized from the related species *C. carum* Kishida, from Taiwan by the reddish yellow-ground color on the forewing upperside, the tornal area without an irregular red pink patch, and by antemedian and postmedian fasciae connected at their lower ends by a longitudinal fascia. *C. bella* is distinguished from the allied species *C. interiorata* (Walker) by the characteristics of a reddish patch, and discocellular, antemedian and postmedian fasciae. A key to the species of the genus is supplied. All the type specimens are deposited in the Laboratory of Insect Ecology, South China Agricultural University.

**Key Words:** Taxonomy, Noctuidae, Shimentai Nature Reserve, Cengwanglaoshan Nature Reserve

### RESUMEN

Dos mariposas nocturnas de colorido aspecto y mediano tamaño *Camptoloma kishidai* **sp. nov.** y *C. bella* **sp. nov.** del sur de China son descritas e ilustradas. Se puede reconocer *C. kishidai* de *C. carum* Kishida, una especie cercana de Taiwan por el color amarillo-rojizo de la parte superior del ala anterior, el área tornal no presenta la mancha irregular de color rojo-rosado, y por las fasciae antemedianas y posteromedianas que se conectan al los terminos basales por una fascia longitudinal. Se distingue *C. bella* de *C. interiorata* (Walker), una especie aliada, por las características de la mancha roja, y por el discocelular y las fasciae antemediana y posteromediana. Se provee una clave de las especies del género *Camptoloma*. Todos los especímenes tipo están depositados en el Laboratorio de Ecología de Insectos, de la Universidad Agrícola del Sur de China.

As a part of biodiversity conservation for sustainable development, an inventory of biodiversity is important, particularly in the areas of tropical and subtropical regions that housed such numbers of species. In comparison with higher plants and larger animals, the inventory of insects is still fragmentary and incomplete. South China, within the Indo-Australian Region, is one of the major sites of biodiversity in China. In order to appeal public awareness and to develop conservation measures in this region, we started the inventory work on macrolepidoptera, including butterflies and larger moths, at selected sites.

Recently, we conducted a macrolepidoptera survey in Shimentai Nature Reserve, Guangdong Province and Cenwanglaoshan Nature Reserve, Guangxi Province. We found two species of the genus *Camptoloma* new to science. Here we give the descriptions, along with a key to the genus.

The genus *Camptoloma* consists of medium sized, colorful moths and was established by Felder (1874), with *Camptoloma erythropygum* its type species. It is closely related to the genus *Leucopardus* Hampson (1894) and forms a natural group with the latter (Kishida, 1984). Recently, the genus *Leucopardus* Hampson has been considered a synonym of the genus *Camptoloma* Felder

by Holloway (1988), who moved the genus to the family Noctuidae from the family Arctiidae based on anatomical characters. In this paper, we regard *Camptoloma* and *Leucopardus* to be separated genera in agreement with some other authors (Kishida 1984; Zolotuhin 2000) due to the differences in the wing pattern, although male genitalia of the two genera are closely related in structure.

Currently, five species of the genus *Camptoloma* have been documented: *C. interiorata* (Walker [1865]) from China, Japan, Korea and the Russian Far East; *C. binotatum* Butler, 1881, from N. India and Assam, Nepal, Myanmar, and S. China; *C. carum* Kishida, 1984, from Taiwan; *C. vanata* Fang, 1994, from Jiangxi and Hainan of China, N. Vietnam, and *C. mangpua* Zolotuhin & Witt, 2000, from Sikkim.

### MATERIALS AND METHODS

Specimens were collected by light traps during the field surveys conducted in Cenwanglaoshan and Shimentai Nature Reserves. The type specimens are deposited in South China Agricultural University (SCAU).

Photographs of specimens were taken with a Nikon Coolpix995, along with a Leica MZ125 for

genitalia figures. Digital images were imported into Adobe Photoshop 5.0 for labeling and plate composition.

*Camptoloma kishidai* **sp. nov.** (Fig. 1)

Female

Wing expanse 37 mm, length of forewing 18 mm, antenna length 9 mm. Head comparatively small; frons covered with yellow scales, subequal to the breadth of eyes; labial palpi uniformly orange yellow, rather short, coated with long scales and sparse bristles ventrally; eyes dark brown, naked; antenna filiform, dark gray except for a darker part at distal  $\frac{1}{3}$ . Thorax yellow, with dorsal median and lateral brown streaks, the former one rather slimmer; legs yellow except for dorsal femura, inner tibiae and tarsi dark brown. Abdomen orange-yellow with crimson end.

Forewing nearly triangular, costa with basal  $\frac{1}{3}$  prominently arched, termen and dorsum with mid-part curved outwardly, apex pointed and tornus nearly rounded; hindwing almost rounded, costa straight. Forewing ground color reddish-orange with dark brown fasciae and spots, which is consisting of antemedian, discocellular, postmedian, submarginal and a longitudinal fascia placed on the lower basal wing, and two dark brown spots on the lower termen near tornus.

Antemedian, postmedian and discocellular fasciae distinct and well defined, the former two straight, nearly parallel to each other, and with their lower ends connected by a longitudinal dark fascia; discocellular fascia short, curved inwardly, placed nearer to antemedian fascia than to postmedian fascia; submarginal fascia obsolete, traceable; longitudinal fascia on the lower basal wing straight and with its distal end nearly arriving the lower part of antemedian fascia; marginal fascia and tornal reddish patch that represented in other *Camptoloma* species completely untraceable; cilia orange red. Hindwing ground color

light orange-red, without marking, cilia orange. Underside of both wings uniformly orange-yellow.

Male. Unknown.

Holotype: Female, Shimentai Nature Reserve, 400m altitude, 24°28'N, 113°23'E, Yingde County, Guangdong Province, China, 18-IV-2003, leg. Guo-Hua Huang.

Paratype 1 female, same data as holotype.

Etymology: The name of the species is named after Mr. Y. Kishida of Tokyo, who supplied us with valuable references and suggestions.

Distribution: China (Guangdong Province).

Biology: The specimens were captured at night by light trapping, although there is a record of species in the related genus *Leucopardus* Hampson being taken flying by day (Holloway, 1988).

The new species is readily recognized from other members in the genus *Camptoloma* by the reddish-yellow forewing ground color, tornal area concolorous with the ground color, without reddish patch represented in some other related species, antemedian and postmedian fasciae connected at their lower ends by a longitudinal fascia.

*Camptoloma bella* **sp. nov.** (Figs. 2-4)

Male

Wing expanse 45 mm, length of forewing 23 mm, antenna length 7.5 mm. Head comparatively small; frons covered with yellow scales, with upper portion a little gray, slightly broader than the breadth of eyes; labial palpi yellow, rather short, coated with long scales and sparse bristles ventrally; legs yellow, apart from tibiae and tarsi black outwardly; eyes dark brown, naked; antenna filiform, black with white intersegmental rings. Thorax yellow with dorsal median and lateral brown streaks. Abdomen orange yellow.

Forewing triangular, somewhat longer, costa slightly arched, termen nearly straight, dorsum slightly curved, apex pointed, tornus near rounded. Hindwing nearly rounded, costa straight. Forewing ground color yellow, with typical *Camptoloma* wing pattern. Antemedian, postmedian, discocellular, submarginal and marginal fasciae dark brown and well defined, the former two fasciae slant from costa to tornal red patch, gradually narrowed to their lower ends. Discocellular fascia fine, placed nearer to postmedian fascia than to antemedian fascia, with its lower part gradually shaded to the end of postmedian fascia. Submarginal fascia slightly curved inwardly, marginal fascia straight. The two longitudinal fasciae placed on the lower basal wing straight, well defined and nearly extending to the reddish patch; the two dark brown spots on lower termen much larger and well developed; the reddish patch in tornal area much smaller. Hindwing ground color yellow, without distinct marking. Cilia yellowish-white.



Fig. 1. *Camptoloma kishidai* **sp. nov.**: Female, holotype, upperside.



Figs. 2-3. *Camptoloma bella* sp. nov.; 2. Male, holotype, upperside; 3. Female, Paratype, upperside.

Male genitalia. Tegumen broad, uncus slim with pointed end, saccus short, rod-like, valva long, strongly constricted medially, costa narrow with a kidney-like costal lobe; cucullus densely coated with fragile spines; juxta with long lateral extension; aedeagus with well developed cornuti.

Female. Wing expanse 45 mm, length of forewing 23.5 mm, antenna length 8.5 mm. Similar to male in wing pattern, but wings are slightly broader, abdomen with distal end concolorous.

Holotype: Male, Cengwanglaoshan Nature Reserve, 1200 m altitude, 24°35'N, 106°40'E, Tianlin County, Guangxi Province, China, 28-V-2002, leg. Min Wang.

Paratype: 1 Female, same data as holotype.

Etymology: The name of the species, *bella*, is come from its colorful wing pattern.

Distribution: China (Guangxi Province).

The new species is related to *C. binotata* Butler in appearance, but the characteristics of reddish

patch, discocellular, antemedian and postmedian fasciae make it unmistakable.

#### DISCUSSION

Members in the genus *Camptoloma* have a similar forewing pattern, the typical pattern incl. yellowish ground color with dark brown fasciae, including five transverse fasciae (e.g., antemedian, discocellular, postmedian, submarginal and marginal fasciae), and two longitudinal brown fasciae on the lower basal wings; a reddish patch at tornal region; black spots in cilia located at lower part of the termen; hindwing ground color uniform, without any marking.

The development or absence of the above mentioned characters supply useful diagnoses for different species. The most distinguished species in the genus is *C. kishidai*, which has the reddish ground color, with complete reduction of the reddish patch at tornal region that is commonly represented in other species. The second readily identified species is *C. vanata* among the remaining species with yellowish ground color, by its complete absence of most dark brown fasciae including antemedian, postmedian, submarginal and marginal fasciae. The third one is *C. carum* from Tawain with its submarginal fascia obsolete and marginal fascia absent.

The next four, *C. interiorata*, *C. binotata*, *C. mangpua*, and *C. bella* had typical *Camptoloma* wing patterns with all the fasciae and reddish patch presented. The easily recognized one is *C. mangpua* for its ill-developed tornal angle and curved antemedian fascia. *C. interiorata* is separated from the remaining ones by its finer and nearly paralleled antemedian and postmedian fasciae. *C. binotata* and *C. bella* are similar in appearance, but the discocellular fascia in *C. bella* is placed more outwardly than that in *C. binotata*.



Fig. 4. Male genitalia of *Camptoloma bella* sp. nov.

Moreover, the reddish patch is less developed and the submarginal fascia is much broader in *C. bella*.

Though the economic importance of the two new species is uncertain, there is one species of the genus, *Camptoloma interiorata* Walker in NE.

China, reported as an important insect pest on *Quercus* ssp., *Sapium sebiferum* et al. (Fang, 2000; Zheng 2001).

For the convenience of field identification, we present a key to the known species of the genus *Camptoloma* as follows:

#### KEY TO SPECIES OF THE GENUS *Camptoloma* FELDER, 1874

1. Forewing ground color reddish-yellow . . . . . *C. kishidai* **sp. nov.**  
Forewing ground color yellow . . . . . 2
2. Forewing upperside with submarginal fascia absent . . . . . 3  
Forewing upperside with submarginal fascia present. . . . . 4
3. Forewing upperside with antemedian and postmedian fasciae present. . . . . *C. carum*  
Forewing upperside without antemedian and postmedian fasciae. . . . . *C. vanata*
4. Forewing narrow without distinct anal angle, antemedian fascia with middle part curved outwardly . . . . . *C. mangpua*  
Forewing broader with distinct anal angle, antemedian fascia straight, or not curved outwardly . . . . . 5
5. Forewing upperside with discocellular bar much nearer to postmedian fascia than to antemedian fascia . . . . . *C. bella* **sp. nov.**  
Forewing upperside with discocellular bar not as above stated . . . . . 6
6. Forewing upperside with postmedian fascia much broader than submarginal fascia . . . . . *C. binotatum*  
Forewing upperside with postmedian and submarginal fascia similar in breadth . . . . . *C. interiorata*

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