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【Scientific note】

杉谷琉璃小灰蝶臺灣亞種雌蟲之發現【科學短訊】

徐堉峰、陳炳吉

*通訊作者E-mail:

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Abstract

摘要

杉谷琉璃小灰蝶臺灣亞種 *Celastrina sugitanii shirozui* Hsu 係於1984年于桃園縣山地發現，當時僅得雄蟲標本。本文根據1987年從模式產地發現的雌蟲描述其形態，並提供以下資料：(1) 這種昆蟲在臺灣一年只發生一世代，出現在2、3月間。(2) 山茱萸科 (Cornaceae) 的燈台樹 *Cornus controversa* Hemsl. 是這種昆蟲在臺灣的幼蟲寄主的可能性頗高。(3) 這種昆蟲並非如往昔所認為是日本特有，而是一種起源于中國大陸的古老昆蟲。

Key words:

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**ON THE NEWLY DISCOVERED FEMALE OF
CELASTRINA SUGITANII SHIROZUI HSU
(LEPIDOPTERA: LYCAENIDAE)**

Yu-Feng Hsu* and Ping-Chi Chen

*Department of Plant Pathology and Entomology
National Taiwan University
Taipei, Taiwan 10765
Republic of China*

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ABSTRACT

This paper presents morphology of the unknown female of *Celastrina sugitanii shirozui* Hsu. Additional biological notes on the insect are given.

Celastrina sugitanii shirozui Hsu was first discovered from the mountains in northern Taiwan in 1984 (Hsu, 1987), at that time only the male of the species was obtained. In the spring of 1987, one of the authors, Ping-Chi Chen obtained a female of this species from the same locality as the type material. The paper here describes the characteristics of this female specimen and also presents information not mentioned in the content of the original description.

Celastrina sugitanii shirozui Hsu, 1987

Celastrina (sic) *sugitanii shirozui* Hsu, 1987, Tyô to Ga 38: 5.

MORPHOLOGY OF THE FEMALE

Head: Palpi porrect, ventrally white-haired and dorsally glossy black. Eyes hairy, deep black. Antennae slightly shorter than 1/2 of the costa of forewing; each segment black with white tip except the club.

Body: Dorsal plates black with gray hairs, ventral plates white with white hairs. Legs dark brown; covered with white hairs.

Wing contour: Usual *Celastrina* type. Termen outwardly curved.

* Present address: Department of Entomological Sciences, University of California, Berkeley, CA 94720, U. S. A.

Wing pattern: Upperside of forewing ground colour is blue with black border along termen, white scales scattered along the upper margin of the blue area, a dark short narrow cell-end bar. Upperside of hindwing similar to forewing but with marginal series of bow-shaped spots. Underside, almost identical with that of male; ground colour pure white with black markings.

The female differs from the female of subspecies *kyushuensis* Shirôzu, the one bears a strong resemblance this taxon, as follows: (1) Larger in size. (2) Underside of hindwing with black spot in cell $M_2 >$ that in cell Cu_1 opposite to spot in cell $M_2 \leq$ that in cell Cu_1 . (3) The blue portion on the wing is not violet-washed.

Forewing length: 15.8 mm.

Material examined: 1 ♀, between Palin (Taoyuan County) and Chihtuan (Ilan County), northern Taiwan, 1 March 1987. Ping-Chi Chen leg.

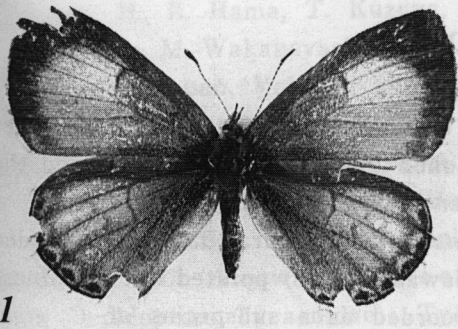
BIOLOGICAL NOTES

Habitat: This insect lives in the jungles of mountains. The male usually flies along streams, sometimes alighting on the wet ground to suck water. The female usually stays at the upper portion of the jungles so that it is not easy to observe.

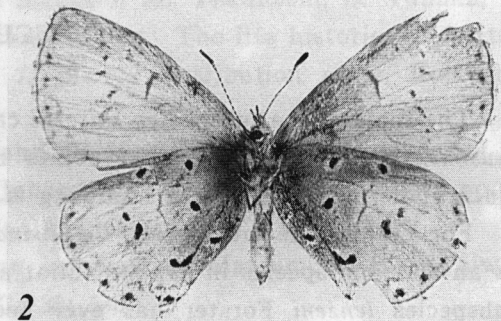
Occurrence: During the past 5 years, the authors have surveyed the type locality for many times in different seasons, the insect appeared only in February and March. This insect seems to be a spring ephemeral element just like all of the Japanese subspecies of *C. sugitani*, though Fukuda *et al.* (1984) reported that Wakabayashi observed the Korean race has two generations during a year.

Distribution: Up to now, only northern Taiwan has been confirmed as the range of this Taiwanese subspecies, but it will probably be to discover the insect from the other districts of Taiwan in the future since most area on the island no detailed survey is made in early spring.

Host plant: The host plant of the larvae is still unknown. In Japan, the flower bud of three kinds of plants are utilized; *Aesculus turbinata* Blume (Hippocastaneae) in Honshu (Eliot and Kawazoé, 1983; Fukuda *et al.*, 1972; Fukuda *et al.*, 1984; Kawazoé and Wakabayashi, 1976; Yamauchi, 1961), in Hokkaido (Eliot and Kawazoé, 1983; Fukuda *et al.*, 1972; Fukuda *et al.*, 1984; Kawazoé and Wakabayashi, 1976), and in Shikoku (Anonymous, 1979); *Phellodendron amurense* Repr. (Rutaceae) in Kyushu (Fukuda *et al.*, 1984; Eshima, 1977) and in Hokkaido (Fukuda *et al.*, 1984), and *Cornus controversa* Hemsl. (Cornaceae) in Honshu (Fukuda *et al.*, 1984), in Kyushu (Eliot and Kawazoé, 1983; Fukuda, 1970; Fukuda *et al.*, 1972; Fukuda *et al.*, 1984; Kawazoé and Wakabayashi, 1976) and in Hokkaido (Fukuda *et al.*, 1972; Fukuda *et al.*, 1984). Although the insect in Japan seems to prefer the former two host plants than to the last one, *C. controversa* is the only plant of three ones that can be found in Taiwan. It is intriguing that the confirmed locality of this plant is just the type locality of subspecies *shirozui*, the mountains of Taoyuan (Li, 1977). So *C. controversa* seems to be the probable one to be utilized as the larval food by



1

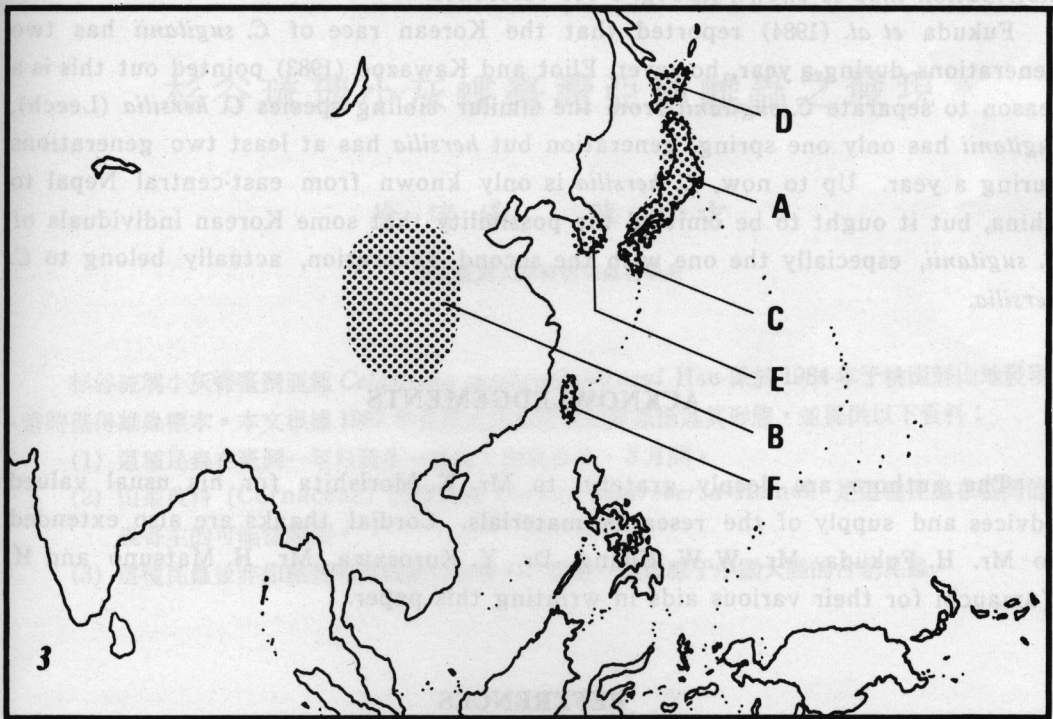


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Fig. 1. *Celastrina sugitanii shirozui* Hsu, ♀, upperside.

Fig. 2. *Celastrina sugitanii shirozui* Hsu, ♀, underside.

the subspecies *shirozui*. But the other plants blooming in February and March are also to be considered since *C. controversa* only stands as the secondary host in Japan.



3

Fig. 3. Distribution map for *Celastrina sugitanii* (Matsumura).

Alphabet A to F represent subspecies as follows:

- A. *C. s. sugitanii* (Matsumura, 1919)
- B. *C. s. lenzeni* Forster, 1941
- C. *C. s. kyushuensis* Shirôzu, 1943
- D. *C. s. ainonica* Murayama, 1952
- E. *C. s. leeii* Eliot & Kawazoé, 1983
- F. *C. s. shirozui* Hsu, 1987

DISCUSSION

The male of the subspecies *shirozui* can be distinguished from that of subspecies *kyushuensis* by two of the three points mentioned above: The large size and the black spot in cell M_2 of the hindwing is larger than the one in cell Cu_1 .

For a long time the species, *Celastrina sugitanii* (Matsumura) has been regarded as an endemic species in Japan. Eliot and Kawazoé (1983) pointed out a Chinese subspecies *lenzeni* Forster has ever been recorded as a subspecies of *C. gigas* (Hemming), and described that the range of the Chinese subspecies is in the west-central China. They also established a new subspecies based on Korean materials. Now it is known that this species distributes not only in Japan but also in Mainland China, Korea and Taiwan, hence this species should belong to the western China element. This fact reveals that the species has a long term history, and Japanese and Taiwanese groups are relict populations on these islands after the disappearance of land bridges between/among these habitats. The distribution map is shown in Fig. 3 for reference.

Fukuda *et al.* (1984) reported that the Korean race of *C. sugitanii* has two generations during a year, however, Eliot and Kawazoé (1983) pointed out this is a reason to separate *C. sugitanii* from the similar sibling species *C. hersilia* (Leech), *sugitanii* has only one spring generation but *hersilia* has at least two generations during a year. Up to now, *C. hersilia* is only known from east-central Nepal to China, but it ought to be omitted the possibility that some Korean individuals of *C. sugitanii*, especially the one with the second generation, actually belong to *C. hersilia*.

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杉谷琉璃小灰蝶臺灣亞種雌蟲之發現

徐 培 峰 陳 炳 吉

國立臺灣大學植物病蟲害學系

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- (1) 這種昆蟲在臺灣一年只發生一世代，出現在 2、3 月間。
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