Taxonomic Status of *Aphnaeus hirayamae* Matsumura, 1919 (Lepidoptera: Lycaenidae)

「平山虎灰蝶」分類地位之檢討（鱗翅目：灰蝶科）

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Abstract

Aphnaeus hirayamae Matsumura, 1919 of Taiwan has been considered a synonym of *Spindasis syama* (Horsfield, 1829) for a long time. We examined this unique holotype of *A. hirayamae* and compared it with the specimens of *S. syama* and *Spindasis vulcanus* (Fabricius, 1775), and found that characters of the holotype differ from those of *S. syama*, but are undistinguishable from those of *S. vulcanus*, which is known mainly from the Indian subcontinent. Accordingly, we assigned *Aphnaeus hirayamae* Matsumura, 1919 as a synonym nov. to *Spindasis vulcanus* (Fabricius, 1775). As *A. hirayamae* has not been found in Taiwan since it was originally described in 1919, it seems unlikely that *S. vulcanus* (= *A. hirayamae*) occurs in Taiwan. It is suspected that the holotype of *A. hirayamae* is more likely a mislabeled specimen of the museum, rather than an individual accidentally introduced to Taiwan.

摘　要

「平山虎灰蝶」又被稱爲平山雙尾燕蝶，過去被認爲係三斑虎灰蝶(三星雙尾燕蝶)之同物異名。經檢查其模式標本，發現該標本之形態特徵與三斑虎灰蝶殊異，而與分布於印度、斯里蘭卡

等地之南亞虎灰蝶相符，應視爲其同物異名。南亞虎灰蝶分布於台灣的可能性不高，因此平山虎灰蝶之模式標本可能係源自意外引入之個體，抑或是錯誤的標籤。

Key words: The Matsumura collection, *Spindasis syama*, *Spindasis vulcanus*, Taiwan, India

關鍵詞：松村收藏、三斑虎灰蝶、南亞虎灰蝶、台灣、印度

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Aphnaeus hirayamae Matsumura is a hairstreak butterfly described by Matsumura (1919) based upon a male specimen (holotype) from Taiwan. It was transferred to the genus *Spindasis* Wallengren, 1857 by Shirôzu (1960), and then subsequently considered to be a synonym of *Spindasis syama* (Horsfield, 1829) by Shirôzu and Ueda (1992). This unique holotype of *A. hirayamae* (Fig. 1) has been deposited in the Matsumura collection of the Systematic Entomology Laboratory, Hokkaido University (SEHU), Sapporo, Japan.

We examined the holotype of *A. hirayamae* and found it to agree well with the illustrations of pl. 48, Fig. 7 in the original description (Matsumura 1919) and that in page 546 of Matsumura (1931). We compared the characters of the holotype with those of the specimens (38 males and 25 females) of *S. syama* (17 males and 5 females from Taiwan; one male and one female from East China; one male and one female from Central China; one male and two females from West China; two males and three females from Hong Kong; nine males and six females from the Philippines; three males and two females from Thailand; and four males and four females from Borneo), and found that the holotype differs specifically from *S. syama* in the following characters (terminology of wing patterns after Nijhout 1991):

1. Two prominent longitudinal orange streaks are present on forewing uppersides of *A. hirayamae*, (Fig. 1A), but such streaks are absent in *S. syama*.
2. Proximal band of the central symmetry system on hindwing underside of *A. hirayamae* forms a continuous band (Fig. 1B), whereas it is consisted of several detached spots in *S. syama*.
3. Basal symmetry system on forewing underside of *A. hirayamae* is represented as a bar that is attenuated basally and enlarged into a circle distally (Fig. 1B), whereas that of *S. syama* is a simple bar.
4. Parafocal element on hindwing underside is attached to the distal band of the central symmetry system in *A. hirayamae* (Fig. 1B), whereas these two bands are separated each other in *S. syama*.

We also compared the holotype of *A. hirayamae* with *Spindasis vulcanus* (Fabricius, 1775) (Fig. 2), for which we examined the

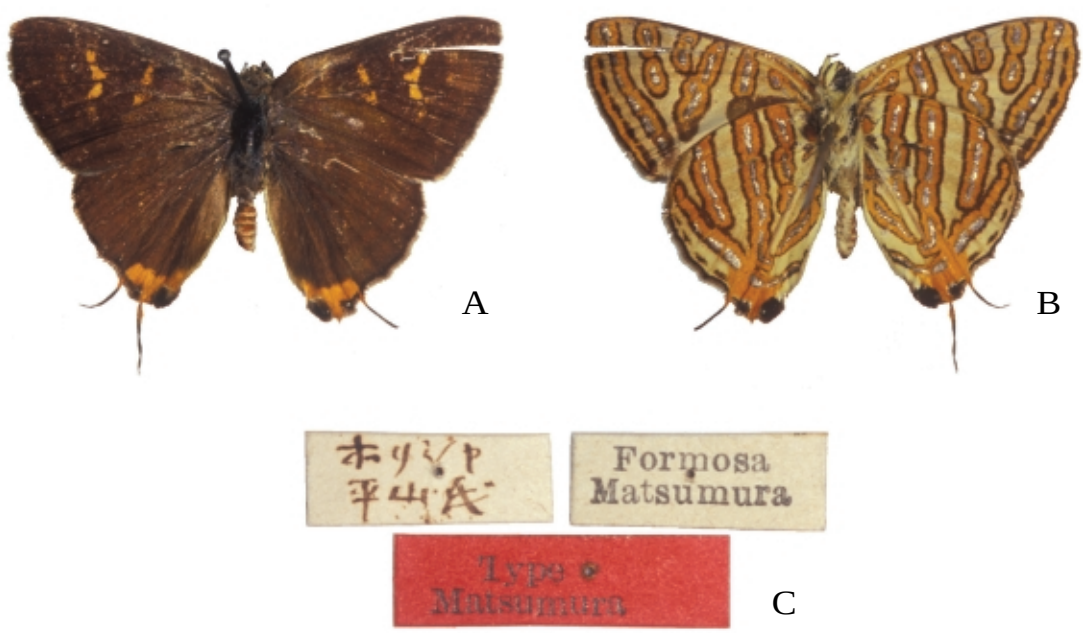

Fig. 1. Holotype of *Aphnaeus hirayamae* Matsumura (SEHU): A, upperside; B, underside; C, labels.
圖1. 日本北海道大學館藏之「平山虎灰蝶」的正模式標本：A, 背面觀; B, 腹面觀; C. 標籤。

specimens of five males and four females from India and two males and one female from Sri Lanka. We found that the characters of the holotype of *A. hirayamae* agree fully with those of *S. vulcanus*, which is distributed in India (Nicéville 1890; Evans 1925, 1932; Gay *et al.* 1992; Kunte 2000), Sri Lanka (Evans 1925, 1932; Woodhouse 1952; D'Abrera 1986; Banks and Banks 1985), Sikkim (Haribal 1992), Nepal (Smith 1989, 1994), northern Thailand (Pinratana 1981), and Java (D'Abrera 1986).

Accordingly, *A. hirayamae* is synonymous to *S. vulcanus*, not to *S. syama* as previously considered (Shirôzu and Ueda 1992). Therefore, we herein assign *Aphnaeus hirayamae* Matsumura, 1919 as a junior synonym of *Aphnaeus vulcanus* (Fabricius, 1775).

S. vulcanus is distributed primarily in the Indian subcontinent (Kunte 2000), extends eastwardly to the central Indochina (Pinratana 1981), and has an isolated population in Java (D'Abrera 1986). It seems unlikely that it occurs in Taiwan, as no butterfly species is known to occur in the Indian subcontinent and Taiwan without presence also in mainland China. Furthermore, no more specimen of this lycaenid butterfly has been collected from Taiwan, besides the holotype of *A. hirayamae*. We strongly suspect that the holotype of *A. hirayamae* is an individual that was accidentally introduced to Taiwan, or a mislabeled specimen of the museum; it is more likely for the latter than the former. Its museum label is Holotype male: Formosa Matsumura | Horisha Hirayama |

Fig. 2. A specimen of male *Spindasis vulcanus* (data of label: India: Calcutta, 14-19 Oct 1978, JAP-IND CO TR, SEHU) :A, upperside; B, underside.
圖2. 印度產之南亞虎灰蝶標本：A,背面觀; B, 腹面觀。

Type Matsumura [red label] (SEHU) (Fig. 1C).

A synonymic list of *Spindasis vulcanus* (Fabricius 1775) modified by Nicéville (1890) and Evans (1932) is revised as follows:

***Spindasis vulcanus* (Fabricius, 1775)**

Papilio vulcanus Fabricius, 1775: 519.
Papilio etolus Cramer 1779: pl. ccviii, figs. E, F.
Polyommatus vulcanus Godart, 1823: 644.
Amblypodia vulcanus Horsfield, 1829: 106.
Aphnaeus vulcanus Hübner, 1816-1841:
Aphnaeus etolus Hewitson, 1865: 61.
Aphnaeus bracteatus Butler, 1883: 147.
Aphnaeus tigrinus Moore, 1884: 25.
Spindasis tigrina de Nicéville, 1885: 25.
Aphnaeus hirayamae Matsumura 1919: 613.
syn. nov. and **stat. rev.**
Spindasis vulcanus Evans 1925: 758.
Spindasis etolus Evans 1932: 276.
Spindasis tigrinus Evans 1932: 276.
Spindasis hirayamae Shirôzu 1960: 455.

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