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ON *CHILADES KIAMURAE* (LEPIDOPTERA: LYCAENIDAE)  
FOUND IN NORTH BORNEO

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*Chilades kiamurae* (Matsumura, 1910) was originally described from 2♂♂ & 2♀♀ collected in Yaeyama, Okinawa-ken, Japan. But, curiously enough, there was no authentic record of this species for the following 56 years in its type locality and adjacent districts. Outside Japan, there are corroborative facts about its occurrence in Mindanao. That is, several extant specimens are in Japan, and one female of them, collected in Zamboanga in 1933, was examined and identified as this species by Dr. Shirôzu. It was quite surprising that the species was rediscovered in Taketomi Is., Yaeyama in 1966. At that time the butterfly occurred in abundance and the life history was clarified there (published in 1967). But the species disappeared again shortly after its rediscovery in Taketomi Island and the neighbouring Kuroshima Island. Now it is almost certain that the colonies of the species in these islands had become extinct by the end of 1967.

In 1971 on the occasion of his visit to Sabah, North Borneo, the senior author, quite unexpectedly, found a single male of the species in the collection of butterflies made by the junior author. This first *Chilades kiamurae* in Borneo was collected on Pulau Sapi, a small island off Kota Kinabalu, as the data given below show. The junior author, after repeated researches for the butterfly on and around the island, found a large colony of the species on Gaya Island, an adjacent island where *Cycas*, the food plant of the butterfly, abounds. Some observations on the adult as well as the early stages were made by him at the habitat. The collected larvae were reared to adults in Menggatal, Sabah as noted in following lines.

*Chilades kiamurae* (Matsumura)

*Everes kiamurae* Matsumura, 1910, Ent. Zeit. Stuttgart, 24: 221.

*Euchrysops kiamurae*: Matsumura, 1929, Illus. Com. Ins. Jap. 1, pl. 12: 12, ♀.

*Chilades kiamurae*: Shirôzu, 1965, Butterflies of Japan, pl. 55: 5, pl. 56: 4, ♂♀.

Specimens examined: 1♂, Pulau Sapi, off Kota Kinabalu, Sabah, 2. VIII. 1970, leg. Pan. 1♀, Pulau Sapi, 3. X. 1971, leg. Pan. 1♂, 17♀♀, Pulau Gaya, off K. Kinabalu, 23. VII. 1972, leg. Pan & Sohma. 49♂♂, 137♀♀, ex 205 larvae, Pulau Gaya, 30. VII. 1972, leg. Pan & Sohma.

The collected material including reared one do not show any recognisable difference from examples collected in Yaeyama. They are practically inseparable in appearance. Both sexes (Fig. 1, male; Fig. 2, female) vary considerably in their size, with the forewing length 14 to 18.5 mm in the male and 15 to 19 mm in the female. They are slightly smaller than the Yaeyama examples. In the male the orange crowning of the black tornal spots in space 1b and 2 on the hindwing above is generally narrower than that of the Yaeyama examples, and sometimes obsolete.

The range of *Chilades kiamurae*. The following localities have hitherto been noticed.

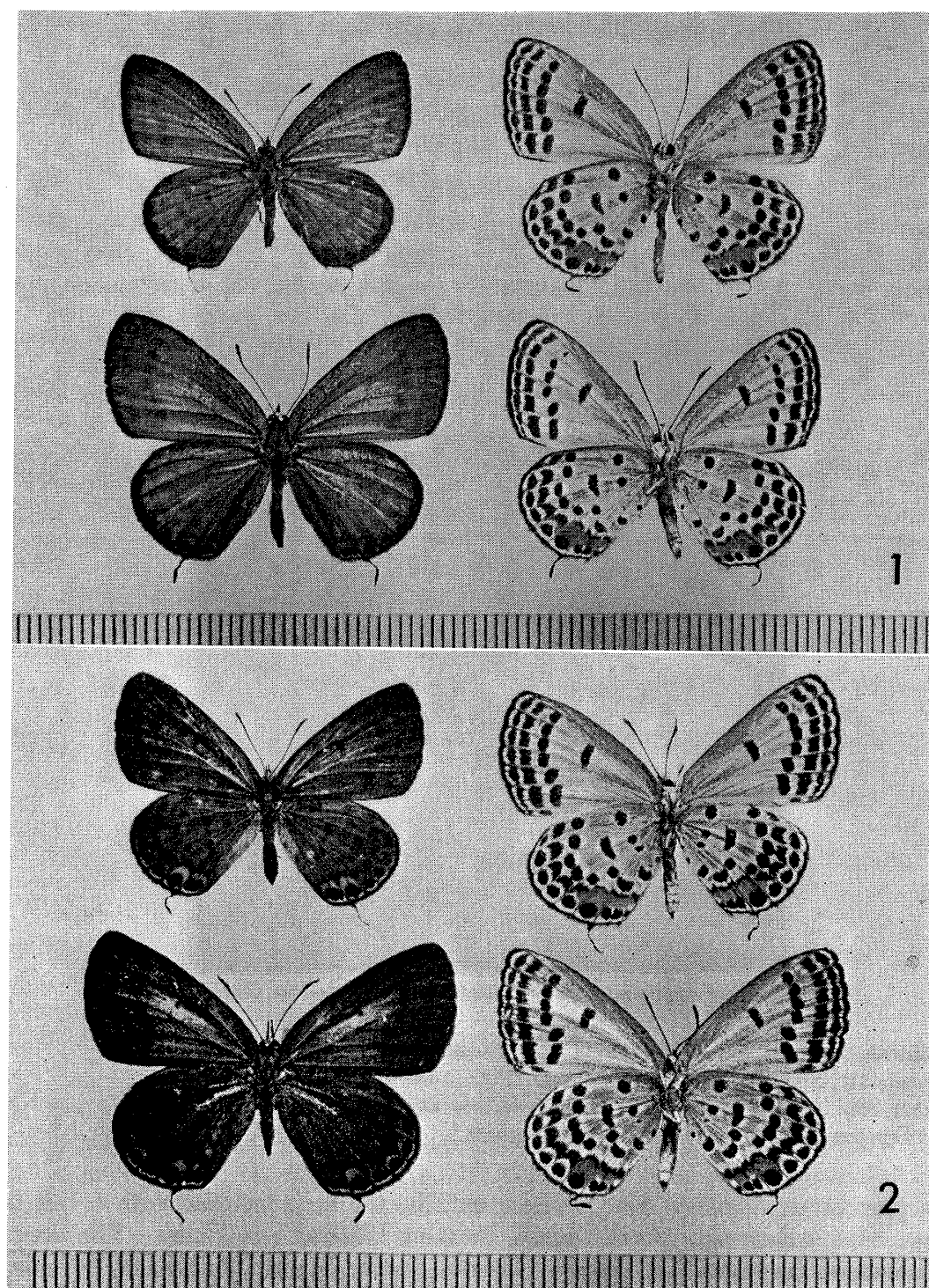


Fig. 1. *Chilades kiamurae* ♂♂ (Gaya Island).

Fig. 2. *Chilades kiamurae* ♀♀ (Gaya Island).

'Yaeyama', 2♂♂2♀♀, no further data, Matsumura, 1910, *loc. cit.*

?Iheya Is., Okinawa, no data, Yashiro, 1932, *Zephyrus* 4 (2/3).

?Okinawa Is., no data, Yashiro, 1932, *ibid.*

\* Zamboanga, Mindanao, 1♀, 3-8-1933, Kuwajima, *leg.*, Shirôzu, *in litt.*

\* Taketomi Is., Yaeyama, 23♂♂ 4♀♀, 24. VIII. 1966, Nagamine *leg.*, Nagamine, 1967, *Tyô to Ga* 17 (1/2).

\* Kuroshima Is., Yaeyama, 24♂♂ 30♀♀, 8-9. VIII. 1967, Oka *leg.*, Itoh & others, 1969, *Tyô to Ga* 20 (1/2).



Fig. 3. *Cycas rumphii*, food plant of *Ch. kiamurae* on Gaya Island.

Palawan, 1♂, 24. XI. 1969, Honda *leg.*, Yasuzo Honda, *in litt.*

Luzon, 1♂, no data, Fukuda & others, 1972, Insect life in Japan 3.

Pulau Sapi & P. Gaya, Sabah, N. Borneo, see above.

(\*: representative records; ?: doubtful records.)

The presumptive range of the species should be the area encircled with a belt linking Mindanao, Sulu Archipelago, North Borneo, Balabac, Palawan and Luzon. The occurrence of the species in Yaeyama and Okinawa districts, South Japan, is considered to have been a temporary one as foreseen by Shirôzu. Its absence from Formosa is almost certain, for it has not been discovered there in spite of extensive collections made by numerous lepidopterists.

**Food plant.** The food plant of the larva is *Cycas rumphii* (Fig. 3) in Gaya Island. The height of the plant is mostly 3 to 4 meters for well-grown plants. The plant is said to be widely distributed in the Malaysian sub-region, but it should be very local in North Borneo, for authors have not come across it on the mainland of Borneo, having seen it only on the island.

**Oviposition.** Eggs are laid singly or in small clusters on the young shoots and leaflets (Fig. 4). Sometimes a very great number of eggs are found on a single plant.

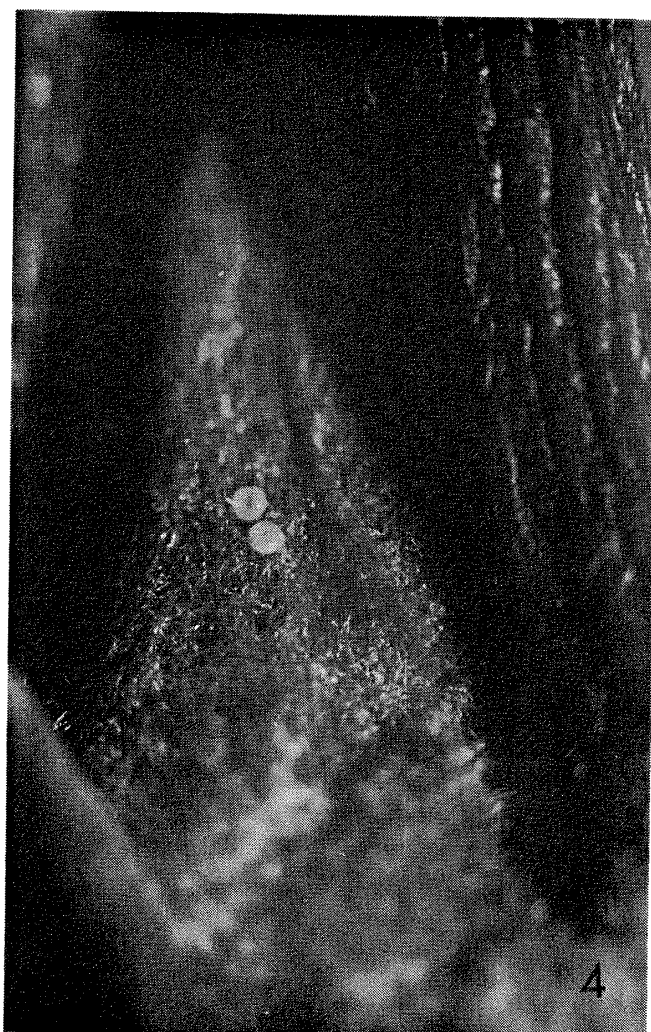


Fig. 4. Eggs laid on terminal shoot of *C. rumphii*.

This presumably happens when few plants in an area have suitable young shoots or leaves. The junior author observed a big congregation of females (about 30 to 40 in number) ovipositing at the top of one plant.

**Larva.** The mature larva (Fig. 6) is dull brown with reddish brown markings on the dorsum. There are also very few with greenish colour but most of larvae are of brown type. The young larvae at first feed on the young shoots and leaves. Later on, they bore into the mid ribs and feed within until they come out to pupate (Fig. 5). On heavily infested plants the young leaves usually die off, leaving the older and tougher ones which are totally avoided. On one such plant a total of over 500 larvae was counted. Although ants were present on the plants, no close association of the larva with them was observed on Gaya Island. Pupation takes place in between the leaf bases and in crevices on the trunk.

**Pupa.** The pupa (Fig. 7) is dark brown with lighter speckles, with wing cases light yellowish flesh colour, through which the venation can be seen. The pupal stage lasts 7-9 days.

**Emergence of adult.** The adult butterflies emerged at about 9 to 10 o'clock in the morning. This time of emergence is entirely different from that of the same species in Taketomi Island, where the adults emerged at dusk. Rearing records note that pupations of 205 larvae collected on 30th July 1972 started on 31st July and ended on 4th August



Fig. 5. Larvae on a midrib of leaf; some seen boring into the rib.

1972, emergence started on 7th August and ended on 13th August. The sex-ratio is, 49 males: 137 females, an unusual ratio for butterflies.

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#### Selected literature

- Itoh, T., Oka, A. & Yoshizaki, K. 1969. Notes on the butterflies in the Yaeyama Group, the Southern Ryukyus. I. *Tyô to Ga* (*Trans. Lep. Soc. Jap.*) **20** (1/2): 21-29.
- Matsumura, S. 1929. *Illustrated common insects of Japan* 1. *Butterflies*. 45+66+37 pp., 16 pls. Shunyodo, Tokyo
- Nagamine, K. 1967. Rediscovery of *Chilades kiamurae* Mats. in the Ryukyus. *Tyô to Ga* (*Trans.*



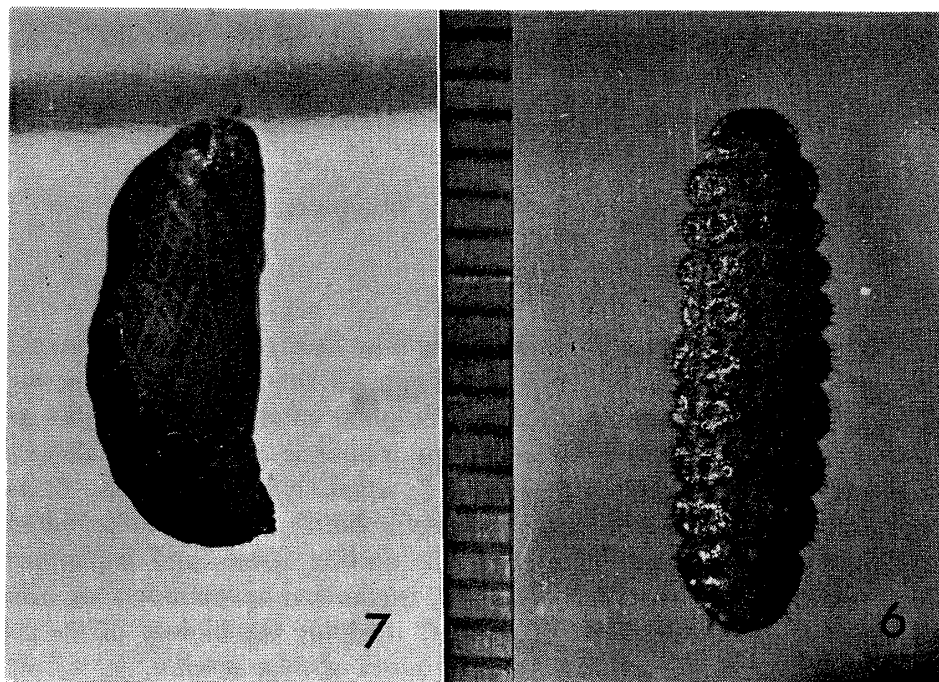


Fig. 6. Mature larva.

Fig. 7. Pupa.

*Lep. Soc. Jap.*) 17 (1/2): 43-45.

Shirôzu, T. 1965. *Butterflies of Japan illustrated in colour*. 265 pp., 56 pls. Hokuryukan, Tokyo.

Wakabayashi, M. & Yoshizaki, K. 1967. Studies on cycad blue, *Chilades kiamuræ* Mats. (Part 1) The life history and the variation of wing pattern. *Tyô to Ga (Trans. Lep. Soc. Jap)* 17 (3/4): 90-101.