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【Scientific note】

阿里山的「神蝴蝶」【科學短訊】

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Abstract

摘要

農曆三月三日為阿里山受鎮宮供奉的玄天上帝之生日，據云當日均有七隻「神蝴蝶」飛至受鎮宮為玄天上帝祝壽。作者於1991~1993年每年農曆三月三日前後至阿里山受鎮宮觀察、調查並面訪當地居民。結果顯示每年農曆三月三日的確「神蝴蝶」出現受鎮宮。然而「神蝴蝶」不是蝶，而是枯球籬紋蛾(*Brahamaea willichii insulata* Inoue)；而且，出現在受鎮宮的枯球籬紋蛾數目也不必然是七隻。枯球籬紋蛾的分佈、食草的存在以及生活史均足以解釋其何以在每年農曆三月定期出現於阿里山。不過枯球籬紋蛾出現在受鎮宮內現象，卻不排除人為介入的可能。

Key words:

關鍵詞: 民族昆蟲學、枯球籬紋蛾、臺灣。

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The "Sacred Butterfly" in Alishan

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ABSTRACT

Seven "sacred butterflies" were said to have flown to Shou-Chen Temple in Alishan on each March 3rd of the Chinese lunar calender so as to celebrate the birthday of the god, Shyuan-Tien-Shang-Ti, having worshipped in the Temple. Shou-Chen Temple was visited in this present study from 1991 to 1993 around each March 3rd of the Chinese lunar calender. "Sacred butterflies" actually did appear in Shou-Chen Temple on each March 3rd of the Chinese lunar calender as indicated from both observation and investigation results. However, the so called "sacred butterfly" was not a butterfly, rather a brahmaeid moth *Brahmaea willichii insulata* Inoue. The number of *B. willichii insulata* was not precisely seven on each March 3rd as previously claimed. Despite the fact that the distribution, the availability of suitable food plants and the life cycle of *B. willichii insulata* justified its appearance in Alishan each March of the Chinese lunar calender, the possibility that human forces were involved in the appearance of *B. willichii insulata* in Shou-Chen Temple could not be excluded.

Key words: Ethnoentomology, moth, *Brahmaea willichii insulata*, Taiwan.

阿里山的「神蝴蝶」

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摘要

農曆三月三日為阿里山受鎮宮供奉的玄天上帝之生日，據云當日均有七隻「神蝴蝶」飛至受鎮宮為玄天上帝祝壽。作者於1991~1993年每年農曆三月三日前後至阿里山受鎮宮觀察、調查並面訪當地居民。結果顯示每年農曆三月三日的確有「神蝴蝶」出現受鎮宮。然而「神蝴蝶」不是蝶，而是枯球羅紋蛾(*Brahmaea willichii insulata* Inoue)；而且，出現在受鎮宮的枯球羅紋蛾數目也不必然是七隻。枯球羅紋蛾的分佈、食草的存在以及生活史均足以解釋其何以在每年農曆三月定期出現於阿里山。不過枯球羅紋蛾出現在受鎮宮內的現象，卻不排除人為介入的可能。

關鍵詞：民族昆蟲學、枯球羅紋蛾、臺灣。

Introduction

An advertisement of the "sacred butterfly" of Shou-Chen Temple (受鎮宮) in Alishan, Chiayi County, Taiwan was observed by the first author in his collection trip to Alishan on December, 1990. The advertisement claimed that on March 3rd each year of the Chinese lunar calender, seven beautifully "sacred butterflies" would fly to Shou-Chen Temple to celebrate the birthday of the god, Shyuan-Tien-Shang-Ti (玄天上帝), having worshipped in the Temple. The seven butterflies were also claimed to fly in a straight line and would stay seven days in the Temple prior to their departure.

Finding out if such a strange behavior of butterflies actually occurred was the primary objective of this study. The following questions were also asked: 1) Do these "sacred butterflies" actually appear in Shou-Chen Temple on March 3rd of the Chinese lunar calender each year? and if so, 2) What species is the "sacred butterfly"? 3) Is the number of these butterflies precisely seven? Additionally, a scientific explanation to the appearance of "sacred butterflies" in Shou-Chen Temple was attempted to be provided.

Alishan was visited in this present

study around March 3rd of the Chinese lunar calender each year from 1991 to 1993. An intercalary (leap) March occurred in 1993. Therefore Alishan was visited twice in 1993. Upon each visit, Alishan was arrived at least one day before March 3rd and stayed for at least 2 days. During our stay in Alishan, Shou-Chen Temple was visited at least 2~3 times a day and the number of "sacred butterflies" in the Temple was counted. Photographs of the "sacred butterflies" were taken for identification since having a close look at the "sacred butterflies" was not permitted. A total of eight local residents in Alishan were interviewed. The interviewees were asked where and when they had seen the "sacred butterflies" in the Alishan area. Light intensities at the front doors of the Temple and three mercury vapour lamps on the plaza in front of the Temple were measured at 5 spots each 3 m from the light sources with a TES 1332 Digital Lux Meter (TES Electrical Electronic Corp., Taiwan). Possible food plants of the "sacred butterflies" in Alishan were also investigated. Upon the last visit, continuous surveillance from 18:00 hrs March 1st to 23:30 hrs March 2nd was conducted for verifying if any moths were flying into the temple.

Based on our observations, the “sacred butterflies” actually appeared in Shou-Chen Temple on March 3rd (Chinese lunar calendar) each year from 1991 to 1993. The “sacred butterflies” have appeared on each March 3rd of the Chinese lunar calendar in Shou-Chen Temple ever since 1969, according to the exhibition of photographs in Shou-Chen Temple.

These “sacred butterflies” were all of the same species. However, the so called “sacred butterfly” is not a butterfly, rather a brahmaeid moth *Brahmaea willichii insulata* Inoue (Fig. 1).



Fig. 1. Brahmaeid moth *Brahmaea willichii insulata* stayed on wooden carving of god, having worshipped in Shou-Chen Temple, Alishan.

B. willichii insulata in Shou-Chen Temple were indicated by observation results to be found either on the table on which sacrificial offering are placed or else on the long beard and/or garment of the wooden carving of god (Fig. 1). Most moths stayed quietly, some fluttering their wings occasionally. Whether all of these moths were alive or not was uncertain since having a closer look at these moths was not permitted. Figure 2 demonstrates the change of number of moths in Shou-Chen Temple around

March 3rd (Chinese lunar calendar) from 1991 to 1993. Five moths were observed in the Temple on March 2nd, 1991; however, the number of moths increased to seven the next day. Eight moths were observed in the Temple on March 2nd, 1992; however, the number of moths decreased to seven on March 3rd. Only two moths on March 2nd, 1993 (verified prior to front doors of the Temple were closed) and three on March 3rd (right after front door of the Temple were opened) were found in the Temple (Fig. 2). On intercalary (leap) March 1st 1993, there were four moths in the Temple at 16:00 hrs, but only two left on the next visit at 18:15 hrs. At 08:15 hrs, intercalary (leap) March 2nd, a moth was observed to fly out of the Temple. The moth was so weak that it dropped on the plaza in front of the Temple. The moth was picked up and placed at the front doors of the Temple. As a man who served in Temple saw the moth, he took the moth immediately with a piece of golden paper and placed the moth on the table on which sacrificial offerings are placed. The num-

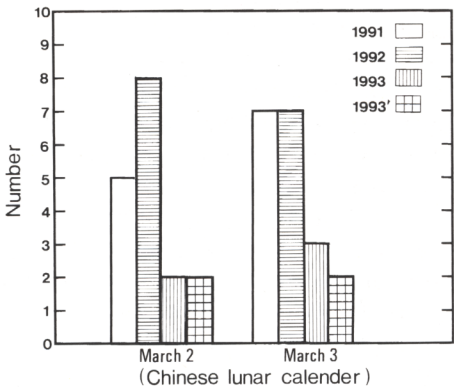


Fig. 2. Number of Brahmaeid moth *Brahmaea willichii insulata* appeared on March 2nd and 3rd of the Chinese lunar calendar in Shou-Chen Temple, Alishan each year from 1991 to 1993. 1993' indicates the intercalary (leap) March.

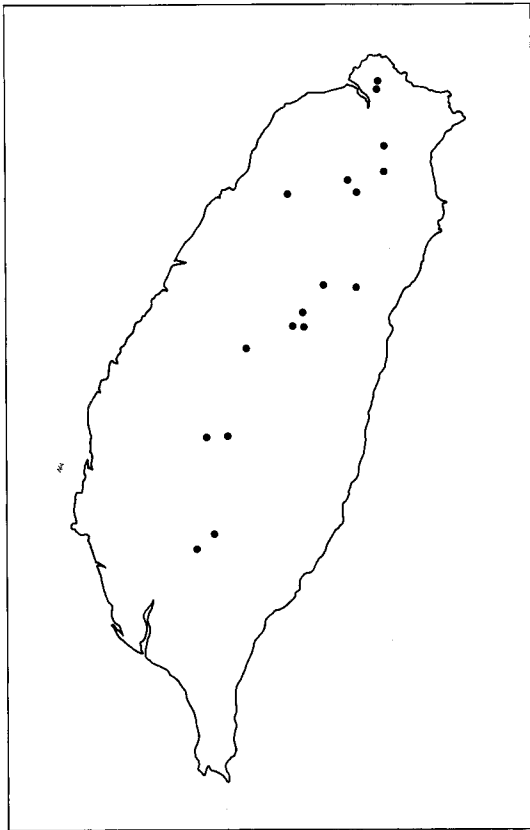


Fig. 3. Known distribution of Brahmaeid moth *Brahmaea willichii insulata* in Taiwan.

ber of moths remained at two in the Temple on March 3rd. The number of the *B. willichii insulata* in Shou-Chen Temple was therefore not precisely seven on each March 3rd as previously claimed.

Inoue (1984) described *B. willichii insulata* as a new subspecies from Taiwan, the most eastern range of distribution of *B. willichii*. Past records of the distribution of *B. willichii insulata* in Taiwan included Yangmingshan, Wulai, Balin, Chihtuan, Wuchishan, Wushe, Piluchi, Lushan, Mayfeng, Fengchihu and Alishan (Chang, 1989; Inoue, 1984). The moth collection of Taiwan Forestry Research Institute indicates that *B. willichii insulata* also distribute themselves in Yuanshan (員山), Losao (洛韶), Tengchih

(藤枝) and Shanping (扇平) (Fig. 3). The distribution of *B. willichii insulata* is apparently wide, not only restricted to Alishan.

Furthermore, Shou-Chen Temple is not the only place one can find *B. willichii insulata* in Alishan. A *B. willichii insulata* was collected under a street lamp in Alishan on March 3rd, 1993 of the Chinese lunar calendar. In addition, four out of eight interviewees admitted that they had seen the "sacred butterflies" on poles of electric wires, tree trunks and places outside of Shou-Chen Temple. The food plant of Brahmaeid larvae is primarily Oleaceae (木犀科) (Chang, 1989). Plants of Oleaceae such as *Osmanthus fragrans* (桂花) and *Ligustrum microcarpum* (小果女貞) are not uncommon in Alishan. The occurrence of these plants is likely related to the occurrence of *B. willichii insulata* in Alishan.

Chang (1984) stated that adults of *B. willichii insulata* emerge three times a year, i.e., from March to April, from June to August and from October to November. Finding *B. willichii insulata* in March of the Chinese lunar calendar (which is generally between March to April of western calendar) is not surprising. Three of the eight respondents actually said that the "sacred butterflies" started appearing in February of the Chinese lunar calendar. One of the respondents stated that he had seen "sacred butterflies" in June and September of the Chinese lunar calendar. Specimens of *B. willichii insulata* could also be collected in June and July in Alishan (Inoue, 1984).

Despite the fact that the distribution, the availability of suitable food plants and the life cycle of *B. willichii insulata* justified its appearance in Alishan in March of the Chinese lunar calendar, why *B. willichii insulata* appeared in Shou-Chen Temple remains unanswered. If human forces are not involved in the appearance of *B. willichii insulata* in

Shou-Chen Temple, then *B. willichii insulata* would have a tendency to fly toward Shou-Chen Temple. The sources which likely attracted flying *B. willichii insulata* to the Temple are the incense and light in the Temple. However, Shou-Chen Temple is surrounded by cement walls. There is only one entrance of the Temple, i.e., the front doors. The moth must fly through the front doors in order to enter the temple. The front doors were closed in the evening and not opened until next morning. Thus, the nocturnal moth found no way of entering into the Temple — even if it is attracted by incense odor or light in the Temple. In addition, the light intensities measured 3 m from the front doors of the Temple was 2.48 ± 2.31 lux (N=5). By contrast, light intensities of three mercury vapour lamps facing the front doors were 18.2 ± 6.30 lux (N=5), 28.22 ± 8.28 lux (N=5), and 45.88

± 29.76 lux (N=5) respectively. The light intensity at the front doors was too low to compete with mercury vapour lamps in terms of attracting moths. For reasons stated above and the fact that people were observed taking the moth into the Temple, the possibility that human forces were involved in the appearance of *B. willichii insulata* in Shou-Chen Temple on each March 3rd of the Chinese lunar calender could not be excluded.

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