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A new species of *Torigea* (Notodontidae, Lepidoptera) from Guangdong, China

WANG Min¹⁾, Hideki KOBAYASHI²⁾ and Yasunori KISHIDA³⁾

¹⁾ Laboratory of Insect Ecology, South China Agricultural University, Guangzhou, Guangdong 510642, P. R. China

²⁾ Akagi-motomachi 5-4-304, Shinjuku-ku, Tokyo, 162-0817 Japan

³⁾ Kitazawa 5-20-1-103, Setagaya, Tokyo, 155-0031 Japan

Abstract A new species of *Torigea* is described from Guangdong: *Torigea subdita* Wang et Kobayashi, sp. nov.

Surveys on the lepidopterous fauna of South China conducted by the first author are on going. In the course of this study, we have found a new species of the genus *Torigea* Matsumura, 1934, in the insect collection of SCAU. We describe it as *Torigea subdita* Wang et Kobayashi sp. nov.

Torigea subdita Wang et Kobayashi, sp. nov.

Male (Fig. 1). Antenna bipectinate. Forewing yellow, speckled dusty brown. Termen and dorsum almost straight, tornus angulated about 100 degrees. Postmedial and subterminal lines with minute brown dot in every cell. Oblique dusty brown line from apex ending in indistinct brown patch before antemedial line. Indistinct brown patch touching dorsum near tornus. Hindwing pale yellow.

Female. Unknown.

Male genitalia (Figs 2, 2a, 2b). Uncus stout, with two low distal lobes. Socii styloid with wide bases. Tegumen with small peniculus. Juxta semicircular. Valva small, triangle with sacculus projection thickly styloid. Aedeagus short with elbowed phallobase. Distal end of the aedeagus with crenulate right-side rim beaked ventrad at end and left side with two peaks, one pointing caudad, the other strong, pointing ventrad. Distal end of the 8th sternite with a wide and deep concavity in the center, small tabs at each sides. Distal end of the 8th tergite



Fig. 1. *Torigea subdita* Wang et Kobayashi, sp. n., holotype, ♂.

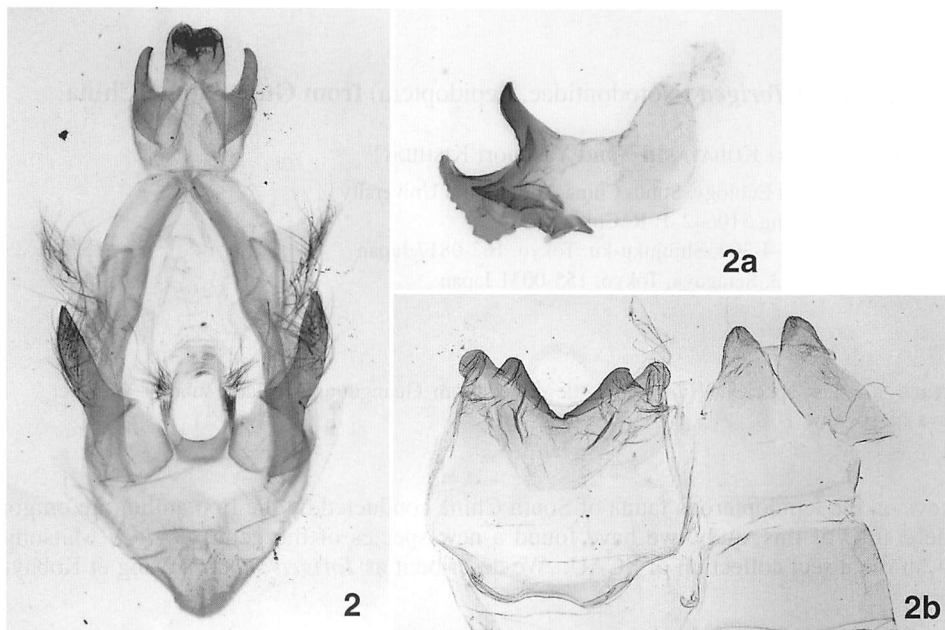


Fig. 2. Male genitalia of *Torigea subdita* Wang et Kobayashi, sp. n. (a: aedeagus, b: 8th sternite and tergite).

with two convexities.

Holotype. ♂, China, Guangdong, Shaoguan, Nanling, 700–1,500 m, 29. iii. 2003, in South China Agricultural University, Guangzhou. Paratypes. 12 ♂ 3 ♀, same data as holotype; same locality as holotype, 1 ♂ 2 ♀, 29. vii–2.viii. 2002.

Etymology. ‘*Subdita*’ means ‘imitative, false’, and is an adjective in the feminine gender, nominative singular. *Torigea subdita* is very similar to *T. triangularis* and *T. ereptor* in external appearance. *T. triangularis* has the most conspicuous maculation, followed by *T. ereptor*. *T. subdita* has only indistinct maculation.

Diagnosis. The species which need to be discriminated are *Torigea triangularis* (Kiriakoff, 1962) and *Torigea ereptor* Schintlmeister, 1989. *T. triangularis* has the most conspicuous maculation, followed by *T. ereptor*. *T. subdita* has only indistinct maculation. In this regard, the brown spot below the Cu-stem should be noted.

In terms of the genitalia, the distal end shape of the aedeagus is diagnostic. *T. subdita* has a conspicuously decorated distal end, but the other two have only one simple spine. The projection of the sacculus is strongest in *T. subdita*. The 8th sternite of *T. subdita* is similar to that of *T. ereptor*, but the notch in the center is wider and deeper in *T. subdita*, and the tabs on both sides have round margins in *T. subdita*, pointed in *T. ereptor*.

Acknowledgments

We wish to express our hearty thanks to Mr Gong Yuening, the director of the Nanling National Reserve, Mr Huang Guo-Hua, South China Agricultural University, Messrs Katsumi Yazaki, Hiroshi Yoshimoto, Kiyoshi Horie and Koji Suzuki, Tokyo, for their kind help in many ways. Our thanks are due to Dr Mamoru Owada, NSMT, for his helpful advice in the

preparation of this manuscript.

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摘 要

王 敏・小林秀紀・岸田泰則：中国産 *Torigea* 属（シャチホコガ科）の1新種

広東省からトリゲキシャチホコ属の1新種 *Torigea subdita* Wang et Kobayashi を記載した。これは *T. triangularis* や *T. ereptor* に似ているが、褐色の紋がこれらの中で一番薄い (*T. triangularis* が最も濃い)。この点に関しては中室下の褐色紋がよくわかるが、交尾器で同定するのが最も信頼できる。

A new species of the genus *Elwesia* (Lepidoptera, Noctuidae) from Vietnam

Hideki KOBAYASHI

Akagi-motomachi 5-4-304, Shinjuku-ku, Tokyo, 162-0817 Japan

Abstract A new species of the genus *Elwesia* is described from Vietnam: *Elwesia kojisuzukii* sp. nov.

Hampson (1894) erected the monotypic genus *Elwesia* on the basis of a specimen collected in Sikkim, which he described as *Elwesia diplostigma*. Since then seven species of the genus *Elwesia* have been recorded along the southern foothills of the Himalayan range, that is the north west of India, Nepal and the north east of India, and from the northern part of Vietnam to Taiwan and the southern part of Japan. Their distribution reflects that of the winter noctuid of the Asian evergreen forest.

Hreblay *et al.* (1999) recorded three species from Vietnam, describing two new species and one new subspecies. I have found another *Elwesia* species from Vietnam in the NSMT collection. I describe this moth below as *Elwesia kojisuzukii* sp. nov.

This study is partly supported by the Grants-in-aid Nos 13575015, 09041167, 06041116, 01041099, 56041060 and 404101 for Field Research of the Monbusho International Scientific Research Program, Japan.

Elwesia kojisuzukii sp. nov.

♀ (Fig. 1). Wing span 27 mm, forewing length 14 mm. Forewing chocolate brown, veins concolorous not conspicuous. Dorsum dark. Basal, antemedial, and medial lines black, straight, parallel. Post medial line pale, curved. A pale line contiguous with the antemedial. A tiny black spot between the basal and antemedial lines. Reniform stigma with small black spot in the lower part. Orbicular encircled with thin dark line. Submarginal line pale, straight between R_5 and CuA_1 , the parts near costa and dorsum indented toward the base. Termen crenulate with marginal line white and cilia brown. Hindwing dark brown with termen as forewing. The costal area is concolorous.

Female genitalia. (Fig. 2, 2a). Ostium not sharply demarcated. Ductus bursae weakly sclerotized, joining the right side of the caudal part of the corpus bursae. Corpus bursae long without signum. Ductus seminalis arising from the caudal end of the corpus bursae.

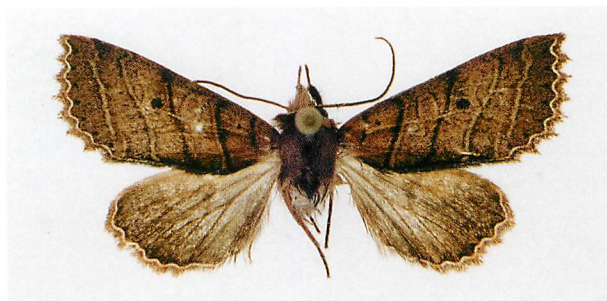


Fig. 1. *Elwesia kojisuzukii* sp. n., holotype, ♀.

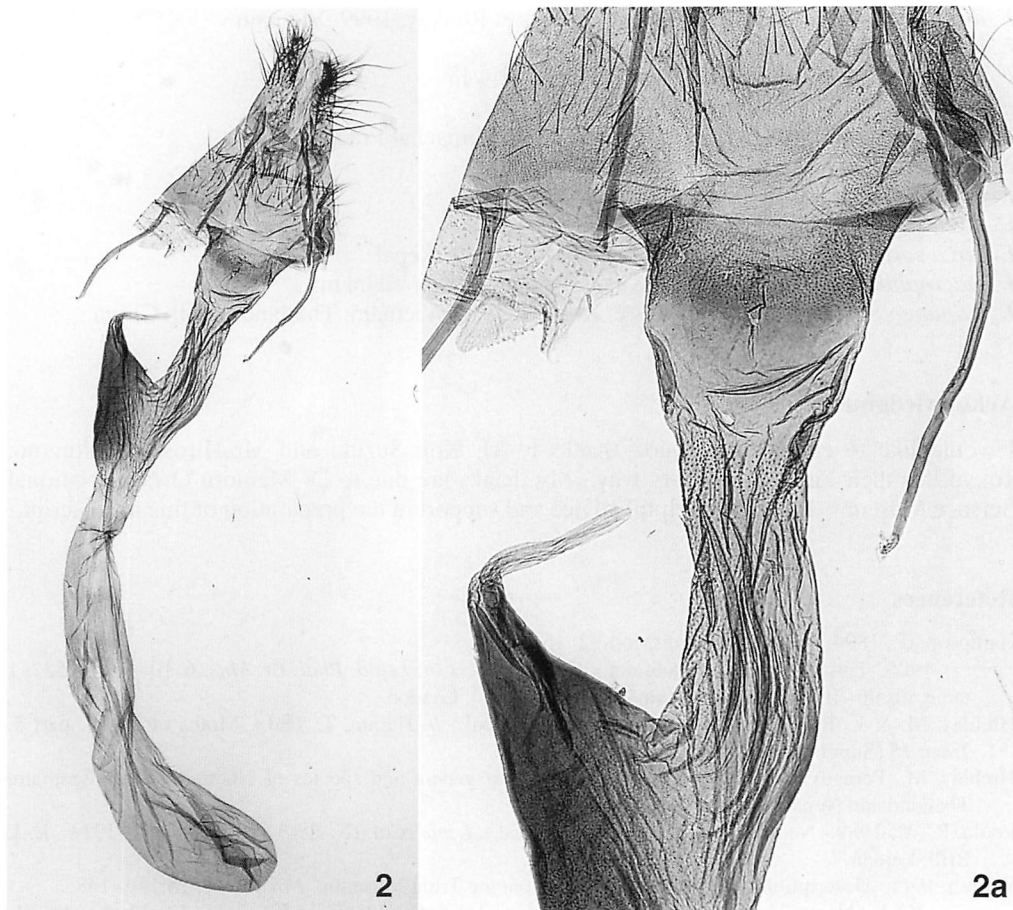


Fig. 2, 2a. Female genitalia of *Elwesia kojisuzukii* sp. n., holotype.

Holotype. ♀, Vietnam, Laocai, Sapa, 1,300 m, 17–18. xii. 2001, Koji Suzuki leg., genitalia slide No. HK921, preserved in National Science Museum, Tokyo.

Etymology. This species name is dedicated to Mr Koji Suzuki who collected the holotype.

Diagnosis. *E. kojisuzukii* is similar to *Elwesia parallela* Hreblay et Ronkay, 1998, from Nepal. The simplest point for diagnosis is that *E. parallela* has greenish patches at cross lines on the dorsum, which are lacking in *E. kojisuzukii*. In the forewing the postmedial line is curved in *E. kojisuzukii*, straight and parallel to the antemedial and medial lines in *E. parallela*. The scales on the veins are also different, light and distinct in *E. parallela*, but dark brown, concolorous with the ground color in *E. kojisuzukii*. The hindwing of *E. kojisuzukii* is dark brown with veins concolorous, which is lighter brown with well-marked dark brown veins in *E. parallela*. The ostium of *E. kojisuzukii* is not sharply demarcated as in *E. parallela*.

Check list of the genus *Elwesia*

E. diplostigma Hampson, 1894 Nepal, Sikkim

- E. diplostigma vasarhelyii* Hreblay, Peregovits et Ronkay, 1999 Vietnam
E. sugii Yoshimoto, 1994 Japan
E. sugii yoshimotoi Hreblay et Ronkay, 1998 Taiwan
E. parallela Hreblay et Ronkay, 1998 Nepal
E. parallela hermanni Hreblay et Ronkay, 1998 Himachal Pradesh
E. kojisuzukii sp. nov. Kobayashi, 2004 Vietnam
E. pallida Warren, 1911 Nepal, Darjeeling
E. tarca Hreblay et Ronkay, 1998 Nepal
E. tarca sericea Hreblay, Peregovits et Ronkay, 1999 Nepal
E. macrophthalma Hreblay, Peregovits et Ronkay, 1999 Vietnam
E. vuquangconi Hreblay, Peregovits et Ronkay, 1999 Vietnam, Thailand, South China

Acknowledgments

I would like to express my hearty thanks to Mr Koji Suzuki and Mr Hiroshi Yoshimoto, Tokyo, for their kind aid in every way. My thanks are due to Dr Mamoru Owada, National Science Museum, Tokyo, for helpful advice and support in the preparation of this manuscript.

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 ———, 1906. Family Noctuidae, subfamily Cuculliinae. *Cat. Lepid. Phal. Br. Mus.* **6**: [i]–xiv, 1–532, 1 table, pls 96–107. British Museum (Natural History), London
 Hreblay, M. & L. Ronkay, 1998. Noctuidae from Nepal. *In* Haruta, T., (Ed.), Moths of Nepal, part 5. *Tinea* **15** (Suppl. 1): 117–310, pls 144–157.
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 Warren, 1911. Descriptions of some new Noctuidae in the Tring Museum. *Novit. zool.* **18**: 140–148.
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On the syntomine moth *Syntomoides imaon* (Lepidoptera, Arctiidae) new to the Ryukyus and Taiwan

Mamoru OWADA

Department of Zoology, National Science Museum
Hyakunincho 3-23-1, Shinjuku, Tokyo, 169-0073 Japan

Abstract *Syntomoides imaon* (Cramer, 1779), widely distributed over the Indian Subregion, Indochina, South China, Sumatra and Borneo, was discovered from Yonaguni Island, the Ryukyus, and Taiwan. Several moths were collected in June and July, 2004, and seemed to have been established on Yonaguni Island. All the specimens of *S. imaon* in the collection of the National Science Museum, Tokyo, are recorded.

Syntomoides imaon (Cramer, 1779) is widely distributed over South and Southeast Asia, that is, the Indian Subregion, South China, Indochina, Sumatra and Borneo (Holloway, 1988). The genus *Syntomoides* was erected by Hampson ([1893]) on the basis of eight species, and was characterized by the “hind wing with vein 3 absent”, and *Sphinx imaon* Cramer was originally designated as the type species. Hampson (1898) included *Syntomoides* in the genus *Ceryx* Wallengren, 1863, by the same feature. Holloway (1988) revalidated the genus *Syntomoides* by the characteristics of the hindwing venation and the genitalia, and included only the type species, *S. imaon*.

On July 8th, 2004, Mr Minoru Muramatsu sent me an e-mail, and asked the identification of his syntomine specimens collected on Yonaguni Island, the Yaeyama Goup of the Ryukyus. He considered that these moths were somewhat different from *Amata fortunei* (l’Orza, 1869). The photograph pasted on the e-mail clearly showed that the moth was different from *A. foutunei*, so that I asked him to send the specimens, which came to my hands immediately. After the close examination, they prove to be identified with *Syntomoides imaon* not recorded previously from the Ryukyu Islands (Azuma, Kinjo & Kimura, 2002) and Taiwan (Inoue, 1992). I asked him to collect more specimens of *S. imaon* in the same place, searched for *A. imaon* in the collection of the National Science Museum, Tokyo, and found a pair of specimens which had been collected by myself in 2002 at the northeastern side of Taiwan, from which the moth had not hitherto been recorded (Sonan, 1941; Inoue, 1992). Mr Muramatsu took additional moths of *S. imaon* on the same island one month later. It is evident that *Syntomoides imaon* has been established on Yonaguni Island.

In this paper, I am going to record *Syntomoides imaon* from Japan and Taiwan for the first time, and taking this opportunity, to record all the specimens of *S. imaon* in the collection of the National Science Museum, Tokyo.

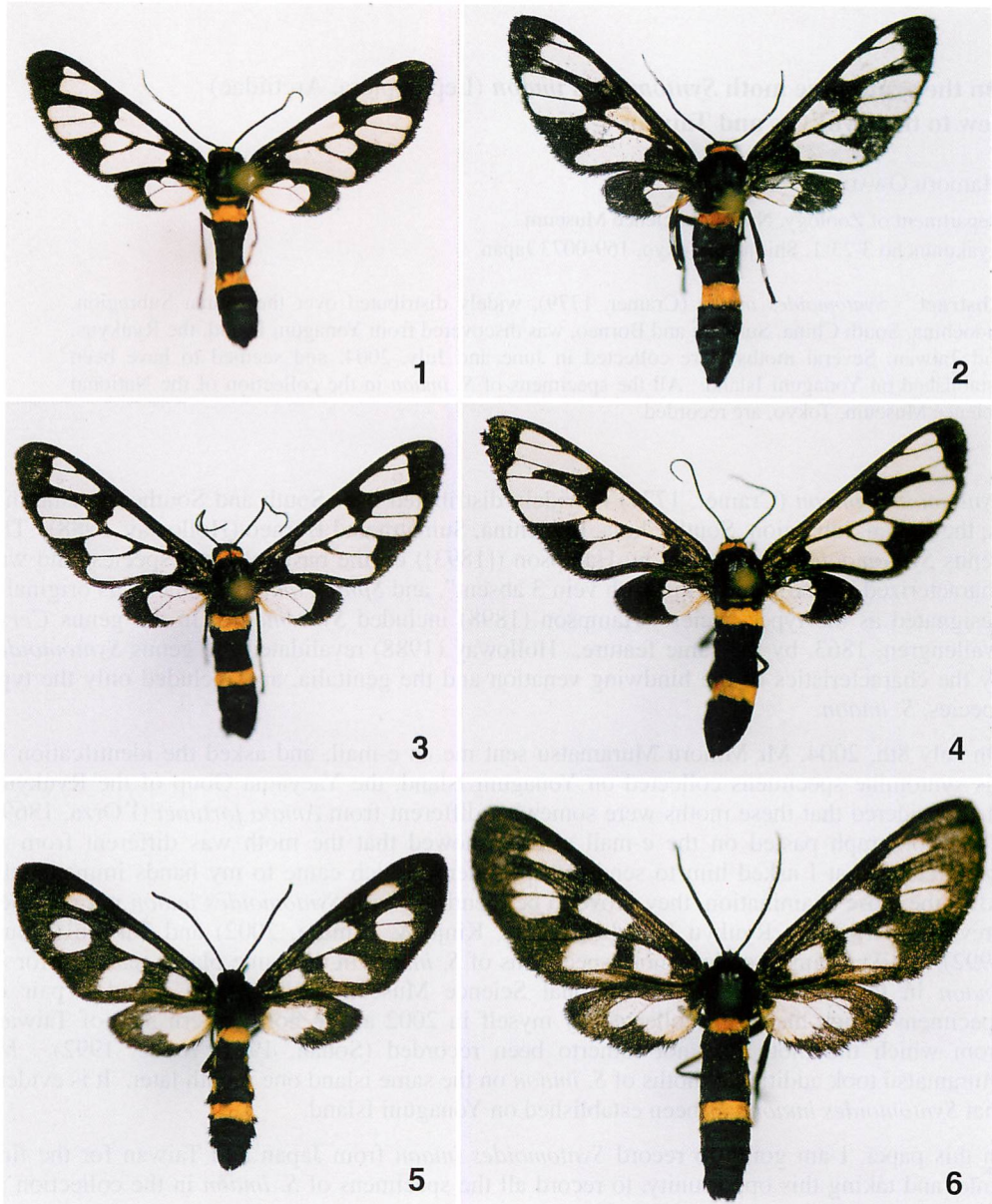
This study was supported in part by the Grants-in-aid Nos 13575015, 09041167, 06041116, 10141099, 62041074, 58041074, 56041060 and 404101 for Field Research of the Monbusho International Research Program, Japan, and is a result of the “Natural History Researches of the Island Arcs in the Western Pacific”, conducted by the National Science Museum, Tokyo.

***Syntomoides imaon* (Cramer, 1779)**

Sphinx imaon Cramer, 1779, *Uitl. Kapellen* **3**: 94.

Syntomoides imaon: Hampson, [1893]: 210, fig. 137; Holloway, 1988: 35, synonyms, figs 5 (wing venation), 61 (male genitalia), 68 (female genitalia), pl. 2, fig. 25.

Ceryx imaon: Hampson, 1898: 44, fig. 18; Seitz, 1910: 41, pl. 9-h; Seitz, 1912: 65, pl. 10-e.



Figs 1-6. *Syntomoides imaon* (1-4), and *Amata fortunei* (5-6). 1-2. ♂ & ♀, Ryukyus, Yonaguni Is., Mt Donan, 17. VII. 2004. 3-4. ♂ & ♀, Taiwan, Fushan Botanical Garden. 5. ♂, Honshu, Yamanashi, Hinoharu, 23. VIII. 1987. 6. ♀, Honshu, Saitama, Akigase, 22. VI. 1986, expanse 31 mm.

Material examined. Japan, Ryukyus, Yaeyama Group, Yonaguni Is., east of Mt Donan, 60m, 2 ♂, 17. VI. 2004, 4 ♂ 1 ♀, 17. VII. 2004, 7 ♂ 1 ♀, 24. VII. 2004, M. Muramatsu leg. (Figs 1–2); Hoan, 1 ♂, 24. VII. 2004, M. Muramatsu leg. Taiwan, Ilan-Taipei, Fushan Botanical Garden, 700m, 1 ♂ 1 ♀, 31. X–2. XI. 2002, M. Owada leg (Figs 3–4). Vietnam: Cao Bang, Pac Po, 340m, 1 ♂, 2. X. 1994, M. Owada leg.; Cao Bang, Nang Oa, nr Mt Pia Oac, 800m, 1 ♂, 11. V. 1997, M. Owada leg.; Lao Cai, Sa Pa, 1,500m, 10 ♂, 4–8. X. 1995, S. Nomura leg., 1 ♂, 7–12. X. 1994, M. Owada leg., 1 ♂, 8–12. X. 1997, M. Owada leg., Sa Pa, 1,600m, 1 ♂, 3–5. III. 1999, A. Shinohara leg.; Lai Chau, Tuan Giao, 650m, 1 ♂, 4–6. V. 1995, M. Owada leg., Lai Chau, Muong Lay, Ban A Chia, 890m, 1 ♂ 1 ♀, M. Owada leg.; Son La, East of Ban Song, Deo Cao Pha, 420m, 1 ♀, 2–3. V. 1995, 2 ♂, 22–23. VI. 1997, M. Owada leg.; Moc Chau, Truong Yen, 900m, 1 ♂, 19–21. VI. 1997, M. Owada leg.; Vinh Phu, Tam Dao, 1,230m, 1 ♀, 20. V. 1995, 1 ♂, 20–23. X. 1997, M. Owada leg., Tam Dao, 930m, 1 ♂, 16–17. VI. 1997, 1 ♂, 12–13. VII. 1997, 2 ♂, 22–26. X. 1994, 1 ♂, 22–24. IX. 1995, M. Owada leg., Tam Dao, 1,000m, 1 ♂, 24–26. II. 1999, A. Shinohara leg., Tam Dao, 1 ♂, 5–8. V. 1999, Y. Kishida leg.; Ha Tay, Ba Vi, Ao Vua, 70m, 6 ♂ 2 ♀, 27. IV. 1995, 3 ♂, 3–4. X. 1997, M. Owada leg.; Gia Vien, Cuc Phuong, 160m, 2 ♂, 26–28. IV. 1996, 370m, 6 ♂, 24–26. V. 1995, 170–250m, 4 ♂, 10–11. VII. 1997, 170–370m, 1 ♂, 27–29. IX. 1997, M. Owada leg., Cuc Phuong, ca. 320m, 59 ♂ 1 ♀, 7–8. III. 1999, A. Shinohara leg., Cuc Phuong, 160m, 6 ♂ 2 ♀, 2–5. V. 1999, Y. Kishida leg.; Nghe An, Que Phong, Ban Le, 300–400m, 1 ♂, M. Owada leg.; Lam Dong, Da Lat, 1,200m, 2 ♂, 29–31. VII. 2001, Y. Kishida leg.; Lam Dong, Deo Bao Loc, Dai Lao, 650m, 1 ♂ 6 ♀, 31. V. 2002, M. Owada leg.; Lam Dong, Bao Loc, Dambri, 850m, 1 ♀, 28. V. – 5. VI. 2002, M. Owada leg.; Lam Dong, Bao Loc, Rung Cat Tien, 11.32'N 107.48'E, 1,500m, 1 ♂, 10–12. XII. 1992, Sinajev & Simonov leg. Thailand: Phitsanulok, Nakhon Thai, Phu-Hin Rongkla, 1,700m, 3 ♂, 26–27. VIII. 1987, M. Owada leg.; Chang Mai, Fang, 1 ♀, 14. VI. 1965, S. Asahina leg., 20km west of Fang, 1 ♂, 11. IX. 1987, M. Owada leg.; Chiang Mai, Doi Inthanon, South Ridge, 1,650m, 1 ♂, 18–21. X. 1983, M. Owada leg., Maeo Khun Klang, 1,300m, 2 ♂ 2 ♀, 16–17. X. 1983, M. Owada leg. Peninsular Malaysia: Cameron Highlands, 1 ♀, 23. XII. 1971, Y. Kishida leg. Myanmar: Sagaing, Nayun, 430m, 2 ♂, 25. V. 2003, Nayun – Namre, 430–610m, 1 ♀, 26. V. 2003, Y. Watanabe leg. India: Sikkim, Gangtok, 1 ♂, 2. V. 1981, Singtam, 1 ♂, 3. V. 1981, Tindharia, 1 ♀, 6. V. 1981, Y. Kishida leg. Nepal: Janakpur, Dolakha, Kirantichhap, 1,250m, 1 ♂, 18. X. 1979, Shera, 1,420m, 1 ♂, 19. X. 1979, M. Owada leg.; Kosi, Pheksinda, 780m, 5 ♂ 1 ♀, 6–13. V. 1994, M. S. Limbu leg., Terhathum, Dobhan, 780m, 1 ♂ 1 ♀, 27. X. 1979, M. Tomokuni & M. Owada leg.; Kathmandu, Godavari, 1,600m, 1 ♂, 18. V. 1991, 1 ♂, 4. VIII. 1991; Nr Chitwan, Bharatpur, 160m, 3 ♂, 16–17. XI. 1992, H. Kobayashi; Bagmati, Sindu, Palati, 1,200m, 3 ♂ 1 ♀, 9. XI. 1979, M. Owada leg. All preserved in the National Science Museum, Tokyo, except for a male from Taiwan in the Taiwan Forestry Research Institute, Taipei, and about a half of Vietnamese specimens collected by Owada, Shinohara and Nomura in the Institute of Ecology and Biological Resources, Hanoi.

Diagnosis. *Syntomoides imaon* (Figs 1–4) is rather similar to *Amata fortunei* (Figs 5–6), distributed in Hokkaido, Honshu, Shikoku, Kyushu, Tsushima, Korea, China and Taiwan (Inoue, 1982), in two yellow lines on the first and fifth abdominal segments. At first glance, the hyaline markings are much clearer than those of *A. fortunei*, that is, letters of data label attached to a specimen can be read through the hyaline markings in *S. imaon*, while letters are obscure through the hyaline markings in *A. fortunei*. The frons and patagiae are yellow in *S. imaon*, while they are dark brown in *A. fortunei*. In the forewing, the hyaline mark m_1 and m_2 (cf. Obraztsov, 1966) are separated into two windows by a broad black line in *A. fortunei*, while they are not separated and form one window (m_1+m_3) in *S. imaon*; an additional hyaline mark is present between m_1+m_3 and m_6 in *S. imaon*, while it is absent in *A. fortunei*. These markings are most clear-cut differences between them. Besides, the dorsal side of each first tarsus of legs is white in *S. imaon*, while it is dark brown in *A. fortunei*; two additional yellow spots are present on the lateral sides of abdomen in *A. fortunei*, while they are absent in *S.*

imaon.

The genus *Syntomoides* is distinguished from *Amata* by the reduction of veins to two (three veins in *Amata*) arising from the hindwing cell apart from Sc+Rs. In the male genitalia of *Syntomoides*, the uncus is short and stout; the tegumen is broad and simple; the vinculum is markedly widened and W-shaped; the valvae are symmetrical and simple; the aedeagus is markedly sinuate in the distal portion; the cornutus is absent. On the other hand, in the male genitalia of *Amata fortunei*, the uncus is longer and slenderer; the tegumen is narrow and has a pair of protuberances in the dorso-caudal portion; the vinculum is slender and V-shaped; the valvae are asymmetrical and have a long costal process; the cornuti are present.

Bionomics. Moths of *Syntomoides imaon* were captured on the eastern slope of Mt Donan in the island of Yonaguni, the Yaeyama Group of the Ryukyus, southwestern Japan. The habitat is a good secondary forest, and moths were found along a narrow road, where white flowered *Bidens*, Compositae, was abundant. It can be surmised that a small population of *S. imaon* has been established on Yonaguni Island, because several moths were collected through one and half months in the meadow, where moths were discovered, and a few moths had already dispersed to farmland of the island. According to Mr Muramatsu, he had some more specimens of *S. imaon* at his own hands, 2 ♂ 1 ♀, east of Mt Donan, 23. VII. 2004.

On the other hand, establishment of *S. imaon* in Taiwan is not clear. Only one pair of moths were secured in Fushan Botanical Garden, ca. 700m in altitude, northeastern Taiwan, by me, who collected them with chalcosiine moths on flowers of *Eurya* spp., Theaceae. Moths of Syntomidae [Syntominae and Euchromiini] of Taiwan were well studied by many authors, and revised by Sonan (1941), who enumerated as many as 20 species in four genera without *Syntomoides* or *Ceryx*. And then, there was no further record of *S. imaon* from Taiwan (Inoue, 1992). At least, *Syntomoides imaon* might not be distributed in Taiwan in the past. However, it is worth noting that the island of Yonaguni, the westernmost island of Japan, is situated only at a distance of 115km east of Taiwan. It is quite likely that *S. imaon* had recently been established in Taiwan, and then immigrated to Yonaguni Island.

The food plants of *S. imaon* were recorded as *Anacardium*, Anacardiaceae, and *Citrus*, Rutaceae (Holloway, 1988).

Acknowledgements

I express my hearty thanks to Mr Minoru Muramatsu of “Ayamihabiru-kan”, a museum of *Attacus atlas*, Yonaguni, Okinawa, who discovered *Syntomoides imaon* from Yonaguni Island and donated many specimens to the National Science Museum, Tokyo. In the field researches, I am indebted to Dr Chun-lin Li, National Taiwan University, Dr Ta Huy Thinh and Mr Hoan Vu Tru, Institute of Ecology and Biological Resources, Hanoi, and Drs Ha Quan Hung and Tran Din Chien, Hanoi Agricultural University. My thanks are also due to Prof. Dr Ping-Shih Yang, National Taiwan University, Taipei, Dr Vu Quang Con, Dr Le Xuan Canh, Institute of Ecology and Biological Resources, Hanoi, Mr Yasunori Kishida, Tokyo, who supported this study in many ways, and to Dr Shun-Ichi Uéno, the National Science Museum, Tokyo, who critically read the early draft of the manuscript of this paper.

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摘 要

大和田守：琉球列島と台湾で新たに発見された *Syntomoides imaon* ムラマツカノコ (新称) について
 与那国島のアヤミハビル館 (ヨナグニサンの博物館) の村松稔氏から、ツマキカノコとは違うカノコガに似た蛾を2004年6月17日に採集したと写真付きの電子メールがきた。確かにカノコガとは別種と確認できたので標本を送ってもらったところ、インドから、中国南部、東南アジアに広く分布する *Syntomoides imaon* (Cramer, 1779) であった。与那国岳の東、比川水源地と呼ばれる比較的良好な林の中の道沿い、白花のセンダングサが多い場所で、ドロバチなどの蜂類を採集中に発見したという。その後の発生状況を調べていただいたところ、7月17日に4♂1♀、23日に2♂1♀、24日に8♂1♀を同所で採集し、しかも、アヤミハビル館のある帆安 (ほあん) でも1♂を発見し、27日にはその建物に1頭が迷い込んできたという。これだけの期間に、少なくない個体数が発生していることから、本種は与那国島に定着しているものと判断できる。本種は台湾からも記録がなかったが、国立科学博物館のコレクションを精査したところ、2002年の10月に台湾東北部の福山植物園で採集された1♂1♀があった。台湾での発生状況は不明であるが、与那国島とは115kmしか離れておらず、まず台湾で発生したものが与那国島に侵入し、定着に至ったと考えた方が自然であろう。本種の食草としては、柑橘類とウルシ科のカシューナッツ類の記録がある。和名は本種の発見者、村松稔氏に因む。

ムラマツカノコとカノコガは、腹部第1節と5節に黄帯を持つ。しかし、ムラマツカノコは、翅にある窓の透明度がはるかに高く、顔面と頸板が黄色、A脈に沿った窓は分割されず、その上にも窓が余分にある。また、*Syntomoides* の後翅の中室から出る翅脈はSc+Rsのほか2本で、3本ある *Amata* との区別は明瞭。交尾器の差も大きい。

Description of a new species of *Prometopus* (Lepidoptera, Noctuidae, Amphipyrinae) from China

WANG Min¹⁾ and Hiroshi YOSHIMOTO²⁾

¹⁾ Laboratory of Insect Ecology, South China Agricultural University, Guangzhou, Guangdong 510642, P. R. China

²⁾ Tokyo High School, 39-1, Unoki 2-chome, Ota-ku, Tokyo, 146-0091 Japan

Abstract A new *Prometopus* Guenée, 1852 is described from China, Guangdong.

Prometopus Guenée, 1852 at present comprises about 8 species from the Australian regions and SE Asia, one being distributed in NE Asia to Japan (Poole, 1989; Holloway, 1989). In NE Asia, a sole species, *P. flavicollis* (Leech, 1889), has been known from Japan, Korea, continental China and the Primorye territory of Russia. As part of the lepidopterological survey in SE China, Guangdong, we examined the following new species of this genus.

Prometopus albicollis sp. n. (Figs 1–2)

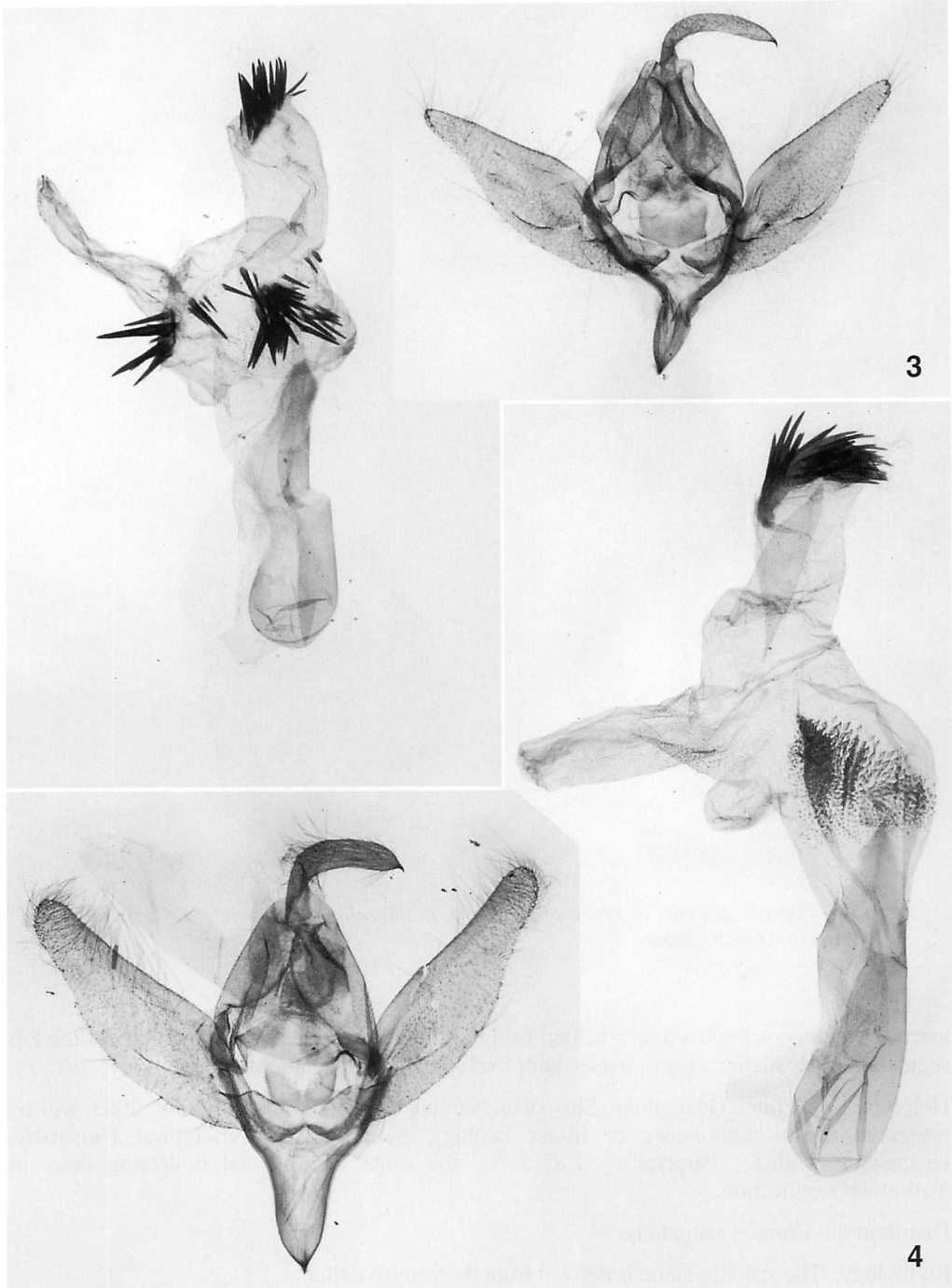
♂ ♀. Length of forewing 10–12 mm, expanse 21–24 mm. Similar to *P. flavicollis* from Japan, but forewing darker as a whole and tegulae whitish. Head white; tegula white mingled with gray, patagium gray to dark fuscous; abdomen gray above. Forewing deep fuscous green; a white stria from base to a whitish subbasal band which is wide, diffuse and oblique; antemedian line double, prominently filled with white at subcosta; reniform a white patch extending to costa as in *flavicollis* with a minute black dot at upper part and a wedge-shaped black spot at lower part; the area beyond postmedian line dark fuscous especially in the anterior half; subterminal line almost indistinct excepting a pale lunar costal shade. Hindwing cinerous gray, with outer area below apex darker; discocellulars obscure and diffuse; median line traceable below cell, dark and diffuse; cilia dark gray in the anterior part, whitish gray mingled with dark gray below middle.

Male genitalia (Fig. 3). Similar to those of *flavicollis* (Fig. 4), but uncus thinner, valva slenderer in apical part, and juxta with its caudal margin only shallowly concave; vesica highly different from that of *flavicollis*, namely, cornuti in the basal part consisting of about 40 short and long spines in three or four groups, while in *flavicollis* those in the basal part consist of numerous minute dents and granules.

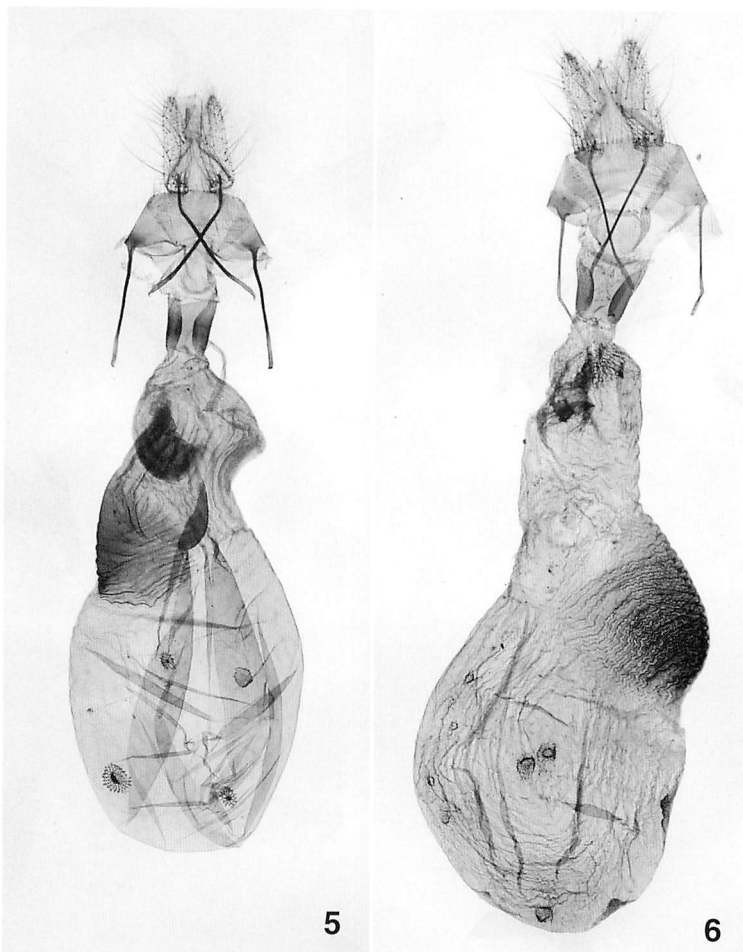
Female genitalia (Fig. 5). Similar to those of *flavicollis* (Fig. 6), but the ductus bursae



Figs 1–2. *Prometopus albicollis* sp. n., from China, Guangdong, Nanling. 1. Paratype, ♂. 2. Paratype, ♀.



Figs 3–4. Male genitalia of *Prometopus* spp. 3. *P. albicollis* sp. n., holotype, China. 4. *P. flavicollis* (Leech), Japan.



Figs 5–6. Female genitalia of *Prometopus* spp. 3. *P. albicollis* sp. n., paratype, China. 4. *P. flavicollis* (Leech), Japan.

narrower and the sclerotized area behind ostium in the center of ventral membrane of the 8th segment a little smaller; corpus bursae with four signa, fewer in number than in *flavicollis*.

Holotype. ♂, China, Guangdong, Shaoguan, Nanling 700–1,200 m, 18–22. vi. 2003, will be preserved in the Laboratory of Insect Ecology, South China Agricultural University, Guangzhou, China. Paratypes. 1 ♂ 1 ♀, the same locality and collecting date, in Yoshimoto's collection.

Distribution. China, Guangdong.

Etymology. The specific name is derived from the whitish collar.

Acknowledgments

In writing this paper, we express our cordial thanks to Messrs K. Yazaki, Hachioji, K. Suzuki, Tokyo and G.-H. Huang, Laboratory of Insect Ecology, South China Agricultural University,

Guangzhou for their kindness in giving us invaluable material.

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A new subspecies of *Pida niphonis* (Butler, 1881) (Lepidoptera, Lymantriidae) from Guangdong, S. China

WANG Min¹⁾ and Yasunori KISHIDA²⁾

¹⁾ Laboratory of Insect Ecology, South China Agricultural University, Guangzhou, Guangdong 510642, P. R. China

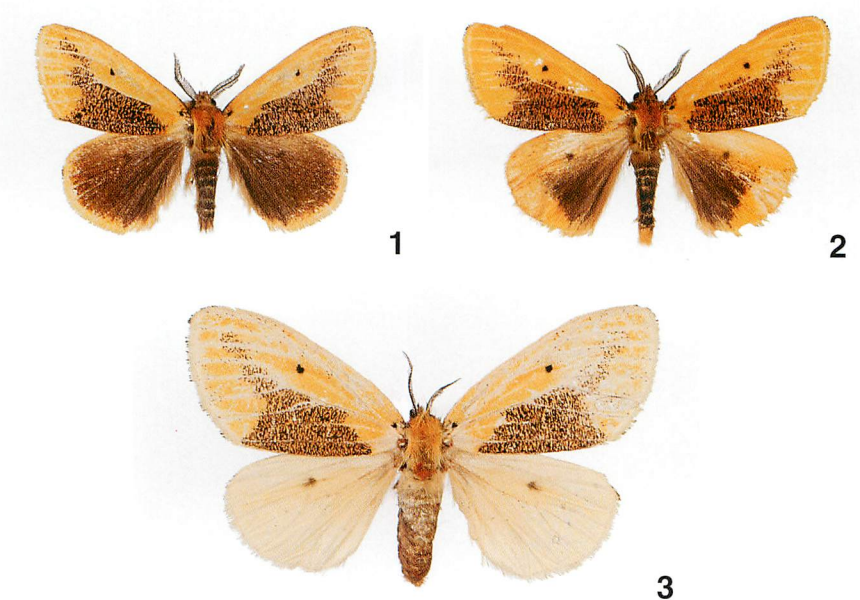
²⁾ Kitazawa 5-20-1-103, Setagaya, Tokyo, 155-0031 Japan

Abstract A new subspecies of *Pida niphonis* (Butler, 1881), *P. n. nanlingensis* subsp. n., is described from Guangdong, S. China.

Pida niphonis (Butler, 1881), described from Japan, is known to be distributed in Korea, Primorye territory of Russia, China and Japan, and has not been studied on its geographical variation. In China, this species is found rather widely in the northern, central and western parts (Zhao, 2003). We were able to examine some specimens of this species secured from Nanling Nature Reserve, Guangdong, S. China, and found that the Nanling population is clearly different subspecifically from the Japanese one.

***Pida niphonis nanlingensis* subsp. n.** (Figs 1–3).

Expanse 36–39 mm in male, 50–52 mm in female, somewhat larger than in the nominotypical subspecies (34–35 mm in male, 42–44 mm in female). In male, wings a little longer; forewing with ground color yellow instead of orange yellow in the nominotypical subspecies, median blackish brown portion less developed; hindwing with blackish brown portion much



Figs 1–3. *Pida niphonis nanlingensis* subsp. nov. 1. Holotype ♂. 2–3. Paratypes. 2: ♂; 3: ♀.

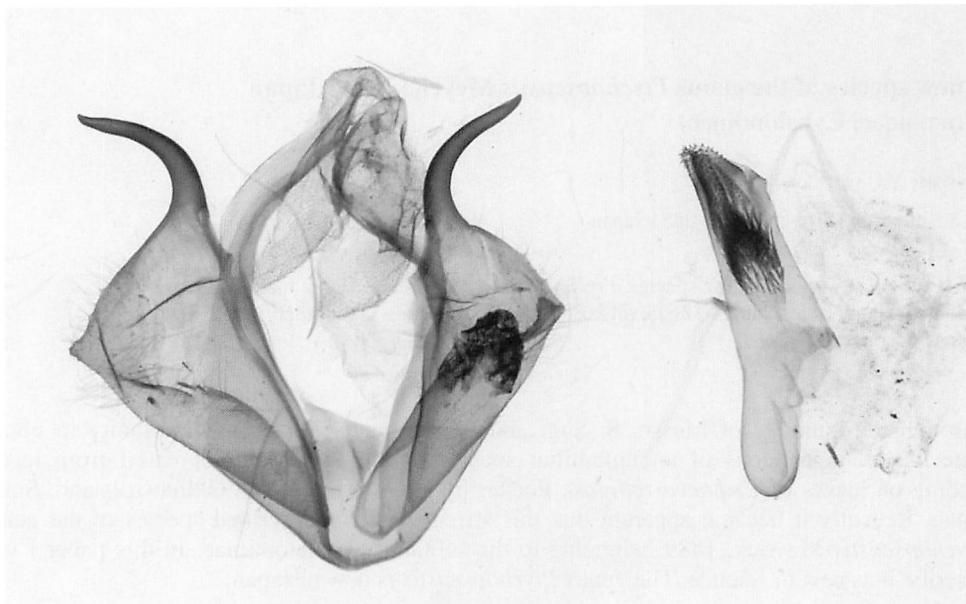


Fig. 4. Male genitalia of *Pida niphonis nanlingensis* subsp. nov.

reduced in some specimens. In female, wings with ground color much paler yellow than in the nominotypical subspecies.

Male genitalia (Fig. 4). Identical with those of nominotypical subspecies.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 700–1300 m, 27. vii–1. viii. 2002, preserved in the South China Agricultural University, Guangzhou. Paratypes. Same data as holotype, 1 ♂ 1 ♀; same locality as holotype, 1 ♂, 21–23. vii. 2002, 1 ♂, 26–27. ix. 2003, 3 ♀, 31. viii–1. ix. 2003, 7 ♂ 3 ♀, 23–26. viii. 2004.

Distribution. S. China (Guangdong).

Acknowledgements

We wish to express our hearty thanks to Mr Y. Gong, the director of the Nanling National Nature Reserve, Dr M. Owada, National Science Museum, Tokyo, Mr G. Huang, South China Agricultural University, and Messrs K. Horie and K. Yazaki, Tokyo for their kind help in many ways.

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A new species of the genus *Ptychopseustis* Meyrick from Japan
(Crambidae, Cybalomiinae)

Hiroshi YAMANAKA

4-18 Eiraku-cho, Toyama, 930-0853 Japan

Abstract A new cybalomiine species, *Ptychopseustis pallidochrealis* sp. n., is described from Okinawa Island, South Japan. The larval hostplant of this species is recorded: *Crataeva religiosa* Forster (Capparidaceae).

Through the courtesy of Messrs S. Sugi and S. Tominaga, I had an opportunity to obtain sixteen adult specimens of an unfamiliar species of the Pyralid moth reared from larvae feeding on leaves of *Crataeva religiosa* Forster by Mr S.Tominaga in Okinawa Island, South Japan. Recently it became apparent that this species is an undescribed species of the genus *Ptychopseustis* Meyrick, 1889 belonging to the subfamily Cybalomiinae. In this paper I will describe it as new to science. The genus *Ptychopseustis* is new to Japan.

During the course of this study I am much indebted to Mr M. Shaffer, Department of Entomology, The Natural History Museum, London, for his valuable advice. I am also indebted to Dr H. Inoue for his kind help. I must express my hearty thanks to Messrs S. Sugi and S. Tominaga for their donation of valuable specimens together with an information about the larval hostplant.

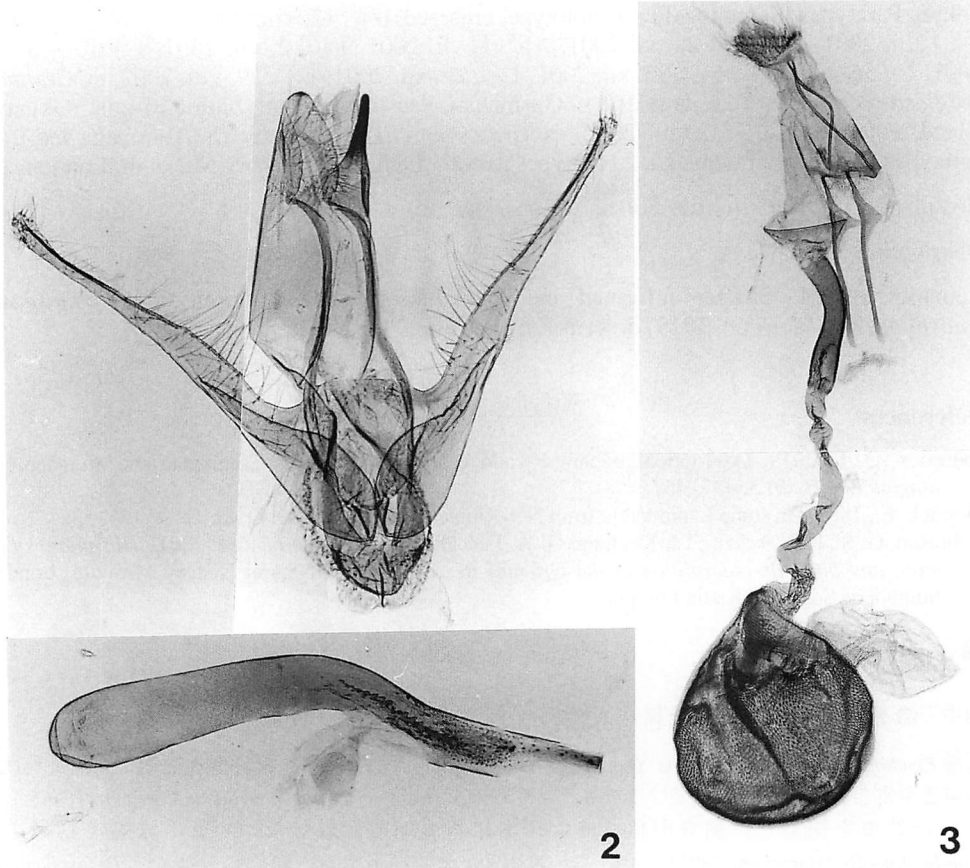
***Ptychopseustis pallidochrealis* sp. n.**

Length of forewing 6–7 mm. Labial palpus whitish yellow, thinly mixed with pale fuscous scales. Maxillary palpus white. Frons evenly covered with white scales. Vertex rather roughly covered with white scales. Antenna pale yellow, more or less flattened and broader in male. Legs pale whitish yellow, hind tibia with a large fuscous tuft at extremity in both sexes. Abdomen dorsally pale fuscous, second and third segments tinted with pale orange yellow, the coloration of abdomen ventrally paler than on dorsal surface.

Forewing with outer margin slightly excised below apex. Ground colour of upper surface of forewing pale ochreous or greyish ochreous, thinly dusted with fuscous scales. Ante- and postmedial lines very narrow, pale fuscous suffused with silver, the former moderately curved outward, and weakly sinuated, the latter strongly oblique outward from costa to vein M₁, and then rather straightly descended to dorsum. Two pale fuscous small spots on dicoccellulars, the spots suffused with silver. Termen with a row of fuscous interneural spots. Cilia fuscous, pale yellow line at base, silverly tinted at tips. Ground colour of upper surface of hindwing paler than in forewing. Postmedial line narrow, pale fuscous, weakly curved outward from costa to near tornus. Termen with a row of pale fuscous interneural spots. Cilia dark grey, pale yellow



Fig. 1. *Ptychopseustis pallidochrealis* sp. n., holotype, ♂.



Figs 2–3. Genitalia of *Ptychopseustis pallidochrealis* sp. n. 2. Male. 3. Female.

line at base. Coloration of under surface of both wings paler than on upper surface, but coloration of forewings stronger than in hindwings, lines and markings like those of upper surface obscurely repeated.

Male genitalia (Fig. 2). Uncus triangular, tip narrowly rounded, sides curved, thinly setose dorsally, and broadly, weakly sclerotized apically and laterally. Gnathos broadly triangular, its apical half abruptly narrowed, and very strongly sclerotized, granulated, minutely dentate dorsally. Valva narrowing toward termen, and the termen slightly dilated, bearing a few bristles, costa with a short, blunt process at apex. Sacculus broad, tapered. Transtilla weakly sclerotized transverse band. Juxta an oblong thin plate. Saccus short, anterior margin broadly rounded, medially with a dorsal carina. Aedeagus somewhat slender, narrowing toward apex, weakly curved at middle, longer than length of valva, with a long, spiny thorn-like cornutus.

Female genitalia (Fig. 3). Eighth abdominal segment more or less sclerotized dorsally. Apophysis anterioris almost equal length to posterioris, and triangularly expanded near posterior end. Ostium broad, cup-shaped. Antrum narrow, long, strongly sclerotized. Ductus bursae narrow, membranous, more or less spiral, anterior end strongly sclerotized. Corpus bursae globular, with numerous triangular spines on inner wall. Signum absent.

Type series. Holotype. ♂, Kochinda-cho, Shimajiri-gun, Okinawa Island, emerged 30. vi. 2001, ex *Crataeva religiosa* Forster (S. Tominaga leg.) in coll. the National Science Museum,

Tokyo. Paratypes. Same locality as holotype, emerged 1 ♀, 12. xi. 2000, 1 ♀, 14. xi. 2000, 1 ♀, 12. i. 2001, 1 ♂ 2 ♀, 28. vi. 2001, 1 ♂, 1. vii. 2001, 1 ♂, 2. vii. 2001, 1 ♂ 1 ♀, 3. vii. 2001, 1 ♀, 6. vii. 2001, 1 ♂, 25. xii. 2001, 1 ♀, 29. xii. 2001, 1 ♂, 29. viii. 2002, ex *Crataeva religiosa* Forster (S. Tominaga leg.); Gushichan, Gushikami-son, Shimajiri-gun, Okinawa Island, emerged 1 ♂, 31. viii. 2002, ex *Crataeva religiosa* Forster (S. Tominaga leg.). 13 paratypes in coll. H. Yamanaka, 2 paratypes in coll. the Natural History Museum, London.

Hostplant. *Crataeva religiosa* Forster (Capparidaceae).

Distribution. Okinawa Is.

Remark. Mr M. Shaffer informed me that this species is closet to *Ptychopseustis conisphoralis* (Hampson, 1919) described from Central China, Tientsin.

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摘要

山中 浩：日本産 *Ptychopseustis* 属（ツトガ科，モンメイガ亜科）の1新種

新種 *Ptychopseustis pallidochrealis* Yamanaka ウスキモンメイガ（新称）を，富永智氏が沖縄県島尻郡の東風平町と具志頭村具志頭でフウチョウソウ科のギョボク（*Crataeva religiosa* Forster）の葉を食していた幼虫を採集し，飼育羽化させた標本に基づいて記載した。なお，本種と同属の *P. plumbeolinealis* (Hampson, 1895)（インド，スリランカ，ベトナム，台湾に分布）と *P. fuscivenealis* (Hampson, 1895)（スリランカに分布）の食草が，ともにギョボクであることが知られている (Robinson et al., 2001: 345)。このことを参考までに付記しておく。

Notes on geometrid moths (Lepidoptera, Geometridae) from Nanling Mts, S. China (III)

Katsumi YAZAKI¹⁾ and WANG Min²⁾

¹⁾ 2-5-20 Motoyokoyama, Hachioji, Tokyo, 192-0063 Japan

²⁾ Laboratory of Insect Ecology, South China Agricultural University,
Guangzhou, Guangdong 510642, P. R. China

Abstract Seven new ennomine species of Geometridae are described from Nanling Mountains, S. China: *Orthocabera euryzona* sp. n., *Lomographa yueningi* sp. n., *L. vulpina* sp. n., *Peratophyga castaneostriata* sp. n., *P. modesta* sp. n., *Parabapta aurantiaca* sp. n., *Plutodes nanlingensis* sp. n. Five ennomine species, *Micronidia intermedia* Yazaki, *Parabapta unifasciata* Inoue, *P. obliqua* Yazaki, *Plutodes warreni* Prout, *P. philornis* Prout, are recorded from continental China for the first time.

The third part of this series dealing with geometrid moths in the Nanling Mountains, South China, contains twelve ennomine species, of which seven are described as new to science, and five are newly recorded from continental China. The material here used is from the collection in the South China Agricultural University.

All the holotypes designated here are preserved in the South China Agricultural University, Guangzhou.

Subfamily Ennominae

Micronidia intermedia Yazaki (Fig. 1)

Micronidia intermedia Yazaki, 1992, *Tinea* 13 (Suppl. 2): 25, pl. 7, fig. 19.

Specimens examined. S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 2 ♂ 2 ♀, 20–24. ii. 2003, 2 ♀, 16–21. xi. 2003, 1 ♀, 11–14. iii. 2004.

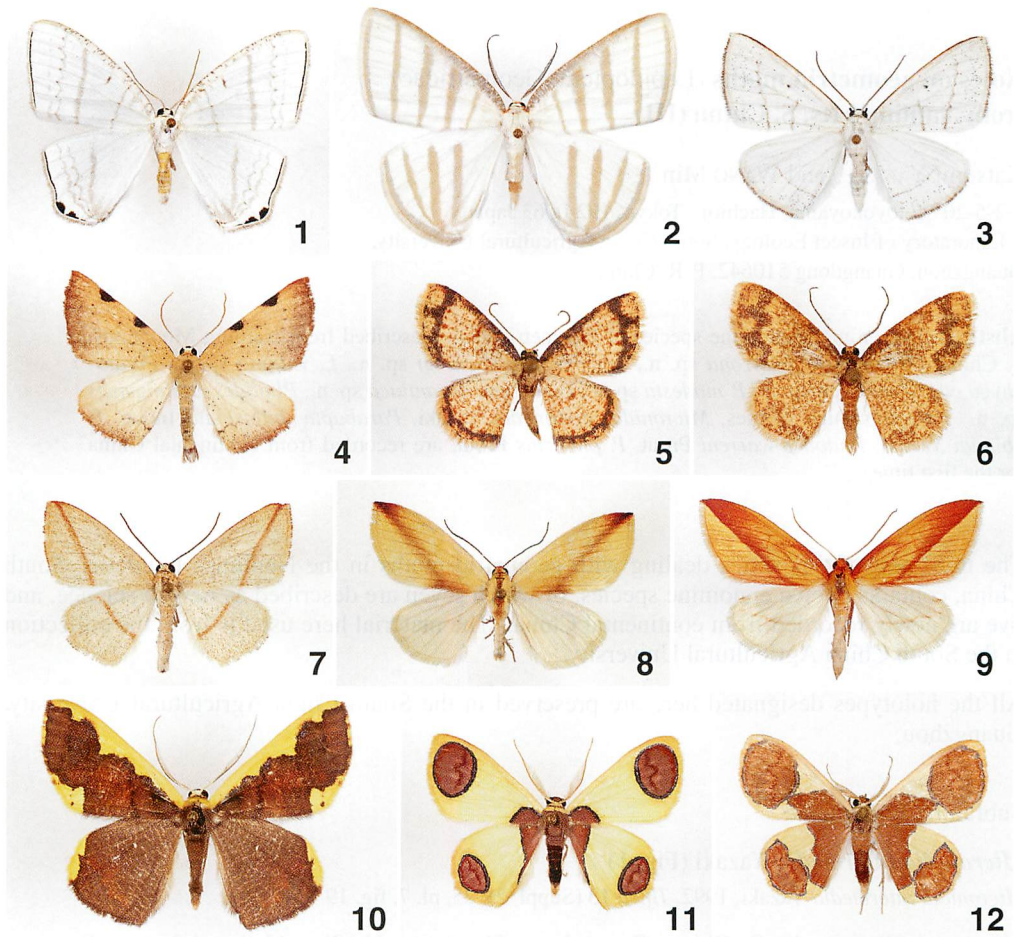
This species has been known to be endemic to Taiwan, and is newly recorded from continental China. A close relative, *M. simplicata* (Moore), is distributed in NE. India and Nepal.

Distribution. S. China, Taiwan.

Orthocabera euryzona sp. n. (Fig. 2)

Expanse 33–38 mm in male, 37–40 mm in female. Wings white, with transverse fasciae brownish gray. Forewing with costa ochreous, densely scattered with grayish brown scales in proximal half; transverse fasciae straightish, almost parallel to termen; cilia cream. Hindwing with median and postmedian fasciae straightish, oblique; subterminal fascia slightly curved posteriorly, fused with postmedian fascia before tornus; cilia cream, slightly tinged with pale gray.

Male genitalia (Fig. 13). Uncus triangular, with bluntly pointed apex. Gnathos with median process relatively large, tongue-shaped. Valva rather long, with distal half slender; costal process elongate, smoothly curved ventrally. Saccus narrow with round apex. Aedeagus with vesica very long; cornuti of a row of slender spines.



Figs 1-12. Adults. 1. *Micronidia simplex* Yazaki. 2. *Orthocabera euryzona* sp. n., holotype. 3. *Lomographa yueningi* sp. n., holotype. 4. *L. vulpina* sp. n., holotype. 5. *Peratophyga castaneostriata* sp. n., holotype. 6. *P. modesta* sp. n., holotype. 7. *Parabapta unifasciata* Inoue. 8. *P. obliqua* Yazaki. 9. *P. aurantiaca* sp. n., holotype. 10. *Plutodes warreni* Prout. 11. *P. philornis* Prout. 12. *P. nanlingensis* sp. n., holotype.

Female genitalia (Fig. 16). Ductus bursae elongate, curved at caudal fifth. Corpus bursae ovate; signum large with serrate margin.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 18–22. vi. 2003. Paratypes. Same data as holotype, 5 ♂ 2 ♀. Same locality as holotype, 1 ♂ 2 ♀, 29–31. iii. 2003, 2 ♂, 11–14. iii. 2004.

The genus *Orthocabera* Butler was revived from the synonymy of *Myrteta* Walker by Holloway ([1993]) on the basis of the male genital structures. Most species of *Orthocabera* have inwardly oblique transverse lines, while this new species has almost vertical, rather broad transverse fasciae. In the male genitalia, rather elongate valva and very long aedeagus vesica characterize the new species.

***Lomographa yueningi* sp. n.** (Fig. 3)

A relatively large species with expanse 32–33 mm in male, 33–37 mm in female. Somewhat similar to *L. yoshimotoi* Yazaki from Nepal and N. India. Forewing with costa dark brown rather than yellowish orange in *yoshimotoi*; antemedian line fuscous, thin, slightly oblique outwardly; postmedian line fuscous, slightly curved outwards, minutely dentate outwards on veins; discal spot small, fuscous; cilia white, tinged with dark brown in distal third. Hindwing as in forewing, but without antemedian line and discal spot.

Male genitalia (Fig. 14). Uncus moderately long. Valva relatively elongate and broad; costa almost straightish, broadly sclerotized. Juxta simple. Aedeagus short, somewhat broad; vesica with no cornutus.

Female genitalia (Fig. 17). Ductus bursae membranous, straightish. Corpus bursae elongate; signum stellate.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 11–14. iii. 2004. Paratypes. Same data as holotype, 2 ♂ 2 ♀. Same locality as holotype, 2 ♂ 5 ♀, 29–31. iii. 2003, 1 ♀, 27–29. iii. 2004.

In appearance the new species is characterized by large size in expanse, dark brown costa of forewing, minutely dentate postmedian line and distally dark brown cilia on both wings. In the male genitalia, broadly sclerotized costa and absence of cornutus are diagnostic.

***Lomographa vulpina* sp. n.** (Fig. 4)

Expanse 24–27 mm in male, 27–28 mm in female. Forewing ochreous, sparsely scattered with dark brown scales; terminal portion broadly suffused with brown; costa with two large blackish brown spots; cilia brown. Hindwing pale ochreous, paler in proximal half; terminal portion narrowly suffused with brown; postmedian line dark brown, sinuous, rather faintly marked, represented only by dots on veins in anterior half; cilia brown.

Male genitalia (Fig. 15). Uncus relatively long, with apex pointed. Valva with costa well-sclerotized, raised dorsally and very broad in distal half. Juxta with a pair of large distal lobes.

Female genitalia (Fig. 18). Sterigma sclerotized. Ductus bursae thinly sclerotized, curved near middle. Corpus bursae membranous, thinly sclerotized in cephalic area around signum, narrowed in caudal portion; signum round, with serrate margin.

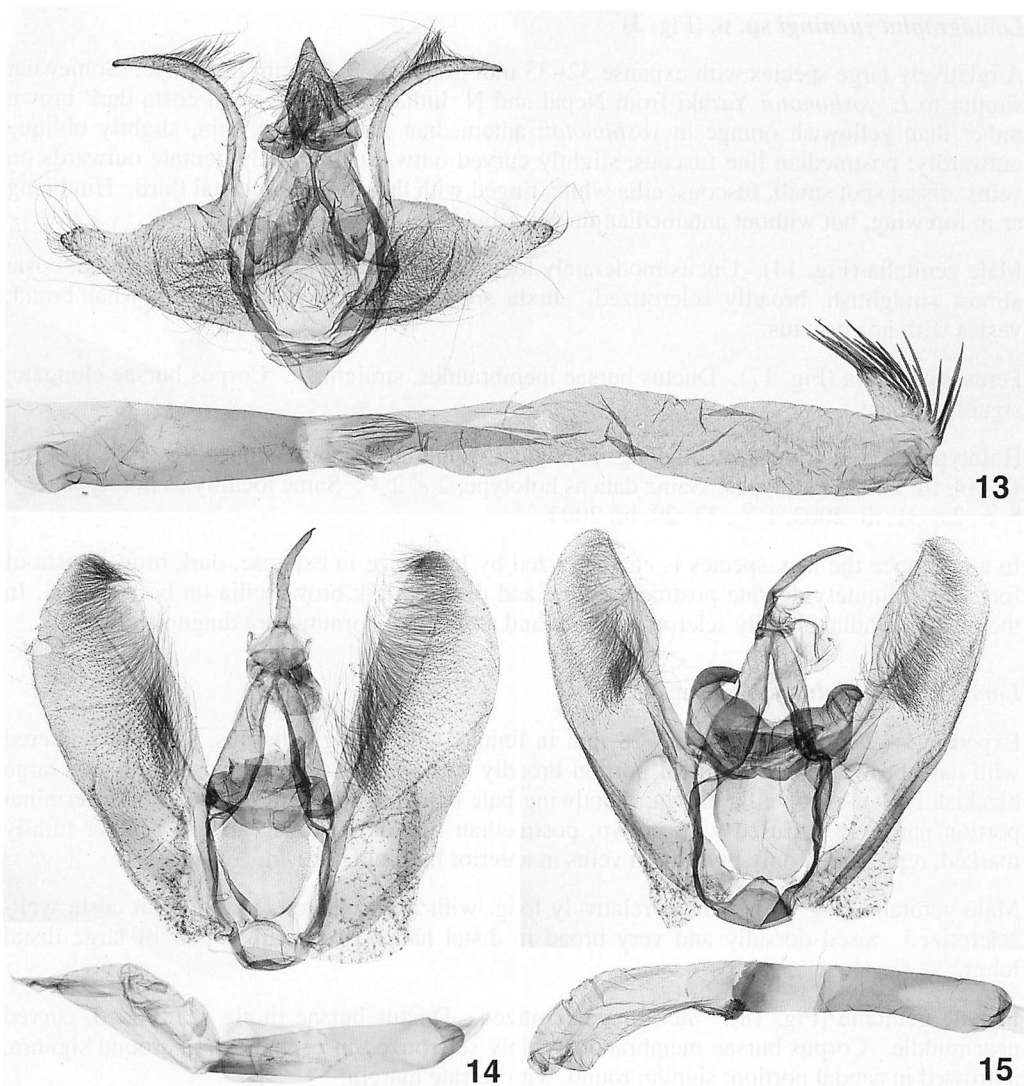
Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 29–31. iii. 2003. Paratypes. Same data as holotype, 3 ♂. Same locality as holotype, 2 ♂ 2 ♀, 27–29. iii. 2004, 2 ♂, 18–21. v. 2004. N. Vietnam, Tam Dao, 60 km NW Hanoi, 21°24'N, 105°20'E, 950 m, 3 ♀, 1–5. iv. 1995, leg. V. Sinjaev & E. Afonin, in coll. Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn.

Distribution. S. China, N. Vietnam.

The ochreous color of forewing and costal blackish spots render this new species unmistakable. In the genitalia, a pair of large lobes of juxta in male and sclerotized sterigma in female are unusual character for the genus *Lomographa*.

***Peratophya castaneostriata* sp. n.** (Fig. 5)

Expanse 11–12 mm in male, 12 mm in female. Antenna ciliate. Wings pale yellow, speckled with ochreous. Forewing with costal area suffused with dark brown in proximal two-thirds;



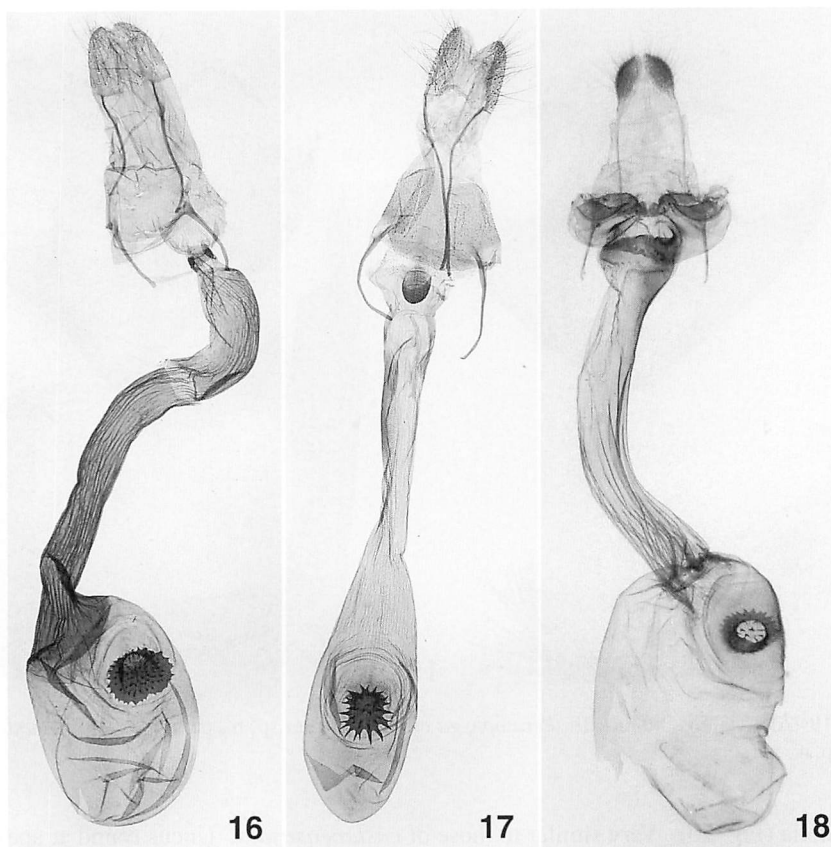
Figs 13–15. Male genitalia. 13. *Orthocabera euryzona* sp. n., paratype. 14. *Lomographa yueningi* sp. n., paratype. 15. *L. vulpina* sp. n., paratype.

subterminal fascia broad, dark brown, slightly sinuous; discal spot ochreous; cilia pale yellow. Hindwing as in forewing, but subterminal fascia situated more distally.

Male genitalia (Fig. 19). Uncus triangular, with bluntly pointed apex. Gnathos with median process large, roundish. Valva very broad basally, tapering towards apex, with a short digitate apical process; costal process curved ventrally, with sharply pointed apex. Juxta with caudal margin concave. Aedeagus long and broad; cornuti of a distal row of spines.

Female genitalia (Fig. 21). Ductus bursae sclerotized, elongate, broadened cephalically, bent near middle, with longitudinal furrows. Corpus bursae globular; signum large, stellate.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m,



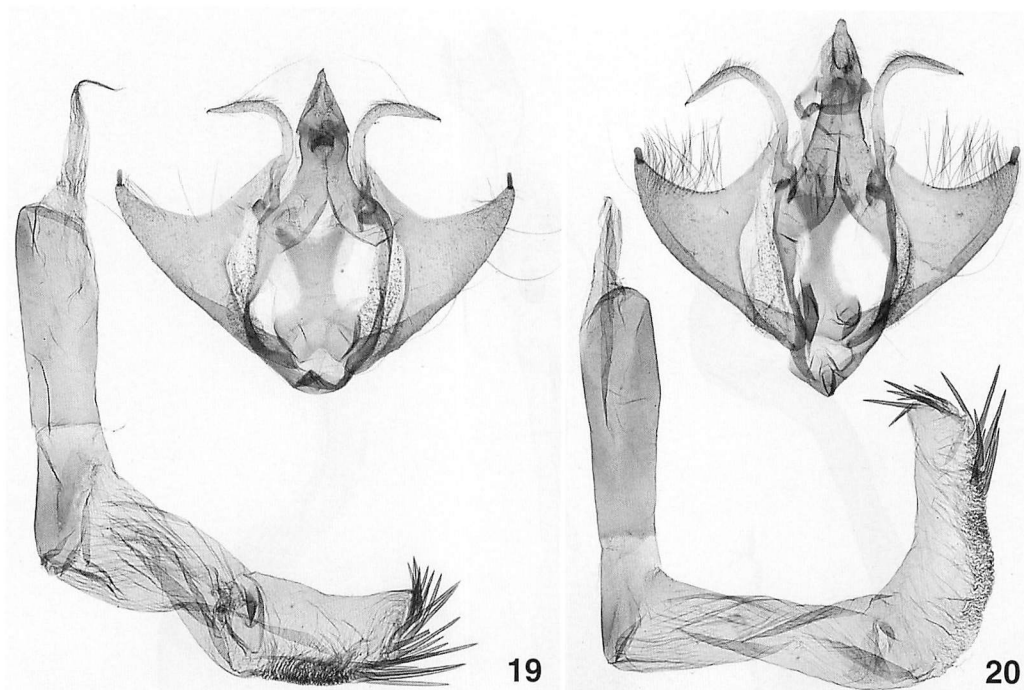
Figs 16–18. Female genitalia. 16. *Orthocabera euryzona* sp. n., paratype. 17. *Lomographa yueningi* sp. n., paratype. 18. *L. vulpina* sp. n., paratype (Photo by Dr D. Stüning).

18–22. vi. 2003. Paratypes. Same data as holotype, 5 ♂ 2 ♀. Same locality as holotype, 1 ♂, 29. vii–1. viii. 2002.

Holloway ([1993]) subdivided the genus *Peratophyga* into some species-groups. This and the following new species appear to be most related to the typical group (consisting of *P. hyalinata* (Kollar) and *P. venetia* Swinhoe) in having ciliate male antenna rather than bipectinate, and triangular valva. However, the structures of valva particularly the smoothly curved costal process instead of right-angled, and apical digitate process, and the cornuti consisting of a row of spines rather than one or two large sclerites, differentiate these two species from the typical group.

***Peratophyga modesta* sp. n.** (Fig. 6)

Expanse 12–13 mm in male, 12–14 mm in female. Antenna ciliate. Somewhat similar to *P. castaneostriata* sp. n. Wings more densely speckled with ochereous. Forewing with costal area suffused with ochereous brown instead of dark brown; subterminal fascia ochereous brown, less clearly marked than in *castaneostriata*, with both outer and inner margins irregularly sinuous; discal spot faint. Hindwing with subterminal fascia nearly as in forewing, but rather faint, situated more proximally than in *castaneostriata*.



Figs 19–20. Male genitalia. 19. *Peratophyga castaneostriata* sp. n., paratype. 20. *P. modesta* sp. n., paratype.

Male genitalia (Fig. 20). Very similar to those of *castaneostriata*. Uncus round at apex rather than bluntly pointed in *castaneostriata*. Valva with apical process stouter; costal process somewhat longer. Juxta more slender in median portion, with caudal margin more shallowly concave.

Female genitalia (Fig. 22). Nearly as in *castaneostriata*. Ductus burase shorter. Corpus bursae with signum much smaller.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 18–22. vi. 2003. Paratypes. Same data as holotype, 8 ♂ 3 ♀. Same locality as holotype, 1 ♀, 29–31. iii. 2003.

Parabapta unifasciata Inoue (Fig. 7)

Parabapta unifasciata Inoue, 1986, *Bull. Fac. domest. Sci., Otsuma Wom. Univ.* 22: 248.

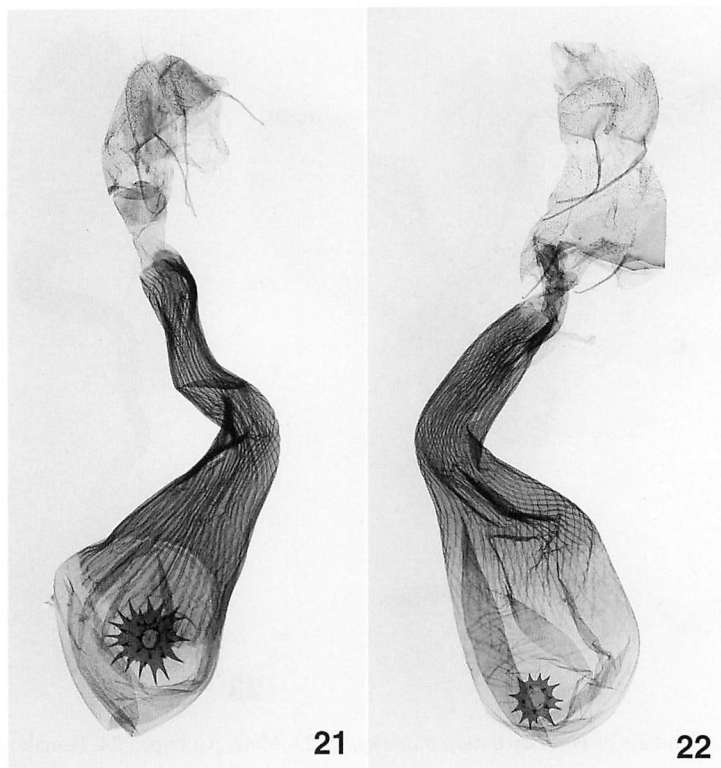
Specimens examined. S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 2 ♂, 29–31. iii. 2003.

Distribution. S. China, Taiwan.

This and the following species have been known as endemic to Taiwan, and seem to be univoltine vernal moths.

Parabapta obliqua Yazaki (Fig. 8)

Parabapta obliqua Yazaki, 1989, *Japan Heterocerists' J.* (154): 50.



Figs 21–22. Female genitalia of *Peratophyga* spp. 21. *P. castaneostriata* sp. n., paratype. 22. *P. modesta* sp. n., paratype.

Specimens examined. S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 1 ♂ 4 ♀, 29–31. iii. 2003

Distribution. S. China, Taiwan.

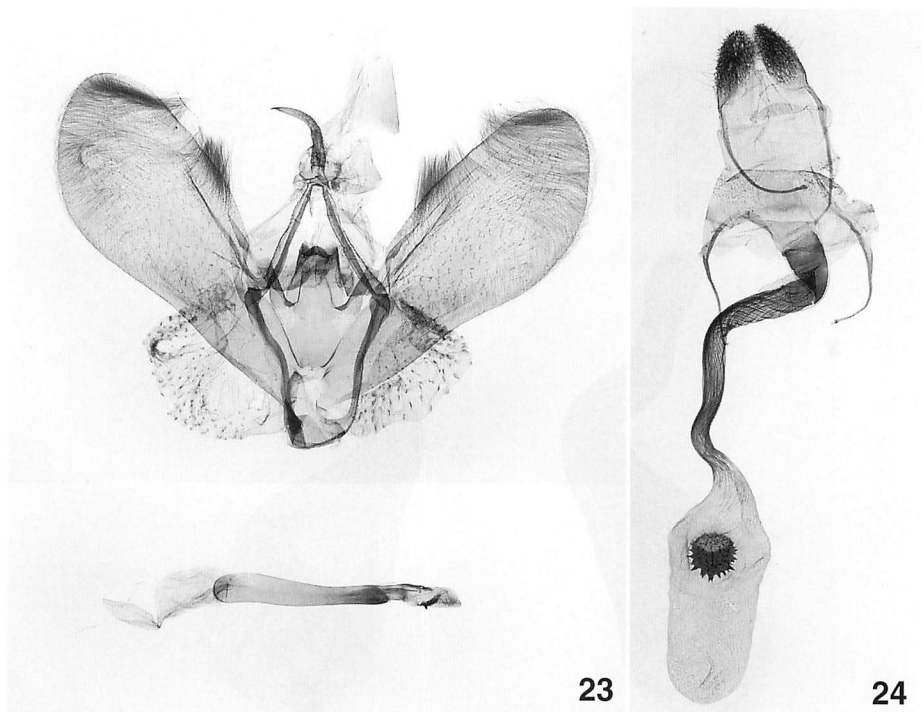
***Parabapta aurantiaca* sp. n.** (Fig. 9)

Expanse 28–30 mm in male, 35 mm in female. Forewing elongate, with termen oblique. Forewing yellow, tinged with orange; costa covered with orange in basal half; anterior area just inside of postmedian fascia broadly suffused with orange; antemedian fascia less distinct, orange, acutely produced outwards on vein M_2 ; postmedian fascia orange, straightish, oblique; cilia pale yellow. Hindwing yellowish white; postmedian line rather faint, orange, slightly sinuous, oblique; cilia yellowish white.

Male genitalia (Fig. 23). Uncus moderate. Valva elongate, broadened distally. Aedeagus rather short; cornutus of a short, serrate sclerite.

Female genitalia (Fig. 24). Ductus bursae elongate, sclerotized. Corpus bursae membranous, narrow; signum rather large, round, with serrate margin.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 29–31. iii. 2003. Paratypes. Same data as holotype, 2 ♂ 1 ♀. Same locality as holotype, 1 ♂, 11–14. iii. 2004.



Figs 23–24. Genitalia of *Parabapta aurantiaca* sp. n. 23. Male, paratype. 24. Female, paratype.

The genus *Parabapta* Warren has been known to comprise five species ranging chiefly in far eastern Asia. This new species shares, in appearance, oblique postmedian fascia from apex of forewing with preceding two species, *P. unifasciata* Inoue and *P. obliqua* Yazaki. In the male genitalia, the new species is more similar to *unifasciata* (cf. Inoue, 1986: fig. 44) than to *obliqua* (cf. Yazaki, 1989, fig. 4) in having distally broad valva and simple lateral arm of juxta.

Plutodes warreni Prout (Fig. 10)

Plutodes warreni Prout, 1923, *Ann. Mag. nat. Hist.* (9) **11**: 322.

Specimens examined. S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 3 ♂, 29. vii–1. viii. 2002, 1 ♀, 18–22. vi. 2003, 2 ♀, 16–21. xi. 2003.

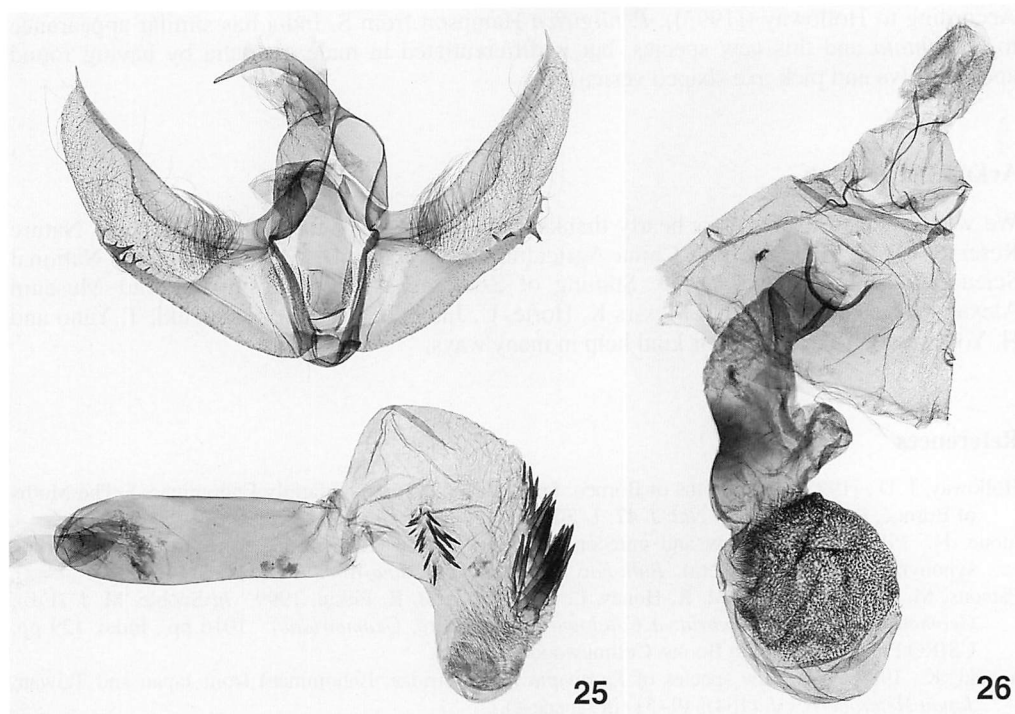
Distribution. N. India, Nepal, S. China.

This species has been known to be distributed only in the type locality (Sabathu, NW. India) and Nepal. A very similar species, *P. costatus* (Butler), is more widely distributed in NE. India, Thailand, Peninsular Malaysia and Sumatra. The male genitalia of these two species were figured in Yazaki (1993).

Plutodes philornis Prout (Fig. 11)

Plutodes philornis Prout, 1926, *Novit. zool.* **33**: 29.

Specimens examined. S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 3 ♂, 18–22. vi. 2003.



Figs 25–26. Genitalia of *Plutodes nanlingensis* sp. n. 25. Male, holotype. 26. Female, paratype.

Distribution. N. India, S. China.

This species was described from Khasi Hills, Assam, and no further record has so far been known. *P. philornis* is similar in facies to *P. flavescens* Butler, widely ranging from NE. Himalaya to Sundaland, but has distal brown patch on both wings smaller, with transverse line showing only a single angle, and basal brown patch on hindwing much narrower in posterior half.

***Plutodes nanlingensis* sp. n.** (Fig. 12)

Expanse 24–25 mm in male, 25–28 mm in female. Similar to *P. unidentata* Holloway from Borneo, but ground color of wings pale yellow, much paler than in *unidentata*. Forewing with transverse line in distal brown patch less strongly produced outwards near middle. Distal brown patch on hindwing narrower, with transverse line situated more proximally.

Male genitalia (Fig. 25). Similar to those of *unidentata*. Uncus rather long, tapering towards bluntly pointed apex as in *unidentata*. Valva shorter and much broader than in *unidentata*, with apical process much more slender; sacculus with distal portion serrate as in *unidentata*. Aedeagus vesica with two fields of vesica, the proximal one consisting of short spines.

Female genitalia (Fig. 26). Ductus bursae relatively long and broad, thinly sclerotized. Corpus bursae globular, broadly spined in ventral half.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 18–22. vi. 2003. Paratypes. Same data as holotype, 2 ♀. Same locality as holotype, 1 ♂, 16–21. xi. 2003.

According to Holloway ([1993]), *P. nilgirica* Hampson from S. India has similar appearance to *unidentata* and this new species, but is differentiated in male genitalia by having round apex of valva and pick-axe shaped vesica.

Acknowledgements

We would like to express our hearty thanks to Mr Y. Gong of the Nanling National Nature Reserve, Mr G. Huang, South China Agricultural University, Dr M. Owada of the National Science Museum, Tokyo, Dr D. Stüning of Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, and Messrs K. Horie, U. Jinbo, Y. Kishida, K. Suzuki, T. Yano and H. Yoshimoto, Tokyo, for their kind help in many ways.

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A new subspecies of *Calliteara wolongensis* (Chao, 1986) (Lepidoptera, Lymantriidae) from Guangdong, S. China

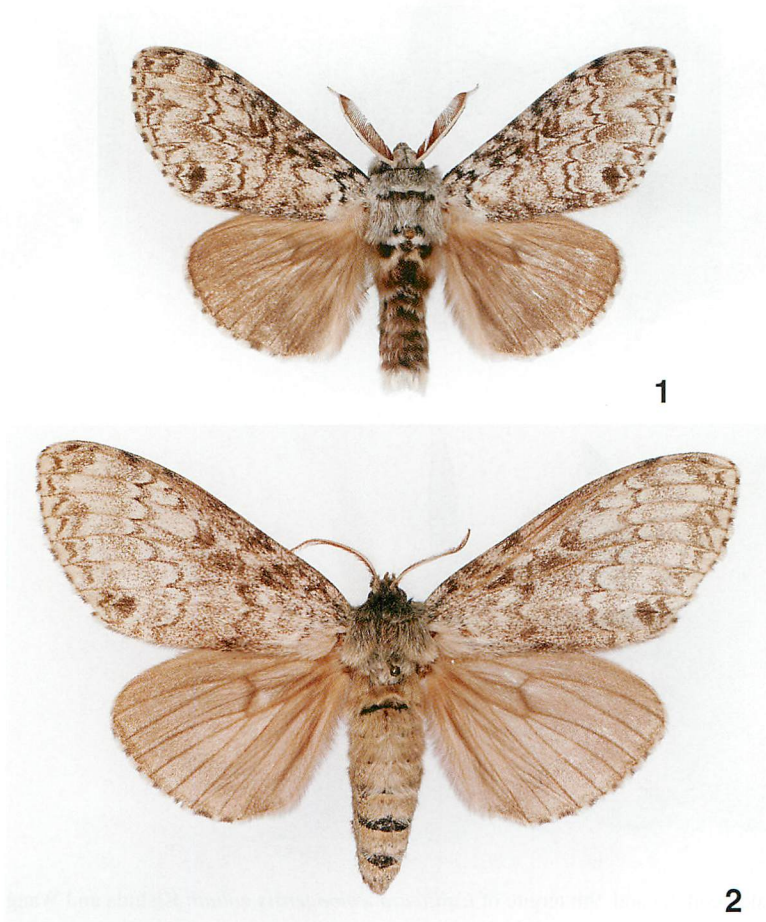
WANG Min¹⁾ and Yasunori KISHIDA²⁾

¹⁾ Laboratory of Insect Ecology, South China Agricultural University, Guangzhou, Guangdong 510642, P. R. China

²⁾ Kitazawa 5-20-1-103, Setagaya, Tokyo, 155-0031 Japan

Abstract A new subspecies of *Calliteara wolongensis* (Chao, 1986), *C. w. goliath* Kishida and Wang, subsp. n., is described from Guangdong, S. China.

In the course of the research on the lepidopterous fauna of the Nanling Mountains, we found a remarkable *Calliteara* species flying in early spring (February to March). It appears to be largest in expanse in the genus. At first, we regarded it as an undescribed species. However, despite the significant difference in expanse and color of wings, the structures of the male genitalia of it were fundamentally identical with those of *Calliteara wolongensis* (Chao,



Figs 1–2. *Calliteara wolongensis goliath* Kishida and Wang, subsp. nov. 1. Holotype ♂. 2. Paratype ♀.

1986), described from Sichuan in W. China on the basis of one male taken in the beginning of April. Thus, we concluded it as conspecific with *Calliteara wolongensis*, representing a new subspecies described in the following lines.

Calliteara wolongensis goliath Kishida and Wang, **subsp. nov.** (Figs 1–2)

Expanse 70–73 mm in male, 95 mm in female, much larger than in *wolongensis* (65 mm in male). Forewing with ground color grayish white, much paler than in *wolongensis*.

Male genitalia (Fig. 3). Valva with distal process shorter than in the nominotypical subspecies.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 700–1300 m, 20–24. ii. 2003, preserved in the South China Agricultural University, Guangzhou. Paratypes. Same data as holotype, 5 ♂; same locality as holotype, 2 ♂ 2 ♀, 29. iii–1. iv. 2003, 3 ♂, 11–14. iii. 2004.

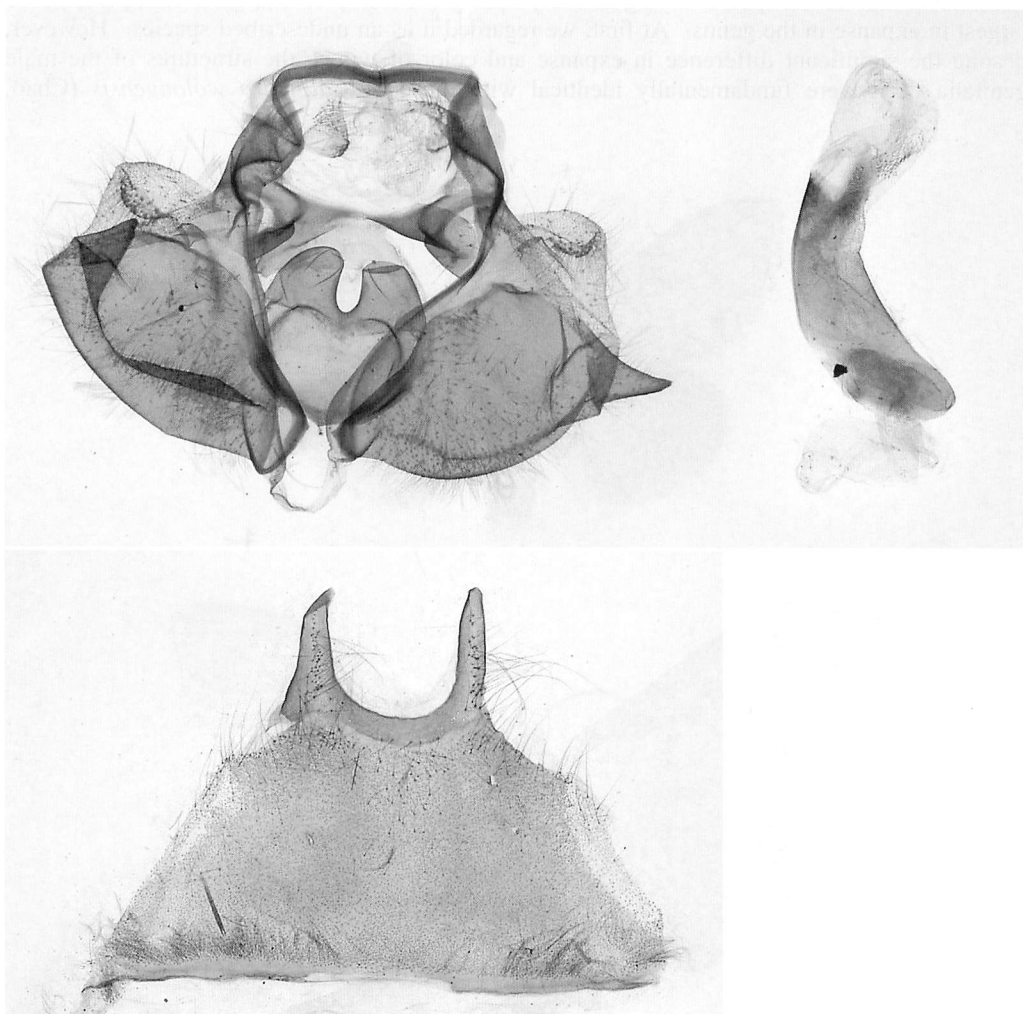


Fig. 3. Male genitalia and 9th tergite of *Calliteara wolongensis goliath* Kishida and Wang, subsp. nov.

Distribution. S. China (Guangdong).

Holloway (1982) divided a large genus *Dasychira* Hübner (1809), based on the structures of male genitalia, into some genera, and revived *Calliteara* Butler (1881) as an independent genus. He subdivided *Calliteara* into seven groups. According to his subdivision, *C. wolongensis* is, from the 9th tergite having a pair of caudal processes, considered to belong to the *cinctata* subgroup in the *strigata* group.

Acknowledgements

We wish to express our hearty thanks to Mr Y. Gong, the director of the Nanling National Nature Reserve, Dr M. Owada, National Science Museum, Tokyo, Mr G. Huang, South China Agricultural University, and Messrs K. Horie, K. Suzuki and K. Yazaki, Tokyo for their kind help in many ways.

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Taxonomic notes on *Racotis boarmiaria* (Guenée) (Geometridae, Ennominae) and its allies from the Indo-Malayan region, with descriptions of four new species

Rikio SATO

2-27-29 Shindori-nishi, Niigata, 950-2036 Japan

Abstract Taxonomic notes on *Racotis boarmiaria* (Guenée) and its allies are given, with descriptions of the following new species: *R. hollowayi* (P. Malaysia, Borneo, Sumatra), *R. floresaria* (Flores Is.), *R. sulawesaria* (Sulawesi) and *R. keralaria* (South India). The lectotype of *Hypochroma boarmiaria* Guenée, [1858] is designated.

Racotis is a monobasic genus established by Moore (1887) for the single species *Hypochroma boarmiaria* Guenée, [1858]. Later some species were transferred to *Racotis* or newly described as a member of *Racotis*. According to “Geometrid moths of the world” (Parsons et al, 1999), twenty-one species of *Racotis* have so far been known from the Oriental area, Africa and Madagascar. They are very similar to one another superficially in having yellowish brown wings with obscure markings on upperside and postmedial dark bands on underside. The male genitalia are characterized by “a prominent, interiorly directed spur subbasally on the sacculus” (Holloway, 1994). The Indo-Malayan species are clearly divided into the two groups, “*boarmiaria*-complex” and “*inconclusa*-complex” by the male and female genitalia. *Boarmiaria*-complex [*R. boarmiaria* (Guenée) and its allies]. Male genitalia: uncus distinctly bifid; valva with a process subbasally on the sacculus, but without a blade-like process from dorsal part of sacculus; aedeagus with a clump of slender spines on vesica. Female genitalia: lamella antevaginalis not sclerotized. *Inconclusa*-complex [*R. inconclusa* (Walker) and its allies]. Male genitalia: uncus not bifid, but entire; valva with “a blade-like process arising from the dorsal part of the sacculus and running alongside the valve apex” (Holloway, 1994); aedeagus without a clump of spines but having a zone of coarse scobination. Female genitalia: lamella antevaginalis sclerotized in tumbler pattern.

In this paper the *boarmiaria*-complex from the Indo-Malayan region is revised with descriptions of four new species, and in the following paper the *inconclusa*-complex will be treated.

Racotis boarmiaria (Guenée), the type species of the genus, is widely distributed in the Indo-Malayan region, extending to the temperate zone of Japan, and several allied species have been known from the same area. They are very similar to one another in wing colour and maculation, but the genitalia of both sexes provide reliable discriminating characters for the identification. To confirm my identification of lots of specimens taken from the Indo-Malayan region, I examined the genitalia of the type specimens at the Natural History Museum, London, during my stay there in September 2002. In the course of my study, I found that two species were mixed in the syntypes of *boarmiaria* and that four species should be described as new to science.

The following acronyms are used to indicate the location of the specimens. BMNH: The Natural History Museum, London, UK. MS: Manfred Sommerer collection, Munich, Germany. NIAES: Natural Resources Inventory Center, National Institute for Agro-Environmental Sciences, Tsukuba, Japan. NSMT: National Science Museum, Tokyo. ZFMK: Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany.

Unless stated otherwise, all the specimens including the type material recorded in this paper

will be deposited in NIAES.

Racotis boarmiaria (Guenée) (Figs 13–15)

Hypochroma boarmiaria Guenée, [1858]: 282.

Racotis boarmiaria: Moore, [1887]: 418.

Racotis boarmiaria obliterata Warren, 1894: 432.

Racotis boarmiaria plenifasciata Warren, 1894: 432.

Racotis boarmiaria japonica Inoue, 1953: 16, pl. 1: 18.

Racotis anaglyptica Prout, 1935: 234. **Syn. nov.**

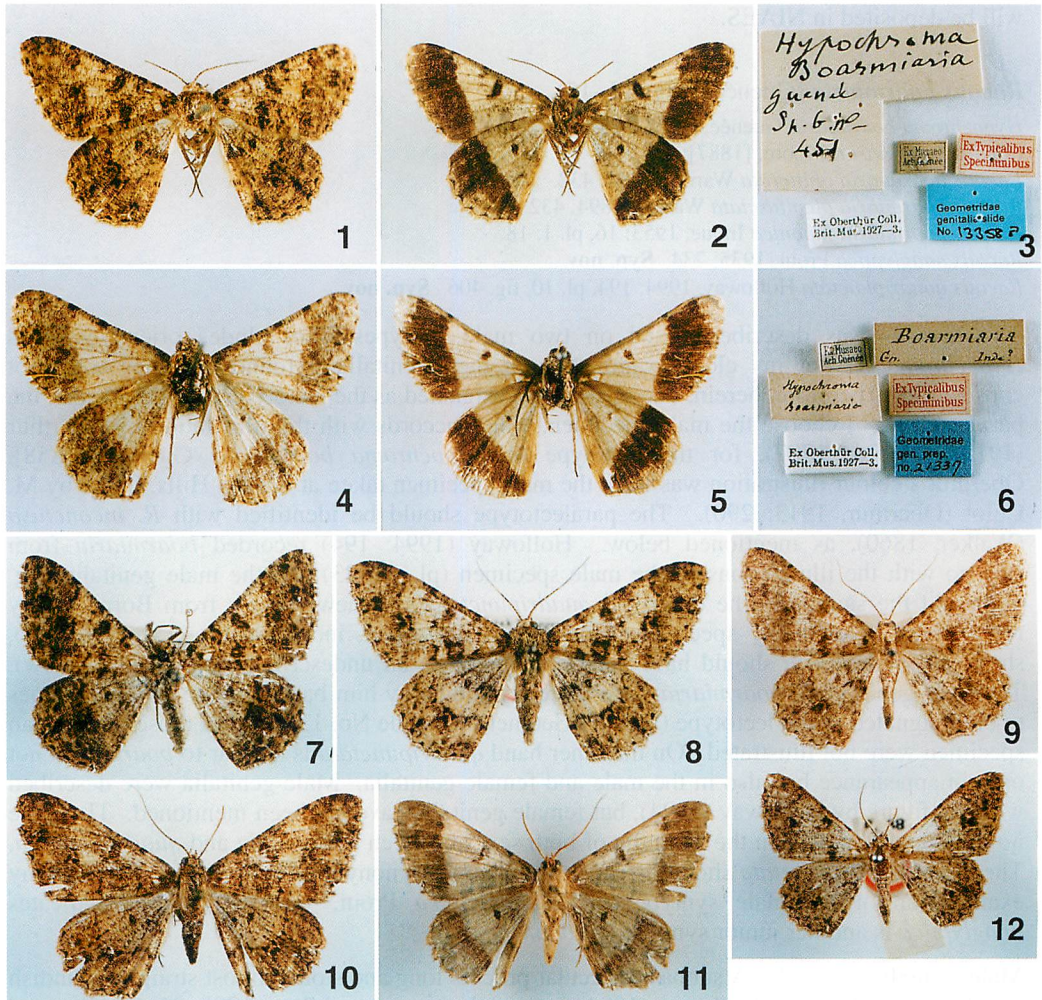
Racotis quadripunctata Holloway, 1994: 194, pl. 10, fig. 406. **Syn. nov.**

This species was described based on two male syntypes from “Indes orientales ?” as *Hypochroma*. After my close examination of their genitalia, I found that they were not conspecific. Therefore, herein, one of them is designated as the lectotype and the other as the paralectotype. I choose the male specimen, which accords with the illustration by Oberthür (1913, pl. 174: 1707), for the lectotype of *Hypochroma boarmiaria* Guenée, [1858]. Oberthür’s colour illustration was from the male specimen taken at Khasia Hills, India, by M. Culot (Oberthür, 1913: 290). The paralectotype should be identified with *R. inconclusa* (Walker, 1860), as mentioned below. Holloway (1994: 194) recorded *boarmiaria* from Borneo with the illustrations of the male specimen (pl. 10: 23) and the male genitalia (fig. 408). At the same time he described *quadripunctata* as a new species from Borneo. My research based on many specimens from South East Asia, including those from Borneo, shows his *boarmiaria* should have been recognized as an undescribed species (see below). The male genitalia of *boarmiaria* were correctly shown by him based on one of the syntypes to be designated as the lectotype (BMNH Geometridae slide No. 13358), but those of Bornean specimen were not illustrated. On the other hand *quadripunctata* is similar to *boarmiaria* not only in appearance but also in the male and female genitalia. Male genitalia were described with the figure by Holloway (1994), but female genitalia have not been mentioned. There are no reliable differences in the genitalia of both sexes between *boarmiaria* and *quadripunctata*. Therefore, *quadripunctata* should be sunk into a junior synonym of *boarmiaria*. Besides, my examination of the male syntype of *R. anaglyptica* Prout, 1935, from Java indicates *anaglyptica* is another junior synonym of *boarmiaria*.

Male genitalia (Fig. 28). A subbasal saccular process long and stout, almost straight, roundish distally. Also shown by Holloway (1994, fig. 408, lectotype) and Sato (1995: 91, fig. 5).

Female genitalia (Fig. 35). Bursa copulatrix cylindrical, posterior three-fourths ribbed and heavily sclerotized. Also shown by Sato (1995: 91, fig. 8).

Type material examined. Lectotype of *Hypochroma boarmiaria* Guenée (Figs 1–3), here designated, ♂, “*Hypochroma Boarmiaria* Guenée, Sp. G. no. 451/ Ex Musaeo, Ach. Guenée/ Ex Typicalibus Speciminibus/ Ex Oberthür Coll. Brit. Mus. 1927-3/ Geometridae genitalia slide No. 13358”, BMNH. Holotype of *R. quadripunctata* Holloway, ♂, “SARAWAK: Gunong Mulu Nat. Park, R.G.S.Exped. 1977-8, J.D.Holloway et al. B.M.1978-206/ Site 15. January, Camp 4, Mulu, 1790 m, 452463, upper montane forest/ Geometridae genitalia slide No. 13357”, BMNH. Paratype of *R. quadripunctata*, ♀, “SARAWAK: Gunong Mulu Nat. Park, R.G.S.Exped. 1977-8, J.D.Holloway et al. B.M.1978-206/ Site 15. February, Camp 2.5, Mulu, 1000 m, 413461, Lower l. montane f., MV-undertorey/ Geometridae genitalia slide No. 17579”, BMNH. Syntype of *R. anaglyptica* Prout (Fig. 8), ♂, “*Racotis anaglyptica* Prout, ♂, type/ Type/ Kletak Tengger, E. Java 6000’, June 1934 (J.P.A.Kalis), Geometridae genitalia slide No. 13360”, BMNH. Syntype of *R. boarmiaria obliterata* Warren (Fig. 9), ♂, India (north), Khasia Hills, Geometridae genitalia slide No. 20303, BMNH. Syntype of *R. boarmiaria plenifasciata* Warren (Fig. 7), ♂, Bhutan, Geometridae genitalia slide No. 21304, BMNH. All the genitalia checked.

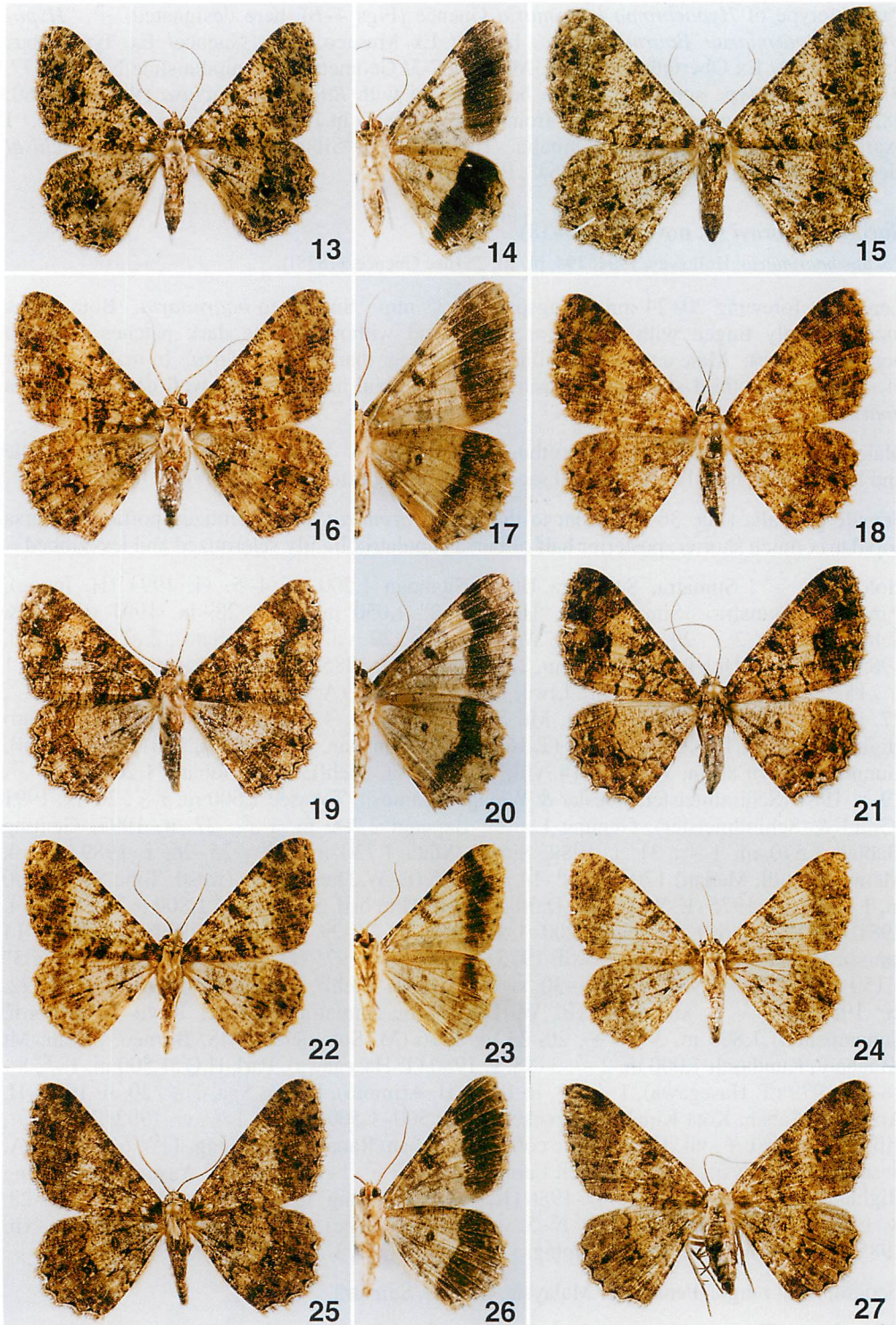


Figs 1–12. Type specimens of *Racotis* spp. in BMNH. 1–3. Lectotype of *Hypochroma boarmiaria* Guenée. ♂. 4–6. Paralectotype of *Hypochroma boarmiaria* Guenée. ♂. 7. Syntype of *R. boarmiaria plenifasciata* Warren. ♂. 8. Syntype of *R. anaglyptica* Prout. ♂. 9. Syntype of *R. boarmiaria obliterata* Warren. ♂. 10–11. Syntype of *R. neonephria* Prout. ♂. 12. Syntype of *Boarmia discistigmata* Hampson. ♂.

Material examined. Many male and female specimens from the various localities in the geographical range. Newly recorded from Palawan and Mindanao Is. in the Philippines and Flores Is. in Indonesia.

Geographical range. India, Nepal, Thailand, Vietnam, Bhutan, Peninsular Malaysia, Borneo, Sumatra, Java, Is. Flores, Philippines (Luzon, Negros, Mindanao, Palawan), China, Taiwan, Japan (ssp. *japonica*). Most widely distributed among the congeners.

In Borneo, the following new species is much more common than *boarmiaria*, at least around Sabah area. I examined only two male specimens of *boarmiaria* taken at Crocker Range in Sabah on July 1996.



Figs 13–27. *Racotis* spp. 13–15. *R. boarmiaria* (Guenée). 13–14. ♂, Sumatra. 15. ♀, Nepal. 16–18. *R. hollowayi* sp. nov. 16–17. Holotype, ♂, Sumatra. 18. Paratype, ♀, Borneo. 19–21. *R. floresaria* sp. nov. 19–20. Holotype, ♂, Flores. 21. Paratype, ♀, Flores. 22–24. *R. sulawesaria* sp. nov. 22–23. Holotype, ♂, Sulawesi. 24. Paratype, ♀, Sulawesi. 25–27. *R. keralaria* sp. nov. 25–26. Holotype, ♂, S. India. 27. Paratype, ♀, S. India.

Paralectotype of *Hypochroma boarmiaria* Guenée (Figs 4–6), here designated, ♂, “*Hypochroma Boarmiaria/ Boarmiaria* Gn. Inde ?/ Ex Musaeo, Ach. Guenée/ Ex Typicalibus Speciminibus/ Ex Oberthür Coll. Brit. Mus. 1927-3/ Geometridae genitalia slide No. 21337”, BMNH. This type specimen should be identified with *Racotis inconclusa* (Walker, 1860: 382). *R. inconclusa* was described from Silhet [Sylhet] in Bangladesh on a single male. I examined the holotype and its genitalia. Holotype ♂, “Silhet/ Type/ *Boarmia inconclusa* Geometridae genitalia slide No. 13364”, BMNH.

***Racotis hollowayi* sp. nov.** (Figs 16–18)

Racotis boarmiaria: Holloway, 1994: 194, pl. 10: 23 (nec Guenée, [1858]).

Length of forewing 20–24 mm, wingspan 30–38 mm. Similar to *boarmiaria*. Both wings more strongly tinged with yellow or brown and without diffuse dark patches distal to postmedial lines. Male antennal sensilla a little longer than in *boarmiaria*. In male, a cluster of spines on the third abdominal sternite and hind tibial hair-pencil as well developed as in *boarmiaria*.

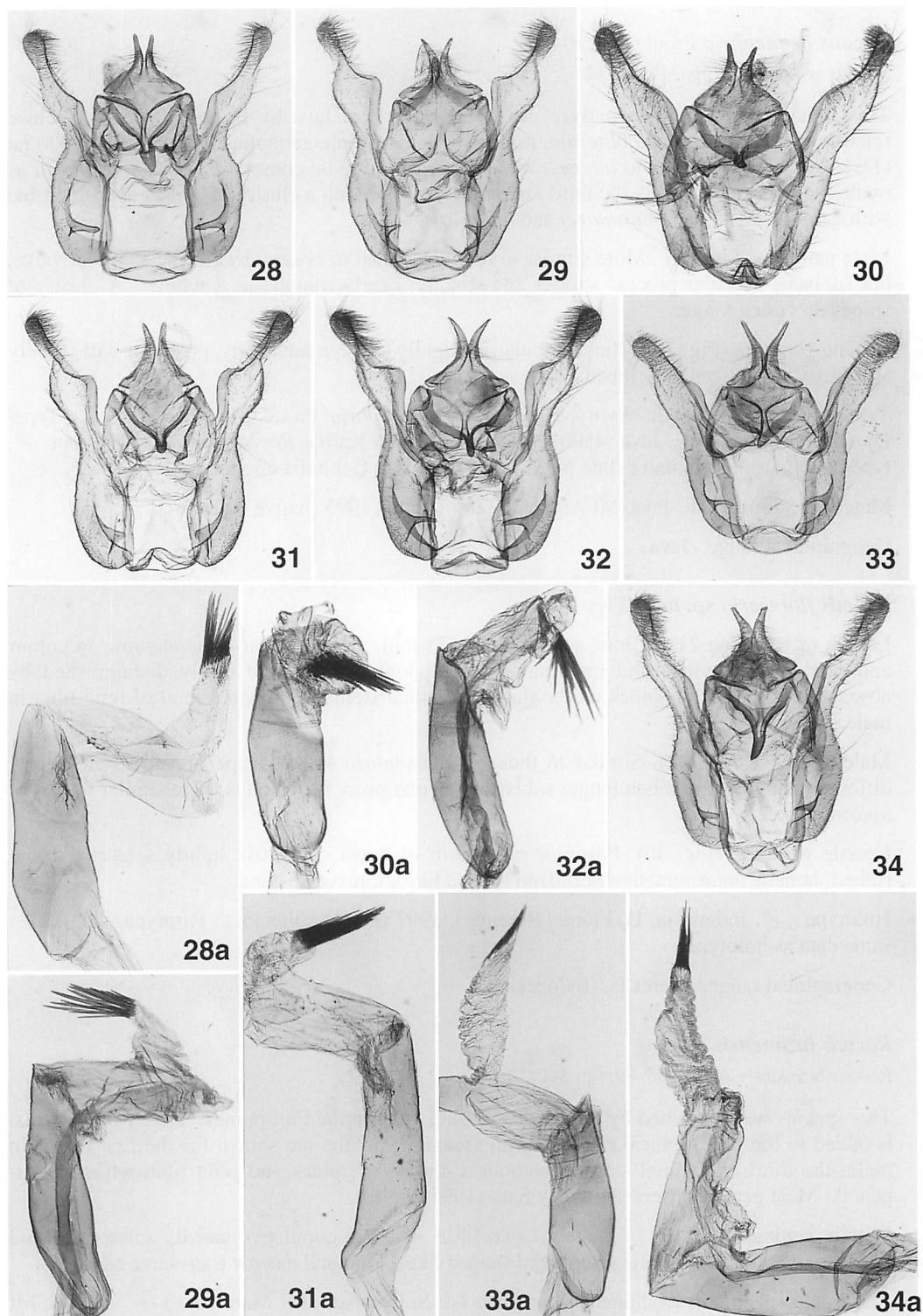
Male genitalia (Fig. 29). Similar to those of *boarmiaria*. Valva more swollen at the middle and less swollen basally. A subbasal saccular process shorter, slightly curved.

Female genitalia (Fig. 36). Similar to those of *boarmiaria*, but sclerotized portion of bursa copulatrix much shorter; posterior half of bursa copulatrix lightly sclerotized and less ribbed.

Holotype. ♂, Sumatra, Sumatera Utara, Sitahoan 1,200 m, 4–5. vi. 1994 (H. Inoue). Paratypes. Sumatra. Simalungun, “Holzweg 2” 1,050 m, 3 ♂, 28. ix. 1991 (Graul & Schintlmeister), 2 ♂, 29. ix. 1989 (E.W.Diehl), 1 ♀, 22. vii. 1985 (R. Sato), 2 ♂, 29–30. vii. 1985 (R. Sato), “Holzweg 3” 1,200 m, 2 ♂, 25–26. vii. 1985 (R. Sato), Prapat 1,150 m, 7 ♂ 1 ♀, 15. v–3. vi. 1983 (E.W.Diehl), Liwa, 1 ♂, 31. x. 1981 (A. Schintlmeister), Berastagi, 1 ♂, 27. iv–4. v. 1988 (S. & A. Saito), Mt. Sibayak II, 1 ♂, 4. v. 1988 (S. & A. Saito), Karo Highland 900 m, 1 ♂, 10. iii. 1978 (T. Hasegawa), Sitahoan, 1 ♂, 19. xii. 1981 (E.W. Diehl), Gunung Malayu 80 m, 1 ♂, 13–14. viii. 1983 (E. W. Diehl), Bukit Subang 1,200 m, 13 ♂, 19. x. 1981 (Schintlmeister, Roesler & Widago), Samosir, Tobasee 1,600 m, 1 ♂, 20. ix. 1991 (Graul & Schintlmeister), Gunung Leuser, Bepangi 2,200 m, 1 ♂, 27. ii. 1997, Genting Gadjah 1,570 m, 1 ♂, 31. i. 1989, Singha Mata 1,720 m, 1 ♀, 25–26. i. 1989, Dolok Merangir (südl. Medan) 170 m, 1 ♂, 14. ix. 1975 (E. W. Diehl), Tele (westl. Toba-See) 1,600 m, 1 ♂, 18. ix. 1976 (E. W. Diehl), Dairi-Berge (30 km östl. Sidikalang) 1,800 m, 1 ♂, 8–9. i. 1981 (M. Sommerer), Brastagi 1,200–1,400 m, 1 ♂, 28–29. xi. 1975 (Diehl & Bender), 14 km vor Prapat 1,150 m, 1 ♂, 23. xii. 1975, 1 ♂, 25. xii. 1975 (Diehl & Bender), “Holzweg 3” 1,150 m, 1 ♂, 4. x. 1982, 1 ♂, 28–30. xi. 1982 (E. W. Diehl), Sitahoan 1,450 m, 1 ♂, 21–22. xi. 1981, 1 ♂, 1. xii. 1981 (E. W. Diehl), W. Sumatra, Kerinci, Kayu Aro (nördl. Sungaipenuh) 1,800 m, 3 ♂ 1 ♀, 20–23. ii. 1976 (M. Sommerer), MS. Borneo. Sabah, Mt Kinabalu, Kundasah 1,000 m, 2 ♂, 3–18. v. 1980 (T. Hasegawa), Park H.Q. 1,500 m, 1 ♂, 8–18. xi. 1979 (T. Hasegawa), 1 ♀, 23. ii. 1980 (H. Arimoto), Poring Spa, 1 ♂, 20. ii. 1980 (H. Arimoto), Sabah, Kota Kinabalu, Crocker Range 500–1,500 m, 1 ♂ 1 ♀, vi. 1992, 27 ♂ 9 ♀, viii. 1995, 6 ♂ 1 ♀, vii. 1996 (native collector), Sabah, Ranau, Kundasang, 1 ♀, 6. i. 1995 (A. Sasaki). P. Malaysia. Taiping, Bukit Larut 1,113 m, 2 ♂, 1–7. i. 1990 (T. Yasunaga); Genting Highlands 1,700 m, 1 ♂, 6–8. iv. 1986 (K. Yazaki), Pahang State, Fraser’s Hill, 5 ♂, 27–28. iv. 1986 (S. & A. Saito), 2 ♂, 29. iv–5. v. 1993 (T. Tanabe), Cameron Highland, 2 ♂, x–xii. 1985 (native collector). Perak, Taiping, 1 ♂, 26. iii. 1973, 1 ♂, ix. 1973, MS.

Geographical range. Peninsular Malaysia, Borneo, Sumatra.

Etymology. The specific name is dedicated to Dr J. D. Holloway, who has been making a great contribution in his taxonomic and faunastic studies on the moths of South East Asia.



Figs 28–34. Male genitalia of *Racotis* spp. a: aedeagus. 28. *R. boarmiaria* (Guenée). RS-3993. 29. *R. hollowayi* sp. nov. RS-3992. 30. *R. sulawesaria* sp. nov. RS-6527. 31. *R. neonephria* Prout. RS-4667. 32. *R. floresaria* sp. nov. RS-5636. 33. *R. discistigmara* (Hampson). RS-3997. 34. *R. keralaria* sp. nov. RS-5642.

Racotis neonephria Prout (Figs 10–11).

Racotis neonephria Prout, 1935: 233.

This species and *anaglyptica* were described from East Java by Prout (1935), as a close relative of *inconclusa* and *obliterata*, respectively. The male genitalia show this species to be closer to *boarmiaria* than to *inconclusa*, and *anaglyptica* to be conspecific with *boarmiaria* as mentioned above. In male, the third abdominal sternite with a cluster of spines and hind tibia with hair-pencil, like in *boarmiaria* and *hollowayi*.

Male genitalia (Fig. 31). More similar to *hollowayi* than to *boarmiaria* in the shape of valva, but subbasal saccular process shorter and smaller, nearly triangle as a whole. A cluster of spines on vesica longer.

Female genitalia (Fig. 39). Bursa copulatrix slightly swollen anteriorly, posterior half weakly and partly sclerotized and ribbed.

Type material examined. Syntype of *Racotis neonephria* Prout (Figs 10–11), ♂, “Type/ Djoenggo Ardjoeno, E. Java, 4500', May 1934, (J.P.A.Kalis)/ *Racotis neonephria* Prout. ♂, type/ Geometridae genitalia slide No. 13361”, BMNH. Genitalia checked.

Material examined. E. Java, Mt Argapura, 2 ♂ 1 ♀, iv. 1995 (native collector).

Geographical range. Java.

***Racotis floresaria* sp. nov.** (Figs 19–21)

Length of forewing 21–22 mm, wingspan 33–35 mm. Most similar to *neonephria* in colour and markings of wings and male antenna with long sensilla, but easily distinguished by absence of a cluster of spines on the third abdominal sternite and hair-pencil of hind tibia in male.

Male genitalia (Fig. 32). Similar to those of *neonephria* in the shape of valva, but clearly different from them in much longer subbasal saccular process, which is more similar to that of *boarmiaria*.

Female genitalia (Fig. 40). Posterior one-fourth of bursa copulatrix lightly sclerotized and ribbed; lamella antevaginalis sclerotized shaped like a transverse band.

Holotype. ♂, Indonesia, Is. Flores, Ruteng, i. 1997 (native collector). Paratypes. 2 ♂ 2 ♀, same data as holotype.

Geographical range. Flores Is. (Indonesia).

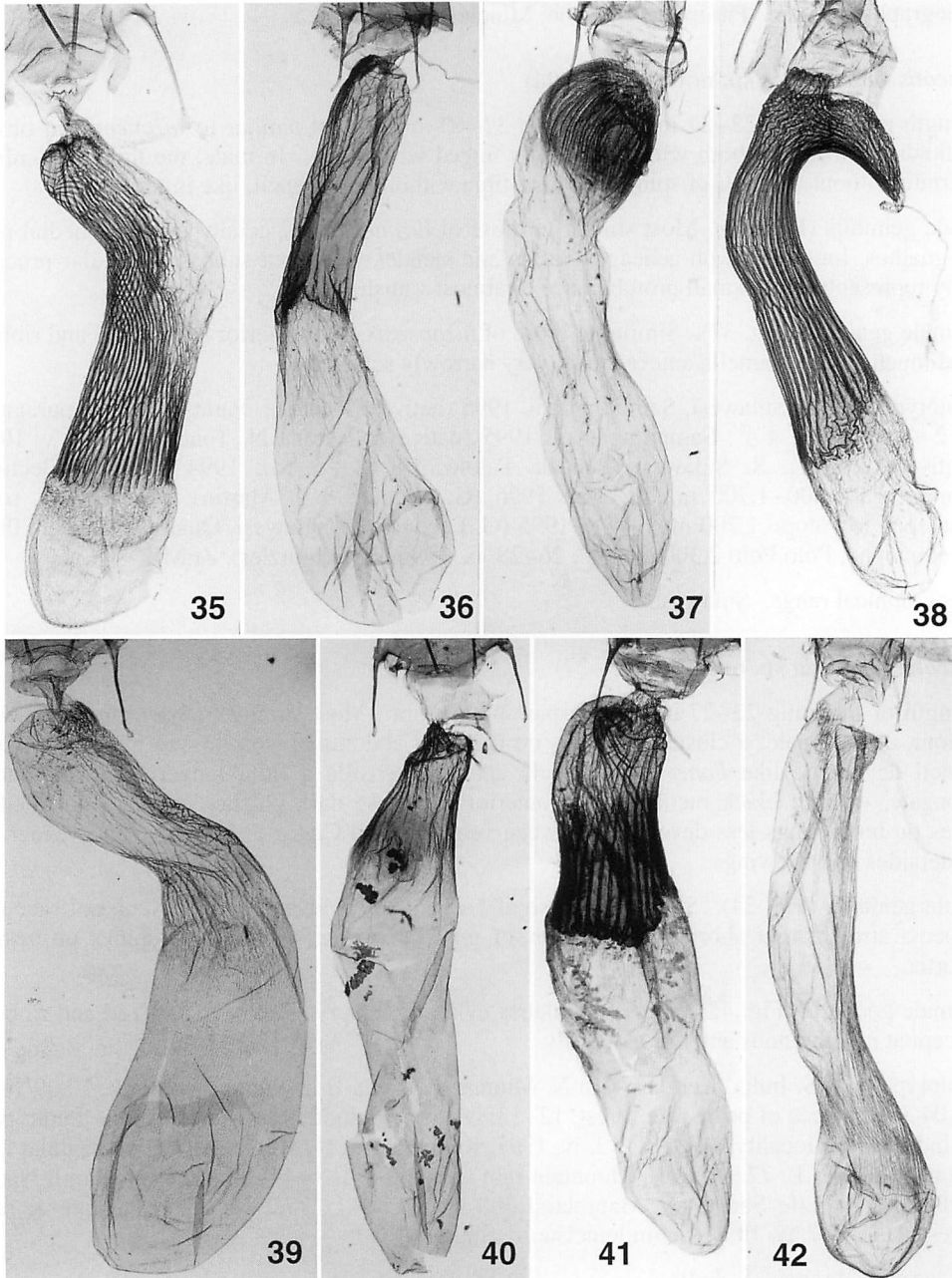
Racotis luzonensis Sato

Racotis luzonensis Sato, 1995: 89, figs 1–2.

This species was described by Sato (1995) from Luzon in the Philippines. Here Mindanao Is. is added to the geographical range, and the female genitalia are shown for the first time. In male, the third abdominal sternite without a cluster of spines and hind tibia without hair-pencil. Male genitalia were shown by Sato (1995, fig. 6)

Female genitalia (Fig. 41). Posterior two-fifths of bursa copulatrix heavily sclerotized and ribbed; lamella antevaginalis sclerotized shaped like a long and narrow transverse band.

Additional specimens examined. Mindanao Is. S. Cotabato, Mt Matutum, 1 ♀, v. 1996; Mt Kitanglad, 1 ♂, vii. 1998, Bukidnon, Mt Dalongdong, Talakag, 40 km NW Maramag 1,200–1,800 m, 2 ♂, 9–12. viii. 1999, 3 ♂, 2–7. xi. 1999, 2 ♂, 4–9. ii. 2000 (native collector).



Figs 35–42. Female genitalia of *Racotis* spp. 35. *R. boarmiaria* (Guenée). RS-4015. 36. *R. hollowayi* sp. nov. RS-5648. 37. *R. sulawesaria* sp. nov. RS-5657. 38. *R. discistigmara* (Hampson). RS-5651. 39. *R. neonephria* Prout. RS-6178. 40. *R. floresaria* sp. nov. RS-6524. 41. *R. luzonensis* Sato. RS-6529. 42. *R. keralaria* sp. nov. RS-5649.

Geographical range. Philippines (Luzon, Mindanao).

***Racotis sulawesaria* sp. nov.** (Figs 22–24)

Length of forewing 22–24 mm, wingspan 37–40 mm. Most similar to *luzonensis* in olive-yellowish wings, but both wings paler, less tinged with green. In male, the third abdominal sternite without a cluster of spines and hind tibia without hair-pencil, like in *luzonensis*.

Male genitalia (Fig. 30). Most similar to those of *luzonensis*, especially in small medial part of gnathos, long spines on aedeagus vesica and slender valva, but subbasal saccular process only represented by a small protuberance or almost vanished.

Female genitalia (Fig. 37). Similar to those of *luzonensis*, but posterior sclerotized and ribbed part much shorter, lamella antevaginalis very narrowly sclerotized

Holotype. ♂, S. Sulawesi, Sampuraga, ii. 1995 (native collector). Paratypes. Sampuraga, 6 ♂ 2 ♀, ii. 1995, 4 ♂, Sampuraga, xii. 1995 (native collector), N. Tondano, 1 ♂, v. 1988 (native collector), S. Sulawesi, Puncak, Palolo, 1 ♂ 4 ♀, xii. 1994 (native collector). Sampuraga 1,500–1,700 m, 7 ♂, vi. 1996 (G. Lecourt & J. Martin); S. Sulawesi, road Rantepao to Palopo 1,700 m, 1 ♀, x. 1995 (G. Lecourt), S. Sulawesi, Quarles Mts, ca. 30km N. Rantepao, Polo Polo 2,300 m, 1 ♂, 26–28. ix. 1995 (H. Schnitzler), ZFMK.

Geographical range. Sulawesi.

***Racotis keralaria* sp. nov.** (Figs 25–27)

Length of forewing 23–27 mm, wingspan 34–40 mm. Most similar to *boarmiaria* in wing colour, and in male, a cluster of spines on the third abdominal sternite and hind tibial hair-pencil developed like *boarmiaria*. Male antennal sensilla a little longer; forewing more elongate, without black median shade anteriorly; diffuse dark patches distal to postmedial lines on both wings less developed between veins M_3 and CuA_2 ; distal dark bands wider on undersides of both wings.

Male genitalia (Fig. 34). Similar to those of *boarmiaria*. Valva slenderer; subbasal saccular process straight, but shorter; medial part of gnathos longer; a cluster of spines on vesica shorter.

Female genitalia (Fig. 42). Bursa copulatrix cylindrical, very weakly sclerotized and ribbed, except at membranous anterior extremity.

Holotype. ♂, S. India, Kerala, 7 km N. Munnar 1,740 m, Eravikulam Nat. Park, 10.09'N.L. 77.04'E.B. piccca of prim. rain forest, 12–13. iv. 1997 (Schintlemeister & Siniaev). Paratypes. S. India. Type locality, 4 ♂, 12–13. iv. 1997, Kerala, 6 km N. Munnar 1,700 m, Kodalar Tea Estate, 10.06'N.L. 77.04'E.B., Mountain rain forest, 5 ♂ 1 ♀, 14–15. iv. 1997, Tamil Nadu, Kalkad, Wild Life Sanctuary, Manjolai 1,000 m, 8.15'N.L. 77.27'E.B., Tea Estate & rain forest, 1 ♀, 6–7. iv. 1997 (Schintlemeister & Siniaev).

Geographical range. S. India.

Etymology. The specific name of this species is given after the type locality, Kerala in South India.

Racotis discistigmara (Hampson) (Fig. 12)

Boarmia discistigmara Hampson, 1902: 505.

This species was described from Khasia Hills, Assam in India by Hampson (1902). In this paper it is first recorded from Thailand and Vietnam.

Male genitalia (Fig. 33). Bifid uncus long, extending beyond distal end of valva; subbasal saccular process slender and curved; a cluster of spines on vesica short.

Female genitalia (Fig. 38). Posterior one-fourth of bursa copulatrix heavily sclerotized and ribbed, with a long hook-like sclerotized projection at right side.

Type material examined. Syntype of *Boarmia discistigmata* Hampson (Fig. 12), ♂, Khasis Hills, Geometridae genitalia slide No. 13359, BMNH. Genitalia checked.

Material examined. N. Thailand, Chiang Mai Prov., Doi Pui 1,400 m, Phu Phing Palace, 1 ♂, 7–9. ix. 1987 (M. Owada), Doi, Angkhang 1,350 m, 1 ♂, 10–12. ix. 1987 (M. Owada), Doi Inthanon, South Ridge 1,650 m, 1 ♂, 18–21. x. 1983 (M. Owada), NSMT. N. Vietnam, Son La Prov., SE of Doe Pha Din 950 m, 1 ♂, 4–6. v. 1995, Cao Bang Prov., Nang Oa 800 m, near Mt Pia Oac, 1 ♂, 11. v. 1997, Lao Cai Prov., Sa Pa 1,500 m, 1 ♀, 8–12. x. 1997 (M. Owada), NSMT. Sa Pa, 1 ♂, 19. vi. 1999 (B. Tanaka).

Geographical range. N. India (Assam), Vietnam, Thailand.

Acknowledgements

I am much indebted to Mr D. Carter (BMNH) and Mr G. Martin (BMNH), who kindly helped me in examining the type specimens under their care. I also wish to express my cordial thanks to Dr M. J. Scoble (BMNH), Dr J. D. Holloway (BMNH) and Sir. A. C. Galsworthy (BMNH) for their hospitality during my stay at BMNH, and Dr D. Stüning (ZFMK) and Mr M. Sommerer (Munich), for providing me useful advice and the data of the new species. I deeply thank Dr H. Inoue (Iruma) for his critical reading through the original manuscript, Dr Y. Arita (Meijo University, Nagoya) for providing copies of Oberthür's papers and Mr S. Kinoshita (Settsu) for translating pertinent parts of the French papers into Japanese. My sincere thanks are also due to Dr M. Owada (NSMT), Dr A. Schintlmeister (Dresden) and the late Dr E. W. Diehl (Sumatra) for their kindness in offering me valuable specimens for this study.

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A new species of *Nordstromia* Bryk (Drepanidae, Drepaninae) from S. China

WANG Min¹⁾ and Katsumi YAZAKI²⁾

¹⁾ Laboratory of Insect Ecology, South China Agricultural University,
Guangzhou, Guangdong 510642, P. R. China

²⁾ 2-5-20 Motoyokoyama, Hachioji, Tokyo, 192-0063 Japan

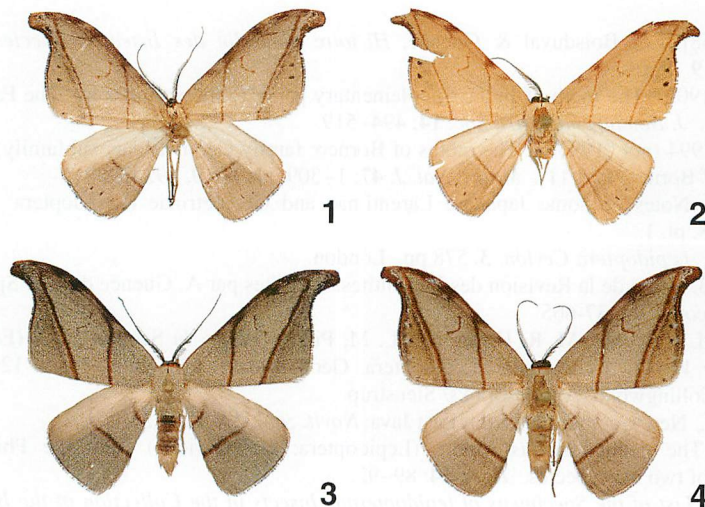
Abstract A new species of the genus *Nordstromia* is described from Guangdong, S. China: *Nordstromia paralilacina* sp. n.

The drepanine genus *Nordstromia* Bryk, 1943 (type species: *Nordstromia amabilis* Bryk) was revised by Watson (1968), and had been known to consist of sixteen species ranging from NE. India to the Philippines. Later Chu and Wang (1988) described seven new species from China, and Inoue (1992) added two new species from Taiwan and the Philippines. In continental China, fifteen species have been recorded (Watson, 1968; Zhu and Wang, 1991). We found a further undescribed species of the genus from Guangdong, S. China.

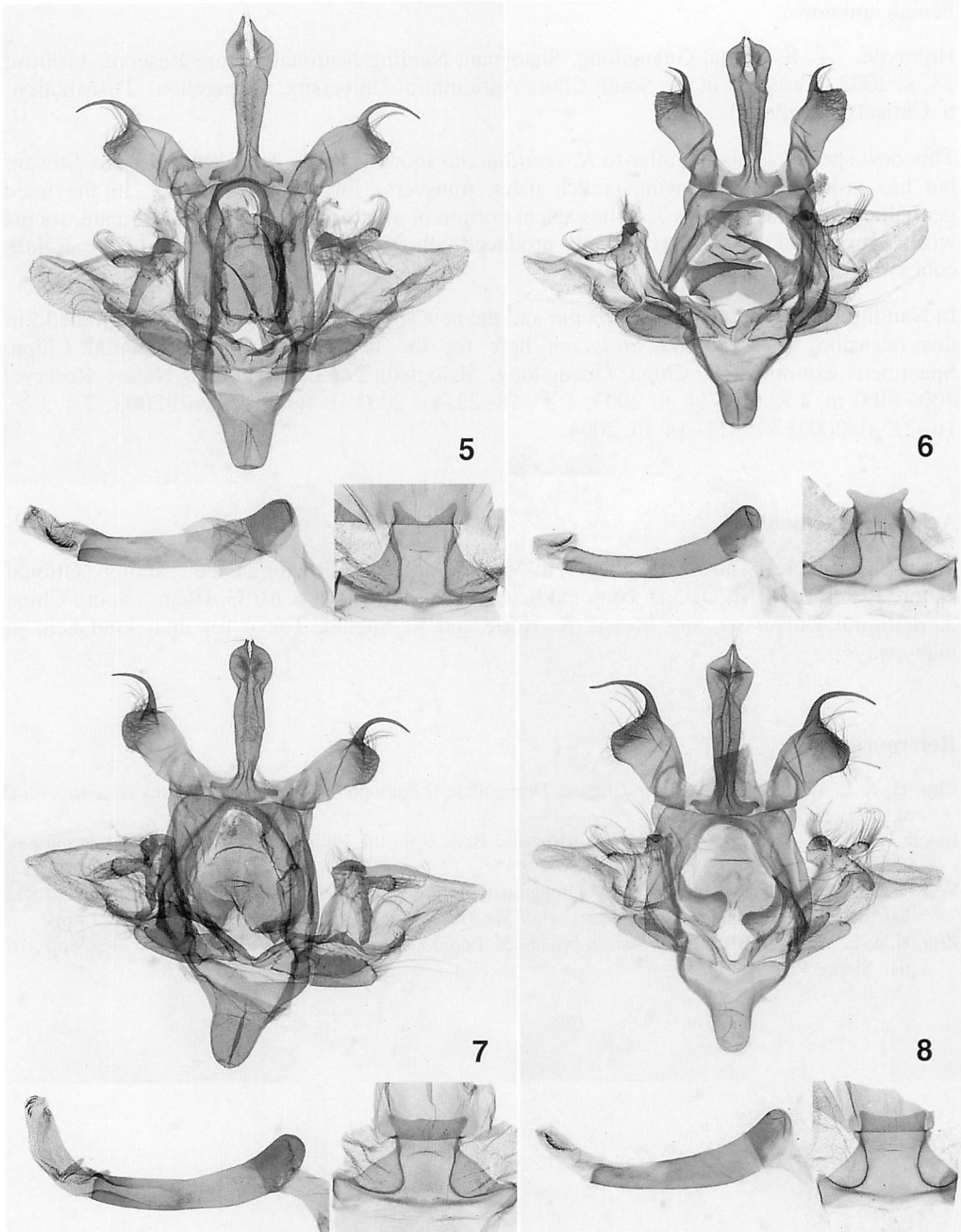
Nordstromia paralilacina sp. n. (Fig. 1)

Expanse 29 mm. Very similar to *N. lilacina* (Moore) (Fig. 2) from N. India, slightly different in having ground color of wings a little darker and less yellowish.

Male genitalia (Fig. 5). Similar to those of *lilacina* (Fig. 6). Uncus with apical portion more deeply bifurcate. Socius slightly shorter and broader, with apical spine much longer and more strongly curved ventrally. Valva a little longer; sacculus process more slender. Diaphragma with lateral lobe much shorter. Eighth sternite with distal margin more deeply concave.



Figs 1–4. *Nordstromia* spp. 1. *N. paralilacina* sp. n. 2. *N. lilacina* (Moore) (N. India). 3–4. *N. semililacina* Inoue. 3. ♂ (S. China). 4. ♂ (Taiwan).



Figs 5–8. Male genitalia and 8th sternite of *Nordstromia* spp. 5. *N. paralilacina* sp. n. 6. *N. lilacina* (Moore) (N. India). 7–8. *N. semililacina* Inoue. 7. ♂ (S. China). 8. ♂ (Taiwan).

Female unknown.

Holotype. ♂, S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 1100 m, 28. x. 2002, preserved in the South China Agricultural University, Guangzhou. Distribution. S. China (Guangdong).

This new species is also similar to *N. semililacina* Inoue (Figs 3, 4), described from Taiwan, but has ground color of wings much paler, transverse lines more slender. In the male genitalia, *semililacina* (Figs 7, 8) has apical portion of uncus much shallowly bifurcate, socius with ventro-distal portion less strongly produced, 8th sternite with distal margin only slightly concave or nearly even.

In Nanling Nature Reserve, *semililacina* and the new species are sympatrically distributed. In this occasion, we record *semililacina* here for the first time from continental China. Specimens examined: S. China, Guangdong, Shaoguan, Nanling National Nature Reserve, 700–1300 m, 1 ♂, 20–24. ii. 2003; 1 ♂, 18–22. vi. 2003; 1 ♀, 9–12. viii. 2003; 2 ♂ 3 ♀, 16–21. xi. 2003; 3 ♂, 11–14. iii. 2004.

Acknowledgements

We wish to express our hearty thanks to Mr Y. Gong, the director of the Nanling National Nature Reserve, Dr M. Owada, National Science Museum, Tokyo, Mr G. Huang, South China Agricultural University, and Messrs K. Horie and K. Suzuki, Tokyo for their kind help in many ways.

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Synonymic notes on the genus *Martania* Mironov from Taiwan, with description of a new species (Geometridae, Larentiinae)

Hiroshi INOUE

311-2, Bushi, Iruma City, Saitama Pref., 358-0053 Japan

Abstract All the species of *Martania* from Taiwan are listed, with description of a new species, *denigrata* sp. nov. Moths and genitalia of both sexes of the new species and two other species similar to it are illustrated.

I listed the following nine species as members of *Perizoma* from Taiwan: *costatum* (Wileman), *simulatum* Wileman, *ochreotinctum* Wileman, *fasciarum* [!] (Leech), *rantaizanense* Wileman, *fulvimacula promiscuarium* (Leech), *taiwana* Wileman, *niveiplaga* (Bastelberger) and *obscuratum* Bastelberger (Inoue, 1992: 128). Among them *P. fulvimacula promiscuarium* (Leech) should be omitted from Taiwan, because *P. lineola* Bastelberger was erroneously treated as a junior synonym of *promiscuarium*.

Later *P. sugii* Inoue and *omnifasciaria* Inoue were added as new species from Taiwan (Inoue, 1998).

Mironov (2000) divided the polymorphic genus *Perizoma* into four genera: *Mesotype* Hübner, *Perizoma* Hübner, *Martania* Mironov and *Gagitodes* Warren mainly based on genitalic characteristics and he newly placed four palaeartic species and seventeen species from Indian subcontinent, continental China and Taiwan in *Martania* created by him. Most of the species from Taiwan were transferred to *Martania* by him, but *P. omnifasciaria* was placed in *Gagitodes*. The four genera were again described by him (2003) at full length for European species.

Among the known Taiwanese species of formerly placed in *Perizoma*, *P. fasciaria* (Leech) has unique genitalia and its generic position is still unknown to me. I have not a chance to observe genitalia of *P. costata* (Wileman) (= *particulata* Bastelberger) and cannot place it in a correct genus.

In this paper I will cite the following six species of *Martania* from Taiwan, including description of a new species. I adopted the original forms of species names by neglecting the gender of generic names.

Acronyms. BMNH: The Natural History Museum, London. HI: H. Inoue. SMF: Senckenberg Museum, Frankfurt am Main.

***Martania albofasciata* (Moore)**

Cidaria albofasciata Moore, 1888: 277.

Larentia albofasciata: Hampson, 1895: 374.

Perizoma rantazanensis Wileman, 1911: 55; Prout, 1939: 277; Parsons et al., 1999: 724.

Cidaria (*Perizoma*) *albofasciata*: Prout, 1914: 259, pl. 7: h.

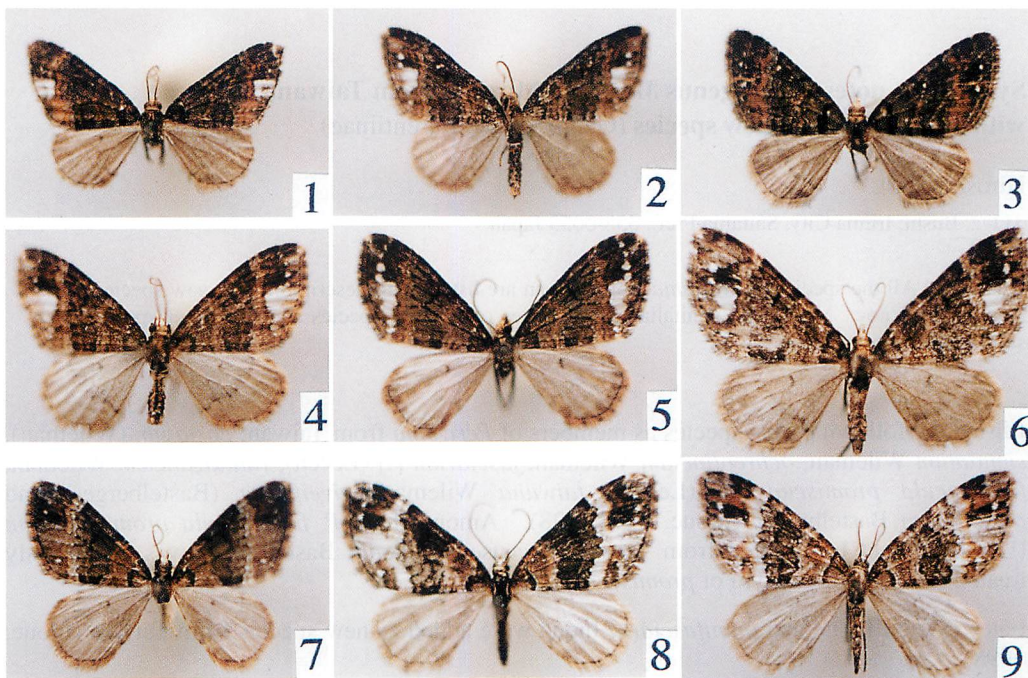
Cidaria (*Perizoma*) *albofasciata* f. *mixtifascia* Prout, 1938: 163.

Perizoma albofasciata: Bastelberger, 1909b: 172; Prout, 1939: 277; Xue & Zhu, 1999: 881, pl. 23: 24; fig. 1111; Parsons et al., 1999: 717; Inoue, 2000: 48, pl. 167: 1.

Perizoma albofasciata mixtifascia: Prout, 1939: 277.

Perizoma rantazanense: Inoue, 1992: 128; Wang, 1997: 353, fig.

Martania albofasciata: Mironov, 2000: 119.



Figs 1–9. *Martania* spp. 1. *M. denigrata* sp. nov. Holotype ♂. 2. Ditto. Paratype ♀. 3. Ditto. Paratype ♀. 4. *M. seriata* (Moore), ♂. 5. Ditto, ♂. 6. Ditto, ♀. 7. *M. taiwana* (Wileman), ♂. 8. Ditto, ♀. 9. Ditto, ♀.

Male genitalia are characterized by a spine-like process of sacculus and a long horn-like cornutus of about half length of aedeagus. In female ductus bursae is membranous, longer than diameter of corpus bursae.

The autumn generation is smaller than specimens collected in spring and summer.

P. rantaizanensis Wileman and *P. albofasciata mixtifascia* Prout (Myanmar) were treated as junior synonyms of *albofasciata* by me (2000). One female from Tibet recorded and illustrated by Xue & Zhu (1999) is a misidentification of a species unknown to me.

Material examined excepting specimens from Nepal (Inoue, 2000). Darjeeling, 1 ♀ (*albofasciata*); NE Myanmar, 1 ♂ (*mixtifascia*); Rantaizan, 7500 ft, 8. v. 1909, 1 ♀ (A. E. Wileman) (holotype of *rantaizanensis*), in coll. BMNH. Alishan, 2200 m, Chiayi Hsien, 27. v. 1929, 1 ♀ (K. Sato); ditto, 8. vi. 1938, 2 ♀ (H. Inoue); ditto, 9–11. vii. 1964, 2 ♀ (as above); ditto, 26. iii. 1977, 1 ♀ (Y. Kishida); Tayuling, 2600 m, Hualien Hsien, 10–11. xi. 1983, 1 ♂ (K. Yazaki), in coll. HI.

Distribution. NE India, N Myanmar, Nepal, Mainland China, Taiwan.

Martania seriata (Moore) (Figs 4–6)

Cidaria seriata Moore, 1888: 273.

Larentia seriata: Hampson, 1895: 373, fig. 178.

Cidaria (Perizoma) seriata: Prout, 1914: 259, pl. 7: h; *id.*, 1938: 165.

Larentia niveiplaga Bastelberger, 1909a: 34.

Perizoma seriata niveiplaga: Prout, 1939: 279, pl. 27: i.

Perizoma niveiplaga: Bastelberger, 1909b: 171; Inoue, 1992: 128; Wang, 1997: 356, figs.

Perizoma seriata: Prout, 1939: 279; Xue & Zhu, 1999: 886, pl. 23: 31; figs 1118, 1121; Parsons et al., 1999: 725; Inoue, 2000: 50, pl. 167: 20, 21.

Martania seriata: Mironov, 2000: 118.

L. niveiplaga Bastleberger was already synonymized with *seriata* by Parsons et al. (1999).

The white spot at the termen of forewing sometimes tinged with pale brown.

In male genitalia cornuti are two hair-like long spines. In female ductus bursae is as long as diameter of corpus bursae, signum a large triangular process on disc-like sclerotization and another disc-like plate with serration. The female genitalia of Chinese *seriata* illustrated by Xue & Zhu (1999) is quite distinct from *seriata*.

Material examined excepting specimens from Nepal (Inoue, 2000). Sikkim, 1 ♂ (*seriata*), in coll. BMNH. Arrizan (Kagi), 7–10000 Fuss., Formosa, 4 ♂ 2 ♀ [A. K. Moltrecht] (syntypes of *niveiplaga*), in coll. SMF. Alishan, 2200 m, Chiayi Hsien, 27. v. 1929, 1 ♀ (K. Sato); ditto, ix. 1964, 5 ♂ (Y. I. Chu); ditto, 9. iv. 1965, 6 ♂ (T. Shirozu); Fenchihu, 1600 m, Chiayi Hsien, 7. iv. 1965, 1 ♂ (as above); Tonpogoe (=Tungpu), 2500 m, Chiayi Hsien, 2. iv. 1967, 1 ♀ (as above); Nengkaoshan, ca. 2800 m, Nantou Hsien, 10. iv–2. v. 1966, 1 ♂ ♀ (Ching-Shang Yu); Alishan, 22. iii. 1972, 1 ♂ (K. Nakatomi); ditto, 25–26. iii. 1972, 1 ♂ (M. Owada); ditto, 26. iii. 1977, 1 ♂ 1 ♀ (Y. Kishida); Tayuling, 2600 m, Hualien Hsien, 10–11. ix. 1982, 1 ♂ 1 ♀ (K. Yazaki); Ssuling, Taoyuan Hsien, 12. xi. 1982, 1 ♀ (B. S. Chang); Tayuling, 2600 m, 28–29. viii. 1983, 2 ♂ (H. Yoshimoto); Alishan, 11–13. vi. 1984, 2 ♂ (N. Koda et al.); ditto, 15–16. iii. 1985, 1 ♂ (K. Yazaki); Hohuanshan, 2800 m, Nantou Hsien, 23. v. 1990, 1 ♀ (A. Kawabe).

Distribution. NE India, N Myanmar, Nepal, Mainland China, Taiwan.

Martania taiwana (Wileman) (Figs 7–9)

Perizoma taiwana Wileman, 1911: 29; Prout, 1939: 279, pl. 27: i; Parsons et al., 1999: 725; Fu & Tzuoo, 2002: 55, pl. 13: 17.

Perizoma simulata Wileman, 1911: 29; Prout, 1939: 276.

Perizoma ochreotincta Wileman, 1911: 60; Prout, 1939: 276, pl. 27: g; Parsons et al., 1999: 724. **Syn. nov.**

Perizoma arizanensis Wileman, 1915: 60.

Perizoma taiwanum: Inoue, 1992: 128; Wang, 1997: 355, figs.

Perizoma simulatum: Inoue, 1992: 128; Wang, 1997: 350, figs; Fu & Tzuoo, 2002: 55, pl. 13: 15.

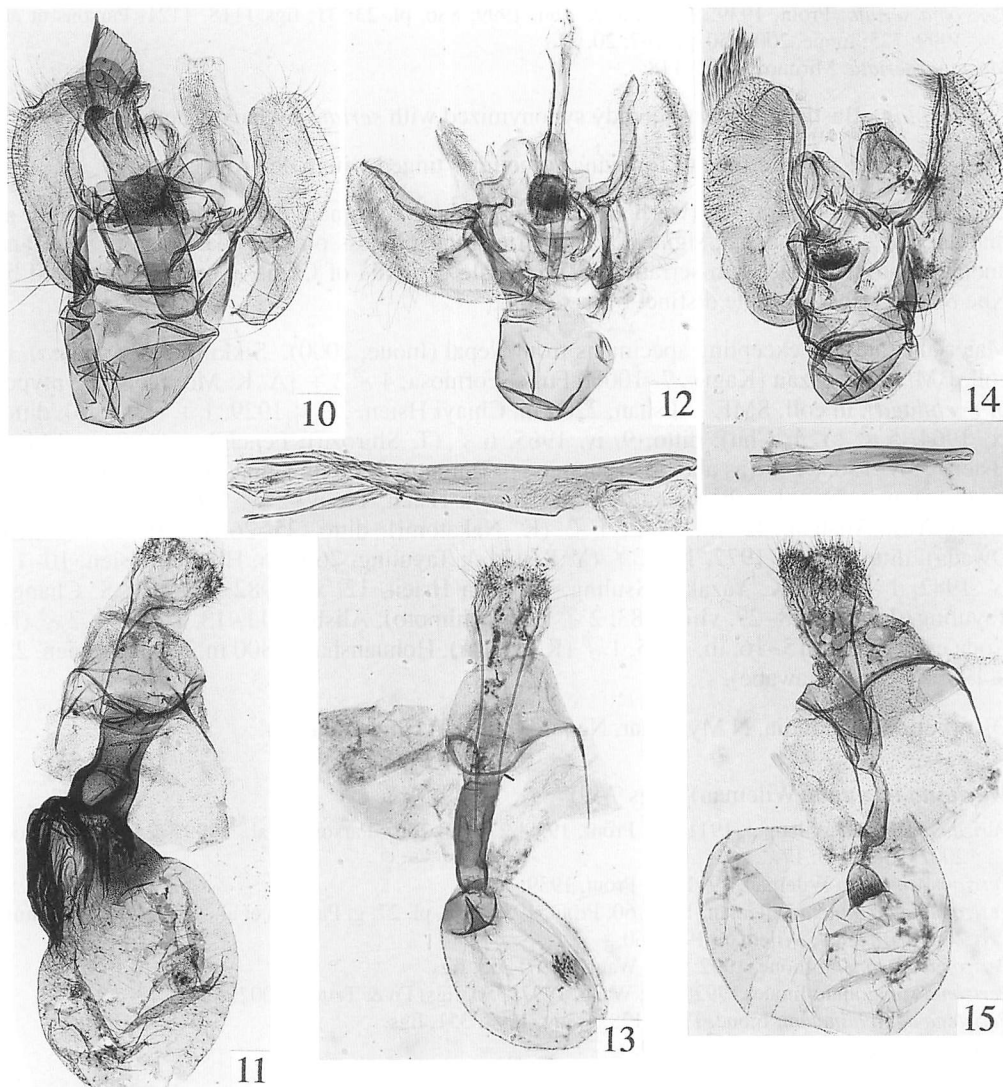
Perizoma ochreotinctum: Inoue, 1992: 128; Wang, 1997: 351, figs.

Martania taiwana: Mironov, 2000: 119.

This species is sexually dimorphic: in male forewing with terminal white spot and postmedian white band obscure while in female they are very clear, rarely interspace between subbasal and central black areas are ochreous.

Male genitalia are very similar to *seriata*, but valva with tip of costa not so strongly pointed, hair-like cornuti absent. In female there is no signum, but slender ductus bursae is ending in a sclerotized plate.

Material examined. Arizan, 7300 ft, 12. ix. 1906, 1 ♀ (A. E. Wileman) (holotype of *taiwana*); ditto, 26. ix. 1906, 1 ♂ (as above) (holotype of *simulata*); Rantaizan, 7500 ft, 7. v. 1909, 1 ♂ (as above) (holotype of *ochreotincta*); Arizan, 7300 ft, 15. ix. 1906, 1 ♂ (as above) (holotype of *arizanensis*), in coll. BMNH. Alishan, 2200 m, Chiayi Hsien, ix. 1964, 3 ♂ (Y. I. Chu); Tayuling, Hualien Hsien, 1–3. vii. 1973, 1 ♀ (M. Owada); Hohuanshan, Nantou Hsien, 8. viii. 1974, 3 ♀ (H. Nakajima); ditto, 3100 m, 30. vii–1. viii. 1983, 2 ♀ (A. Kawabe); Tayuling, 2600 m, 28–29. viii. 1983, 1 ♂ (H. Yoshimoto); Yushan, 3528 m, Kaohsiung Hsien, 2–3. viii. 1985, 1 ♀ (M. Nishizawa); Hohuanshan, 3100 m, 5. viii. 1987, 1



Figs 10-15. Male and female genitalia of *Martania* spp. 10, 11. *M. denigrata* (HI Slide 16361, 16362). 12, 13. *M. seriata* (HI Slide 17459, 16902). 14, 15. *M. taiwana* (HI Slide 16367, 16366).

♀ (A. Kawabe); Yuang Feng, 2700 m, Nantou Hsien, 24-25. vii. 1998, 1 ♂ 2 ♀ (H. Y. Wang), in coll. HI.

Distribution. Taiwan (endemic).

***Martania denigrata* sp. nov.** (Figs 1-3)

Wingspan: ♂ ♀ 16-20 mm. Very small, nearly as small as *M. sugii*. Forewing with colour and maculation similar to *M. seriata* and *taiwana*, but interspace between basal and central blackish areas as dark as in *seriata*. In male white terminal mark usually smaller than in *seriata*, in female the white mark is absent as in *taiwana*, but postmedian band obscure,

ochreous, not white as in *taiwana*.

Male genitalia (Fig. 10). Valva with costa not pointed at tip. Aedeagus much thicker than in *seriata* and *taiwana*. In addition to two spined cornuti, there is a short, curved cornutus, with a beak-shaped apex

Female genitalia (Fig. 11). Ductus bursae sclerotized, very short. Corpus bursae wrinkled at basal part, then spherical, signum absent.

Material examined. Holotype, ♂: Alishan, 2200 m, Chiayi Hsien, 9–11. vii. 1964 (H. Inoue), in coll. BMNH. Paratypes. Data as holotype, 2 ♂ 2 ♀; ditto, 8. vi. 1938, 1 ♂ 1 ♀ (as above); ditto, ix. 1964, 1 ♂ 1 ♀ (Y. I. Chu); Nengkaoshan, ca. 2800 m, Nantou Hsien, 10. v–2. vi. 1966, 2 ♂ (Ching Shong Yu); Alishan, 10–11. vi. 1973, 1 ♀ (M. Owada); Hohuanshan, Hualien Hsien, 30. vii–1. viii. 1983, 1 ♀ (A. Kawabe); Alishan, 2000 m, 11–13. vi. 1984, 1 ♂ (N. Koda et al.); ditto, 2300 m, 15–16. iii. 1986, 1 ♂ (K. Yazaki); Yushan, 3528 m, Kaohsiung Hsien, 2–3. viii, 1985, 1 ♂ (M. Nishizawa), in coll. HI.

This new species is probably most related to *M. sugii* in the structure of genitalia of both sexes, though quite distinct in appearance. *Martania micropunctum* Inoue, **comb. nov.**, 2000: 52, figs 1372, 1383; pl. 167: 29, 30, from Nepal is very similar, but in the latter species cornutus is a single thorn-like sclerotization and ductus bursae much more slender.

Distribution. Taiwan (endemic).

Martania sugii (Inoue)

Perizoma sugii Inoue, 1998: 298, figs 7, 8, 16, 17; Parsons et al., 1999: 725.

Martania sugii: Mironov, 2000: 119.

This alpine species, collected above 3000 m at the central mountains, seems to be a dayflying moth, exceptional for the genus.

Distribution. Taiwan (endemic).

Martania obscurata (Bastelberger)

Perizoma obscurata Bastelberger, 1909a: 39; Parsons et al, 1999: 723; Inoue, 2000: 50; Fu & Tzuoo, 2002: 56, pl. 13: 18.

Perizoma obscura [!]: Bastelberger, 1909b: 171.

Perizoma lineola Bastelberger, 1911: 90; Prout, 1939: 279, pl. 27: 1; Parsons et al., 1999: 723.

Perizoma obscuratum: Inoue, 1992: 128; Wang, 1997: 357, figs.

Perizoma fulvamacula promiscuarium: Inoue, 1992: 128, nec Leech.

Martania obscurata: Mironov, 2000: 119.

As I pointed out (Inoue, 2000: 50) this species is a close relative of *Martania fulvamacula* Hampson, **comb. nov.** Both species are characterized by the female genitalia: ductus bursae strongly sclerotized, spherical corpus bursae sclerotized along left half.

Wang (1997: 354, figs) illustrated three specimens of *M. fulvamacula* (Hampson) from India instead of specimens from Taiwan. I already synonymized *P. lineola* to *obscurata* (2000).

Material examined. Arrizan (Kagi), 7–10000 Fuss. [A. K. Moltrecht], 4 ♂ 1 ♀ (syntypes of *obscurata*); ditto, 1 ♂ (holotype of *lineola*), in coll. SMF. Arizan, 7300 ft, Formosa, 28. ix. 1906, 1 ♀ (A. E. Wileman), in coll. BMNH. Alishan, 2000 m, Chiayi Hsien, ix. 1964, 1 ♂ 1 ♀ (Y. I. Chu); ditto, 8. iv. 1965, 1 ♂ (S. Ae); ditto, 9. iv. 1965, 3 ♂ (T. Shirozu); ditto, 23. iii. 1972, 2 ♀ (K. Nakatomi); Tayuling, 2600 m, Hualien Hsien, 28–31. iii. 1981, 1 ♀ (H. Yoshimoto), in coll. HI.

Distribution. Taiwan (endemic).

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First of all I will express my hearty thanks to the late Mr D. S. Fletcher, BMNH, and Dr H. G. Schroeder, SMF, for their kind offices in examining specimens of geometrid moths under their curation. My thanks are also due to Mr K. Yazaki, Tokyo, for his assistance in obtaining specimens, and to Dr M. Owada, National Science Museum, Tokyo, for taking micro-photographs of genitalia illustrated in this paper.

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摘 要

井上 寛：台湾産シャクガ科ナミシャク亜科の *Martania* 属について

私 (1992) は台湾のシャクガ科のリストのなかで *Perizoma* 属として9種を挙げたが、そのうち *P. fulvamacula promiscuarium* (Leech) は、台湾の *P. lineola* Bastelberger をシノニムとしたために収録したので除外しなければならない。そのご私 (1998) は *P. sugii, omnifasciaria* という2新種を記載した。Mironov (2000) は *Perizoma* 属を主に交尾器の特徴から4属に分割し、アジアの多くの種を *Martania* という新属に移した。大部分の台湾の *Perizoma* は彼によって *Martania* に入れられたが、*P. omnifasciaria* は *Gagitodes* に移された。

本文では台湾の *Martania* 6種をリストするとともに1新種を記載した。種名の語尾は属名の性にかかわらずすべて原記載どおりとした。

Mjöberg, Meyrick and the missing Microlepidoptera from Mt Murud and other Sarawak localities

Gaden S. ROBINSON

Department of Entomology, The Natural History Museum, London SW7 5BD, UK.

E-mail: gsr@nhm.ac.uk

Abstract In 1926 Edward Meyrick described 44 new species of Microlepidoptera from material collected by Eric Mjöberg, Curator of the Sarawak Museum in Kuching, from upland localities in Sarawak, including the summit of Gunung Murud. The majority of these species were described from single specimens which were returned to Kuching and subsequently lost.

The status, current knowledge and surviving material of the Mjöberg Microlepidoptera are reviewed. *Tortrix felina* Meyrick is transferred to *Neocalyptis*; *Acroclita euphylla* Meyrick is transferred to *Peridaedala*; *Telphusa exposita* Meyrick is transferred to *Mesogelechia*; **comb. nn.** It has proved possible to match the descriptions of just eight of the missing species to recently-collected material, but 27 species, including seven that are the type-species of monobasic genera, remain unknown.

Introduction

The loss of type-material, especially when it represents taxa that were inadequately described and not illustrated, can be a serious impediment to subsequent biological studies. In this paper I draw attention to the loss of a significant group of type-specimens of small moths from South-East Asia and attempt to fix the identities of as many taxa as possible; I review and give refined geographic co-ordinates for the localities from which the specimens came.

The story begins with the appointment of Dr Eric Mjöberg as Curator of the Sarawak Museum in Kuching from May 1922 to December 1924. Mjöberg was an indefatigable explorer and collector and he spent much of the period of his appointment travelling widely throughout Sarawak and collecting a very large quantity of botanical and zoological material from a wide range of sites (van Steenis-Kruseman, 1950). Mjöberg provided several accounts of his explorations (1923; 1924; 1925) and wrote a popular book (1930); however, the last added little or nothing to what was in his earlier papers. Mjöberg's publications do not give detailed maps or geographic co-ordinates for many of his localities. Indeed, detailed maps of Sarawak were not available in the 1920s and accurate confirmation of location in rainforest without the benefits of GPS is very difficult. In some cases, dates of visits are sketchy or absent or scattered among different sources. Precise dates of collection for some of Mjöberg's localities were given by Smith (1925), and further details of Mjöberg's expedition to Mt Murud were given by Beaman (1999). The question of exactly where some of Mjöberg's localities were is revisited below. The material Mjöberg collected during his 28 months in Sarawak was promptly distributed to specialists throughout the world for identification and description.

Very many of Mjöberg's Lepidoptera specimens were collected from montane localities in Sarawak, and as such are of particular interest as most material collected previously in Borneo was from lowland areas. The Microlepidoptera were sent to Edward Meyrick, the world's leading specialist on this group at that time, at Marlborough, UK. He dutifully worked through the material and (Meyrick, 1926) described 44 new species and 7 new genera from a total of 60 species and 82 specimens. The paper is one of a series in the third volume of the *Sarawak Museum Journal* describing the fauna and flora of Sarawak from Mjöberg's collections.

Unfortunately Meyrick's working notebook for this period is lost (Clarke, 1955: 5), but it may be inferred that Meyrick returned at least the first specimen of each of the species he described from Mjöberg's material to the Sarawak Museum and kept at least one specimen from the remainder. Meyrick's collection, now in The Natural History Museum, London (formerly British Museum (Natural History) - BMNH) contains syntypes of the described species where the original series was of two or more examples. However, it is now clear that the specimens returned to Kuching were lost following their return. Banks (1926) gives a

"List showing the details of Dr Mjöberg's material at the end of 1925, the group, the specialist concerned, and whether the paper written or the material sent has been received by or returned to the Sarawak Museum..."

R = Received or returned

O = Not yet received or not yet returned

[...]

Microlepidoptera Meyrick [paper] R [material] R"

which makes it clear that the manuscript of Meyrick's paper had been received back in Kuching at this point, together with the material examined. And this was the last known sighting of the Meyrick-Mjöberg Microlepidoptera from Sarawak.

Clarke (1955: 32) stated that:

"According to the Curator, Sarawak Museum, there are no Meyrick types in that collection. I failed to find the types of the species described in the Sarawak Museum Journal in the Meyrick collection and cannot give any information regarding their location".

Clarke described and designated as lectotype several of the syntypes that were retained by Meyrick, and by the above he meant, of course, that he could not find the types of species described from uniques. Unfortunately, 34 out of the 44 new species were described from uniques. Subsequent searches in Kuching for the material have also proved fruitless (J. D. Holloway, *pers. comm.*) and, as Clarke noted, there is no trace of the material of the 34 species in Meyrick's collection in the BMNH. So in the case of a species described from a single individual, the holotype appears to be lost.

Lieftinck (1951: 571) stated that:

"According to Dr A. Diakonoff, of the Museum at Bogor (Java), the collection of unidentified Microlepidoptera, recently borrowed from the Sarawak Museum, comprises representatives of 9 families. Some of these *bear drawer-labels in the late E. Meyrick's hand* [my italics], but the majority have remained unnamed. Among the Eucosmidae are several most interesting new species and a couple of *topotypes* [my italics] and the same is true for the Gelechiidae. The families Adelidae and Glyphipterygidae contain a number of topotypes which are also of great interest. The available material consists of the following specimens:

8 Alucitidae

5 Tortricidae

28 Eucosmidae

93 Gelechiidae

5 Oecophoridae

31 Glyphipterygidae

14 Yponomeutidae

10 Tineidae

14 Adelidae

TOTAL 208 specimens."

The remote possibility remains that the “unidentified Microlepidoptera” mentioned as having been borrowed by Diakonoff contained the type material described in Meyrick’s 1926 paper.

But specimens associated with labels in Meyrick’s hand were more likely duplicates retained by the Sarawak Museum, never seen by Meyrick, and labelled, say, from a series code number. The use by Lieftinck of the term ‘topotypes’ supports this contention. Had they been syntypes, it seems inconceivable that Diakonoff would not have recognised them as such.

Further, the numbers of specimens quoted by Lieftinck do not match those to be expected from Meyrick’s paper.

Diakonoff left Bogor in 1951 in the chaotic evacuation of the Dutch East Indies, and took up a position with the Rijksmuseum van Natuurlijke Historie in Leiden. The Bogor Museum suffered years of neglect and vandalism. The Sarawak material is not in Leiden (Tuck, Nieukerken, *pers. comm.*) and there is now no trace of it in Bogor (Sutrisno, *pers. comm.*).

Whatever the explanation for its loss, the type material of species described by Meyrick from single individuals collected by Mjöberg in Sarawak has not been seen for more than 75 years and it must be presumed destroyed.

Meyrick’s descriptions are extremely succinct and idiosyncratic. There are no illustrations, and matching descriptions to specimens is very difficult.

Staff of the BMNH Microlepidoptera Section carried out extensive fieldwork in South-East Asia between 1981 and 1994 and collected more than 30,000 specimens of Microlepidoptera.

While we did not collect at the precise localities visited by Mjöberg, we collected at localities in northern Borneo that were close to Mjöberg’s sites and at similar altitudes.

Hence we have been able to compare Meyrick’s minimalist descriptions with a very large collection of specimens that in theory should contain the species that Meyrick described. In some cases we have been able to make a precise match, and we have placed appropriately labelled specimens in the BMNH collection to fix the identity of a taxon; some of these identifications have been published. But in many other cases we have failed to identify the species and the taxon must still be treated as *incertae sedis*.

Meyrick’s (1926) Microlepidoptera from northern Sarawak

In the list below I give the collecting locality, the quantity of original material, the specimens surviving and the current taxonomic status, if known, of each of the species listed from or described from Mjöberg’s material. References to citations that fix or discuss the identity of these taxa are also included. Where a species was represented by a single specimen then that specimen should be assumed to be lost. All known surviving specimens are in the BMNH.

Further details of localities are given at the end of this paper.

The list is in the sequence of Meyrick’s (1926) paper with correction of family attribution where this has changed since then.

The formal fixation of the identity of the lost species of Sarawak by designation of a lectotype or neotype should be undertaken only in the context of a detailed revision where there is a provable need for such an action.

* = new genus based on a type-species described here as new

genus and/or species *incertae sedis* = no specimens extant or identified, identity unknown

? = number of specimens not specified in original description

TORTRICIDAE [TORTRICINAE]**exx. Locality and altitude**

- Capua aeluropa* n. sp. 1 Mt Murud 7200'
Current status: *Capua aeluropa* Meyrick [*species incertae sedis*].
- Adoxophyes chloromydra* n. sp. 1 Mt Dulit 3000'
Current status: *Adoxophyes chloromydra* Meyrick [*species incertae sedis*].
- Cacoecia cirrhocrossa* n. sp. 1 Mt Poi 5200'
Current status: junior subjective synonym of *Dynatocephala omophaea* (Meyrick) (Tuck, 1990: 195; Robinson, Tuck & Shaffer, 1994: 88, pl. 13, figs 9, 10).
- Tortrix felina* n. sp. 4 Mts Dulit, Murud, Poi 3000-5000'
Current status: *Neocalyptis felina* (Meyrick), **comb. n.** (Tuck, *pers. comm.*).
Type material: Syntype ♀ (labelled as lectotype), Mt Murud, 4500', 20.xi.1922 (Mjöberg) (genitalia slide no. 23410; BMNH).
- Harmologa omophaea* n. sp. 2 Mt Murud 6300-7200'
Current status: *Dynatocephala omophaea* (Meyrick) (Tuck, 1990: 195; Robinson, Tuck & Shaffer, 1994: 88, pl. 13, figs 9, 10).
Type material: Lectotype ♂, Mt Murud, 7200', 10.xi.1922 (Mjöberg) (genitalia slide no. 23191; BMNH), designated by Tuck (1990: 195).
- Schoenotenes synchorda* Meyrick 1 Mt Murud [no altitude]
Current status: *Schoenotenes synchorda* Meyrick (an Indian species).
- Elaeodina* refrangens* n. sp. 1 Mt Murud 6300'
Current status: *Elaeodina refrangens* Meyrick [*genus et species incertae sedis*].

“EUCOSMIDAE” [TORTRICIDAE: OLETHREUTINAE]

- Acroclita trachynota* n. sp. 2 Mt Murud 6300-6500'
Current status: *Acroclita trachynota* Meyrick (Diakonoff, 1950: 280; Clarke, 1958: 284, pl. 141, figs 1-1b).
Type material: Lectotype ♀, Mt Murud, 6500', 3.xi.1922 (Mjöberg) (genitalia slide no. JFGC 9121; BMNH), designated [as 'holotype'] by Diakonoff, 1950: 280. Diakonoff cited the altitude and date as “3500, 3.11.22”.
- Acroclita euphylla* n. sp. 2 Mt Murud 6300'
Current status: *Peridaedala euphylla* (Meyrick), **comb. n.** (Tuck, *pers. comm.*).
Type material: Lectotype ♀, Mt Murud, 6300', 29.x.1922 (Mjöberg) (BMNH), designated by Diakonoff (1950: 278). Diakonoff cited the altitude and date as “2300, 2.10.22”; it is unknown why he mis-cited the label data for this and the preceding species.
- Acroclita altivaga* n. sp. 1 Mt Murud 7200'
Current status: *Acroclita altivaga* Meyrick [*species incertae sedis*]
- Eucosma centraspis* n. sp. 1 Mt Poi 5300'
Current status: *Eucosma centraspis* Meyrick [*species incertae sedis*]
- Proschistis praeceps* Meyrick 1 Mt Murud 6000'
Current status: *Asaphistis praeceps* (Meyrick) (Robinson, Tuck & Shaffer, 1994: 98, pl.

15, fig. 16).

Argyroploce mormopa Meyrick 1 Mt Murud 6000'

Current status: *Ophiorrhabda mormopa* (Meyrick) (Robinson, Tuck & Shaffer, 1994: 99, pl. 16, fig. 1).

GELECHIIDAE

Telphusa exposita n. sp. 2 Mt Murud 6500-7200'

Current status: *Mesogeuchia exposita* (Meyrick), **comb. n.** (Sattler, *pers. comm.*).

Type material: Lectotype ♀, Mt Murud, 6500', 6.xi.1922 (*Mjöberg*) (genitalia slide no. JFGC 8253; BMNH), designated by Clarke (1969: 435, pl. 217, figs 2-2c).

Epimimastis emblematica Meyrick 1 Mt Murud 6500'

Current status: *Epimimastis emblematica* Meyrick (an Indian species).

Anarsia sthenarota n. sp. 1 Mt Murud 6500'

Current status: *Anarsia sthenarota* Meyrick [*species incertae sedis*].

Chelaria agriogramma n. sp. 1 Mt Murud 4500'

Current status: *Hypatima agriogramma* (Meyrick) [*species incertae sedis*].

Xenorrhhythma traumatias Meyrick 1 Mt Poi 4500'

Current status: *Dichomeris traumatias* (Meyrick) (a species from W. Malaysia and Borneo).

“GELECHIIDAE” [LECTITHOCERIDAE]

Tisis bicolorella Walker 1 Mt Dulit 300'

Current status: *Tisis bicolorella* Walker (a Bornean species).

Tisis cerambycina n. sp. 1 Mt Poi [no altitude]

Current status: *Tisis cerambycina* Meyrick [*species incertae sedis*].

Tisis polemarcha n. sp. 1 Mt Murud 6500'

Current status: *Tisis polemarcha* Meyrick (description matched to 12 exx. in BMNH from various Bornean localities).

Tisis polychlora n. sp. 1 Mt Murud 6300'

Current status: *Tisis polychlora* Meyrick (description matched to 15 exx. in BMNH from various Bornean localities).

Frisilia melanardis Meyrick 1 Mt Murud 4300'

Current status: *Frisilia melanardis* Meyrick (a Bornean species).

Philoptila effrenata Meyrick 1 Mt Murud 6300'

Current status: *Philoptila effrenata* Meyrick (an Indian species).

Thubana nodosa Meyrick ? Mt Dulit 3000'

Current status: *Thubana nodosa* Meyrick (a species from W. Malaysia and Borneo); as there is no Mjöberg material in BMNH it may be assumed that Meyrick had just one specimen of this species.

Thubana bisignatella Walker 3 Mts Murud, Poi 4350-4500'

Current status: *Thubana bisignatella* Walker (a species from W. Malaysia and Borneo) (Robinson, Tuck & Shaffer, 1994: 85, pl. 12, fig. 13).

Material: 1 ex., Mt Murud, 4500', 23.xi.1922 (*Mjöberg*); 1 ex., Mt Poi, 4350' [no date] (*Mjöberg*).

Homaloxestis orthochlora n. sp. 1 Mt Poi 5300'

Current status: *Homaloxestis orthochlora* Meyrick [*species incertae sedis*].

Lecithocera theconoma n. sp. 3 Mt Murud 4500', Lio Matu

Current status: *Lecithocera theconoma* Meyrick.

Type material: Lectotype ♀, Mt Murud, 4500', 22.xi.1922 (*Mjöberg*) (genitalia slide no. JFGC 8781; BMNH), designated by Clarke (1965: 171, pl. 85, figs 4-4b).

Additional material: 1 ex., Mt Poi, 5300' [no date] (*Mjöberg*). The status and origin of this specimen, not listed by Meyrick, is unknown. It was included in Meyrick's collection under *theconoma*.

Lecithocera flavifusa n. sp. 1 Mt Poi 4350'

Current status: *Lecithocera flavifusa* Meyrick [*species incertae sedis*].

Lecithocera dubitans n. sp. 2 Mt Murud 6300'

Current status: *Lecithocera dubitans* Meyrick [*species incertae sedis*]. Despite there being originally two specimens, there was no specimen in the Meyrick collection under this name, but see below.

Lecithocera subservitella Walker 1 Mt Murud 4500'

Current status: *Lecithocera subservitella* Walker (a Bornean species).

Material: 1 ♂, Mt Poi, 5300' [no date] (*Mjöberg*) (wingspan 14.5 mm, hindwings and abdomen missing); 1 ♀, Mt Murud, 6300', 17.xi.1922 (*Mjöberg*) (wingspan 20 mm, abdomen missing). The status of these two specimens is a puzzle as the only *subservitella* that Meyrick recognized originally would have been returned to Kuching. The suspicion must arise that the female is the misplaced second syntype of *Lecithocera dubitans*: it matches in label data, description and size. The small male specimen could conceivably be from the series originally described as *Lecithocera xanthophaea* (below). That these specimens were placed in Meyrick's collection under *subservitella* by Meyrick himself, rather than moved there accidentally in subsequent transfer operations, is proved by photographs [in the BMNH Microlepidoptera Section library] of the untouched contents of Meyrick's original storeboxes.

Lecithocera inepta n. sp. 1 Mt Murud 4500'

Current status: *Lecithocera inepta* Meyrick [*species incertae sedis*].

Lecithocera adelella Walker (?) 1 Mt Poi 5300'

Current status: *Thubana adelella* (Walker) (a Bornean species).

Lecithocera xanthophaea n. sp. 6 Mts Murud, Poi 4500-6500'

Current status: *Lecithocera xanthophaea* Meyrick (Robinson, Tuck & Shaffer, 1994: 84, pl. 12, fig. 6).

Type material: Lectotype ♂, Mt Poi, 5300' [no date] (*Mjöberg*) (genitalia slide no. JFGC 8801; BMNH), designated by Clarke (1965: 175, pl. 87, figs 2-2b).

A further syntype of this species may have been included under *Lecithocera subservitella* (above) in Meyrick's collection.

Lecithocera grammophanes n. sp. 1 Mt Poi 4350'

Current status: *Lecithocera grammophanes* Meyrick [*species incertae sedis*].

Lecithocera amphigrapta n. sp. 1 Mt Murud 6500'

Current status: *Lecithocera amphigrapta* Meyrick [*species incertae sedis*].

“GELECHIIDAE” [XYLORYCTIDAE]

Cophomantis elaphopis Meyrick 1 Mt Murud 6300'

Current status: *Cophomantella elaphopis* (Meyrick) (an Indian species).

COSMOPTERYGIDAE [*sic*]

Stigmatophora drosophanes Meyrick 1 Mt Murud 4500'

Current status: *Stigmatophora drosophanes* Meyrick (an Indian species).

OECOPHORIDAE

Cryptolechia sperans n. sp. 1 Mt Murud 4500'

Current status: *Cryptolechia sperans* Meyrick [*species incertae sedis*].

XYLORYCTIDAE

Ptochoryctis perigramma n. sp. 1 Mt Poi 5000'

Current status: *Ptochoryctis perigramma* Meyrick [*species incertae sedis*].

Pansepta ereboglauca n. sp. 1 Mt Poi 4500'

Current status: *Pansepta ereboglauca* Meyrick [*species incertae sedis*].

Malacognostis termatias* n. sp. 1 Mt Dulit [no altitude]

Current status: *Malacognostis termatias* Meyrick [*genus et species incertae sedis*].

Hypeuryntis neurometra n. sp. 1 Tutau River [no altitude]

Current status: *Hypeuryntis neurometra* Meyrick [*species incertae sedis*].

CARPOSINIDAE

Metrogenes deltoicycla* n. sp. 1 Mt Murud 7200'

Current status: *Metrogenes deltoicycla* Meyrick [*genus et species incertae sedis*].

GLYPHIPTERYGIDAE [*sic*]

Homoplastis agathoclea* n. sp. 1 Mt Murud 6300'

Current status: *Homoplastis agathoclea* Meyrick [*genus et species incertae sedis*]; Heppner (1982: 255) tentatively transferred *Homoplastis* to Oecophoridae: Oecophorinae, but there are numerous contra-indications to this placement in Meyrick's description: "ocelli bright, posterior; tongue rudimentary ... labial palpi short, curved, subascending ... terminal joint very short ...".

“GLYPHIPTERYGIDAE” [IMMIDAE]

Imma spectropis n. sp. 1 Mt Poi 5300'

Current status: *Imma spectropis* Meyrick [*species incertae sedis*].

HYPONOMEUTIDAE [sic]

Anticrates despotica n. sp. 1 Mt Murud 6300'

Current status: *Anticrates despotica* Meyrick (description matched to >30 exx. in BMNH from various SE Asian localities) (Robinson, Tuck & Shaffer, 1994: 47, pl. 4, fig. 10).

Anticrates mesopercna n. sp. 1 Mt Penrissen 4400'

Current status: *Anticrates mesopercna* Meyrick (description matched to >20 exx. in BMNH from various localities in West Malaysia and Borneo) (Robinson, Tuck & Shaffer, 1994: 47, pl. 4, fig. 12).

“LYONETIADAE” [TINEIDAE]

Opogona dimidiatella Zell. 1 Mt Murud 4500'

Current status: *Opogona dimidiatella* Zeller (a widespread Old World tropical species) (Robinson & Tuck, 1996: 7; Robinson & Tuck, 1997: 394; Robinson, 2001).

TINEIDAE

Scardia bucephala Snell. 1 Lio Matu [no altitude]

Current status: *Morphaga bucephala* (Snellen) (a widespread Indo-Australian species) (Robinson, 1986: 123, figs 68, 128, 174; Robinson, Tuck & Shaffer, 1994: 26, pl. 3, fig. 4; Robinson & Tuck, 1996: 12; Robinson, 2001).

Craneodes [sic] sequestrata n. sp. 1 Mt Murud 4500'

Current status: *Cranaodes sequestrata* Meyrick (description matched to a Bornean species) (Robinson, 1985: pl. 6, fig. 4; Robinson, 1986: 100, figs 47, 159, 200; Robinson & Tuck, 1996: 12; Robinson, 2001).

Chionoreas euryochtha* n. sp. 1 Mt Murud 6300'

Current status: *Chionoreas euryochtha* Meyrick [*genus et species incertae sedis*] (Robinson & Tuck, 1996: 16; Robinson, 2001).

Elatobia deltophracta n. sp. 1 Mt Murud 4500'

Current status: *Elatobia deltophracta* Meyrick [*species incertae sedis*] (Robinson & Tuck, 1996: 14; Robinson, 2001).

Tinea improvisa n. sp. 1 Mt Dulit 3000'

Current status: *Tinea (s. l.) improvisa* Meyrick (description matched to 2 exx. in BMNH from Brunei and Sabah) (Robinson & Tuck, 1996: 16; Robinson, 2001).

Tinea phaedropis n. sp. 1 Mt Murud 6500'

Current status: *Tinea (s. l.) phaedropis* Meyrick [*species incertae sedis*] (Robinson & Tuck, 1996: 16; Robinson, 2001).

Tinea strepsineura n. sp. 2 Pah Trap [no altitude] (“also one in my collection... from Padang Ranges [sic]”)

Current status: *Edosa strepsineura* Meyrick (a widespread species in West Malaysia and Borneo) (Robinson, Tuck & Shaffer, 1994: 30, pl. 3, fig. 9; Robinson & Tuck, 1996: 11; Robinson, 2001; Robinson in prep.).

Type material: 1 ♀ syntype, Padang Rengas, 1895 (*Robinson*) (genitalia slide no.13430; BMNH); 1 ♀ syntype, Pah Trap, 27.xi.1922 (*Mjöberg*) (BMNH). A lectotype will be designated for this species and a full description will be provided elsewhere (Robinson, in prep.).

Tinea platyphaea n. sp. 2 Mt Poi 4500'

Current status: *Edosa platyphaea* Meyrick (a Bornean species) (Robinson, 1985: pl. 6, fig. 2 [as *Episcardia platyphaea*]; Robinson & Tuck, 1996: 11; Robinson, 2001; Robinson in prep.).

Type material: 1 syntype, Mt Poi, 4500' [no date] (*Mjöberg*) (BMNH). A lectotype will be designated for this species and a full description will be provided elsewhere (Robinson, in prep.).

Tinea perseverans n. sp. 1 Mt Poi 4500'

Current status: *Edosa perseverans* Meyrick (description matched to a male example of a Bornean species) (Robinson & Tuck, 1996: 11; Robinson, 2001; Robinson in prep.).

Trachyrrhopala pauroleuca* n. sp. 1 Mt Dulit 3000'

Current status: *Trachyrrhopala pauroleuca* Meyrick [*genus et species incertae sedis*] (Robinson & Tuck, 1996: 16; Robinson, 2001).

Plaesiostola diaplitha* n. sp. 1 Mt Murud 6300'

Current status: *Plaesiostola diaplitha* Meyrick [*genus et species incertae sedis*] (Robinson & Tuck, 1996: 16; Robinson, 2001).

SUMMARY:

FAMILY (Meyrick's placement)	SPECIES	NEW SPECIES	NEW SPECIES, of which HOLO- TYPE LOST	TOTAL INDIVIDUALS	NEW GENERA based on species with LOST HOLOTYPE
Tortricidae	7	6	4	11	1
Eucosmidae	6	4	2	8	—
Gelechiidae ¹	24	14	10	35 ²	— ³
Cosmopterygidae	1	—	—	1	—
Oecophoridae	1	1	1	1	—
Xyloryctidae	4	4	4	4	1
Carposinidae	1	1	1	1	1
Glyphipterygidae	2	2	2	2	1
Hyponomeutidae	2	2	2	2	—
Lyonetiadae	1	—	—	1	—
Tineidae	11	10	8	13	3
TOTALS	60	44	34	82	7

¹ Includes Lecithoceridae.

² Number of exx. of *Thubana nodosa* was not stated; assumed to be one (see above).

³ *Xenorhythmia* described here as new but based on a previously-described species.

Mjöberg's Microlepidoptera localities

The following list of localities attempts to refine the co-ordinates and altitude of each of the places that Meyrick recorded as a type-locality for Mjöberg's Microlepidoptera. Latitude and longitude co-ordinates are taken from the NIMA GNS (Geographic Name Server) database (<http://gnswww.nima.mil/geonames/GNS/index.jsp>) and refined, where necessary, from the Directorate of Overseas Surveys (DOS) 1: 50,000 maps (1967). Altitudes are taken from the 1967 DOS 1: 50,000 series maps, the 1971 State Government 1: 1,000,000 map, and the Times Atlas of the World (1994 edition).

Relocating sites visited by Mjöberg on his way to the summit of Gunung Murud is complicated by the fact that latitudes on his map appear to be skewed by about +12' in the vicinity of Gunung Murud. His measurement of the height of the summit of Mt Murud as 7200 feet suggests also that his aneroid altimeter may have been reading about 750 feet too low.

Lio Matu = Sarawak: Lio Matoh, 3°11' N., 115°13' E. A settlement on the Baram River, altitude 222m [730]. Visited by Mjöberg on 19.ix.1922 then 9-14.xii.1922.

Mt Dulit = Sarawak: Bukit Dulit, 3°21'30" N, 114°10'15" E. Altitude 1290m [4230], but the Times Atlas gives the altitude as 1369m [4492]. Visited by Mjöberg 14.i.-10.ii.1923; he states his camp was at 4000 feet [1220m].

Mt Murud = Sarawak: Gunung Murud, 3°54'22" N, 114°29'10" E. Modern sources give the maximum altitude as 2423-2438m - the highest mountain in Sarawak; the 1971 map gives 2423m; the 1967 map gives 2422m [7946]; Mjöberg measured only 2195m [7200] on the highest summit using an aneroid altimeter, and his 1925 map gives the co-ordinates as 4°07' N., 115°30' E - about 12' too far north. The Times Atlas gives the latitude and longitude of G. Murud as 3°54' N, 115°45' E and maps it well across the border into Kalimantan! Mjöberg pitched camp at "4500 feet" from 20.x.1922-2.xi.1922 then moved up to "6200 feet" from 4.xi-25.xi.1922. During the latter period he spent 6 nights on the summit and collected insects there using light.

Mt Penrissen = Sarawak: Gunung Penrissen, 1°07' N, 110°13' E. Modern sources including the 1971 map give the maximum altitude as 1329m [4360]; maximum height on Mjöberg's labels is 1340m [4400]; the 1967 map gives a spot height of 4046' [1233m] but this point may not be the actual summit - Penrissen is a long and complex ridge. Mjöberg's dates of collecting there are unknown.

Mt Poi = Sarawak: Gunung Pueh, 1°47'13" N, 109°40'45" E. Like Murud and Dulit, Pueh is a long multi-peaked ridge extending more than 12 km N-S. Modern sources give the maximum altitude of G. Pueh (the northernmost peak) as 1356m [4450]. Mjöberg may not have been at the northern end of the ridge at all; he records that he camped at "4300 feet" on 17.x.1923 and explored between 3500' and 5000'. From 29.x.1923 to 8.xi.1923 he camped at "5200 feet" and explored the "Brumput and Kanji Peaks" at "5350 feet" and "5600 feet" respectively. His [Microlepidoptera] specimen labels include a height of 5300' [1615m]. Modern maps give a spot height of 1486m [4877] for Gunung Berumpat (1°42' N, 109°40' E) but no spot height is given for Bukit Kanyi which is clearly higher. It is extremely difficult to track the close-set contour lines on the 1: 50K map, but the Kanyi peak appears to be about 5300 feet [1615m]. So once again, Mjöberg's altitude measurements appear to be very inaccurate.

Padang Ranges [sic] = W. Malaysia, Perak, Padang Rengas, 4°46' N, 100°51' E.

Pah Trap = **Sarawak**: Pa Umor(?), 3°44' N, 115°31' E. Village mapped by Mjöberg ~20 km SSE of Mt Murud on the uppermost tributary of the Baram River. Mjöberg gives the altitude as 2850' [869m] and its position as ~115°33' E, 3°56' N on his map but the northing may be inaccurate by +12' (see above). There is no reference to Pah Trap or any conceivable spelling variant in the NIMA GNS database nor on modern maps. During Mjöberg's visit, the Kelabit people were suffering grievous mortality from an influenza epidemic and the village may have been deserted shortly after his expedition, or it may have been abandoned later during Confrontation in 1964/65. The position of Pah Trap by reference to the summit of Murud approximates to that of the modern settlement of Pa Umor - 115°31' E, 3°44' N, at an altitude of about 1035m [3400']. If the suggested latitudinal and altitudinal corrections are applied to Mjöberg's description, then the discrepancy between Pah Trap and Pa Umor is insignificant - 2' easting and 200 feet in altitude. Visited by Mjöberg on 13.x.1922 and again on 27.xi.1922.

Tutau River = **Sarawak**: Sungai Tutoh, a tributary of the Baram River, 3°35' N, ~115°12' E (from Mjöberg's map). If adjustment is made for the latitudinal inaccuracy of Mjöberg's map further north (see above), the point where he camped might be thought to be further south by 12' - i.e., 3°23' N - but Mjöberg gives the altitude of his camp there as 1040 feet [317m]. At 3°23' N the Tutoh has practically petered out in its headwaters and the altitude is about 3000 feet. At 3°35' N the Tutoh is at ~115°14' E and an altitude of 1750-2000'. The river does not drop to 1000' above sea level until it reaches about 3°40' N. If the latitude given by Mjöberg is correct then the altitude is correct also, if adjustment is made for his altimeter reading 750 feet too low. Mjöberg camped at the Tutau River 29.ix-6.x.1922.

Conclusions

Of the 44 new species of Microlepidoptera described by Edward Meyrick (1926) from Eric Mjöberg's collections from Sarawak, 34 were described from a single specimen and the holotype is lost. *Lecithocera dubitans* was described from two specimens but no type material has survived unless a specimen placed in Meyrick's collection under the name *Lecithocera subservitella* Walker is a syntype of this species. It has proved possible to match the descriptions of just eight of the "missing" species to recently-collected material, but 27 species, including seven that are the type-species of monobasic genera, remain unknown. The identity of these will be resolved only by careful comparison by specialists of original descriptions with topotypic specimens.

Ironically, it seems there was no requirement for Meyrick to return the first or type-specimen of each Microlepidoptera species to Kuching in the first place. The Sarawak Museum followed the enlightened policy of publishing accounts of the Sarawak flora and fauna, retaining duplicates of commoner species, but accepting that type-specimens be lodged in large international comparative collections (Talbot, 1926; Edwards, 1926).

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