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On the genus *Hiradonta*, with three new species (Notodontidae, Lepidoptera)

Hideki KOBAYASHI[1)] and Yasunori KISHIDA[2)]

[1)] Akagimotomachi 5-4-304, Shinjuku-ku, Tokyo, 162-0817 Japan
[2)] Kitazawa 5-20-1-103, Setagaya-ku, Tokyo, 155-0031 Japan

Abstract Three new species of the genus *Hiradonta* is described from India, Vietnam, and Thailand: *H. terrea* sp. nov. from India, *H. albapex* sp. nov. from Vietnam, *H. gnoma* sp. nov. from Thailand.

The genus *Hiradonta* was established by Matsumura in 1924. The type species is *Hiradonta takaonis* Matsumura, 1924; the type locality of which is Tokyo, Japan. The food plant of this species was detected for the first time in 1995 and reported by Nakatomi (1996). It is *Celtis sinensis* (Ulmaceae). He found another *Hiradonta* species from Okinawa which he could feed also on *Celtis sinensis* and *Celtis boninensis.* The larva had a distinguished horn on its 8th abdominal segment which *H. takaonis* lacks. He described it as new to science by the name of *H. ohashii* (Nakatomi, 2000). Another species similar to *H. ohashii* is distributed in Taiwan, i. e. *H. angustipennis* Nakatomi & Kishida, 1984. The larva is illustrated by Wang (1995: 209), and food plant is *Acer* spp. Above three species are alike in facies and have very similar male genitalia but larvae are quite different among them. The genus has other three species distributed in the continent, i. e. *H. chi* (O. Bang-Haas, 1927) from Beijing, *H. alboaccentuata* (Oberthür, 1911) from Sichuan and *H. himalayana* Sugi, 1992 from Nepal. *H. hannemanni* Schintlmeister, 1989 from Zhejian was synonimized into *H. alboaccentuata* by Wu & Fang (2003: 670). Thus the genus has been represented by six species. We add three new species to it: one from Vietnam, one from Thailand and one from northern India.

The species of the genus *Hiradonta* have facies similar to one another; the forewings are generally dark fuscous brown; the lighter and serrate postmedial line is conspicuous with also lighter apical areas.

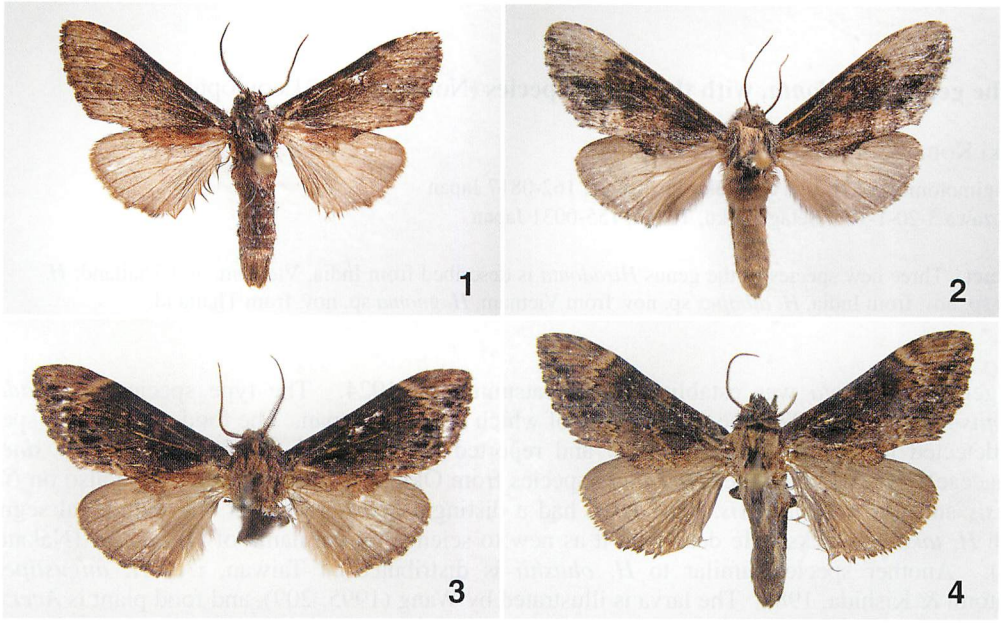
The male genitalia are characterized by the uncus which is like a simple arrowhead or bullet or like a turtle-head, and socii which are simple, rod-like or spatulate, and the costa which is elongated with a tab-like ampula and a nodal cucullus. Differences among the species are little. The valva, the cucullus in particular, and the 8th sternite should be taken account to determine each species.

Regarding the three species which are distributed in the archipelagoes continuing in the east of the continent, they have similar facies and similar male genitalia. But the larvae are obviously distinguishable. In terms of genitalia, *H. takaonis* has thick uncus and socii (Fig. 9); they are rather unique and easily determinable. *H. ohashii* and *H. angustipennis* have very similar genitalia and it is very difficult to determine (Figs 10, 11), though the larvae are quite different. We can say at most that the costa curves stronger rather in *H. angustipennis* than in *H. ohashii.* But 8th sternite is distinguishable: the 8th sternite in *H. angustipennis* has a wide and shallow U-shaped dent at the center of the distal margin, while in *H. ohashii* shallow V. Incidentally, *H. takaonis* has a deep V-shaped dent.

Two species which are distributed in the continent of China have also similar male genitalia (Wu & Fang, 2003: figs 427, 428), but the facies are characteristic to be determined easily.

We have studied specimens from northern India, Vietnam, Laos and Thailand. We recognized three new species by evident differences of the male genitalia.

Acronyms. NSMT: National Science Museum, Tokyo; IEBSH: Institute of Ecology and Biological Resources, Hanoi.



Figs 1–4. *Hiradonta* spp. 1. *H. terrea* sp. nov., paratype ♂. 2. *H. albapex* sp. nov., holotype ♂. 3. *H. gnoma* sp. nov., holotype ♂. 4. *H. himalayana,* paratype, ♂, Nepal, Kathmandu, Godavari.

Hiradonta terrea sp. nov.

Male (Fig. 1). Wingspread 39–40 mm. Forewing length 19–20 mm. Antenna bipectinate with cilia. Patagia, Thorax, abdomen pale brown. Forewing dull brown, apical area lighter, cells M_1 and CuA_1 tinged with fuscous. Cells from M_1 to CuA_1 with patch fuscous brown accompanied with subterminal smaller patch. Dorsum with tuft pale brown. Postmedial line serrate, backed up with pale brown. Antemedial line thin, paler, vague. Reniform stigma with stria thin, black. Hindwing pale fuscous brown.

Male genitalia (Fig. 5). Uncus bullet-like. Socius styloid. Ampula triangular, small. Cucullus tapered. Sacculus simple. Saccus not produced. Juxta approximately triangular with base rounded. Aedeagus with rostellum very thin with apex hooked. 8th sternite with notch shallow at center of distal margin.

Holotype: ♂, India, Uttar Pradesh, Bhimtal, 1500m, 25. vi. 1992, genitalia slide HK1342, preserved in NSMT. Paratypes: ♂, India, Uttar Pradesh, Bhimtal, 1500m, 24. vi. 1992; ♂, ditto, 20. vi. 1992. Preserved in NSMT.

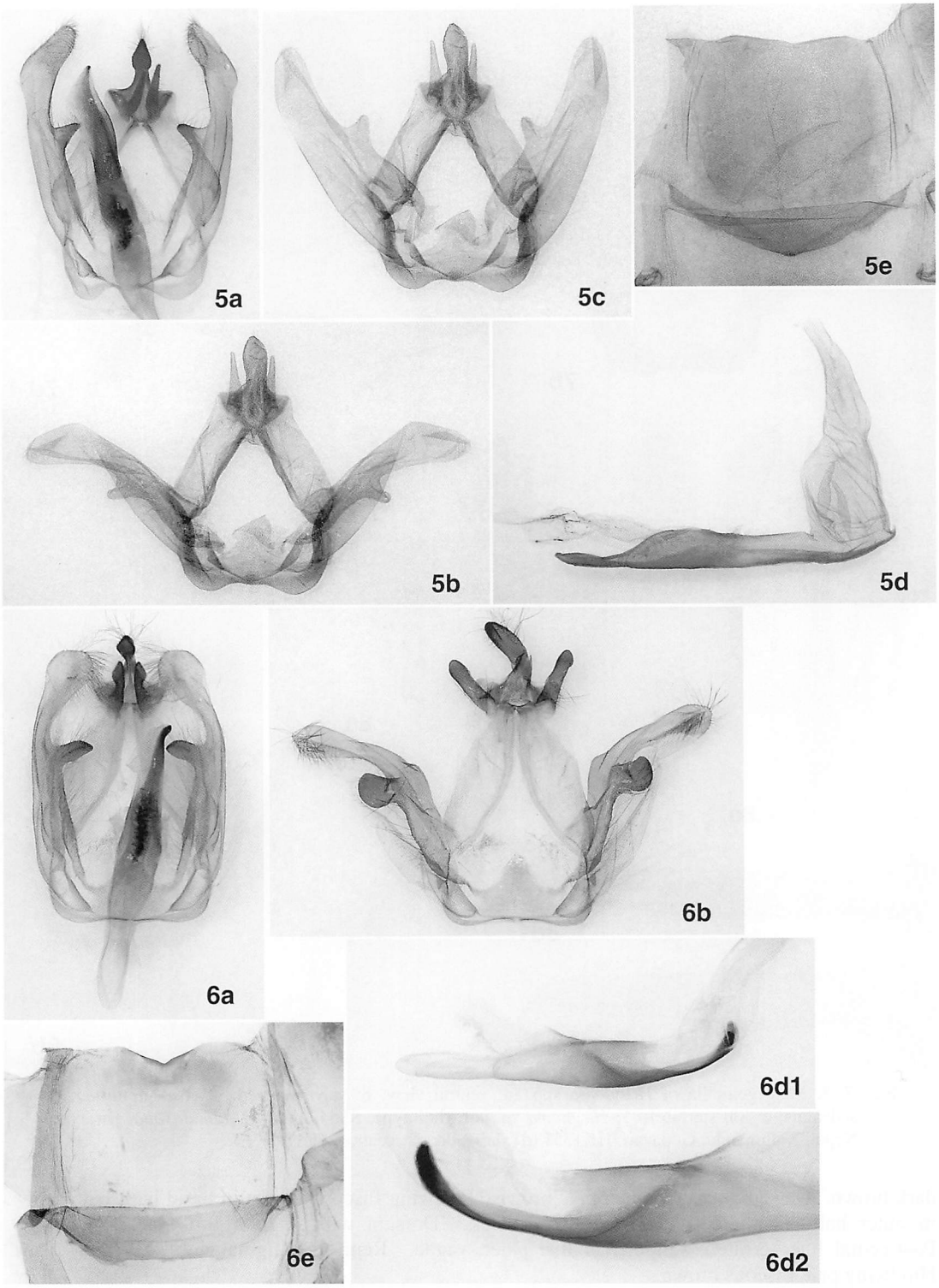
Diagnosis and remarks. This new species is clearly separated from Chinese two congeners, i. e. *H. alboaccentuata* and *H. chi*, by the facies; white postmedial line near dorsum in *H. alboaccentuata*; black chi marking of Cu stem in *H. chi*; drab forewings in *H. terrea* sp. nov. In terms of genitalia, the followings are detectable; the cucullus is tapered in *H. terrea*, not tapered in other two; the ampula is largest in *H. chi*. *H. himalayana* is distributed nearer in Nepal and the facies are alike (Fig. 4), but the genitalia are different (Fig. 8); the cucullus is not tapered and the socius is slender. The distal margin of the 8th sternite has a shallow notch in the center in *H. terrea*, entire in *H. himalayana*.

Etymology. The species name *terrea* is derived from the drab brown color of forewings.

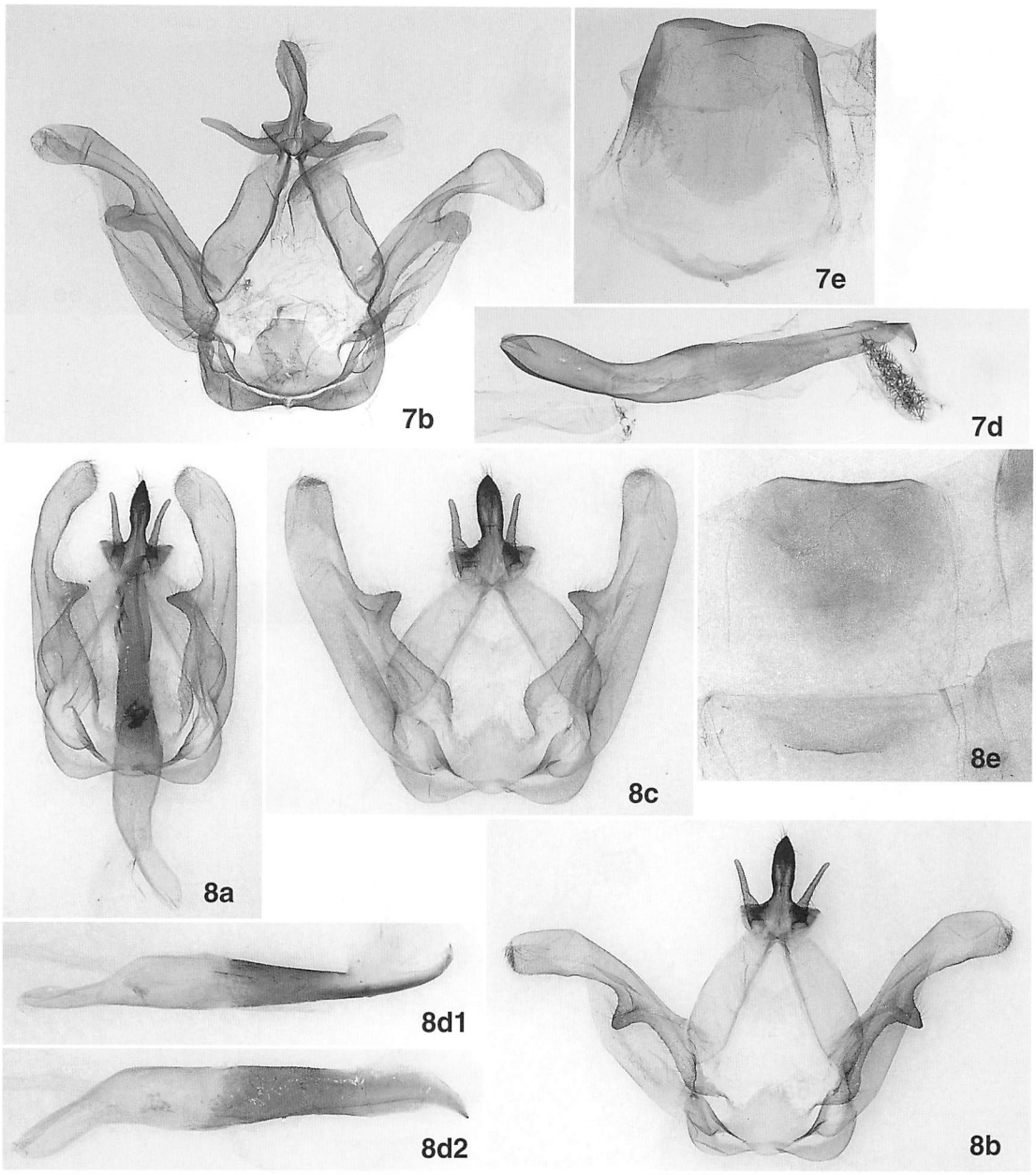
Hiradonta albapex sp. nov.

Male (Fig. 2). Wingspread 43 mm. Forewing length 22 mm.

Antenna dentate with bristles fasciculate short, as the shaft thickness. Patagia, tegula, metathorax



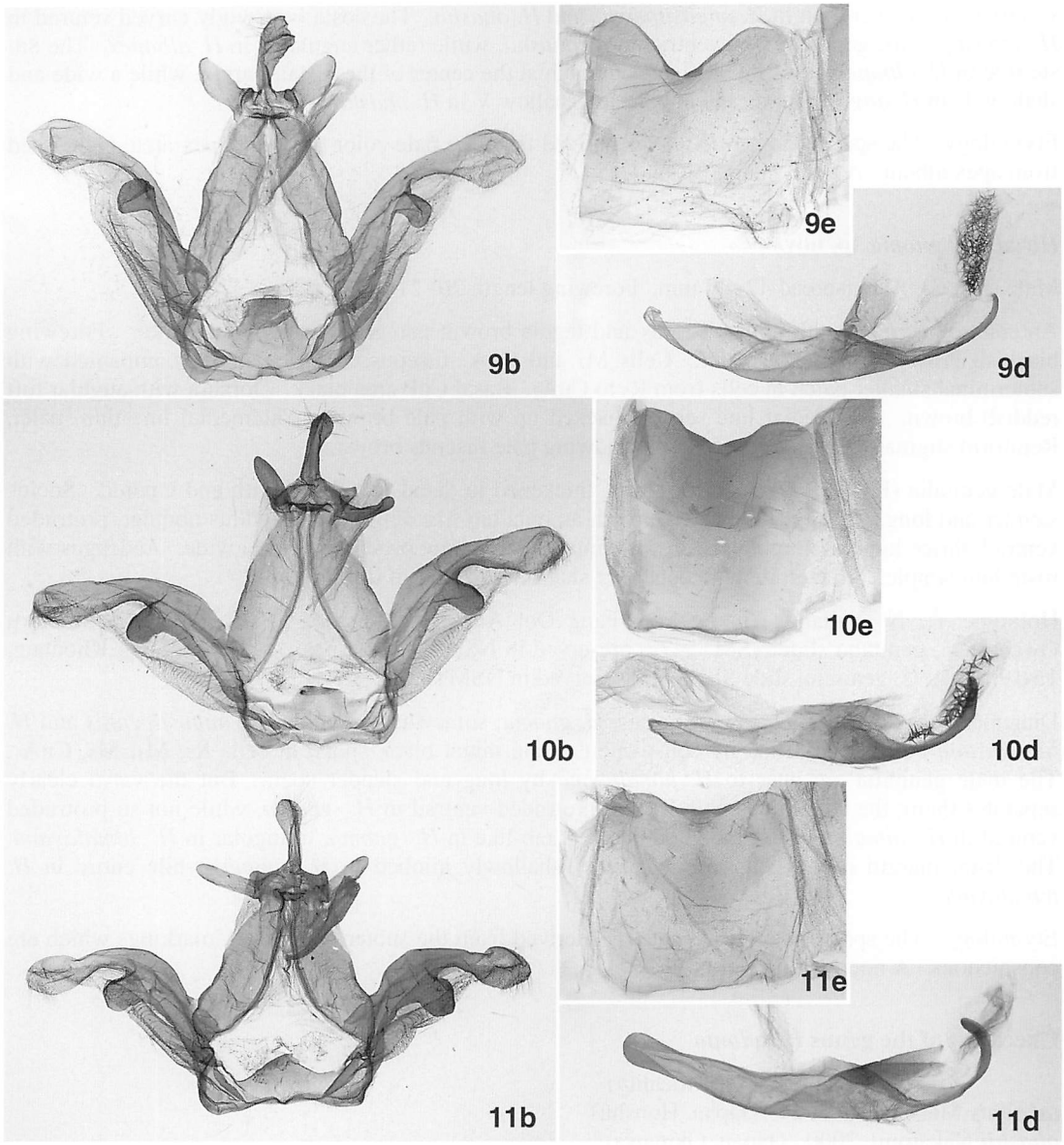
Figs 5–6. Male genitalia of *Hiradonta* spp. (a: ventral view; b: valva opened; c: costa upturned; d: aedeagus; e: 8th sternite). 5. *H. terrea* sp. nov., holotype, HK1342. 6. *H. albapex* sp. nov., paratype, HK1343 (d1: left side; d2: right side).



Figs 7–8. Male genitalia of *Hiradonta* spp. (a: ventral view; b: valva opened; c: costa upturned; d: aedeagus; e: 8th sternite). 7. *H. gnoma* sp. nov., holotype, SS5472. 8. *H. himalayana*, paratype, Nepal, Kathmandu, Godavari, HK1351 (d1: left side; d2: ventral side).

dark brown. Mesothorax, abdomen pale brown. Forewing fuscous brown in basal half, pale brown in outer half, except cells M_3 and CuA_1 black. Dorsum with angular tuft blackish laterally. Postmedial line serrate. Antemedial line paler, vague. Reniform stigma with stria thin, black. Hindwing pale fuscous brown.

Male genitalia (Fig. 6). Uncus curved ventrad with caudal end rhomboid in ventral view, digitiform in lateral view. Socius digitiform, slightly slender and shorter than uncus, distal end triangular in ventral view. Costa angulated obtusely with ampula tab-like ventrally. Cucullus nodular, smaller than ampula. Sacculus simple. Saccus not produced. Juxta pentangular. Aedeagus with rostellum



Figs 9–11. Male genitalia of *Hiradonta* spp. (a: ventral view; b: valva opened; c: costa upturned; d: aedeagus; e: 8th sternite). 9. *H. takaonis*, Japan, Honshû, Kagawa, SS4004. 10. *H. ohashii*, Japan, Amami-island, SS3976. 11. *H. angustipennis*, Taiwan, Lushan Spa, paratype, SS5868.

slender, curved dorsad and rightward. Vesica simply tubular. 8th sternite with small V-shaped notch at center of distal margin.

Holotype: male, N-Vietnam, Bac Kan Prov., Ba Be, 1-5. v. 2006, T. Mano leg., preserved in NSMT. Paratypes: 1 ♂, N-Vietnam, Bac Kan Prov., Ba Be, 1-5. v. 2006, T. Mano leg., Slide No. HK1343; 5 ♂, N-Vietnam, Son La Prov., Deo Cao Pha, 420m, 2-3. v. 1995, Mamoru Owada leg. Preserved in NSMT & IEBSH.

Diagnosis and remarks. This new species, *H. albapex*, is easily determined by the pale color of the apical area of the forewing. The antenna is dentate, while bipectinate in other congeners.

The male genitalia are near to *H. angustipennis* and *H. ohashii* (Figs 10, 11). But the uncus is

significantly thicker than in *H. angustipennis* and *H. ohashii*. The costa is strongly curved ventrad in *H. angustipennis*, gently curved ventrad in *H. ohashii*, while rather angulated in *H. albapex*. The 8th sternite in *H. albapex* has a small V-shaped notch at the center of the distal margin, while a wide and shallow U in *H. angustipennis* and a wide and shallow V in *H. ohashii*.

Etymology. The species name *albapex* is derived from the pale color of costal apex area, neoterized from apex album. A noun in apposition.

***Hiradonta gnoma* sp. nov.**

Male (Fig. 3). Wingspread 42–44 mm. Forewing length 20–21 mm.

Antenna bipectinate with cilia. Thorax and tegula brown; patagia, vertex, frons darker. Forewing blackish brown, apical area paler. Cells M_3 and CuA_1 fuscous. Black patch accompanied with subterminal smaller patch in cells from R_5 to CuA_1. Basal CuP area black. Dorsum with angular tuft reddish brown. Postmedial line serrate, backed up with pale brown. Antemedial line thin, paler. Reniform stigma with stria thin, black. Hindwing pale fuscous brown.

Male genitalia (Fig. 7). Uncus rather long, thickened in distal two-thirds with end tapered. Socius slender and long. Costa almost straight with ampula tab-like ventrally. Cucullus nodular, protruded ventrad, thrice large as ampula. Sacculus simple. Saccus not produced. Juxta wide. Aedeagus with rostellum simple. 8th sternite with dent very shallow at center of distal margin.

Holotype: ♂, N-Thailand, Chiang Mai, Fang Doi Angkhang, 1350m, 10-12. ix. 1987, Mamoru Owada leg., genitalia slide NSMT5472, preserved in NSMT. Paratypes: ♂, Laos, Xieng Khouang, 16-19. vi. 1995, genitalia slide SS7667. Preserved in NSMT.

Diagnosis and remarks. This new species, *H. gnoma*, somewhat resembles *H. angustipennis* and *H. himalayana* but distinguished by conspicuous subterminal black spots, in cells R_5, M_1, M_3, CuA_1. The male genitalia are near to *H. himalayana* by long and slender socii. But the valva clearly separates them; the cucullus is nodular and protruded ventrad in *H. gnoma*, while not so protruded ventrad in *H. himalayana*; the ampula is discal tab-like in *H. gnoma*, triangular in *H. himalayana*. The distal margin of the 8th sternite is very shallowly bilobed in *H. gnoma*, while entire in *H. himalayana*.

Etymology. The species name *H. gnoma*, is derived from the subterminal black markings which are conspicuous. A noun in apposition.

Check list of the genus *Hiradonta*

(Type locality)
takaonis Matsumura, 1924 (Japan, Honshû)
ohashii Nakatomi, 2000 (Japan, Okinawa)
angustipennis Nakatomi & Kishida, 1984 (Taiwan)
***albapex* sp. nov.** (N-Vietnam)
***gnoma* sp. nov.** (N-Thailand)
chi (O. Bang-Haas, 1927) (N-China, Beijing)
alboaccentuata (Oberthür, 1911) (C-China, Sichuan)
hannemanni Schintlmeister, 1989 (E-China, Zhejiang)
himalayana Sugi, 1992 (Nepal, Kathmandu)
***terrea* sp. nov.** (N-India, Uttar Pradesh)

Acknowledgements

We wish to express our hearty thanks to Mr Shigero Sugi, Tokyo, for permitting us to study his collection and genitalia slides labeled with SS numbers he made. Our thanks are due to Dr Mamoru Owada, NSMT, for his pertinent advice in the preparation of this manuscript. Last but not least we

are grateful to Messrs Katsumi Yazaki, Hiroshi Yoshimoto, Tokyo and Takahiro Mano, Aichi for their kind help in many ways.

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Wu, C. S. and C. L. Fang, 2003. Lepidoptera: Notodontidae. *Fauna sinica* (Insecta) **31**. xxvii, 952 pp., 8 pls. Science Press, Beijing. (In Chinese.)

Tinea **20** (2): 85–94, February, 2008

Revision of *Udea orbicentralis*-complex from Japan, with descriptions of four new species (Pyralidae, Pyraustinae)

Hiroshi INOUE[1], Hiroshi YAMANAKA[2] and Akio SASAKI[3]

[1] 311-2, Bushi, Iruma City, Saitama Pref., 358-0053 Japan
[2] 4-18, Eiraku-cho, Toyama City, Toyama Pref., 930-0853 Japan
[3] 11-5, Onoba 5, Akita City, Akita Pref., 010-1424 Japan

Abstract *Udea orbicentralis* (Christoph) has long been considered to be a single species in Japan, but after a close examination of numerous specimens all over Japan in our collection we divided *orbicentralis*-complex into five species: including the true *orbicentralis* and four new species: *nebulatalis, proximalis, grisealis* and *intermedia*. Moths and genitalia of both sexes of all the species are illustrated.

The pyraustine species under the name of *Udea orbicentralis* (Christoph, 1881) from Japan includes some closely allied species but taxonomic revision of them has been neglected for a long time. In this paper, the authors will describe and redescribe five closely allied species of them from Japan based on the external and genital characters. In addition to *U. orbicentralis* four are new to science.

In writing this paper the senior author wishes to express his cordial thanks to Dr H.-J. Hannemann for giving him an opportunity to examine a female syntype of *Botys orbicentralis* Christoph, 1881 from Vladivostok, Russia, preserved in Museum für Naturkunde der Humboldt-Universität, Berlin and to Dr T. Kumata for his kindness in arranging a loan of the holotype of *Scoparia ichinosawana* Matsumura, 1925 from south Sakhalin for critical comparison, preserved in the Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo. The authors must express their thanks to the following friends for their loan and donation of valuable specimens: Drs U. Jinbo, H. Nakajima, M. Owada, R. Sato, Messrs N. Doi, T. Haruta (deceased), N. Hirano, K. Ichikawa (deceased), K. Ijima, T. Inoko (deceased), M. Kameda, S. Kawahara, Y. Kishida, H. Kogi, T. Komatsu, K. Kudo, T. Maenami, T. Mano, T. Masui, T. Matai, K. Nakata, I. Otsuka (deceased), M. Tanaka, I. Tateyama, A. Tomisawa, K. Umetsu and M. Yamamoto.

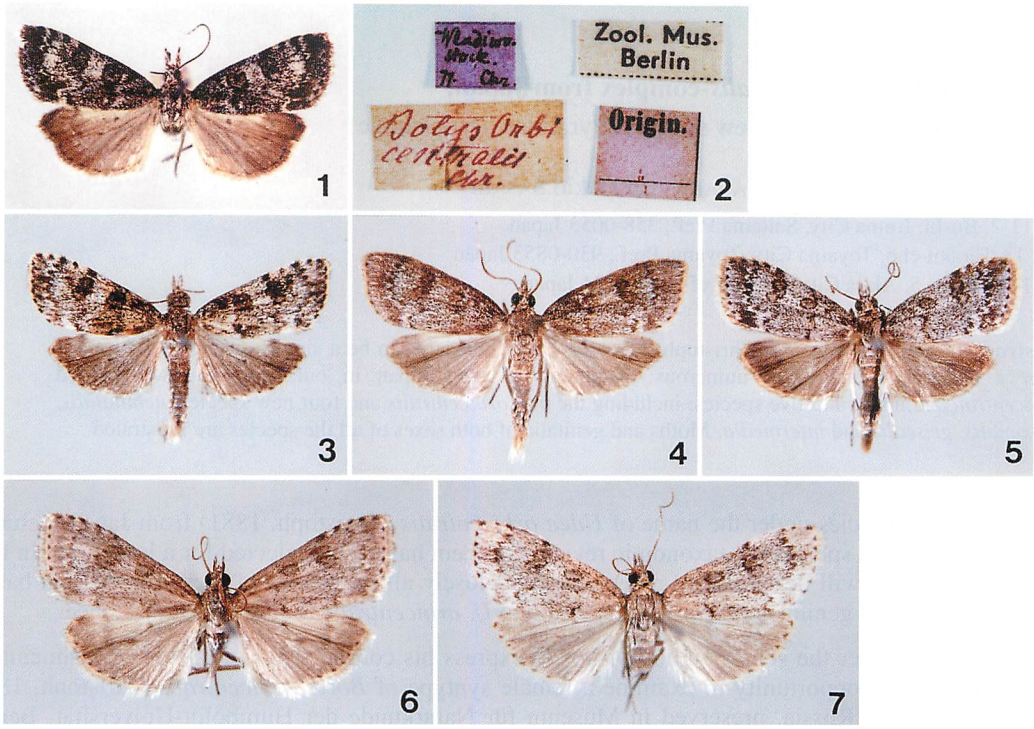
The abbreviations used in this paper are as follows. BMNH: Department of Entomology, The Natural History Museum, London. ZMHU: Zoologisches Museum für Naturkunde der Humboldt-Universität, Berlin. HUS: Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo. NSMT: Department of Zoology, National Science Museum, Tokyo. HI: Hiroshi Inoue. AS: Akio Sasaki. HY: Hiroshi Yamanaka.

The holotypes and the paratypes of the new species in HI collection will be donated to BMNH after the publication of this paper.

Udea orbicentralis (Christoph) (Figs 1, 2, 3, 8, 13)

Botys orbicentralis Christoph, 1881, *Bull. Soc. imp. Nat. Moscou* **56** (1): 22.
Pionea orbicentralis: Rebel, 1901: 63.
Udea orbicentralis: Mutuura, 1957, 1971: 123, pl. 21, fig. 638.
Pionea orbicentralis (part.): Hampson, 1899: 246; Matsumura, 1905: 218 (nec Christoph).
Udea orbicentralis (part.) : Shibuya, 1929: 217; Inoue, 1955: 190; Kirpichnikova, 1999: 405, pl. 235, figs 2, 5 (nec Christoph).

Length of forewing 9–10 mm. Labial palpus with terminal two segments blackish fuscous, basal segment white on outer side. Maxillary palpus greyish fuscous mixed with white scales. Antenna pale brownish fuscous, minutely ciliated in both sexes, but ciliation of male more prominent than in female. Frons pale grey to pale fuscous. Vertex roughly covered with greyish scales. Abdomen pale brownish fuscous dorsally, each segment with greyish white short fringe posteriorly, greyish white



Figs 1–7. *Udea* spp. 1. *U. orbicentralis* (Christoph), syntype ♀. 2. Ditto, labeles. 3. Ditto, ♂, from Iwate Pref., Honshu, Japan. 4. *U. nebulatalis* sp. nov., holotype ♂. 5. *U. proximalis* sp. nov., holotype ♂. 6. *U. grisealis* sp. nov., holotype ♂. 7. *U. intermedia* sp. nov., holotype ♂.

ventrally. Legs greyish white more or less mixed with fuscous scales in femora and tibia, tarsus more or less tinted with fuscous. Ground colour of forewing above greyish white, variably dusted with fuscous, reniform, orbicular, terminal area strongly and contrastingly infuscated. Orbicular stigma large, annular, conspicuously outlined in black, with a minute, black spot in middle. Reniform stigma 8-shaped, almost fused with a costal dot. Costa with four fuscous preapical dots. Termen with a row of small fuscous spots. Antemedial line blackish fuscous, oblique outward from costa to dorsum, with an outward angle at middle. Postmedial line narrow, blackish fuscous, serrate, more or less strongly excurved around cell, and strongly inflexed below vein CuA_2, and then slightly sinuous, descending to dorsum. Ground colour of hindwing above whitish grey to dark grey, more or less darkened terminally, costal area more or less narrowly tinted with white, with an obscure, black discal spot and an obscure minute, black spot at origin of vein M_2 and M_3. Postmedial line and a row of terminal fuscous spots almost disappeared. Cilia concolorous with forewing. Forewing beneath dull greyish fuscous, markings above obscurely repeated, costal area narrowly tinted with whitish yellow, with four preapical costal fuscous spots, and termen with a row of small fuscous spots as on above. Hindwing beneath paler than forewing, and markings of above rather strongly repeated. A row of terminal fuscous spots more or less strongly appeared than on above.

Male genitalia (Fig. 8). Uncus rather slender, weakly dilated distally, with heavily pilose. Gnathos bridge-like, triangularly produced postero-medially. Valva rather slender, nearly even width, weakly curved dorsad, smoothly rounded distally. Clasper rather short, blade-like, weakly sclerotized, its posterior margin narrowly more or less strongly sclerotized, slightly hooked distally. Sacculus inflated medially. Juxta pyriform, bifid distally. Saccus short, triangulate, with a minute spine-like process distally. Aedoeagus slender, more or less narrowing toward apex, somewhat strongly sclerotized distally, and with two or three minute thorns of lateral projections. Vesica with a small mass of short, somewhat broad thorn of cornuti.

Female genitalia (Fig. 13). Ovipositor narrow, setose. Apophysis posterioris about two-thirds length of apophysis anterioris, and apophysis anterioris with a triangular expansion near posterior end. Ostium broad, simple. Antrum almost cylindrical, more or less strongly sclerotized, somewhat swelled at both sides medially. Ductus bursae narrow, longer than length of corpus bursae. Corpus bursae globular, with a large, spindle-shaped, denticulate signum.

Specimens examined. One of the syntypes, ♀ : Wladivostok, 77. Chr. "*Botys orbicentralis* Christoph", ZMHU. 18 other specimens from the following localities. Hokkaido—Gabino, Hakodate, 1 ♀ (September); Gorinzawa, Esashi, Hiyama, 1 ♂ (September); Nakayama, Ohno, Oshima, 1 ♀ (September); Morikawa, Mori-machi, 1 ♀ (August). Honshu—Iwate Pref.: Yagimaki-rindo, Morioka, 1 ♂ (August); Tsunatori, Morioka, 2 ♂ 2 ♀ (July & August); Sotoyama Dam, Morioka, 1 ♂ (July). Akita Pref.: Magi Valley, Ota, 1 ♂ (September). Niigata Pref.: Sakasamaki, 1 ♂ (July); Ngano Pref.: Togakushi Heights, 1 ♀ (August); Gunma Pref.: Yunotaira, 1 ♀ (July); Toyama Pref.: Midagahara, Mt. Tateyama, 1 ♂ (July). Ishikawa Pref.: Chugu Spa, Yoshinodani Village, 1 ♂ 1 ♀ (September); Bettoudeai, Shiramine Village, 1 ♀ (September). 3 specimens in coll. HI, 6 specimens in coll. HY, 9 specimens in coll. AS.

Distribution. Southeast Siberia, Japan (Hokkaido, Honshu).

Notes. *Udea ichinosawana* (Matsumura, 1925) (*J. Coll. Agric. Hokkaido Imp.Univ.* **15**: 186, pl. 11, fig. 9, ♂) from south Sakhalin, Russia was treated as a junior synonym of this species by Inoue (1982). However, as a result of examination of the male holotype specimen of *Scoparia ichinosawana* Matsumura preserved in HUS, the authors found that *ichinosawana* is a distinct species.

Pionea orbicentralis of Leech (1901: 495), Caradja (1925: 367), Wu (1938: 125), Lu & Kuan (1953: 229) and Park (1979: 95), and *Udea orbicentralis* of Park (1983: 355), Bae (2001: 155) and Hua (2005: 79) from China and Korea should be re-examined for confirmation.

***Udea nebulatalis* sp. nov.** (Figs 4, 9, 14)

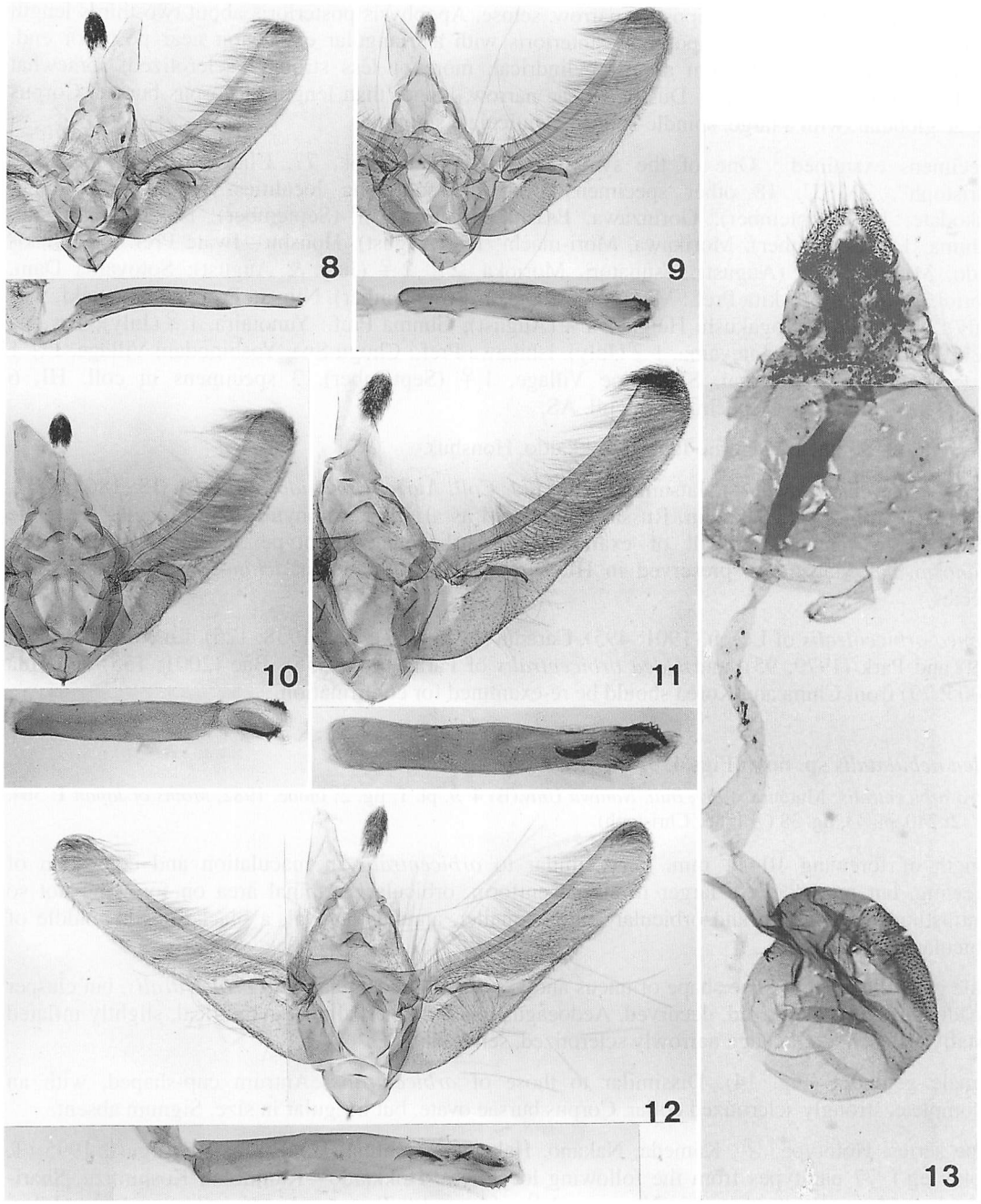
Udea orbicentralis: Mutuura, 1954, *Bull. Naniwa Univ.*(B) **4**: 9, pl. 1, fig. 2; Inoue, 1982, *Moths of Japan* **1**: 364, **2:** 240, pl. 43, fig. 38 (♂) (nec Christoph).

Length of forewing 10–11 mm. Very similar to *orbicentralis* in maculation and coloration of forewing, but more or less larger in size. Reniform, orbicular, terminal area on forewing not so contrastingly infuscated, and orbicular stigma smaller, annular or oval, a black spot in middle of orbicular stigma absent.

Male genitalia (Fig. 9). The shape of uncus and valva almost identical with *orbicentralis*, but clasper broadly strongly sclerotized, decurved. Aedoeagus much thicker, almost cylindrical, slightly inflated distally, its each lateral edge narrowly sclerotized, serrated.

Female genitalia (Fig. 14). Dissimilar to those of *orbicentralis*. Antrum cup-shaped, with an incomplete, strongly sclerotized collar. Corpus bursae ovate, but irregular in size. Signum absent.

Type series. Holotype. ♂, Kameda, Nakano, Hakodate, Oshima, Hokkaido, 10 August, 1995 (T. Inoko leg.). 77 paratypes from the following localities. Hokkaido—Kamitoku, Koshimizu, Shari-gun, 1 ♂ (August); Konbumori, Nemuro, 1 ♀ (August); Tomaraushi, Kamikawa, 1 ♂ (July); Rupeshibetsu, Sounkyo, 1 ♂ 1 ♀ (July); Manji, Kurisawa, Sorachi, 2 ♂ (July); Oyachi, Kyouwa Town, Iwanai-gun, 1 ♂ 2 ♀ (July); Goshiki Spa, Niseko, 3 ♂ 1 ♀ (August); Nakayama Pass, Oshima, 1 ♀ (August); Mt. Hakodateyama, Oshima, 1 ♂ (July); Toyono, Oshamanbe, Oshima, 1 ♀ (August); Unseki Pass, Hiyama, 1 ♂ 1 ♀ (August); Kaminokuni Town, Hiyama, 1 ♀ (August); Tomarikawa, Kumaishi, Hiyama, 1 ♂ (July); Narukawa-rindo, Nanae-cho, 1 ♀ (September); same locality as holotype, 1 ♀ (August); Toyohara-cho, Oshima, Hakodate, 2 ♀ (August); Numanotani, Hakodate, 1 ♀ (September). Honshu—Iwate Pref.: Asajimayama, Morioka, 1 ♀ (September); Tsunatori, Morioka, 4 ♀ (August & September); Tatesawa, Morioka, 1 ♂ (July). Akita Pref.: Nakanosawa, Mt. Hachimantai, 1 ♀ (August); Obuka, Mt. Hachimantai, 2 ♀ (August); Yuze, Kazuno-gun, 2 ♀ (September); Nibetsu, Akita, 1 ♀ (September); Mt. Takaosan, Yuwa Town, 1 ♀ (July); Tsurunoyu,



Figs 8–12. Male genitalia of *Udea* spp. 8. *U. orbicentralis* (Christoph) (slide no. HY 2539). 9. *U. nebulatalis* sp. nov. (slide no. HY 2588). 10. *U. proximalis* sp. nov. (slide no. HY 2590). 11. *U. grisealis* sp. nov. (slide no. HY 2489). 12. *U. intermedia* sp. nov. (slide no. HY 2600).
Fig. 13. Female genitalia of *U. orbicentralis* (Christoph), syntype.

Tazawako, 2 ♀ (August); Magi Valley, Ota, 1 ♂ (September); Doroyu Spa, Yuzawa, 1 ♂ (July). Yamagata Pref.: Dokko-mura, Zao, 1 ♂ (July). Fukushima Pref.: Shiozawa Spa, 1 ♀ (September). Gunma Pref.: Shinji, 1100m, 2 ♀ (September). Nagano Pref.: Usui Pass, 1 ♀ (September); Kamikochi, 1 ♀ (August); Mt. Jonen, 2500m, 1 ♀ (July); Reisen Hut, 2100m, 2 ♂ (July); Osawagoya, 1780m, N. Alps, 1 ♀ (August); Karasawa, Azumi, 1 ♀ (August); Yarisawa, Azumi, 1 ♀ (August); Mugikusa Pass, Chino, 1 ♀ (August); Shibunoyu Spa, Chino, 1 ♂ (June); Mt. Senjo, 2740m, 1 ♀ (August); Shimashima-dani, 2 ♀ (August); Akadake Spa, Suwa-gun, 1 ♂ (August). Toyama Pref.: Midagahara, Mt. Tateyama, 5 ♀ (July & August). Ishikawa Pref.: Nanryubaba, Shiramine Village, 1 ♀ (August); Murodô-daira, 2450m, Mt. Hakusan, 1 ♂ 2 ♀ (August); Shakadô, 1750m, Shiramine Village, 1 ♂ 1 ♀ (August & September); Ozo, 600m, Yoshinodani Village, 1 ♂ (July). Yamanashi Pref.: Kitazawa, Ashiyasu, 1 ♀ (August); Hirokawara, Ashiyasu, 1 ♀ (August); Sensui Pass, Ashiyasu, 1 ♀ (August). Kyushu—Kumamoto Pref.: Shiiya-toge, 1 ♀ (July). Holotype and 11 paratypes in coll. HI, 3 paratypes in coll. NSMT, 25 paratypes in coll. HY, 38 paratypes in coll. AS.

Distribution. Hokkaido, Honshu, Kyushu.

Notes. This species is very similar to *Udea ichinosawana* (Matsumura, 1925), **sp. rev.** from south Sakhalin, Russia described in *Scoparia*, but in the male genital characters valva is broader and rather strongly curved dorsad, clasper is much broader.

***Udea proximalis* sp. nov.** (Figs 5, 10, 15)

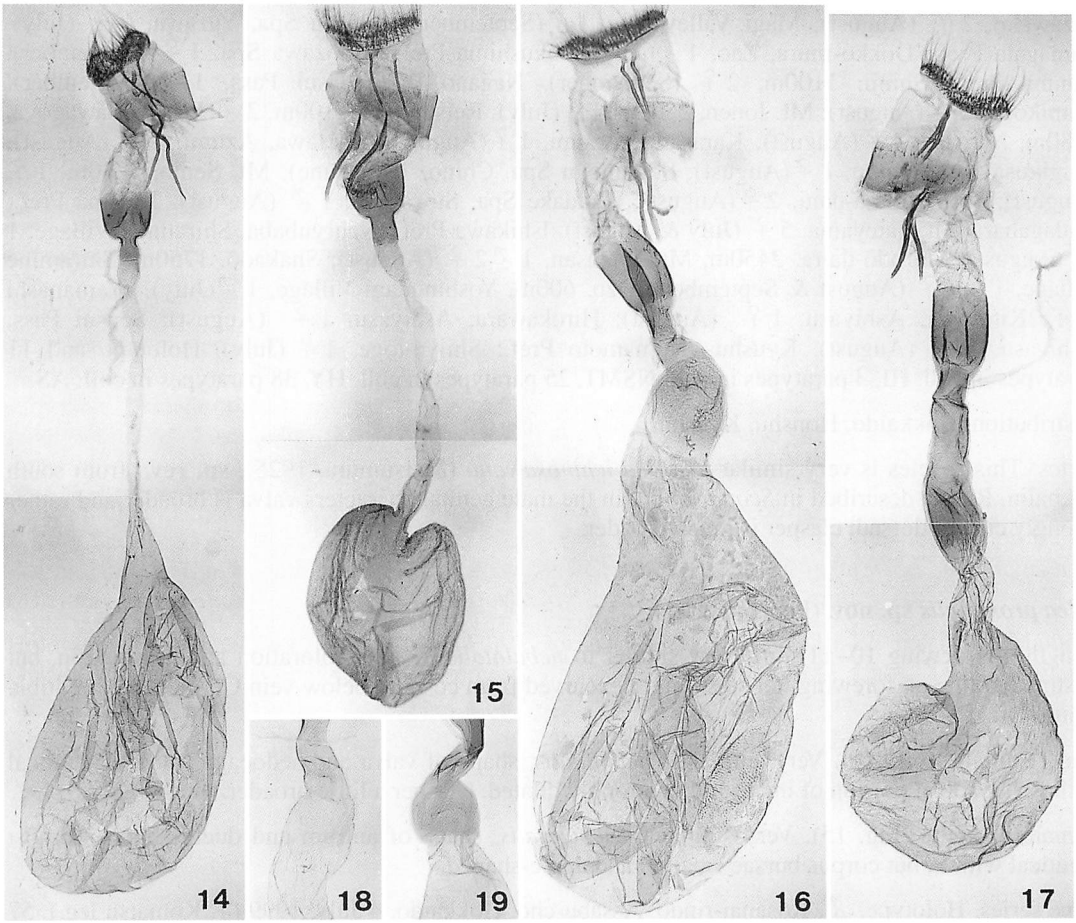
Length of forewing 10–11 mm. Very similar to *nebulatalis* in size, coloration and maculation, but postmedial line on forewing not so strongly excurved from costa to below vein CuA_2. Male hindtibia a little thicker.

Male genitalia (Fig. 10). Very similar to *nebulatalis,* shape of valva and aedoeagus almost identical with it, but apical portion of uncus rather strongly dilated. Clasper a little broader.

Female genitalia (Fig. 15). Very similar to *nebulatalis,* shape of antrum and ductus bursae almost identical with it, but corpus bursae smaller, and apple-shaped.

Type series. Holotype. ♂, Kosanai-rindo, Assabu-cho, Hokkaido, 4 July, 1999 (T. Komatsu leg.). 57 paratypes from the following localities. Hokkaido—Asajino, Sarufutsu, Sôya-gun, 1 ♂ (July); Horonobe Town, Teshio-gun, 1 ♀ (July); Onnetou, Nemuro, 1 ♂ (July); Goshiki Spa, Niseko, 3 ♂ 1 ♀ (August); Minatomachi, Rankoshi-cho, 1 ♀ (August); Ukishima, Kitahiyama, Oshima, 1 ♂ (July); Fumizuki, Ohno, Oshima 1 ♀ (July); Narukawa-rindo, Nanae-cho, Oshima, 1 ♂ (August); Nakano, Kameda, Hakodate, Oshima, 2 ♂ (August); Mt. Hakodateyama, Oshima, 1 ♀ (July); Nakayama Pass, Oshima, 1 ♂ (August); Nakanosawa, Kaminokuni Town, Hiyama, 1 ♂ (August); Mt. Otobedake, Hiyama, 1 ♀ (July); same locality as holotype, 1 ♂ (July); Tamaura, Okushiri Is., 1 ♀ (July). Honshu—Aomori Pref.: Nurukawa-rindo, Towada, 1 ♂ (August). Iwate Pref.: Kanematazawa, Morioka, 1 ♂ 1 ♀ (July); Yagimaki-rindo, Morioka, 1 ♀ (August); Asuka, Morioka, 1 ♂ (July); Odaido, Morioka, 1 ♂ (August); Ogasho, Morioka, 1 ♂ (August). Akita Pref.: Nakanodai, Towada, 1 ♀ (July); Hiromorigawa-deai, Kazuno, 1 ♂ (August); Kawaguchi Valley, Ota, 1 ♀ (July); Ishizawa-sannai, Honjo, 1 ♂ (September); Managozawa, Ogachi, 1 ♂ (July); Doroyu Spa, Yuzawa, 1 ♂ 1 ♀ (July); Mt. Takaosan, Yuwa Town, 2 ♂ 1 ♀ (June & August). Nagano Pref.: Mizusawa, Hata, 1 ♀ (July); Kisojihara, Nagawa, 1 ♂ (August); Shimashima-dani, 1 ♂ 1 ♀ (September); Ooike, 2400m, Mt. Shirouma, 1 ♂ (July). Toyama Pref.: Midagahara, Mt. Tateyama, 2 ♀ (August); Ohdawa Pass, Arimine, 1 ♂ (July). Ishikawa Pref.: Bettoudeai, Shiramine Village, 1 ♀ (July); Shakadô, 1700m, Shiramine Village, 1 ♂ 1 ♀ (July & August). Gifu Pref.: Aboudaira, Nyuukawa Village, Yoshiki-gun, 1 ♀ (July). Yamanashi Pref.: Shirane-oike, Ashiyasu, 1 ♂ (August); Kitadake-goya, S. Alps, 1 ♂ (August). Shikoku—Ehime Pref.: Okawa-rei, 1385m, 1 ♂ (July); Okegoya, Odamiyama, 1 ♀ (June). Tokushima Pref.: Mikoshi Shrine, Tsurugisan, 1 ♂ 2 ♀ (July & August). Kyushu—Kumamoto Pref.: Shiiya-toge, Yabemachi, 1 ♂ (June); Higaeridani, Izumimura, 1 ♂ (July). Holotype and 10 paratypes in coll. HI, 17 paratypes in coll. HY, 30 paratypes in coll. AS.

Distribution. Hokkaido, Honshu, Shikoku, Kyushu.



Figs 14–19. Female genitalia of *Udea* spp. 14. *U. nebulatalis* sp. nov. (slide no. HY 2519). 15. *U. proximalis* sp. nov. (slide no. HY 2497). 16. *U. grisealis* sp. nov. (slide no. HY 2479). 17. *U. intermedia* sp. nov.(slide no. HY 2510). 18–19. Colliculum. 18. *U.grisealis* sp. nov. (slide no. AS 1338). 19. Ditto (slide no. HY 2508).

Notes. This new species is similar to *Udea cyanalis* (La Harpe, 1855) from Lausanne, Switzerland in the genital feature of both sexes (*cf.* Hannemann, 1964: 322, fig. 241a; Marion, 1973b: 131, pl. Q, fig. 355; Slamka, 1997: 23, pl. 50, figs 345a-b), but in male clasper is more or less slenderer, in female corpus bursae is apple-shaped, not forming ovate as in *cyanalis.*

***Udea grisealis* sp. nov.** (Figs 6, 11, 16, 18, 19)

Udea orbicentralis Inoue, 1959, *Icon. Ins. Jap. Col. nat. Ed.* **1**: 255, pl. 172, fig. 26 (nec Christoph).

Length of forewing 11–13 mm. Very similar to *nebulatalis* in the maculation of forewing, but usually lager in size. Ground colour of both wings above more or less strongly grey-tinted. Postmedial line of forewing above more strongly serrated. Hindwing above with an ill-defined, pale fuscous postmedial line. Both wings above and beneath with more or less prominent terminal fuscous spots.

Male genitalia (Fig. 11). Rather similar to *proximalis* than to *nebulatalis*, but different from those of the former as follows. Lager in size. Apical dilated portion of uncus larger, oblonger. Clasper a little slenderer. Aedoeagus longer, broader, its apical portion with finer serrations on each lateral edge. Vesica with double rather prominent comblike cornuti.

Female genitalia (Figs 16, 18, 19). Dissimilar to those of preceding two species. Antrum funnel-shaped, well-sclerotized, with an incomplete, strongly sclerotized collar. Colliculum broad, weakly sclerotized, but irregular in shape as in Fig. 18 and Fig. 19. Ductus bursae broad, short. Corpus bursae large, ovate, with a large, lanceolate, weakly sclerotized, denticulate signum, but in some specimens with double small oval signa.

Type series. Holotype. ♂, Obuka Spa, Mt. Hachimantai, Akita Pref., Honshu, 7 August, 1988 (A. Sasaki leg.). 113 paratypes from the following localities. Hokkaido—Asahidake Spa, Mt. Daisetsu, 1 ♂(July); Mosiri, Horonai, 1 ♀(June); Manzi, Kurisawa, Sorachi, 1 ♀(July); Oyachi, Kyouwa Town, Iwanai-gun, 1 ♀(July); Tiyosibetsu, Hamamasu, 1 ♀(July); Asari Pass, Otaru, 2 ♀(July); Piratori, Hidaka, 1 ♀ (August); Goshiki Spa, Niseko, 1 ♂4 ♀(August); Oyobegawa, Matsumae-cho, Oshima, 1 ♀ (July); Ohkawa, Nanae-cho, Oshima, 1 ♂ (July); Nakayama Pass, Oshima, 1 ♀ (July); Nakayama, Ohno, Oshima, 1 ♀(July); Kosanai-rindo, Assabu-cho, 2 ♀ (July). Honshu—Aomori Pref.: Sennindake, Mt. Hakkoda, 1 ♀ (August); Hachimantai, 1 ♀ (July). Iwate Pref.: Sukawa Spa, 1 ♂(July). Akita Pref.: Nakanosawa, Mt. Hachimantai, 1 ♂5 ♀(August); Onuma, Mt. Hachimantai, 1 ♂ 2 ♀ (July & August); same data and locality as holotype, 5 ♂ 6 ♀ (August); 8-gome, Mt. Akitakoma, 5 ♀ (August); Soma Spa, Moriyoshi, 1 ♀ (July); Nyuto Spa, Tazawako, 1 ♀ (July); Yunomori, Tazawako, 2 ♀ (August); Gojumagari, Tazawako, 2 ♀(July); Kawaguchi Valley, Ota, 3 ♀ (July); Doroyu Spa, Yuzawa, 1 ♂ 2 ♀ (July); Managozawa, Ogachi, 1 ♀ (July). Miyagi Pref.: Kurikoma-snso, 5 ♂ 13 ♀ (August). Yamagata Pref.: Koppazawa, Higashine, 1 ♂ 1 ♀ (June). Fukushima Pref.: Kawairi, Yamato, 1 ♀(August); Akiyu Spa, 1 ♂(July). Niigata Pref.: Hirudaira, Itoigawa, 1 ♀(July). Nagano Pref.: Shirahone Spa, 1 ♀(July); Kamikochi, 1 ♂2 ♀(July & August); Togakushi Heights, 1 ♀ (August); Higashizawa, 1270m, Takase Valley, 1 ♀ (July); Osawagoya, 1780m, N. Alps, 1 ♀ (August); Nippo-onsen, 1600m, 1 ♀ (July). Toyama Pref.: Midagahara, Mt. Tateyama, 1 ♂ (July); Sogadake, Unazuki, 1 ♂ (August); Ohdawa Pass, Arimine, 3 ♂11 ♀(July & August). Ishikawa Pref.: Rokumansan, Shiramine Village, 1 ♀ (August); Bettoudeai, Shiramine Village, 3 ♀ (July); Shakadô, 1750m, Shiramine Village, 2 ♀ (July & August). Holotype and 31 paratypes in coll. HI, 33 paratypes in coll. HY, 49 paratypes in coll. AS.

Distribution. Hokkaido, Honshu.

***Udea intermedia* sp. nov.** (Figs 7, 12, 17)

External appearance almost identical with *grisealis,* but postmedial line on hindwing usually almost disappeared, in some specimens ground colour of both wings above a little brownish tinted.

Male genitalia (Fig. 12). Very similar to *grisealis*, but usually larger in size. Valva not so curved dorsad. Clasper a little slenderer. Apical portion of uncus not so dilated.

Female genitalia (Fig. 17). Similar to *grisealis,* but colliculum narrow, strongly sclerotized. Ductus bursae narrow, short. Corpus bursae usually small, nearly globular. Signum smaller, and round to pyriform.

Type series. Holotype. ♂ , Misawa, Rumoi City, Hokkaido, 18 July, 1993 (H. Kogi leg.). 38 paratypes from the following localities. Hokkaido—Nishibetsu-dake, Shibecha, 1 ♀ (July); Rupeshinai, Sounkyo, 1 ♀(July); Karushunai, Sounkyo, 1 ♀(August); Kitaurimaku, Shikaoi Town, 1 ♀ (July); Shikaribetsu, Shikaoi Town, 1 ♀(August). Honshu − Akita Pref.: 8-gome, Mt. Akitakoma, 1 ♀(August); Obuka Spa, Mt. Hachimantai, 1 ♀ (August). Fukushima Pref.: Akeyu Spa, 1 ♀ (July); Nagano Pref.: Nakabusa Spa, 1 ♀(August). Toyama Pref.: Midagahara, Mt. Tateyama, 2 ♂4 ♀ (July & August); Azohara, 800m, Unazuki, 6 ♀ (August); Kokurobe, 700m, Unazuki, 4 ♀ (August); Ohdawa Pass, Arimine, 5 ♀ (July & August); Banbajima, Kamiichi, 4 ♀ (August). Ishikawa Pref.: Shakadô, 1700m, Shiramine Village, 2 ♂ (July). Yamanashi Pref.: Near Kitazawa-toge, 1900m, 1 ♂ (August). Shizuoka Pref.: Mt. Fuji, 2100m, 1 ♀ (July). Holotype and 8 paratypes in coll. HI, 27 paratypes in coll. HY, 3 paratypes in coll. AS.

Distribution. Hokkaido, Honshu.

Notes. The specimens from mountain district of central Japan have rather brownish wings than those

of northern Japanese ones.

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摘　要

井上　寛・山中　浩・佐々木明夫：日本産ルリノメイガ（メイガ科，ノメイガ亜科）とその近縁の4新種の記載を含む分類学的検討

本文では*Udea orbicentralis* (Christoph) ルリノメイガを再記載するとともに，それと近縁の4新種，*U. nebulatalis*, *U. proximalis*, *U. grisealis*, *U. intermedia* を記載し，これら5種の区別点や分布を明らかにした．

Udea orbicentralis (Christoph) ルリノメイガ

本種はロシアの沿海州（ウラジオストク）産の標本に基づいて記載された種である（Christoph, 1881）．この種を日本から最初に記録したのはHampson (1899) で，その後Leech (1901) は北海道のHakodateとOiwakeから記

録し，Shibuya (1929) は追加産地として北海道の Sapporo (Matsumura) と Tobetsu (Wileman) を挙げている．Matsumura (1905) と Inoue (1955) の記録はこれらを引用したものである．本種は原記載以後，その正体が不明であったが，井上が1986年に Museum für Naturkunde der Humboldt-Universität, Berlin で Christoph (1881) が記載した *Botys orbicentralis* のタイプ標本を検した結果，六浦（1957, 1971, 原色日本蛾類図鑑（上）: 123, pl. 21, fig. 638）が *Udea orbicentralis* (Christoph) ルリノメイガとして図示したものと外観上一致することが明らかになった．また，井上（1959, 原色昆虫大図鑑 **I**（蝶蛾編）: 255, pl. 172, fig. 26; 1982, 日本産蛾類大図鑑 **1**: 364, **2**: 240, pl. 43, fig. 38（♂））が *Udea orbicentalis* (Christoph) ルリノメイガとして図示したものはいずれも誤同定であることが判明した．一方，井上（1982, 日本産蛾類大図鑑 **2**: 240）は Matsumura（1925, *J. Coll. Agric. Hokkaido Imp. Univ.* **15**: 186, pl. 11, fig. 9）がカラフト南部から記載した *Scoparia ichinosawana* を本種のシノニムとしたが，筆者らは北海道大学農学部昆虫体系学研究室が保管している *Scoparia ichinosawana* のタイプ標本（♂）のゲニタリアを調べたところ，別種であることが分かった．

本種の前後翅の主な表徴および雌雄交尾器の特徴は次の通りである．前翅長9–10 mm. 前翅の地色は灰白色で多少黒褐色鱗を散布する．環状紋，腎形紋は黒褐色味が強く顕著である．特に環状紋は大きめで黒褐色の細線で縁取られ，通常中央には微小な黒褐色点がある．腎形紋はほぼ8字形で黒褐色の細線で縁取られる．外横線は黒褐色で細く，鋸歯状，前縁から外縁にほぼ平行して弱く湾曲し，脈 M_3 から脈 CuA_2 の直下まで内側に強く湾曲した後，垂直にやや波状を呈しながら後縁に達する．外縁には小黒点列がある．後翅は灰白色か暗褐色で前縁はやや淡色，外縁は多少暗色をおびる．外横線は一般に不明瞭．横脈上に不明瞭な暗褐色の短状紋があり，脈 M_2 と脈 M_3 の起点にも不明瞭な小さい暗褐色紋がある．外縁の小黒点列は不明瞭．雄交尾器：valva は基部から先端までほぼ同じ幅でやや背方に湾曲し，先端は丸みをおびる．Uncus の先端はややふくらみ，短剛毛が密生する．Clasper は葉状で骨化は弱いが，背方は幅狭く多少強く骨化し，その先端は鉤状に尖る．Aedoeagus は細長く先端に向かってやや細くなり，先端はやや強く骨化し，その側面に2–3個のとげ状突起物がある．Cornuti は短い数個の刺状物よりなる．雌交尾器：antrum はほぼ円筒状で，やや強く骨化し，中央でややふくらむ．Ductus bursae は細長く，corpus bursae より長い．Corpus bursae は球形．Signum は紡錘形で多数の骨片を有する．本種の日本における分布は北海道，本州（中部以北）で7–9月に採れている．国外ではシベリア南東部に分布する．朝鮮半島，中国からも記録されているが再検討する必要がある．

Udea nebulatalis Inoue, Yamanaka & Sasaki ウスグロルリノメイガ（新称）

本種は Mutuura（1954, *Bull. Naniwa Univ.* (B) **4**: 9, pl. 1, fig. 2）; 井上（1982, 日本産蛾類大図鑑 **1**: 364, **2**: 240, pl. 43, fig. 38（♂））らが *Udea orbicentalis* (Christoph) ルリノメイガとして図示した種に相当する．外観は *orbicentralis* に似るが，環状紋，腎形紋の黒褐色味はそれほど強くないこと，環状紋がやや小さく中央に黒褐色斑点を有しないことなどで区別される．雄交尾器は uncus や valva の形状が *orbicentralis* とほぼ同じであるが，clasper は幅広く骨化し，やや下方に曲がること，aedoeagus は円筒状で太く，先端部両側には鋸歯状の突起があることで容易に区別される．雌交尾器の形態は *orbicentralis* とかなり異なり，antrum はカップ状を呈する．Corpus bursae は大きく卵形（その大きさには個体変異がある）．Signum を欠く．北海道，本州（岩手，秋田，山形，福島，群馬，長野，富山，石川，山梨），九州（熊本）で6–9月に採れた標本に基づいて記載した．なお，本種の雄交尾器の形態はカラフト南部から記載された *Udea ichinosawana* (Matstumura, 1925), **sp. rev.** に似るが，valva や clasper の形状が異なる．

Udea proximalis Inoue, Yamanaka & Sasaki ヒメルリノメイガ（新称）

本種は外観上前種 *nebulatalis* ウスグロルリノメイガに似るが，前翅外横線が前縁から脈 CuA_2 の直下まで前種ほど強く外方に湾曲しないこと，雄の中脚脛節がやや太いことなどで区別される．雌雄交尾器も前種 *nebulatslis* に似るが，雄交尾器では uncus の先端部がやや大きくふくらみ，clasper が太めであること，雌交尾器では corpus bursae は小さく，リンゴの果実状であることなどで区別される．北海道，本州（青森，岩手，秋田，長野，富山，石川，岐阜，山梨），四国（愛媛，徳島），九州（熊本）で6–9月に採れた標本に基づいて記載した．なお，本種の雌雄交尾器の形態はヨーロッパのスイスから記載された *U. cyanalis* (La Harpe, 1855) に似るが，clasper や corpus bursae の形状が異なる．

Udea grisealis Inoue, Yamanaka & Sasaki ハイイロルリノメイガ（新称）

本種は井上（1959, 原色昆虫大図鑑 [**I**]（蝶蛾編）: 255, pl. 172, fig. 26）が *Udea orbicentalis* (Christoph) ルリノメイガとして図示した種に相当する．前翅の表徴は前種 *proximalis* ヒメルリノメイガより *nebulatalis* ウスグロルリノ

メイガに似るが，大型で（前翅長11–13mm），翅の地色は灰白色味が強く，外横線は強く鋸歯状を呈すること，後翅にはやや不明瞭ながら外横線が認められること，前後翅の表裏とも外縁の黒点列がやや顕著であることなどによって容易に区別できる．雄交尾器は*nebulatalis*より前種*proximalis*に似るが，uncusの先端部はより大きくふくらみ，clasperがやや細いこと，aedeoagusは太めでやや長く，先端部両側の鋸歯状突起がより顕著で，vesicaには顕著な2個の楕状のcornutiがあることなどで*proximalis*との区別は容易である．雌交尾器の形態は前2種とかなり異なり，antrumはロート状で，骨化の弱いやや太めのcolliculumが続くがその形状には個体変異がある（Fig. 18とFig. 19参照）．Ductus bursaeは太くて短い．Corpus bursaeはやや大きく卵形（その大きさには個体変異がある）．Signumは通常披針形であるが，楕円形（2個）の個体もある．北海道，本州（青森，岩手，秋田，宮城，山形，福島，新潟，長野，富山，石川）で6–8月に採れた標本に基づいて記載した．

Udea intermedia Inoue, Yamanaka & Sasaki ニセハイイロルリノメイガ（新称）

本種は外観上前種*grisealis*ハイイロルリノメイガに酷似するが，後翅の外横線がより不明瞭で，消失している場合が多い．また，本州中部山地の個体は翅表全体がやや茶褐色をおびることが多い．個体によっては*grisealis*との区別がむずかしいことがあるので，この場合交尾器を調べる必要がある．雌雄交尾器の形態も前種*grisealis*に似るが，雄交尾器ではvalvaがあまり背方に湾曲しないこと，uncus先端部のふくらみが弱く，clasperはやや細いこと，雌交尾器ではcolliculumが細く，強く骨化し，ductus bursaeが細いこと，corpus bursaeは小さくほぼ球形で，signumは円形または西洋梨型であることなどによって区別できる．北海道，本州（秋田，福島，長野，富山，石川，山梨，静岡）で7–8月に採れた標本に基づいて記載した．

Tinea **20** (2): 95–97, February, 2008

A remarkable new species of the genus *Cosmopterix* Hübner (Lepidoptera, Cosmopterigidae) from Thailand

Hiroshi KUROKO
1-4-3 Mai, Hannan-shi, Osaka Prefecture, 599-0224 Japan

Abstract The species having unusual characters is described as new species from Thailand. The characters are shown in hindwing venation, male genitalia, and seventh and eighth abdorminal terga.

As far as I know, the members of *Cosmopterix* are usually rather compact in the macuration of forewing, the wing venation and genital structure. Although the new species has usual maculation as in *C. attenuatella*, it is specialized by the weak hind wing venation and modified male genitalia with peculiar abdorminal terga.

When we, members of the UOP Lepidopterological Expedition to Thailand, visited Chum Phon on 2nd Aug., 1981, I collected a large number of leaf mining larvae from each host plant, including some larvae of the new species on a creeper that is thought as *Ipomoea* sp., growing under tropical trees in the garden of Mr Robb who was the staff of the Experimental Station of Chum Phon at that time.

All type specimens are preserved in the collection of the Entomological lavoratory, Graduate school of Agriculture and Biological Sciences, Osaka Prefecture University.

Cosmopterix lungsuana sp. nov. (Figs 1–5)

♂. Wing length 2.8 mm. Head blackish-fuscous, with two faint white lines and a distinct central line, face leaden metallic; labial palpus black with white lines as usual; antenna black, apical 0.5 black, 1.5 white, 2.5 black, 0.5 white, 0.5 black. Thorax blackish-fuscous, with white central line; hind leg as usual.

Forewing narrow, with caudal apex, index 0.14, all veins present, between R_3 and stem of R_4-M_1 weak, R_4, R_5 and M_1 stalked as usual; blackish-fuscous; subbasal lines slender, subcostal line from base to about 1/2 of basal half part, median and subdorsal lines about 1/4 length of basal half part, forming an oblique series under subcostal line; anterior metallic fascia vertical, followed above middle by a small black dot; antero-costal line a little beyond anterior fascia anteriorly; postmedian band yellow tinged with faint orange; posterior metallic fascia divided into two spots by yellowish caudal projection, dorsal spot situated a little anteriorly; terminal line a little sinuated, from tip of

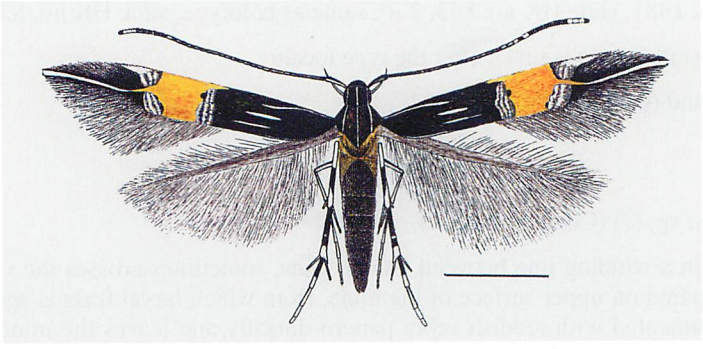
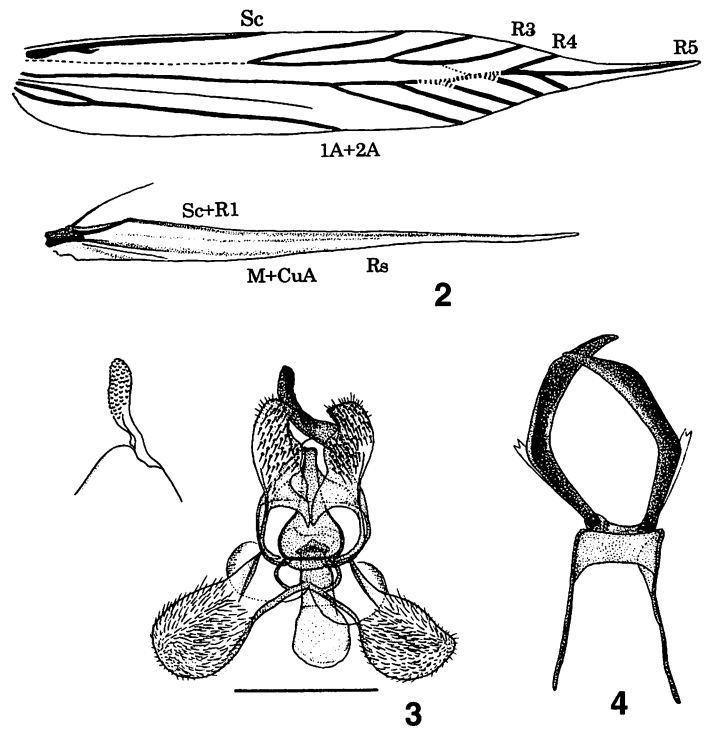


Fig. 1. Adult of *Cosmopterix lungsuana* sp. nov. Scale: 1 mm.



Figs 2-4. *Cosmopterix lungsuana* sp. nov. 2. Wing venation. 3. Male genitalia. 4. Seventh and eighth abdorminal terga. Scale: 0.2 mm.

caudal projection apically, continuing with apical spot; cilia pale greyish-fuscous. Hind wing lanceolate, index 0.09, each vein very weak, except Sc+R1, as difficult to identify the name of vein; pale greyish-fuscous.

Male genitalia (Figs 3, 4). Right brachium gently broadened on apical 2/3, left one absent; anellus lobe situated dorsally, nearly rectangular with sharp inner angle on distal edge; valva nearly oval; distal part of aedeagus bottle-shaped with long and narrow neck, basal part long nearly same length as distal part; pleural lobe small. Seventh and eighth abdominal terga sclerotized with a pair of lateral lods anteriorly, and two long, curved and modified scales on posterior edge.

Female unknown.

Material examined. Holotype. ♂, Lungsuan, Chum Phon, Thailand, 23. viii. 1981 (H. Kuroko and others), reared from *Ipomoea* sp. (?), slide HK no. 828. Paratypes. 1 ♂, same locality and host plant as holotype, 20. viii. 1981, slide HK no. 843; 2 ♂, same as holotype, slide HK no. 835.

Etymology. The specific name is given after the type locality.

Distribution. Thailand (Chum Phon).

Biology

Host plant. *Ipomoea* sp. (?) (Convolvulaceae)

Mine (Fig. 5) runs in a winding line between lateral veins, sometimes crosses the vein, pale brown, small pores are prepared on upper surface of the mine, from which larval frass is egested. When full fed the larva is ornamented with reddish zebra pattern dorsally and leaves the mine to spin a white spindle-shaped cocoon between the leaves.

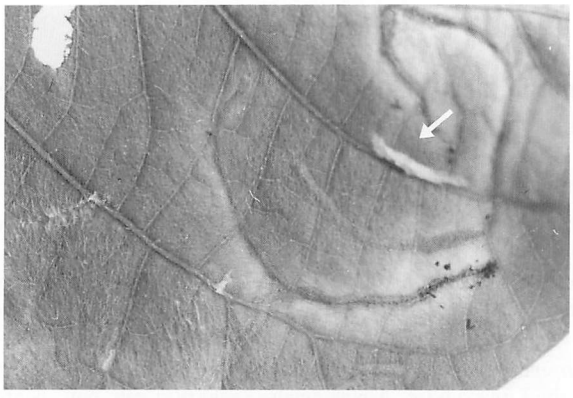


Fig. 5. *Cosmopterix lungsuana* sp. nov. Larval mine and cocoon on the leaf of *Ipomoea* sp. (?). White arrow shows the cocoon.

Remarks. Although the forewing of the new species has common maculation of this genus as in *C. attenuatella*, the species is extraordinary in having the following characters. Wing venation of hind wing is extremely weak as difficult to identify. Anellus lobe shows unusual shape and removes dorsally. Seventh and eighth abdominal terga are sclerotized and bearing two modified scales posteriorly. I have never seen these characters in *Cosmopterix*, though it is known to have the modified abdominal segments in some cosmopterigid genera (*Teladoma, Triclonella* and *Anoncia*, etc.) in Hodges (1978). Moreover it is unusual character that the larval mine on the leaf of dicotyledon is winding linear type. As a result of consideration to these characters, I came to the conclusion that this new species should be out of essencial lineage of the genus.

Reference

Hodges R. W., 1978. Gelechoidea, Cosmopterigidae. *Moths Am. north Mexico*, 6.1: 1–166, pl. 1–6.

摘　要

黒子　浩：タイ国からの特異な特徴をもった*Cosmopterix*属（鱗翅目，カザリバガ科）の1新種

*Cosmopterix*属の仲間は前翅の斑紋，翅脈，交尾器の特徴において一般にコンパクトである．本種の前翅はホソカザリバに似た変哲のないものであるが，後翅の翅脈は極めて弱く，翅脈Sc+R_1以外は不明瞭であり，♂交尾器の形態は特異で，第7–8腹板は硬化し，先端に変形した2鱗粉をもっている．また双子葉植物の葉に作られる幼虫の潜孔が線状を画くというのも特異である．これらの特徴は本属の中で他に例を見ないものであるので，本種は本属の進化の本流から外れたものと思われる．

Tinea **20** (2): 98–101, February, 2008

Bombyx flavomarginata Poujade, 1886, – a limacodid species misplaced in the Lasiocampidae (Lepidoptera: Limacodidae)

Vadim V. ZOLOTUHIN[1)] and Alexey V. SOLOVYEV[2)]

[1)] Department of Zoology, State Pedagogical University of Uljanovsk, pl. 100-letia Lenina 4, RUS-432700 Uljanovsk, Russia; e-mail: v.zolot@mail.ru

[2)] Department of Entomology, Faculty of Biology and Soil Sciences, St. Petersburg State University, Universitetskaya nab. 7/9, RUS-199034, St. Petersburg, Russia; e-mail: solovyev_alexey@mail.ru.

Abstract *Bombyx flavomarginata* Poujade, 1886, currently placed in *Malacosoma* Hübner, is transferred from the Lasiocampidae to the Limacodidae. A new genus, *Shangrilla* gen. nov., is erected and the new combination *Shangrilla flavomarginata* (Poujade, 1886) is established. The lectotype is designated for *Bombyx flavomarginata* from the collection of the Muséum national d'histoire naturelle, Paris. Additional data on the distribution of this rare species are also given.

In 1886 Mr G.-A. Poujade described from Tibet a new species of moth as *Bombyx? flavomarginata*. It was not placed in any family but as a member of the same genus, the species [*Malacosoma*] *Bombyx franconica* [Denis & Schiffermüller], 1775 was noted in the text. It allows us to suggest that Poujade's species was associated with Lasiocampidae or ?Bombycidae. In 1892 the species was transferred into genus *Malacosoma* Hbn. [1820] 1816 by W. F. Kirby (1892: 819) and in that combination it was known until now. The species is very rare in collections and apart from one syntype, we have seen only two other specimens in the collection of the BMNH. The species is totally absent from other collections and museums, including the Zoological Institute of Academia Sinica (Beijing) and Agricultural University of South China (Guangdong) where special requests were sent. The only available typical specimen is a syntype female with the genitalia damaged by pests. It was found in the MNHN and we strongly suspect that the rest of the type series (two more specimens) is probably destroyed. To define the systematic position of the taxon, we investigated all available specimens. Unfortunately, they are all females and the exact taxonomic position of *flavomarginata* Poujade can't be given with certainty. Here we are transferring the species from the Lasiocampidae into a separate genus *Shangrilla* gen. nov., within the 'paired signum section' of the Limacodidae (sensu Holloway, 1986: 54) and give a re-description.

The following acronyms are used in the text:

BMNH – The Natural History Museum (London, Great Britain, formerly The British Museum of Natural History); MNHN – Muséum National d'Histoire Naturelle (Paris, France).

Shangrilla gen. nov. (Figs 1–8)

Type species: *Bombyx ? flavomarginata* Poujade, 1886, *Ann. Soc. Ent. Fr.* Ser. 6, Bull. **6**: 92, here designated.

Middle sized limacodids, expanse 27 mm in males and 31–33 mm in females (Figs 1, 3, 4). Body stout. External ocelli and chaetosemata absent. Antennae bipectinate in male, filifom in female. Proboscis reduced. Venation as in limacodid ground plan (Fig. 5). Forewing with veins R_3+R_4 stalked from R_5; medial stem well developed, vestigial in basal part; A_1+A_2 with basal fork at1/4 of A_1+A_2. Hindwing with broad costal area; medial stem vestigial; vein A_3 present. Forewing and hindwing with strongly modified pattern without any fasciae and spots or other pattern elements typical of most limacodids. Without sexual dimorphism in coloration and wing pattern according to original description. Pretarsal 5th tarsomere of female with dense mat of sensilla trichoidea on recessed pad without disperal scales.

Female genitalia (Figs 6–8). Papillae anales disc-shaped, open and flat; anterior and posterior

Figs 1–4. *Bombyx flavomarginata* Poujade. 1. Female lectotype (MNHN). 2. Ditto, label data (MNHN). 3. Female, Tien-Tsuen (BMNH). 4. Female, Siao-Lou (BMNH).

apophyses well developed, posterior apophyses two times as long than anterior apophyses and as long as height of papillae anales; vaginal plates absent, antrum and ductus without visible sclerotization; ductus slender, long, spiral-shaped; bursa rounded, with paired signa.

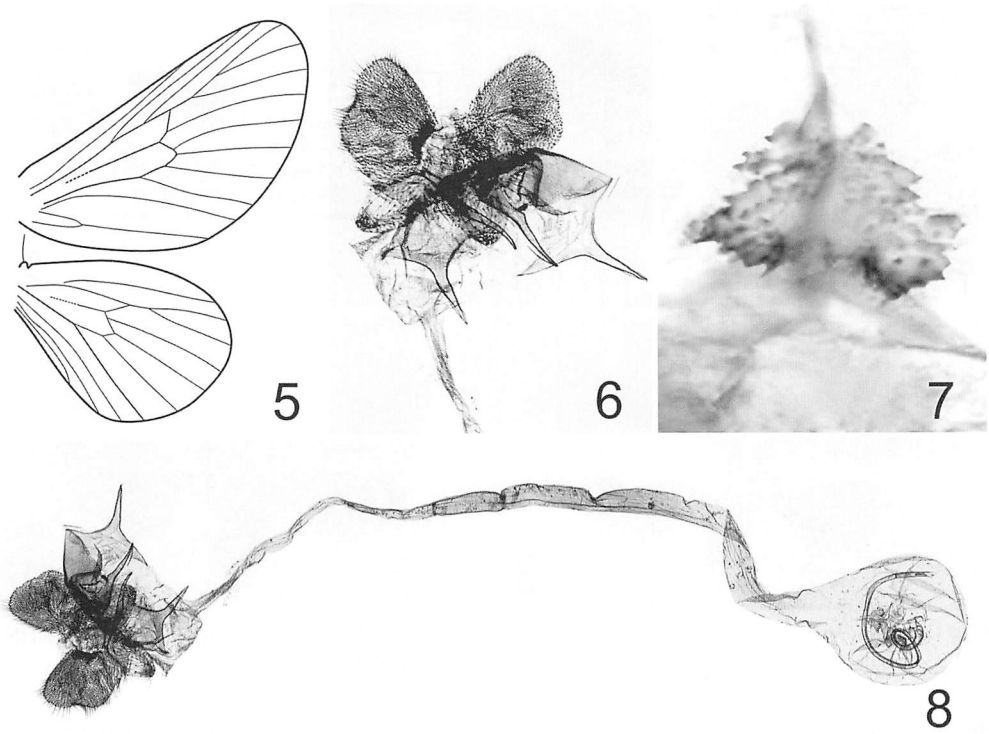
Diagnosis. The coloration and wing pattern are unique for this genus. Some affinities in external characters can be found between *Shangrilla flavomarginata* (Poujade, 1886) and *Barisania lampra* (West, 1937). The latter genus was established by Holloway (1990: 45) based on wing venation, but no females are known for *Barisania* so far and this similarity is phylogenetically unimportant. The venation of both genera is quite different: *B. lampra* has the medial stem of the forewing well developed basally and branched distally. Also, in *B. lampra* the outer marginal yellow fascia of the forewing is narrower, but its apical part is wider, covering 1/3 of the forewing, and the outer marginal area of the hindwing is much broader, covering 1/3 of the hindwing.

Comments. Using characteristics of the signa and venation, we are placing this genus in the 'paired signum section' of the Limacodidae (sensu Holloway, 1986: 54). Therefore *Shangrilla* is close to genera *Miresa* Walker, 1855, *Hyphorma* Walker, 1865, *Mahanta* Moore, 1879, *Phocoderma* Butler, 1886, *Scopelodes* Westwood, 1841, *Susica* Walker, 1855, and *Hyphorma* Walker, 1865. At the same time general habitus of the moths, strong reduction of wing pattern elements, venation peculiarities (non-branched medial stem and R_3+R_4 branched from R_5) and characters of female genitalia (shape of ductus, corresponding size of bursa copulatrix, shape of signum) don't allow us to consider *flavomarginata* Pouj. to be a member of any genus listed, therefore a new genus is erected here. However, the proper systematic position of the unique species of *Shangrilla* will be defined more precisely only after males will have been obtained. The genus is considered to be monotypic so far.

Etymology. In Tibet's mythology, Shangri-La was reputed to lie in or north of Tibet, where seemingly impassable mountains enclosed a mystical, harmonious valley, gently guided from a lamasery. The generic name is made from the name Shangri-La in correlation with the distribution of this genus, confined to Tibet.

Shangrilla flavomarginata (Poujade, 1886), **comb. nov.**

Bombyx? *flavomarginata* Poujade, 1886, *Ann. Soc. ent. Fr.* Ser. 6, Bull. **6**: 92. Locus typicus: Thibet, Mou-Pin. Lectotype: female (MNHN), here designated.



Figs 5–8. *Bombyx flavomarginata* Poujade. 5. Wing venation. 6–8. Female genitalia. 6. Papillae anales, enlarged. 7. Signum, strongly enlarged. 8. Genitalia, general view.

Material. Lectotype female of *Bombyx* ? *flavomarginata*, Thibet, Moupin, A. David leg. (MNHN). – 1 Female, Siao Lou, 1898, Chasseurs indigènes (Genital slide LIMA 1256 in BMNH). Female, Tien-Tsuen, Chasseurs indigènes du P. Déjean, 1901 (BMNH).

Male. Expanse 27 mm. Very similar to female in appearance according to original description.

Female (Figs 1–4). Expanse 30–33 mm; forewing length 14 mm. Forewing and hindwing light brown with dark brown scales except for yellow apical and outer marginal areas of upper surface. Body stout. Thorax yellow. Abdomen brown with yellow caudal part.

Female genitalia (Figs 6–8). As discussed in generic account.

Comments. It is quite unclear why the species was considered as a member of *Malacosoma* Hübner by Kirby (1892: 819) and followers (Leech 1899; Closs 1913; Collier 1936). The only note from the original description ('Mâle. – Presque de la forme du mâle de *B. franconica*.') isn't useful to associate it with any Lasiocampidae. The female genitalia with their very characteristically shaped papillae anales doubtless prove placement in the Limacodidae.

In the original description of *flavomarginata*, three specimens were mentioned as "Deux ♀, et un ♂ tellement dénudés..." Only one female from this sample (Fig. 1) is present now in MNHN and it bears the following four labels (Fig. 2): 1. – '*Bombyx* ? / *flavomarginata* / Pouj. / Ann. Soc. Ent. / 1886 Bullet. XCII', 2. – [unreadable], 3. – 'MUS. HIST. NAT. / A. DAVID / Moupin (*Thibet*) / 1871', and 4. – 'TYPE'. This specimen is designated as the lectotype of *Bombyx flavomarginata* Poujade by a printed red label with following text 'LECTOTYPE / *Bombyx* ♀ / *flavomarginata* Poujade 1886 / Zolotuhin & Solovyev des.'. The female genitalia of the lectotype are strongly damaged by pests on the ventral surface of the abdomen and were therefore not dissected.

Nothing is known about its biology and preimaginal instars.

Distribution. So far as known, the range of the species is limited to Southern China (?Xizang, Sichuan) where it occurs in the Tibetan mountain range.

Acknowledgements

This work was supported and supplied by our colleagues to whom we express our sincere thanks: Mr Martin Honey and Mr Geoff Martin (BMNH, London), Dr Joël Minet (MNHN, Paris), and Mr Thomas J. Witt (Munich, Germany). Information about presence or absence of the species in collections was also obtained with courtesy from Dr Wu Chunsheng (Beijing) and Prof. Dr Wan Ming (Guangdong). Linguistic help was given by Dr Bernard Landry (Geneve). This investigation was supported financially by the Thomas Witt-Stiftung in December 2005 and August-September 2006. Images of the moths from the BMNH collection are reproduced here with kind permission from the Trustees of the Natural History Museum, London. Microscopic images of genitalia were kindly made for us by Mr Geoff Martin (BMNH).

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On distribution and systematics of Carpenter-moths of the genus *Relluna* Schoorl, 1990 (Cossidae)

Roman V. YAKOVLEV

57-81 ul. Chkalova, Barnaul, 656049, Russia.
e-mail: yakovlev_r@mail.ru

Abstract All up to date existing information on distribution of *Relluna nurella* (Swinhoe, 1894). *Relluna nurella wallacei* Yakovlev, ssp. n. is presented.

Azygophleps nurella Swinhoe, 1894 was described from [NE] India, Khasi Hills, Cherra Punji. Later the species was mentioned for Meghalaya and Assam (NE India) (Swinhoe, 1895; Hampson, 1896; Dalla-Torre, 1923; Gaede, 1933; Arora, 1976). The monotypical genus *Relluna* Schoorl, 1990 was established for *Azygophleps nurella* basing on substantial differences of the thoracic sclerites from those in close genera (Schoorl, 1990). Later J. D. Holloway (1986) reported on occurence of the species in N. Borneo (Kina-Balu), Palawan, Malaysia Peninsula and the NE Himalaya. In 2004 it was for the first time reported for the Chinese fauna (Yakovlev, 2004a, b).

Studying large series of *Relluna nurella* (Swinhoe, 1894), mostly preserved in the Thomas Witt Museum, Munich (MWM), substantial external differences were found between, on one hand, northern specimens originated from NW India, N. Myanmar, N. Vietnam, N. Thailand and, on the other hand, small number of specimens from N. Sumatra, Malaysia and S. Myanmar. Unfortunately, I have not seen specimens from the Palawan Insland (the Philippines) but may suppose that they are close to the southern populations (pers. comm. by Dr. Vadim Zolotuhin).

Herewith I report all known to me localities of *Relluna nurella* (Swinhoe, 1894) (Fig. 1) and describe populations from the its southern range as a new subspecies.

List of abbreviations: BMNH–The Natural History Museum (London, U. K.); MWM–Museum by Thomas Witt (Munich, Germany); SII–collection of Siegfried Ihle (Ingolstadt, Germany).

Relluna nurella (Swinhoe, 1894)

Azygophleps nurella Swinhoe, 1894, *Ann. Mag. Nat. Hist.* (6) **14**: 440. The type material (the holotype by monotypy) in The Natural History Museum, London (BMNH).

Relluna nurella nurella (Swinhoe, 1894)

Material studied. N. Vietnam: 1 ♂, Fan-si-pan, Cha-pa, 1700 m, June 1995, Siniaev leg. (MWM); 2 ♀, Ba Be lake N.P., Prov. Cao Bang Phuc, 300 m, Thomas Ihle leg., 04.2007 (MWM and SII). China: 2 ♂, China, NE Guizhou, Fangjinshan, 1600 m, Janghou, 08.2002, Li et al. leg. (AHU); 1 ♂, China, Yunnan, Dabingshan, Yunxian, 1800 m, 05.2000, native collector leg. (MWM); 1 ♂, China, E. Yunnan, Meizhiging, Wenshan, 2100 m, 6.2000., native collector leg. (MWM). Thailand: 2 ♂, Thailand, Changwat Nan, 25 km N of Bo Luang, 1150m, 28.02. 1996, Hreblay & Szaboky leg. (MWM); 1 ♂, Thailand, Changwat Nan, 30 km N of Pua, 1700m, 27.02. 1998, Csovari & Steger leg. (MWM). Myanmar: 6 ♂, Burma (Myanmar), 25 km E Putao, Nan Sa Bon village, 800 m, 8-9.05.1998, Murzin & Sinjaev leg. (MWM); 12 ♂, Burma (Myanmar), 50 km NE Putao, Wa Sa Dam village, 960 m, 17.05.1998, Murzin & Sinjaev leg. (MWM); 3 ♂, Burma (Myanmar), 21 km E Putao, Nan Sa Bon village, 550 m, 1-5.05.1998, Murzin & Sinjaev leg. MWM).

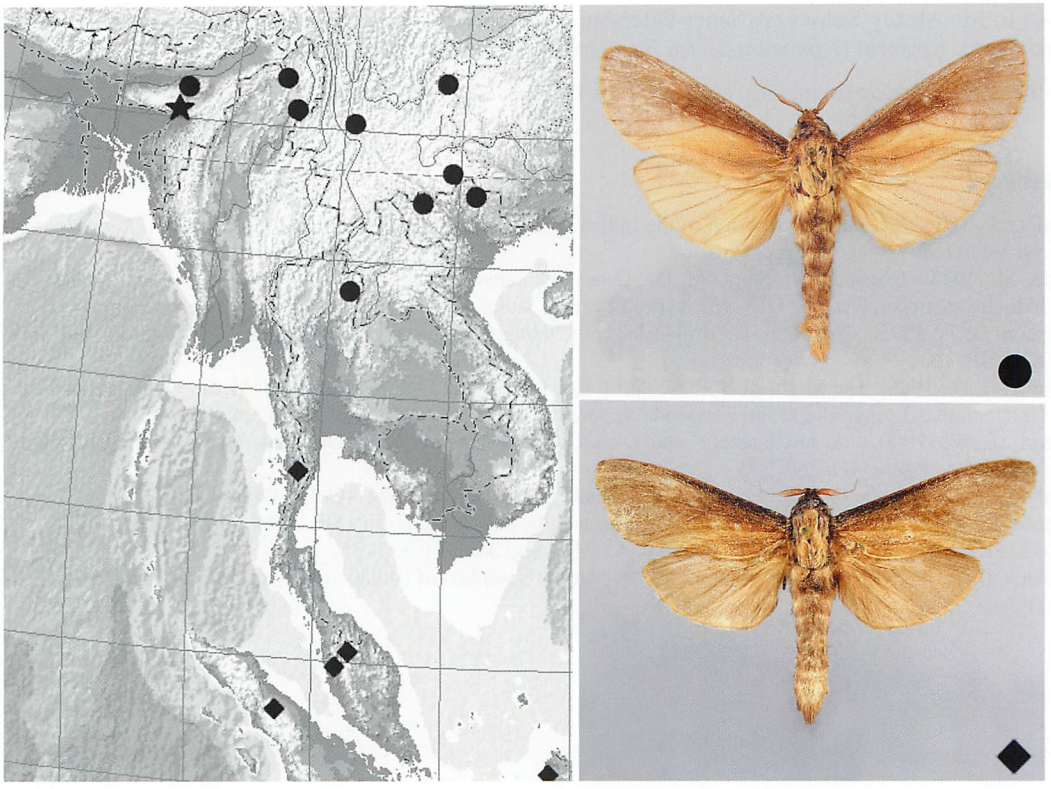

Fig. 1. Distribution of *Relluna nurella* (Swinhoe, 1894): ● – *Relluna nurella nurella* (Swinhoe, 1894), the type locality is marked with an asterisk; ◆ – *Relluna nurella wallacei* Yakovlev, ssp. n. Specimens figured: *Relluna nurella nurella* (Swinhoe, 1894), ♂, Thailand, Changwat Nan, 30 km N of Pua, 1700 m, 27. 02. 1998, leg. Csovari & Steger (MWM) and *Relluna nurella wallacei* Yakovlev, ssp. n., holotype.

Relluna nurella wallacei Yakovlev, **ssp. n.**

Material. Holotype, ♂, Malaysia, Prov. Pahang, Zentrales Bergland, Fraser's Hill, Bukit Fraser, 1050–1300 m, 19.04–8.05.2001, de Freina (MWM). Paratypes. Myanmar: 3 ♂, Tenasserim, 800 m, Khao Yai, 600–1100 m, 12–20.04.1995, Steinke & Lehmann leg. (MWM); Malaysia: 1 ♂ , Malaysia, Cameron Highland, SW Ringlet, 14.02.2001 (MSW); 1 ♂ , Borneo, near Kina Balu (Hollowey) (BMNH). Indonesia: 1 ♂, N. Sumatra, 8 km N Sindar Raya, 98°55′E; 3°12′N, 700 m, 23.02.1994, Malicky (MWM).

Description. Fore wing length 25–28 mm. Thorax and abdomen covered with brownish hairs. Fore wing elongate, with a relatively pointed apex, strongly suffused with dark-brown scales, somewhat lighter in cubital area, especially in wing central part; fringe evenly yellow. Hind wing greyish-brown, somewhat lighter at base.

Male genitalia do not differ from those in the nominotypical subspecies.

Diagnosis. The new species differs substantially by the wing coloration: both the fore and hind wings are much darker, the fore wing light pattern is strongly reduced.

Acknowledgements

The author is grateful to Mr Thomas Witt (Munich), Dr Vadim Zolotuhin (Uljanovsk), Mr Siegfried Ihle (Ingolstadt) and Mr Geoff Martin (London) for important material and consultations. Special

thanks to Mr Alexey Solovyev (Sanct-Petersburg–Ulyanovsk) for technical support. The author also thanks Dr O. Kosterin (Novosibirsk) for his help in translation of the manuscript.

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Zeuzerocossus Yakovlev, gen. n., a new genus of Cossidae from south-eastern Asia

Roman V. YAKOVLEV

57-81 ul. Chkalova, Barnaul, 656049, Russia.
e-mail: yakovlev_r@mail.ru

Abstract *Zeuzerocossus* Yakovlev, gen. n. (type species – Cossus cinereus Roepke, 1957) and Zeuzerocossini Yakovlev, tribus n. (type genus *Zeuzerocossus* Yakovlev, gen. n.) are described, a new combination *Zeuzerocossus cinereus* (Roepke, 1957), comb. n. is proposed.

Carpenter moths (Lepidoptera, Cossidae) of south-eastern Asia are still insufficiently studied. In recent years many genera and species were described from Indonesia, Thailand, southern India and other countries (Holloway, 1986; Yakovlev, 2004a, b, c, 2005).

Cossus cinereus Roepke, 1957 (Figs 1–2) was described in a fundamental work by W. Roepke (1957) devoted to carpenter moths of the Malay region. Traditionally all Cossinae of South Arabia used to be attributed to the genus *Cossus* Fabricius, 1793 (the type species *Phalaena cossus* Linnaeus, 1758) (Roepke, 1957; Holloway, 1986). However, as J. Holloway already noted, they fall into a number of groups by the antenna structure. I have already shown that the antenna structure correlates with peculiarities of the male genitalia, that was a basis for isolation of a number of new Cossinae genera ranging in the Asian tropics.

Cossus cinereus was attributed by J. Holloway to a group, composed of only this species, with the antenna bipectinate from base to middle but simple (without pectination) in its distal part. This trait is observed in the only genus described within the subfamily Cossinae – *Assegaj* Yakovlev, 2006 (the type species *Assegaj clenchi* Yakovlev, 2006), ranging in the equatorial Africa. The male genitalia structure in *Assegaj clenchi* and *Cossus cinereus* differ radically. In *Assegaj clenchi* the uncus bears a crest on its lower surface, the tegumen is very wide, the arms of transtilla are wide and hook-shaped, the valva is very broad and short, on its inner surface there is a small weakly sclerotised process. Thus, my opinion is that the peculiar antenna structure is due to cenvergency rather than relatedness.

By the genitalia structure (Fig. 3) *Cossus cinereus* is close to the genus *Ronaldocossus* Yakovlev, 2006 (the type species *Ronaldocossus brechlini* Yakovlev, 2006), ranging in Sulawesi. They share such synapomorphies as a pointed fore wing apex, a short aedeagus without cornuti in the vesica, a triangular-shaped valva, arms of transtilla diverging at an angle about 180°. The antenna structure is also rather similar: in *Ronaldocossus brechlini* they are bipectinate, the processes gradually shortened towards the apex. On this ground I propose to unite *Ronaldocossus* Yakovlev, 2006 and *Zeuzerocossus* Yakovlev, gen. n. into a new tribe Zeuzerocossini Yakovlev, tribus n.

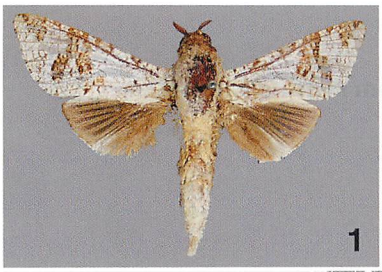
List of abbreviations: BMNH – The Natural History Museum (London, U. K.); BPC – the collection by B. Pinratana (Bangkok, Thailand); ITZ – Instituut voor Taxonomisch Zoölogie (Amsterdam); MHUB – Museum für Naturkunde der Humboldt-Universität (Berlin, Germany); MWM – Museum by Thomas Witt (Munich, Germany).

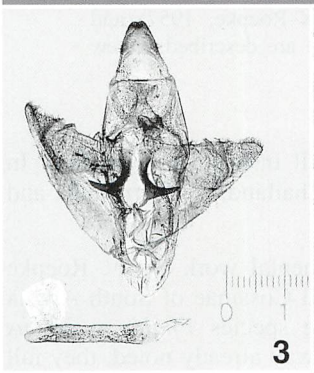
Zeuzerocossini Yakovlev, **tribus n.**

Type genus – *Zeuzerocossus* Yakovlev, gen. n.

Description. Moths of medium size. Head relatively large, one-third narrower than thorax. Antenna bipectinate at base; processes either shortened gradually towards antenna apex or distal half without pectination. Fore wing elongate, with relatively pointed apex.

Male genitalia. Uncus triangular with a sclerotised patch at apex; gnathos arms very short and





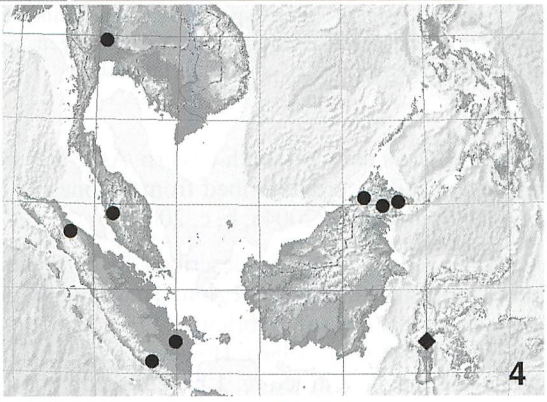


Fig. 1. Holotype of *Zeuzerocossus cinereus* (Roepke, 1957) (ITZ).
Fig. 2. *Zeuzerocossus cinereus* (Roepke, 1957), ♂, Borneo, Sabah, Trus Madi (MWM).
Fig. 3. Male genitalia of *Zeuzerocossus cinereus* (Roepke, 1957), Thailand.
Fig. 4. Map of distribution of Cossidae of the tribe Zeuzerocossini Yakovlev, tribus n.: ● – *Zeuzerocossus cinereus* (Roepke, 1957); ◆ – *Ronaldocossus brechlini* Yakovlev, 2006.

relatively thick, fusing to form a small gnathos. Tegumen small. Valva almost triangular in shape, a small distal patch weakly sclerotised, there are processes on valva costal margin. Arms of transtilla strongly sclerotised, less than a half length of valva, diverging from each other at an angle almost 180°. Juxta small with small lateral processes. Saccus small, semioval. Aedeagus short (less than two-thirds of valva length), thick; vesica opening occupying about half of aedeagus length at dorso-apical position; vesica without cornuti.

Female unknown.

Distribution: Indonesia (Borneo, Sulawesi, Sumatra), the Malaya Peninsula, Central Thailand (Fig. 4).

Diagnosis. Presently it is difficult to specify the position of the new tribe within the family since the working out a supergeneric systematics of Cossidae is just started, however the characters differentiating it from other Malayan genera or Cossinae may be noted, namely the bipectinate antenna of a specific structure, a triangular valva, a specific position of the transtilla arms, the aedeagus structure.

Zeuzerocossus Yakovlev, **gen. n.**

Type species – *Cossus cinereus* Roepke, 1957

Description. Medium-sized moths. Thorax and abdomen densely covered with light hairs. Hind tibia with two pairs of spores, at apex and at middle of its length. Antenna bipectinate at base and without pectination in distal part. Fore wing triangular with a pointed apex, light with a pattern of ochraceous and grey-brown spots. Hind wing short, patternless dark-grey.

Male genitalia. Uncus triangular; gnathos arms very short, thick, fusing to form a small rounded

gnathos covered with fine spinules. Tegumen small. Valva triangular, a distal membranous part about one-fifth of valva length separated on inner surface from the rest of valva by a small crest, at this point costal margin bearing two small crests. Arms of transtilla strongly sclerotised, about thrice as short as valva, diverging from each other at an angle practically of 180°. Juxta small with small lateral processes. Saccus small, semioval. Aedeagus short (somewhat less than two-thirds of valva length), thick; vesica opening occupying about half of aedeagus length at dorso-apical position. Vesica without cornuti.

Female unknown.

So far a monotypical genus.

Distribution: Indonesia (Borneo, Sumatra), the Malaya Peninsula, Central Thailand.

Diagnosis. The new genus well differs from the close genus *Ronaldocossus* Yakovlev, 2006 by a large size, a peculiar light wing pattern, the antenna structure bipectinate in the proximal half and non pectinate in the distal half.

Material. Holotype of *Cossus cinereus* Roepke, 1957, a male, O. Borneo (ITZ); 1 ♂, Sumatra, Langkat, Bingai (westl. Madan), Lichtfang, 24.9.97., Erber leg. (MHUB); 1 ♂, Malacca, Tengah Gebirge, P. Zobrys (MHUB); 6 ♂, Borneo, Sabah, Main Train West North 5, 150 m, 15.12.1989 (ITZ); 2 ♂ , Trus Madi, Martini leg. (MWM); 1 ♂ , Thailand, Hala Bala, Wang Narathiwat, 23.08.2003 (PCB); 5 ♂, W. Sumatra, Lebong Tandai, 20–23.01.1927, Brooks (BMNH); 1 ♂, S. Sumatra, Lebong Sulit, Brooks (BMNH); 10 ♂ , Borneo, Sabah, Danum Valley, 18.10.1987 (BMNH); 1 ♂, Borneo, Sabah, Danum Valley, 70 km W Lahat Datu, 15.12.1989, J.P. Duffels leg. (ITZ).

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Tinea **20** (2): 109–115, February, 2008

Further notes on moths of *Eupsilia* (Lepidoptera, Noctuidae) from Taiwan, with description of a new species

Mamoru OWADA [1], Chien-Ming FU [2], Han-Rong TZUOO [3] and Hideki KOBAYASHI [4]

[1] Department of Zoology, National Museum of Nature and Science
Hyakunincho 3-23-1, Shinjuku, Tokyo, 169-0073 Japan
[2] 8, Tayuan 7th St., Taiping, Taichung 441, Taiwan, R.O.C.
[3] 9, 133 Lane, Chung Hsiao 3rd Rd., Puli, Nantou 545, Taiwan, R.O.C.
[4] Akagimotomachi 5-4-304, Shinjuku, Tokyo, 162-0817 Japan

Abstract A new species of noctuid moth of the genus *Eupsilia* Hübner, [1821] is described from Taiwan, and is named as *E. baoshinchangi* Fu, Tzuoo et Owada, **sp. nov.**, which was formerly identified with *E. quinquelinea* Boursin, 1956. This species is very similar to the latter in wing maculation, but the male genitalia are specifically different. The male specimen and genitalia of *E. shyu* Chang, 1991, are illustrated for the first time, and its relationship to allied species is discussed. *Eupsilia tripunctata* Butler, 1878, is newly recorded from Taiwan, and "China" is deleted from the distributional range of *E. tripunctata*.

The winter moths of the genus *Eupsilia* Hübner, [1821] are rather difficult to collect, because of low temperature of their flying season. In Taiwan, there are cases, though not so often, that it snows even on rather low mountains (Kitching et al., 1997). Owada and Kobayashi (1993) enumerated five species of *Eupsilia* from Taiwan, and at that time, male moths were unknown in two species, "*E. quinquelinea* Boursin, 1956" and *E. shyu* B. S. Chang, 1991. In the first record of female specimens of "*E. quinquelinea*", Owada and Kobayashi (1993) noted as follows: "Boursin (1956) described *E. quinquelinea* on the basis of a rather worn male specimen collected in Kwangtung, South China, from the Höne collection in Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn. He compared this species with *E. quadrilinea* from Japan, and stated that, 'Die Färbung ist aber gesättigtes Kastanien-(rötlich-)braun und die vier parallellaufenden Querlinien nebst Mittelschatten, welcher hier wie eine normale Querlinie aussieht, sind deutlicher'. No female specimen has hitherto been known in South China. Since the wing maculation of two Taiwanese female specimens accord well with the illustration and description of the male holotype, we have identified them as belonging to the same species of southern Chinese *quinquelinea* for the present paper and are looking for discovery of male specimens from Taiwan". Through further extensive researches on winter moths in Taiwan (cf. Fu & Tzuoo, 2002, 2004), Fu and Tzuoo succeeded in collecting males of these species. In this paper, we are going to describe and illustrate males of them, and to discuss their relationships. It is revealed that "*E. quinquelinea*" sensu Owada and Kobayashi (1993) is a bona species, of which the male genitalia are different from those of *E. quinquelinea* (Boursin, 1956, pl. 7, fig. 8) specifically. And taking this opportunity, we record a male specimen of *E. tripunctata* Butler, 1878 from Taiwan for the first time.

Before going further, we express our hearty thanks to Dr Cheng-Shing Lin, and Ms Mei-Ling Chan of the National Museum of Natural Science (NMNS), Taichung, for their kind aids for studying the moth collection under their curation, and to Dr Shun-Ichi Uéno, the National Museum of Nature and Science, Tokyo (NSMT), who critically read the early draft of the manuscript of this paper. Our thanks are also due to Mr Shigero Sugi and Mr Hiroshi Yoshimoto, Tokyo, for their kind information on a doubtful record of "China" in *Eupsilia tripunctata*.

Eupsilia baoshinchangi Fu, Tzuoo et Owada, **sp. nov.**

Eupsilia quinquelinea: Owada & Kobayashi, 1993: 154–155, figs 5 (female), 11 (female genitalia); Fu & Tzuoo, 2002: 94, pl. 26, fig. 18. Nec Boursin, 1956.

Type series. Holotype ♂ (Fig. 1), Anmashan, 2,100m, Taichung, Taiwan, 18. I. 1997, C. M. Fu leg., Genitalia slide No. Fu MO 3, preserved in NMNS, Taichung. Paratypes: Same data as the holotype, 1 ♂ 1 ♀, Genit. Slide No. Fu MO 4 ♀; same locality, 2 ♂ 1 ♀, 4. I. 1997, 1 ♂ 1 ♀, 18. I. 1997, H. R. Tzuoo leg., 1 ♀, 11–12. I. 1992, H. Kobayashi leg.; Taoyuan, Fuhsing, Suleng, 1,000m, Genit. Slide No. NSMT 2224 ♀, 1 ♀, 23. I. 1992, M. Owada leg.; Taichung, Baxianshan, 800m, 1 ♀, 7. II. 1994, C. M. Fu leg., same locality, 1,000m, 1 ♀, 16. II. 1996, C. M. Fu leg.; Kaohsiung, Teng-Zhi, 1,590m, 2 ♀, 4. II. 2003, H. R. Tzuoo. In NMNS, NSMT, Fu and Tzuoo collections.

Distribution. Taiwan.

Male (Fig. 1) and female (Fig. 2). Length of forewing: 17–19 mm; expanse: 34–37.5 mm.

Ground colour on the upperside of head, thorax and forewing chestnut brown, tinged with purplish red, sprinkled with greyish scales. On the upperside of forewing, subbasal, antemedial, medial and postmedial lines dark reddish brown, straight, almost parallel; antemedial line edged internally with whitish scales; postmedial line externally edged with whitish scales; subterminal line represented by paler line, edged with slightly darker shades, irregularly dentate; reniform stigma represented by a faint brown line of discocellular line, terminal margin strongly dentate. Hindwing darker than forewing.

Male genitalia (Fig. 6). Uncus slender, pointed. Peniculus developed. Juxta long and broad. Costal process of valva rather long, broadened at middle, pointed at apex; cucullus hairy; harpe slender; valva broad basally, slender in distal 1/3, ventral margin slightly swollen before cucullus. Aedeagus right angled at middle; everted vesica with a few hair-like cornuti at distal portion.

Female genitalia (Fig. 8). Papillae anales and 8th segment moderate. Sterigma shallowly invaginated, dorsal sclerotized plate long, ventral plate shorter and wider than dorsal plate. Ductus bursae sclerotized, with scobinate part anteriorly, rather long, moderately curved. Corpus bursae long ovate, slightly constricted at 2/5, left shoulder of posterior part sclerotized, band-like signa represented by four small patches in anterior portion. Ductus seminalis arising from posterior part of corpus bursae.

Diagnosis. The wing maculation and male genitalia of this species is very similar to that of *E. quinquelinea*, but this species is evidently distinguished from the latter by the following features of male genitalia: the juxta is larger; the costal process is longer and broader; the ventral margin of valva before cucullus is slightly swollen, while it is markedly protruding in the latter species.

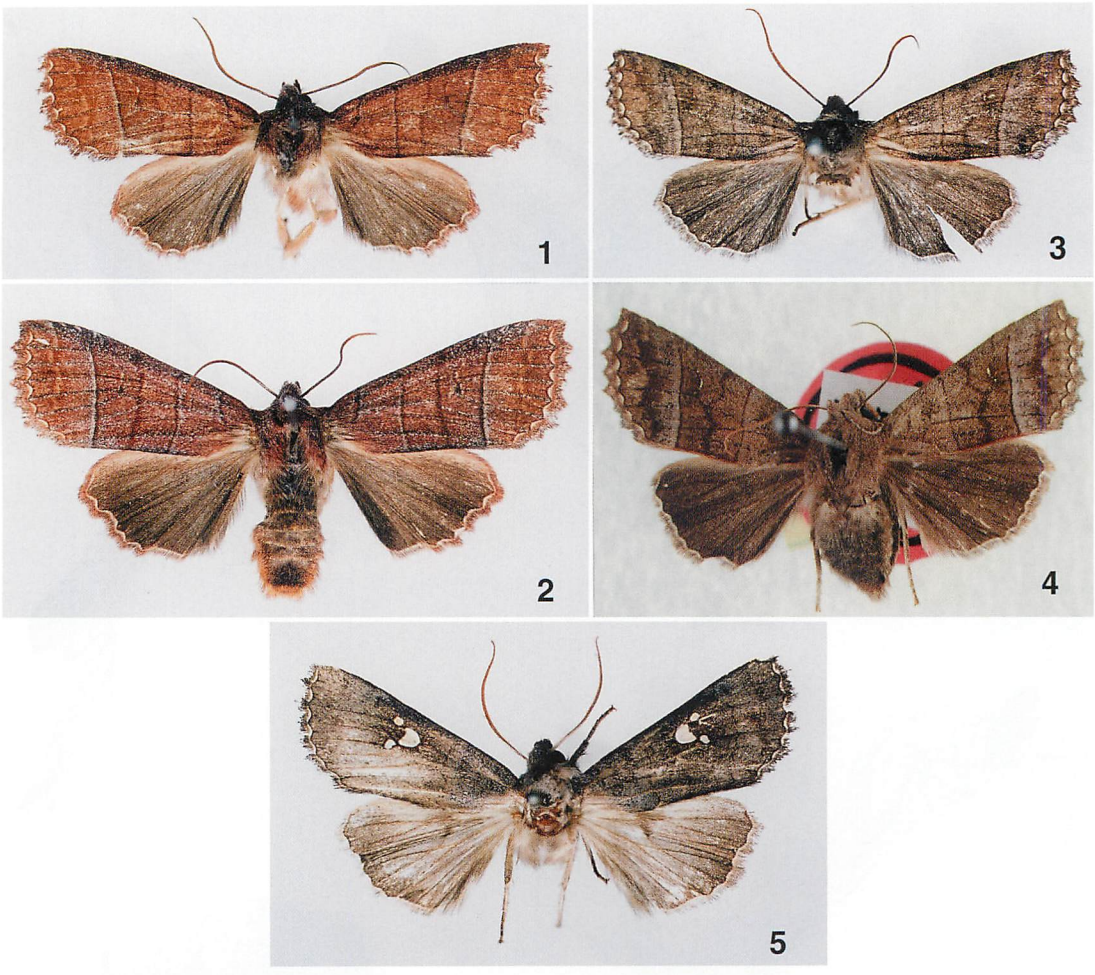
Notes. As was noted by Boursin (1956), *E. quadrilinea* and *E. quinquelinea* are characterized by the parallel straight transverse lines in the forewing, and this new species has the same feature. Judging from the similarity of the male genitalia, it is doubtless that this species and *E. quinquelinea* form a species-group, and that *E. quadrilinea* is not so closely related to the former two species. It is worth noting that the male genitalia of *E. quadrilinea* are intermediate between those of *E. anchen* Owada et Kobayashi, 2004 and *E. xiayue* Kobayashi et Owada, 2004, from South China, that is, the large horn-like cornutus is similar to that of *E. anchen* and the long strong process from costa is found in *E. xiayue*. The latter male genitalic feature, a long strong process from costa, is also found in *E. contracta* (Butler, 1878) and *E. confusa* Owada et Kobayashi, 1993, and these five species may be related to some extent to one another, though their wing maculation is quite different.

Etymology. This species is dedicated to the late Bao Shin Chang, who was a pioneer Taiwanese researcher of Lepidoptera, and was a teacher of C.-M. Fu and H.-R. Tzuoo in lepidopterology.

Eupsilia shyu B. S. Chang, 1991

Eupsilia shyu B. S. Chang, 1991, p. 168, fig.

Material examined. Type series: Holotype of *E. shyu*, ♀ (Fig. 4), Taiwan, Chiayi, Tatachia-Anpu, 15. XII. 1990, L. P. Shyu leg., preserved in NMNS, Taichung. Other material: Nantou, Shishan, 2,375m, 1 ♂ (Fig. 3), Genit. Slide No. Tz MO 3, 8. II. 1993, 1 ♀ (Fig. 9), Genit. Slide No. Tz MO 4, 28. II. 1993, 1 ♂, 8. III. 2003, 1 ♀, 31. III. 2003, 1 ♂, 12. XII. 2004, H. R. Tzuoo leg., in NSMT and



Figs 1–5. *Eupsilia* spp. form Taiwan. 1–2, *E. baoshinchangi* Fu, Tzuoo et Owada, sp. nov., (1), holotype, male, (2), paratype, female. 3–4, *E. shyu* B. S. Chang, (3), male, (4), holotype, female. 5, *E. tripunctata* Butler, male.

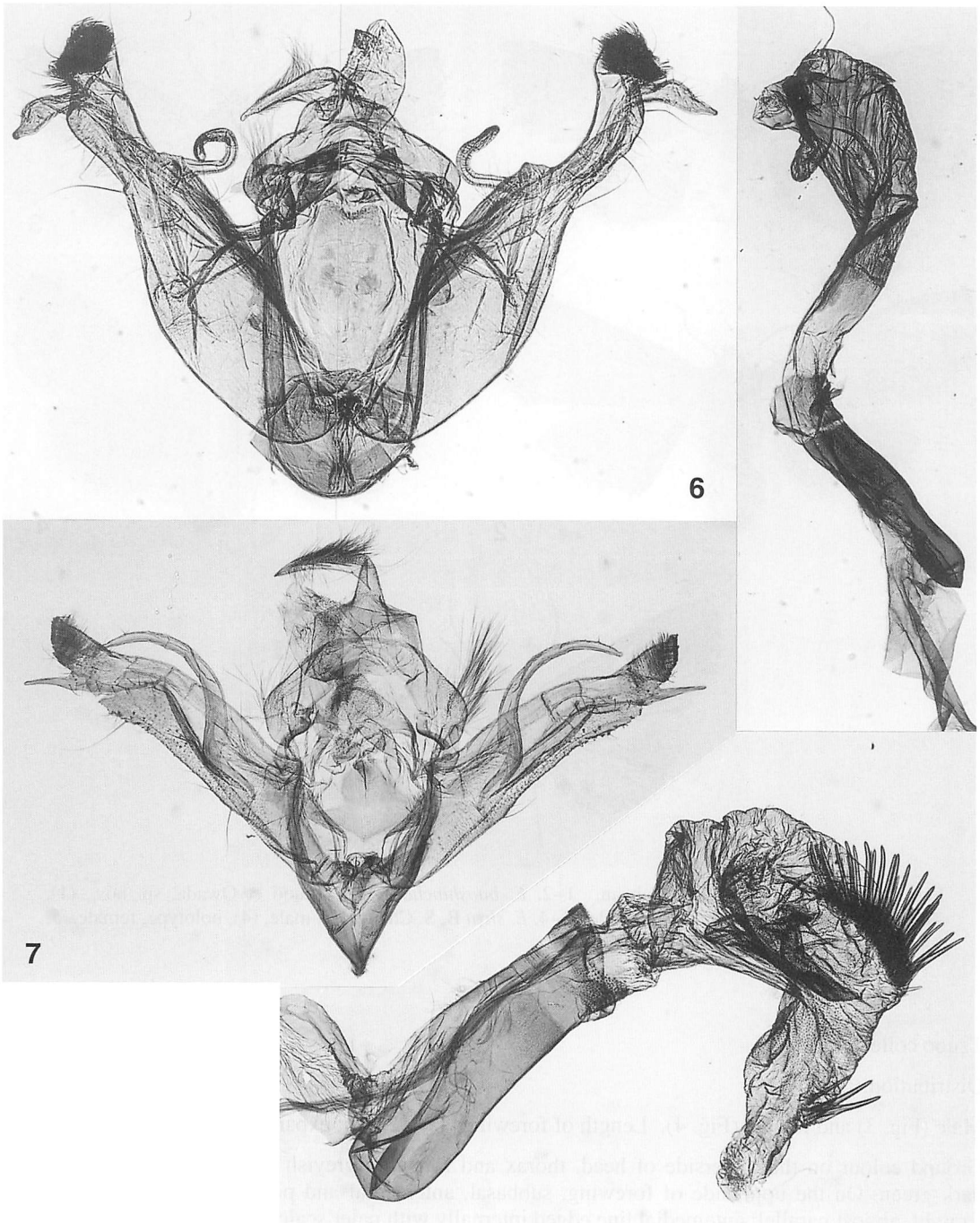
Tzuoo collection.

Distribution. Taiwan.

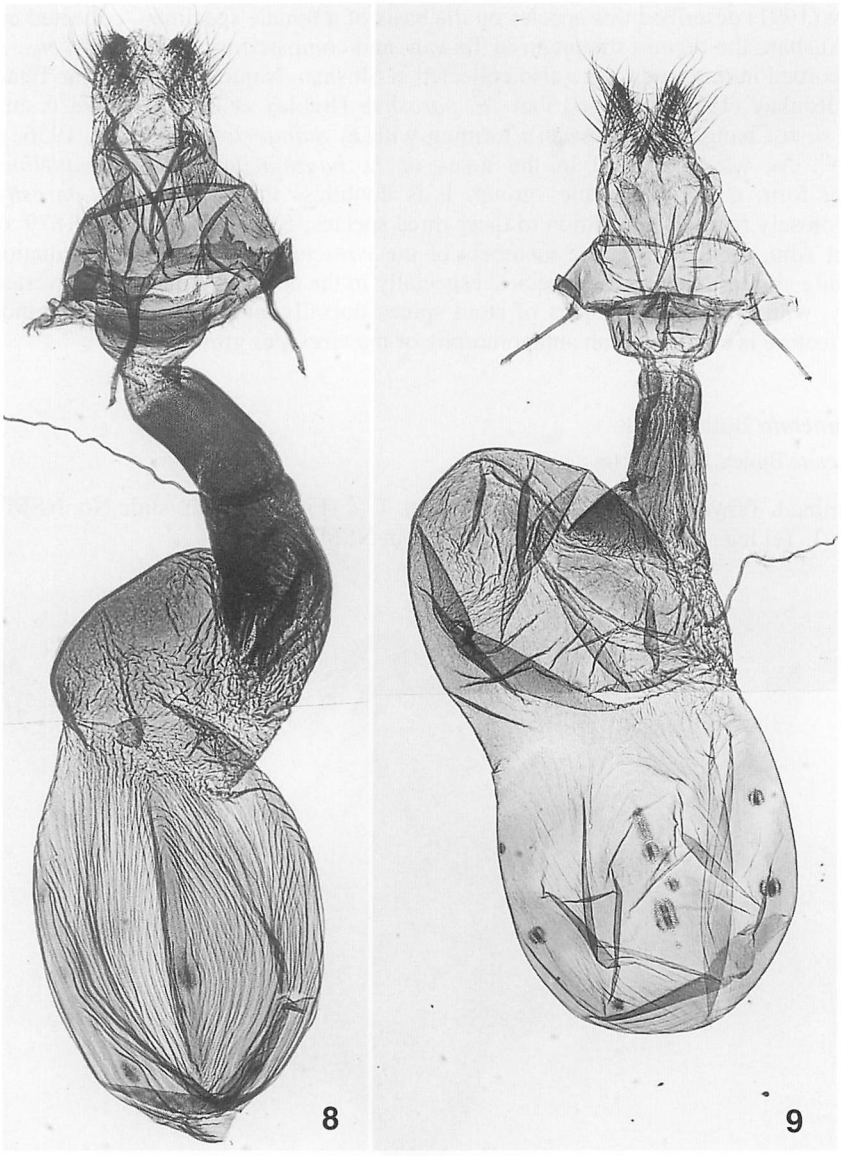
Male (Fig. 3) and female (Fig. 4). Length of forewing: 11–12 mm; expanse: 32–35.5 mm.

Ground colour on the upperside of head, thorax and forewing greyish brown, tinged slightly with dark green. On the upperside of forewing, subbasal, antemedial and postmedial lines dark brown, straight, almost parallel; antemedial line edged internally with paler scales; postmedial line externally edged with paler scales; medial line dark greenish brown, waved; subterminal line represented by faint paler line, edged with rather broad darker shades, irregularly dentate; reniform stigma represented by a faint whitish line of discocellular line, terminal margin strongly dentate. Hindwing darker than forewing.

Male genitalia (Fig. 7). Uncus slender, pointed. Peniculus developed. Juxta short, broad. Costal process of valva short and slender, pointed at apex; cucullus hairy; harpe long, stout, arched; valva slender. Aedeagus thick, straight; vesica with two masses of stout spines, the middle mass consisting of ca. 30 spines and the distal one of three.



Figs 6–7. Male genitalia of *Eupsilia*. 6, *E. baoshinchangi* Fu, Tzuoo et Owada, holotype. 7, *E. shyu* B. S. Chang.



Figs 8–9. Female genitalia of *Eupsilia*. 8, *E. baoshinchangi* Fu, Tzuoo et Owada, paratype. 9, *E. shyu* B. S. Chang.

Female genitalia (Fig. 9). Papillae anales and 8th segment moderate. Sterigma rather deeply invaginated. Ductus bursae weakly sclerotized, with many longitudinal furrows, rather long, straight. Corpus bursae long ovate, slightly constricted at middle, most of left shoulder weakly sclerotized, band-like signa represented by several small patches in anterior portion. Ductus seminalis arising from posterior part of corpus bursae.

Diagnosis. In wing maculation, this species is very similar to *E. virescens* Yoshimoto, 1985 from Taiwan, and *E. parashyu* Hreblay et Ronkay, 1998 from Nepal. The reniform stigmata are prominent in *E. virescens*, while they are formed by distinct very narrow whitish dots in *E. parashyu*, and are represented by a faint line of the discocellular vein in *E. baoshinchangi*. This species is also similar to *E. quinquelinea* and *E. baoshinchangi*, but is easily distinguished from the latter two by the waved medial line of forewing and greyish brown ground colour.

Notes. Chang (1991) described this species on the basis of a female specimen, collected at Tatachia-anpu of Mt. Yushan, the highest mountain in Taiwan, and compared it with *E. virescens*. Additional specimens recorded in this study were also collected at Shishan, Nantou County, near Tatachia-anpu. Hrebley and Ronkay (1998) surmised that "*E. parashyu* Hreblay et Ronkay, 1998 is an allopatric sibling of *E. shyu* Chang, 1991 (Taiwan), forming with *E. quinquelinea* Boursin, 1956, a compact species-group". As was discussed in the notes of *E. baoshinchangi*, *E. quinquelinea* and *E. baoshinchangi* form a distinct species group. It is doubtless that *E. shyu*, *E. parashyu* and *E. virescens* are closely related. In addition to these three species, *E. strigifera* Butler, 1879 and *E. silla* Kononenko et Ahn, 1998 will be the members of the *virescens* group. The conformation of male genitalia is quite similar in these four species, especially in the aedeagus, that is, the everted vesica is bent ventrally, with one or two masses of stout spines dorsally, and without short spinose cornuti basally. This feature is considered an autapomorphy of the *virescens* group.

Eupsilia tripunctata Butler, 1878

Eupsilia tripunctata Butler, 1878, p. 168.

Material examined. Taiwan, Nantou, Tsuifen, 2,390m, 1 ♂ (Fig. 5), Genit. slide No. NSMT 2658 ♂, 9. II. 1989, S. T. Tei leg., ex H. Kobayashi collection, in NSMT.

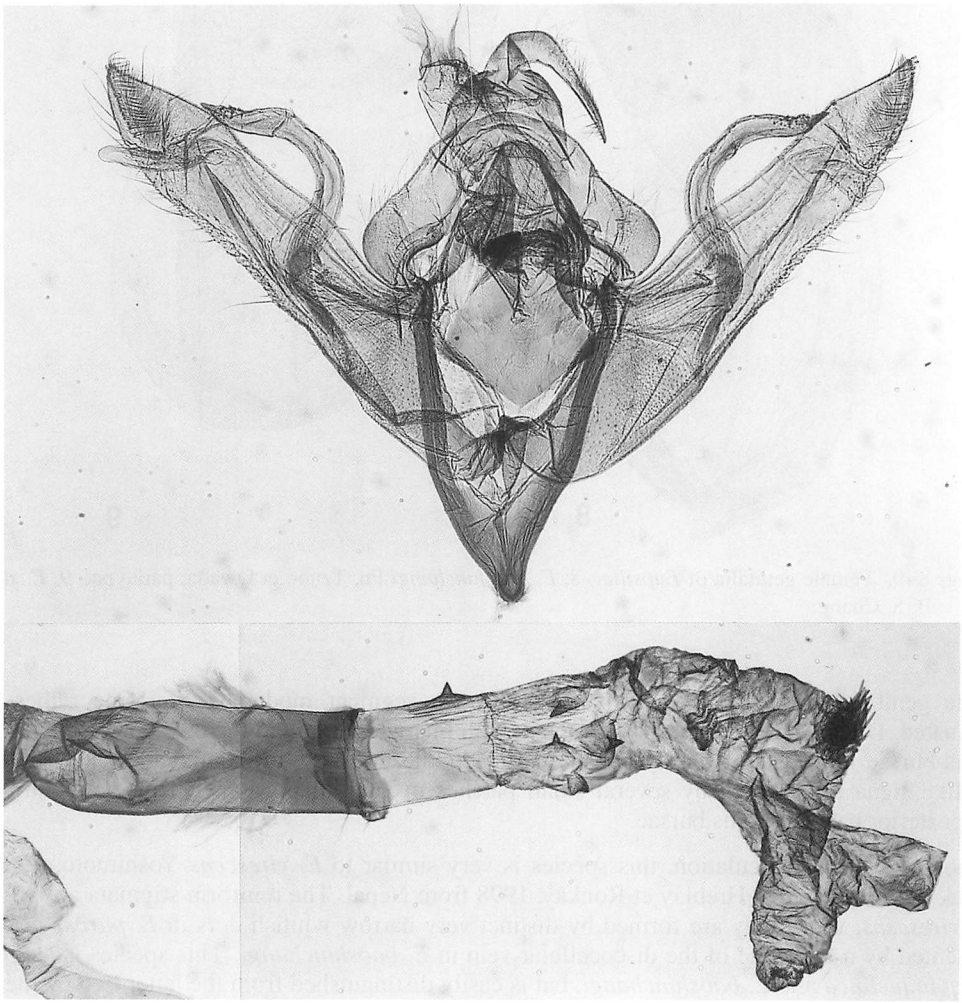


Fig. 10. Male genitalia of *Eupsilia tripunctata* Butler.

Distribution. Taiwan (new record); Korea (Central); Japan (Honshu, Shikoku, Kyushu, Tsushima). "China" is deleted from the distributional range of *E. tripunctata*.

Notes. A rather worn male specimen (Fig. 5, length of forewing: 18 mm) was collected at Tsuifen, the highest border of evergreen oak forests in central Taiwan. The male genitalia (Fig. 10) are identical with those of Japanese specimens. Sugi (1982) included "China" in the distribution range of this species without any locality. Yoshimoto (1985), Kononenko et al. (1998) and Kobayashi et al. (2004) also included "China" in the distribution of *E. tripunctata*. According to Mr Hiroshi Yoshimoto (personal communication), he did not remember whether he was taught the original paper by Mr Sugi or not, and, at least, he was not able to find any paper, which dealt with the record of this species from China. Kononenko et al. (1998) also recorded "China", which might be derived from Sugi (1982) and Yoshimoto (1985), because they always mentioned the areas or localities of China in most of the other species. The record of "China" by Kobayashi et al. (2004) was only the quotation of these three papers. For ascertaining the truth of a record of "China", we sent a letter to Mr Shigero Sugi, and received his answer that he had not found any record from China, either and his record might be a mistaken idea (Sugi, personal communication). Therefore, in this paper, we do not include "China" in the distribution of this species.

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Tinea **20** (2): 117–132, February, 2008

Seven new species of Notodontidae from Guangdong and Guangxi, China and some nomenclatural changes (Lepidoptera, Notodontidae)

Hideki KOBAYASHI [1], Yasunori KISHIDA [2] and WANG Min [3]

[1] Akagimotomachi 5-4-304, Shinjuku-ku, Tokyo, 162-0817 Japan

[2] Kitazawa 5-20-1-103, Setagaya-ku, Tokyo, 155-0031 Japan.

[3] Department of Entomology, College of Natural Resources & Environment, South China Agricultural University, Guangzhou, Guangdong 510642, P. R. China.

Abstract Seven new species of the family Notodontidae are described from Guangdong and Guangxi: *Neodrymonia hirta* Kobayashi et Kishida, sp. nov., *Saliocleta nevus* Kobayashi et Wang, sp. nov., *Torigea fortis* Kobayashi et Kishida, sp. nov., *Besaia sordidior* Kobayashi et Wang, sp. nov., *Pheosiopsis mulieris* sp. nov. Kobayashi et Kishida, *Fusadonta atra* Kobayashi et Wang, sp. nov., *Peridea aperta* Kobayashi et Kishida, sp. nov.

For the stability of species name, we provide information on the taxonomy of *Peridea moorei* (Hampson, 1892) to make it clear that *moorei* is valid according to the Code.

Some nomenclatural changes are proposed: *Norracana* Kiriakoff, 1962, stat. rev., *Norracana argus* (Schintlmeister, 1989), syn. nov. and *Norracana distineo* (Schintlmeister, 1997), syn. nov. of *Norracana niveipicta* (Kiriakoff, 1962); *Besaia tristan* Schintlmeister, 1977, syn. nov. and *Besaia isolde* Schintlmeister, 1997, syn. nov. of *Subniganda aurantiistriga* (Kiriakoff, 1962); *Antiphalera philippoi* Schintlmeister, 1997, syn. nov. of *Antiphalera klapperichi* Kiriakoff, 1963.

The surveys on the lepidopterous fauna of South China conducted by the third author are on going. In the course of this study, we have described several new species of the family Notodontidae (Kishida et al, 2003; Kobayashi et al, 2003-2007; Wang et al, 2004). We here add seven new species to the fauna, and propose some nomenclatural changes, mainly based on the male genitalia structures.

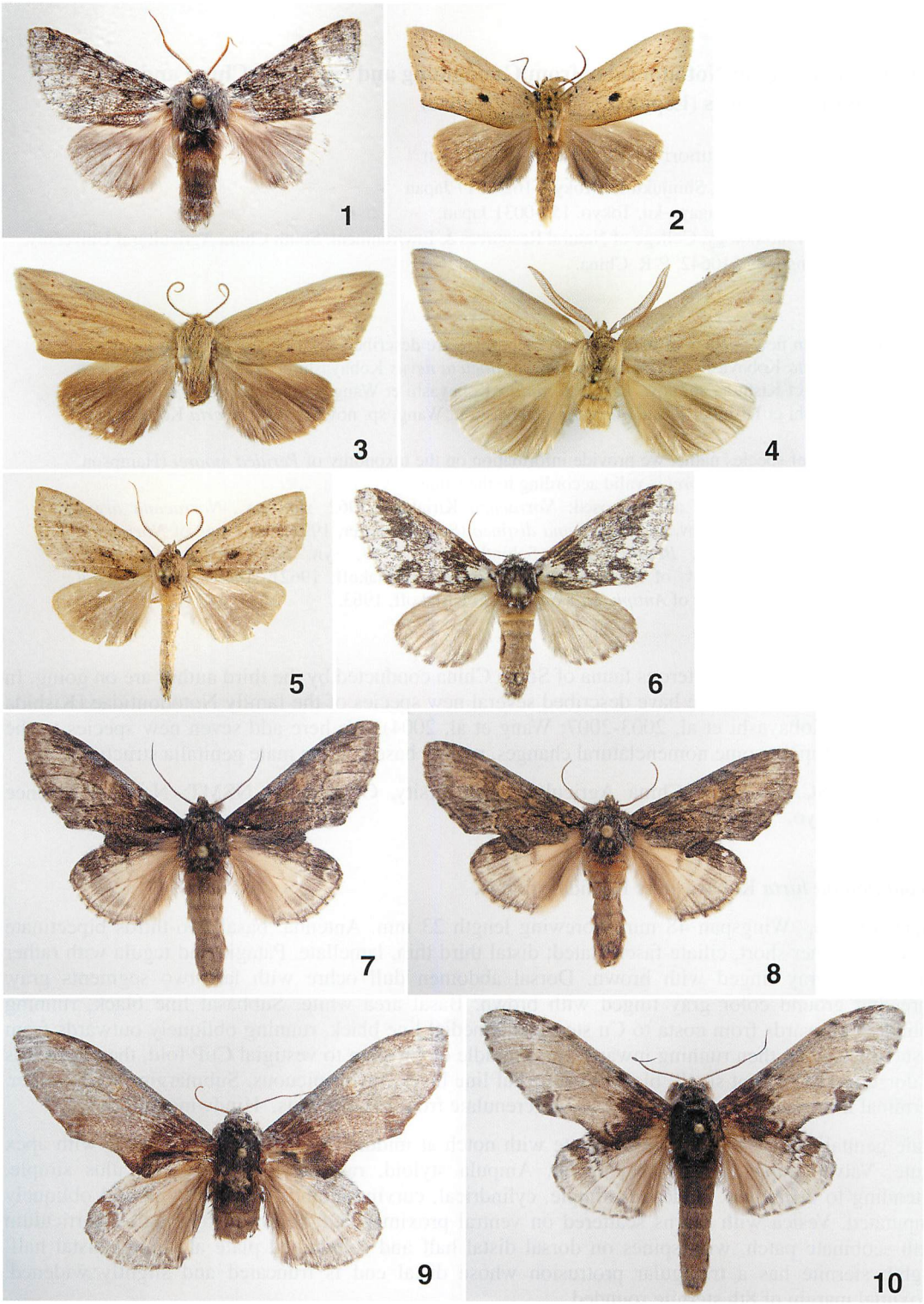
Acronyms. SCAU: South China Agricultural University, Guangzhou; NSMT: National Science Museum, Tokyo.

Neodrymonia hirta Kobayashi et Kishida, **sp. nov.**

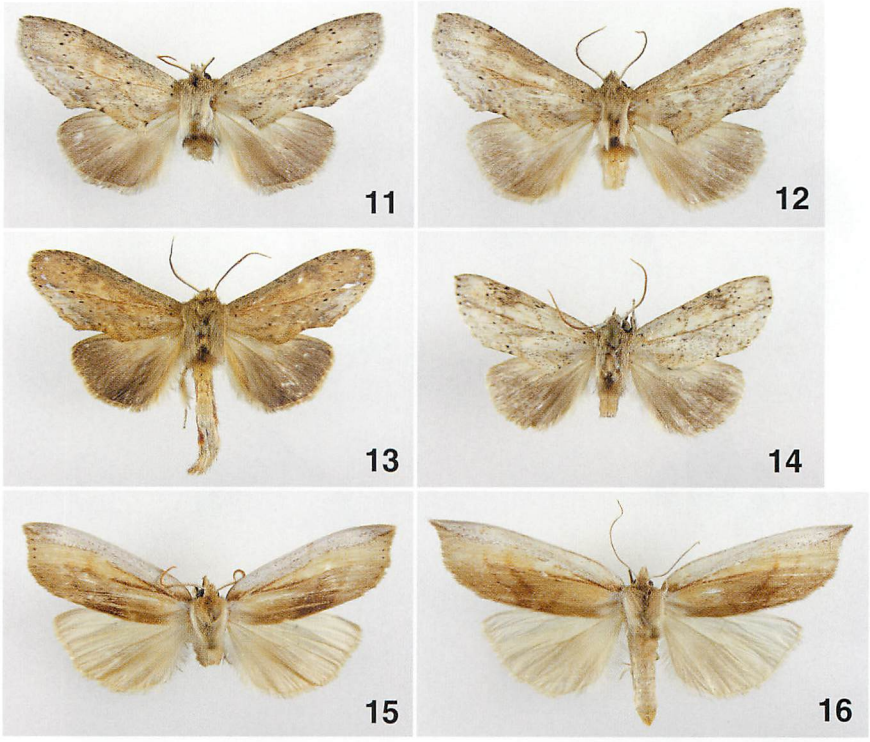
Male (Fig. 1). Wingspan 48 mm. Forewing length 23 mm. Antenna: basal two-thirds bipectinate with rami rather short, ciliate-fasciculated; distal third thin, lamellate. Patagia and tegula with rather long hairs, gray tinged with brown. Dorsal abdomen dull ochre with last two segments gray. Forewing ground color gray tinged with brown. Basal area white. Subbasal line black, running obliquely outwards from costa to Cu stem. Antemedial line black, running obliquely outwards from costa to Cu stem, then running inwards from middle of Cu stem to vestigial CuP fold, then outwards to dorsum. Discal spot small, black. Postmedial line black, inconspicuous. Submarginal area whiter. Terminal line black, straight from R_5 to M_2, crenulate from M_2 to tornus. Hindwing dull ochre.

Male genitalia (Fig. 17). Uncus spatulate with notch at middle of end line. Socius wide with apex acute. Valva simple, almost rectangular. Ampula styloid, rather wide, short. Sacculus simple, extending to distal end. Aedeagus simple, cylindrical, curving slightly ventrad, with end obliquely amputated. Vesica with thorns scattered on ventral proximal half, followed by small diverticulum with scobinate patch, with spines on dorsal distal half and sclerotized plate at ventral distal half. Eighth sternite has a triangular protrusion whose distal end is truncated and slightly widened. Proximal margin of 8th sternite rounded.

Holotype: ♂, Guangdong, Shaoguan, Nanling, 700-1200m, 27-29. iii. 2004, genitalia slide HK1390. Preserved in SCAU. Paratype: 1 ♂, Guangdong, Shaoguan, Nanling, 1100m, 26-30. iii. 2006. Preserved in NSMT.



Figs 1–10. Imagos. 1. *Neodrymonia hirta* sp. nov., ♂, holotype. HK1390. 2. *Saliocleta nevus* sp. nov., ♂, holotype HK1378. 3. *S. virgata*, ♂, Taiwan HK1397. 4. *Torigea fortis* sp. nov., ♂, holotype. 5. *Besaia sordidior* sp. nov., ♂, holotype. 6. *Pheosiopsis mulieris* sp. nov., ♀, holotype. 7. *Fusadonta atra* sp. nov., ♂, holotype. 8. *F. basilinea*, ♂, Japan. 9. *Peridea aperta* sp. nov., ♂, holotype, HK1455. 10. *P. moorei*, ♂, Nanling, HK1456.



Figs 11–16. Imagos. 11–14. *Narracana niveipicta*. 11: ♂, Nanling, xii, HK1409. 12: *N. niveipicta*, ♂, Vietnam, xi, HK1408. 13: *N. niveipicta*, ♂, Nanling, vi. 14: *N. niveipicta*, ♂, Nanling, viii, HK1410. 15. *Subniganda aurantiistriga*, ♂, Nanling, HK1387. 16. *S. aurantiistriga*, ♀, Nanling.

Diagnosis and Remarks. The chest hairs are long and rather flowing, proving this new species as an early spring flyer. The 8th sternite clearly identifies itself from congeners.

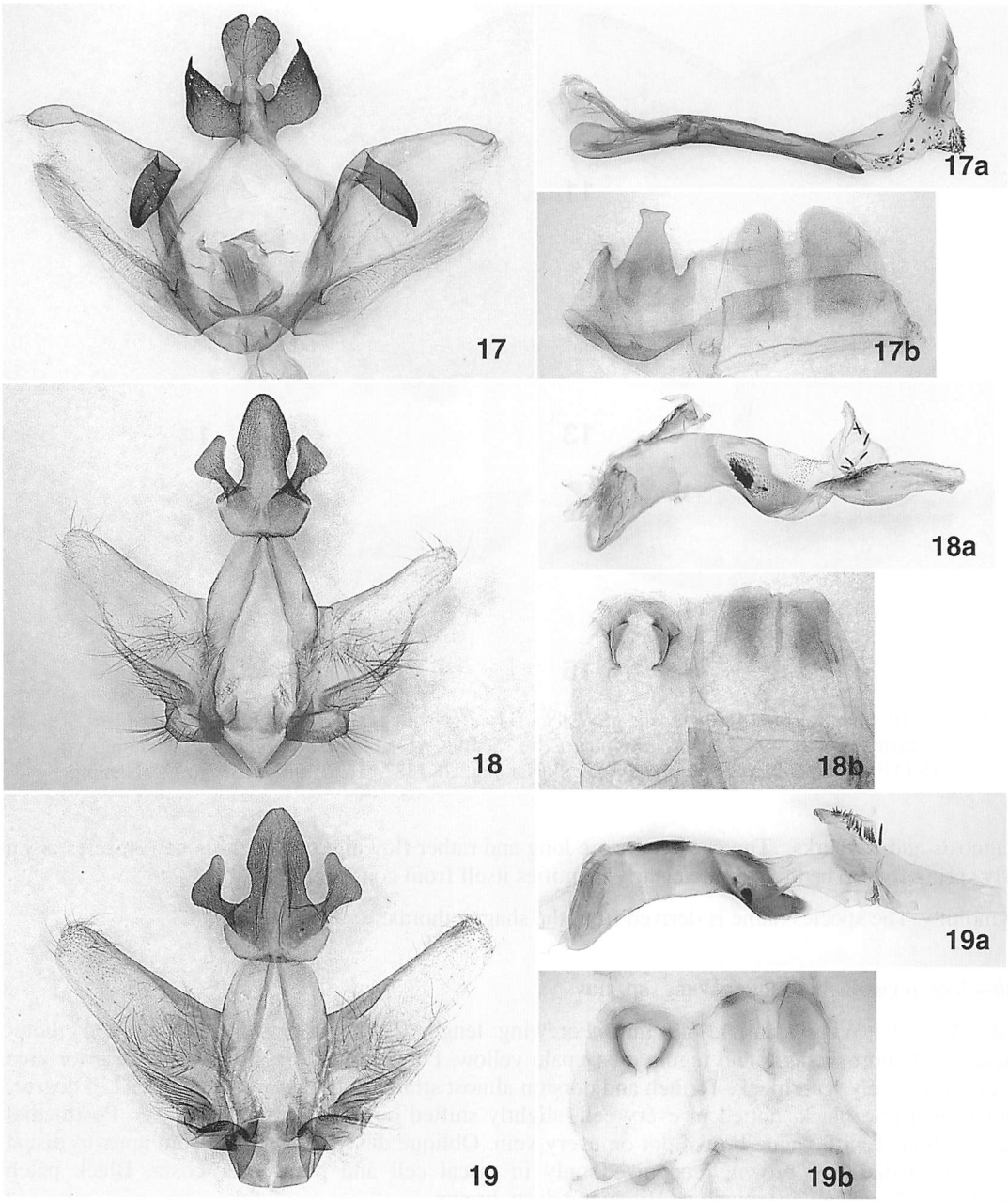
Etymology. The species name is derived from the shaggy thorax.

Saliocleta nevus Kobayashi et Wang, **sp. nov.**

Male (Fig. 2). Wing span 42–49 mm. Forewing length 22–25 mm. Antenna simple, ciliate-fasciculated short. Patagia and tegula dusty pale yellow. Forewing pale yellow, with posterior area speckled minutely with black. Termen and dorsum almost straight, tornus angulate about 120 degree. Subterminal line black, dotted in every cell, slightly shifted outwards from below M_3. Postmedial line constituted with vague brown dot on every vein. Oblique dusty brown line from apex to discal cell. Antemedial line brown, recognized only in discal cell and point near costa. Black patch posterior to discal cell conspicuous. Hindwing dusty brown.

Female unknown.

Male genitalia (Fig. 18). Uncus with protrusion like snake head. Socius with end widened. Valva almost triangular with cucullus rounded. Sacculus with bulge at base, tapered to valvula. Fultura superior triangular. Fultura inferior wide with distal margin concave. Aedeagus short with proximal opening wide, oblique. Distal end of aedeagus with plate thin, protruding ventrad. Vesica with scobination on dorsal proximal half, slightly denser distally, with spinous plate on left side at base, with diverticulum at right side, bearing several strong spines; with long sclerotized plate on left side distally. Eighth sternite almost oval, proximal end wider with margin shallowly bilobed, distal end narrower; distal part with characteristic sclerite inside, symmetric, consisting of thin semi-lunate sclerite and strong elbowed sclerite and blunt projection inward. 8th tergite trapezoidal, distal



Figs 17–19. Male genitalia (a: aedeagus; b: 8th sternite). 17. *Neodrymonia hirta* sp. nov., HK1390. 18. *Saliocleta nevus* sp. nov., HK1378. 19. *S. virgata,* Taiwan, HK1397.

margin shallowly bilobed, with linear sclerite in the center.

Holotype: ♂, China, Guangdong, Shaoguan, Nanling, 1000-1400m, 1-6. viii. 2006. genitalia slide HK1378. Preserved in SCAU. Paratypes: 1 ♂, China, Guangdong, Shaoguan, Nanling, 1000-1400m, 1-6. viii. 2006; 1 ♂, China, Guangdong, Shaoguan, Nanling, 700-1500m, 9-12. viii. 2003, genitalia slide YK2706; 2 ♂, China, Guangdong, Shaoguan, Nanling, 700-1500m, 22-26. iv. 2005. genitalia slide HK1379; 2 ♂, China, Guangdong, Shaoguan, Nanling, 800-1200m, 23-25. iv. 2004; 5 ♂, China, Guangxi, Guilin, Maoershan, 1200-1700m, 13-16. v. 2004. slide HK1380. Preserved in

SCAU and NSMT.

Diagnosis and Remarks. This new species is in a close relation to *Saliocleta virgata* (Fig. 3). The black patch on the forewing of *S. nevus* sp. nov. is conspicuous and diagnostic. In male genitalia, the vesica and the 8th sternite are useful for diagnosis. The distance between the two projections in the center of the 8th sternite is diagnostic; wider in *S. nevus* sp. nov. (Fig. 18b), narrow in *S. virgata* (Fig. 19b), *S. dejoannisi* Schintlmeister, 1997 and *S. widagdoi* Schintlmeister, 1994.

Etymology. The new species name "nevus" is derived from the black spot on the forewing. A noun in apposition.

Torigea fortis Kobayashi et Kishida, **sp. nov.**

Male (Fig. 4). Wing span 57 mm. Forewing length 30 mm. Antenna bipectinate. Patagia and tegula dusty pale yellow. Forewing dusty pale yellow, with posterior area speckled minutely black, with costal area grayish. Termen slightly rounded and dorsum almost straight, tornus angulate about 120 degree. Subterminal line brown dotted in every cell. Postmedial line with minute brown dot on every vein. Oblique brown line in cell R_5, M_1 and thickened in cell M_2; vague oblique brown line in cell M_3 and CuA_1. Antemedial line recognized as but only two points, one on vein 1A+2A, and one on Cu stem. Hindwing dusty pale brown, inner area tinged with yellow.

Female unknown.

Male genitalia (Fig. 20). Uncus with protrusion large dorsally, bending caudad, with head quadrant. Socius with base wide, distal half lunate. Valva almost triangular with cucullus rounded. Sacculus cylindrical, bending near base, with distal end protuberant. Fultura inferior scutiform. Aedeagus cylindrical, slightly bending ventrad. Distal end of aedeagus obliquely amputated. Vesica with bunch of spines distally. Eighth sternite with proximal end shallowly bilobed; distal end roundly convex with two eye-shaped flaps at base. Eighth tergite with distal margin very shallowly bilobed; proximal margin with two low swellings

Holotype: ♂, China, Guangdong, Shaoguan, Nanling, 800-1400m, 18-21. v. 2004. genitalia slide HK1381. Preserved in SCAU. Paratype: 1 ♂, China, Guangdong, Shaoguan, Nanling, 800-1200m, 18-21. v. 2004. Preserved in NSMT.

Diagnosis and Remarks. This new species seems like belonging to the genus *Periergos,* due to its thick antenna and vague markings of the forewing. But the tornus is not rounded, not that of *Periergos* and the male genitalia totally differ from those of *Periergos*. The forewing shape and the male genitalia indicate that this species belongs to the genus *Torigea.* The rami of the antenna is stronger than in *Torigea plumosa* (Leech, 1889)

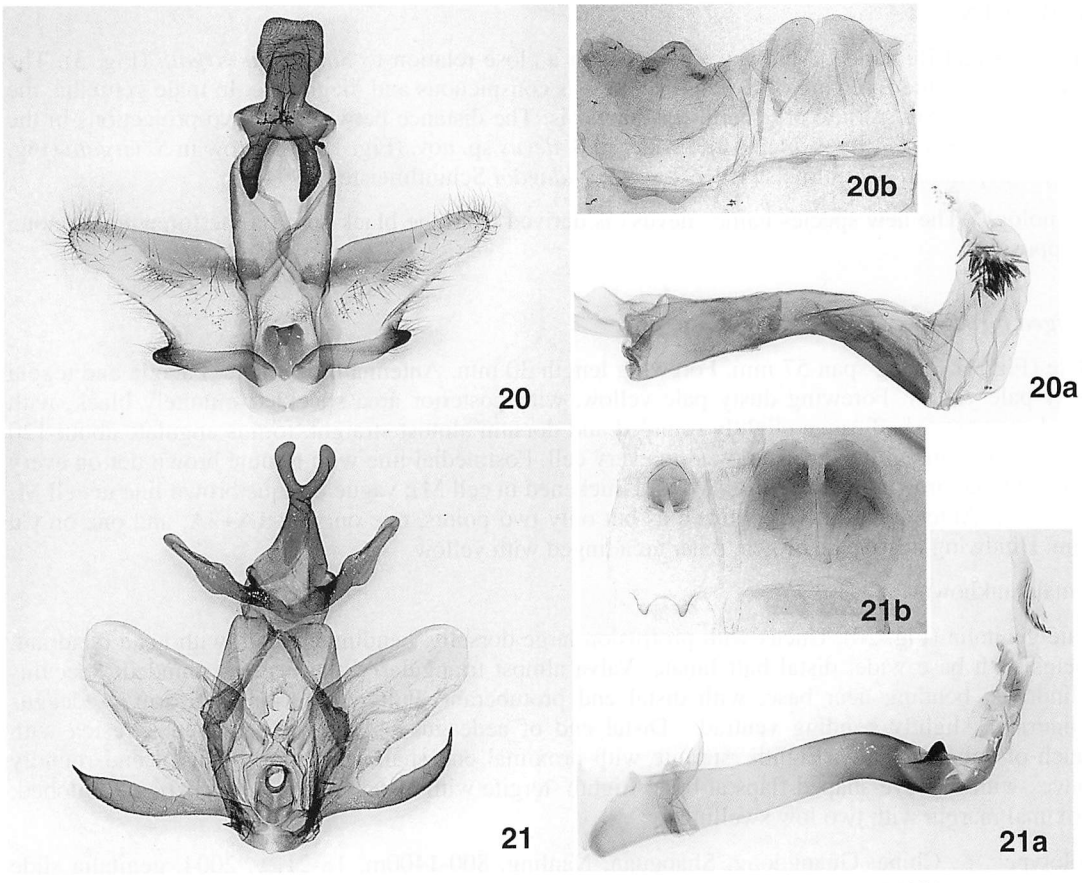
Etymology. The species name 'fortis' is derived from the stronger antennae and the larger wings than those of *Torigea plumosa.*

Besaia sordidior Kobayashi et Wang, **sp. nov.**

Male (Fig. 5). Wing span 39 mm. Forewing length 20 mm. Antenna thin, simple, ciliate-fasciculated. Patagia and tegula dusty pale yellow. Abdomen dusty yellow, slender with anal tuft. Forewing dusty pale yellow speckled dark brown, dorsal-median area darker. Termen rounded, dorsum almost straight with convex low at inner one-third. Subterminal line with dots brown from cell R_5 to CuA_2. Postmedial line double, dotted, brown, smoothly curved. Discal spot small, brown with shade in cell M_2. Antemedial line recognized as points, two at subcosta, one on R stem, one on Cu stem, one on vestigial CuP fold, one on 1A+2A, with dark shade in cell CuA_2 and dorsum. Two black points in subbasal area. Hindwing dusty pale brown.

Female unknown.

Male genitalia (Fig. 21). Uncus bending ventrad, with apex Y-shaped. Socius rather long, widened in midway, with apex rounded. Valva almost membranous with costa simple, cucullus rounded.



Figs 20–21. Male genitalia (a: aedeagus; b: 8th sternite). 20. *Torigea fortis* sp. nov., HK1381. 21. *Besaia sordidior* sp. nov., HK1388.

Sacculus projection separated long from base, apex acute, with ventral rim serrated. Fultura inferior oval with round orifice distally for aedeagus. Aedeagus cylindrical, with distal part slightly bending ventrad. Distal end of aedeagus with roundish protuberance on the right. Vesica with sclerite patches. Eighth sternite: proximal end with two processes; distal part with sclerite circular, with two short lineal stronger sclerotization proximally. Eighth tergite twice as large as 8th sternite with distal margin bilobed.

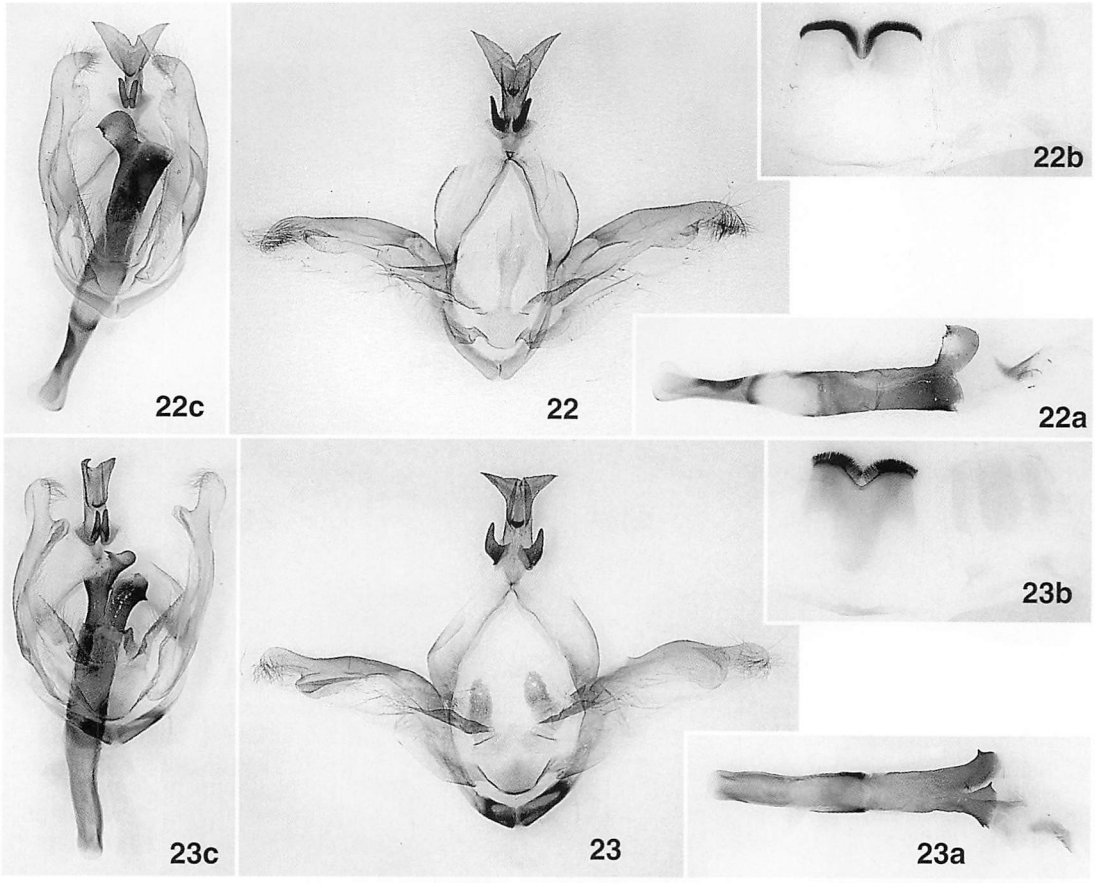
Holotype: ♂, China, Guangdong, Shaoguan, Nanling, 800-1400m, 5-11. ix. 2005. Preserved in SCAU. Paratypes: 1 ♂, China, Guangdong, Shaoguan, Nanling, 800-1400m, 5-11. ix. 2005. genitalia slide HK1388. Preserved in NSMT.

Diagnosis and Remarks. This new species is related to *Besaia albidostriata* (Bryk, 1949). In *sordidior*, the drab wing color and the shady macula are paler; the oblique stria of the apex is hardly visible. The male genitalia are diagnostically different in the socius, the uncus and the sacculus, particularly in the aedeagus.

Etymology. The species name 'sordidior' is derived from the color of wings.

Pheosiopsis mulieris Kobayashi et Kishida, **sp. nov.**

Female (Fig. 6). Wingspan 45–48 mm, forewing length 23–24 mm. Antenna filiform. Patagia, tegula fuscous brown, tinged with gray. Forewing ground color white, speckled with very dark



Figs 22–23. Male genitalia of *Fusadonta* spp. (a: aedeagus, b. 8th sternite, c: with aedeagus in position). 22. *F. atra* sp. nov., HK1457. 23. *F. basilinea,* Japan, HK1458.

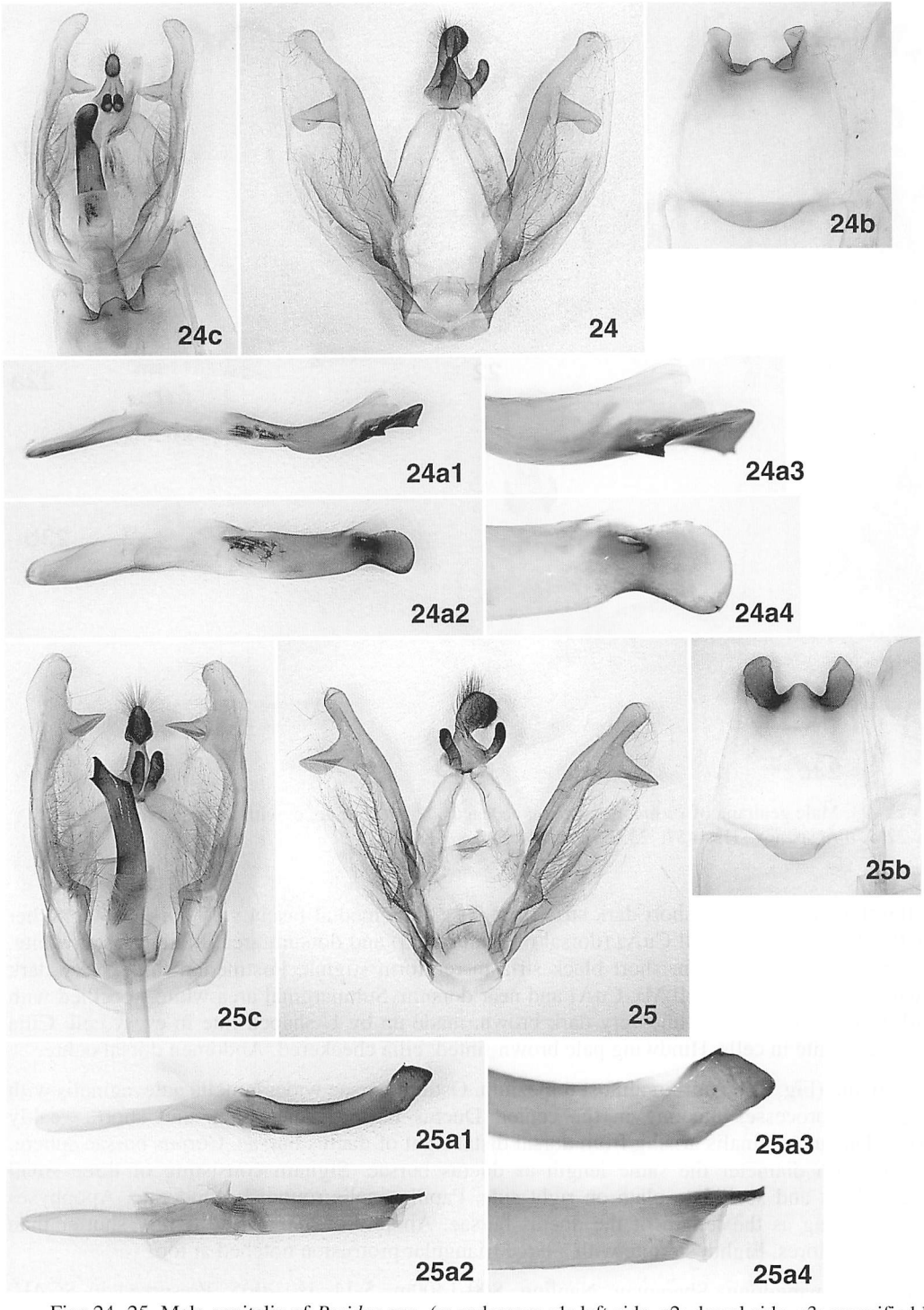
brown. Basal area white with short dark stria from base. Antemedial fascia very dark brown, rather wide, with white patches in cell CuA_2 (dorsal of vannal fold) and dorsum area. Medial fascia white, speckled with very dark brown; short black stria in reniform stigma. Postmedial fascia very dark brown with white patches in cell M_3, CuA_1 and near dorsum. Submarginal area white, speckled with very dark brown. Subterminal line very dark brown, made up by U-shaped line in every cell. Cilia dark on veins, white in cells. Hindwing pale brown-tinted; cilia checkered. Abdomen dorsal ochre.

Female genitalia (Fig. 33). Antrum almost trapezium. Ostium bursae wide; lamella antevaginalis with two finger-like processes meeting in the center. Ductus bursae rather thick and short, weakly sclerotized. Ductus seminalis arising from dorsal distal right of ductus bursae. Corpus bursae sphere, rather small with diameter the same length as ductus bursae. Signum consisting of three small sclerotized plates and scobinate plate on right side. Papilla analis roundish, moderate. Apophyses posteriores as long as the length of the ductus bursae. Apophyses anteriores slightly shorter than apophyses posteriores. Eighth sternite with a large triangular protrusion notched at top.

Holotype: ♀, Guangdong, Shaoguan, Nanling, 800-1400m, 5-11. ix. 2005. Preserved in SCAU. Paratypes: 3 ♀, Guangdong, Shaoguan, Nanling, 800-1400m, 5-11.ix.2005; 2 ♀, ditto, 31.viii-1. ix.2003; 1 ♀, ditto, 19 -22. vii. 2005.

Diagnosis. Only females are collected. Basal patch of white and white flecks of postmedial fascia in cell M_3 and CuA_1 are conspicuous to be diagnosed.

Etymology. The species name *mulieris* is derived from the collected specimens which are females



Figs 24–25. Male genitalia of *Peridea* spp. (a: aedeagus; a1: left side, a2: dorsal side, a3: magnified left side, a4: magnified dorsal side, b: 8th sternite, c: with aedeagus in position). 24. *P. aperta,* Maoershan, HK1455. 25. *P. moorei,* Nanling, HK1456.

only.

Fusadonta atra Kobayashi et Wang, **sp. nov.**

Male. (Fig. 7). Wingspan 53–54 mm. Forewing length 28 mm. Antenna: basal two-thirds bipectinate with rami short, ciliate-fasciculated; distal third thin, filiform. Patagia and tegula fuscous brown. Abdomen dorsal dull gray-brown, underside light ochre. Forewing ground color fuscous brown. Subbasal area with stria thick, black anterior to 1A+2A. Costa with basal area black, with apical area fuscous, whitish in between with black spot in the middle. Antemedial line not clear. Postmedial line dentate, thin, black. Discal spot small, pale with stria in center short, brown. Postmedial area fuscous brown anterior to M_1, pale brown between M_1 and CuA_1, black macula in cell CuA_1. Subterminal area pale fuscous. Dorsum with crest black with fringe tinged with gray. Hindwing: costal area fuscous; inner area with fuzzy hairs dark brown. Postmedial fascia wide, brown, darker in costal area, with outer edge whitish. Subterminal area brown. Termen darker brown. Cilia white with brown striae followed from veins.

Male genitalia (Fig. 22). Uncus with end bifurcated, making triangular flaps, rather long with apex acute; with small corn in the middle protruding ventrad. Socius short, angled caudad. Costa rather thick with basal low bulging extending to juxta. Ampula low, roundish. Cucullus slightly elongated, curving inwards. Sacculus simple, basal part more strongly sclerotized, extending to juxta. Aedeagus end with roundish flap on left side bearing minute spines. Distal part of the 8th sternite bilobed shallowly with fringe setaceous.

Holotype: ♂, Guangdong, Shaoguan, Nanling, 800-1400m, 18-21. v. 2004. Preserved in SCAU. Paratype: 2 ♂, Guangdong, Shaoguan, Nanling, 800-1400m, 18-21. v. 2004, genitalia slide HK1457, YK2715. Preserved in NSMT.

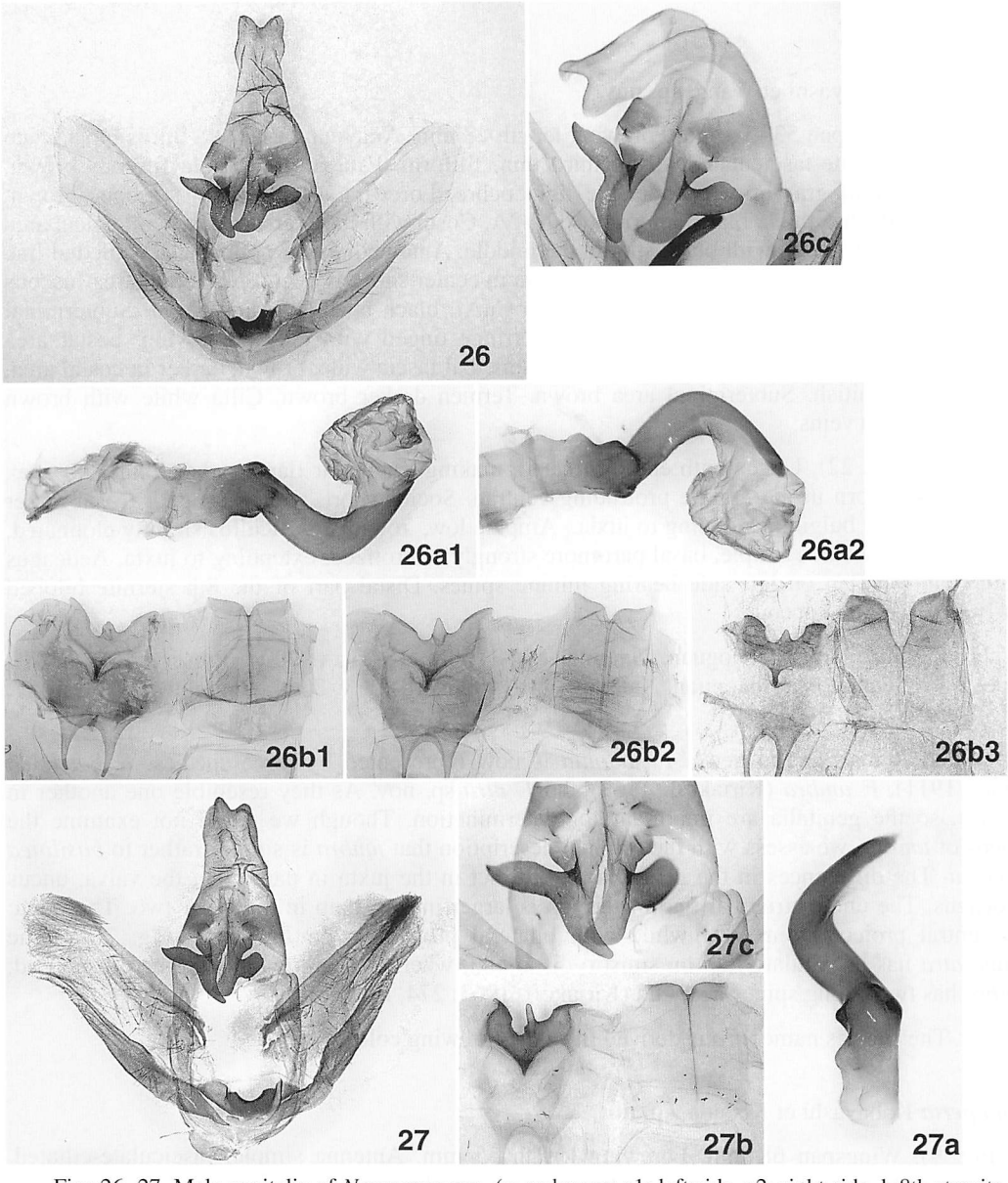
Diagnosis and Remarks. The genus *Fusadonta* is now represented by three species: *F. basilinea* (Wileman, 1911), *F. umbra* (Kiriakoff, 1963) and *F. atra* sp. nov. As they resemble one another in appearance, so the genitalia are important for determination. Though we could not examine the specimens of *umbra*, we assess with the original description that *umbra* is similar rather to *basilinea* than to *atra*. The differences in the genitalia are distinct in the juxta in particular, the valva, uncus and aedeagus. The uncus: trigonal flap of the top is larger in *atra* than in the other two. The juxta: with a central projection in *atra*, while with bilateral projections in *basilinea* (Fig. 23). The aedeagus: *atra* has a spatulate flap on sinistro-distal end, whereas *basilinea* has bilobed distal end, and *umbra* has two strong spines near end (Kiriakoff, 1963: 274, Fig. 32).

Etymology. The species name *atra* is derived from the forewing color.

Peridea aperta Kobayashi et Kishida, **sp. nov.**

Male. (Fig. 9). Wingspan 68 mm. Forewing length 35 mm. Antenna simple, fasciculate-ciliated. Forewing ground color whitish, tinged with pale brown. Subbasal fascia black, with outer rim not indented in cell CuA_1, darker on veins. Antemedial and postmedial lines not clear. Discal spot small with stria in center short, yellow. Costa whitish with black spot outside of subbasal fascia, with brown macula near apex. Termen brown in cells. Brown macula on tornus. Dorsum with crest dark brown. Hindwing: costal and terminal area whitish, speckled with black; inner area pale yellow with fuzzy hairs dark brown in dorsal area. Postmedial fascia brown, tinged with red outside, white inside, bounded medially by thin black crenation.

Male genitalia (Fig. 24). Uncus with end inflated roundish, protruding ventrad. Socius short, curved dorsad, wide with apex round. Valva almost oval. Costa rather thick in basal two-thirds with prominence ventrally at base; with small prominence dorsally at basal one-third, slightly curved where ampula extending, slightly bulging at cucullus. Ampula styloid with round flap laterally. Roundish low swelling between sacculus and costa. Aedeagus slender, curving slightly ventrad, slightly thickened near end with spatulate projection ventrally, bearing two minute spines on right side end and small spine on left side base. Distal part of 8th sternite with blunt projection on each



Figs 26–27. Male genitalia of *Narracana* spp. (a: aedeagus; a1: left side, a2: right side, b:8th sternite, c: uncus and socius). 26. *N. niveipicta*, Nanling, HK1409 (except b2: HK1399, b3: HK1410). 27. *N. niveipicta*, Vietnam, HK1408 (a: aedeagus, right side).

side and a low hump in between; a shelf set facing inward between the projection and the hump. Proximal margin of 8th sternite widely rounded.

Holotype: ♂, Guangxi, Guilin, Maoershan, 1200-1700m, 13-16. v. 2004. genitalia slide HK1455. Preserved in SCAU. Paratypes: 3 ♂ 1 ♀, Guangxi, Guilin, Maoershan, 1200-1700m, 13-16. v. 2004, preserved in NSMT

Diagnosis and Remarks. The new species somewhat resembles *Peridea moorei* (Hampson, 1892). The basal fascia is one of the keys for diagnosis: outer edge dentate in *moorei*, straight in *aperta* sp. nov. The post medial line of hindwing is also diagnostic: thinner and tinged with red in *aperta* sp.

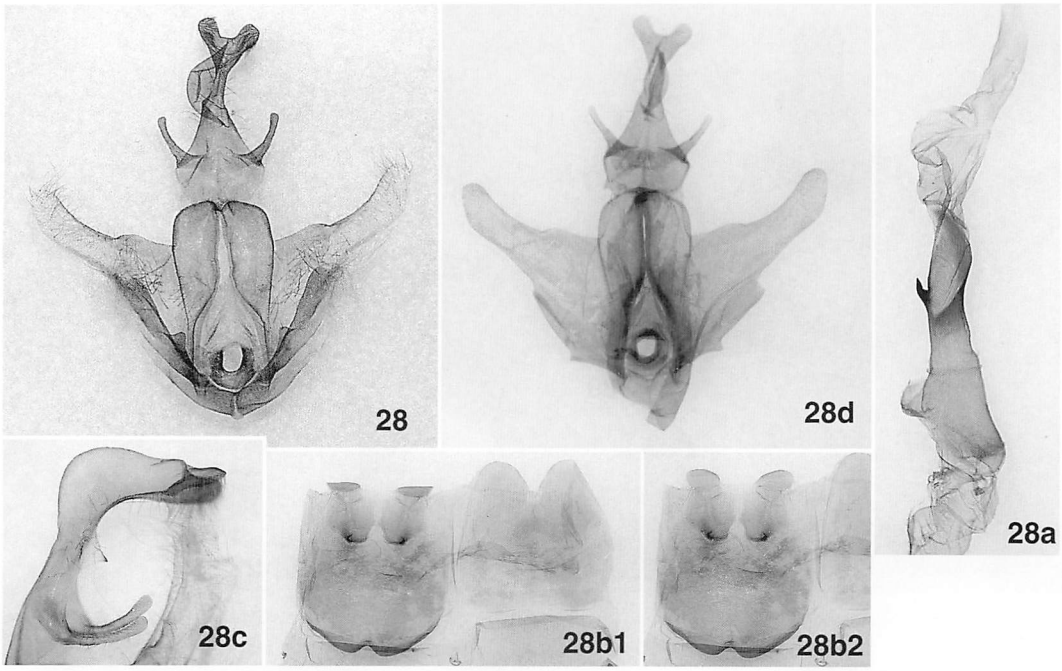


Fig. 28. Male genitalia of *Subniganda aurantiistriga*, Nanling, HK1387 (b1, b2: 8th sternite by different layout, c: uncus and socius, left side, d: another layout).

nov. The genitalia of both species are the same in the basic frame work as those of *Peridea*, but the aedeagus is conspicuously different: *P. aperta* has a spatulate protrusion on the ventro-distal end, whereas *P. moorei* has a square plate on the dextro-distal end (Fig. 25). The 8th sternite and the costa including ampula have diagnostic differences. The 8th sternite: the lateral protrusions face inside in *P. aperta*, while they open outside in *P. moorei*. As to the costa of the valva, the distance between the ampula and the cucullus is longer in *P. aperta* than in *P. moorei*.

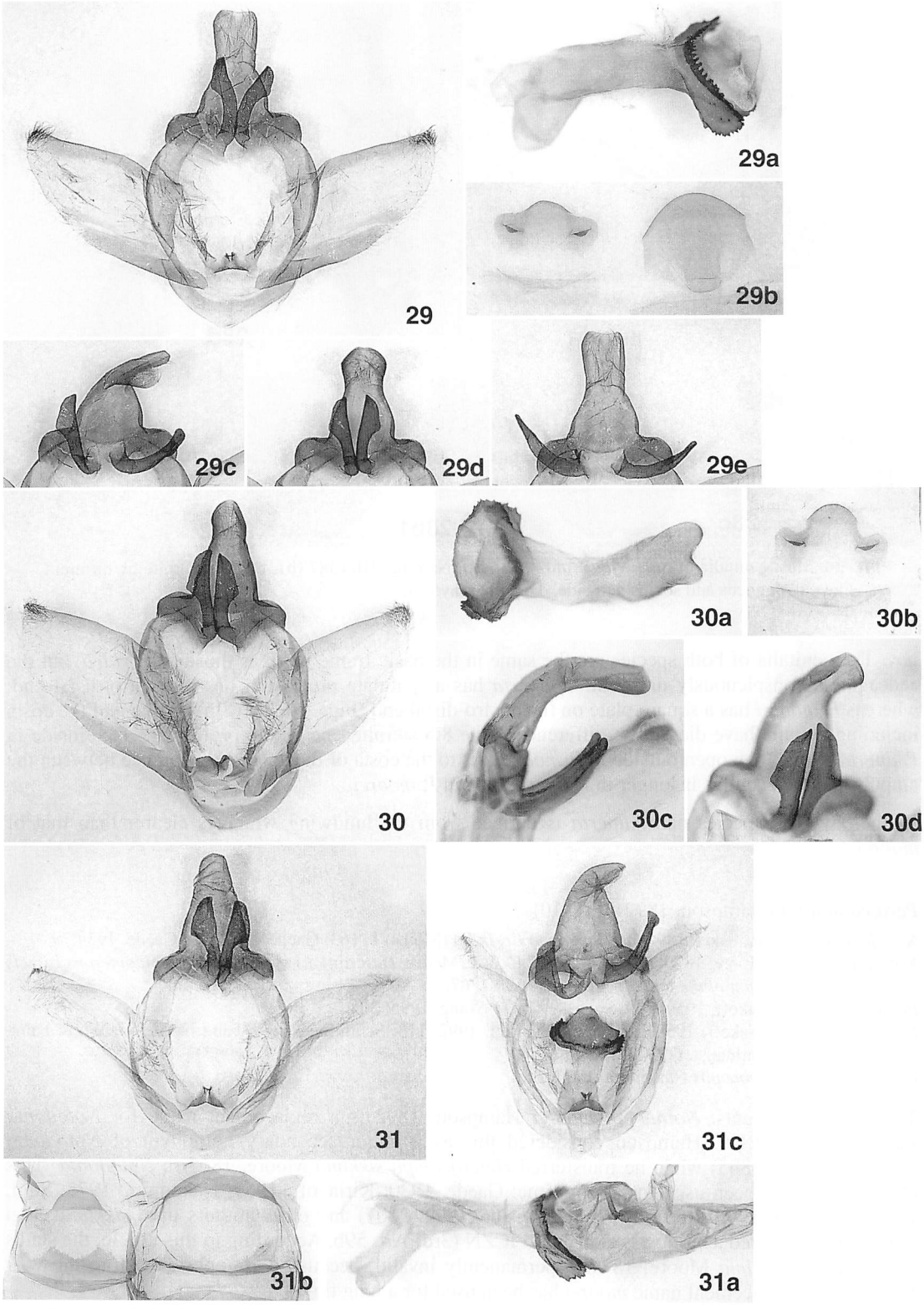
Etymology. The species name *aperta* is derived from the hindwing which is clearer than that of *moorei*.

Peridea moorei (Hampson, 1892) (Fig. 10)

Notodonta moorei Hampson, 1892 [1893], *Fauna Br. India* (Moths) **1**: 163; Gaede, 1930: 79; Gaede, 1934:79.
Notodonta sikkima Moore, 1879, *in* Hewitson, W. C. & F. Moore, *Descriptions of new Indian lepidopterous Insects from the Collection of the late Mr. W. S. Atkinson* **1**: 67.
Peridea moorei: Kiriakoff, 1959: 329; Sugi, 1992:100; Wang, 1995: 202.
Peridea sikkima: Kiriakoff, 1968: 171; Schintlmeister, 1992: 113; Schintlmeister & Fang, 2001: 63; Wu & Fang, 2003: 459; Schintlmeister, 2007: 162.
Peridea moorei ochreipennis Nakamura, 1973: 54.

Taxonomic comments. *Notodonta moorei* Hampson, 1892 is a replacement name for *Notodonta sikkima* Moore, 1879. Hampson considered this as a junior secondary homonym of *Notodonta sikkima* (Moore, 1865) when he transferred *Heterocampa sikkima* Moore, 1865 to *Notodonta*. This name *moorei* has been used for a long time: Gaede, 1930; Kiriakoff, 1959; Nakamura, 1973; Sugi, 1992 and Wang, 1995. Recently Schintlmeister (1992, 2007) and other authors used *sikkima*. Sugi (1992) already stated as follows referring to ICZN (3rd) Art. 59b. According to this article, the status of *Notodonta sikkima* Moore, 1879 is permanently invalid, because it is replaced before the year 1961 and the replacement name *moorei* has been used for a long time.

Gaede (1934: 79) correctly listed *Notodonta moorei* Hampson, 1892 being valid and *Notodonta*



Figs 29–31. Male genitalia of *Antiphalera klapperichi*. 29. Nanling, HK1440 (a: aedeagus, sinistro-dorsal side; c, d, e: other layouts). 30. Nanling, HK1439 (a: aedeagus, ventral side; c: uncus and socius, left side; d: ditto, left oblique). 31. Vietnam, HK1447 (c: another layout).

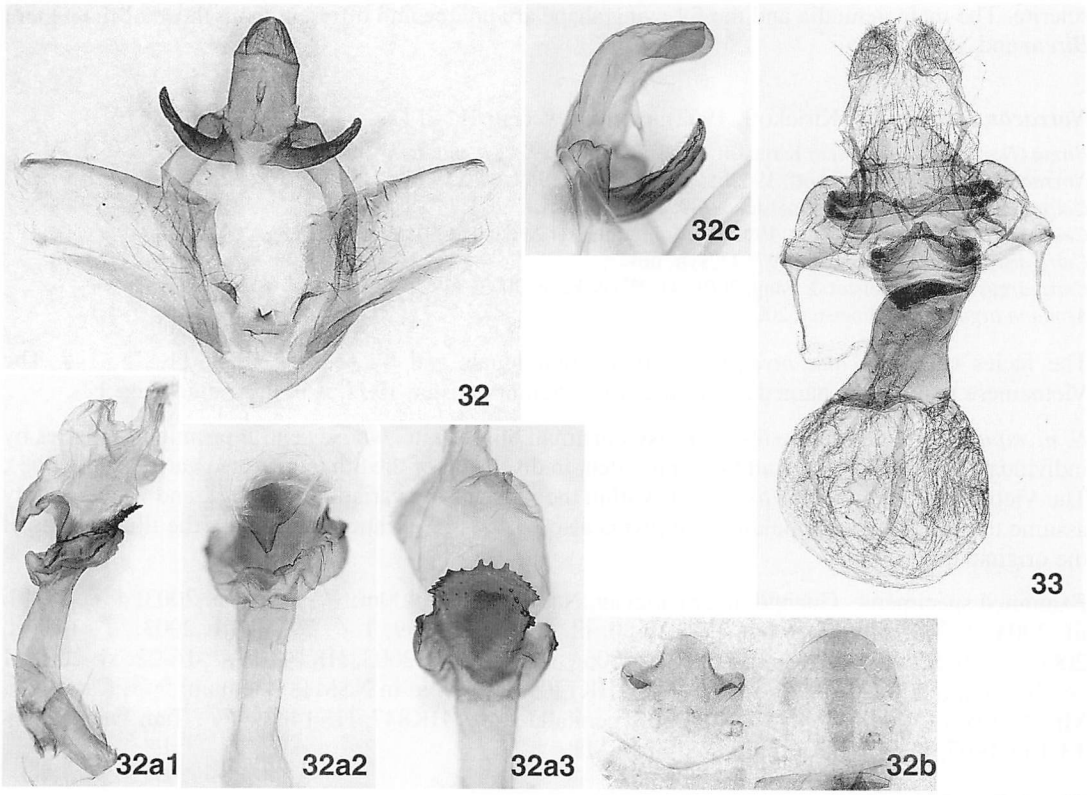


Fig. 32. Male genitalia of *Antiphalera bilineata*, Nepal, HK1446 (a1: left side, a2: dorsal, a3 ventral; c: uncus and socius, left side).
Fig. 33. Female genitalia of *Pheosiopsis mulieris* sp. nov., Nanling, HK1320.

sikkima Moore, 1879 being invalid. He also listed *Notodonta sikkima* (Moore, 1865) as valid name (p. 81). These are just right treatments. He described them correctly in Seitz **10**: 641, but the illustration 80e captioned as *sikkima* is in fact not *sikkima* but *moorei*. This might introduce confusion into the taxonomy. Kiriakoff (1959) correctly treated *moorei*, but afterwards he (1968) incomprehensively treated *moorei* as a synonym of *sikkima* Moore, 1879. This was a wrong treatment, contrary to the Code.

It is clear that the nominal taxon *moorei* Hampson, 1892 is the valid species name and *sikkima* Moore, 1879 is permanently invalid according to the Code.

Examined specimens. Guangdong, Shaoguan, Nanling, 600-1400m: 2 ♂, 1-6. viii. 2006; 1 ♂, 18-22. vi. 2004; 1 ♂, 23-25. iv. 2004; 1 ♂, 31. viii-1. ix. 2003. Preserved in NSMT.

Norracana Kiriakoff, 1962, **stat. rev.**

Bireta (*Norracana*) Kiriakoff, 1962, *Bull. Annls Soc. R. ent. Belg.* **98** (10): 153 (key), 205.
Norracana: Kiriakoff, 1962, *Bonn. Zool. Beitr.* **13**: 235; Kiriakoff, 1967: 54.
Ceira Walker, 1865; Schintlmeister, 1992; Schintlmeister & Fang, 2001; Wu & Fang, 2003.
Armiana Walker, 1862; Schintlmeister, 2002.

Type species: *Bireta niveipicta* Kiriakoff, 1962 (Type locality. China: Fujian).

The shape of forewing is characteristic: termen is rounded and long; prominence of dorsum is conspicuous with long cilia. The genus *Armiana* has the same forewings, but the genus *Norracana* is defined first by its 8th tergite and sternite of males. The distal margin of the 8th tergite has a V-shaped dent in a flat end or totally V-shaped. The distal part of the 8th sternite has almost V-shaped

sclerite. The male genitalia and the forewing shape are unique and different from those of the genera *Bireta* and *Saliocleta*.

Norracana niveipicta (Kiriakoff, 1962), **comb. rev.** (Figs 11–14)

Bireta (*Norracana*) *niveipicta* Kiriakoff, 1962. *Bull. Annls Soc. R. ent. Belg.* **98** (10): 205.
Norracana niveipicta: Kiriakoff, 1962b: 235; Kiriakoff, 1967: 54.
Ceira niveipicta argus Schintlmeister, 1989: 106, **syn. nov.**
Ceira niveipicta: Schintlmeister, 1992: 68; Schintlmeister & Fang, 2001: 9; Wu & Fang, 2003: 221.
Ceira distineo Schintlmeister, 1997: 72, **syn. nov.**
Ceira argus: Schintlmeister & Fang, 2001: 41; Wu & Fang, 2003: 222.
Armiana argus: Schintlmeister, 2002: 190.

The facies of *Norracana niveipicta* vary by individuals and by seasons (Figs 11, 13, 14). The Vietnamese population, named as *Ceira distineo* Schintlmeister, 1997, is in this range (Fig. 12).

N. niveipicta is diagnosed easily by its asymmetrical 8th sternite, whose central prominence varies by individuals (Fig. 26b1-b3). And the central dent in distal end of the 8th tergite also varies (Fig. 26b3). The Vietnamese population (*distineo*) is within the range of the variation (Fig. 27), and we can safely assume that the Yunnan population (*argus*) is also within the variation judging by the illustrations of the original description.

Examined specimens. Guangdong, Shaoguan, Nanling, 600-1400m: ♂, 20-24. ii. 2003; 4 ♂, 11-14. iii. 2004; 3 ♂, 27-29. iii. 2004; 2 ♂, 26-30. iii. 2006, HK1399; 1 ♂, 29. iii-1.iv.2003; ♂, 1-6. vi. 2006 ; ♂, 9-12. viii. 2003 ; ♂, 1-6. viii. 2006; ♂, 26-27. ix. 2003, HK1410; ♂, 16-22. xi. 2003; 1 ♂, 26-29. xii. 2002; 3 ♂, 25-30. xii. 2003, HK1409. Preserved in NSMT. Vietnam: 5 ♂, Cao Bang, Mt. Pia Oac, 1700m, 15. xi-14. xii. 2001. genitalia slides HK847, HK1408; 5 ♂, Tam Dao, 930m, 13-16.v.1997, K. Horie leg. preserved in NSMT.

Check list of *Norracana*

niveipicta (Kiriakoff, 1962). TL: Fujian.
  argus (Schintlmeister, 1989). TL: Yunnan
  distineo (Schintlmeister, 1997). TL: N-Vietnam: FanSiPan
rogatus (Schintlmeister, 1997). TL: N-Vietnam: FanSiPan
dabashanica (Schintlmeister, 2002). TL:Shaanxi

Subniganda aurantiistriga (Kiriakoff, 1962), **comb. rev.** (Figs 15, 16)

Bireta (*Subniganda*) *aurantiistriga* Kiriakoff, 1962, *Bull. Annls. Soc. R. ent. Belg.* **98**: 171.
Subniganda aurantiistriga: Kiriakoff, 1962: 223; Kiriakoff, 1967: 42.
Besaia (*Besaia*) *aurantiistriga*: Schintlmeister, 1992: 59; Schintlmeister & Fang, 2001: 8; Wu & Fang, 2003: 181.
Besaia (*Besaia*) *tristan* Schintlmeister, 1997: 66, **syn. nov.**
Besaia (*Besaia*) *isolde* Schintlmeister, 1997: 67, **syn. nov.**

The genus *Subniganda* is related to the genus *Niganda*. The apex of the forewing is acute in *Subniganda*. The wing shape and the male genitalia are not those of the genus *Besaia*.

The 8th sternites of *B. tristan* and *isolde* are identical, though the original description stated that there is a difference between them as an important criteria to separate the species. The bilobed flap of the distal part of the 8th sternite can be folded with the inter-segmental membrane to show itself rounded (Fig. 28b2) or flat (Fig. 28b1). Fig. 28d is of the same specimen as Fig. 28 by a different way of layout. They indicate there is no difference of 8th sternite between *B. tristan* and *isolde*. The uncus is strongly bent caudally (Fig. 28c), so the minor deformity during laying out may occur easily (Fig. 28, 28d, the same specimen). Considering those conditions and according to the illustration of the genitalia of *aurantiistriga* (Kiriakoff, 1962b: Fig. 5), the male genitalia of the above three taxa of similar facies are identical. Therefore *B. tristan* and *B. isolde* are qualified as junior synonyms of *B. aurantiistriga*.

Examined specimens. Guangdong, Shaoguan, Nanling, 600-1400m: 1 ♂,27-29. iii. 2004, genitalia

slide HK1387; 4 ♂ 1 ♀, 29. iii-1. iv. 2003, genitalia slide YK2585m. Preserved in NSMT.

Antiphalera klapperichi Kiriakoff, 1963

Antiphalera klapperichi Kiriakoff, 1963, *Bonn. zool. Beitr.* **14**: 261; Schintlmeister, 1992: 100.
Antiphalera philippoi Schintlmeister, 1997, *Entomofauna* Suppl. **9**: 104, **syn. nov.**

The adults are seen all through the year. The forewing maculation much varies by seasons particularly in transverse lines; they tend to be distinct in spring, thinner in summer. The male genitalia and 8th sternite also vary by individuals.

The uncus is formed of a half-pipe and bent ventrad (Fig. 30c, 30d) and the tip is much varied in width, so a careful preparation is needed at spreading it over the slide glass. Figs 29, 29c, 29d and 29e are photographed on the same specimen by various spreading out (it seems that 29c has a slender top of the uncus, 29d has a round top, and 29e has slender socii). The 8th sternite each has also a various height of protrusion on the distal end (29b, 30b). The genitalia of the holotype illustrated by Schintlmeister, 1992: 268: Fig. 292 is mounted like our Fig 29c style.

Antiphalera bilineata (Hampson, 1896) has similar male genitalia but the aedeagus is distinctively different. The vesica bears a strong spine connected with sclerotized band to the dorsal end of the aedeagus in *A. bilineata* (Fig. 32a1); *A. klapperichi* lacks it (29a, 30a, 31a). The dorsal side of the end aedeagus is V-shaped with minute serrations in *A. klapperichi* (Fig. 29a), while in *A. bilineata* it is only irregularly thickened (Fig. 32a2). The ventral side of the end aedeagus has a wide round plate in *A. klapperichi* (Fig. 30a), while *A. bilineata* has a protruded plate with serrated margin (Fig. 32a3). The 8th sternite is almost the same (Fig. 32b, 30b)

Antiphalera philippoi Schintlmeister, 1997 has the same male aedeagus within the variation range of *klapperichi* (cf. Schintlmeister, 1997: 164: fig. 91). Therefore *A. philippoi* Schintlmeister is treated here as a junior synonym of *A. klapperichi*. We show another variation of the genitalia of *philippoi*, which lacks the two little flaps of the 8th sternite. (Fig. 31b)

As to *Antiphalera armata* Yang, 1995 from Zhejiang, it seems actually to be *A. klapperichi* by the description, but we were not able to study the specimens.

Distribution: China, Vietnam.

Examined specimens. Guangdong, Shaoguan, Nanling, 600-1400m: 1 ♂, 10-24. ii. 2003; 4 ♂ 4 ♀, 11-14. iii. 2004; 2 ♂, 26-29. iii. 2004; 3 ♂, 27-29. iii. 2004, genitalia slide HK1440 ; 1 ♀, 29. iii-1. iv. 2003; 1 ♀, 23-25. iv. 2004; 2 ♂ 1 ♀, 18-21. v. 2004, HK1439,1445; 1 ♂, 9-12. viii. 2003; 1 ♀, 31. viii-1. ix. 2003; 2 ♂ 1 ♀, 26-27. ix. 2003. Preserved in NSMT. Vietnam: 1 ♂, Vinh Phu Tam Dao, 21-24. iv. 1995, M. Owada leg.; 1 ♂, Thua Tien Hue Bach Ma 1200-1400m, 5-10. v. 2003. M. Owada leg. HK1447; 1 ♀, Thua Tien Hue Bach Ma 1200-1400m, 7-11. v. 2002. M. Owada leg. Preserved in NSMT.

Examined specimens of *Antiphalera bilineata.* Nepal, Kathmandu, Godavari, 1600m, T. Hartuta leg.: 6 ♂, 24-30. iii. 1990; 1 ♂, 31. iii. 1990, genitalia slide HK1446; 6 ♂ 2 ♀, 12-19. iv. 1990, genitalia slide SS6562 ♂, SS6642 ♀; 1 ♂, 29. iv. 1990; 1 ♂, 18. v. 1990; 1 ♂, 26. v. 1990; 1 ♀, 7.vi. 1990; 2 ♂, 17-20. vii. 1990, SS6563; 1 ♂, 13. vii. 1990; 1 ♀, 21. viii. 1990; 4 ♂ 1 ♀, 21-24. ix. 1989, ss6641 ♀; 2 ♂, 3. x. 1989. Preserved in NSMT. Vietnam: 1 ♂, Cao Ban, 800m, Near Mt. Pia Oc, 11. v. 1997, M. Owada leg. Preserved in NSMT.

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原稿送付先：〒 192-0063 八王子市元横山町 2-5-20 矢崎克己（Tel / Fax: 0426-46-6808）

Notice to Contributors

Contributors are requested to submit manuscript with its computer disk prepared in text file format on CD or 3.5 inch FD.

Manuscripts should be addressed to: Katsumi Yazaki, 2-5-20, Motoyokoyama, Hachioji, Tokyo, 192-0063 Japan. (FAX: 81 426 46 6808)