# TINEA

Published by the JAPAN HETEROCERISTS' SOCIETY

30 September 1994

Vol. 14, No. 1

TINEA Vol. 14, No. 1

Issued 30 September 1994

Edited by Katsumi Yazaki

Published by the Japan Heterocerists' Society
c/o Natural History Division, National Science Museum
Hyakunincho 3, Shinjuku, Tokyo 169

Cover design by Koji Suzuki

Printed by Sasaki Printing and Publishing Co., Ltd., Sendai

日本蛾類学会発行・東京都新宿区百人町３丁目　国立科学博物館分館内

印刷・笹氣出版印刷・仙台

ISSN 0493-3168

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*Tinea* **14** (1): 1-4, September, 1994

# *Bizia aexaria* Walker (Geometridae, Ennominae) and its ally from Japan, Korea and China

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**Abstract** *Bizia altera* (Wehrli), originally described as a variety of *B. aexaria* Walker, is upgraded to the specific level, with redescription.

*Bizia aexaria* Walker was originally described from North China (Walker, 1860), and was later recorded from Mongolia and Japan (Butler, 1879), Korea (Leech, 1897), Tonkin (Joannis, 1929) and Taiwan (Wehrli, 1954). Wehrli (1954) described *altera* as a new variety of *aexaria* from North Korea and East China. By examining my collection of *Bizia* from Japan and Korea I found that two species were mixed up under the name of *aexaria* among specimens from the latter country, and the other species is identical with Wehrli's *altera*. Dr Stüning kindly examined the genitalia of the type specimens of *altera* preserved in the Museum Alexander Koenig, Bonn, and informed me that it should be treated as a good species, as presumed.

In this paper I will upgrade *altera* to the specific level and redescribe it with some characters to discriminate from *aexaria*.

***Bizia altera*** (Wehrli), **stat. & comb. nov.** (Figs 1, 2)

*Angerona aexaria* var. *altera* Wehrli, 1954: 711.

Diagnosis. Similar to *aexaria* in colour and maculation, but readily distinguished from it as follows. Much larger in size; length of forewing, ♂ 27-28 mm, ♀ 33 mm, while in *aexaria* the first brood ♂ 21-25 mm, ♀ 25-28 mm, the second brood ♂ 18-20 mm, ♀ 22-25 mm. Distal margin of wings more deeply zigzag, particularly in hindwing. Ground colour yellow with marginal brown markings as in *aexaria*, but much paler as a whole. Postmedial line of hindwing conspicuous, while in *aexaria* it is almost vanished or represented only by some brown spots. Underside similar to *aexaria*, but postmedial line on hindwing defined as clearly as on upperside.

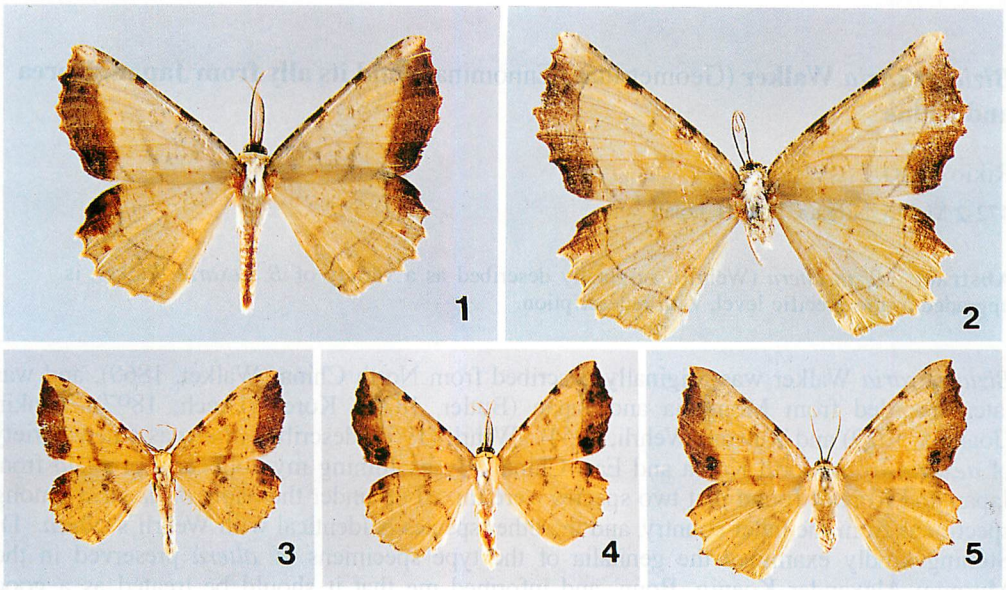
Male genitalia (Fig. 6). Much different from those of *aexaria*. Gnathos as long as uncus; valva much broader, rhomboid; costal projection shorter, triangular; sacculus broader, with numerous long spines at apical portion, instead of small spinose lobe in *aexaria*.

Female genitalia (Fig. 8). Distinct from those of *aexaria*. Sterigma less sclerotized; bursa copulatrix more slender; a single signum much smaller, elliptical.

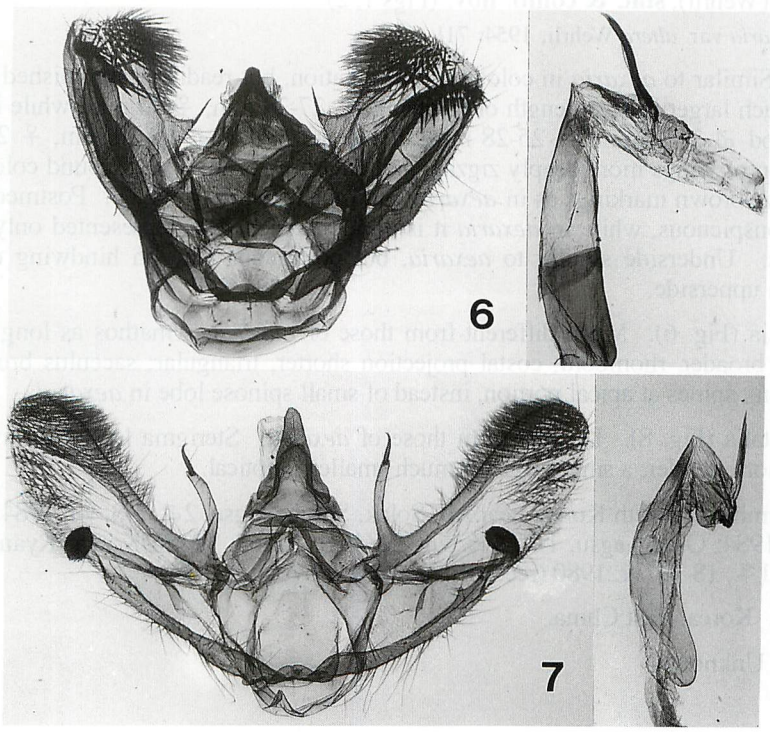
Material examined. South Korea: near Mt. Solak, Shinheungsa, 2♂, 1-3. vii. 1984; Mt. Villa, 1♂, 5. vii. 1984; Osaegyagsu, 1♂, 4-6. vii. 1984 (S. Saito). North Korea: Ryangkang do, Pungso, 1♂1♀, 18-19. vi. 1980 (recorded as *aexaria* by Sato, 1984).

Distribution. Korea, East China.

Food-plant. Unknown.




Figs 1-5. *Bizia* spp. 1-2. *B. altera* (Wehrli). 1. ♂, S. Korea, Osaegyagsu. 2. ♀, N. Korea, Pungso. 3-5. *B. aexaria* Walker. 3. ♂, N. Korea, Yangdok. 4. ♂, Japan, Niigata, Is. Awashima. 5. ♀, Japan, Niigata, Maki.




Figs 6-7. Male genitalia of *Bizia* spp. 6. *B. altera* (Wehrli). RS-3710. 7. *B. aexaria* Walker. RS-3713.

***Bizia aexaria*** Walker (Figs 3-5)

*Bizia aexaria* Walker, 1860: 261; Butler, 1879: 31, pl. 48: 5; Leech, 1897: 220; Yang, 1978: 388, pl. 20: 2; Chu, 1981: 125, pl. 35: 893; Inoue, 1982, **1**: 559, **2**: pl. 102: 4; Shin, 1983: 253, pl. 12: 169.

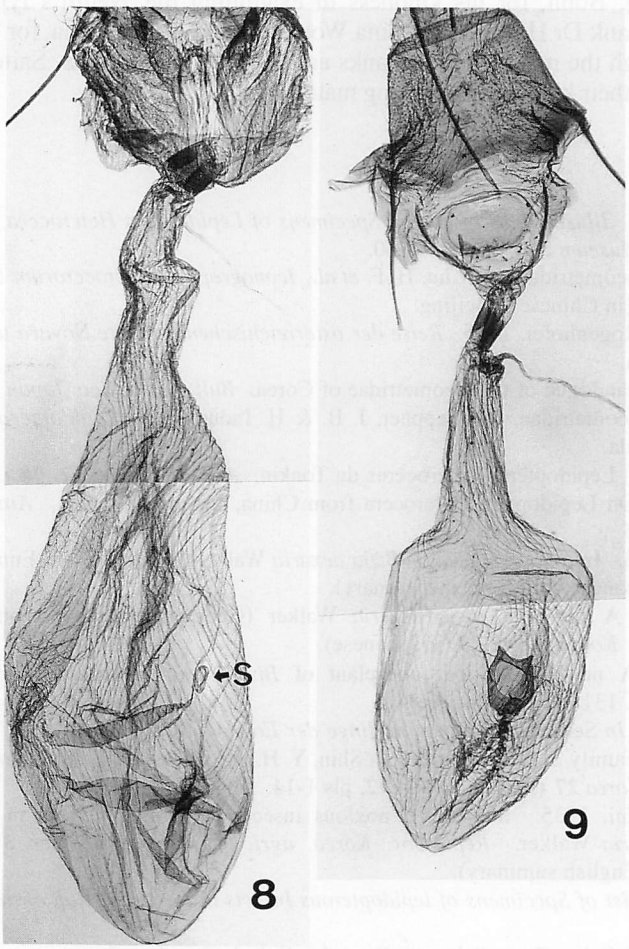
*Angerona aexaria*: Prout, 1915: 334, pl. 16: i; Joannis, 1929: 501; Wehrli, 1954: 711.

*Ctenognophos aexaria*: Inoue, 1946: 49.

*Endropia mibuaria* Felder, 1875, pl.123: 31.

Very common species in Japan and Korea. I recorded North Korean specimens taken at Yangdok and Pungso as *aexaria* (Sato, 1984), but those from Pungso should have been identified as the previous species. Though Wehrli (1954) mentioned he had three specimens from Formosa (=Taiwan), any additional material has never been recorded from there up to now. Inoue (1992) deleted *aexaria* from the latest checklist of Lepidoptera from Taiwan.

Diagnosis. See the previous species. Male and female genitalia are as shown in figs 7 and 9.




Figs. 8-9. Female genitalia of *Bizia* spp. 8. *B. altera* (Wehrli). RS-3712. 9. *B. aexaria* Walker. RS-3716.

Material examined. North Korea: Pyongannando, Yangdok, 6♂3♀, 24. vii-1. viii. 1980. Japan: 21♂10♀ taken at various places.

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu), Korea, China, Tibet, Tonkin.

Food-plants. Immature stages were described in detail as one of the important pests of mulberry trees (*Morus alba*, Moraceae) in Korea (Umeya & Omi, 1935). Nakamura (1993) redescribed recently the larva and pupa reared from one female taken in Shizuoka, Japan. Hatched larvae fed on *Polygonum blumei* (Polygonaceae) and *Clematis paniculata* (Ranunculaceae). Ohno (1985) and Nishibe (1992) recorded *Dolichos lablab* (Leguminosae) and *Sedum sieboldi* (Crassulaceae) as food-plants respectively. Judging from those records, *aexaria* seems to be polyphagous.

## Acknowledgements

I am much indebted to Dr D. Stüning, Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, for his kindness in examining the Wehrli's type specimens of *altera*. I deeply thank Dr H. Inoue, Otsuma Women's University, Iruma, for his useful advice and reading through the manuscript. Thanks are also due to Messrs S. Saito, M. Nakamura and Y. Kishida for their kindness in offering material.

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*Tinea* **14** (1): 5-9, September, 1994

# Two new genera and two new species of the Geometridae from Thailand

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**Abstract** Two new species under new genera are described from a high mountain, Doi Inthanon, of North Thailand.

Remarkable two new species described under new genera, one belonging to the Geometrinae and the other to the Ennominae, were discovered at a high altitude of Doi Inthanon, northern Thailand in winter season of 1989 by a native collector and the specimens were presented to me by Bro. Amnuay Pinratana, St. Gabriel's College, Bangkok. The new genera seem to be isolated in their respective subfamilies.

I express my gratitude to Bro. Pinratana for his gift of valuable specimens, and to Dr Malcolm J. Scoble, British Museum (Natural History), London, for his advice on the first genus described below.

The type-series recorded hereunder will be deposited to the above cited museum.

Subfamily Geometrinae

***Pseudobiston* gen. nov.**

Male. Head, body and femurs of legs densely covered with wooly hair, frons smooth, chaetosema present, eye rather small, naked, proboscis developed, labial palpus vey small, brush-like at apex, antenna (Fig. 5) bipectinate to tip, pectines arising from middle of joints, the longest one a little more than three times of width of joint, foretibia (Fig. 6) with epiphysis about half length, hindtibia not swollen, tarsi spined at inner sides, spurs (Fig. 6) number 0-2-2, tympanal cavity at base of abdomen degenerated.

Forewing (Fig. 7) with costa straight, apex rounded, termen a little gibbous, tornus well-marked, fovea absent, Sc and $R_1$ free, $R_{2-5}$ stalked, $M_1$ arising from the stalk, $M_2$ from middle of DC, $M_3$ and $CuA_1$ well apart. Hindwing (Fig. 7) with frenulum developed, costa straight, apex rectangular, termen straight to $CuA_1$, angled at $CuA_2$, tornus well-marked, Sc+$R_1$ connected with cell by a bar at near base, Rs and $M_1$ separate, $M_2$ arising from DC near $M_1$, DC angled inward, $M_3$ and $CuA_1$ separate.

Male genitalia (Fig. 8). Uncus bilobed, socii sclerotized, long, gnathos with central area lip-shaped, juxta a pair of stick-like processes, valva elongate, simple, harpe a horn-like process continued from sacculus, aedeagus broad at basal half and slender at apical half, cornuti a mass of numerous spines.

Although the new genus is tentatively placed in the Geometrinae, a strong developement of frenulum is atypical for the subfamily, and moreover the absence of tympanal organ in male is exceptional for the Geometridae. The loss of tympanal organ is hitherto only seen in the females with reduced wings in the Geometridae.

Type of genus: *Pseudobiston pinratanai* sp. nov.

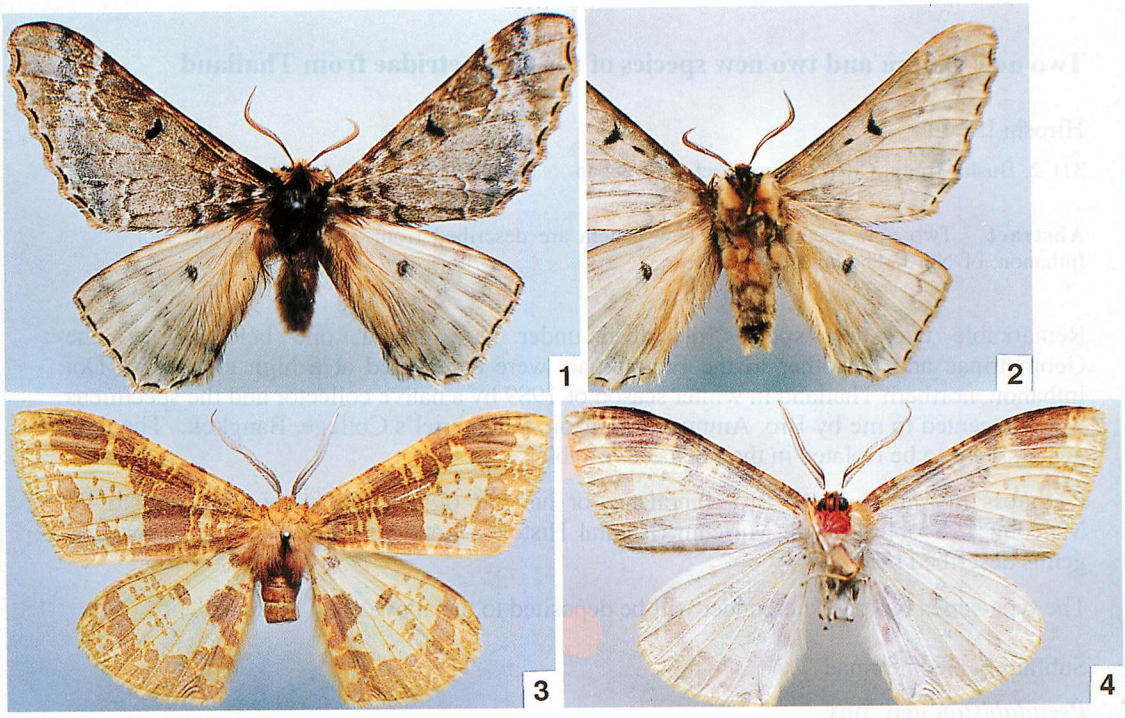


Fig. 1. *Pseudobiston pinratanai* sp. nov. Holotype ♂. Fig. 2. *Ditto*, under surface.
Fig. 3. *Shangrilana paradisea* sp. nov. Holotype ♂. Fig. 4. *Ditto*, under surface.

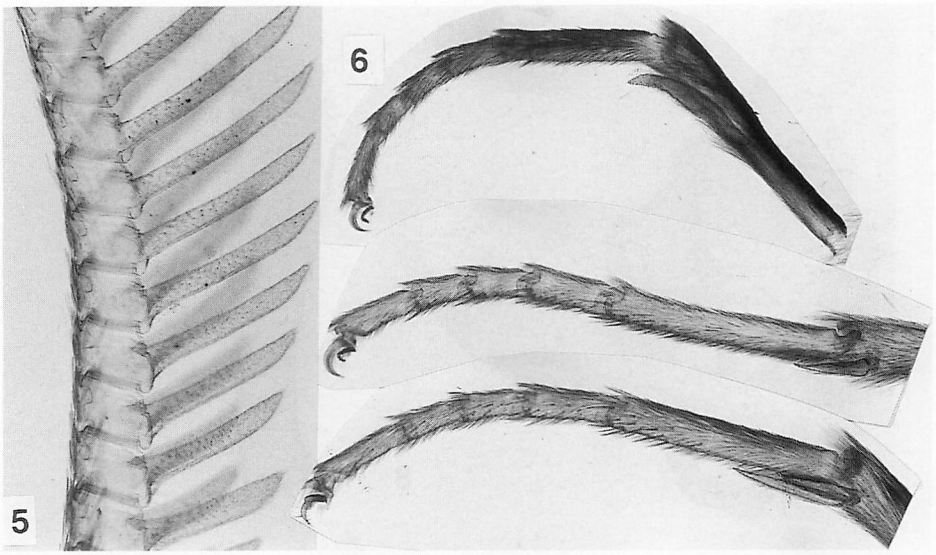
***Pseudobiston pinratanai* sp. nov.** (Figs 1, 2)

Male. Forewing pale brown, ante- and postmedian fasciae whitish, the former deeply incurved below cell, angled on 1A+2A, the latter sinuous between $R_5$ and $CuA_2$, then nearly vertical and a little oblique to hindmargin, outside of antemedian and inside of postmedian broadly darker brown from costa to posterior margin of cell and $M_1$ respectively, black discocellular spot surrounded by narrow whitish line, pale yellowish white subterminal band accompanied proximally by a purplish band, termen whitish, dashed with black bars at intervals of veins, fringe yellowish brown. Hindwing pale clay yellow, discocellular spot paler and broader than on forewing, a faint double fascia running at outer area parallel with termen, terminal line and fringe nearly as on forewing. Under surface, both wings pale clay yellow, discocellular spots clear, transverse fasciae at outer areas of both wings faintly reproduced.

Length of forewing: 36-39 mm.

Male genitalia (Fig. 8). As described for the genus.

Holotype, ♂: Doi Inthanon, Chiang Mai, North Thailand, 18. xii. 1989 (*ex* A. Pinratana). Paratypes: type locality, 12 & 16. xii. 1989, 2♂ (as above).




Figs 5-6. *Pseudobiston pinratanai* sp. nov. 5. Male antenna. 6. Fore-, mid- and hindlegs (from top to bottom), showing tibia and tarsus.

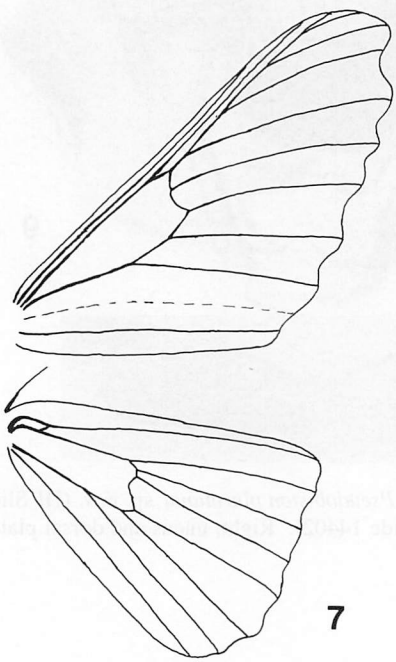
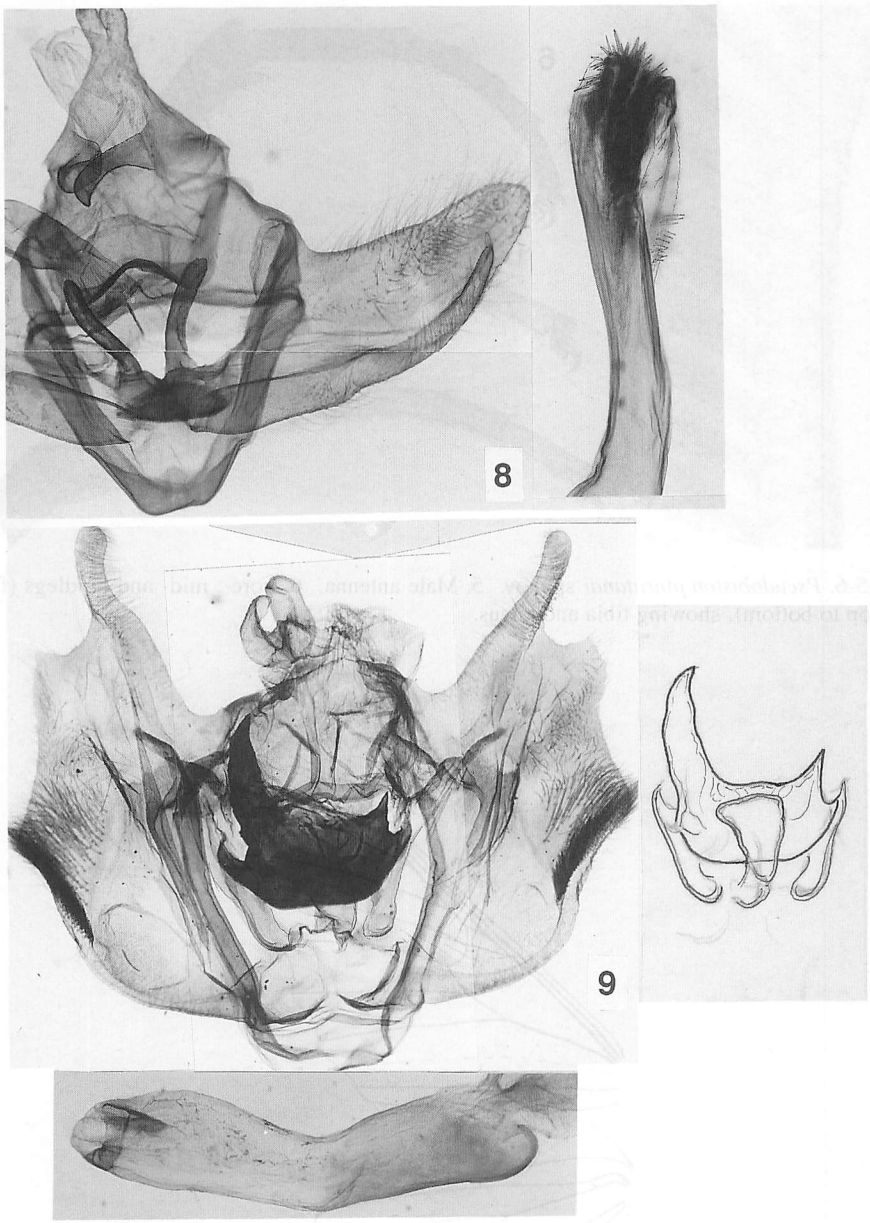



Fig. 7. Venation of *Pseudobiston pinratanai* sp. nov.




Figs 8-9. Male genitalia. 8. *Pseudobiston pinratanai* sp. nov. (HI Slide 14400). 9. *Shangrilana paradisea* sp. nov. (HI Slide 14402). Right: uncus and dorsal plate.

Subfamily Ennominae

***Shangrilana* gen. nov.**

Frons rounded-off, labial palpus porrect, 2nd joint hairy, 3rd a little produced from 2nd, proboscis well-developed, hindtibia not swollen, tarsal spurs number 0-2-4, antenna strongly bipectinate to near tip, cone-like cluster of white scales covering ventral side of scape and clinging to ventral and inner side of antenna, its tip reaches about 10th joint.

Forewing without fovea, costa gently curved at two-thirds from base, apex pointed, tornus angled, termen smooth, a little gibbous, $R_{2-5}$ stalked, $M_1$ well separated from the stalk. Hindwing with apex rounded, continuing to round termen, Rs arising close to dorsal angle of discocellulars, DC gently incurved, $M_3$ and $CuA_1$ well-separate at the origin.

Male genitalia (Fig. 9). Uncus divided into two halves at apical half, gnathos atrophied, juxta an irregularly shaped ladle-like process, at dorsal part of anellus there is a strongly sclerotized large plate, upper corners produced into sharply pointed teeth, left one being much longer than the right, its lower margin rounded, from each side an elongate stick-like sclerite extending to base of sacculus, valva with costal arm produced, margin of narrow sacculus rounded, its apical and dorsal area widely sclerotized and spinulous, aedeagus short, cylindrical, curved at middle, cornutus absent.

Type of genus: *Shangrilana paradisea* sp. nov.

***Shangrilana paradisea* sp. nov.** (Figs 3, 4)

Frons dark brown, thorax covered with chrome orange hair, ventral side vinaceous, abdomen above nearly concolorous with thorax, lateral and ventral side whitish. Both wings pale lemon yellow, covered with irregular chrome orange spots and speckles, especially densely marked at costal area and basal half of forewing and terminal area of both wings, discocellular spot isolated on hindwing but almost melted into neighbouring marks on forewing, fringe nearly concolorous with terminal area. Under surface much paler, maculation of upper surface strongly reproduced at costal area of forewing, but spottings and speckles of other area vague, terminal area and fringe deeper yellow than rest of the wings.

Length of forewing: 33 mm.

Male genitalia (Fig. 9). As described for the genus.

Holotype, ♂: Doi Inthanon, Chiang Mai, North Thailand, 5. i. 1989 (*ex* A. Pinratana).

The male genitalia and a mass of white scales at the base of antenna are characteristic in this species.

## 摘　要

井上　寛：タイ国からのシャクガ科の２新属２新種

本文で記載した新属新種は，いずれも北部山岳のドイ・インタノンの高所で冬期に採集された大型種で，*Pseudobiston pinratanai* はアオシャク亜科，*Shangrilana paradisea* はエダシャク亜科にぞくする．どちらの種も雌は未発見である．

*Tinea* **14** (1): 10-12, September, 1994

# Description of a new species of *Ourapteryx* Leach (Geometridae, Ennominae) from Central Nepal

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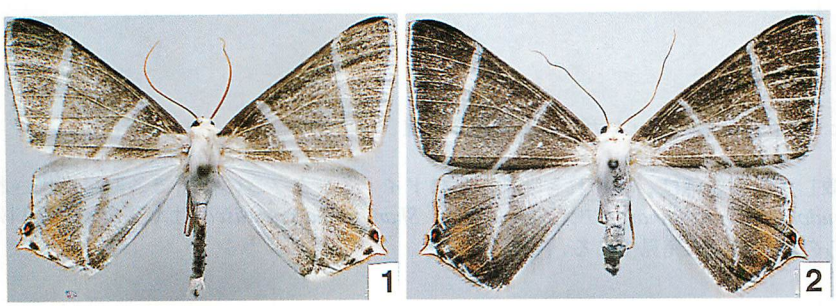
**Abstract** A new species of the genus *Ourapteryx* is described from a high mountain of Central Nepal.

A striking new species of *Ourapteryx* described below was discovered by the members of "Forschungsunternehmens Nepal Himalaya" in 1973 at Central Nepal. Most of the specimens belong to Zoologische Staatsammlung, Munich (Curator: Dr A. Hausmann), but a part of them are in the collecion of Museum A. Koenig, Bonn (Curator: Dr D. Stüning), and of the private collection of Mr M. D. Sommerer, Munich. I express my thanks to the above mentioned lepidopterists for a loan of specimens and for informations on the data of specimens preserved in the above cited museums.

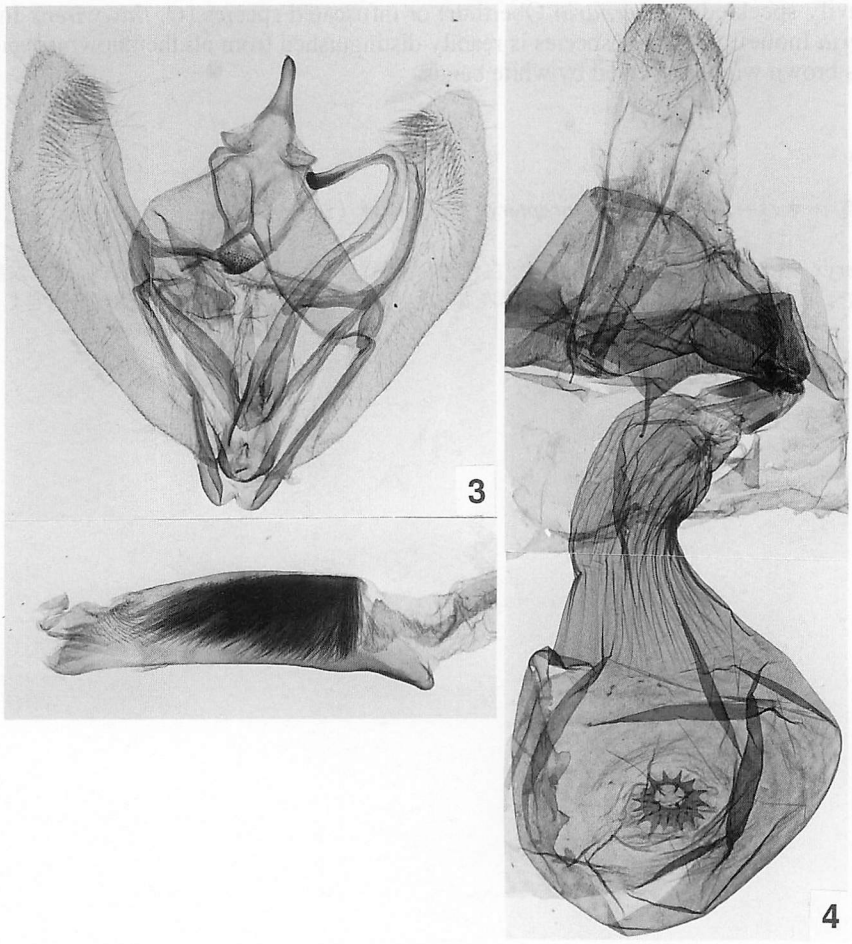
***Ourapteryx dierli* sp. nov.** (Figs 1, 2)

Face pale brownish grey, central area whitish, thorax and abdomen white. Forewing with termen almost straight, but a little gibbous around $M_2$, apex not falcate, tornus pronounced. Hindwing with tail at $M_3$ short, strongly angled at $M_1$.

Upper surface of wings fuscous brown like *O. sambucaria* ab. *olivacea* Standfuss illustrated by Oberthür, 1911, *Étud. Lépid. comp.* **5**: 26, pl. 86: 830, and by Prout, 1915, *in* Seitz, *Macrolepid. World* **4**: 334, pl. 17: c. White transverse bands of both wings broad and very clear. Forewing with base and termen white, hindwing with basal half or one-third, costal and hindmarginal area white, terminal line of both wings fuscous, fringe dark ochreous. Hindwing with a reddish spot surrounded by blackish at the shoulder below $M_1$, the posterior spot blackish, elongate, often there is another smaller spot at termen in cellule 2. Under surface, forewing with anterior half and hindwing with terminal one-third fuscous brown, sometimes nearly as dark as on upper surface, but often much paler. Forewing with two white bands vaguer than on upper, hindwing with fuscous central band crossing discocellulars, its outside broadly white. Both wings with termen white.




Figs 1-2. *Ourapteryx dierli* sp. nov. 1. Holotype ♂. 2. Paratype ♀.




Figs 3-4. Genitalia of *Ourapteryx dierli* sp. nov. 3. Male. 4. Female.

Length of forewing: ♂♀ 21-24 mm.

Male genitalia (Fig. 3). Gnathos with central area lip-shaped, furca at right side very long, acutely curved inward at above middle of uncus, valva elongate, apex of valvula nearly pointed, cornuti a mass of delicate spines. Female genitalia (Fig. 4). Ductus bursae broad, curved, densely ribbed, signum small, frill broader than central disc at ventral side, serration shorter than width of frill.

Holotype, ♂: C. Nepal, Kali-Gandaki-Tal, Choklopani nördl., Tukche, 2600 m, 25. vi. 1973 (leg. Dierl–Lehmann). Paratypes: type locality, 17-25. vi. 1973, 23♂7♀; Kali-Gandaki-Tal, Kalopani-Dhumpu, 2500m, 6. vi. 1973, 1♂; Kali-Gandaki-Tal, Choklopani nördl., Tukche, 3700m, 24. vi. 1973, 1♂ (same collectors).

The holotype and 25 paratypes in coll. Zoologische Staatsammlung, Munich, 3 paratypes in coll. Museum A. Koenig, Bonn, 2 paratypes in coll. M. D. Sommerer, Munich, and 2 paratypes in coll. H. Inoue.

In *Ourapteryx* the wings are white or yellowish in the majority of species, but rarely there are heavily speckled (*O. kernaria* Oberthür) or infuscated species (*O. flavovirens* Inoue, *O. variolaria* Inoue). This new species is readily distinguished from all the known species in its fuscous brown wings traversed by white bands.

## 摘　要

井上　寛：ネパール中部からの *Ourapteryx* 属の１新種（シャクガ科）

*Ourapteryx* 属の大部分の種は，翅の色が白色から黄色だが，今回記載した新種は，翅の大部分が暗い灰色で，前翅に２本，後翅に１本の白帯をあらわす．ゲニタリアは，この属特有の形をしている．

*Tinea* **14** (1): 13-19, September, 1994

# The *browni*-group of *Nyctemera* (Lepidoptera, Arctiidae) from the Philippines, with descriptions of three new species

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**Abstract** Six species of the *browni*-group of *Nyctemera* occurring in the Philippines are described or redescribed. Five including two new species *angustipennis* and *owadai* are found in Luzon and one new species *apoensis* in Mindanao.

The *browni*-group, here named, of the genus *Nyctemera* Hübner, [1820], has been represented by four species: *N. browni* (Schultze) from Luzon, *N. kinabaluensis* Reich from Borneo, *N. diaphana* Roepke from Sulawesi and *N. hyalina* Bethune-Baker from New Guinea and the S. Moluccas. It is characterized in the male genitalia by the apical part of valva strongly sclerotized and is separated from the *arctata*-group (= *Arctata* Roepke, 1949) by this feature (Holloway, 1988).

Through the courtesy of Dr M. Owada of the National Science Museum, Tokyo (NSMT), I had an opportunity to examine many specimens of *Nyctemera* collected by him in various places of the Philippines in 1985. After a close examination, I was able to separate six species of the *browni*-group in the collection. Three of them were identified as *browni*, *gratia* and *luzonensis*, all described from Luzon, and the remaining three were considered as new to science. Some additional specimens were also used for this study from Mr S. Sugi's and my private collections.

### *Nyctemera browni* (Schultze) (Figs 1, 2)

*Deilemera browni* Schultze, 1908, *Philipp. J. Sci.* (A) **3**: 31, pl. 1, fig. 6.
*Deilemera conjuncta* Wileman, 1915, *Entomologist* **48**: 111.
*Deilemera arctata browni*: Bryk, 1937, *Lepid. Cat.* **82**: 89.

Expanse. ♂ 43 mm, ♀ 48 mm. For diagnosis see the next species.

Male genitalia (Fig. 12). Uncus moderate in length; valva with an acute subapical process.

Female genitalia (Fig. 18). Ductus bursae moderate. Corpus bursae pyriform. Signum a longitudinal band, with fine scobinations.

Material examined. Philippines, Luzon: Mountain Prov., Sagada 1,550m, 2♂, 22-23. vii. 1985, M. Owada leg.; Barlig, 1,550m, 1♀, 17-19. vii. 1985, M. Owada leg. NSMT. Luzon, Banaway, 2♀, 7. ii. & 10. iv. 1988. In colln S. Sugi.

Distribution. Luzon.

### *Nyctemera angustipennis* sp. nov. (Figs 3, 4)

Expanse. ♂ 54 mm, ♀ 58 mm. Very similar to *browni* in the wing pattern, but differs from it in the male antenna with longer pectinations, the larger expanse with rather acute forewing apex and the black marginal band of hindwing ending in above tornus.

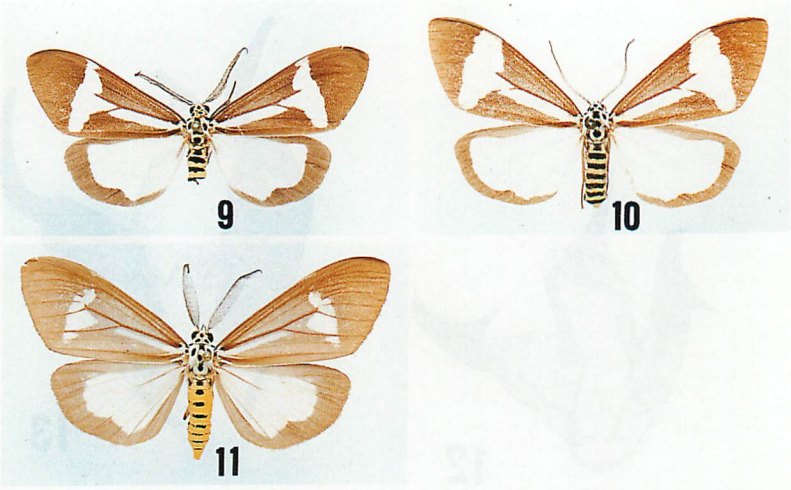
Male genitalia (Fig. 15). Uncus thick, long. Apical part of valva massive, dilated at middle and tapered to pointed apex, without subapical process. Aedeagus robust, apically much broadened with a large conical cornutus.


Figs 1-8. *Nyctemera-browni* group of the Philippines. 1. *N. browni* (Schultze), ♂. 2. *Ditto*, ♀. 3. *N. angustipennis* sp. nov., holotype ♂. 4. *Ditto*, paratype ♀. 5. *N. gratia* (Schultze), ♂. 6. *Ditto*, ♀. 7. *N. luzonensis* (Wileman), ♂. 8. *Ditto*, ♀.

Female genitalia (Fig. 19). Ductus bursae broad. Corpus bursae strongly restricted at middle, with posterior lobe much expanded, anterior lobe pyriform with a band-like signum shorter than in *browni*, crescent.

Holotype. ♂, Philippines, Luzon, Mountain Prov., Mt Data 2,250 m, 12-14. vii. 1985, M. Owada leg. NSMT. Paratypes. Philippines, Luzon, Moutain Prov., Barlig 1,550m, 1♀, 17-19. vii. 1985, M. Owada leg. NSMT. Luzon, Banaway, 1 ♂, 7. ii. 1988. In colln S. Sugi.

Distribution. Luzon.




Figs 9-11. *Nyctemera-browni* group of the Philippines. 9. *N. owadai* sp. nov., holotype ♂. 10. *Ditto*, paratype ♀. 11. *N. apoensis* sp. nov., holotype ♂.

***Nyctemera gratia*** (Schultze) (Figs 5, 6)

*Deilemera gratia* Schultze, 1910, *Philipp. J. Sci.* (D) **5**: 164, pl. 1, fig. 3.
*Deilemera venata* Wileman, 1915, *Entomologist* **48**: 111. **Syn. nov.**

Expanse. ♂ 52 mm, ♀ 56 mm. Readily separable from any others in the milky white immaculate wings, with slight infuscation of forewing veins.

Male genitalia (Fig. 13). Uncus much reduced in size, slender. Apical part of valva rather stout and short. Aedeagus weakly curved.

Female genitalia (Fig. 21). Corpus bursae moderately restricted at middle; signum a longitudinal, intermittent row of fine scobinations..

Material examined. Philippines, Luzon, Mountain Prov., Mt Data 2,250 m, 12-14. vii. 1985, M. Owada leg.; Barlig 1,550 m, 1♀, 17-19. vii. 1985, M. Owada leg.; Sagada 1,550 m, 3♀, 21-23. vii. 1985, M. Owada leg. NSMT. Luzon, Banaway, 1♀, 29. i. 1986. In colln Y. Kishida. Luzon, Santo Tomas, 1♀, v. 1986. In colln S. Sugi.

Distribution. Luzon.

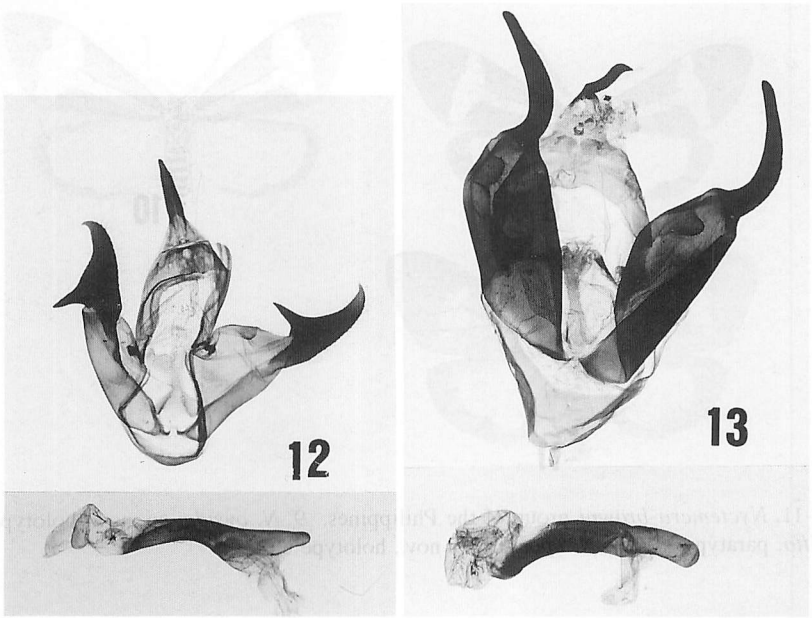
***Nyctemera luzonensis*** (Wileman) (Figs 7, 8)

*Deilemera luzonensis* Wileman, 1915, *Entomologist* **48**: 111.
*Nyctemera luzonensis*: Bryk, 1937, *Lepid. Cat.* **82**: 70.
*Deilemera arctata luzonensis*: Bryk, 1937, *Lepid. Cat.* **82**: 89.

Expanse. ♂ 52 mm, ♀ 56 mm. Wings semi-transparent due to sparser scaling than usual, with veins stained with fuscous.

Male genitalia (Fig 14). Uncus short, beaked; valva slender beyond middle. Aedeagus distally slender and strongly curved, with proximal end abruptly dilated .

Female genitalia (Fig. 22). Anterior part of eighth sternum deep bilobate to form pouches lateral to ostium. Ductus bursae thin, long; corpus bursae globular, with a small circular signum.




Figs 12-13. Male genitalia of Philippine *Nyctemera*. 12. *N. browni* (Schultze). 13. *N. gratia* (Schultze).

Material examined. Philippines, Luzon: Mountain Prov., Mt Data 2,250 m, 3♂2♀, 14. vii. 1985, M. Owada leg.; Barlig 1,550 m, 1♀, 17-19. vii. 1985, M. Owada leg.; Mt Puguis 1,900 m, 1♂2♀, 18. vii. 1985, M. Owada leg.; Sagada 1,550 m, 1♂1♀, 21-23. vii. 1985, M. Owada leg. NSMT. Luzon, Banaway, 2♀, 23. i. & 20. v. 1988. In colln S. Sugi.

Distribution. Luzon.

Remarks. From the structures of male and female genitalia, this and the following two new species are considered to be very close allies, sharing the strongly curved aedeagus and the single round signum on the female corpus bursae, though in one species, *apoensis*, the female is unknown.

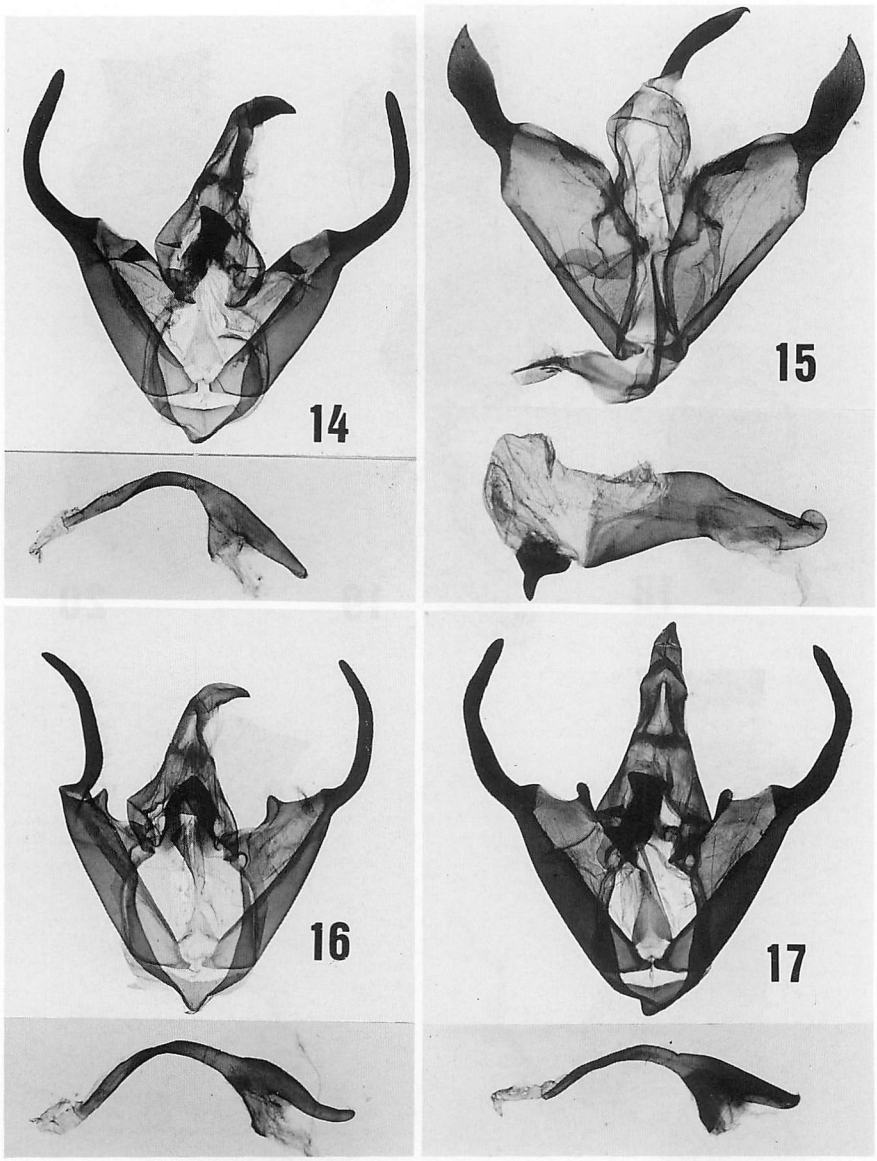
***Nyctemera owadai* sp. nov.** (Figs 9, 10)

Expanse. ♂♀ 45 mm. In facies similar to *browni* and *angustipennis*, but differs from them as follows. A little smaller; in forewing the posterior margin of the postmedian white band smooth without spurs on veins, anteriorly the band fully extending to the base of $CuA_2$ to join the longitudinal streak. In hindwing the inner margin of the marginal dark band rather smooth and nearly parallel to termen, not iregularly serrate.

Male genitalia (Fig. 16). Very similar to those of *luzonensis* and a new species below, except the subbasal process on valva costa rather prominent and trigonate.

Female genitalia (Fig. 20). Almost identical with those of *luzonensis* except slightly deeper pouches of the eighth sternum.

Holotype. ♂, Philippines, Luzon, Mountain Prov., Sagada 1,550 m, 21-23. vii. 1985, M. Owada leg. NSMT. Paratypes. Philippines, Luzon, Banaway, 2♀, 28-29. i. 1986. In colln Y. Kishida. Luzon, Banaway, 1♂, date lost 1988. In colln S. Sugi.

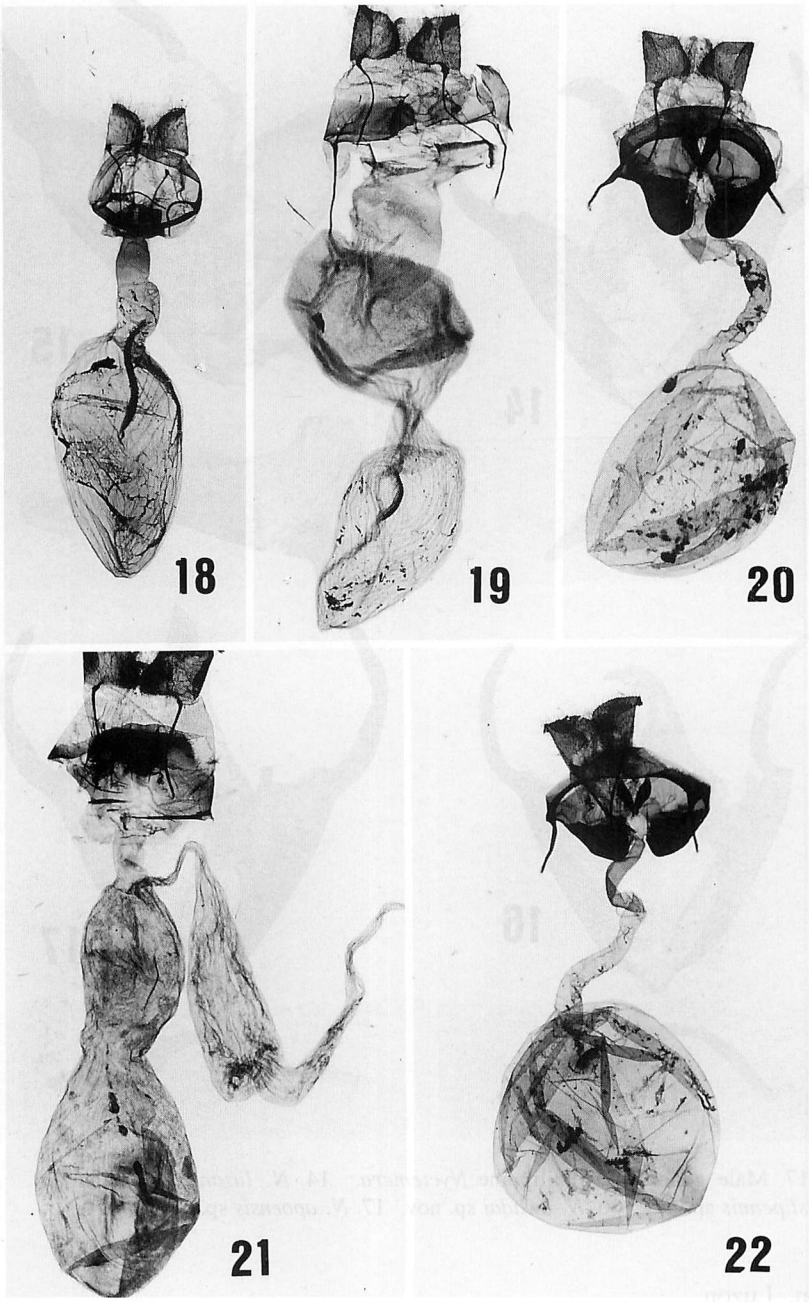



Figs 14-17. Male genitalia of Philippine *Nyctemera*. 14. *N. luzonensis* (Wileman). 15. *N. angustipennis* sp. nov. 16. *N. owadai* sp. nov. 17. *N. apoensis* sp. nov.

Distribution. Luzon.

***Nyctemera apoensis* sp. nov.** (Fig. 11)

Expanse. ♂ 48 mm. In having some semi-transparent wings with pale brownish maculation, this new species is somewhat similar to *luzonensis* from Luzon, but pectinations of male antenna are longer, and the banding of abdominal segments is markedly reduced. In forewing the white streak below median nervure narrow and the postmedian whitish band




Figs 18-22. Female genitalia of Philippine *Nyctemera*. 18. *N. browni* (Schultze). 19. *N. angustipennis* sp. nov. 20. *N. owadai* sp. nov. 21. *N. gratia* (Schltze). 22. *N. luzonensis* (Wileman).

much reduced and irregular in shape, interrupted by veins and not reaching costa above. In hindwing inner margin suffused with dark, the color joined with the terminal band, which is similar to that in *owadai* but broader.

Male genitalia (Fig. 17). Very similar to those of *owadai*, but the subbasal process of valva costa digitate, not triangular as in *owadai*.

Holotype. ♂, Philippines, Mindanao, Davao, Upper Baracatan, Apo Range, Mt Talamo 1,100 m, 17-19. viii. 1985, M. Owada leg. NSMT.

Distribution. Mindanao.

## Acknowledgments

I express my cordial thanks to Dr M. Owada, National Science Museum, Tokyo, for his kind permission to examine invaluable specimens. My acknowledgments are also due to Mr S. Sugi, Tokyo, and Mr H. Yoshimoto, Tanashi, for their helpful advice.

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*Tinea* **14** (1): 20-26, September, 1994

# The genus *Abraxas* Leach (Geometridae, Ennominae) from Thailand

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**Abstract** Eleven species, including four new species, of the genus *Abraxas* are listed from Thailand for the first time.

So far as I am aware no species of *Abraxas* has been recorded from Thailand, though the genus is thriving in the Indo-Chinese Region from lowlands to high mountains. Based on collection made by members of the University of Osaka Prefecture Lepidopterological expedition to Thailand (Drs H. Kuroko, S. Moriuti, T. Saito, Y. Arita & Y.Yoshiyasu), Dr M. Owada, National Science Museum, Tokyo, Prof. S. Azuma, Ryukyu University, Naha, and from some other sources, I have been able to examine eleven species including four new species. Actually number of species of *Abraxas* inhabiting Thailand must be far more than those recorded in this paper when the whole areas of Thailand are carefully surveyed. For the subdivision of the genus, refer to my papers (1970, 1972 and 1984).

I express my thanks to the above cited entomologists who provided me with the specimens partly as a loan and partly as a gift. I am much indebted to Dr D. Stüning, Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, for his kind office in my examinations of the type-series of Wehrli's new species of *Abraxas* from China.

***Abraxas (Abraxas) atrolivens* sp. nov.** (Figs 1, 2)

Antennal fascicles in male about as long as width of shaft. Face, crown and antennal shaft fuscous brown. Forewing with maculation very similar to *A. semilivens* Wehrli, 1935a: 27, pl. 1: 7; pl. 3: 24 (♂ genitalia); *id.*, 1939: 276, pl. 21: b, from West China, but the postmedian fulvous fascia more strongly curved inward at posterior half, white area between ante- and postmedian fasciae much narrower, discocellular spot much vaguer, almost touching postmedian fascia, costal-apical white area heavily infuscated. Hindwing nearly as in *semilivens*, spotting at subterminal area sometimes heavy, but often much weaker.

Length of forewing: ♂♀ 21-25 mm.

Male genitalia (Fig. 9). Distinguished from *semilivens* by deeply forked dorsal projection of harpe, shape of which is similar to that of *A. fletcheri* Inoue, 1984: 101, figs 23, 24, from Taiwan, but the forked processes longer, ventral marginal projection nearly as long as lower one of forked processes, uncus flat, central process triangular, sharply pointed, costa more or less swollen at middle, terminating in a spine. Aedeagus (Fig. 13) serrated at dorsal and apical part, apex pointed. Female genitalia (Fig. 17). Lamella antevaginalis forked as in *A. consputa* Bastelberger, *wilemani* Inoue and *fletcheri* Inoue, *cf.* Inoue, 1984, figs 25-35, all from Taiwan, but the processes more slender.

Holotype and paratypes, 12♂10♀: Doi Inthanon, 2571 m, Chiang Mai, 8-11. ix. 1987 (Moriuti, Saito, Arita & Yoshiyasu). Holotype, ♂, and 15 paratypes in coll. H. Inoue, 4 paratypes in coll. Univ. Osaka Pref., and 2 paratypes in coll. Museum A. Koenig.

***Abraxas (Abraxas) aritai* sp. nov.** (Figs 3, 4)

Larger than the preceding species, male antennal fascicles nearly the same. Forewing with dark grey spotting dense at subterminal area outside postmedian fascia, course of the fascia similar to the preceding, but discocellular spot heavier, surrounded by dark grey mark extended from costa, there are two spots at posterior angle of cell and hindmargin close to postmedian fascia, this median row of spotting often fulvous, basal fulvous area much brighter than in the preceding. Hindwing with smaller discocellular spot and a row of postmedian spots, median row usually only represented by costal and hindmarginal spots, postmedian becomeing double at hindmargin and their interval filled with a fulvous bar.

Probably most similar to *A. propsara* Wehrli 1935a: 38, pl. 1: 3; pl. 3: 28 (♂ genitalia); *id.*, 1939: 276, pl. 21: a, from Central China, but forewing with distal contamination heavier, hindwing with postmedian spots larger and terminal dark grey maculation much heavier.

Length of forewing: ♂ ♀ 23-25 mm.

Male genitalia (Fig. 10). Uncus with central process triangular, costa with dorsal margin convex, tip covered with many short spines, harpe very slender, tapering, simple, its dorsal margin folded, ventral margin minutely serrate at apical half, a small thorn-like process from middle of ventral margin. Aedeagus (Fig. 14) minutely serrated at apical and dorsal area. Female genitalia (Fig. 18). Genital opening wide, lamella antevaginalis broad and as short as ductus bursae, becoming narrow posteriorly, signum large, spines very short as in the preceding species.

Holotype and paratypes, 12♂2♀: Doi Inthanon, 2571 m, Chiang Mai, 9-11. ix. 1987 (Moriuti, Saito, Arita & Yoshiyasu). Holotype, ♂, and 9 paratypes in coll. H. Inoue, 3 paratypes in coll. Univ. Osaka Pref., and 1 paratype in coll. Museum A. Koenig.

From the structure of female genitalia it is similar to *A. placata* Inoue and *antinebulosa* Inoue, 1984: 101, 102, figs 40-44, from Taiwan, but the lamella antevaginalis longer, and in male genitalia it is quite distinct from them in much smaller uncus, shape of costal arm and harpe.

***Abraxas (Calospilos) metallica* sp. nov.** (Figs 5, 6)

In male antennal fascicles about twice as long as width of shaft, hindwing without costal protuberance at base. Forewing covered with metallic dark grey, leaving narrow white area at outside of basal patch, inside and outside of postmedian fascia and subterminal area, subbasal fascia dark fulvous, postmedian fascia concolorous with it from $CuA_1$ to hindmargin, a subtornal spot in cellule 1 small, elongate. Hindwing with dark grey base, median row of spots incomplete, sometimes represented by costal and hindmarginal spots only, but often there are additional smaller spots between them and rarely they are connected to become a narrow band, postmedian spots complete, enlarged at hindmarginal area.

Length of forewing: ♂ ♀ 23-25 mm.

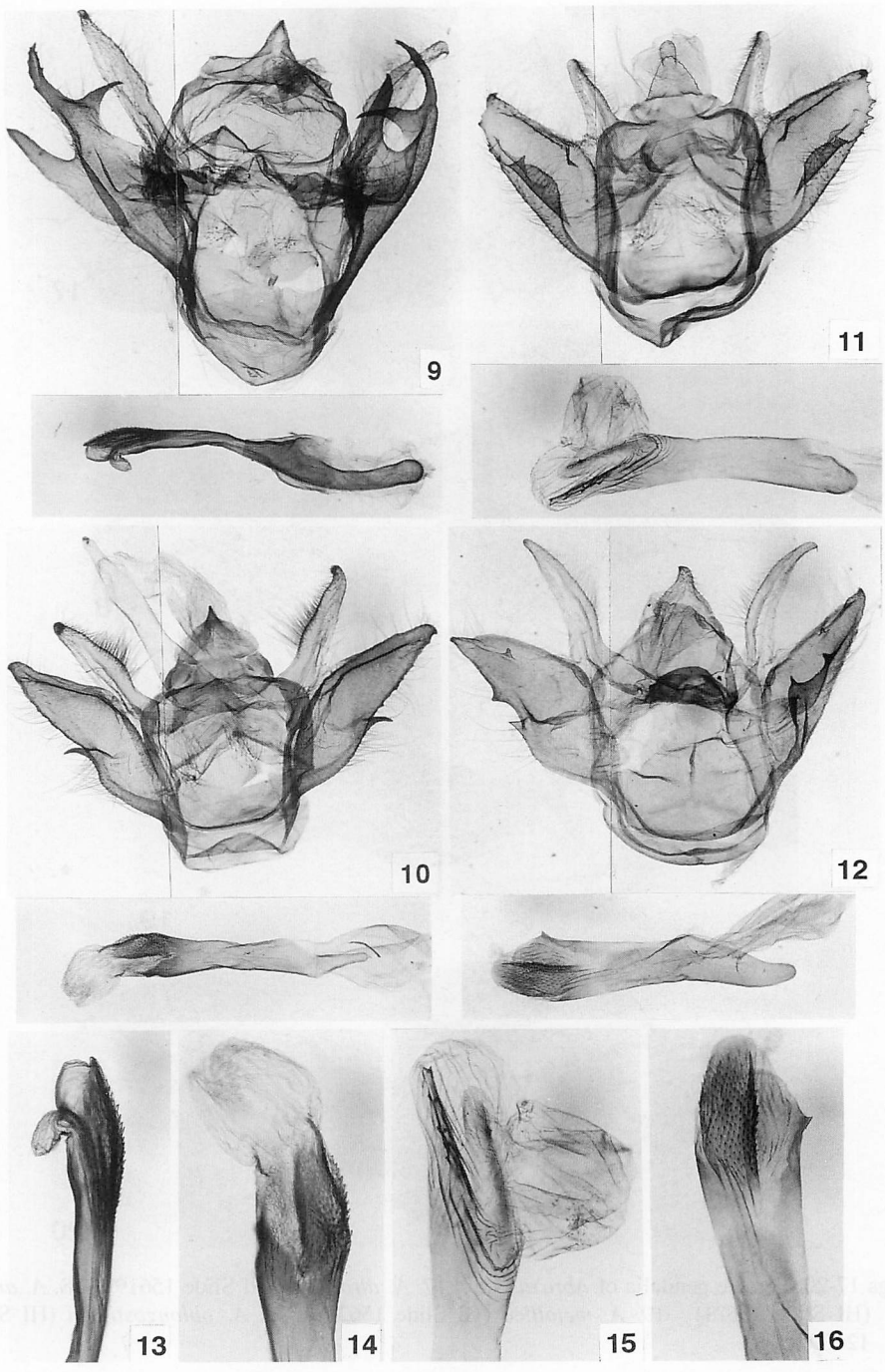
Male genitalia (Fig. 11). Uncus ovate, with a small stick-like apical process, its tip rounded, costa straight, short, harpe tapering, apical and ventral area strongly serrated, dorsal and ventral appendages elongate, the latter with margin gently rounded and terminating in a thorn. Aedeagus (Fig. 15) with an oblong opening, its edge serrated. Female genitalia (Fig. 19). Lamella antevaginalis with a transverse ridge at the genital opening, its side sharply pointed, ductus bursae broad, heavily striated, signum rounded, width of frill about half length of diameter of central disc.


Figs 1-8. *Abraxas* spp. 1. *A. atrolivens* sp. nov. Holotype ♂. 2. *Ditto*. Paratype ♀. 3. *A. aritai* sp. nov. Holotype ♂. 4. *Ditto*. Paratype ♀. 5. *A. metallica* sp. nov. Holotype ♂. 6. *Ditto*. Paratype ♀. 7. *A. oblongostigma* sp. nov. Holotype ♂. 8. *Ditto*. Paratype ♀.

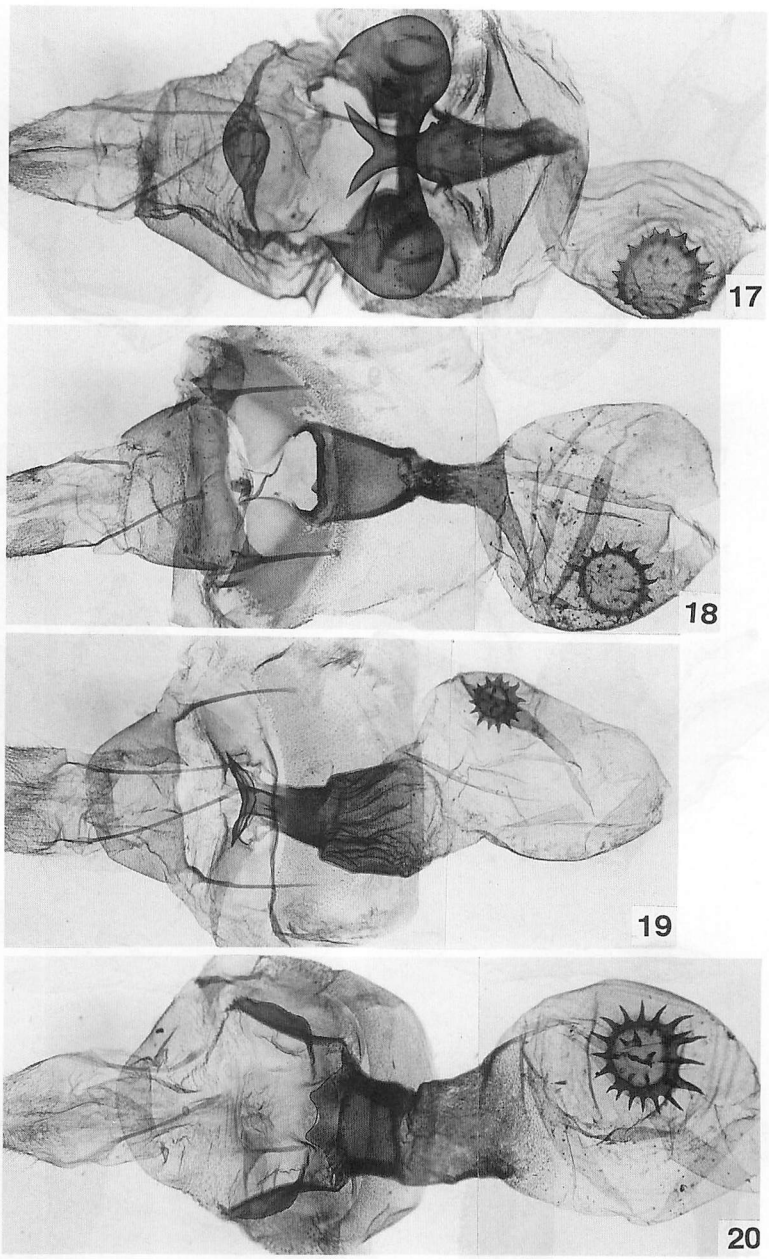
Holotype and paratypes, 3♂3♀: Doi Inthanon, 2571 m, Chiang Mai, 9-11. ix. 1987 (Moriuti, Saito, Arita & Yoshiyasu). Holotype, ♂, and 4 paratypes in coll. H. Inoue, and 1 paratype in coll. Univ. Osaka Pref.

***Abraxas (Calospilos) oblongostigma* sp. nov.** (Figs 7, 8)

Male antennal fascicles about as long as width of shaft, hindwing without costal protuberance at near base (Group 2B, Inoue, 1984: 105). Forewing with apex rounded, termen oblique from middle to tornus. Forewing with basal area and posterior half of postmedian row of spots light fulvous, spottings grey, central area from costa to below cell heavily contaminated, postmedian row of spots double from costa to $M_3$, merging into a broad band posteriorly, termen heavily or lightly spotted. Hindwing narrowly grey at base, postmedian row of small




Figs 9-16. Male genitalia of *Abraxas* spp. 9. *A. atrolivens* (HI Slide 15618). 10. *A. aritai* (HI Slide 15620). 11. *A. metallica* (HI Slide 15622). 12. *A. oblongostigma* (HI Slide 12608). 13-16. Tip of aedeagus, greatly magnified. 13. *A. atrolivens*. 14. *A. aritai*. 15. *A. metallica*. 16. *A. oblongostigma*.




Figs 17-20. Female genitalia of *Abraxas* spp. 17. *A. atrolivens* (HI Slide 15619). 18. *A. aritai* (HI Slide 15621). 19. *A. metallica* (HI Slide 15623). 20. *A. oblongostigma* (HI Slide 12609).

spots, sometimes interrupted at middle, median spots represented by costal and hindmarginal spots, terminal spotting usually incomplete, often almost entirely white.

Length of forewing: ♂♀ 19-22 mm.

Male genitalia (Fig. 12). Uncus ovate, central process short, rounded, gnathos ring complete, costal arm swollen dorsally, terminating in a spine, harpe very narrow, tapering, apex nearly pointed, a small thorn at subdorsal area, two larger ones at ventral margin. Aedeagus (Fig. 16) hooked at dorsal terminal area, an elongate serrated plate at apex. Female genitalia (Fig. 20). Lamella antevaginalis bilobed at genital opening, very short and parallel sided, ductus bursae about twice length of it, wrinkled, signum very large, rounded, spines longer than width of frill.

Holotype and paratypes, 9♂1♀: Doi Inthanon, South Ridge, 1650 m, Chiang Mai, 18-21. x. 1983 (M. Owada). Holotype, ♂, and 4 paratypes in coll. Natn. Sci. Museum, Tokyo, 4 paratypes in coll. H. Inoue, and 1 paratype in coll. Museum A. Koenig.

***Abraxas (Calospilos) illuminata*** Warren

*Abraxas illuminata* Warren, 1897: 417.

Originally described from Sikkim (♂) and Darjeeling (♀) and the syntypes and their genitalia were examined by me at The Natural History Museum, London. *A. kanshireiensis* (Wileman, 1915) from Taiwan and *A. hoenei* Wehrli, 1935b: 115, pl. 1: 16; pl. 2: 3, from South China, *cf.* Inoue, 1984: 114, figs 69, 70, 76, seem to be closely related to this species, if they are not synonyms, *cf.* Inoue, 1987: 250, figs 69F, 70E (♂ genitalia).

Specimens examined. Nam Proam Dam, Farm of Khon Kaen Univ., 2-22. xii. 1979, 2♂2♀; *ditto*, 19. vii. 1980, 1♂ (S. Azuma).

The species will be dealt with in my paper on Nepalese *Abraxas* under preparation.

***Abraxas (Calospilos) formosilluminata*** Inoue

*Abraxas (Calospilos) formosilluminata* Inoue, 1984: 123, figs 101-103, 105, 110, 114.

Specimens examined. Doi Inthanon, Chiang Mai, ix. 1985, 1♂1♀ (native collector).

***Abraxas (Calospilos)*** spp.

The following five species are only represented by female specimens and they should be described when equivalent males are discovered in future.

Sp. 1. Specimens examined. Doi Inthanon, Chiang Mai, 7. x. 1985, 1♀ (native collector); Doi Pakia, 1500 m, 5-7. ix. 1987, 1♀ (Moriuti, Saito, Arita & Yoshiyasu). Probably related to *A. amicula* Wehrli, 1935b: 117, pl. 1: 6; pl. 2: 5, from South China.

Sp. 2. Specimen examined. Doi Inthanon, South Ridge, 1650 m, Chiang Mai, 16-21. x. 1983, 1♀ (M. Owada). Close to *A. formosilluminata* Inoue cited above.

Sp. 3. Specimen examined. Doi Pakia, 1500 m, Chiang Mai, 5-7. ix. 1987, 1♀ (Moriuti, Saito, Arita & Yoshiyasu).

Sp. 4. Specimen examined. Khao Yai, 800 m, Nakon Nayok, 25. viii. 1981, 1♀ (Kuroko, Moriuti, Arita & Yoshiyasu).

Sp. 5. Specimen examined. Khao Yai, 800 m, Nakon Nayok, 21. vi. 1983, 1♀ (Kuroko, Moriuti, Arita & Yoshiyasu). Probably related to *A. hoenei* Wehrli, 1935b, *loc. cit.*

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## 摘　要

井上　寛：タイ国の*Abraxas* 属（シャクガ科）

*Abraxas*（ユウマダラエダシャク）属は，中国，インド，ネパールなどに繁栄している属だが，タイ国からはまだ 1 種も記録されていなかった．本文では 11 種を記録した．そのうち 4 種は新種，2 種は既知種，残りは少数の雌しか私の手許にない 5 種で，いずれも sp. としておいた．タイ国，ことに北部山岳には，更に多数の未記録種が分布していることは疑いの余地がない．

*Tinea* **14** (1): 27-32, September, 1994

# Two new species of the genus *Dipchasphecia* Capuse, 1973 (Lepidoptera, Sesiidae) from Central Asia

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**Abstract** Two new species of the genus *Dipchasphecia* are described and figured: *D. turkmena* sp. nov. from Turkmenistan (Kopetdagh Mts, Dushak-Erekdagh Mt.), and *D. iskander* sp. nov. from Tadjikistan (Hissar Mts, Iskanderkul Lake).

In my previous paper dealing with *Dipchasphecia* (Gorbunov, 1991), I have published information about 10 species of this genus, with six of them described as new. Also, I expressed the belief that this genus includes at least 10 more species. To prove this, material of additional two species have become available in the last two years, both described here as new. This brings a total of seven species populating Central Asia out of 12 congeners. However, in my opinion, this number is not yet final and will grow along with further progress in the exploration of such a huge and both orographically and biogeographically complex area as Central Asia. For the time being, type material, including both holotypes, is kept in my collection.

***Dipchasphecia turkmena* sp. nov.** (Figs 1-4, 10)

Holotype ♂. Central Asia, Turkmenistan, Central Kopetdagh Mts, SE foot of Dushak-Erekdagh Mt., Chayok, 24. vi. 1992, leg. M. Kalashian.

Description (male holotype) (Fig. 10). Alar expanse 20.5 mm; body length 14.5 mm; forewing 9.0 mm; antenna 5.7 mm. Head: antenna greyish-brown with admixture of individual white scales dorso-externally; labial palpus white with a broad black stripe externally; frons white; vertex black with a few white scales; pericephalic hairs white with very faint pinkish hue. Thorax: patagia dorsally greyish-brown with white scales basally, laterally white; tegula greyish-brown with a white tip and a small white axillary spot; meso- and metathorax greyish-brown; pleura of thorax greyish-brown mixed with white scales. Legs: fore coxa greyish-brown with a narrow white stripe both internally and externally, densely covered with white hairy-like scales; hind tibia white mixed with greyish-brown scales; spurs whitish. Abdomen: greyish-brown with bronzed sheen; second, fourth and sixth tergites with a narrow white stripe distally; all sternites with admixture of individual white scales and, besides that, third to sixth sternites with a few white scales at distal margin; anal tuft brown to black with a few white scales. Forewing: costal and anal margins and Cu stem greyish-brown; apical area dark brown proximally and more light distally; discal spot dark brown to black; transparent areas small, covered with white scales; external transparent area about as long as discal spot, divided into five cells; cilia brown with bronzed sheen. Hindwing: transparent; veins, narrow outer margin and discal spot dark brown to black; discal spot narrow, trapeziform, reaching to base of common $M_3$-$Cu_1$ stem; cilia brown with bronzed sheen.

Female. Unknown.

Variability. Unknown.

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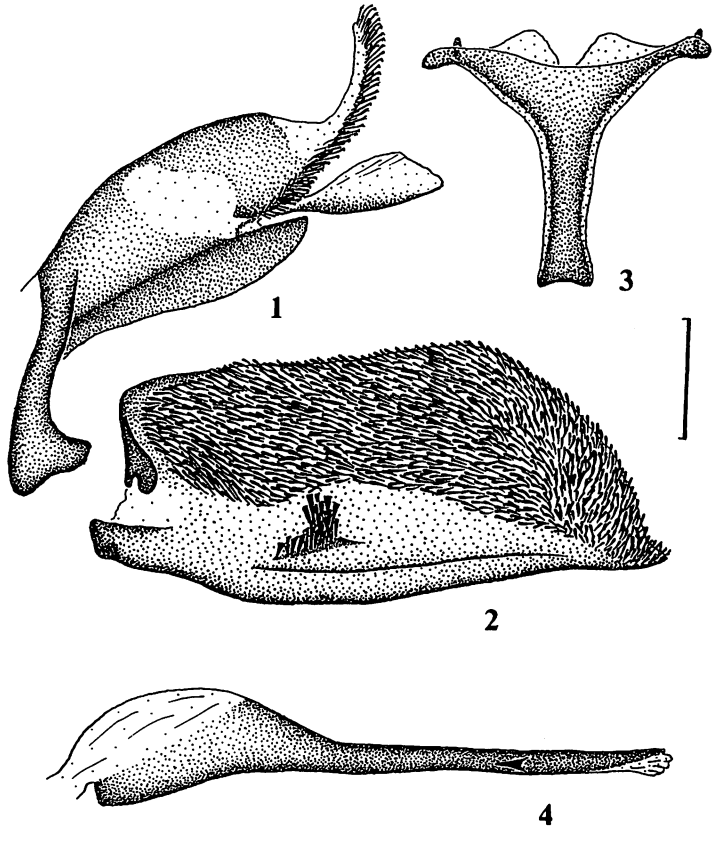
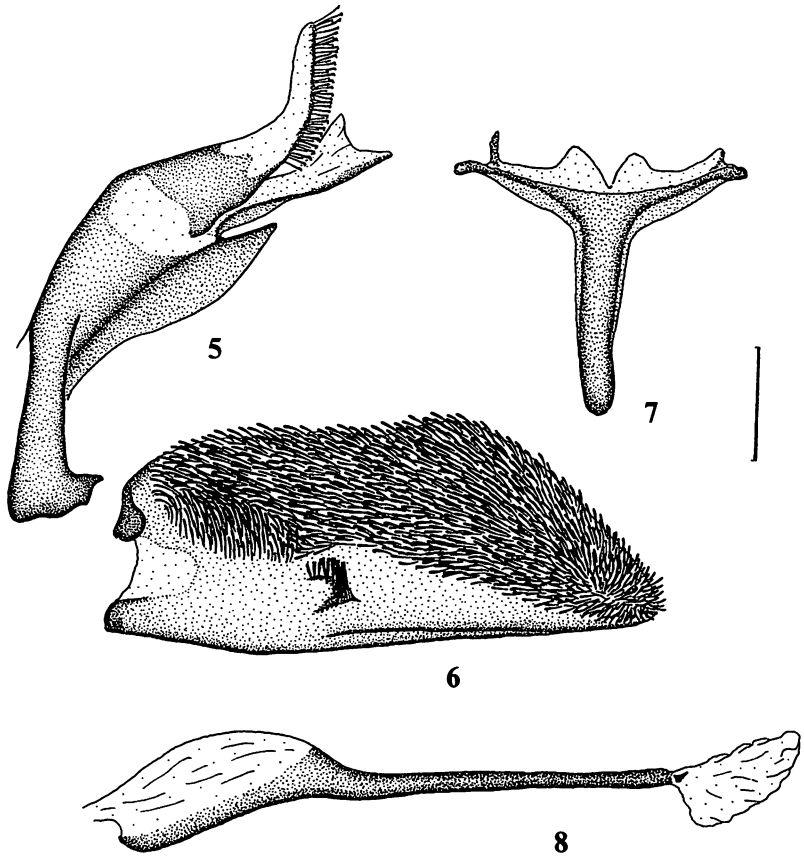



Figs 1-4. Male genitalia of *Dipchasphecia turkmena* sp. nov., holotype (genitalic preparation No. 94-05). Scale bar: 0.5 mm. 1. Tegumen-uncus complex. 2. Valva. 3. Saccus. 4. Aedeagus.

Male genitalia (holotype, preparation No. 94-05) (Figs 1-4). Tegumen-uncus complex (Fig. 1) relatively broad; scopula androconialis well-developed; crista gnathi lateralis narrow, relatively long, semi-oval; crista gnathi medialis absent; valva (Fig. 2) trapeziform oval, slightly pointed ventro-caudally; crista sacculi simple, relatively large, with lappet-like, flat-topped setae; saccus relatively broad, slightly broadened basally, with a flat base, somewhat longer than vinculum (Fig. 3); aedeagus (Fig. 4) as long as valva, relatively broad; vesica with a single cornutus.

Diagnosis. This new species differs from all congeners in the absence of pink or pinkish scales on the head, thorax, abdomen and wings, being perhaps the closest to *D. consobrina* (Le Cerf, 1938), *D. naumanni* Gorbunov, 1991 and *D. rhodocnemis* Gorbunov, 1991. From the first of the trio, *D. turkmena* sp. nov. can be separated by the coloration of the frons (in *consobrina*, grey-brown with a white stripe laterally), abdomen (in *consobrina*, black with a few white scales ventrally) and forewing (in *consobrina*, transparent areas covered with colourless scales). From *naumanni*, it can be distinguished by the coloration of the abdomen and forewing. From the last species, *turkmena* is distinguishable by the colour of the forewing and hind tibia (in *rhodocnemis*, the hind tibia is brown with a broad pinkish-ochre ring centrally). In addition, this new species is habitually somewhat similar to certain *Synansphecia* Capuse, 1973, *e.g. S. triannuliformis* (Freyer, 1845), *S. muscaeformis* (Esper,




Figs 5-8. Male genitalia of *Dipchasphecia iskander* sp. nov., holotype (genitalic preparation No. 91-04). Scale bar: 0.5 mm. 5. Tegumen-uncus complex. 6. Valva. 7. Saccus. 8. Aedeagus.

1783), and *Chamaesphecia bibioniformis* (Esper, 1800), being clearly distinguished from them by generic characters, especially male genitalia.

Bionomics. The exact host plant is unknown, but it seems likely that this is a species breeding on an *Acantholimon* sp. (Plumbaginaceae). The holotype was collected in the end of June.

Habitat. Warm and sunny slopes with a lot of perennial plants.

***Dipchasphecia iskander* sp. nov.** (Figs 5-9, 11-12)

Holotype ♂. Central Asia, Tadjikistan, N. bank of Lake Iskanderkul, 29. v-1. vi. 1991, *ex* pupa, leg. O. Gorbunov. Paratypes. 3♀, same locality and date, *ex* pupa, leg. O. Gorbunov. Additional material. 1♀ (bad condition), same locality and date, *ex* pupa, leg. O. Gorbunov, genitalic preparation No. 94-06.

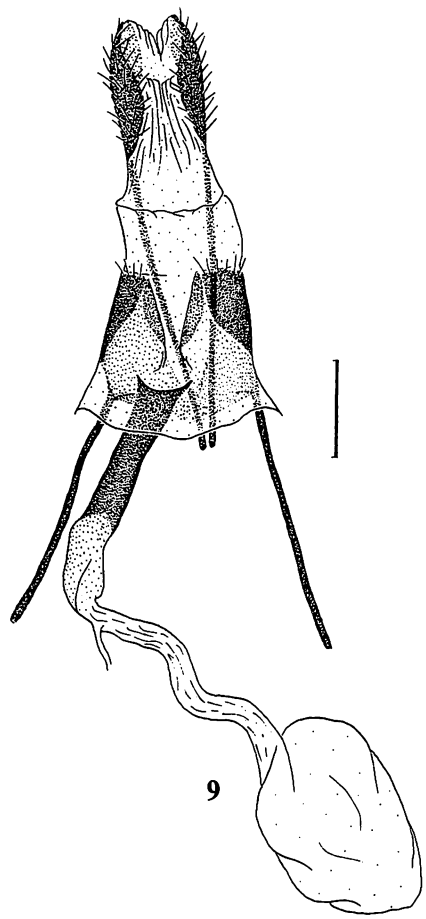
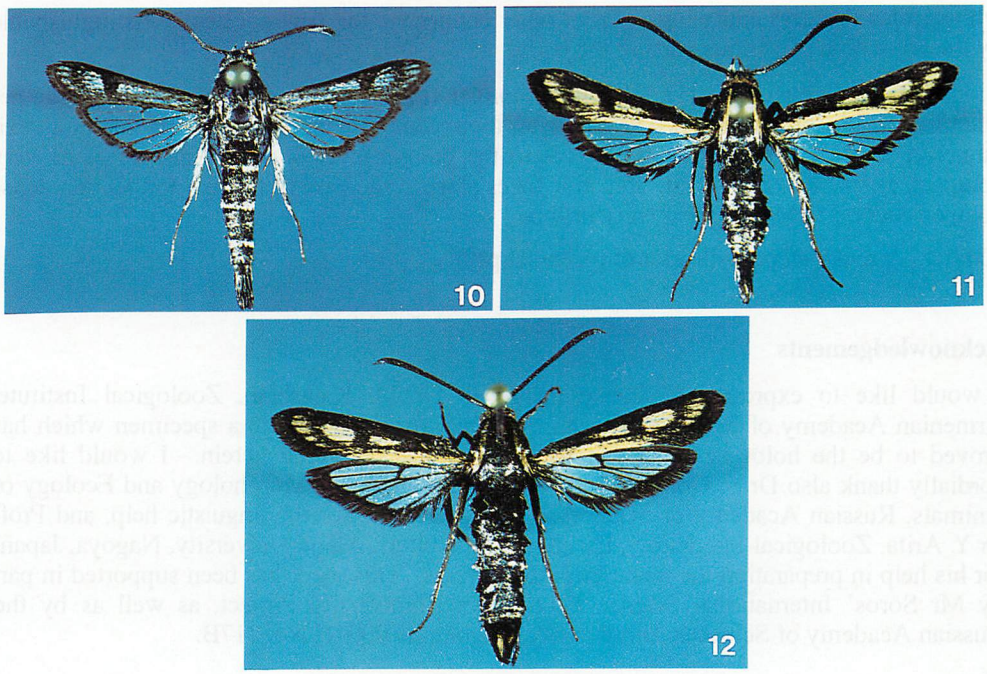



Fig. 9. Female genitalia of *Dipchasphecia iskander* sp. nov. (genitalic preparation No. 94-06). Scale bar: 0.5 mm.

Description (male holotype) (Fig. 11). Alar expanse 23.0 mm; body length 13.3 mm; forewing 10.5 mm; antenna 7.2 mm. Head: antenna black with greenish sheen; labial palpus black externally, ochreous-white internally; frons and vertex black; pericephalic hairs orange. Thorax: patagia black with greenish-bronzed sheen; tegula black with a broad fulvous stripe internally; meso- and metathorax black with greenish sheen; pleura of thorax black with admixture of individual yellow-ochreous scales. Legs: fore coxa dark brown with a few yellow-ochreous scales externally; hind tibia dark brown to black with a few ochreous scales medially; spurs black. Abdomen: black with bronzed sheen; sixth tergite with a very narrow ochreous stripe distally; fourth to sixth sternites with a few ochreous scales laterally at distal margin; anal tuft black with bronzed sheen. Forewing: costal margin, Cu stem and discal spot black with greenish-bronzed sheen; anal margin ochreous-fulvous; apical area dark brown with ochreous-fulvous scales between veins distally; transparent areas small, covered with ochreous-fulvous scales; external transparent area small, triangular, somewhat longer than discal spot, divided into four cells; cilia black with bronzed sheen. Hindwing:




Figs 10-12. *Dipchasphecia* spp. 10. *D. turkmena* sp. nov., male, holotype. Alar expanse 20.5 mm. 11. *D. iskander* sp. nov., male, holotype. Alar expanse 23.0 mm. 12. *D. iskander* sp. nov., female, paratype. Alar expanse 24.5 mm.

transparent; veins, narrow outer margin and discal spot black; discal spot narrow, trapeziform, reaching to base of common $M_3$-$Cu_1$ stem; cilia black with bronzed sheen.

Female (Fig. 12). More robust than male; abdomen dorsally without a narrow, ochreous, distal stripe on sixth tergite; anal tuft black with two short and narrow stripes medially; discal spot of hindwing broader. Colour pattern otherwise as in male.

Variability. Expressed only as individual size variation: alar expanse 22.5-24.0 mm; body length 12.7-14.5 mm; forewing 10.2-11.0 mm; antenna 6.0-7.2 mm.

Male genitalia (holotype, preparation No. 91-04) (Figs 5-8). Tegumen-uncus (Fig. 5) relatively broad; scopula androconialis relatively poorly-developed; crista gnathi lateralis narrow, relatively long, semi-oval; crista gnathi medialis absent; valva (Fig. 6) trapeziform; crista sacculi simple, relatively small, horseshoe-shaped, with relatively small, lappet-like, flat-topped setae; saccus relatively broad with a rounded base, somewhat longer than vinculum (Fig. 7); aedeagus (Fig. 8) as long as valva, narrow; vesica with a single small cornutus.

Female genitalia (preparation No. 94-06) (Fig. 9). Eighth tergite broad; posterior apophysis as long as anterior apophysis; ostium bursae relatively broad, membranous; antrum 0.8 times as long as anterior apophysis, membranous; corpus bursae globose, membranous, without signum.

Diagnosis. Closest to *D. nigra* Gorbunov, 1991, but differs clearly from it in the coloration of the frons (in *nigra*, white with a few grey scales), tegula (in the species compared, black with a short, narrow, white stripe internally), abdomen (in *nigra*, fourth tergite with a few

white scales distally) and wings. From other congeners, the new species is distinguishable by the coloration of various parts of the body.

Bionomics. The host plant is an *Acantholimon* sp. (Plumbaginaceae). About 1-3 larvae per plant live inside the root for two years. After the second hibernation, the larva makes an exit tunnel about 5-10 cm long from the root to the ground level or to the surface of its very compact, pillow-like host plant. Pupation takes place at the base of the exit tunnel in a dense cobweb cocoon. Moths appear early in June.

Habitat. A rocky slope with a lot of perennial plants.

## Acknowledgements

I would like to express my sincere thanks to Dr M. Kalashian, Zoological Institute, Armenian Academy of Sciences, Erevan, Armenia, for donating me a specimen which has proved to be the holotype of one of the new species described herein. I would like to cordially thank also Dr S. Golovatch, Institute of Evolutionary Morphology and Ecology of Animals, Russian Academy of Sciences, Moscow, Russia, for the linguistic help, and Prof. Dr Y. Arita, Zoological Laboratory, Faculty of Agriculture, Meijo University, Nagoya, Japan, for his help in preparation the manuscript to the press. This work has been supported in part by Mr Soros' International Science Foundation, Biodiversity Project, as well as by the Russian Academy of Sciences, Biodiversity Programme 0001H No. 117B.

## Reference

Gorbunov, O. G., 1991. Review of the genus *Dipchasphecia* Capuse, 1973 (Lep., Sesiidae). *Atalanta* **22** (2/4): 145-167, colour plate 23.

*Tinea* **14** (1): 33-41, September, 1994

# **New and unrecorded species of the Phycitinae** (Lepidoptera, Pyralidae) **from Japan**

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**Abstract** Two new species belonging to the genus *Assara*, *inouei* and *pallidella*, are described from Japan, and four species, *Acrobasis curvella* (Ragonot), comb. nov., *Metriostola betulae* (Goeze), *Pseudosyria dilutella* (Hübner) and *Nephopterix (Clasperopsis) fumella* (Eversmann), are newly recorded from Japan. *Conobathra birgitella* Roesler is transferred to the genus *Acrobasis* Zeller. *Nephopterix (Clasperopsis) nigerrimella* (Caradja) is synonymized with *N. (C.) fumella* (Eversmann).

At the present time, 13 species of the genus *Assara* have been known from the Palaearctic region (Roesler, 1973, 1993; Roesler & Luquet, 1987; Inoue, 1982; Yoshiyasu, 1991; Yamanaka, 1980, 1992). Recently I examined two unidentified species of *Assara* from Japan. In this paper I will describe them as new to science. Furthermore four species hitherto known from Europe and the Far East of Russia will be recorded from Japan with illustrations of moths and genitalia. The male and female genitalia of *Acrobasis curvella* (Ragonot), comb. nov. are illustrated for the first time, and the genus *Pseudosyria* Rebel is new to Japan.

In writing this paper I wish to express my cordial thanks to Dr H. Inoue, Iruma, Saitama, for his helpful advice and gifts of valuable specimens. I also wish to thank Dr O. Karsholt, Zoologisk Museum, Copenhagen, for his kindness in offering me some European specimens of the Phycitinae for comparison, and for copying literature together with valuable advice. My thanks are also due to my friends: Dr R. Sato, Messrs K. Fujisawa, K. Hori, K. Ijima, T. Inoko, M. Kameda, S. Kimata, H. Kogi, T. Maenami, T. Mano, N. Mori and A. Tomisawa, for their kind donations of valuable specimens.

## ***Assara inouei* sp. nov.** (Figs 1, 7, 12, 17)

Length of forewing, ♂♀ 7-9 mm. Labial palpus white in basal two segments, fuscous in terminal segment. Maxillary palpus fuscous, white ventrally. Frons evenly covered with dirty white scales. Vertex rather roughly covered with fuscous scales. Antenna pale fuscous. Legs white, partly mixed with fuscous scales in femora and tibiae, tarsi fuscous, each tarsomere with a dirty white short fringe posteriorly. Abdomen pale fuscous dorsally, posterior edge of each segment fringed with dirty white scales; ventral surface dirty white, basal two segments fuscous. Ground colour of forewing above blackish fuscous, rather broadly suffused with white along costa; antemedial line obscure, outwardly oblique, angulate at middle, represented by a series of blackish dots in costal area; postmedial line narrow, grey, outwardly angulate at a short distance from costa, almost straightly descended to hind margin; two small blackish dots at both upper and lower angles of cell; termen with a row of obscure pale fuscous interneural dots; cilia pale fuscous. Ground colour of hindwing above dark grey, with darker veins, darkened toward marginal area; cilia paler than in forewing. Ground colour of both wings beneath fuscous grey; in forewing lines not repeated, apical portion slightly white-tinted; hindwing paler than forewing.

Male genitalia. Uncus triangulate, dorsally with thick hair except for apical portion, apex narrowly rounded. Central process of gnathos rather slender, sclerotized, slightly hooked distally. Transtilla narrowly arched, with a shortly bifurcated central projection. Valva rather narrow, weakly curved ventrad; terminal margin smoothly and broadly rounded. Sacculus

narrow, short. Juxta deeply bifid. Vinculum broad, terminal margin rather truncate. Aedeagus short, rather broad, with a rather large mass of short spine-like cornuti. Structure of eighth abdominal tergite and sternite as shown in Fig. 12.

Female genitalia. Apophysis posterioris of almost same length as apophysis anterioris. Eighth abdominal segment short, broad. Ostium and ductus bursae simple. Ductus bursae narrow, membranous, shorter than the length of corpus bursae. Corpus bursae rather oblong, weakly crooked; signum nearly crescent-shaped (Fig. 17a), anterior margin bluntly dentate.

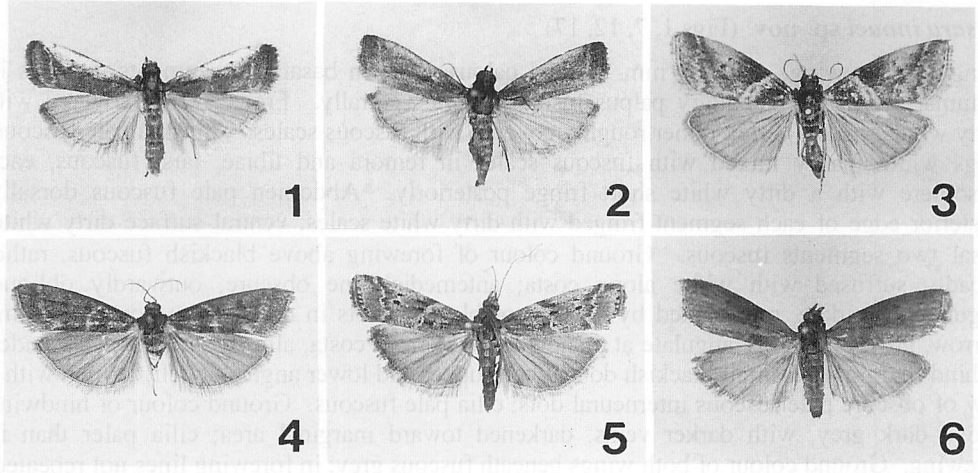
Holotype. ♀, Bushi, Iruma, Saitama Pref., Honshu, 31. viii. 1979 (H. Inoue leg.), in the collection of the National Science Museum, Tokyo. Paratypes. Honshu — Ohkuchizawa, Toyoshina, Nagano Pref., 1♀, 23. viii. 1979 (K. Fujisawa leg.); Mt Mitsubo, Asahi, Toyama Pref., 1♀, 5. ix. 1981 (H. Yamanaka leg.); Houtatsuzan, Ishikawa Pref., 1♀, 29. viii. 1975 (A. Tomisawa leg.); Iwaya, Minamichita, Aichi Pref., 1♀, 28. viii. 1987 (T. Mano leg.); Miyazumakyo, Yokkaichi, Aichi Pref., 1♂, 24. viii. 1987 (T. Mano leg.). Kyushu — Mizudou, Shiroishi, Saga Pref., 1♀, 6. ix. 1983 (N. Mori leg.), in the collection of H. Yamanaka.

Distribution. Japan (Honshu, Kyushu).

Remarks. This new species is similar to *A. korbi* (Caradja) (1910, *Dt. ent. Z. Iris* **24**: 130, pl. 14, fig. 13) distributed in Japan, Russia (Amur) and China in the shape of female genitalia, but differs in the following points: ductus bursae narrower and longer, signum wider.

***Assara pallidella* sp. nov.** (Figs 2, 8, 13, 18)

Length of forewing, ♂♀ 5-7 mm. Labial palpus pale fuscous in terminal two segments, white in basal segment. Maxillary palpus pale fuscous. Frons evenly covered with pale fuscous scales. Vertex rather roughly covered with pale fuscous scales. Antenna pale fuscous. Legs white, slightly mixed with fuscous scales in femora and tibiae, tarsi fuscous, each tarsomere with a white short fringe posteriorly. Abdomen pale fuscous dorsally,




Figs 1-6. Adults. 1. *Assara inouei* sp. nov., holotype, ♀. 2. *Assara pallidella* sp. nov., holotype, ♀. 3. *Acrobasis curvella* (Ragonot), ♀. 4. *Metriostola betulae* (Goeze), ♀. 5. *Pseudosyria dilutella* (Hübner), ♀. 6. *Nephopterix (Clasperopsis) fumella* (Eversmann), ♂.

posterior edge of each segment fringed with obscure dirty white short scales, ventral surface dirty white. Ground colour of forewing above pale fuscous, costal area indistinctly and narrowly suffused with grey; antemedial line grey, obscure, straightly oblique outwards from one-sixth of costa to about middle of hind margin; postmedial line grey, narrow, straight; termen with a row of obscure fuscous interneural dots; two obscure small blackish dots at both upper and lower angles of cell; cilia almost concolorous with ground colour, terminal half of cilia pale. Ground colour of hindwing above whitish grey, more or less darkened toward marginal area; cilia paler than in forewing. Ground colour of forewing beneath whitish fuscous, in forewing lines not repeated; hindwing paler than forewing.

Male genitalia. Uncus triangulate, dorsally with thick hair except for apical portion, apex somewhat broadly rounded. Central process of gnathos somewhat long, stout, slightly hooked distally. Transtilla narrowly arched, terminal margin quadrately produced. Valva rather short, ovate. Sacculus short. Juxta quadrate, with weakly sclerotized lateral lobes. Vinculum broad, short, terminal margin truncate. Aedeagus rather slender, weakly curved, with a weakly sclerotized rectangular plate and a small mass of hair-like cornuti. Structure of eighth abdominal tergite and sternite as shown in Fig. 13.

Female genitalia. Apophysis posterioris of almost same length as apophysis anterioris. Eighth abdominal segment short, somewhat broad. Ostium and ductus bursae simple. Ductus bursae narrow, long, membranous, longer than the length of corpus bursae. Corpus bursae rather small, somewhat oblong, with an oval signum consisting of many triangular spines as shown in Fig. 18a.

Holotype. ♀, Tsubota, Miyake-jima, Izu Isls., Tokyo, 14. vi. 1959 (T. Maenami leg.), in the collection of the National Science Museum, Tokyo. Paratypes. Honshu — Yôga, Setagaya, Tokyo, 1♀, 29. vi. 1963 (T. Maenami leg.); Miwa, Ama, Aichi Pref., 1♂, 23. v. 1991 (T. Mano leg.). Izu Isls. — Hon-son, Nii-jima, 1♀, 17-18. v. 1966 (H. Inoue & T. Maenami leg.). Sado Is. — Tassha, 1♀, 23. vii. 1969 (R. Sato leg.), in the collection of H. Yamanaka.

Distribution. Japan (Honshu, the Izu Islands, Sado Island).

Remarks. This new species is very similar to *A. formosana* Yoshiyasu (1991, *Tyô Ga* **42**: 261, figs 1-5) from Taiwan in the shape of female genitalia, but differs in the following points: corpus bursae and signum smaller, triangular spines of signum more thickly arranged.

***Acrobasis curvella*** (Ragonot), **comb. nov.** (Figs 3, 10, 15, 19)

*Rhodophaea curvella* Ragonot, 1893, *in* Romanoff, *Mém. Lépid.* **7**: 78; *ibid.* 8: pl. 41, fig. 5; Rebel, 1901, *in* Staudinger & Rebel, *Cat. Lepid. palaearct. Faunengebietes* **2**: 40.

Specimens examined. Hokkaido — Mt Tentozan, Abashiri, 1♂, 4-5. viii. 1975 (R. Sato leg.); Saroma, Tokoro, 1♀, 9. viii. 1984 (S. Kimata leg.); Futatsuyama, Shibecha, Kushiro, 1♀, 10. viii. 1985, 1♂, 23. vii. 1987 (K. Ijima leg.); Iwamatsu, Shintoku, Kamikawa, 1♂1♀, 24. vii. 1991 (H. Kogi leg.), in the collection of H. Yamanaka.

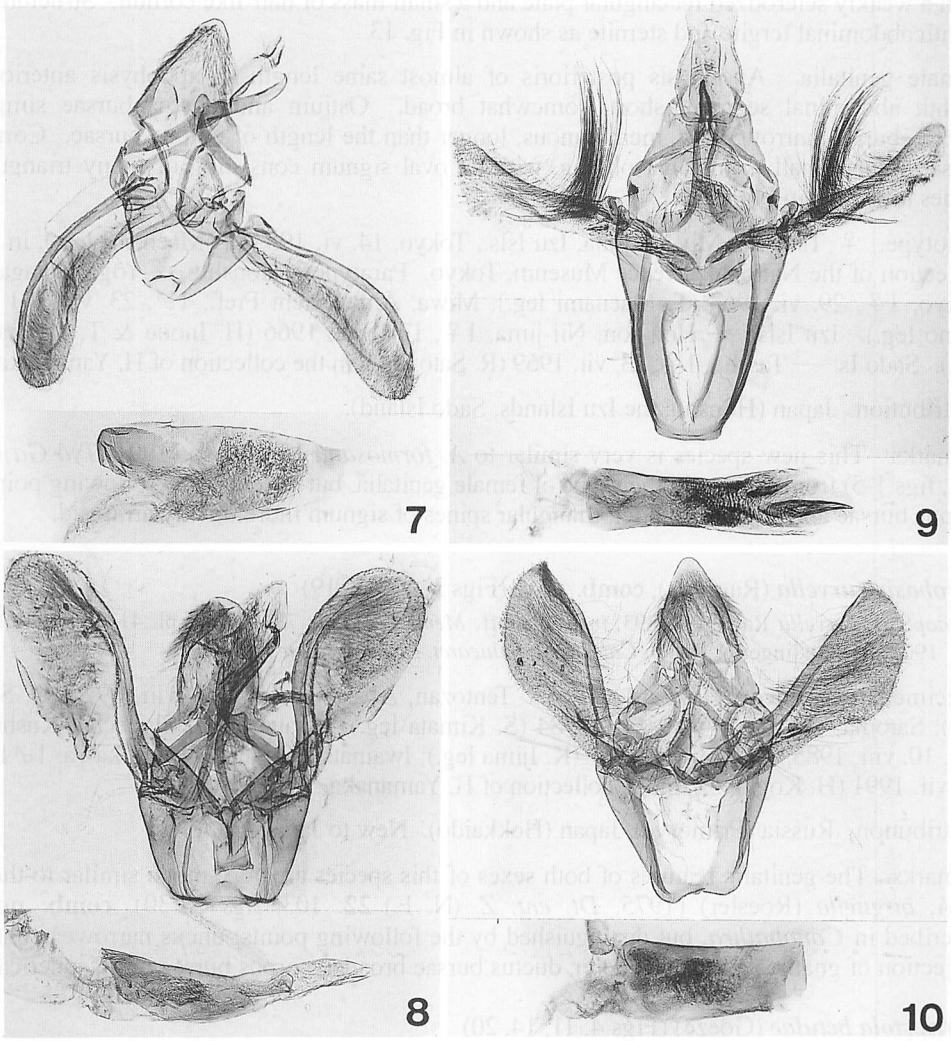
Distribution. Russia (Primorye), Japan (Hokkaido). New to Japan.

Remarks. The genitalic features of both sexes of this species are very much similar to those of *A. birgitella* (Roesler) (1975, *Dt. ent. Z.* (N. F.) **22**: 103, figs 28-30), **comb. nov.**, described in *Conobathra*, but distinguished by the following points: uncus narrower, central projection of gnathos a little slenderer, ductus bursae broader, corpus bursae more spherical.

***Metriostola betulae*** (Goeze) (Figs 4, 11, 14, 20)

*Phalaena betulae* Goeze, 1778, *in* de Geer, *Mém.* **1** (13): 25, pl. 28, figs 20-23.
*Pempelia betulae*: Zeller, 1846, *Isis, Leipzig* **1846**: 780.

*Nephopteryx* [sic] *betulae*: Snellen, 1882, *Vinders van Nederland* **2** (1): 136.
*Meroptera betulae*: Ragonot, 1893, *in* Romanoff, *Mém. Lépid.* **7**: 316.
*Salebria betulae*: Rebel, 1901, *in* Staudinger & Rebel, *Cat. Lepid. palaearct. Faunengebietes* **2**: 33; Rebel, 1910, *in* Spuler, *Schmett. Eur.* **2**: 210, pl. 82, fig. 28; Martini, 1916, *Dt. ent. Z. Iris* **30**: 115; Deurs, 1942, *Danmarks Fauna* **48**: 51, pl. 6, fig. 89; Beirne, 1952, *Br. Pyralid & Plume Moths*: 92, fig. 83, pl. 7, fig. 2.
*Phycita betulae*: Pierce & Metcalfe, 1938, *Genitalia Br. Pyr.*: 4, pl. 3.
*Metriostola betulae*: Hannemann, 1964, *Tierwelt Dtl.* **50**: 172, figs 105a-b, pl. 11, fig. 11; Palm, 1985, *Ent. Meddr.* **52**: 79; Palm, 1986, *Danmarks Dyreliv* **3**: 56, figs 19, 26, 47, 50, pl. 2, fig. 17; Goater, 1986, *Br. Pyralid Moths*: 105, pl. 7, fig. 24; Sinev, 1986, Opredeliteli Fauna SSSR (144): 294, pl. 289, fig. 6, pl. 311, figs 9, 10, pl. 312, fig. 1
*Phycis obtusella* Zincken, 1818, *Magazin Ent.* (Germar) **3**: 164.
*Phycis holosericella* Fisher von Röslerstamm, [1842], *Abbild. Schmettkde*: 149, pl. 57, figs 2a-d.




Figs. 7-10. Male genitalia. 7. *Assara inouei* sp. nov. 8. *Assara pallidella* sp. nov. 9. *Nephopterix (Clasperopsis) fumella* (Eversmann). 10. *Acrobasis curvella* (Ragonot).

Specimens examined. Futatsuyama, Shibecha, Kushiro, Hokkaido, 1♂, 23. vi. 1987, 1♂, 30. vii. 1988, 1♀, 3. viii. 1988, 1♂, 24. vii. 1989 (K. Ijima leg.), in the collection of H. Yamanaka.

Distribution. Europe, Japan (Hokkaido). New to Japan.

***Pseudosyria dilutella*** (Hübner) (Figs 5, 22)

*Tinea dilutella* Hübner, [1796], *Samml. eur. Schmett.* **8**: pl. 10, fig. 69.

*Pempelia dilutella*: Rebel, 1901, *in* Staudingel & Revel, *Cat. lepid. palaearct. Faunengebiets* **2**: 22; Caradja, 1910, *Dt. ent. Z. Iris* **24**: 129; Rebel, 1910, *in* Spuler, *Schmett. Eur.* **2**: 205; Martini, 1916, *Dt. ent. Z. Iris* **30**: 114; Pierce & Metcalfe, 1938, *Genitalia Br. Pyr.*: 2, pl. 1; Deurs, 1942, *Danmarks Fauna* **48**: 44, pl. 4, fig. 77; Beirne, 1952, *Br. Pyralid & Plume Moths*: 89, figs 37, 39, 44, pl. 6, fig. 15; Hannemann, 1964, *Tierwelt Dtl.* **50**: 206, figs 132a, b, pl. 14, fig. 10; Klimesch, 1968, *Lepidopteren-Fauna Jugoslavisch Mazedoniens* **4** (Microlepid.): 52; Sinev, 1986, *Opredeliteli Faune SSSR* (144): 300, pl. 315, figs 9, 10.

*Pseudosyria dilutella*: Palm, 1985, *Ent. Meddr.* **52**: 79; Palm, 1986, *Danmarks Dyreliv* **3**: 61, figs 54, 56, 58, pl. 2, figs 23-26.

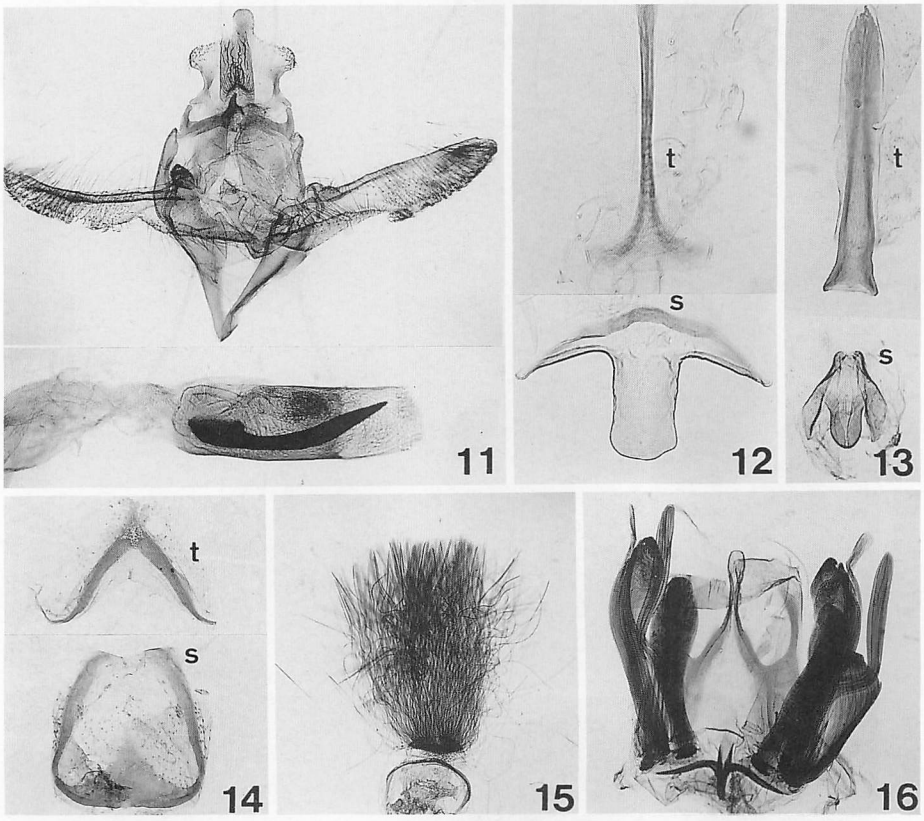



Fig. 11. Male genitalia of *Metriostola betulae* (Goeze).

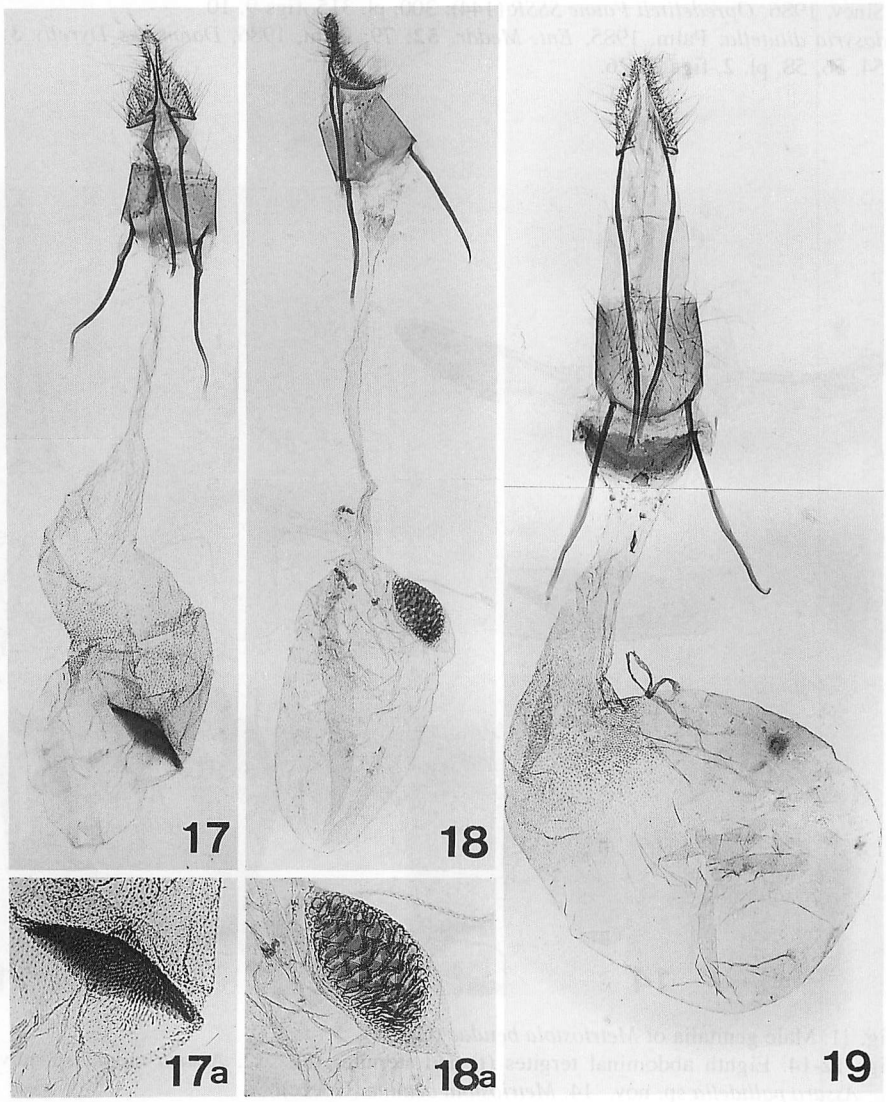
Figs 12-14. Eighth abdominal tergites (t) and sternites (s). 12. *Assara inouei* sp. nov. 13. *Assara pallidella* sp. nov. 14. *Metriostola betulae* (Goeze).

Figs 15-16. Eighth abdominal sternites and tufts. 15. *Acrobasis curvella* (Ragonot). 16. *Nephopterix (Clasperopsis) fumella* (Eversmann).

*Phycis diluta* Haworth, [1811], *Lepid. Br.*: 495.
*Pempeliella diluta*: Goater, 1986, *Br. Pyralid Moths*: 115, pl. 7, figs 29, 30, text figs 8a, c.
*Nephopterix dilutalis* Hübner, [1825], *Verz. bekannter Schmett.*: 370.
*Phycis adornatella* Treitschke, 1835, *Schmett. Eur.* **10** (3): 172.
*Pempelia adornatella*: Snellen, 1882, *Vinders van Nederland* **2** (1): 153.

Specimen examined. Ofuyu, Mashike, Hokkaido, 1♀, 20. vii. 1991 (H. Kogi leg.), in the collection of H. Yamanaka.

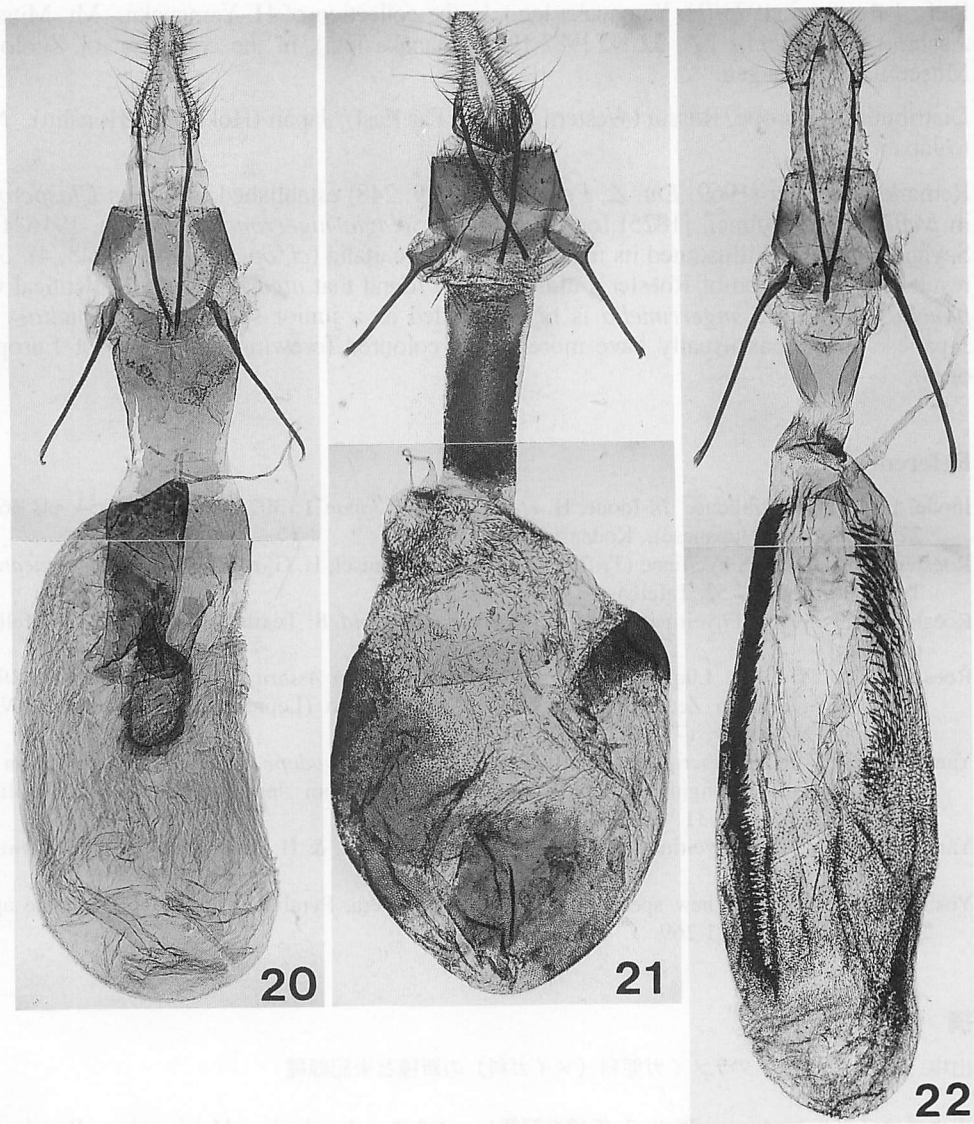
Distribution. Europe, Japan (Hokkaido). New to Japan.




Figs 17-19. Female genitalia. 17. *Assara inouei* sp. nov. 18. *Assara pallidella* sp. nov. 19. *Acrobasis curvella* (Ragonot). a: signum (magnified).

***Nephopterix (Clasperopsis) fumella*** (Eversmann) (Figs 6, 9, 16, 21)

*Phycis fumella* Eversmann, 1844, *Fauna Lepid. Volgo-Uralensis*: 558.
*Nephopteryx* [sic] *fumella*: Herrich-Schäffer, 1848, *Syst. Bearb. Schmett. Eur.* **4**: 72, pl. 11, fig. 169.
*Salebria fumella*: Ragonot, 1893, *in* Romanoff, *Mém. Lépid.* **7**: 355, 1901; *ibid.* **8**: pl. 47, fig. 6; Rebel, 1901, *in* Staudinger & Rebel, *Cat. Lepid. palaearct. Faunengebietes* **2**: 33; Caradja, 1910, *Dt. ent. Z. Iris* **24**: 138; Rebel, 1910, *in* Spuler, *Schmett. Eur.* **2**: 211; Caradja, 1916, *Dt. ent. Z. Iris* **30**: 12.




Figs 20-22. Female genitalia. 20. *Metriostola betulae* (Goeze). 21.*Nephopterix (Clasperopsis) fumella* (Eversmann). 22. *Pseudosyria dilutella* (Hübner).

*Nephopterix fumella*: Laasonen, 1983, *Notulae ent.* **63**: 212; Sinev, 1986, *Opredeliteli Faune SSSR* (144): 281, pl. 302, figs 7, 8.
*Sciota fumella*: Palm, 1986, *Danmarks Dyreliv* **3**: 41, pl. 1, figs 20, 23.
*Nephopteryx* [sic] *tristis* Alphéraky, 1880, *Troudy Ent. Ross.* **11**: 47.
*Selagia nigerrimella* Caradja, 1916, *Dt. ent. Z. Iris* **30**: 11, **syn. nov.**
*Nephopterix (Clasperopsis) nigerrimella*: Roesler, 1969, *Ent. Z., Frankf. a. M.* **79**: 249, figs 3, 4.

Specimens examined. Hokkaido — Tachimachimisaki, Hakodate, 1♂, 8. viii. 1991 (M. Kameda leg.); Dekima, Shikabe, Oshima, 1♂, 3. viii. 1989 (T. Inoko leg.). Honshu — Fujii, Matsumoto, Nagano Pref., 1♂, 17. v. 1956 (K. Hori leg.); Kanetsuri, Unazuki, Toyama Pref., 1♂, 30. vi. 1973 (H. Yamanaka leg.), in the collection of H. Yamanaka. Mt Mitsubo, Asahi, Toyama Pref., 1♂, 22. v. 1982 (H. Yamanaka leg.), in the collection of Zoologisk Museum, Copenhagen.

Distribution. Europe, Russia (Western Siberia, Far East), Japan (Hokkaido, Honshu). New to Japan.

Remarks. Roesler (1969, *Ent. Z., Frankf. a. M.* **79**: 248) established subgenus *Clasperopsis* in *Nephopterix* Hübner, [1825] for type species *Selagia nigerrimella* Caradja, 1916, from Sayan, Russia, and illustrated its male and female genitalia (*cf. op. cit.*: 249, figs 3, 4). As a result of investigation of Roesler's illustrations, I found that *nigerrimella* was identical with *fumella*. Therefore, *nigerrimella* is here regarded as a junior synonym of *fumella*. The Japanese specimens usually have more darkly coloured forewing than those of European ones.

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## 摘　要

山中　浩：日本産マダラメイガ亜科（メイガ科）の新種と未記録種

本文では日本から *Assara* 属の 2 新種を記載し，さらに *Acrobasis*, *Metriostola*, *Pseudosyria*, *Nephopterix* の各属に所属する日本未記録の４種を報告した．属 *Pseudosyria* は我が国からは初めての記録である．なお，和名はすべて新称である．

*Assara inouei* Yamanaka イノウエマエジロマダラメイガ
前翅長は 7-9 mm．前翅は黒褐色，前翅前縁はやや幅広く白色を帯びる．本種の雌交尾器の形態は

*A. korbi* (Caradja) フタシロテンホソマダラメイガに似るが，外観上の特徴から他の同属種と容易に区別できる．本州（埼玉，長野，富山，石川，愛知），九州（佐賀）で 8, 9月に採れた標本にもとづいて記載した．

*Assara pallidella* Yamanaka ウスマエジロマダラメイガ

前翅長は 5-7 mm．前翅は淡灰褐色，前翅前縁は灰色を帯びるがやや不明瞭．外観上の特徴から他の同属種との区別は容易である．本州（東京，愛知），佐渡島，伊豆諸島（三宅島，新島）で 5-7月に採れた標本にもとづいて記載した．なお，本種の雌交尾器の形態は台湾から記載された *A. formosana* Yoshiyasuに似る．

*Acrobasis curvella* (Ragonot) エゾアカオビマダラメイガ

本種は Ragonot (1893) によってロシアの沿海州から記載された種で，我が国からは未記録であった．最近，この種が北海道各地で採集されていることが分かったので，ここに記録した．筆者は，網走（佐藤力夫博士採集），常呂郡佐呂間（木俣繁氏採集），釧路標茶（飯島一雄氏採集），上川郡新得（小木広行氏採集）で 7, 8 月に採れた標本を検した．本種の雌雄交尾器の形態は *A. birgitella* (Roesler) ヒメアカオビマダラメイガに似る．

なお，筆者はこの報文で標記の種を属 *Rhodophaea* から *Acrobasis* に移し，また，*birgitella* を属 *Conobathra* から *Acrobasis* に移した．

*Metriostola betulae* (Goeze) イイジマクロマダラメイガ

本種はヨーロッパに分布する種として知られていた．筆者は北海道釧路標茶で 6-8 月に採れた標本（3♂1♀）（飯島一雄氏採集）を検討した結果，本種であることが分かったので，ここに記録した．

*Pseudosyria dilutella* (Hübner) ウストビマダラメイガ

本種は前種と同様，ヨーロッパに分布する種として知られていた．筆者は 1991 年 7 月に小木広行氏によって北海道増毛町雄冬で採集された標本（1♀）を検討した結果，本種であることが分かったので，ここに記録した．

*Nephopterix (Clasperopsis) fumella* (Eversmann) ウスグロアカマダラメイガ

本種はヨーロッパ，ロシアの西シベリア，極東に分布する種として知られていたが，我が国（北海道，本州）にも分布していることが分かったので，ここに記録した．筆者は北海道函館市立待岬（亀田満氏採集）と鹿部町出来澗（猪子龍夫氏採集）で 8 月，長野県松本市（堀勝彦氏採集），富山県朝日町と宇奈月町（筆者採集）で 5-7月に採れた標本を検した．

なお，筆者はこの報文で Caradja (1916) がロシアのサヤンから記載した *Selagia nigerrimella* を標記の種のシノニムとした．

*Tinea* **14** (1): 42-47, September, 1994

# **Remarkable moths** (Lepidoptera, Macroheterocera) **taken in the alpine zone of Mt Oblachnaya, Sikhotae-Alin' Range, Primorye Territory, Russia***

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**Abstract** Three species, *Gynaephora rossii relictus* (Bang-Haas), *Atolmis rubricollis alpischistosis* subsp. n. and *Dodia kononenkoi sikhotensis* Tshistjakov are recorded for the first time from alpine zone of Mt Oblachnaya. Systematic position of *G. rossii* from the Palaearctic region is discussed. The data on peculiarities of ecology and distribution of *A. r. alpischistosis* subsp. n. and *D. k. sikhotensis* are provided.

Mt Oblachnaya is the highest peak (1854 m above sea level) in the Southern Primorye, which is situated in the upper reaches of the Ussuri River. For a long time it was rather hard-accessible place of the wild nature and nobody of naturalists visited this mountain until 1927, when the first zoological expedition under the leadership of Prof. G. N. Gassovsky of the Far Eastern University reached the summit. To great regret the results of this expedition have never been published and collected materials have been lost. The first entomologist who stood at the summit of this mountain was A. I. Kurentzov. He visited there in 1931 during a one-day excursion and collected some high-altitude insects, mostly of Coleoptera and Lepidoptera-Rhopalocera (Kurentzov, 1951, 1973). Since that time only a few entomologists visited the mountain, but nobody of them, including the present author, had possibility to collect there night-flying insects during their short, mainly one-day observations. On this reason the moth fauna in the alpine zone of Mt Oblachnaya still remains almost unknown.

In 1993 the author had a chance to visit the summit of Mt Oblachnaya twice: first from 16th to 19th of July and second in early August, as a one-day excursion. Both of these expeditions were organized and successfully realized with the help of our Japanese colleagues, who took part in the joint field surveys in the Southern Primorye. While stay on the mountain I got an opportunity to observe the main biotopes of local highlands, which are as follows: the brushwoods of *Pinus pumila* with plots of the subalpine meadow (generally occupying the slopes from 1400 to 1750 m above sea level), the fields of stony deposits (stretching up to two peaks of the mountain and usually are covered by lichens on the south slopes or by moss on the north slopes) and, at last, plots of the mountain tundra which occupy the places with flattened out relief. For collecting moths during night time a light-trap with mercury vapour lamp working with the portable generator "Honda EX 350" was used. The light-trap was installed on the plateau-form saddle connecting southern and northern peaks of the mountain at the elevation of about 1800 m above sea level and covered by mountain tundra with predominance of fruticose lichens (*Cladonia* spp.), bog-moss (*Sphagnum* spp.) and some dwarf-shrubs, such as *Vaccinium vitis-idaea*, *V. uliginosum*, *Arctous alpina* and *Cassiope ericoides*. Undoubtedly we were the first who used the light-trap in the high-altitude zone of this mountain, so we expected to find a number of interesting moths previously unknown from there. Regretfully the weather was not so favourable for us because of rather cool and windy nights during our short stay there. Nevertheless we could collect not only a large number of newly recorded noctuid-moths (Tshistjakov, in press), but found some remarkable moths from other groups of Lepidoptera-Macroheterocera, appearing

* Contribution from Russia/Japan Cooperative East Asian Entomological Program, No. 40.

to be new for the local fauna.

The aim of this paper is to publish the data about the species of Lymantriidae and Arctiidae, recorded for the first time from the alpine zone of Mt Oblachnaya. All materials mentioned below are deposited in the Institute of Biology & Pedology, Far Eastern Branch of Russian Academy of Sciences, Vladivostok, Russia.

***Gynaephora rossii relictus*** (Bang-Haas, 1927)

In the continental part of Eurasia, *Gynaephora rossii* was known previously in Siberian Arctic (from Polar Urals up to Chukotian peninsula and Kamchatka) as well from Sayan Mountains and from Yablonovyi range. The newly found habitat in the Sikhotae-Alin' range is situated as far as more than 1500 km southward from the latter — the nearest known locality within the continental part of Eurasia.

Material examined. 1 ♀, Mt Oblachnaya, mountain tundra at elevation of about 1800 m above sea level, 17. vii. 1993 (leg. Yu. Tshistjakov).

Remarks. The only female was collected by the light-trap in the mountain tundra at elevation of about 1800 m above sea level. It came to the light-trap in twilight, but at first had been lost from the sight and was found again only in the morning, in rather bad condition (the most of the wing scales being lost) under a sheet covering the ground near the light-trap. To great regret the body of this specimen was completely destroyed also. So its identification has been done by surviving wing pattern only. However, the wing pattern of our specimen retains all characteristic features indicated in the short description of *relictus* and is very similar to that of the female from Turan (Sayan Mountains) served as the holotype of the latter (Bang-Haas, 1927: 77, pl. 10, fig. 6), especially by the same, almost black hindwing with faintly visible dark marginal band. By the latter character the female from Mt Oblachnaya quite differs from all females from Mt Daisetsu (Hokkaido, Japan), that I have seen in Entomological Institute, Hokkaido University, and in the private collection of Mr K. Jinbo, Tokyo. They are characterized by pale yellowish hindwing with well-marked dark marginal band. In addition it is necessary to point out that the forewing of females belonging to Japanese form *G. rossii daisetsuzana* Matsumura is somewhat prolongated, while in our specimen it is noticeably broader and shorter, nearly triangular. All that allows, at least for this time, to consider our specimen as belonging to the discussed taxon, *relictus*.

Nevertheless it should been noted here that the systematic position of *G. rossii* from the palaearctic part of its areas still ramains not clear enough. At first the specimens from Siberian Arctic (Vrangel Island, Chukotian Peninsula near Kon'yam Bay) as well from Yablonovyi range were considered as typical *rossii* Curtis or were assigned to *relictus* (for more detail see Kozhantshikov, 1950: 240). But later all of them have been referred to as a distinct species *G. lugens* (Kozhantshikov, 1948), representing the palaearctic vicariant of the nearctic *rossii*, while the dark form *relictus* from Sayan Mts had been assigned mistakenly to the Europian species *G. selenitica* Esper (Kozhantshikov, 1950). Meanwhile the drawing of male genitalia in the original description of *G. lugens* (Kozhantshikov, 1948: 153, text-fig. 1a) shows no real differences from the American *rossii*. At the same time the figure of male genitalia, indicated by the same author as *rossii* (*Ibidem*, text-fig. 1b) actually shows those of *G. groenlandica* Wocke. Under such circumstances it seems to be quite reasonable to treat *lugens* only as a synonym of *rossii* (Ferguson, 1978).

Moreover, the available material of *relictus* from several localities within Siberia shows a pattern of variation, which is very similar to that pointed out by Ferguson (1978) for *rossii* in North America, namely a tendency for more northern specimens to be larger, paler and more thinly scaled than more southern examples. In complete conformity with this regularity the females from extreme Northeast of Russia (Vrangel Island and Chukotian Peninsula) and

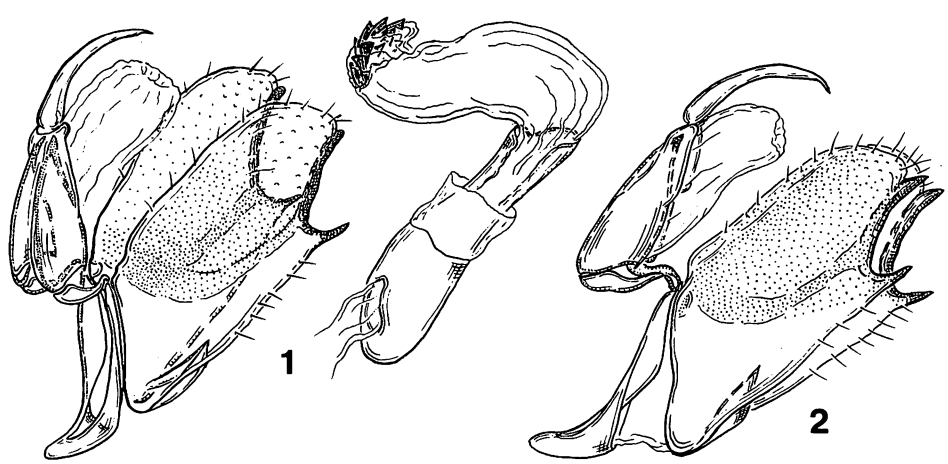
from Kamchatka are quite identical, at least superficially, with those from Alaska, while the specimens from more southern regions of Siberia, including the type specimen of *relictus*, are very close or even indistinguishable from the specimens from Labrador and Northwest Territories (see Ferguson, 1978: pl. 1, figs 23-24 and figs 21-22 respectively). In the connection with that stated above it does no harm to remind the indication that the males of *G. rossii daisetsuzana* Matsumura and the males of true American *rossii* are indistinguishable from each other by their genitalia (Inoue, 1956). In the light of these facts one can assume that in this case we have a deal with rather young (in geological sence) races, being isolated for fairly short time, insufficient for their divergence even up to subspecies rank. This suggestion, indeed, needs to be confirmed by examination of more material from Eurasia and as well from North America. We retain the name *relictus* for the populations representing *rossii* within the Eurasian part of its range until a further study will be done.

***Atolmis rubricollis alpischistosis* subsp. nov.**

Very similar to the nominate subspecies in appearance, but distinguished from it as follows: somewhat smaller (length of forewing 13 mm, its width less than 5 mm, while in nominate race they are 14 mm and more than 6mm respectively); patagia light yellow instead of reddish orange and do not adjoin each other in the middle, but clearly separated by black interval; fore- and hindwings are one-colour dark grey, almost black, without any mixture of brownish scales, as in *rubricollis*.

Male genitalia (Fig. 1). Very close to those of the nominate race (Fig. 2), but separated by the shape of distal processes of valva: ventral process thinner, dorsal one short, rounded at tip, not extending beyond the distal margin of valva, while in *rubricollis* it is much longer, sharply pointed at tip and extends far beyond the distal margin of valva.

Material examined. Holotype: ♂, Mt Oblachnaya, 1750 m above s. l., stony deposit in alpine zone, 2. VII. 1993 (leg. Yu. Tshistjakov).




Figs 1-2. Male genitalia of *Atolmis rubricollis* subspp. 1. *A. r. alpischistosis* subsp. n. 2. *A. r. rubricollis*.

Etymology. Subspecific name is formed from two latin words: *alpine* and *schistosis*, the combination of which means "inhabitant of stony deposits in alpine zone" and based on the characteristic habitat where the type specimen was collected.

Remarks. This euro-siberian species is distributed within continental part of Eurasia (from Central and North Europe up to Northeast China and Russian Far East) and not in Japan, occuring in the boreal forests. In Primorye Territory the nominate subspecies has been known only from the most northern district, near Ternei settlement (Konovalova & Volkova, 1970).

The new locality is situated approximately as far as 300 km southwestward from that place. The only moth was collected in the windless noon nearby the boundary of a stony deposit with a subalpine meadow, while it was slowly flattering along the slope, 2-3 m above the shrubs of *Pinus pumila*. Flight in daytime seems to be unkown for the moth belonging to an arboreal race of this species, since it may usually be observed having a rest on the branches of spruces and flying away for a short distance only when they were disturbed (Seitz, 1910; Freina & Witt, 1987). And unusual behavior of newly described alpine race could be considered as an adaptation to the life in the high-altitude habitats.

***Dodia kononenkoi sikhotensis*** Tshistjakov, 1988

In Primorye Territory the discussed subspecies was previously known from some specimens from Ternei settl. (Northern Primorye), Mt Golets and Mt Lysaya Benevskaya (Southern Primorye), from where it was indicated for mountain dark-coniferous (taiga) forest (Vasyurin & Tshistjakov, 1979) and for subalpine zone with brush-woods of *Pinus pumila* (Tshistjakov, 1988). Here it is recorded for the first time from the highlands of Mt Oblachnaya.

Material examined. 3♂, Mt Oblachnaya, 17, 18. VII. 1993 (leg. Yu. Tshistjakov).

Remarks. According to our observation in Oblachnaya the moths start fluttering before sunset and stop the flight by full darkness. Among three indicated specimens one male was caught by butterfly net just before sunset on the flattened part of the slope with plots of stony deposits at the elevation of about 1750 m above sea level, while two others were caught in twilight by the light-trap on the saddle, covered by mountain tundra, at the elevation of about 1800 m. Thus, this Sikhotae-Alin' race appears to occur in the different altitudinal zones, but it preserves the flight behavior typical for the truly alpine race of this species (*D. k. kononenkoi* Tshistjakov & Lafontaine, 1984), inhabiting the mountain tundra in the highlands of the extreme North-east of Russia and the Yukon Territory in Canada (Tshistjakov & Lafontaine, 1984).

**Acknowledgements**

I wish to express my cordial thanks to all members of both joint expeditions, who took part in our cooperative field surveys in the Southern Primorye and shared all burdens regarding with organisation and carrying out of this research, especially to Dr T. Yasunaga and Mr T. Nakamura (both from Kyushu University) for their through assistance as in preliminary stage of the preparation to the trip, so during our stay in the mountain. I am deeply indebted also to Mr K. Jinbo, who kindly offered the valuable comparative material of *Gynaephora rossii daisetsuzana*.

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## 要　約

Yu. A. Tshistjakov：シホテアリン山系オブラチナヤ岳高山帯の蛾 3 種

オブラチナヤ岳（標高 1854 m）は沿海州南部の最高峰で，ウスリー川の上流に位置し，容易に接近しがたい地域であった．この山の最初の動物学的な調査は，極東大学の Gassovsky 教授をリーダーとして，1927 年に行われたが，その探検の成果は公表されることなく，収集した資料も失われてしまった．この山の山頂に到達した最初の昆虫学者は Kurentzov で，1931 年に甲虫と蝶を中心とする高地帯の昆虫を採集したことが記録されている．しかし，夜間採集は一度も行われたことがなく，この山の高山帯の蛾相は未知のままであった．

1993 年の夏，著者は日ロ共同調査の一部として，日本側協力者の支援を得て，再度にわたりこの山を訪れる機会があり，高地の自然的環境を把握し，携行した発電機と水銀灯を用いて標高 1800 mの鞍部にライトトラップを設置した．このあたりは山岳ツンドラ地帯で，地衣類，湿性のコケ類のほか，コケモモ，クロマメノキ，ウラシマツツジ，イワヒゲなどの矮生灌木が優占する．この山における燈火採集は今回が史上初の試みである．

天候は採集に最適ではなかったが，この地域初記録となる多くのヤガ（別報で報告）に加えて，次のドクガ科ならびにヒトリガ科の 3 種を得たので，それらについて報告する．

*Gynaephora rossii relictus* (Bang-Haas) ダイセツドクガ

種 *rossii* は，ユーラシアではウラル山脈の極地部からチュコト半島，カムチャッカなどに分布し，内陸ではサヤン山脈とヤブロノイ山脈に産することが知られていた．今回オブラチナヤで 1♀ を得た．この個体は *relictus* の原記載で述べられているところとよく一致し，サヤン山脈トウラン産の

雌の holotype とは，黒っぽい後翅と不明瞭な外帯をもつことでよく似ている．この点では，淡黄色の明るい後翅と明瞭な外帯をもつ大雪山産の亜種 *daisetsuzana* Matsumura と異なっている．

しかし，特に新大陸との比較において，ユーラシアの標本の亜種名を特定するためになお解決すべきさまざまな問題についても触れておいたが，材料も充分でなく，今回はユーラシア大陸部の標本に対する亜種名として *relictus* を使用しておいた．

*Atolmis rubricollis alpischistosis* subsp. n. [ヒトリガ科・コケガ亜科]

中部，北部ヨーロッパから中国東北，ロシア極東部に分布するが，日本には産しない．沿海州では，北部のテルネイ居留地から原名亜種が報告されている．オブラチナヤでは，昼間ハイマツ帯の上を飛翔していた 1 ♂を得て，新亜種を記載し，両亜種の交尾器を図示した．

*Dodia kononenkoi sikhotensis* Tshistjakov [ヒトリガ科]

種 *D. kononenkoi* Tshistjakov & Lafontaine は，ベーリング海峡をはさんで，ロシアのマガダン地方とカナダのユーコン地方の極地帯に分布するが，のちには沿海州北部および南部の山岳タイガあるいはハイマツ帯に産する別の亜種 *sikhotensis* が記載されていた．今回オブラチナヤでも 3♂が採集された．蛾は日没前，薄暮に活動を始め，完全に暗夜になれば活動を終わる．

なお，属 *Dodia* は新旧両大陸にわたって極地帯に分布する小属で，先ごろまで旧大陸では *Hyalocoa* の属名が用いられていた．

[要約：杉　繁郎]

*Tinea* **14** (1): 48-52, September, 1994

# **A phycitine species infesting the fruit of Star Apple** (Lepidoptera, Pyralidae)

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**Abstract** A phycitine species, *Ceroprepes naga* Roesler & Küppers, is redescribed based on Vietnamese specimens. The male and the larva, a fruit borer of the Star apple, *Chrysophyllus caimito*, are first described.

Through the courtesy of Messrs H. Matsuura and H. Masuda, Kobe Plant Protection Station, Japan, I could examine a phycitine species reared from fruits of *Chrysophyllus caimito* L., accidentally brought into Japan from Vietnam in 1993. By the examination of the specimens, I determined it as *Ceroprepes naga* Roesler & Küppers. This species was originally described based on two female specimens from Sumatra, Indonesia (Roesler and Küppers, 1979), and the male and the larva have not been recorded so far I am aware. In this paper I will redescribe the species, together with the male and larva, which were newly found this time.

## ***Ceroprepes naga*** Roesler & Küppers

*Ceroprepes naga* Roesler & Küppers, 1979: 177, pl. 15, fig. 38.80.

Specimens examined. 2♂4♀ (reared from larvae in the quarantine laboratory at Itami Sub Station, Kobe Plant Protection Station), and 2 mature larvae, Vietnam, 20. iii. 1993, intercepted at Osaka International Airport, Japan.

Adult. Size of forewing 10.4-10.5 mm in male, 10.3-11.5 mm in female.

Head with vertex swollen, frons not prominent, with a tuft of scales ejecting upwards in male. Labial palpus of male strongly upturned along frons and extending beyond lebel of vertex, the 3rd very short and small; that of female ascending obliquely, fuscous mixed with whitish

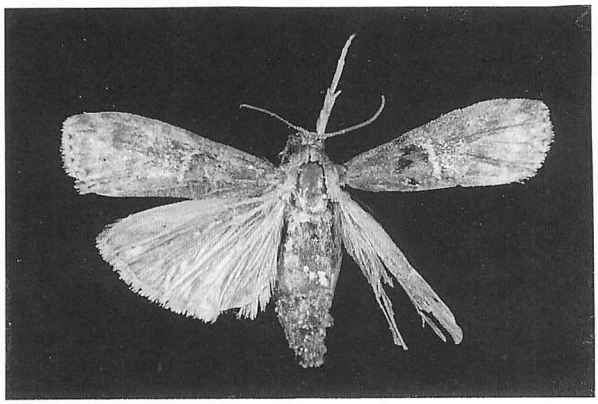

Fig. 1. Adult female of *Ceroprepes naga* Roesler & Küppers.

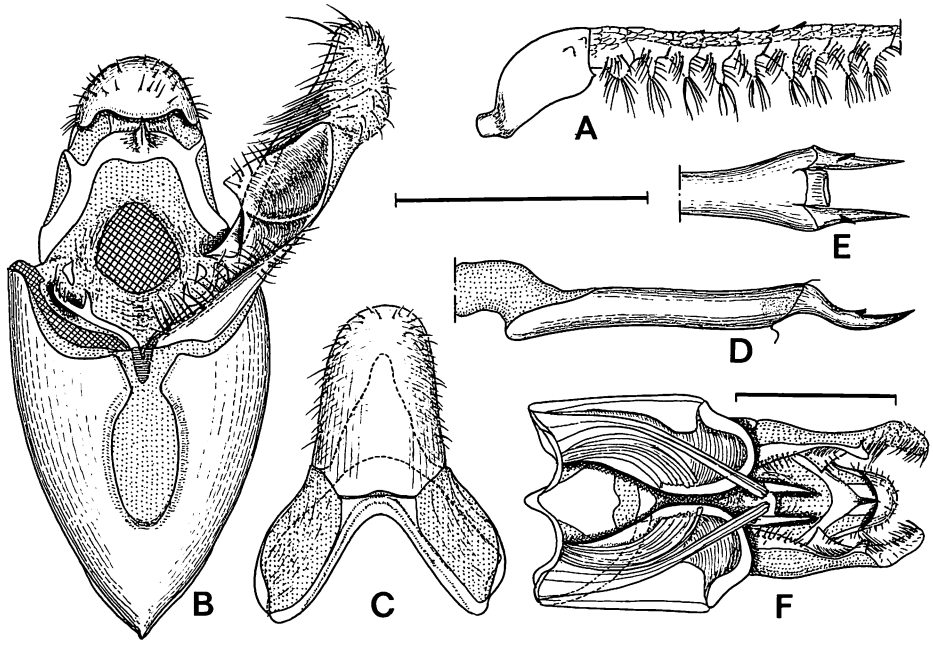


Fig. 2. Male antenna and genitalia of *Ceroprepes naga* Roesler & Küppers. A. Antennal base. B-F. Male genitalia. B. Ventral view, left valva removed. C. Dorsal view. D. Phallus, lateral view. E. *Ditto*, posterior portion, dorsal view. F. Ventral view, with 8th sternite. Scales: 1.0 mm.

scales and the 3rd longer than in male. Maxillary palpus short and narrow, ascending. Antenna of male raminate, with many fan-shaped sensory setae ventrally, and whitish scales dorsally, with a minute spicule on each of 2nd to 5th flagella. Ocellus a little apart from compound eye, blackish. Thorax above fulvous with reddish brown and whitish, beneath with whitish scales. Legs fulvous mixed with whitish scales.

Wing venation and marking: Forewing with vein $R_1$ emitted from proximal 3/4 of discoidal cell; $R_2$ arising from anterior angle of discoidal cell. $R_3$ and $R_4$ anastomosed with $M_3$ at base; $CuA_2$ a little far from base of $CuA_1$; 3A diverging to proximal 2/5 of posterior margin. Hindwing with vein Sc + $R_1$ connated with Rs at basal 1/2; $M_2$ anastomosed with $M_3$ at its half length; base of $CuA_1$ near to that of $M_2 + M_3$, discocellulars curved. Forewing fulvous, suffused with fuscous; proximal area to a white antemedial band suffused with light brown, with 4 groups of black and raised scales (near costa, in cell, below cell and below vein 1A); discocellular lunule represented by a darker dot; postmedial line waved, angled inwards at vein $R_4$, then retracted and curved again to posterior margin; marginal line separated by darker dots between veins. Hindwing semihyaline, evenly pale fuscous, with a little darker termen.

Male genitalia (Fig. 2). Seventh sternite complex in structure, ventrally with a pair of lobe like processes from anterior margin which are covered with two kinds of scale tufts (Fig. 2F). Tegumen longer than wide, broadly membranous dorsally. Vinculum longer and narrow, partly membranous midventrally; saccus undeveloped. Uncus broad, parallel-sided, with sparse short setae laterally. Gnathos developed ventrally, with a short process at midventral line posteriorly. Valva elongate, with anellus broadly sclerotized and its upper margin

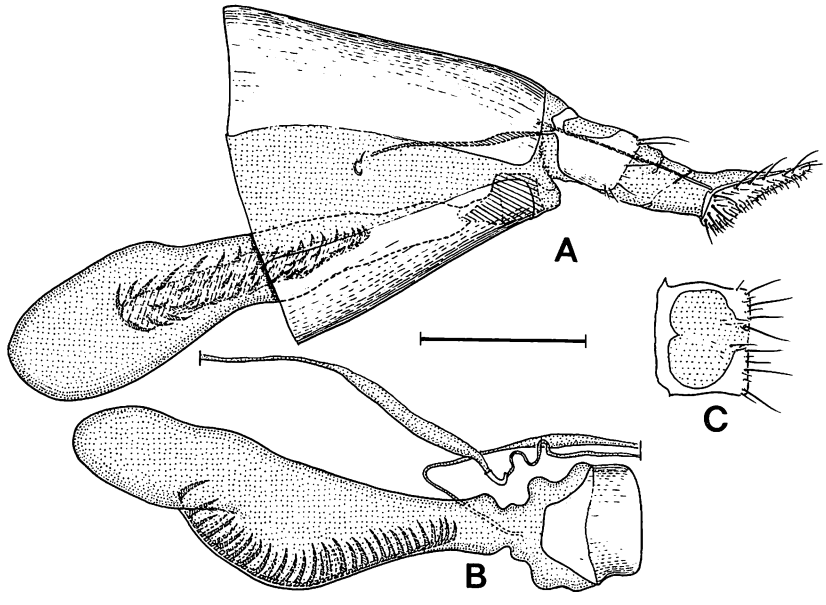


Fig. 3. Female genitalia of *Ceroprepes naga* Roesler & Küppers. A. Lateral view. B. Bursa, ventral view. C. 8th tergite, dorsal view. Scale: 1.0 mm.

produced innerly, with some setae. Transtilla represented by a narrow sclerite near costa. Juxta narrow, with a pair of widely separated processes on which a few setae are emitted. Phallus long and rather flattened, with a pair of tusk like processes at lateral side of suprazonal sheath extending posteriorly; coecum pennis undeveloped.

Female genitalia (Fig. 3). Ostium bursae wide, continuous with broad antrum, which may be a receptable structure of male tusk like processes of phallus. Ductus bursae very short. Corpus bursae long, with a plate of signa, on which several well developed spines are emitted throughout its length. Ductus seminalis from near antrum. Spermatheca without pouch of lagena. Eighth tergite short, broadly membranous dorsally; apophysis anterioris rather stout and waved. Papilla analis long and flattened; apophysis posterioris almost as long as the anterioris.

Mature larva (Fig. 4). Head width 1.7-1.9 mm, body length 18-25 mm.

Head evenly pale orange, with light brown setae paler at apicies. Seta P2 dorsal to longer P1; AF1 laterad of P1; O1, O2 and O3 situated on a same oblique line; A2 short between longer A1 and A3; L1 rather short. Mandible almost rectangular, with 5 teeth, of which upper 2 are indistinct. Ocelli 6 in number, III and IV smaller than the others.

Thorax whitish, dorsally weakly suffused with pinkish to reddish brown. Prothorax with its shield pale brown except for darker anterolateral corner; setae XD1, XD2 and SD1 almost the same length and XD2 nearer to SD1 than to XD1; L1 and L2 vertically arranged on a well developed and dark brown pinaculum which is situated just anterior to a large spiracle. Meso- and metathoracies with seta D2 anteroventral to D1; SD1 of mesothorax emitted on ring-shaped pinaculum; L1 and L2 on a distinct dark brown pinaculum, anterior to L3.

Abdomen concolorous with thorax. Seta D2 almost as long as D1, and posteroventrad of D1 on 1st to 7th, posterodorsad of D1 on 8th segments. First to 8th segments with seta SD1

longer; SD2 minute, anterior to spiracle; L ventrad of spiracle. Ninth segment with setae D1 and SD1 on a same pinaculum; D2 setae on both sides on a same pinaculum; L3 anterodorsad of L1 and L2, which are arranged vertically. Tenth segment with anal shield pale brown; seta SD1 longest and emitted from lateral margin of the shield. Number of SV setae 3 on 1st to 6th, and 2 on 7th to 9th segments. Prolegs with light brown crochets, circle and biordinally arranged, about 60 in number. Anal proleg with 40-48 crochets, biordinally and transversely arranged.

Host plant. *Chrysophyllus caimito* L. (Sapotaceae).

Rearing notes. The larvae bored into and fed inside the fruits of the host. Full grown larvae came outside the fruits and pupated among the tissue paper prepared in the plastic rearing case.

Distribution. Vietnam, Indonesia (Sumatra). New to Vietnam.

Remarks. The species differs from other congeners in having the male antenna with shoter branches and with dorsal minute spines in the 2nd to 5th flagellar segments like in *Thiallela* species, the male labial palpus with shorter 3rd segment, the male genitalia with tusk like processes on phallus and poorely developed transtilla and the female genitalia with well developed spines of signa. The generic position of the present species needs revision.

*Alophia* sp. of Cendana *et al.*, 1983, a fruit borer of *Chrysophyllus caimito* and *Mannika zapota* in the Philippines, seems to be identical with the present species, through the larval behavior and the description.

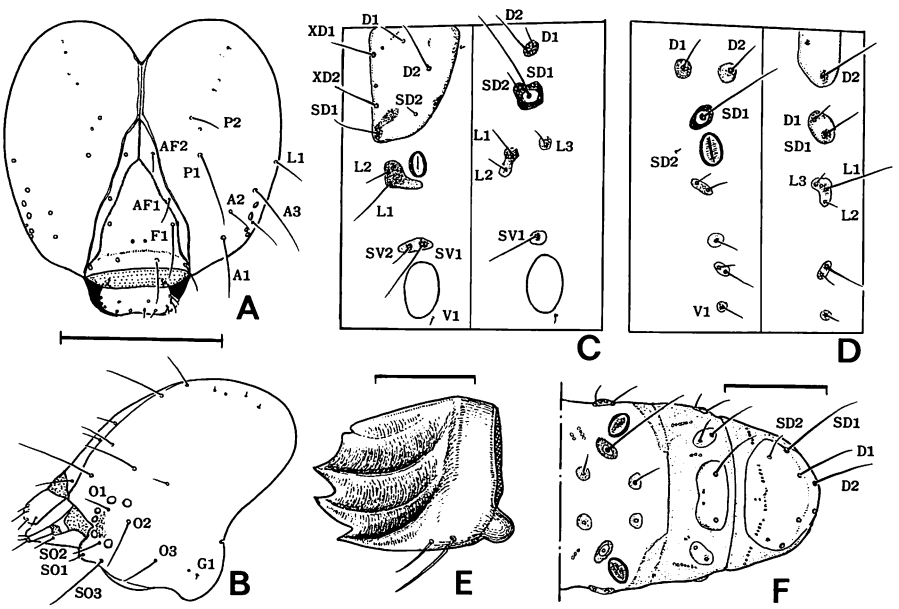


Fig. 4. Mature larva of *Ceroprepes naga* Roesler & Küppers. A. Head, frontal view. B. *Ditto*, lateral view. C. Chaetotaxy, pro- and mesothorax. D. *Ditto*, 8th and 9th abdominal segments. E. Right mandible, inner view. F. 8th to 10th abdominal segments, dorsal view. Scales: A, B, F: 1.0 mm; E: 0.25 mm.

## Acknowledgement

I thank Messrs H. Matsuura, H. Masuda and K. Totani, Kobe Plant Protection Station, for giving me a chance to examine the material and rearing information of this species.

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## 摘　要

吉安　裕：スターアップルの果実を食害するマダラメイガ（鱗翅目，メイガ科）

旅行者によって故意に持ち込まれ，植物検疫で輸入を阻止されたベトナム産スターアップル *Chrysophyllus caimito* の果実から発見されたマダラメイガの 1 種 *Ceroprepes naga* Roesler & Küppers を幼虫とともに再記載した．本種は雌の標本に基づきスマトラから記載されたが，これまで雄と幼生期は不明であった．なお，本種成虫は神戸植物防疫所伊丹分室の隔離室で飼育され，羽化したものである．

雄には，櫛歯状触角の第 2~5 鞭節背面に小さな突起があり，交尾器の phallus には一対の顕著な嘴状突起がある．雌交尾器には交尾嚢の signa 上に明瞭な突起群がみられる．幼虫の頭部は橙褐色で，虫体は背面が桃色から赤褐色を帯びた白色である．気門はよく発達し，中胸と第 8 腹節の SD 刺毛基部の輪状硬皮板も明瞭である．

*Tinea* **14** (1): 53-60, September, 1994

# *Paracyphanta* new genus and *Cyphanta* Walker, two genera in the 'quadrifid' Notodontidae (Lepidoptera)

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**Abstract** A new genus *Paracyphanta* is described to receive two new species, *kurokoi* from Thailand and *postlutea* from Sulawesi. The genus is related to Himalayan *Cyphanta* Walker including two known species *xanthochlora* Walker and *chortochlora* Hampson, in sharing the base of forewing vein $M_2$ very close to $M_3$. All the four species are described or redescribed. The known hostplant of *Paracyphanta kurokoi* is *Dimocarpus longan*, Sapindaceae.

A new genus of the Notodontidae is described below to receive two new species each from Thailand and Sulawesi, which are remarkable in having the deep green forewing with well developed scale tufts on the dorsum, combined with bright red brown or yellowish hindwing. Moreover, unlike most notodontines, they have the base of vein $M_2$ very close to that of $M_3$ in the forewing, causing that the cubital system appears four-branched as in the Noctuidae. Now it is known that there are a few notodontine genera having such a quadrifine condition of the forewing vein, *i.e. Platychasma* Butler from Japan, *Cyphanta* Walker from Himalaya and *Sphetta* Walker from tropical Asia (Sugi, 1982, 1987; Holloway, 1987; Miller, 1991). They were excluded from Kiriakoff's catalogue (1967, 1968), and had finally remained in the Noctuidae (Nye, 1975; Poole, 1989). The three genera do not seem to represent a natural group, so that they may have been derived independently. However, the similarity between the new genus below and *Cyphanta* will be worth discussing as to their sister relationship.

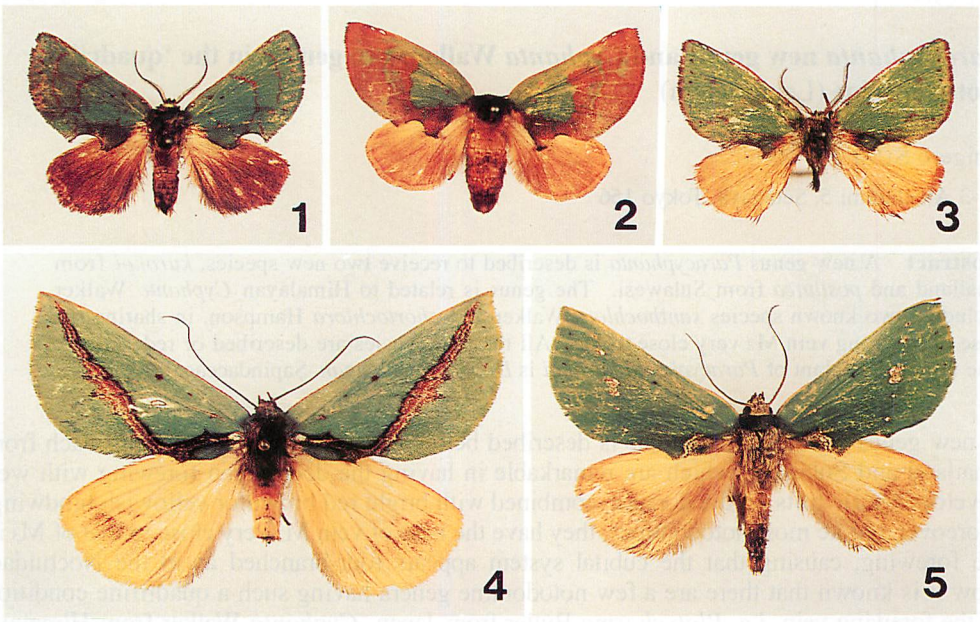
The following abbreviations will be used in the text below.

A1, A2, ..: Abdominal segments 1, 2, and so on (of larva).
SS: S. Sugi's collection, Tokyo.
TH: T. Haruta's collection, Tokyo.
TDA: Entomology and Zoology Division, Thai Department of Agriculture, Bangkok.
UOP: University of Osaka Prefecture, Sakai.
YK: Y. Kishida's collection, Tokyo.

## *Paracyphanta* gen. n.

Type species. *Paracyphanta kurokoi* sp. n.

Antenna bipectinate to near apex in male and slightly lamellate below and ciliate in female. Compound eye naked. Ocellus present, small. Proboscis highly vestigial. The terminal segment of labial palpus small, less than 1/4 length of second segment. Legs rather short, with tarsi of all legs consealed dorsally with flattened tuft of scaly hair, its tip being beyond extremity of the last segment; tibial spurs in formula 0-2-2 for male, and 0-2-4 for female. Apices of tibial spurs serrate. Forewing rather short and broad, the costa slightly arched at basal fourth, apex less acute, termen round, dorsum with two large tufts, tornal and subbasal, the last much developed. In forewing the base of vein $M_2$ very close to that of $M_3$; $M_1$ and stem of $R_{2-5}$ from upper angle of cell, $R_{3+4}$ stalked from $R_2$, without forming areole. In hindwing veins $M_3$ and $CuA_1$ from lower angle of cell or shortly stalked, Rs and $M_3$ shortly stalked. Female frenulum comprised of only two bristles in an examined specimen (of the type species).




Figs 1-3. *Paracyphanta* spp. 1. *P. kurokoi* sp. n., holotype ♂. 2. *P. kurokoi* sp. n., paratype ♀. 3. *P. postlutea* sp. n., holotype ♂.
Figs 4-5. *Cyphanta* spp. 4. *C. xanthochlora* Walker, ♂. 5. *C. chortochlora* Hampson, ♂.

Male genitalia. Uncus and socii small. Tegumen narrow, rather short. Posterior end of valva deeply divided: costal lobe narrow, tapered or parallel-sided, without armature; ventral lobe with large apical expansion with peculiar modification in species. Juxta narrow, irregularly shaped. Aedeagus short with its proximal end bifurcate or divided into two longitudinal leg-like processes, apically armed variously in species. A long, sclerotized ribbon-like band on vesica. No deciduous cornuti contained. Eighth abdominal segment not modified.

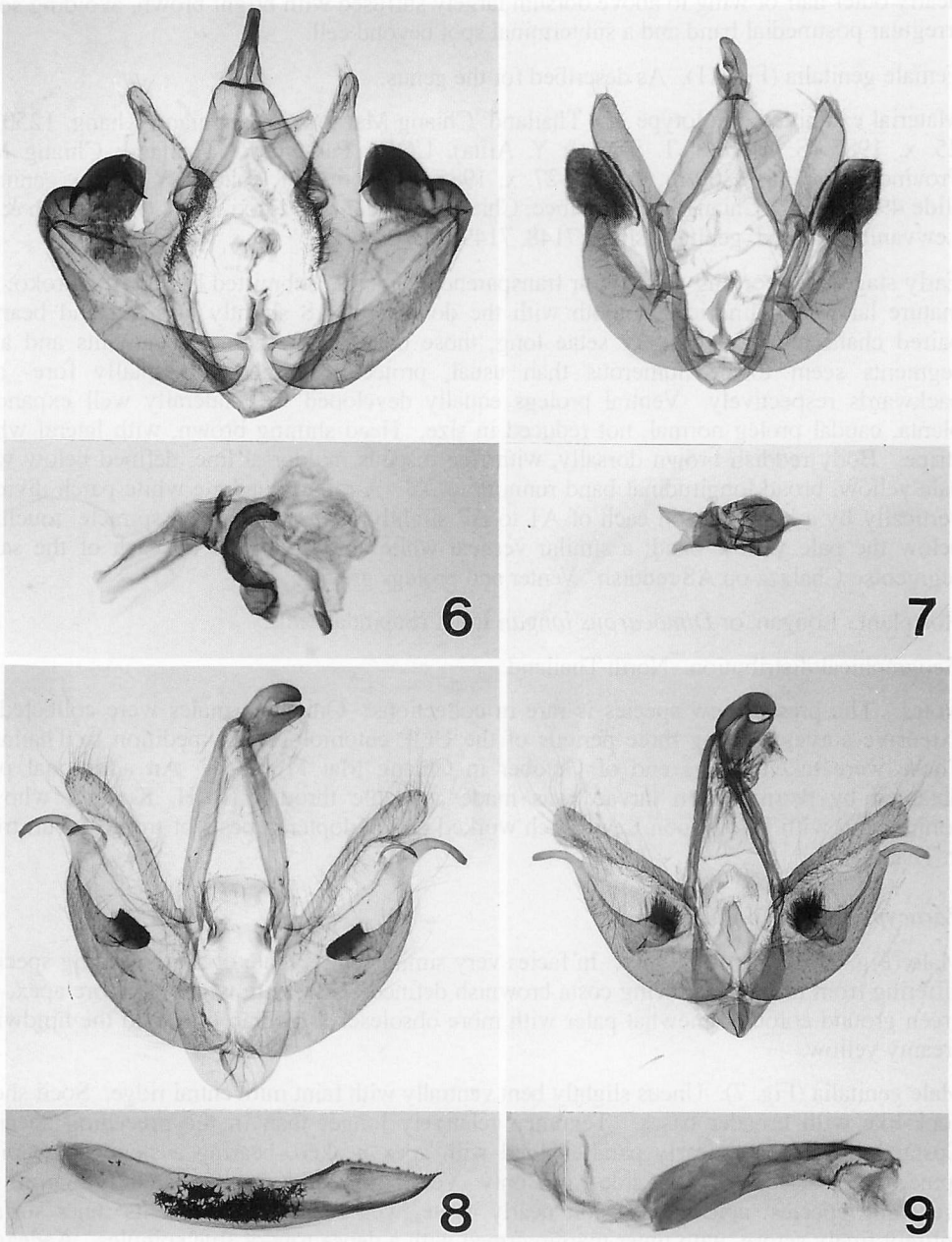
Female genitalia. Papillae anales membranous, finely setose, posterior apophysis about 1.5 times as long as the papillae; 8th segment deep, fully sclerotized, posterior margin of tergite bilobed and serrate, anterior apophysis nearly half the length of posterior apophysis. Postvaginal zone of sternite depressed with lateral folds. Ductus bursae membranous, broadly tubular, bursa copulatrix elliptoid, without signum.

The genus contains two new species as described below.

***Paracyphanta kurokoi* sp. n.**

Male (Fig. 1). Expanse 25-28 mm. Labial palpus and front dark brown, vertex, tegula and patagia deep green, thoracic vestiture dark grey. Forewing deep green with costa yellow; a white longitudinal stria below costa near base, and further two at near apex, both shaded with red brown. Irregular antemedial series of dots, very fine medial and postmedial lines, and subterminal series of points between veins red-brown. Cilia concolorous with the wing colour basally, tipped with brown. Hindwing surface and cilia deep red-brown. Underside of both wings smoky brownish grey, with obscure postmedial line and discal dot fuscous.

Male genitalia (Fig. 6). Uncus tapered to blunt apex. Socii fused basally, with apical part rod-like, less hooked. Costal lobe of valva tapered, its inner basal margin thickly setose. Ventral lobe of valva broad at base, heavily bulged laterally, apical ovate expansion




Figs 6-9. Male genitalia. 6. *Paracyphanta kurokoi* sp. n. 7. *P. postlutea* sp. n. 8. *Cyphanta xanthochlora* Walker. 9. *C. chortochlora* Hampson.

containing on inner surface a membranous eversible sac, its overhung lateral margin bearing a stout spine obliquely directing inwards and a few teeth below it. Aedeagus with long legs and half-ringed stout apical ornamentation.

Female (Fig. 2). Expanse 32 mm. Ground colour of forewing deep green as in male, but nearly outer half of wing to above dorsum largely suffused with bright brown, avoiding some irregular postmedial band and a subterminal spot beyond cell.

Female genitalia (Fig. 11). As described for the genus.

Material examined. Holotype ♂. Thailand: Chiang Mai Province, Chiang Khang, 1250 m, 25. x. 1985 (S. Moriuti, T. Saito & Y. Arita). UOP. Paratypes. Thailand: Chiang Mai Province, Doi Pui, 1300 m, 1♂, 26-27. x. 1985 (S. Moriuti, T. Saito & Y. Arita), genitalia slide 4956. UOP. Chiang Mai Province, Chiang Mai, 1♂1♀, 27. xi. 1992 (H. Kuroko & A. Lewvanich), reared, genitalia slides 7148, 7149. TDA.

Early stages. According to a colour transparency (Fig. 12) submitted by Dr H. Kuroko, the mature larva is cylindrical, smooth with the dorsum of A8 slightly humped and bearing paired chalazae. The primary setae long, those on anterior thoracic segments and anal segments seem to be numerous than usual, projecting rather horizontally fore- and backwards respectively. Ventral prolegs equally developed with laterally well expanded planta, caudal proleg normal, not reduced in size. Head shining brown, with lateral white stripe. Body reddish brown dorsally, with fine fuscous middorsal line, defined below with pale yellow, broad longitudinal band running to A8. A rather quadrate white patch divided vertically by a black bar on each of A1 to A7 slightly posteriorly above spiracle, touching below the pale yellow band; a similar vertical white stria anteriorly on each of the same segments. Chalaza on A8 reddish. Venter and prolegs greyish.

Hostplant. Longan, or *Dimocarpus longan* Lour. (Sapindaceae).

Geographical distribution. North Thailand.

Notes. The present new species is rare in collections. Only two males were collected in extensive surveys during three periods of the UOP entomological expedition to Thailand. Those were taken in the end of October in Chiang Mai Province. An additional pair, obtained by rearing from larvae, was made available through Dr H. Kuroko, who in conjunction with Dr Angoon Lewvanich worked on lepidopteran pests of tropical fruit trees in Thailand.

***Paracyphanta postlutea* sp. n.**

Male (Fig. 3). Expanse 30 mm. In facies very similar to the male of the preceding species, differing from it in the forewing costa brownish defined below with white to before apex, the green ground colour somewhat paler with more obsolescent median lines and the hindwing creamy yellow.

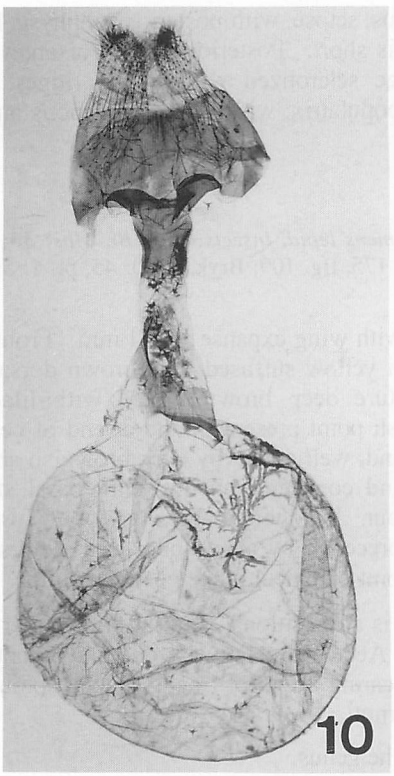
Male genitalia (Fig. 7). Uncus slightly bent ventrally with faint midventral ridge. Socii short, hook-like with broader bases. Tegumen relatively longer than in the preceding species. Costal lobe of valva nearly parallel-sided with apex peaked, bearing a slender subapical spine on dorsal edge of right side valva only. Ventral lobe less swollen laterally than in the preceding species; apical expansion nearly ovate, well restricted below, its inner surface entirely finely setose, with inner margin armed with a dense row of fine spinules. Aedeagus small, with apical end round, less modified than in the preceding species.

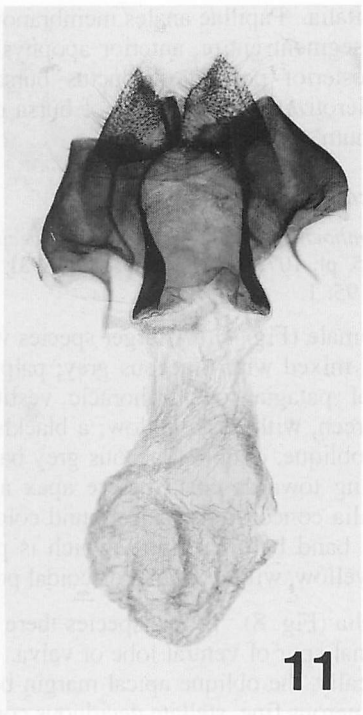
Female. Unknown.

Material examined. Holotype ♂. Sulawesi: Puncak Dingin, 1700 m, ix-x [x-xi]. 1985 (S. Nagai), genitalia slide 4864. SS. Paratype. Sulawesi, Palu, Palolo, 1♂, i-ii. 1985. YK.

Early stages. Unknown.

Geographical distribution. Sulawesi.




Figs 10-11. Female genitalia. 10. *Cyphanta xanthochlora* Walker [Note: numerous stellate male cornuti remaining in ductus bursae]. 11. *Paracyphanta kurokoi* sp. n.

***Cyphanta*** Walker

*Cyphanta* Walker, 1865, *List Specimens lepid. Insects Colln Br. Mus.* **33**: 855.

Type species. *Cyphanta xanthochlora* Walker.

Antenna moderately fasciculate in male and ciliate in female. Compound eye naked. Ocellus present, small. Proboscis fully developed. The terminal segment of labial palpus moderately long, about 2/5 to half the length of the second segment. Legs moderate, with tarsi normally clothed with scales, tibial spurs in formula 0-2-4 for both sexes. Apices of tibial spur smooth, not serrate. Basal four segments of tarsi in all legs (but basal three in foreleg) bearing 3-8 rather stout spines near posterior ends. Fore- and hindwings almost identical in shape and venation with those of *Paracyphanta* except slightly acute forewing apex and weakly developed tufts on dorsum, particularly the tornal one being vestigial in the type species. Female frenulum comprised of only two bristles in examined specimens (of the type species).

Male genitalia. Uncus small, moderately bent ventrally. Socii fused, broad basally. Tegumen narrow, elongated. Juxta shield-like. Valva divided only apically into two lobes; apex of costal lobe slightly dilated, round; ventral lobe ending in a spur curved ventrally. At the end of saccular fold there is a large heavily setose prominence directing dorsad. Aedeagus slender, tubular with distal extremity oblique. Eighth abdominal segment not modified.

Female genitalia. Papillae anales membranous, setose, with posterior apophysis lost. Eighth abdominal segment entire, anterior apophysis short. Posterior margin of antevaginal plate bilobate, posterior portion of ductus bursae sclerotized with lateral ridges, an oblique irregular sclerotization at the base of bursa copulatrix, which is membranous and globular, with no signum.

### *Cyphanta xanthochlora* Walker

*Cyphanta xanthochlora* Walker, 1865, *List Specimens lepid. Insects Colln Br. Mus.* **33**: 856; Butler, 1886: 25, pl. 107, fig. 3; Hampson, [1893]: 175, fig. 109; Bryk, 1950: 45, pl. 1: 5; Sugi, 1994: 163, pl. 95: 1.

Male and female (Fig. 4). A larger species with wing expanse 52-54 mm. Front and vertex deep brown mixed with lilaceous grey; palpi yellow suffused with brown dorsally. Tegula and base of patagia green, thoracic vestiture deep brown mixed with lilaceous grey. Forewing green, with costa yellow; a blackish point present in and at end of cell, the latter larger. An oblique, double lilaceous grey band, well edged by dark brownish shade at both sides, running towards costa before apex and connecting below with basal streak above dorsum. Cilia concolorous with ground colour. Hindwing pale yellow with fuscous, broad but obscure band before termen, which is preceded by an obscure line. Undrside of both wings pale yellow, with a distinct discoidal point and incomplete postmedial line.

Male genitalia (Fig. 8). In this species there is an additional, similar but smaller spur dorsal to the terminal spur of ventral lobe of valva. Aedeagus relatively long and smoothly curved, pointed apically, the oblique apical margin bearing a row of fine T-shaped spinules. Vesica contains numerous fine, stellate deciduous cornuti.

Female genitalia (Fig. 10). As described for the genus.

Material examined. Nepal, Laniang N. P., Lama Hotel, 2390 m, 1♂, 25. vii. 1992 (K. Suzuki). Nepal, Dolakha, Jiri, 2350 m, 1♀, 24-28. vii. 1993 (M. S. Limbu). TH. India, W. Bengal, Tiger Hill, ca. 15 km SE of Darjeeling, 2500 m, 1♀, 15-16. viii. 1985 (W. Thomas). SS.

Geographical distribution. Central to eastern Nepal (Sugi, 1994), Sikkim, north Burma (Bryk, 1950).

### *Cyphanta chortochlora* Hampson

*Cyphanta chortochlora* Hampson, [1893], *Fauna Br. India* (Moths) **1**: 175; Sugi, 1992: 95, pl. 27: 1.

Male (Fig. 5). Expanse 43-44 mm. Smaller than *xanthochlora*. Front, vertex and thorax greyish white. Forewing with oblique band much reduced to an irregular row of ochreous white points, that between veins $M_3$ and $CuA_1$ much dilated. Basal streak above dorsum also reduced and ochreous white. Hindwing much paler yellow with fuscous broader band before termen. Underside of wings paler, otherwise almost similar to that of *xanthochlora*.

Male genitalia (Fig. 9). Very similar to those of *xanthochlora*, but differ in the lack of the subapical spur, the shape of saccular-end prominence and juxta. Aedeagus shorter, apically with a sclerotized strap with serrate margin.

Female. Unknown to me and in literature.

Material examined. N. W. India, Uttar Pradesh, Bhimtal, 1♂, 1500 m, 18. vi. 1991. SS. Nepal, Kathmandu, Godavari, 1600 m, 1♂, 6. v. 1991 (T. Haruta). TH.

Geographical distribution. N. W. India to Nepal (Sugi, 1992). The stated type locality is 'Himalayas'.

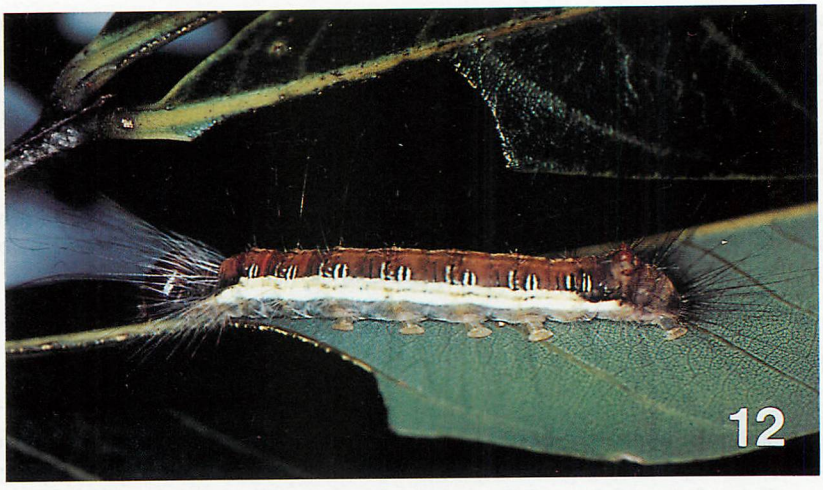



Fig. 12. Mature larva of *Paracyphanta kurokoi* sp. n. on longan. H. Kuroko photo.

## Discussion

Each of the two genera discussed above includes morphologically close and undoubtedly congeneric pair of species. In addition to the quadrifid cubital system of the forewing, they share two dorsal tufts with tooth-like margin on forewing, and the deep green forewing colouration combined with coloured hindwing, unusual for notodontines. In other characters, however, the two genera considerably differ. In *Paracyphanta* the male antenna is bipectinate instead of fasciculate as in *Cyphanta*, the terminal segment of labial palpus very small instead of moderately long, the proboscis vestigial instead of fully developed, the middle pair of spurs absent in the male hindtibia, instead of present, and the dorsal tufts of forewing strongly developed instead of weakly so.

The absence of the anterior pair of spurs of hindtibia in the *Paracyphanta* male is unique for the Notodontidae. The sclerotized posterior tips of tibial spurs are serrate in *Paracyphanta*, the character state shared by most genera of the Notodontidae, while in *Cyphana* those are smooth as in *Platychasma* Butler, another quadrifine genus treated by Miller (1989) in his cladistic analysis of the Notodontidae. In this last named genus, the forewing has two large tufts on the dorsum like *Paracyphanta*.

The genitalia of both sexes are less useful to find common characters shared by the two genera, apart from a tendency of the posterior end of valva to be bilobate, separating the free costal process from the ventral lobe, which bears apical and inner structures characteristic to each genus. The deciduous stellate spicules in the vesica are present in *Cyphanta xanthochlora*, but not in species of *Paracyphanta*.

The hostplant of *Paracyphanta kurokoi*, longan, is in the Sapindaceae, the plant family that is known to include the hostplants of other tropical notodontine moths of the genera such as *Tarsolepis, Dudusa* and *Hyperaeschrella* (Holloway, 1983; Kuroko & Lewvanich, 1993, etc.). Specialist group for this plant family tends to change in the temperate zone their host into the related Aceraceae. For instance, the primary hostplant of *Tarsolepis japonica* Wileman & South known in Japan is *Acer*, and the larva of *Dudusa sphingiformis* Moore was found on *Acer mono* in Tsushima, Japan. The gregarious larvae of *Ptilodon hoegei* (Graeser) usually feeding on *Acer* have been rarely found on *Sapindus* in Japan (Sugi [Ed.], 1987).

The placement of the genera *Cyphanta* and *Paracyphanta* is most likely to come in association with *Platychasma*, under the subfamily Platychasmatinae as defined by Miller (1989), but it is premature to reach a final conclusion until more material including larvae is available for study. Then it will be possible to consider that lineage as associating with Sapindaceae/Aceraceae as larvae, since the hostplant of *Platychasma virgo* in Japan is restricted to *Acer diabolicum*.

The two species of *Cyphanta* are Himalayan, but species of *Paracyphanta* are known from far distant localities, North Thailand and Sulawesi. It seems that undescribed taxa to be linked with them might be found from the Sundaland or the Philippines.

## Acknowledgement

In writing this paper I have to express my best thanks to Dr S. Moriuti, University of Osaka Prefecture, Sakai, for the permission of free access to the rich Thailand material housed in his institution. I am also much grateful to Dr H. Kuroko, who conducted a program for Taxonomy of the Insect Pests of Economic Crops in Thailand in 1990-93, and who submitted me useful specimens and information in cooperation with Dr Angoon Lewvanich, Thai Department of Agriculture, Bangkok.

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*Tinea* **14** (1): 61-64, September, 1994

# A new *Sesia* (Lepidoptera, Sesiidae), clearwing borer on Pecan from Nanjing, China

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**Abstract** A new species of clearwing moth, *Sesia sheni* Arita & Xu, has been misidentified as *Sesia molybdoceps* (Hampson) (= *Sesia scribai* (Bartel)), and infested pecan, *Carya illinoensis*, in Nanjing, China. The new species is compared with allied species *S. rhynchioides* (Butler) and *S. scribai* (Bartel).

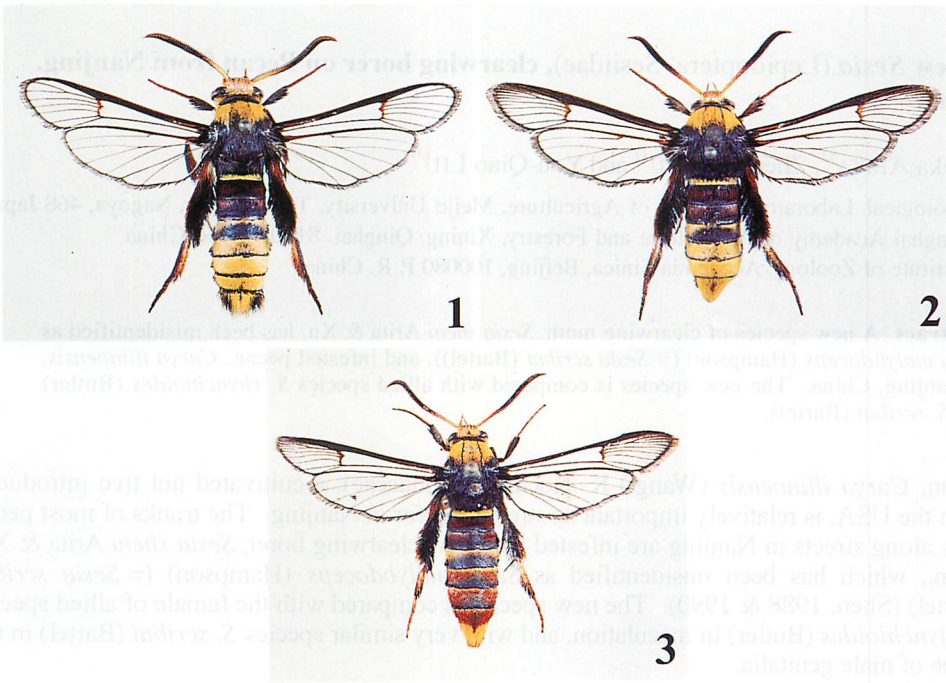
Pecan, *Carya illinoensis* (Wang.) K. Koch (Juglandaceae), a cultivated nut tree introduced from the USA, is relatively important as street trees for in Nanjing. The trunks of most pecan trees along streets in Nanjing are infested by a new clearwing borer, *Sesia sheni* Arita & Xu, sp. n., which has been misidentified as *Sesia molybdoceps* (Hampson) (= *Sesia scribai* (Bartel) (Shen, 1988 & 1990). The new species is compared with the female of allied species *S. rhynchioides* (Butler) in maculation, and with very similar species *S. scribai* (Bartel) in the shape of male genitalia.

## *Sesia sheni* Arita & Xu, sp. n. (Figs 1-6)

*Aegeria molybdoceps*: Shen, 1988: 23 (not Hampson).
*Sesia molybdoceps*: Shen, 1990: 43 (not Hampson).

♂. Alar expanse 26-36 mm. Head with vertex yellow; frons dark fuscous with a gloss, lower half yellow, and with a broad yellow stripe laterally. Occipital fringe yellow. Antenna brown, basal half yellow; ventral side dark brown. Labial palpus yellow; basal and terminal segments orange. Thorax dark fuscous, anterior half vivid yellow; patagial collar dark fuscous with a gloss, yellow laterally; tegula apical 2/3 vivid yellow, posterior 1/3 dark fuscous. Forewing hyaline, costal and dorsal margins blackish fuscous with basal part mixed with reddish brown scales; veins dark fuscous; discal spot reddish brown; cilia dark fuscous. Hindwing hyaline, veins and very narrow outer margin dark fuscous; discal spot hyaline; cilia dark fuscous. Foreleg: coxa orange, base and apex dark fuscous; femur dorsal half orange, ventral half dark fuscous; tibia orange mixed with dark fuscous; tarsus orange. Midleg: coxa dark fuscous; femur dorsal half yellow, ventral half dark fuscous; tibia dark fuscous dorsally, reddish brown ventrally. Hindleg: coxa dark fuscous; femur yellow dorsally, dark fuscous ventrally; tibia ventrally basal half dark fuscous, apical half reddish brown, a white spot at middle; tibia dorsally basal 1/3 yellow, tibial tufts blackish, tips of outer part white; tarsus reddish brown, mixed with dark fuscous. Abdomen: tergite, basal segment black with a narrow, yellow posterior band, 2nd and 3rd dark brown with reddish brown scales on middle, 4th anterior half vivid yellow and posterior half dark brown, broad at center and narrower laterally, 5th-7th and terminal segments vivid yellow with dark fuscous posterior margin, terminal segment mixed with dark brown scales laterally; sternites 2nd and 3rd dark fuscous, 4th yellow with a dark fuscous broad posterior band, 5th-7th yellow with orange posterior margin, terminal segment yellow.

♀. Alar expanse 22-38 mm. Forewing costal, terminal and dorsal margins, and hindwing margins much broader than those of male, particularly broad at apical area; others as in male.




Figs 1-3. *Sesia sheni* sp. n., adults. 1. ♂, paratype. 2. ♀, paratype. 3. ♀, reddish form, paratype.

Variation. In female variable in coloration. The reddish form having abdominal tergites 5th, 6th and basal half of terminal segment reddish brown.

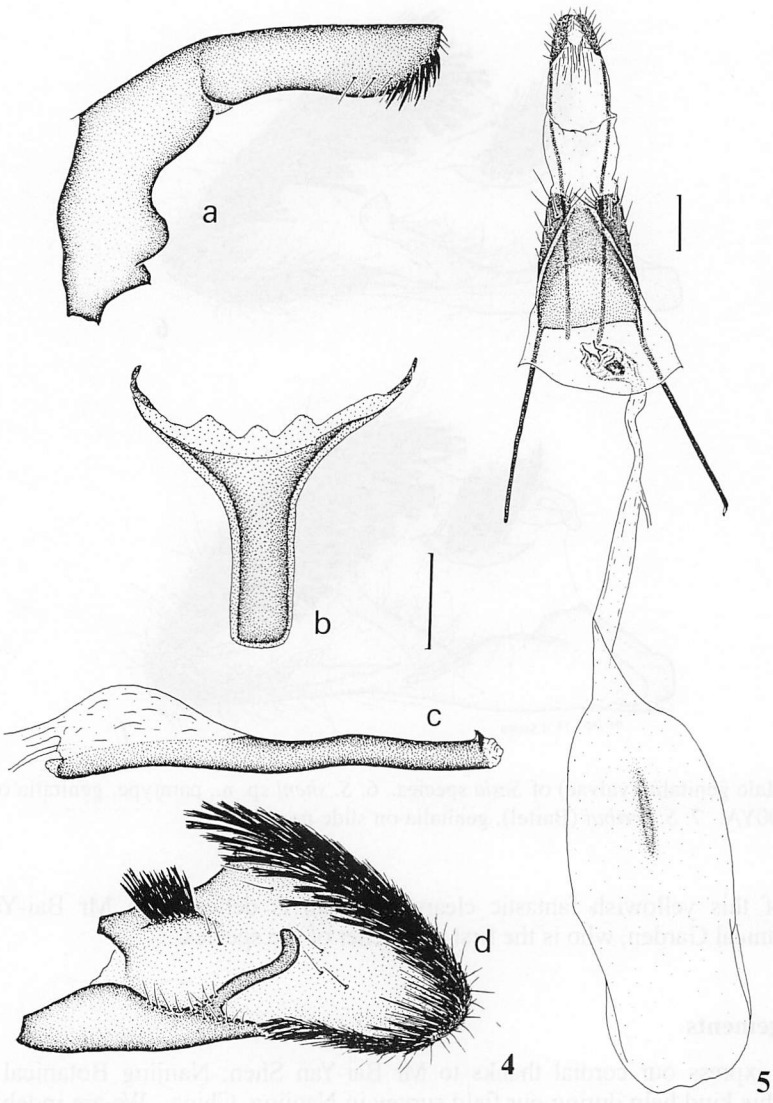
Male genitalia (Figs 4a-d, 6). Uncus very long, apex with short scales ventrally. Tegumen large, moderate. Gnathos very blunt. Saccus long, broad, stout. Valva triangular; apical margin slightly curved, with dense multifulcate scales, ventral corner rounded, with long setaceous scales from ventral corner to nearly middle of ventral margin; dense dark multifulcate scales dorsobasally; an extremely long process at middle of ventral margin. Aedeagus long, slender, apex with an acute row of thorns dorsally.

Female genitalia (Fig. 5). Papilla analis long, slender. Postapophysis longer than antapophysis. Ostium bursae rather small. Antrum quite small, close to base of ductus bursae. Ductus bursae very long, tapering towards base. Corpus bursae extremely large, oblong; signum long, linear.

Holotype. ♂, Nanjing, Jiangsu Prov., China, 29. VIII. 1993, *ex Carya illinoensis*, Y. Arita legit. Paratypes. 24♂20♀, with same data as holotype except 27. VIII-13. IX. 1993, 25. VIII. 1990, VIII. 1988, Shen leg., genitalia on slide nos. ♂ 1600YA and 1620YA, ♀ 1602YA, 1622YA and 1623YA.

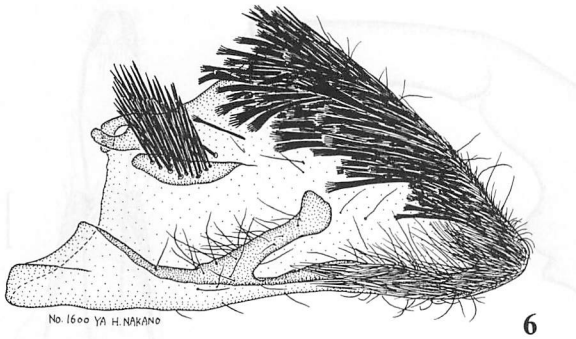
The holotype, and two male and three female paratypes will be deposited in the Institute of Zoology, Academia Sinica, Beijing.

Hostplants. *Carya illinoensis* (Wang.) K. Koch (Juglandaceae); *Quercus suber* Linnaeus, *Q. variabilis* Blume, *Q. acutissima* Carruthers and *Castanea mollissima* Blume (all Fagaceae) (After Shen, 1988).




Figs 4-5. *Sesia sheni* sp. n., male and female genitalia. 4. Male genitalia, paratype (a: uncus and tegumen, b: saccus, c: aedeagus, d: valva), genitalia on slide no. 1620YA. 5. Female genitalia, paratype, genitalia on slide no. 1623YA. Scale line=0.5 mm.

Remarks. The both sexes of *S. sheni* are superficially similar to the female of *S. rhynchioides* in coloration, but the male of the latter species is highly different from them. *S. sheni* does not show a strongly distinct sexual dimorphism in coloration as *S. rhynchioides*. In the shape of valva, *sheni* is very similar to *S. scribai*, but differs from the latter in the long setaceous scales along ventral margin of valva nearly reaching the base of long process of sacculus.

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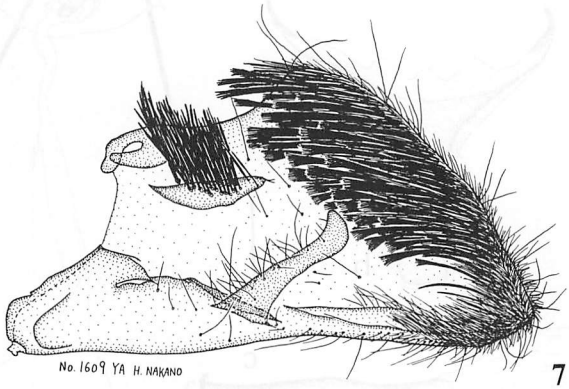


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Figs 6-7. Male genitalia (valvae) of *Sesia* species. 6. *S. sheni* sp. n., paratype, genitalia on slide no. 1600YA. 7. *S. scribai* (Bartel), genitalia on slide no. 1609YA.

The name of this yellowish fantastic clearwing moth is deticated to Mr Bai-Yan Shen, Nanjing Botanical Garden, who is the first researcher of the species.

## Acknowledgements

We wish to express our cordial thanks to Mr Bai-Yan Shen, Nanjing Botanical Garden, Nanjing, for his kind help during our field survey in Nanjing, China. We are indebted to Dr Oleg Gorbunov, Institute of Evolutionary Morphology and Ecology of Animals, Russian Academy of Sciences, Moscow, for the drawing of genitalia (Figs 4-5) in this paper. We are also greatly indebted to Mr Y. Araki, the president and Mr M. Nagai, the head of the Nagoya Office, both of the Natural Environment Co. Ltd., Osaka, for their generous aid to our clearwing moth survey in China.

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*Tinea* **14** (1): 65-68, September, 1994

# A new species of *Sorolopha* (Lepidoptera, Tortricidae: Olethreutinae) from Borneo and Sulawesi

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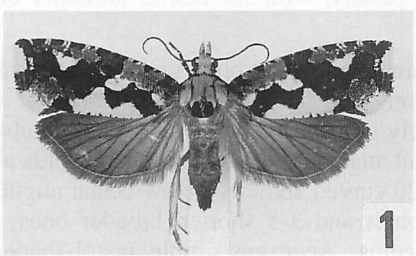
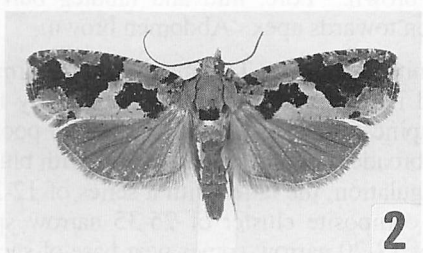
**Abstract** A new species, *Sorolopha bruneiregalis* Tuck & Robinson, is described from montane primary forests in Brunei, Sabah, Sarawak and northern Sulawesi. The adult and genitalia of both sexes are illustrated and the species is compared with its most closely related congener, *S. englyptopa* (Meyrick).

The genus *Sorolopha* ranges through the southeastern Palaearctic and the Indo-Australian region from Nepal to New Caledonia. It consists of about 50 described species and another 30 which have yet to be named. The genus is most richly represented in Thailand, where 28 species are known; by comparison 23 have been recorded from Borneo, 19 from India, nine from China, 13 from New Guinea and four from Australia. *Sorolopha* apparently does not occur in New Zealand. Typically species are a shade of green, often with a dark convoluted apical fascia surmounted by a pale sigma-shaped marking on the forewing. The precise shade of green and the details of the fascia are frequently significant at species-level. One of the more unusual of the unnamed species differs greatly from this colour pattern. It is described below in order to make its name available for a forthcoming paper.

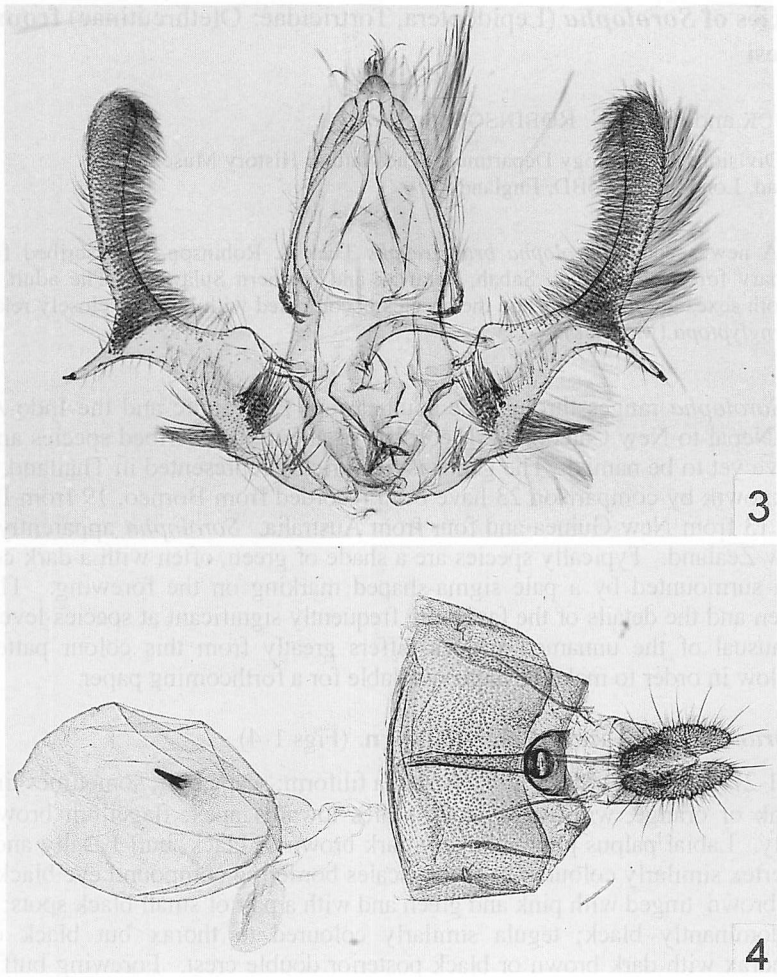
***Sorolopha bruneiregalis*** Tuck & Robinson, **sp. n.** (Figs 1-4)

Adult (Figs 1-2). Wingspan 21-23 mm. Antenna filiform; scape buff, sometimes tinged with lilac and pink or orange, with some black scales towards apex; flagellum brown, darker brown basally. Labial palpus predominantly dark brown or black, buff basally and apically. Frons and vertex similarly coloured to scape; scales bordering compound eye black. Thorax buff or light brown, tinged with pink and green and with a pair of small black spots; patagium usually predominantly black; tegula similarly coloured to thorax but black or brown anteriorly; thorax with dark brown or black posterior double crest. Forewing buff, partially overlaid with black markings, between the latter partially or almost entirely suffused with orange or brown, and with groups of shining leaden grey scales close to costa and tornus; cilia buff, intermittently overlaid with greyish black, sometimes also suffused with orange.




Figs 1-2. Paratypes of *Sorolopha bruneiregalis* sp. n. 1. Female from Mt. Kinabalu, Sabah. 2. Male from Gunung Muajat, Sulawesi.




Figs 3-4. Genitalia of *Sorolopha bruneiregalis* sp. n. 3. Male. 4. Female.

Hindwing brown; cilia brown with a pale basal line. Underside of fore and hindwing almost entirely brown. Fore, mid and hindleg buff basally, with increasing amounts of brown coloration towards apex. Abdomen brown.

Male genitalia (Fig. 3). Tegumen very tall, terminating in short blunt uncus with dorsal tuft of cilia and narrow scales. Socius remarkably long and narrow with apical cluster of short curved spines. Gnathos and subscaphium poorly developed. Vinculum short. Valva rather narrow, broader basally; costa of valva with blunt angulation close to base; sacculus also with blunt angulation, the latter with a series of 12-20 curved spines. Below costal angulation of valva a composite cluster of 25-35 narrow spines and 3-5 shorter, broader ones; another cluster of 12-20 narrow spines near base of sacculus. Aedeagus simple, pistol-shaped, fused with concave diamond-shaped anellus. Pregenital segment of abdomen unremarkable.

Female genitalia (Fig. 4). Papilla analis rather narrow. Sterigma globular with numerous minute spines. Ostium a simple pit. Caudal half of ductus bursae sclerotized, gradually

narrowing towards corpus bursae, sclerotization not ending abruptly but tapering towards right side of ductus bursae. Corpus bursae oval, scobinate; signum a single hollow scobinate spike, without capitulum. Pregenital segment of abdomen rather broad; sternite with areas devoid of scale sockets below and towards sides of sterigma.

Holotype. ♀, Brunei: Bukit Pagon, 1680 m, Landing Point 308, upper montane forest, 15-20. ii. 1982 (G. Robinson). Paratypes. Sabah, Mt Kinabalu: 1♂, 1930 m, "Power Station", vii-ix. 1965 (H. Banks, H. Barlow & J. Holloway); 1♂, 2110 m, Kamborangoh, vii-ix. 1965 (H. Banks, H. Barlow & J. Holloway), genitalia on slide no. 24998; 2♀, 1500 m, nr Kundasang golf course, 17-20. x. 1989, primary montane forest (K. Tuck); Sarawak: 1♀, Gunong Mulu Nat. Park, "Camp 4", 1780 m, grid ref. 453463, (Lower) lower montane forest, i. 1978, RGS Expedition (J. Holloway); N. Sulawesi: 1♂1♀, Dumoga-Bone Nat. Park, Gunung Mogogonipa summit, 1008 m, 18-20. x. 1985, Project Wallace International Expedition (K. Tuck), genitalia on slides nos 24996, 24997; 2♂, Gunung Muajat, 1780 m, 7-8. xi. 1985, Project Wallace International Expedition (G. Robinson). Holotype preserved in The Natural History Museum (BMNH), London, U. K.

Remarks. Specimens from Sulawesi tend to have more extensive orange or brown coloration but less extensive shining leaden grey areas on the forewing. Often they also have a slightly shorter black basal fascia (Fig. 2). Males have fewer but longer spines on the angulation of the sacculus. Such subdivision of a species into seemingly different local populations occurs quite frequently in this genus but, as the differences in the populations tend to intergrade, they are treated here as being of merely infrasubspecific importance.

The new species belongs to the *S. stygiaula* species-group (Diakonoff, 1973: 94) and appears to be most closely related to *S. englyptopa* (Meyrick, 1938), which was described from Java. However, the remarkably bold and striking wing-pattern of the new species distinguishes it immediately from the dull dark brownish green colours of *S. englyptopa*. The latter species is known only from the female, but the male will probably prove to have a similar wing-pattern. The adult female and its genitalia have been illustrated (as *Olethreutes englytopa*, an error) by Clarke (1958: 506-507). The sterigma is more convoluted and the signum is much smaller than in *S. bruneiregalis*.

Bionomy and habitat. Nothing is known of the immature stages of this species. Adults have been collected at MV light in primary forest in montane areas only.

Derivation of name. It is a pleasure to dedicate this new species to Royal Brunei Airlines in recognition of their corporate sponsorship of the Universiti Brunei Darussalam/Royal Geographical Society Brunei Rainforest Project 1991-92 at the Batu Apoi Forest Reserve, Temburong, Brunei and, separately, for their support of the work of the BMNH's Biodiversity Division in South East Asia.

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## 摘　要

Tuck, K. T. & G. S. Robinson: ボルネオ・スラウェシ両島から発見された *Sorolopha* 属の 1 新種

属 *Sorolopha* はハマキガ科・ヒメハマキガ亜科に所属する小属で，旧北区南東部からインド・オーストラリア地区にかけて分布し，約 30 種の未記載種を含めて 80 種程を確認している．これらの大部分は前翅地色が緑色を呈し，斑紋様式が一定していて比較的まとまったグループであるが，そのカラーパターンにおいて著しく異なる種を発見したので，ここに記載した．

検討した標本は著者達自身及び英国自然史博物館のスタッフによって，ボルネオ及び北部スラウェシの山地原始林帯で採集されたものである．

*Tinea* **14** (1): 69-76, September, 1994

# Genus *Metzneria* from Japan (Lepidoptera, Gelechiidae)

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**Abstract** Two Japanese species of the genus *Metzneria* are redescribed. One of them, *M. lappella* (Linnaeus), is newly recorded from Japan.

The genus *Metzneria*, distributed mainly in the Palaearctic region, is distinguished at a glance by a broad, long labial palpus and a sharp, lanceolate forewing. Most members of the genus are known to be associated with Cynareae (Compositae) in Europe. Up to the present, *M. inflammatella* (Cristoph) alone was recorded from Japan by Issiki (1957). In this paper, *M. lappella* (Linnaeus) is newly recorded from Japan. The two species are redescribed in detail, the genitalia of both the sexes are illustrated and the wing markings are shown by photographs.

## Genus *Metzneria* Zeller

*Cleodora* Stephens, 1834, *Illust. Br. Ent., Haustellata* **4**: 220 (nom. preocc.). Type species: *Tinea silacella* Hübner sensu Stephens, 1834 [= *Phalaena (Tinea) lappella* Linnaeus, 1758].

*Metzneria* Zeller, 1839, *Isis, Leipzig* **1839**: 197. Type species: *Gelechia (Metzneria) paucipunctella* Zeller, 1839.

*Parasia* Duponchel, [1846], *Cat. method. Lepid. Eur.*: 350. Type species: *Gelechia (Metzneria) neuropterella* Zeller, 1839.

*Archimetzneria* Amsel, 1936, *Veröff. dt. Kolon. u. Ubersee-Mus. Bremen* **1**: 355. Type species: *Archimetzneria santolinella* Amsel, 1936.

♂♀. Head and face smooth-scaled, neck plumes appressed together; ocellus small, posterior to antennal socket. Labial palpus very long, slightly thickened; 2nd segment with short rough bristly scales above; terminal segment much shorter than 3/5 length of 2nd segment. Maxillary palpus short, 4-segmented, porrect anteriorly or folded over basal part of tongue; if the maxillary palpus is porrect, a rough-scaled crest occurs on the basal part of the tongue. Antenna filiform, 0.60-0.83 times as long as forewing, simple in both sexes; scape slightly flattened at base. Thorax smooth-scaled. Legs long and smooth except for hind tibia, which

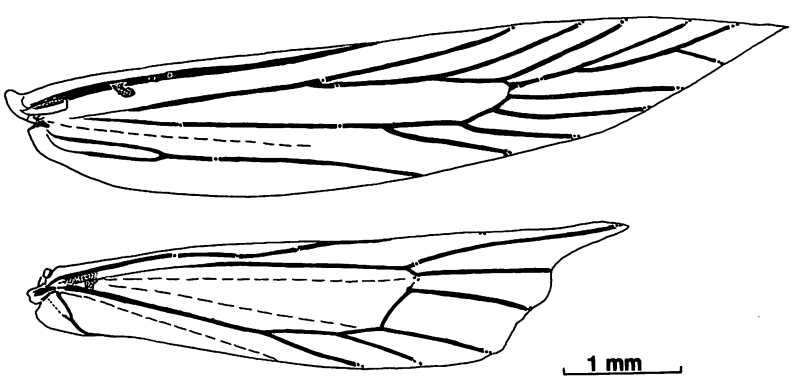


Fig. 1. Wing venation of *Metzneria lappella* (Linnaeus).

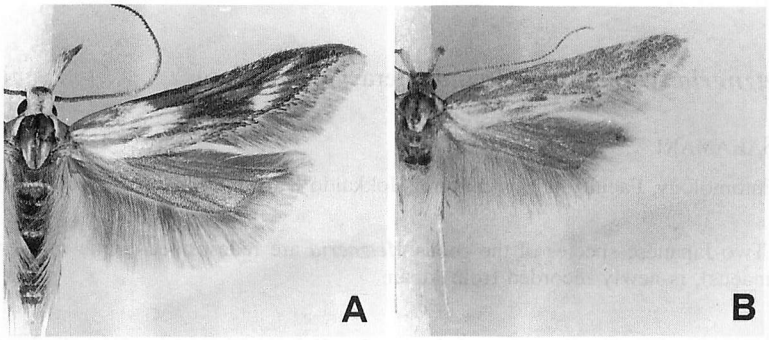


Fig. 2. Wing markings. A. *Metzneria inflammatella* (Christoph). B. *M. lappella* (Linnaeus).

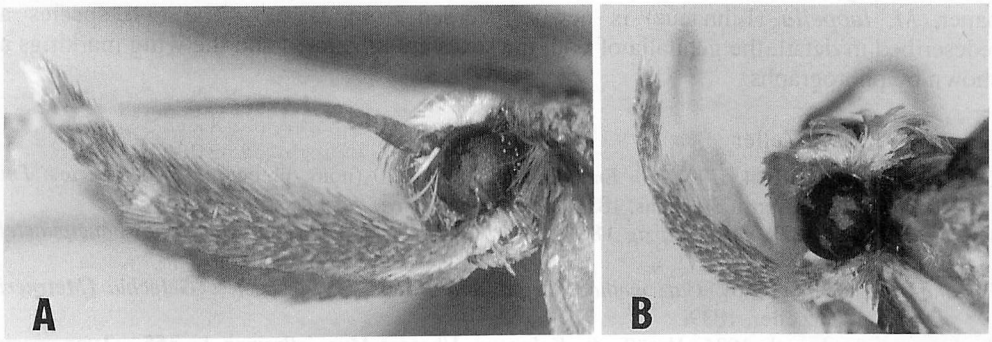


Fig. 3. Labial palpus. A. *Metzneria inflammatella* (Christoph). B. *M. lappella* (Linnaeus).

is thickened with many scales, with dense and long bristly scales above; a pair of calcaria at apex of mid tibia, a further pair at middle of hind tibia and also at the apex.

Forewing (Fig. 1) lanceolate, pointed apically; discoidal cell moderate in length, occupying basal 3/5 of wing; 12-veined; $R_1$ running from basal half of cell to 2/3 of costa; $R_2$ from apical 1/6 of cell; $R_3$ from upper angle of cell; $R_4$, $R_5$ and $M_1$ stalked, with $R_4$ branched from apical 2/3 of $R_5$, $M_1$ branched from apical 1/3 of $R_5$, $R_4$ and $R_5$ running to costa and $M_1$ to termen; $M_2$ running from cell nearer to $R_4+R_5+M_1$ than to $M_3$; $M_3$, $CuA_1$ and $CuA_2$ remote and parallel; 1A and 2A forked at basal 1/4. Hindwing about 7/10-8/10 as long as forewing, trapezoidal, with an acute apex; termen somewhat emarginate and sinuate; discoidal cell moderate in length, occupying basal 3/5 of wing; 9-veined; Sc long, running to basal 4/5 of costa; Rs running to near apex of wing; $M_1$, $M_2$ and $M_3$ remote, but $M_2$ nearer to $M_1$; 1A+2A forked, running to basal 1/8 of dorsum.

Male genitalia. Tegumen short, oblong, strongly sclerotized along cephalic margin. Tuba analis short, wide, membranous. Uncus absent or forming some gentle protuberances, with one or more setae apically. Valva constricted at about middle, broadened towards apex, with numerous thick setae inside; sacculus moderate in size, oval or digitate, with numerous short setae inside. Vinculum widened a little, with a short and pointed saccus. Aedeagus broad, cylindrical, with two or more spinous cornuti.

Female genitalia. Papilla analis triangular in lateral view, moderately or strongly sclerotized, moderate or long, with some setae and spines on almost whole surface; apophysis posterioris long, somewhat thick, clavate apically. Eighth abdominal segment sclerotized wholly, with

some long setae on caudal margin; apophysis anterioris similar to apophysis posterioris in shape, but shorter than the latter. Lamella antevaginalis sclerotized a little. Ostium bursae opened on ventrum of 8th segment, broadened inside, with a short sclerotized antrum in cephalic part of ostium bursae. Ductus bursae short, tubular, membranous; corpus bursae pyriform or oval, membranous, without signum.

Species examined. *Metzneria inflammatella* (Christoph), *M. lappella* (Linnaeus) *M. aestivella* (Zeller), *M. metzneriella* (Stainton), *M. aprilella* (Herrich-Schäffer) and *M. santolinella* (Amsel).

Remarks. This genus is recognized by the combinations of the following characters with a few exceptions: a sharp, lanceorate forewing, 2nd segment of labial palpus more developed, longer than 3rd; apical half of valva triangular; aedeagus broad, cylindrical; papilla analis and 8th abdominal segment developed and strongly sclerotized; bursa copulatrix short, without signum.

So far as known, the species of *Metzneria* are mostly associated with Compositae and exceptionally with Plantaginaceae. Larvae live in fruits or seeds, or form galls on stems in autumn, overwintering therein.

## Key to the Japanese species of *Metzneria*

1. Expanse of wings more than 18.0 mm; 2nd segment of labial palpus porrect anteriorly (Fig. 3-A); mesothorax with a narrow brown line mesally; forewing with longitudinal streaks along veins distinct (Fig. 2-A). In male genitalia, sacculus digitate; aedeagus with two cornuti. In female genitalia, papilla analis more than three times as long as wide (Fig. 4). ..... *M. inflammatella*

— Expanse of wings less than 18.2 mm; 2nd segment of labial palpus somewhat curved upwardly (Fig. 3-B); thorax unicoloured; forewing with longitudinal streaks along veins obscure (Fig. 2-B). In male genitalia, sacculus oval; aedeagus with four or five cornuti. In female genitalia, papilla analis about twice as long as wide (Fig. 5). ..... *M. lappella*

### *Metzneria inflammatella* (Christoph, 1882)

*Parasia inflammatella* Christoph, 1882, *Bull. nat. Moscou* **57** (1): 26.
*Metzneria inflammatella*: Caradja, 1920, *Dt. ent. Z. Iris* **34**: 96; Issiki, 1957, *Icones Heteroc. Jap. Col. Nat.* **1**: 47, pl. 7, fig. 212; Englert, 1974, *Z. ang. Ent.* **75**: 410.

♂♀. Expanse of wings: 18.1-26.8 mm. Length of forewing: 7.9-12.1 mm.

Face yellowish ochre, with fuscous scales around compound eyes; head yellowish ochre, with a longitudinal brown stripe mesally. Labial palpus fuscous, roughly scaled; 2nd segment not recurved, porrect anteriorly, with short, rough, bristly scales of yellowish ochre dorsally; terminal segment a little shorter than 1/2 length of 2nd segment, with yellowish ochre scales dorso-apically. Antenna filiform, brownish fuscous, shorter than forewing. Thorax smooth; pro- and mesothorax yellowish ochre, with a longitudinal brown stripe mesally; tegula brown with a yellowish ochre longitudinal band on dorsal margin; metathorax brownish fuscous, mixed with some pale ochre scales. Legs dark fuscous ventrally and yellowish ochre dorsally; mid tarsus ochre wholly; hind tibia with numerous bristly scales of pale ochre dorsally.

Forewing (Fig. 2-A) yellowish ochre; a large brown blotch occupying median 1/3 and another one also apical 1/4; reddish brown longitudinal streaks running along veins, darkened at apical 2/3 of wing; costal margin dark fuscous; discal stigma large, occupying 1/5 length of wing; cilia ochre, darkened towards tornus. Hindwing greyish, with pale black

streaks along veins; cilia greyish, darkened on costa.

Male genitalia (Fig. 4-A, B). Valva elongated, constricted at about middle; apical half of valva triangular, with numerous long and thick setae on inner surface; sacculus short, digitate, with numerous short setae inside. Uncus consisting of four weakly sclerotized lobes, each of which bears a long seta at the apex. Saccus short and pointed. Aedeagus short, broad, bicuspid shortly, with numerous minute processes apically; two cornuti of long spines.

Female genitalia (Fig. 4-C, D). Papilla analis well sclerotized, long, narrow, with some short setae and some longitudinal plicae on almost whole surface; apophysis posterioris long, somewhat thick. Eighth abdominal segment well sclerotized except on membranous ventrum, with some short setae on caudal margin; apophysis anterioris somewhat broad, shorter than apophysis posterioris. Lamella antevaginalis separated into a pair of oval lobes. Ostium bursae membranous in caudal 1/3; antrum occupying 2/3 of ostium bursae; ductus bursae membranous, moderate in length; corpus bursae membranous, oval; signum absent.

Specimens examined. 4♂9♀. JAPAN [Honsyû]: 1♂1♀, Nika, Maki Town, Niigata Pref., 24. vi. 1970, R. Sato leg.; 1♀, Ôtani, Suzu City, Isikawa Pref., 8. vii. 1991, T. Ueda leg.; 1♂ 1♀, Mt Nekogatake, Suzu City, Isikawa Pref., 8. vii. 1993, T. Ueda leg.; 1♀, Utukusigahara, Nagano Pref., 25-26. vii. 1955, A. Mutuura leg.; 1♀, Komanoyu, Nagano Pref., 28. vi. 1957, A. Mutuura leg.; 1♀, Kisohukusima Town, Nagano Pref., 7. vii. 1977, T. Kumata leg.; 1♂, Kisozihara, Nagawa Vill., Nagano Pref., 30-31. vii. 1992, T. Hirowatari leg.; 1♂, Totimoto, Saitama Pref., 21. vi. 1952, T. Haruta leg.; 1♀, Mt Mikusayama, Osaka Pref., 24. vi. 1993, T. Hirowatari leg.

Distribution. China, Russia (Far East), Korea, Japan (Honsyû).

Host plant. Unknown.

Remarks. This redescription is exclusively based on the Japanese specimens examined. This species is one of the largest moths of the Anomologinae, but is variable in body-size (length of forewing: 7.9-12.1 mm). It is similar to *M. aprilella* (Herrich-Schäffer) in the colour pattern, but is distinguished from *M. aprilella* by the long and porrect 2nd segment of the labial palpus and by the short saccus which is shorter than 1/3 length of the aedeagus, and also from the other species of the genus by the triangular male valva with numerous long and thick setae, by the short, digitate sacculus and by the broad aedeagus with two long cornuti.

***Metzneria lappella*** (Linneaus, 1758)

*Phalaena (Tinea) lappella* Linneaus, 1758, *Syst. Nat.* (ed.10) **1**: 537.
*Parasia lappella*: Heinemann, 1870, *Schmett. Dtl. Schweiz* **2** (1): 292.
*Metzneria lappella*: Pierce & Metcalfe, 1935, *Genit. Tinein.*: 2, pl. 1; Englert, 1974, *Z. ang. Ent.* **75**: 410.
*Tinea silacea* Haworth, 1828, *Lepid. Br.*: 555.
*Tinea silacella*: Stephens, 1834, *Ill. Br. Ent., Haustellata* **4**: 220 (nec Hübner, 1825).
*Parasia aestivella*: Herrich-Schäffer, 1855, *Schmett. Eur.* **5**: 206, fig. 559 (nec Zeller, 1839).

♂♀. Expanse of wings: 13.6-18.0 mm. Length of fore wing: 6.3-8.2 mm.

Face ochre, with fuscous scales occurring along compound eyes; head pale ochre. Labial palpus light brown; 2nd segment long, broad, somewhat curved upwardly, with pale ochre, rough, short, bristly scales above; terminal segment about 1/2 as long as 2nd segment, somewhat rough-scaled. Antenna filiform, about 0.7 times as long as forewing, fuscous. Thorax smooth, pale ochre; tegula ochre, becoming reddish brown towards anterior margin; metathorax pale fuscous. Legs fuscous, with all tarsi pale ochre; hind tibia sprinkled with some ochre scales, with ochre, long, bristly scales above.

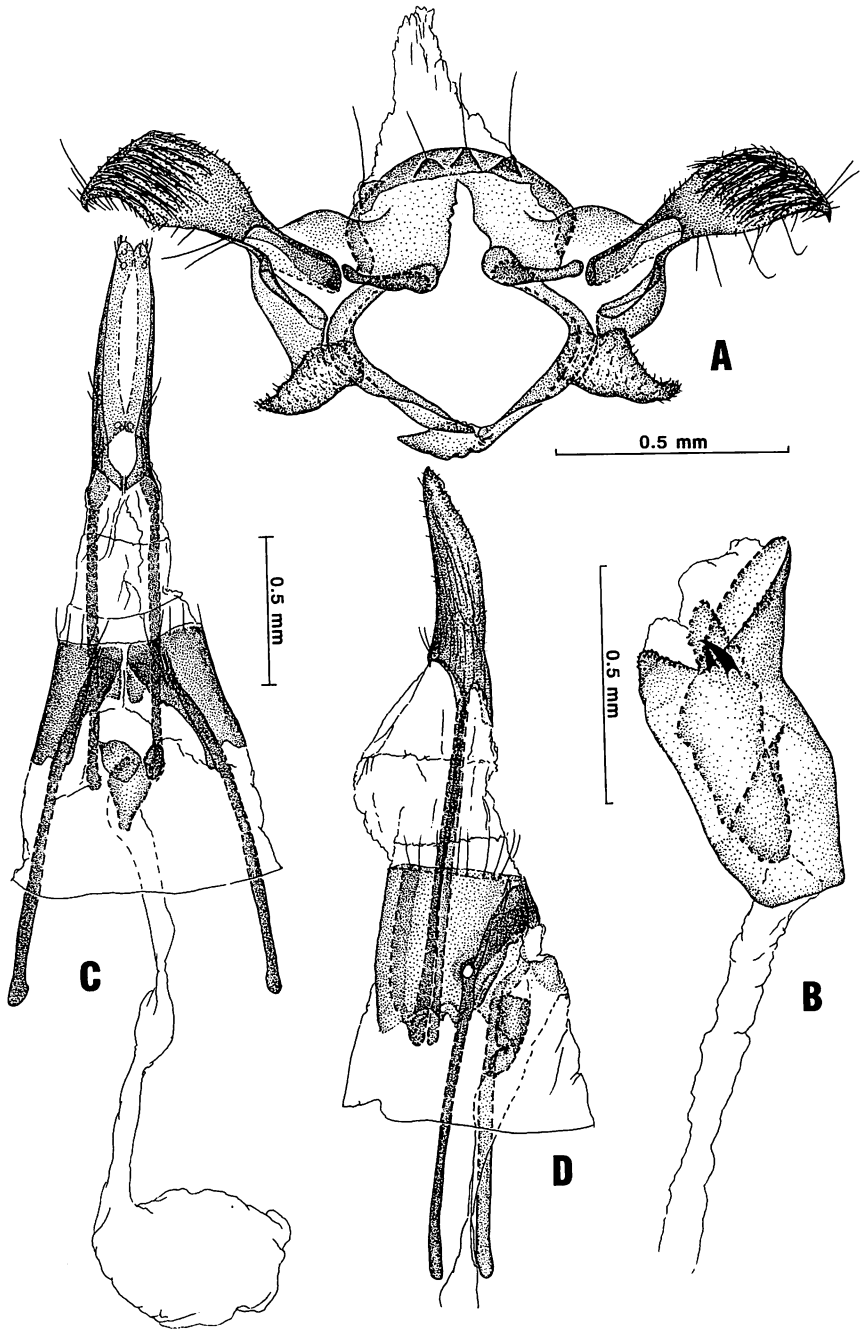


Fig. 4. *Metzneria inflammatella* (Christoph). A. Male genitalia in caudal view, aedeagus omitted. B. Aedeagus. C. Female genitalia in ventral view. D. Female genitalia in lateral view, bursa copulatrix omitted.

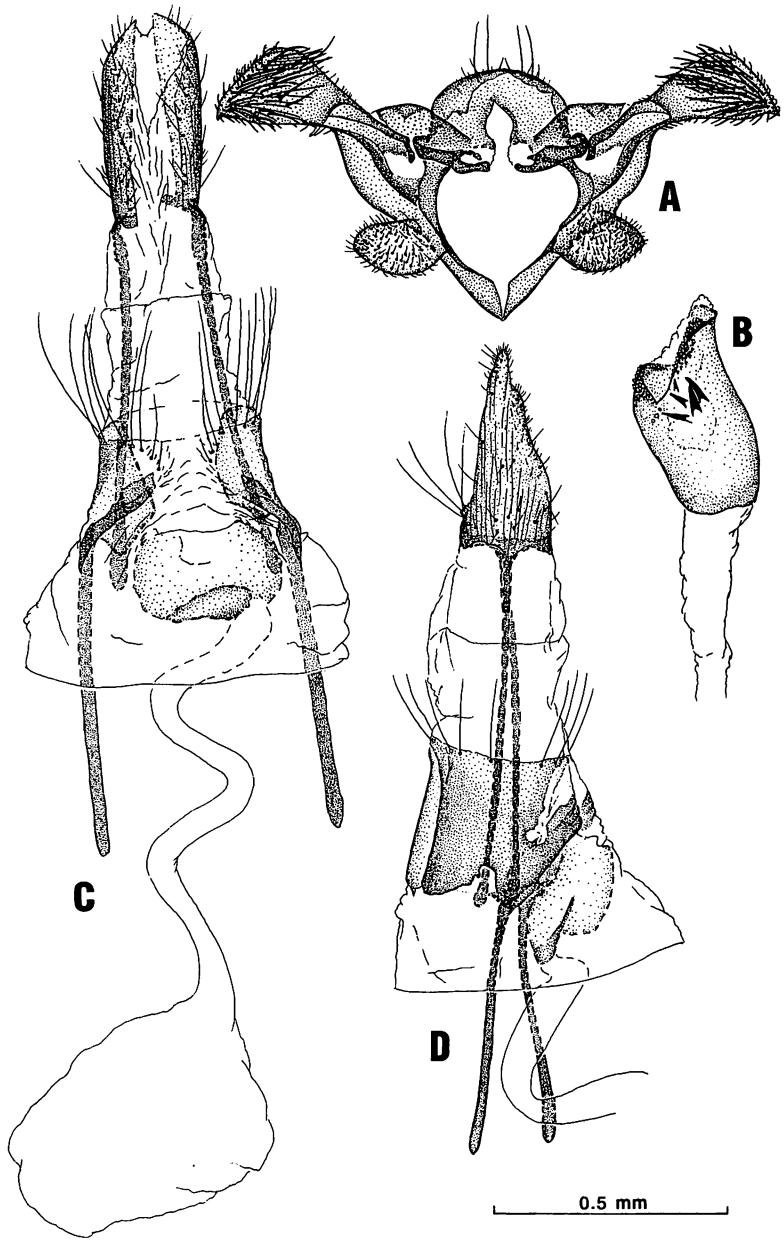


Fig. 5. *Metzneria lappella* (Linnaeus). A. Male genitalia in caudal view, aedeagus omitted. B. Aedeagus. C. Female genitalia in ventral view. D. Female genitalia in lateral view, bursa copulatrix omitted.

Forewing (Fig. 2-B) ochre, darkened towards costal and apical margins, mixed with pale reddish brown scales on whole surface; fuscous longitudinal streaks running along veins, but usually obscure; an elongated, obscure plical stigma at basal 2/5 of wing; cilia ochre, with a fuscous subbasal line; apical 1/3 of cilia pale fuscous. Hindwing greyish fuscous; cilia grey.

Male genitalia (Fig. 5-A, B). Valva elongated, constricted at about middle; apical half of valva triangular, with numerous thick setae on inner surface; sacculus oval, with numerous short setae inside. Uncus membranous, very slightly bilobed, with some short setae and two pairs of long ones apically. Saccus very short, somewhat pointed. Aedeagus short, broad, shortly bicornate apically, with numerous fine processes apically, and with three long and two short spine-like cornuti.

Female genitalia (Fig. 5-C, D). Papilla analis sclerotized, moderate in length, with some short setae and some longitudinal plicae on almost whole surface; two pairs of long setae occurring in dorso-cephalic area; apophysis posterioris long, somewhat thick. Eighth abdominal segment sclerotized, with a pair of long membranous blotches running from ventro-caudal area to base of apophysis; some long setae occurring on caudal margin; apophysis anterioris somewhat broad, shorter than apophysis posterioris. Ostium bursae very weakly sclerotized; antrum sclerotized in a long triangle; ductus bursae membranous, moderate in length; corpus bursae membranous, oval; signum absent.

Specimens examined. 6♂4♀. JAPAN [Hokkaidô]: 1♂, Rebun Is., Sôya, 15. vii. 1955, T. Kumata leg.; 2♂1♀, Kunneppu Town, em. 9-12. vi. 1987, *ex Arctium lappa*, H. Torikura leg.; 1♀, Misumai, Sapporo City, 27. vii. 1992, Y. Sakamaki leg.; 1♂, Okusiri Is., Hiyama, 18. vii. 1958, T. Kumata leg. DENMARK: 1♂2♀, Mellemakoven, 13. vii. 1956, E. Traugott-Olsen leg.; 1♂, Boserup skov, 20. vi. 1961, E. Traugott-Olsen leg.

Distribution. North America, Europe, Central Asia and Japan (Hokkaidô) (new record).

Host plants. *Arctium lappa*, *A. tomentosum*, *A. nemerosum* and *A. minus* (Compositae).

Remarks. This redescription is based only on the Japanese specimens, which are not different from the European ones except for size (forewing 6.3-8.2 mm long in the Japanese specimens, 7.9-9.5 mm in the specimens from Denmark). Larvae of this species live gregariously in an inflorescence of the host plant, feed on the seeds in autumn and overwinter therein.

## Acknowledgements

I wish to express my sincere thanks to Dr T. Kumata, Hokkaido University, for his kindness in offering specimens, in giving advice and in critical reading the manuscript. For the loan or presentation of specimens and valuable information I am most grateful to Dr O. Karsholt, Zoologisk Museum, Copenhagen; Drs T. Yasuda, S. Moriuti, T. Hirowatari and Mr T. Ueda, University of Osaka Prefecture, Sakai; and Dr H. Torikura, Hokkaido Prefectural Tokati Agricultural Experiment Station, Nemuro.

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## 摘　要

坂巻祥孝：日本産 *Metzneria* 属について(鱗翅目，キバガ科)

主に旧北区に分布する *Metzneria* 属は，外見上太く長い labial palpus と鋭い披針形の前翅で特徴づけられ，寄主植物は主にアザミ族(キク科)である．現在まで我が国からは *Metzneria inflammatella* (Christoph) オオトガリキバガが知られるのみであったが，今回北海道から新たに *M. lappella* (Linnaeus) ゴボウトガリキバガ（新称）が見つかったので，ここにその 2 種を詳細に比較し，再記載を行った．なお日本新記録のゴボウトガリキバガは全北区に広く分布する．幼虫は秋にゴボウの頭花に集団で潜り，種子を食害し，その頭花のなかで越冬，春に蛹化する．

参考のため以下に外部形態に基づく日本産 *Metzneria* 属の検索表を示す．

1．開張 18.0 mm 以上，labial palpus の第 2 節は長く前方に突出する (Fig. 3-A)．中胸背面の中央に褐色縦線がある．前翅脈に沿う褐色縦線は明瞭 (Fig. 2-A)．雄交尾器の sacculus は指状で，aedeagus には 2 本の cornuti を備える (Fig. 4-A, B)．雌交尾器では papilla analis は縦長で，その長さは幅の 3 倍以上 (Fig. 4-C, D) ..... *M. inflammatella*

— 開張 18.2 mm 以下，labial palpus の第 2 節は上向きに曲がる (Fig. 3-B)．中胸背面は単色．前翅脈に沿う褐色縦線は不明瞭 (Fig. 2-B)．雄交尾器の sacculus は丸く，aedeagus には 4-5 本の cornuti を備える (Fig. 5-A, B)．雌交尾器では papilla analis は縦長にならず，その長さは幅の 2 倍程度 (Fig.5-C, D) ..... *M. lappella*

**TINEA 原稿作成について**

TINEA では第 14 巻からカラー化に伴って，編集（組版）をコンピュータ化していますので，原稿をワープロ（専用機）またはコンピュータで作成されている方は，フロッピーディスク（以下「FD」と略）を添付していただくようお願いいたします．ただし現在はまだ読み込めるFDの種類に制限がありますので，以下の要領にて変換していただければ幸いです．

マッキントッシュ FD: マックライトII，EG Word，MS Word 以外のワープロソフトの場合にはテキスト・ファイル形式．

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