NEW OR LITTLE KNOWN MOTHS FROM FORMOSA (4)

MASAO OKANO

This paper deals with fourteen Formosan species belonging to the families Geometridae, Drepanidae, Notodontidae and Arctiidae. Among them five species and six subspecies are described as new to science.

Before going further, I wish to express my gratitude to Mr. Jozaburo Okura for his gift of valuable specimens. I am also indebted to Mr. Hiroshi Inoue for his advice.

Unless otherwise stated, the specimens mentioned in this paper are preserved in my collection.

GEOMETRIDAE

Chloromachia gavissima formosana subsp. nov.

(Pl. 8, fig. 4)

♀. Markings of wings stronger than in the figure of the nominate subspecies shown in Seitz, 12, pl. 11e, but weaker than in subsp. aphrodite Prout from West China and Chinese Tibet.

Length of forewings : 20 mm. (♀).

Habitat : Formosa.


Paratype : Data as holotype, 1 ♀.

Comibaena takasago sp. nov.

(Pl. 8, fig. 5)

Similar to C. nigromaculata Leech and C. delicatior Warren, but readily separable from them by the following points :

♀. Forewings without reddish anal spot ; antemedial line nearly straight ; postmedial line angled inwards at vein 5. Hindwings without reddish or purplish apical spot and yellowish terminal bordering and anal spot ; postmedial line nearly parallel with termen, white, edged with blackish.

Male genitalia : Very similar to those of nigromaculata and delicatior, but apex of costa much stronger, with several teeth ; caudal margin of eighth sternite not strongly
produced, without process.

Length of forewings: 14 mm. (♂).
Habitat: Formosa.

**Callygris compositata formosana** subsp. nov.

(Pl. 8, fig. 6)

♂. Forewings with yellow spot at anal angle. Hindwings with black submarginal spots much more reduced above vein 4 than in the nominate subspecies from Honshu, Shikoku, Kyushu, Korea and China.

Length of forewings: 22—23 mm.
Habitat: Formosa.
Paratypes: Data as holotype, 2 ♂♂ (1♂ in coll. H. INOUE).

**Descoreba simplex inouei** subsp. nov.

♀♂. Forewings darker than in the nominate subspecies from Honshu, Shikoku, Kyushu, Amur and Ussuri. Hindwings usually irrorated with dark grey scales; postmedial series of dark dots usually developed.

f. inouei OKANO

(Pl. 8, figs. 1—2)

♀♂. Forewings with dark postmedial line.
Length of forewings: 23 mm. (♂), 26 mm. (♀).
Habitat: Formosa.
Allotype ♀: Data as holotype.
Named after Mr. HIROSHI INOUE.

f. punctata nov.

(Pl. 8, fig. 3)

♀♂. Postmedial line of forewings replaced by a series of dark dots on veins.
Length of forewings: 21—23 mm. (♂), 26 mm. (♀).
Habitat: Formosa.
Allotype ♀: Type locality, March—April, 1959.
Paratype: Data as holotype, 1 ♂.
Callicilix abraxata formosana subsp. nov.  
(Pl. 8, fig. 7)  

♀. Similar to the nominate subspecies from Hokkaido, Honshu, Shikoku, Kyushu and Yakushima, but larger in size. Forewings with basal spots larger; medial band arising from middle of costa; subterminal band not interrupted between veins 7 and 2. Hindwings with subterminal band more developed.  
Length of forewings: 22 mm. (♀).  
Habitat: Formosa.  
Paratype: Data as holotype, 1 ♀.

NOTODONTIDAE

FORMOSAN SPECIES OF THE GENUS Dudusa

Two distinct species of the genus Dudusa occur in Formosa, and both the moths are easily distinguished by the following key.

1 (2) Forewings light grey; ante- and postmedial lines marked with a silvery white spot at costa. Saccus longer than half the length of valva; valva pointed at end; costa not broadened at apical half; harpe projecting interiorly .......................................................... nobilis baibarana MATSUMURA

2 (1) Forewings dark grey (in f. fumosa MATSUMURA) or yellowish brown (in f. horishana MATSUMURA); ante- and postmedial lines not marked with such spot. Saccus shorter than one third the length of valva; valva roundish at end; costa broadened at apical half; harpe projecting posteriorly .......... fumosa MATSUMURA

Dudusa nobilis baibarana (MATSUMURA) stat. nov.  
(Pl. 7, fig. 1)

Dudusa baibarana MATSUMURA, Ins. Mats., 4 : 37, pl. 1, f. 10, ♀, 1929 (Horisha and Baibara).  
Dudusopsis baibarana MATSUMURA, Ins. Mats., 4 : 81, 1929 (Formosa).  
Dudusa nobilis GAEDE (part.), in SEITZ, Macrolep. World, 10 : 608 (Formosa).  
Dudusa nobilis f. baibarana MATSUMURA (part.), Ins. Mats., 8 : 161, 1934 (Formosa).  

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Specimens examined: Jen-ai-hsi-ang, Nantow hsien, Central Formosa, May, 1958, 1♂; Sept., 1958, 1♂; Lushan, Nantow-hsien, Central Formosa, Sept., 1959, 3♂♂ 1♀.

As Matsumura (1934) stated, baibarana seems to be a representative of *D. nobilis* Walker occurring in Formosa. The Formosan specimens, compared with the figure of the nominate subspecies shown in Seitz, 10, pl. 79b, are more prominent in the markings of the forewings.

**Dudusa fumosa** Matsumura

**f. fumosa** Matsumura

(Pl. 7, fig. 2)


*Dudusopsis fumosa* Matsumura, Ins. Mats., 4: 81, 1929 (Formosa).

*Dudusa fumosa* Gaede, in Seitz, Macrolep. World, 10: 608, 1930 (Formosa).


*Dudusa fumosa* Matsumura, Ins. Mats., 8: 161, 1934 (Formosa).


Specimen examined: Lushan, Nantow-hsien, Central Formosa, Sept., 1959, 1♀.

**f. horishana** (Matsumura) stat. nov.

(Pl. 7, fig. 3)


*Dudusa nobilis* Matsumura (nec Walker), Zool. Mag., Tokyo, 34: 523, 1922 (Horisha).

*Dudusa nobilis* Matsumura (nec Walker), Zool. Mag., Tokyo, 37: 406, 1925 (Formosa).


*Dudusa nobilis* synopla Matsumura (nec Swinhoe), Ins. Mats., 4: 80: 1929 (Formosa).


*Dudusa nobilis* synopla Gaede (nec Swinhoe), in Seitz, Macrolep. world, 10: 608, 1930 (Formosa).

Dudusa nobilis f. baibarana MATSUMURA (part.), Ins. Mats., 8 : 161, 1934 (Formosa).
Dudusopsis horishana KATO, Three Colour Illus. Ins. Jap., fasc. 12, pl. 1, f. 4, [♀]. 1934 (Formosa).

Dudusa baibarana var. horishana GAEDE, in STRAND, Lep. Cat., 59 : 6, 1934 (Formosa).

Dudusa nobilis var. synopla GAEDE (part.), in STRAND, Lep. Cat., 59: 6, 1934 (Formosa).

Specimens examined: Jen'ai hsiang, Nantow hsien, Central Formosa, May, 1958, 1♀; June—July, 1958, 1♂; Sept., 1958, 1♂ 1♀; Lushan. Nantow hsien, Central Formosa, Sept., 1959, 1♂.

Horishana was regarded as a synonym of D. nobilis f. baibarana by MATSUMURA (1934) or as a variety of D. baibarana by GAED (1934). It, however, is identical with D. fumosa on the male genital structure, and seems to be a form of the species.

Judging from the opinion of MATSUMURA (1929), the form recorded as synopla from Formosa must be f. horishana.

Both fumosa and horishana are found in the same season at the same locality in Central Formosa, but the former is by far much rarer than the latter.

Stauropus lushanus sp. nov.

(Pl. 7, fig. 4)

♀. Labial palpi dark brown. Head and thorax dark brown, mingled with whitish hair. Abdomen light brown; anal tuft yellowish white. Pectus and abdomen below yellowish white. Forewings blackish brown, densely dusted with green scales; basal and terminal areas yellowish white, sparsely dusted with blackish brown; antemedial line yellowish white, angled outwards below costal margin, inwards on submedial fold, then oblique outwards, waved; postmedial line yellowish white, excurred to vein 4, then oblique inwards, angled inwards below vein 3, then oblique outwards, waved; subterminal and terminal spots blackish brown; cilia whitish, checked with blackish brown. Hindwings yellowish white; apical patch blackish brown, sparsely dusted with green scales; postmedial line on costal area, yellowish white; cilia whitish. Underside. Forewings greyish brown. Hindwings yellowish white.
Length of forewings: 21 mm. (♀).

Habitat: Formosa.


This species is similar to S. sikkimensis Moore from Sikkim, but is easily separable from it by the size smaller, the forewings with medial area more blackish, and by the hindwings less roundish.

Desmeocraera okurai sp. nov.

(P1. 7, fig. 5)

♀. Similar to D. viridipicta Wileman from Honshu, Shikoku, Kyushu and Formosa, but forewings narrower, with termen more oblique; ground colour of forewings blackish brown, densely dusted with whitish scales; base and termen densely dusted with green scales; veins blackish; indistinct postmedial line followed by a large triangular patch below costa and a roundish spot in spaces 3, 2, 1b and 1a, which are blackish and densely dusted with green scales; subterminal line blackish, distinct, waved. Underside of hindwings whiter than in viridipicta.

Male genitalia: Similar to viridipicta, but tegumen without latero-caudal process; ventral margin of valva angled before the end; caudal margin of eighth sternite with a semicircular indentation at the middle.
Figs. 9–11. Male genitalia of *Desmeocraera okurai* Okano. 9. lateral view, right valva removed; 10. ventral view; 11. eighth sternite.

Length of forewings: 20–22 mm (♀).

Habitat: Formosa.


Paratype: Jen-ai-hsiang, Nantow-hsien, Central Formosa, March—April, 1958, 1♂.

Named after Mr. Jōzaburō Ōkura.

**Desmeocraera lineata** sp. nov.

(Pl. 7, fig. 6)

♀♂. Larger than *D. viridipicta*. Forewings blackish brown, densely dusted with green scales, in female mingled with whitish scales on the area between postmedial and subterminal lines; subbasal, ante- and postmedial lines double, blackish, with white scales; antemedial line nearly straight to hind margin; reniform whitish, indistinct; postmedial line angled outwards below costa and in space 3, inwards at vein 5, then oblique inwards; behind it, a large triangular patch below costa and a roundish spot in spaces 3, 1b and 1a, which are blackish and dusted with green scales, more developed in female than in male; subterminal line blackish, waved. Hindwings as in *viridipicta*, but costal patch narrower.

Male genitalia: Similar to *D. okurai*, but ventral margin of valva rounded before the end; caudal margin of eighth sternite weakly sinuous.

Length of forewings: 23 mm. ♀, 23 – 25 mm. (♀).

Habitat: Formosa.


Paratype: Data as allotype, 1 ♀.

The female of *D. marginalis* Matsumura is similar to that of this species, but is easily separable from it by the larger size and the forewings with subterminal line situated nearer to termen.

**Pseudofentonia bipunctata** sp. nov.

(Pl. 7, fig. 7)

♀. Antennae serrate and fasciculate. Labial palpi deep brown, with whitish tip. Head and thorax greyish white, mingled with blackish hair. Abdomen yellowish brown; anal tuft greyish white. Pectus and abdomen below yellowish white. Forewings greyish white, sparsely dusted with blackish and yellowish scales; antemedial line double, blackish, faint, oblique outwards, waved; postmedial line double, blackish, only distinct at costa and hind margins, marked by a large blackish spot on veins 5 and 2; subterminal line represented by three blackish spots on costal area; a series of blackish spots before termen; cilia greyish white, checked with brown. Hindwings pale greyish brown; cilia brown. Underside. Forewings pale greyish brown. Hindwings greyish white, tinged with brown.
Length of forewings: 21–23 mm. (♀).

Habitat: Formosa.

Holotype: Jen-ai-hsiang, Nantow-hsien, Central Formosa, March–April, 1959.

Paratypes: Data as holotype, 2♀♂.

This new species is easily distinguished from the known species of the genus by the peculiar markings on the forewings.

Figs. 15–16. Male genitalia of Pseudofenionia bipunctata (♀), lateral view, right valva removed; 16. ventral view.

Phalera fuscescens obscura (WILEMAN) stat. nov.

(Pl. 7, fig. 8)

Phalera obscura WILEMAN, Entomologist, 43: 138, 1910 (Kanshirei).


Phalera obscura MATSUMURA, Zool. Mag., Tokyo, 34: 519, 1922 (Formosa).


Phalera obscura MATSUMURA, Zool. Mag., Tokyo, 37: 407, 1925 (Formosa).

Phalera raya GAEDE (Part.), in SEITZ, Macrolep. World, 10: 613, 1930 (Formosa).

Phalera obscura MATSUMURA, 6000 Illus. Ins. Jap.: 653, f. 225 (as P. flavomacula WILEMAN), ©, 1931 (Hori).

Phalera obscura MATSUMURA, Ins. Mats., 8: 173, 1934 (Formosa).


Specimens examined: Jen-ai-hsiang, Nantow-hsien, Central Formosa, March–April, 1959, 1♀; Lushan, Nantow-hsien, Central Formosa, Sept., 1959, 2♀♂.

A closer examination revealed that obscura is not a good species or a synonym of P. raya MOORE, but apparently representing the Formosan subspecies of P. fuscescens BUTLER.

From subsp. fuscescens from Honshu, Shikoku and Kyushu it may be separated in the following points.

ARCTIIDAE

Paraona staudingeri formosana subsp. nov.

♂♀. Forewing with bluish gloss much weaker than in the nominate subspecies from Hokkaido, Honshu, Shikoku, Kyushu, Korea, Ussuri and China. Hindwings white or grey.

f. formosana OKANO

(Pl. 8, fig. 8)

♂♀. Hindwings uniformly white.
Length of forewings: 19–21 mm. (♂), 22–23 mm. (♀).
Habitat: Formosa.
Holotype ♂: Jen-ai-hsiang, Nantow-hsien, Central Formosa, March–April, 1959.
Allotype ♀: Data as holotype.
Paratypes: Type locality, May, 1958, 2♂; March–April, 1959, 3♂3♀.
P. fukiensis DANIEL occurring in Fukien is similar to this new form in having in the white hindwings, but the expanse is larger, and the veins and cilia of hindwings are blackish.

f. grisea nov.

(Pl. 8, fig. 9)

♂♀. Hindwings uniformly grey.
Length of hindwings: 20–21 mm. (♂), 22–23 mm. (♀).
Habitat: Formosa.
Holotype ♂: Jen-ai-hsiang, Nantow-hsien, Central Formosa, March–April, 1959.
Allotype ♀: Data as holotype.
Paratypes: Type locality, May, 1958, 1♀; March–April, 1959, 1♂.

Areas galactina formosana subsp. nov.

(Pl. 8, fig. 10)

Areas galactina MATSUMURA (part.), Thous. Ins. Jap., Suppl. 3: 24–25, pl. 32, f. 1, ♀ (nec ♀), 1911 (Formosa).
Pericallia galactina MATSUMURA (part.), Ins. Mats., 5: 71, 1930 (Formosa).
Pericallia galactina HIRAYAMA (nec HOEVEN), Genshoku Senshu Zoku Konchū Zufu, pl. 51, f. 4, ♂ (nec ♀), 1937 (Musha).
Most closely related to the nominate subspecies from Java in colour and markings, but abdomen with black dorsal spots much larger. Hindwings not haired pink on anal fold, without postmedial spot on vein 2.

Length of forewings: 33–35 mm. (♀).

Habitat: Formosa.

Holotype ♀: Jen-ai-hsiang, Nantow-hsien, Central Formosa, March–April, 1959.

Paratypes: Data as holotype, 4♀♂.

Explanation of plates

Plate 7.


Fig. 2. *Dudusa fumosa* f. *fumosa* Matsumura, ♀. Lushan, Nantow-hsien, Central Formosa, Sept., 1959.


Fig. 4. *Stauropus lushanus* Okano, ♀ (holotype). Lushan, Nantow-hsien, Central Formosa, Sept., 1959.

Fig. 5. *Desmeocraera okurai* Okano, ♀ (holotype). Lushan, Nantow-hsien, Central Formosa, Sept., 1959.

Fig. 6. *Desmeocraera lineata* Okano, ♀ (holotype). Jen-ai-hsiang, Nantow-hsien, Central Formosa, Sept., 1958.

Fig. 7. *Pseudofentonia bipunctata* Okano, ♀ (paratype). Jen-ai-hsiang, Nantow-hsien, Central Formosa, March–April, 1959.

Fig. 8. *Phalera fuscescens obscura* Wileman, ♀. Lushan, Nantow hsien, Central Formosa, Sept., 1959.
Plate 8.


Fig. 3. *Descoreba simplex inouei* f. *punctata* OKANO, ♂ (holotype). Jen-ai-hsiang, Nantow hsien, Central Formosa, May, 1958.

Fig. 4. *Chloromachia gavissima formosana* OKANO, ♀ (holotype). Jen ai hsiang, Nantow hsien, Central Formosa, June—July, 1958.

Fig. 5. *Comibaena takasago* OKANO, ♂ (holotype). Jen ai hsiang, Nantow hsien, Central Formosa, May, 1958.

Fig. 6. *Callygris compositata formosana* OKANO, ♀ (holotype). Jen ai hsiang, Nantow hsien, Central Formosa, June—July, 1958.

Fig. 7. *Callicilix abraxata formosana* OKANO, ♀ (holotype). Lushan, Nantow hsien, Central Formosa, Sept., 1959.


Fig. 9. *Paraona staudingeri formosana* f. *grisea* OKANO, ♂ (paratype). Jen ai hsiang, Nantow hsien, Central Formosa, March—April, 1959.

Fig. 10. *Areas galactina formosana* OKANO, ♂ (holotype). Jen ai hsiang, Nantow hsien, Central Formosa, March—April, 1959.
M. Okano: New or little known moths from Formosa