

NEW NOCTUIDAE TAXA FROM TAIWAN (LEPIDOPTERA)*

GÁBOR RONKAY¹ and LÁSZLÓ RONKAY²

1. Szt. István krt. 4., H-1137 Budapest, Hungary.

2. Department of Zoology, Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13,
Hungary. E-mail: ronkay@zoo.zoo.nhmus.hu

ABSTRACT - Descriptions of a new Noctuidae genus, *Taipsaphida* gen. n. and seven new species, *Anaplectoides semivirens*, *Orthosia atriluna*, *Cucullia jungtaichaoi*, *Taipsaphida curiosa*, *Hemiglaea eupompa*, *Leucapamea chienmingfui* and *Cosmia hanrongtzuooi* spp. n. from Taiwan are given. Thirty-three figures are provided.

KEY WORDS: Noctuidae, New genus, New species, Taiwan

INTRODUCTION

The taxonomic and faunistical studies of the Hungarian team of Noctuidae specialists on the Taiwanese Noctuidae has been started for a decade ago, as a part of a project for the exploration of the Noctuidae fauna of the wide sense Himalayan region. These studies resulted in the discovery of numerous new Noctuidae taxa, a part of which has recently been described (Hreblay and Ronkay, 1997; 1998).

The thorough survey of the Noctuidae material of the collections deposited in Taiwanese zoological institutes and museums, and at non-professional lepidopterists has been started in 1999, within the framework of a joint research project of the Taiwan Forestry Research Institute, Taipei and the Hungarian Natural History Museum, Budapest. Present

paper is the first in a series dealing with the taxonomic novelties of these investigations.

Abbreviations:

TFRI - Taiwan Forestry Research Institute, Taipei

HNHM - Hungarian Natural History Museum, Budapest

NMNS - National Museum of Natural Science, Taichung

SYSTEMATIC PART

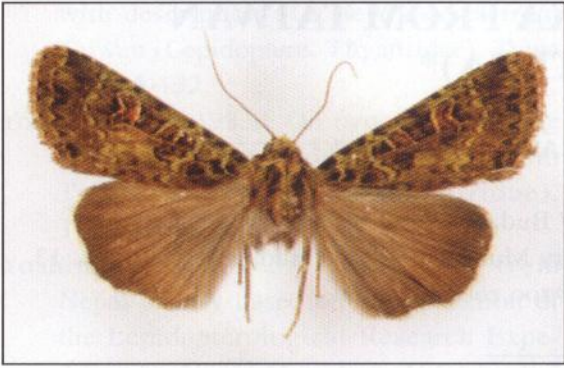
Anaplectoides semivirens sp. n.

(Figs 1-2)

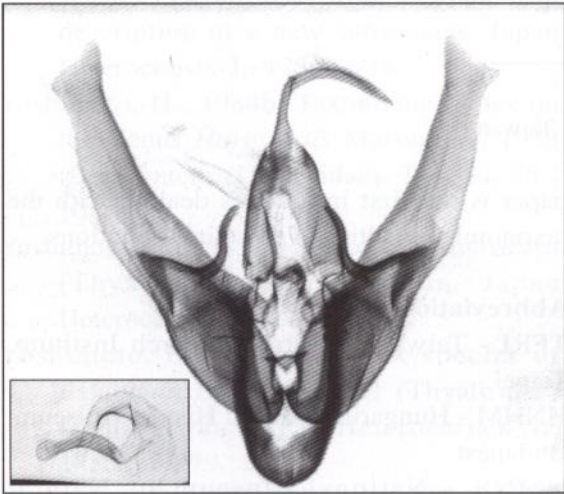
Holotype: male, Prov. Ilan, Taipingshan, 26.VII.1990, leg. Y.C.Wang (coll. TFRI Taipei). Slide No. RL6590.

Diagnosis: The new species is confusingly

*(Results of the joint project of the HNHM and the TFRI, entitled with "Biodiversity studies on the Macrolepidoptera fauna of Taiwan: taxonomy, faunagenetics and inventory of selected lepidopteran families", No. 1.)



Text-figure 1

Anaplectoides semivirens sp. n., holotype

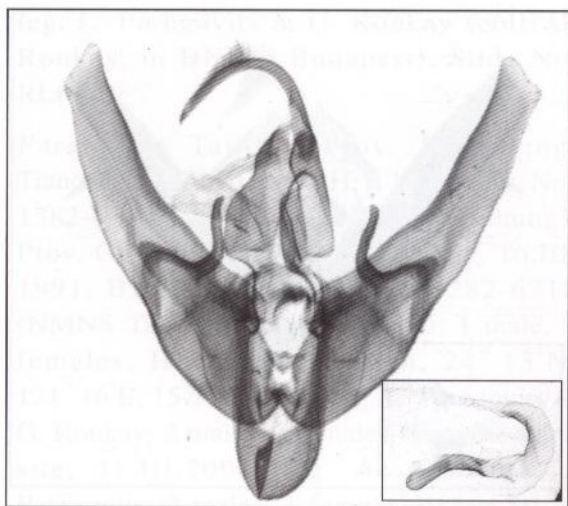
Text-figure 2

Anaplectoides semivirens sp. n., holotype

similar externally to the taxa of the *A. virens* (Butler, 1878) species-group (*virens*, *tamsi* Boursin, 1955, *atrovirens* Sugi, 1995 and *inexpectata* Dierl, 1983, respectively), representing an allopatric sister species of *A. virens*, distributed widely in the Pacific area (Japan, Korea, Manchuria, Russian Far East). These five species are hardly separable by their external features, the variation of whose are usually overlapping, but are easily distinguishable by the configuration of the genitalia (see Boursin, 1955; Dierl, 1983;

Hreblay and Plante, 1995). The male genitalia of *A. semivirens* (Fig. 2) differ from those of *A. virens* (Figs 3-5) by the distally strongly, more evenly tapering valva forming narrow neck below larger, more dilated, fish-tail-shaped cucullus with longer, more acute apex and larger, triangular ventral lobe, the finer, more slender harpe, the smaller subapical diverticulum of the ventral arm of the vesica and the stronger, larger ribbed area of the main tube of vesica. The cucullus is variable in shape in the different populations of *A. virens* (Japan, Korea, Russian Far East) but is always smaller, narrower, the two lobes (apical and ventral) are less expressed.

Description: Wingspan 53 mm, length of forewing 26 mm. Male. Head large, eyes globular, large, palpi short, porrect, antenna filiform, shortly ciliate. Body robust, collar and tegulae well-developed, thoracic tufts and crest large, double. Vestiture of head and thorax dark mossy green, mixed with dark brown, paler red-brownish and blackish hairs, sides of palpi, collar and tegulae marked with dark brown. Abdomen paler, more greyish, with plumbeous hairs. Forewing elongate, rather narrow, apex finely rounded, outer margin evenly arcuate, very slightly crenulate. Ground colour dark, shining violaceous brown, suffused intensely with vivid mossy green, irrorated with dark grey-brown and blackish scales, veins violaceous grey. Elements of pattern easily recognizable although not very distinct, subbasal, ante- and postmedial crosslines double, sinuous, dark brown filled with green, median fascia strongly sinuous, diffuse, brownish. Orbicular and reniform stigmata large, former oblique, quadratic, latter elliptical with deep medial depression outwards. Both stigmata encircled partly with whitish, pale green and blackish, filled with ground colour, reniform also with pinkish-reddish scales. Claviform large, arcuate, black, filled with ground colour and with a few greenish scales. Subterminal

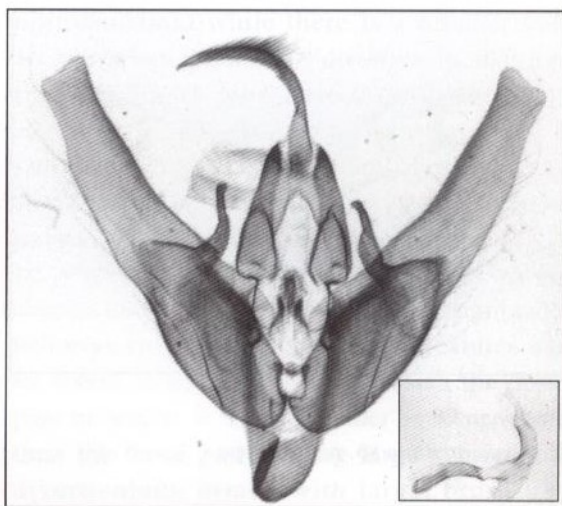


Text-figure 3

A. virens Butler, male, Japan

interrupted, slightly sinuous, green, defined by blackish brown chevron-like spots at inner side. Terminal line represented by row of blackish triangles, cilia pinkish brown, spotted with dark brown. Hindwing shining dark brown, inner area slightly paler, with fine plumbeous-greyish shade; cilia pure white. Underside of wings dark chocolate-brown, inner areas paler, irrorated with whitish grey and some brownish, traces of discal spots and diffuse transverse lines recognizable, especially on hindwing. Female unknown.

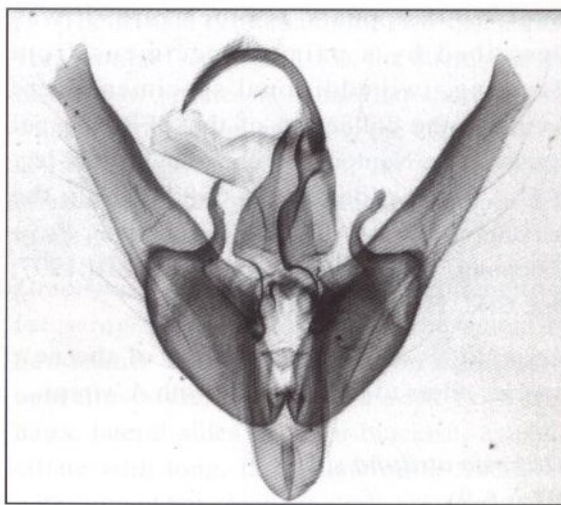
Male genitalia (Fig. 2): Uncus relatively long, slender, curved, apically pointed, tegumen narrow, high, penicular lobes large, rounded, covered with fine hairs. Fultura inferior small, sclerotized, cordiform, with tiny medial prominence, vinculum strong, thick, short, U-shaped. Valva sclerotized, long, slightly dilated at middle, distal half rather strongly, evenly tapering, forming narrow neck below broader, fish-tail-shaped cucullus. Apex cuneate, ventral lobe of cucullus triangular, pointed. Sacculus strong, medium-long, clavus reduced to narrow, setose surface, harpe relatively long, slender, sclerotized, S-



Text-figure 4

A. virens Butler, male, Korea

shaped, with large, sclerotized, V-shaped basal lamina. Aedeagus cylindrical, arcuate, distally tapering, carina with long, slender, eversible ventral bar and small, sclerotized, dentate lateral bar. Vesica broadly tubular, large, more or less T-shaped, inner curve and dorso-lateral surface with fine sclerotized ribs, outer surface with fine scobination. Ventral arm of vesica inflated, long, with small, curved,



Text-figure 5

A. virens Butler, male, Russian Far East



Text-figure 6

Orthosia atriluna sp. n., holotype

subapical diverticulum, main tube (dorsal arm) arcuate, eventually tapering towards ductus ejaculatorius.

Bionomics and distribution: Early stages and foodplant are unknown, the unique known specimen was collected at the midsummer period.

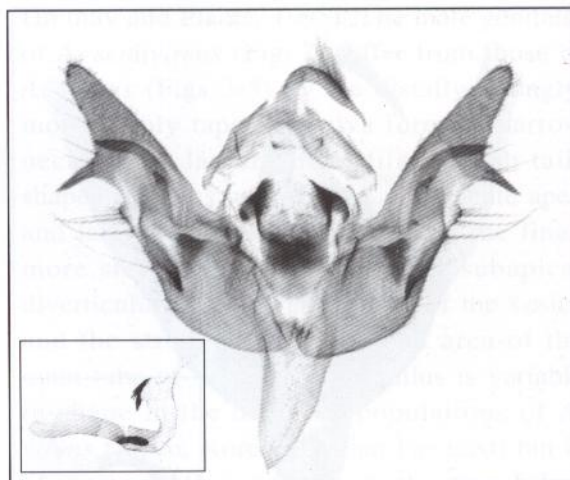
Remarks: The genus *Anaplectoides* McDunnough, [1929]1928 is represented, according to our knowledge, by three species in Taiwan, all were recently discovered and described. *A. inouei* Plante, 1987 is rather frequent in the higher elevations of the island, *A. fuscivirens* Sugi, 1995 appears as much rare, it was described by a pair of specimens from Tayuling, two additional specimens were found in the collection of the TFRI, Taipei (male, Prov. Nantou, Piluchi, 30.VI.1986, leg. Y.C. Chang, slide No. RL6587) and in the private collection of C.M. Fu (female, Prov. Taichung, Anmashan, 2600 m, 13.VIII.1997, leg. C.M. Fu; slide No. RL6588).

Etymology: The specific name of the new species refers to its similarity with *A. virens*.

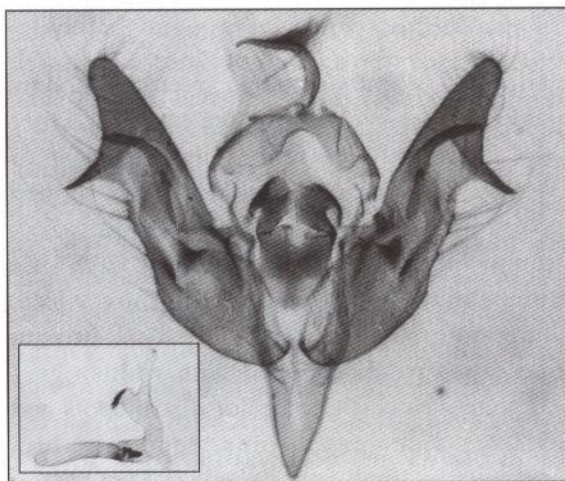
***Orthosia atriluna* sp. n.**

(Figs 6-9)

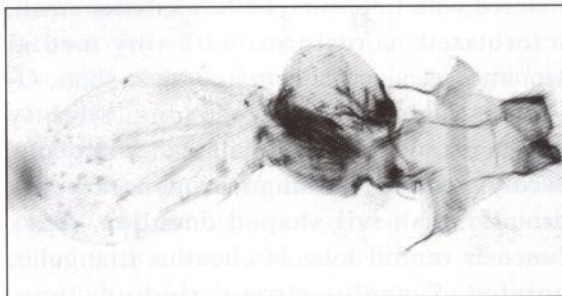
Holotype: male, Prov. Taitung, Yu-shan National Park, Tatachia, 2610 m, 16.II.1999,



Text-figure 7

Orthosia atriluna sp. n., holotype male

Text-figure 8

Orthosia atriluna sp. n., paratype male

Text-figure 9

Orthosia atriluna sp. n., paratype female

leg. L. Peregovits & G. Ronkay (coll. G. Ronkay, in HNHM Budapest). Slide No. RL6650.

Paratypes: Taiwan. Prov. Kaohsiung: Tanchry, 23-24.III.1991, H.Y. Wang leg., Nos 1282-6700, 1282-6766 (NMNS Taichung). Prov. Chiayi: 1 specimen, Tatachia, 16.III.1991, B. S. Chang leg., No. 1282-6718 (NMNS Taichung). Prov. Nantou: 1 male, 2 females, Hohuachi, 1950 m, 24° 13'N, 121° 16'E, 15-19.II.1999, leg. L. Peregovits & G. Ronkay; 2 males, 2 females, from the same site, 31.III.2000, leg. A. Kun and L. Peregovits; 2 males, 1 female, 10 km SE of Shenmu, Yu-Shan Nat. Park, 2200m, 14.III.1996, leg. Gy. Fábán & L. Németh; 1 male, 5 km SW Tayuling, 2900 m, 120° 17'E, 24° 09'N, 15.III.1996, leg. T. Csővári and P. Stéger; 1 male, 1 km W of Tatachia peak, 2520 m, 120° 53'E, 23° 33'N, 28.III.1996, leg. T. Csővári and P. Stéger. Prov. Miaoli: 1 m, 49 km E of Tungshih, 121° 03'E, 24° 19'N, 23.III.1996, leg. T. Csővári and P. Stéger. Prov. Taitung: 4 males, 2 females, Hsiangyang, 2200 m, 10.IV.1997, leg. G. Csorba and L. Ronkay; 1 male, 2 km E of Hsiangyang, 2200 m, 11-13.III.1996, leg. Gy. Fábán & L. Németh (HNHM, Gy. Fábán, M. Hreblay and G. Ronkay).

Additional paratypes in coll. B. Herczig, M. Hreblay and P. Gyulai.

Slide Nos RL6665 (male), RL6666 (female).

Diagnosis: *Orthosia atriluna* sp. n. is closely related to *O. nigromaculata* (Höne, 1917) (Fig. 10), representing its allopatric sister species. The colouration and the pattern of the forewing is very similar for the first look but that of the new species appear as less extensive. Checking the black pattern in detail, the elements themselves are not so different in size in the two species, although they are stronger in *O. nigromaculata*, but the lunulate reniform stigma is situated much closer to the tip of the basal dash in *O.*

nigromaculata while there is a broader pale area between them in *O. atriluna*. In addition, the fine black line below cell is usually stronger in the new species, the forewing is somewhat more elongate and narrower and the hindwing is slightly darker, more unicolorous.

The male genitalia of the two species are similar in type, showing easily recognizable differences. The best distinctive features can be found in the shape of the vesica the distal part of which is much broader in *O. atriluna* than the basal part, having large subterminal diverticulum, armed with large, brush-like field of rather long, spiniform cornuti. The broadest part of the vesica of *O. nigromaculata* is the basal third, with two dentate plates, both situated ventrally, rather far from the carina, these plates can be found much closer to carina in *O. atriluna*, oppositely on the two lateral sides. The differences of the clasping apparatus of the two species are as follows: the cucullus of the new species is longer, the ampulla is longer, more slender, more pointed, the fultura inferior significantly larger, broader, not constricted at middle, and the vinculum is longer, its tip is more pointed (see Figs 7, 8, 11, 12).

The female genitalia of the two species are very similar (see Figs 9, 13), the ductus bursae of the new species is somewhat shorter, with weaker scobination and ribs, the cervix bursae is larger, more spacious, its sclerotized, cristate proximal plate is weaker, shorter than those of *O. nigromaculata*.

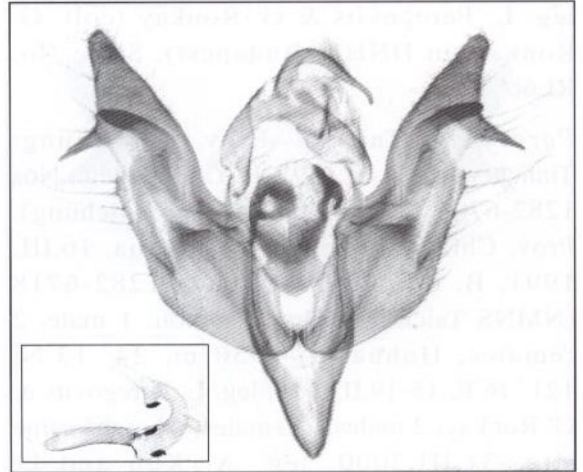
Description: Wingspan 33-40 mm, length of forewing 16-19 mm. Male. Pubescence of head and thorax rather homogeneous, ochreous slate-grey, mixed with brownish hairs, lateral sides of palpi blackish, antenna ciliate with long, fasciculate cilia. Abdomen with somewhat stronger dark grey-brownish irroration, dorsal crest absent, abdominal coremata absent. Forewing elongate, narrow,



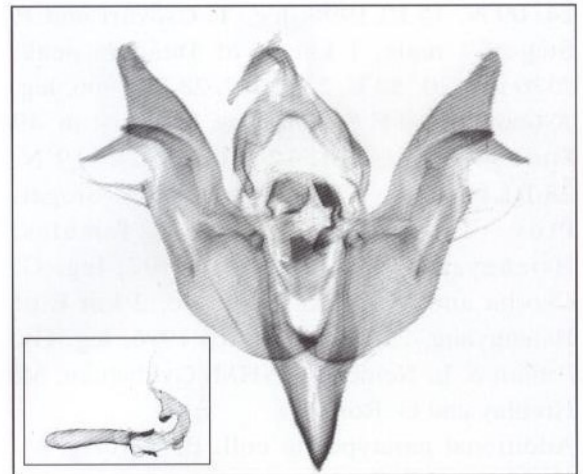
Text-figure 10

Orthosia nigromaculata Hone, male, Japan

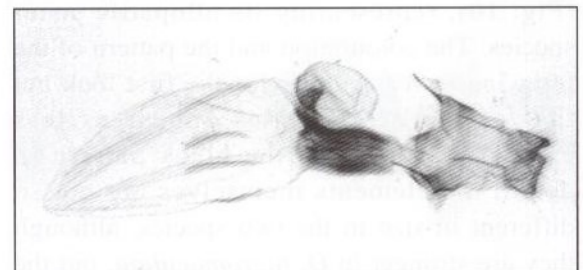
with apex pointed, outer margin evenly arcuate. Ground colour pale, shining ochreous grey, slate-grey or ochreous brown, irrorated sparsely with reddish brown and dark grey-brown. Wing pattern conspicuous: long, straight basal dash and large, narrow, lunulate reniform stigma deep black, other elements partly or fully reduced. Antemedial line and orbicular stigma missing, claviform stigma possibly fused with basal dash. Median fascia absent, postmedial line usually represented by an arcuate row of blackish spots on veins, outer half of subcellular vein covered with blackish scales. Subterminal obsolete, consisting of stronger subapical costal patch and a few diffuse brownish patches near postmedial line. Terminal line fine, sinuous, with dark spots on veins, cilia as ground colour. Hindwing shiny, dark greyish brown, veins slightly darker. Discal spot diffuse, rather big, traces of transverse line poorly visible; cilia ochreous-greyish, with darker medial line. Underside of forewing suffused with dark brownish grey except outer half of marginal area, shadows of basal dash, reniform stigma and postmedial line usually clearly recognizable. Underside of hindwing pale greyish white, irrorated with dark brown-grey; discal spot sharply defined, blackish. Transverse line interrupted, consisting of blackish dots on veins, terminal



Text-figure 11

Orthosia nigromaculata Höne, male, Japan

Text-figure 12

Orthosia nigromaculata Höne, male, Japan

Text-figure 13

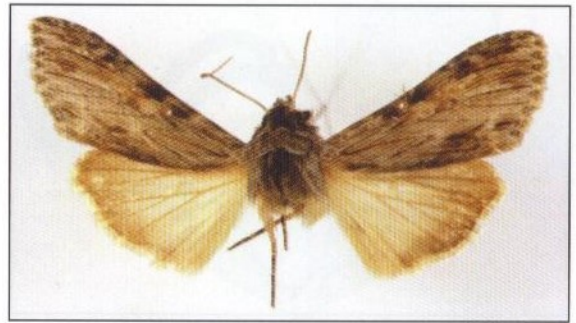
Orthosia nigromaculata Höne, female, Japan

line represented by a few blackish brown dots.

Male genitalia (Figs 7, 8): Uncus slender, short, apically finely hooked, tegumen broad, low, penicular lobes small, very narrow. Fultura inferior large, broadly shield-like, granulously sclerotized, lateral arms fused with strongly sclerotized transtillar plates; vinculum long, acute, V-shaped. Valva elongate, saccular third broader, distal two-third tapering into long, triangular cucullus; corona fully reduced. Sacculus more or less quadratic, clavus reduced, distal part with stronger sclerotization at basal bar of harpe. Harpe with long, slender basal bar and flattened, sclerotized distal plate, erected part reduced to small, setose process. Ampulla strongly sclerotized, slender, medially arcuate, its tip acute. Pollex strong, acute, thorn-like. Aedeagus cylindrical, narrow, medially finely arcuate, carina with two lateral bars continuing in rather short, heavily sclerotized, dentate. Basal part of vesica straight, with fine, flat, weakly sclerotized ribs, and with small, tubular, curved subbasal diverticulum directed ventrally. Medial part of vesica tubular, curved, scobinate, distal third dilated, terminal diverticulum large, armed with strong, long, brush-like field of strong, spiniform cornuti.

Female genitalia (Fig. 9): Ovipositor short, broadly conical, papillae anales quadrangular, densely setose, apophyses short, fine, slender. Ostium bursae sclerotized, lyriform-trapezoidal, connected with ductus bursae by narrow neck. Ductus bursae flattened, broad, with gelatinous-scobinate ribs. Cervix bursae large, more or less discoidal or globular, corpus bursae membranous, elliptical-sacculiform, with four long, weak signum-stripes.

Bionomics and distribution: The species is confined to the rather high altitudes, inhabiting montane, deciduous and mixed forests. It has a relatively early flight period,



Text-figure 14

Cucullia jungtaichaoi sp. n., holotype

the adults are on wing from February to April.

Remarks: The species was mentioned from Taiwan as *O. nigromaculata* by Sugi (1986) and by Chang (1991, p. 111, fig. 74). The differences of the black pattern of the Taiwanese and the Japanese "*O. nigromaculata*" had already been recognized by Sugi, but without further taxonomic analysis of the Taiwanese populations.

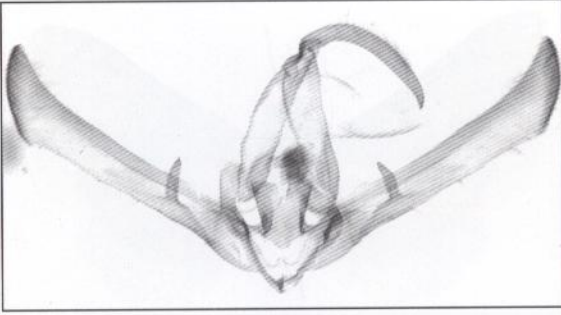
Etymology: The specific name refers to the moon-shaped, black reniform stigma.

Cucullia jungtaichaoi sp. n.
(Figs 14, 15, 16)

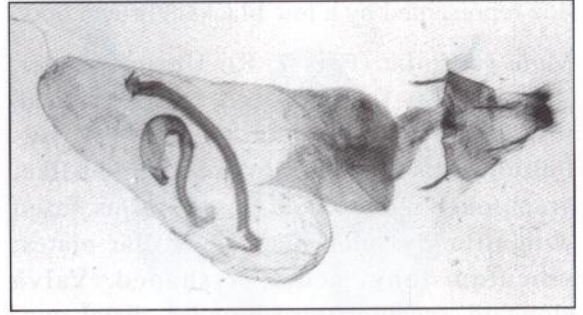
Holotype: male, "Piluchi, Nantou Co., TAIWAN, VII-13-1988, Y.C.Chang", slide No. RL6577 (coll. TFRI Taipei).

Paratypes. Taiwan, Prov. Nantou: 3 males, 1 female, from the same site, 3.IX.1986, 14.IX.1986, 30.VII.1988, 5.IX.1988, leg. Y.C. Chang (coll. TFRI, HNHM). Slide No. RL6744 (female).

Diagnosis: The new species is a member of the *Cucullia maculosa* line of the *C. artemisiae* species-group, containing *C. maculosa* Staudinger, 1888, *C. marmorea* Boursin, 1941, *C. hostilis* Boursin, 1934 and *C. jungtaichaoi* sp. n. *C. hostilis* was formerly placed to the *C. xeranthemi* Boisduval, 1840



Text-figure 15
Cucullia jungtaichaoi sp. n., holotype male



Text-figure 16
Cucullia jungtaichaoi sp. n., paratype female

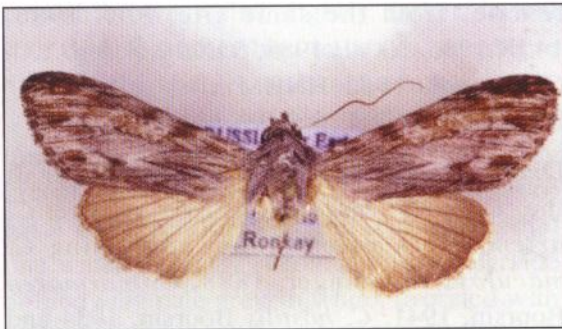
species-group (Ronkay and Ronkay, 1994), on the basis of the original description of the external features of the unique female holotype. This statement, however, was incorrect, the discovery of new specimens in historical materials from the Russian Far East, including the opposite sex of the species revealed the close relationship of *C. hostilis* with *C. marmorea*.

The closest relatives of *C. jungtaichaoi* are *C. hostilis* (Fig. 17) and *C. marmorea* (Fig. 6), the Taiwanese species differ from its continental relatives by its somewhat larger size, broader forewings with longer, stronger dark streak in medial area, stronger dark suffusion below this streak, more obsolescent upper half of postmedial line and paler inner area of the hindwing.

The genitalia of the species of the group

are very similar in both sexes, those of *C. maculosa* being more different from those of the three other taxa. The male genitalia of *C. jungtaichaoi* differ from those of *C. hostilis* (Fig. 19) and *C. marmorea* (Fig. 20) by their stronger uncus, somewhat longer, more curved clavus, longer harpe and larger, more acute cucullus. The cornutus of the vesica of *C. jungtaichaoi* is finer, more arcuate than that of *C. hostilis*, while the cornutus of *C. marmorea* is strongly curved near its base. The female genitalia of the three closely related, allopatric species differ in the shape and size of the cervix-like appendix and the ostial ligula (Figs 16, 21, 22) which are the largest, broadest, strongest in *C. jungtaichaoi*.

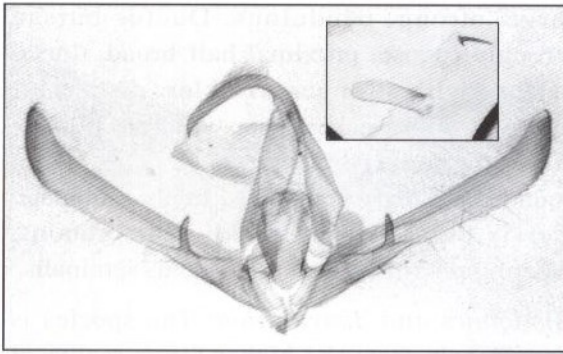
Description: Wingspan 42-44 mm, length of forewing 20-21 mm. Head and thorax pale ash-grey, mixed with darker brown-grey hairs.



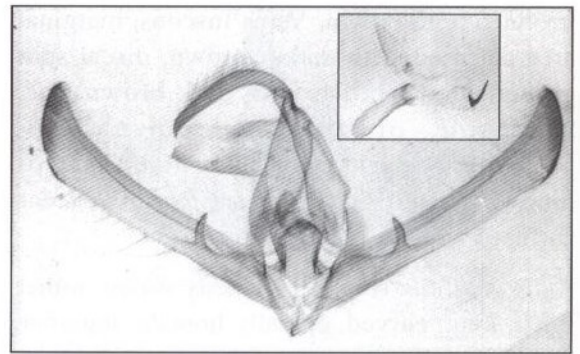
Text-figure 17
Cucullia hostilis Boursin, female, Russian Far East



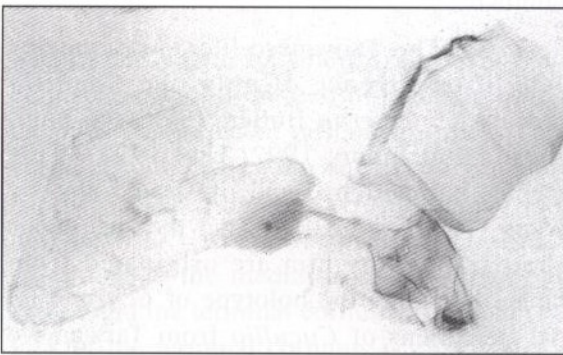
Text-figure 18
Cucullia marmorea Boursin, male, China, Yuennan



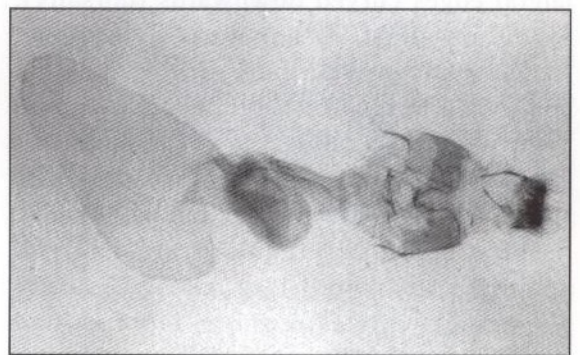
Text-figure 19
Cucullia hostilis Boursin, male, Russian Far East



Text-figure 20
Cucullia marmorea Boursin, male, China, Yuennan



Text-figure 21
Cucullia hostilis Boursin, female, Russian Far East



Text-figure 22
Cucullia marmorea Boursin, female, China, Yuennan

Sides of palpi dark brown, collar striolate with pale grey and blackish brown, tegulae weakly marked with darker grey-brown; antenna filiform. Abdomen somewhat paler, dorsal crest well-developed, dark brown; Abdominal coremata present. Forewing relatively broad, long, with apex acute, outer margin finely crenulate. Ground colour shining, pale ash-grey with fine violaceous shade, medial area, including parts of cell and marginal field irrorated with ochreous brown, costal area with strong dark grey-brown patches; scaling finely reticulate. Basal dash very long, fine, partly blackish, defined with ochreous, veins and inner margin covered finely with blackish grey. Crosslines and stigmata rather indistinct, antemedial line strongly sinuous, double, dark

grey-brown, defined with whitish, upper part of postmedial obsolete, lower half stronger, sinuous, simple, dark brown. Medial area with dark brown streak running from tornal part of postmedial line towards place of claviform, fused with antemedial line, area below this streak suffused with dark greyish brown. Orbicular and reniform stigmata marked mostly by their somewhat paler, ochreous grey colouration their outlines strongly incomplete, represented only by a few darker spots, centre of orbicular often with small darker spot. Subterminal obsolete, tornal streak rather short, weak, darker grey-brown. Terminal line fine, interrupted, blackish, cilia as ground colour, spotted with dark brown. Hindwing shining ochreous-whitish, weakly

irrorated with brown. Veins fuscous, marginal area suffused with darker brown, discal spot absent; cilia whitish with dark brown line. Underside of forewing unicolorous, patternless dark greyish brown, that of hindwing whitish, costal and marginal areas suffused with dark greyish brown.

Male genitalia (Fig. 15): Uncus strong, rather thick, long, curved, apically hooked, tegumen narrow, high, penicular lobes long, narrow, densely hairy. Fultura inferior large, sclerotized, subtriangular-cordiform plate, its lateral edges curved downwards (dorsally); vinculum short, rather weak, V-shaped. Valvae symmetrical, long, slender, slightly constricted at base of harpe, distal two-third evenly, weakly dilated towards cucullus. Costa sclerotized, medial third of valva with stronger plate between costa and basal bar of harpe. Cucullus triangular, rather broad, apically acute; corona long, strong. Sacculus short, narrow, clavus short, more or less digitiform, distally curved, covered with sensory setae. Harpe rather thick, straight, sitting on long, narrow basal bar, apical third extending over costal margin. This part flattened, tapering towards pointed apex, surface covered with minute setae. Aedeagus short, thick, carina with two short, sclerotized lateral bars. Vesica broadly tubular, everted forward, recurved dorso-laterally at middle. Basal third with small, membranous basal diverticulum dorsally, submedial diverticulum large, broadly tubular, terminated in long, strong, acute, slightly curved, thorn-like cornutus. Medial part membranous, distal third forming conical, long sac, covered with fine, hair-like spiculy, ductus ejaculatorius originating from middle of recurved part of vesica.

Female genitalia (Fig. 16): ovipositor short, conical, relatively strong, papillae anales small, quadrangular, setose; gonapophyses short, slender. Ostium bursae small, strongly wrinkled, finely scobinate, ostial ligula rather

large, strong, pendulous. Ductus bursae strongly rugose, proximal half broad, dorsal surface with stronger wrinkles, distal part tapering, with weaker, finer wrinkles. Cervix-like appendix ("pseudocervix") large, rounded, strongly gelatinous, finely scobinate. Cervix bursae large, weakly membranous, tapering proximally towards ductus seminalis.

Bionomics and distribution: The species is known only from the higher forest region of the Hohuanshan in Nantou, the specimens were collected in the second half of the summer.

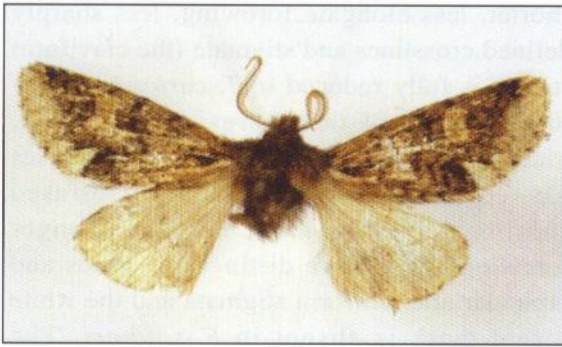
Remarks: The Taiwanese literature contains data of occurrence of only one *Cucullia* species, *C. fraterna* Butler, 1878 (see Sugi, Owada and Inoue, 1992; Lin, 1993). This species is mentioned and illustrated also by Wang (1995, p. 190-191) but the specimens photographed by him are originated from Japan, including the holotype of *C. fraterna*. All specimens of *Cucullia* from Taiwan we had the opportunity to study belong to the newly described *C. jungtaichaoi*. The literature data presumably refer also to this species, being probably endemic to Taiwan.

Etymology: The new species is dedicated to Dr Jung-Tai Chao, Division of Forest Protection of the Taiwan Forestry Research Institute, Taiwan.

Taipsaphida gen. n.

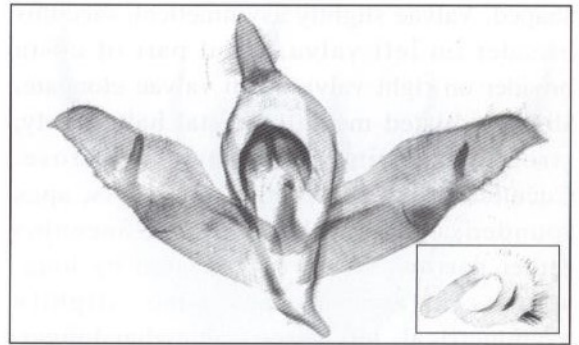
Type species: *curiosa* sp. n.

Diagnosis: The new genus belongs to the Cuculliinae tribe Psaphidini (Psaphidinae: Psaphidini sensu Poole, 1995), its closest relatives live in North America (e.g. *Psaphida* Walker, 1865 and *Pseudocopivaleria* Buckett and Bauer, 1966), and in Indochina (a yet undescribed genus occurs in Vietnam and in Thailand). The genus *Taipsaphida* has some features which are unique within the tribe: 1) the harpe is situated at middle of the distal



Text-figure 23

Taipsaphida curiosa gen. et sp. n., holotype



Text-figure 24

Taipsaphida curiosa gen. et sp. n., holotype male

half of the valva, its sclerotized basal plate connecting with distal end of sacculus, 2) the cucullus has an acute postapical process, the corona is completely missing, 3) the armature of the vesica penis is arranged into two distinct rows of long, spiniform cornuti, extending to the medial third of the tube of vesica and the terminal cornutus is absent (the lack of the terminal cornutus is characteristic of some of the Nearctic Psaphidini genera, e.g. *Copivaleria* Grote, 1883, and *Provia* Barnes and McDunnough, 1910, but there the vesica is armed with cornuti in its full length). *Taipsaphida* differs from *Psaphida*, in addition, by its fully developed proboscis and the lack of the additional plate of the foreleg claw which is characteristic of *Psaphida*.

The type species of the genus shows superficial resemblance with the dark forms of *Feralia sauberi* (Graeser, 1892) (*Feraliini*), occurring in some parts of the Pacific area of the Palaearctic, but the genitalia of the two tribes are strongly different. The another, *Feralia*-like genus, *Daseochaeta* Hampson, 1906 has different wing shape and colouration and strongly dissimilar, specialized male genitalia. Some species of the genus *Diphtherocome* Warren, [1907] have somewhat similar valval shape with acute postapical process and distally placed harpe, but the other features of the genital capsula,

e.g. uncus, sacculus, strongly hairy pulvillus (editum) and the armature of the vesica are conspicuously different, similarly to the external appearance where the forewing ground colouration is always green with dark pattern.

Description: Medium-sized species, wingspan 33 mm (Fig. 23). Head small, palpi short, porrect, with long dorsal tuft on first segment, proboscis well-developed, eyes large, globular, eye-lashes long. Antenna rather short, strongly bipectinate with symmetrical branches. Frons smooth. Thorax strong, pubescence rather homogeneous, rough, frons, vertex, collar, tegulae and mesothorax covered with long hair-scales, ventral part of prothorax with very long hairs. Legs short, roughly hairy, tarsi with long scale-rings. Forewing elongate, narrow, rather acute, hindwing smaller, more or less rounded. Forewing with rather diffuse crosslines, stronger, more sharply defined orbicular and reniform stigmata and characteristic wedge-shaped white mark at tornus.

Male genitalia (Fig. 24): Uncus short, flattened, sclerotized, more or less cuneiform with pointed apex, covered with hairs dorso-laterally. Tegumen narrow, rather high, penicular lobes long, narrow, fultura inferior sclerotized, subtriangular, with fine apical (dorsal) incision; vinculum short, strong, V-

shaped. Valvae slightly asymmetrical, sacculus broader on left valva, basal part of costa broader on right valva. Both valvae elongate, slightly dilated medially, distal half evenly, strongly tapering, both surfaces setose. Cucullus with acute postapical process, apex rounded, corona fully reduced. Sacculus rather narrow, clavus represented by long, setose surface. Harpes also slightly asymmetrical, left harpe somewhat longer. Both harpes straight, pointed, setose, situated closer to apex than to base of valva; basal plate sclerotized, flattened, fused partly with distal end of sacculus and with ventral margin. Aedeagus medium-long, cylindrical, rather thick, carina with two short, fine, sclerotized bars. Vesica broadly tubular, everted forward, medially broadened, recurved to right side, distal third tapering. Inner curve of basal third with a group of numerous tiny denticles, outer curve with a row of long, spiniform, slightly bulbed cornuti, extending towards medial third. Ventral surface of medial third with separate, narrow field of long, acute, spine-like cornuti; inner curve with long, rather strongly sclerotized wrinkles running towards terminal end of vesica.

Bionomics. Poorly known. The unique type specimen of the type species of the genus was found in January, at medium-high altitude (1300 m a.s.l.).

Distribution: Taiwan.

Taipsaphida curiosa gen. et sp. n.

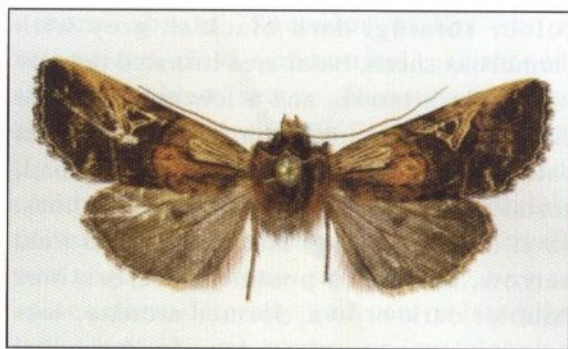
(Figs 23, 24)

Holotype: male, "JAN.11.1992, Shenmu. 1300 m, Nantou Co., Taiwan, C.M. Fu leg.", slide No. RL6573 (coll. NMNS Taichung, donated by C.M. Fu).

Diagnosis: The new species externally resembles mostly to *Psaphida resumens* (Walker, 1865) and to the dark coloured forms of *Feralia sauberi* (Graeser, 1892). *Taipsaphida curiosa* differs from *P. resumens* by its

shorter, less elongate forewing, less sharply defined crosslines and stigmata (the claviform stigma is fully reduced in *T. curiosa*) and by the presence of the characteristic, large, triangular white tornal mark. The new species has, comparing with the blackish suffused specimens of *F. sauberi*, narrower, longer forewings with more distinct crosslines and orbicular and reniform stigmata and the white tornal mark is absent in *F. sauberi*. The differences of the male genitalia of *T. curiosa* and the related genera of Psaphidini are discussed in the diagnosis of the genus. The genitalia of the species of the tribe Feraliini are strongly dissimilar, those are illustrated by Kononenko (1984); Sugi (1968), Poole (1995) and Ronkay and Ronkay (1995).

Description: Wingspan 33 mm, length of forewing 14 mm. Pubescence of head and thorax rather homogeneous, dark brown, mixed with dark ochreous-brownish and blackish hairs. Antenna ochreous brown, rather short, strongly bipectinate with symmetrical branches. Legs short, dark brown, roughly hairy, tarsi with long whitish scale-rings. Forewing elongate, narrow, rather acute, outer margin evenly arcuate. Ground colour dark greyish brown, basal and medial areas irrorated with paler ochreous brown, outer half of marginal area suffused with whitish grey. Elements of wing pattern blackish grey, basal dash fine, rather short, ante- and postmedial lines double, sinuous, filled with greyish, median fascia diffuse, fumous blackish grey. Orbicular and reniform stigmata well-visible, situated relatively far from each other. Orbicular stigma small, rounded, encircled with fine black and whitish annuli, filled with ochreous brown. Reniform large, elliptical, slightly constricted at middle, encircled with blackish and a few whitish scales, filled with ochreous brown. Subterminal obsolescent, sinuous, marked mostly by differently coloured parts of marginal area. Outer half of marginal area



Text-figure 25

Hemiglaea eupompa sp. n., holotype

whitish grey, sparsely irrorated with ochreous brown, tornus with two (a smaller and a large) conspicuous, white, wedge-shaped spots. Terminal line represented by blackish dots and triangles between veins. Hindwing small, more or less rounded, shining whitish grey, discal spot, transverse line and terminal line present but diffuse, darker grey. Underside of wings shining ochreous whitish, traces of upperside pattern of forewing well-discernible, discal spot, subbasal and submarginal crosslines of hindwing present, diffuse, darker grey.

Male genitalia (Fig. 24): It is described in the characterization of the genus.

Etymology: The specific name refers to the unusual external appearance and internal morphological features of the species.

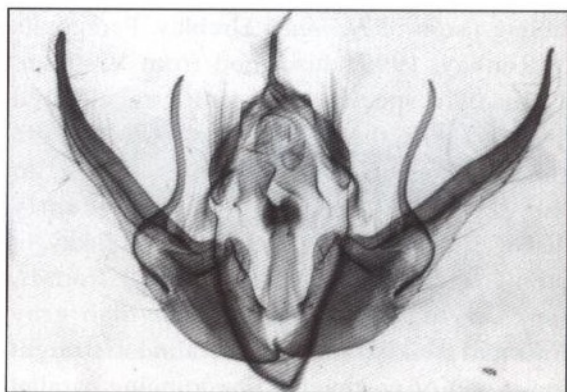
***Hemiglaea eupompa* sp. n.**

(Figs 25, 26, 27)

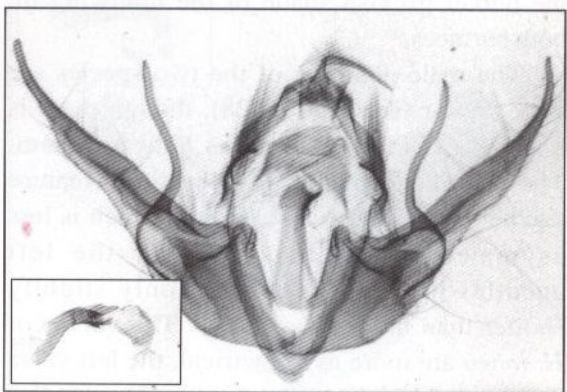
Holotype: male, Prov. Hualien, Taroko valley, sacred Pilu tree, 2000 m, 3-5.XII.1998, leg. Fábíán and Korsós (coll. Fabian). Slide No. RL6592.

Paratype: male, with the same data as the holotype (coll. HNHM Budapest). Slide No. RL6730 (male).

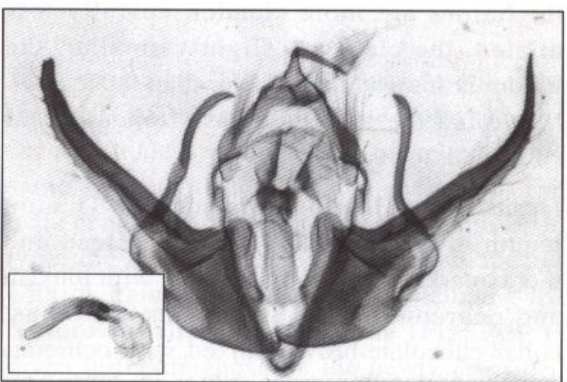
Diagnosis: The new species is an allopatric



Text-figure 26

Hemiglaea eupompa sp. n., holotype male

Text-figure 27

Hemiglaea eupompa sp. n., paratype male

Text-figure 28

Hemiglaea ionea Hreblay, Peregovits et Ronkay, male, Vietnam

sibling taxon of *H. ionea* Hreblay, Peregovits et Ronkay, 1999, described from Vietman. These twin species represent a specialized lineage within the *H. himalaya* Owada, 1993 species-group; another species, belonging to the *H. himalaya*-lineage, was recently discovered in Taiwan (Hreblay and Ronkay, in press). *H. eupompa* differs externally from *H. ionea* by its darker, more brownish grey irrorated pinkish basal area, almost straight lower part of postmedial line, running parallel with lower part of antemedial line (that of *H. ionea* running more obliquely, the lower part of the two crosslines are more divergent) and the darker greyish shade of the hindwing on both surfaces.

The male genitalia of the two species are very similar (see Figs 26-28), though there is a series of small differences between them. The most conspicuous distinguishing feature can be found in the valval shape, which is less asymmetrical in *H. eupompa*, the left cucullus is similarly long or only slightly shorter than the right cucullus. The valvae of *H. ionea* are more asymmetrical, the left valva is remarkably narrower, shorter, the cucullus is significantly shorter, less acute than that of the right valva. In addition, the uncus of *H. eupompa* is finer, the cuculli are less curved, the harpes are more slender, apically less dilated, the clavi are slightly smaller, the fultura is somewhat narrower than those of *H. ionea* and the aedeagus has stronger distal curve near the carina.

Description. Male. Wingspan 30-31 mm, length of forewing 14-14,5 mm. Head and thorax dark reddish brown mixed with pinkish and ochreous, frons and vertex ochreous, collar chocolate-brown, mixed with ochreous and blackish hairs. Palpi slender, lateral sides blackish brown; antenna ciliate with fasciculate cilia. Abdomen dark brown with a few pinkish-rosaceous hairs, dorsal crest dark brown. Forewing elongate, narrow, with apex pointed, outer margin crenulate. Ground

colour shining, dark blackish grey with plumbeous sheen, basal area irrorated densely with pinkish brown, and a few ochreous and dark grey scales; apical third of costal margin pale ochreous-brownish. Basal area broad, costal part with characteristic whitish lines, basal dash fine, long, blackish. Medial field narrow, ante- and postmedial crosslines double, dark brown, former arcuate, less sinuous, latter waved, its lower part running more or less parallel with that of antemedial line. Both crosslines filled and defined with pinkish; median fascia almost invisible, blackish brown. Orbicular and reniform stigmata large, sharply defined, of typical *Hemiglaea* shape, ochreous-whitish filled with blackish grey and whitish. Subterminal line rather indistinct, ochreous, represented by a few tiny dots. Terminal line fine, ochreous, cilia as ground colour. Hindwing almost unicolorous, dark greyish brown with ochreous shine, discal spot rather strong, transverse line absent; cilia dark brown-grey with orange-pinkish dots. Underside of forewing dark brownish grey, costal area suffused with orange-brown, traces of orbicular and reniform stigmata and postmedial line recognizable. Hindwing whitish-ochreous, suffused with pinkish brown and dark grey, transverse line and discal spot strong, rather diffuse, blackish grey. Female unknown.

Male genitalia (Figs 26, 27) : Uncus fine, slender, with apex acute, tegumen rather low, broad, penicular lobes long, narrow, densely setose. Fultura inferior sclerotized, relatively narrow, high subtriangular with somewhat broader, rounded, medio-apically weakly incised apical (=dorsal) plate; vinculum strong, short, V-shaped. Valvae slightly asymmetrical, right valva somewhat longer, larger, medially less tapering, apically more acute. Both valvae elongate, saccular part broad, distal two-third strongly tapering into arcuate, heavily sclerotized, acute cucullus;

corona absent. Sacculus rather short, sclerotized, clavi symmetrical, ear-shaped, slightly folded, setose. Harpe very long, slender, S-shaped, apically finely flattened, its tip pointed. Aedeagus cylindrical, curved, carina with sclerotized, finely tuberculate dorsal and ventro-lateral plates, right side with two groups of strong, rather short, pointed spines dorso-laterally and ventro-laterally. Basal half of vesica more or less globular, inflated, membranous, most parts covered with minute, hair-like spiculi, with large, subconical diverticulum projecting ventrally. Distal tube membranous, bent ventrally, evenly tapering towards ductus ejaculatorius. Abdominal coremata absent.

Bionomics and distribution. The species seems as local and rare, only the two type specimens were found during the extensive collectings of the last three years, only in one locality. The habitat is humid, deciduous forest with mixed forest patches, at medium high altitude. The flight period of the species is probably short, depending on the actual weather conditions of the year; both specimens were collected at light.

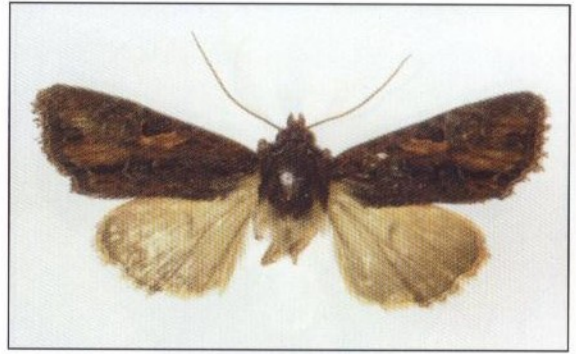
Etymology: The specific name refers to the beautifully coloured forewings.

Hemiglaea ionea Hreblay, Peregovits et Ronkay, 1999

(Fig. 28)

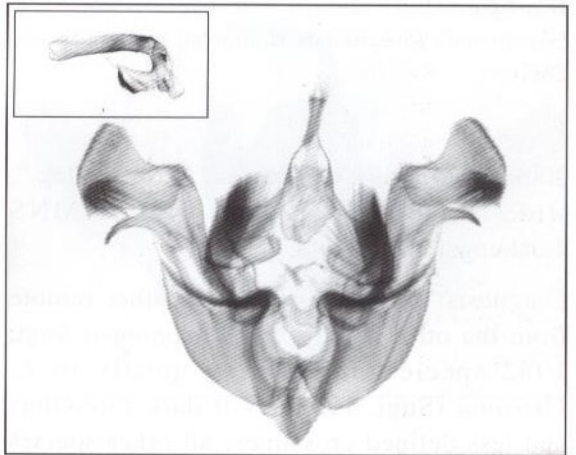
Type material examined: holotype female, "VIETNAM, Prov. Lao Cai, 1900-2000 m, Fan-si-pan Mts, 14 km NW Sa Pa, 103° 46,06'E, 22° 20,9'N, 8.XII.1997, leg. L. Peregovits & L. Ronkay", slide No. RL6207 (coll. HNHM, Budapest).

Additional material examined. VIETNAM: 1 male, Prov. Lao Cai, 1900-2000 m, Fan-si-pan Mts, 14 km NW Sa Pa, 103° 46,06'E, 22° 20,9'N, 26-29.I.1999, leg. L. Peregovits, G. & L. Ronkay", slide No. RL6544 (coll. G. Ronkay, Budapest).



Text-figure 29

Leucapamea chienmingfui sp. n., holotype



Text-figure 30

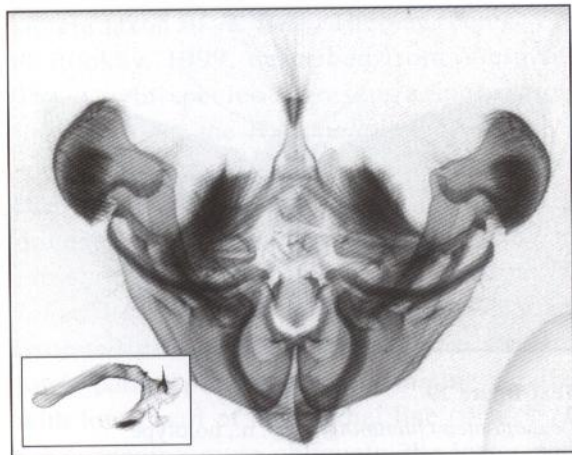
Leucapamea chienmingfui sp. n., holotype male

Taxonomic note. The species was described on the basis of the single female holotype, the second, male specimen was collected at the same site, a bit more than a year later. The male genitalia of the two species are similar in type, the detailed comparison of the species with its Taiwanese sister taxon, including the features of the male genitalia (Fig. 30), is given in the diagnosis of the newly described species, *H. eupompa* sp. n.

Leucapamea chienmingfui sp. n.

(Figs 29, 30)

Holotype: male, "APR. 19.1997, Kuangwu,



Text-figure 31

Leucapamea formosensis Hampson, male, Taiwan, Chiayi

2000 m, Miaoli Co., Taiwan, C.M. Fu leg.", slide No. RL6576 (male) (coll. NMNS Taichung, donated by C. M. Fu).

Diagnosis: The new species is rather remote from the other species of *Leucapamea* Sugi, 1982 species, resembling mostly to *L. hikosana* (Sugi, 1958) by its dark forewings and less defined crosslines; all other species of the genus has intense white (ish), whitish-grey or whitish-orange forewing markings. *L. chienmingfui* differs from its congeners by the intense metallic grey irroration, the sharply defined, blackish mark between the orbicular and reniform stigmata and the darker filling of the reniform stigma.

The male genitalia of *L. chienmingfui* differ from those of *L. hikosana* (see Sugi, 1982, Plate 365, Fig. 16) by their much longer, sward-like clava, stronger costal extension, projecting downwards at distal third and by the broader cucullus with more elongate apical part and less arcuate outer margin.

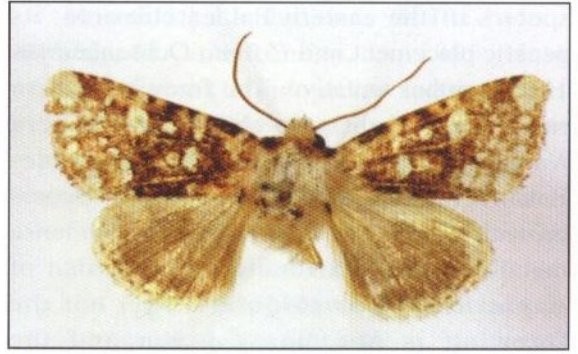
L. chienmingfui resembles also to some of the Taiwanese *Apamea* Ochseneimer, 1816 species. It is easily distinguishable from the more or less similar taxa of the *A. aquila*

(Donzel, 1837) species-group by its deep chocolate-brown forewings with characteristic metallic bluish grey irroration, and claret-red and pinkish brown suffusion, reduced crosslines, less distinct orbicular and reniform stigmata with sharply defined, black V-mark between them and the presence of the rather strong, long black stria running from tip of claviform to outer edge of tornus. The male genitalia of the new species differ strongly from those of the externally similar *Apamea* species by the features being typical of the genus *Leucapamea* e.g. the long, setose clava, the structure of the cucullus and the presence of a bundle of spiniform cornuti in the terminal part of the vesica.

Description: Wingspan 39 mm, length of forewing 17 mm. Head strong, eyes large, globular, palpi rather long, slender, slightly upturned, antenna ciliate with short, fasciculate cilia. Pubescence of head and thorax deep claret-brown, mixed with ochreous-brown, metallic grey and black hairscales, sides of palpi dark brown, collar and tegulae marked with black and whitish grey lines. Forewing elongate, narrow, with apex pointed, outer margin slightly crenulate. Ground colour shiny, deep chocolate-brown with metallic bluish grey, claret-red and pinkish brown suffusion. Wing pattern rather indistinct, ante- and postmedial crosslines obsolescent, marked with strongly interrupted metallic grey and dark brown spots and short lines; median fascia absent. Stigmata present but incomplete, orbicular long, oblique, flattened, reniform narrow, claviform represented by its black apical arch. Orbicular encircled partly with two parallel black lines and their yellowish definition, filled with pinkish grey, reniform plumbeous grey with weak whitish outer line, cell with conspicuous, black V-mark between stigmata. Lower part of medial field with blackish stripe from tip of claviform to postmedial line. Marginal area rather broad, inner part with

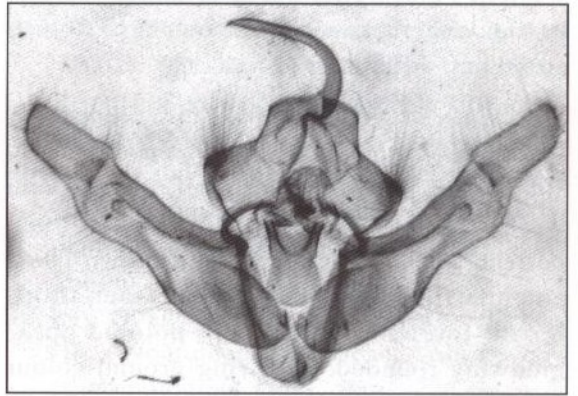
intense ochreous-brownish irroration. Subterminal line onterrupted, ochreous, marked with a few blackish dots in both sides, tornus with strong, deep black streak. Terminal line fine, ochreous, cilia as ground colour. Hindwing shining ochreous, inner area irrorated, broad marginal field suffused with greyish brown. Discal spot rather diffuse, long, lunulate, terminal line ochreous, cilia red-brownish, spotted with greyish brown. Underside of wings whitish ochreous, forewing suffused, hindwing sparsely irrorated with dark grey-brown, costal and marginal areas pinkish brown. Traces aof discal spots and transverse lines present on both wings, much stronger on hindwing; marginal area of hindwing with stronger dark covering.

Male genitalia (Fig. 30): Uncus slender, apically finely rounded, basal third broader, stronger. Tegumen low, very wide, penicular lobes quadrangular, large, densely hairy. Fultura inferior relatively small, shield-like, dilated dorsally, apical incision rather deep; vinculum strong, V-shaped. Basal part of valva broad, strong, medial part elongate, rather narrow, distal third curved. Cucullus large, costal margin concave, inner margin rather straight, outer edge with small, pointed extension and with large field of strong, acute setae. Ventral surface of cucullus densely hairy, corona long, strong. Sacculus strong, broad, clavus very long, acute, somewhat sward-lik process projecting ventro-laterally, covered densely with minute setae. Harpe reduced to its short basal bar, ampulla small, weak, stick-like, costal extension ("digitus") medium-long, strong, curved, with apex acute. Aedeagus long, cylindrical, curved, carina with strong dorsal ribs and long, sclerotized, slender dorso-lateral bar extending deeply into inner curve of vesica. Vesica broadly tubular, bent ventrally, distal part recurved. Its walls membranous, finely scobinate. Basal third with strong, broad-based cornutus, medial part



Text-figure 32

Cosmia hanrongtzuooi sp. n. holotype.



Text-figure 33

Cosmia hanrongtzuooi sp. n., holotype male

with two scobinate diverticula, distal third with large ventral field of strong, acute, spiniform cornuti.

Etymology: The new species is dedicated to the collector, Mr Chien-Ming Fu (Taiping, Taiwan).

Cosmia (s.l.) hanrongtzuooi sp. n.
(Figs 32, 33)

Holotype: male, "OCT, 20.1994, Tungpu, 1200 m, Nantou Co, Taiwan, H.R. Tzuoo leg.", slide No. RL6572 (coll. NMNS Taichung, donated by H.R. Tzuoo).

Diagnosis: An unmistakable species, differing strongly from all known trifine Noctuidae

species of the eastern Palaearctic area; its generic placement into *Cosmia* Ochseneimer, 1816 is rather tentative. The forewing pattern resembles slightly to that of the genera *Karana* Moore, 1882 and *Yula* Bethune-Baker, 1906, but the colouration is ochreous-brownish, not dark brown-grey with intense metallic greenish irroration, also to that of *Euplexia monilis* (Moore, 1881) but the forewing is not mossy green and the crosslines are conspicuously white. Another slightly similar species is *Dicycla oo* ([Denis et Schiffermüller], 1775), occurring in the western Palaearctic, but it is larger in size, having longer forewing, less regularly whitish crosslines, different stigmata, etc.

Description: Wingspan 27 mm, length of forewing 12 mm. Male. Pubescence of body silky white, collar with stronger, tegulae with weaker brown marking. Palpi slender, long, porrect, sides marked with dark brown hairs, antenna finely ciliate. Wings rather short, broad, forewing with finely pointed apex, hindwing rounded. Forewing ground colour pale ochreous brown with stronger dark tobacco-brown irroration. Wing pattern conspicuous although not very sharply defined, consisting of silky white crosslines and stigmata. Subbasal, ante- and postmedial crosslined interrupted, slightly sinuous, rather broad, white dots partly defined with dark tobacco-brown scales. Orbicular stigma rounded, tiny dot, reniform larger, more or less discoidal, claviform somewhat bigger than orbicular, mixed with a few brownish scales. Subterminal line broad, diffuse, slightly sinuous, represented by large spots defined with brownish, apical patch large, rounded. Hindwing slightly more ochreous white, covered strongly with brown, discal spot and transverse line hardly traceable; marginal area darker brown with indistinct, pale whitish patches along outer margin. Terminal line interrupted, dark brown, cilia whitish, spotted with brown. Underside of

wings milky whitish, irrorated with brown, discal spots and transverse lines easily recognizable, stronger on hindwing. Female unknown.

Male genitalia (Fig. 33): uncus strong, slender, curved, apically hooked; tegumen broad, relatively low, penicular lobes large, their tips densely hairy. Fultura inferior quadrangular, apical half with stronger, prominent lateral margins; vinculum strong, U-shaped. Valva elongate, slender, medial third slightly dilated at ventral side, costal lobe small, rounded, costal extension rather short, rounded, erected lobe. Cucullus quadrangular, finely hairy, with apex slightly pointed; corona absent. Sacculus medium-long, clavus reduced, harpe represented by its strong basal plate, ampulla small, digitiform, apically dilated, covered with small sensory setae. Aedeagus cylindrical, carina with two dentate lateral bars and short, bill-like ventral plate. Vesica tubular, membranous, everted forward, curved ventro-laterally. Basal half scobinate, with conical dorsal diverticulum, armed with small, acute tooth sitting on broader basal plate. Distal half slightly tapering, finely scobinate, with narrow ventral cornuti field consisting of fine spinules.

Bionomics and distribution. Poorly known, the single known specimen of the species was collected at the late autumn, in medium-high altitude deciduous forest.

Etymology: The new species is dedicated to the collector, Mr Han-Rong Tzuoo (Puli, Taiwan).

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台灣夜蛾科新屬及新種（鱗翅目）

GÁBOR RONKAY and LÁSZLÓ RONKAY

摘要

本文描述台灣夜蛾科新屬 *Taipsaphida* 及另7個新種，包括 *Anaplectoides semivirens*, *Orthosia atriluna*, *Cucullia jungtaichaoi*, *Taipsaphida curiosa*, *Hemiglaea eupompa*, *Leucapamea chienmingfui* 及 *Cosmia hanrongtzuooi*，並附33個圖。