A review of the Philippine species of the genus *Nyctemera* HÜBNER, [1820] with descriptions of new species and subspecies (Lepidoptera: Arctiidae, Nyctemerinae) [1]

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Abstract: A review is given of the species of the genus *Nyctemera* HÜBNER, [1820], occuring in the Philippines. Six new species, *N.* ***contrasta*** **n. sp.,** ***consobriniformis*** **n. sp.,** ***palawanica*** **n. sp,** ***undulata*** **n. sp.,** ***robusta*** **n. sp.** and ***lunulata*** **n. sp.,** and three subspecies, *N. contrasta* ***negrosica*** **n. ssp.,** *N. contrasta* ***supracontrasta*** **n. ssp.** and *N. luzonensis* ***squalida*** **n. ssp.,** are described. *Nyctemera apoensis* KISHIDA, 1994 is found to be a homonym of *N. apensis* SEMPER, 1899 and is given a replacement name, *N.* ***kishidai*** **nom. nov.** Six taxa are found to be synonyms: *Nyctemera alternata* WALKER, 1866 and *Leptosoma proprium* SWINHOE, 1892 are synonymized with *N. radiata* WALKER, 1856; *N. luctuosum rostrigera* PROUT, 1918 is synonymized with *N. luctuosa galbana* (SWINHOE, 1892) (the latter being a **comb. nov.**); *Migoplastis philippinensis* ROTHSCHILD, 1933 is synonymized with *N. gratia* (SCHULTZE, 1910); *Deilemera purata* SWINHOE, 1917 is synonymized with *N. sontica* (SWINHOE, 1892); and *N. latistriga negritorum* SEITZ, 1915 is synonymized with *N. latistriga latistriga* WALKER, 1854. The species of the genera *Deilemera* HÜBNER, [1820] and *Pitasila* MOORE, 1877, are excluded in this review. Other taxa of the genus-group of which the taxonomic position is not yet clear and which should possibly be regarded as separate genera are, for the time being, treated in this review as belonging to *Nyctemera*. The habitus of all (sub-)species is depicted, and an identification key is given (Appendix), and the genitalia of all new species are figured. A general map of the Philippines, with the Islands mentioned in the text, is provided.

Ein Überblick über die philippinischen Arten der Gattung *Nyctemera* Hübner, [1820] mit Beschreibung neuer Arten und Unterarten (Lepidoptera: Arctiidae, Nyctemerinae)

This contribution to the Lepidoptera fauna of the Philippines was received two months after the most recent "Special Philippine Issue" of the NEVA series (**Supplementum 17**) was published; a follow-up Philippine supplement will surely need at least two more years. To make these results available as fast as possible, we publish them here apart from such a special issue within the normal series of NEVA. (Interim publication on the insect fauna of the Philippines no. 1.) – The editors of the "Special Philippine Issues" of NEVA (W. A. NÄSSIG, C. G. TREADAWAY & J. SETTELE).

Zusammenfassung: Es wird ein Überblick gegeben über die Arten der Gattung *Nyctemera* HÜBNER, [1820] der Philippinen. Es werden sechs neue Arten beschrieben: *N.* ***contrasta*** **n. sp.,** ***consobriniformis*** **n. sp.,** ***palawanica*** **n. sp,** ***undulata*** **n. sp.,** ***robusta*** **n. sp.** und ***lunulata*** **n. sp.**; weiterhin drei neue Unterarten: *N. contrasta* ***negrosica*** **n. ssp.,** *N. contrasta* ***supracontrasta*** **n. ssp.** and *N. luzonensis* ***squalida*** **n. ssp.** *Nyctemera apoensis* KISHIDA, 1994 wird als jüngeres Homonym von *N. apensis* SEMPER, 1899 erkannt und hier durch einen Ersatznamen ersetzt: *N.* ***kishidai*** **nom. nov.** Die folgenden sechs neuen Synonymien werden vorgestellt: *Nyctemera alternata* WALKER, 1866 und *Leptosoma proprium* SWINHOE, 1892 **n. syn.** von *N. radiata* WALKER, 1856; *N. luctuosum rostrigera* PROUT, 1918 **n. syn.** von *N. luctuosa galbana* (SWINHOE, 1892) **(comb. nov.)**; *Migoplastis philippinensis* ROTHSCHILD, 1933 **n. syn.** von *N. gratia* (SCHULTZE, 1910); *Deilemera purata* SWINHOE, 1917 **n. syn.** von *N. sontica* (SWINHOE, 1892) sowie *N. latistriga negritorum* SEITZ, 1915 **n. syn.** von *N. latistriga latistriga* WALKER, 1854. Die Arten der Gattungen *Deilemera* HÜBNER, [1820] und *Pitasila* MOORE, 1877 werden hier nicht bearbeitet. Andere Taxa der Gattungsgruppe, deren taxonomische Position nicht klar ist und die sich wahrscheinlich als separate Gattungen erweisen werden, sind in der vorliegenden Arbeit vorläufig noch in *Nyctemera* enthalten geblieben. Der Habitus aller Arten und Unterarten wird abgebildet, ein Bestimmungsschlüssel der philippinischen *Nyctemera* wird in einem Appendix gegeben, und die Genitalapparate aller neuen Taxa werden abgebildet. Eine Übersichtskarte der Philippinen mit den im Text erwähnten Inseln ist beigefügt.

Introduction

The genus *Nyctemera* HÜBNER, [1820] comprises about a hundred species, distributed mainly in South-East Asia and Australia (including the Pacific Islands) and with less than thirty species in tropical Africa. Its diversity is most striking in the Indonesian and the Philippine Archipelagoes. The Philippines are characterized by their many endemic species. KISHIDA (1994) earlier showed the diversity of the "*arctata*-group" (the "*browni*-group" of KISHIDA) of which he described three new species. We here add six new *Nyctemera* species (of which five again belong to the "*arctata*-group") and three new subspecies (one of the "*arctata*-group"). At present 22 species are known from this area. This rather large number makes it desirable to give a review of all *Nyctemera*-species of the Philippine Archipelago.

Some species, traditionally included in *Nyctemera*, but on account of genitalia and wing characters to be excluded from *Nyctemera* (sensu stricto), are not included in this review. Most of these species belong to the genera *Deilemera* HÜBNER, [1820], and *Pitasila* MOORE, 1877. The genera *Deilemera* and *Pitasila* will be treated separately in revisions to come.

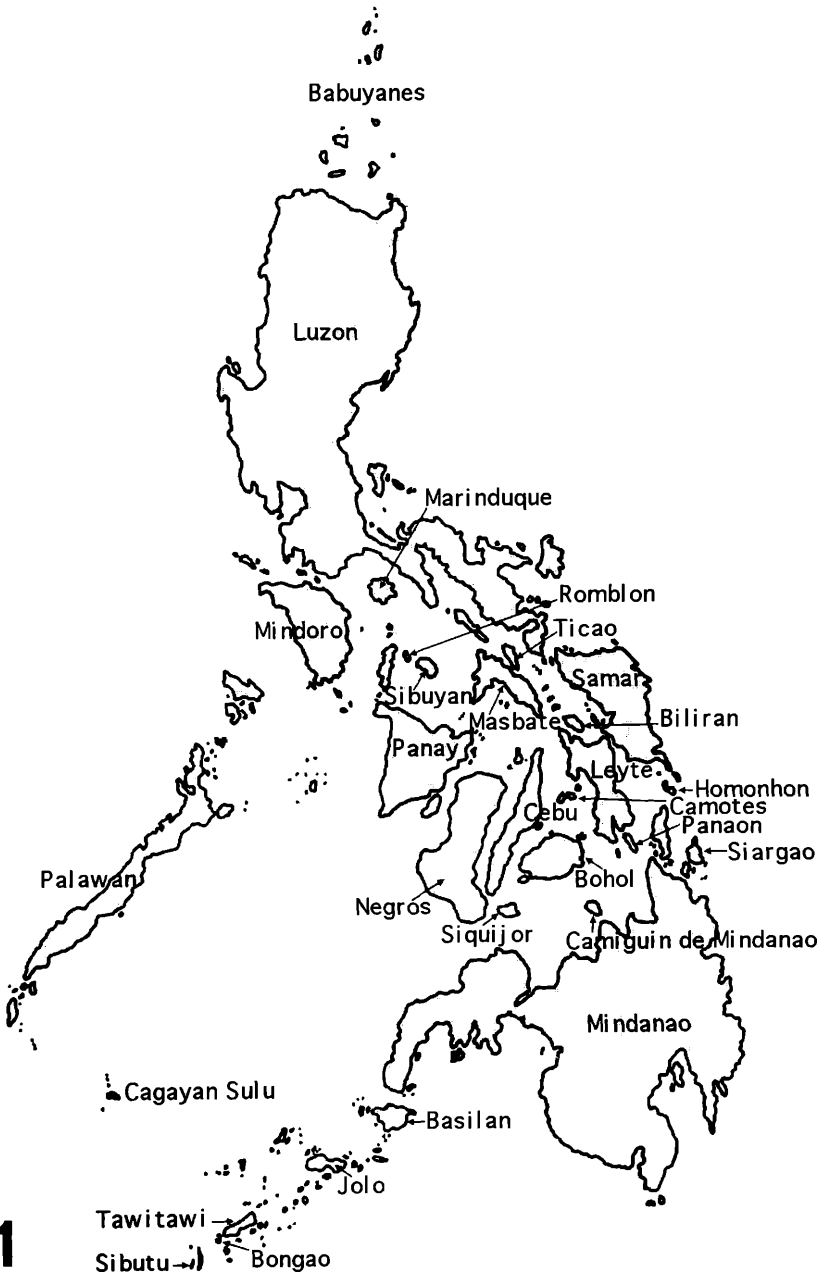


Fig. 1: The Philippines. Marked islands are mentioned in the text.

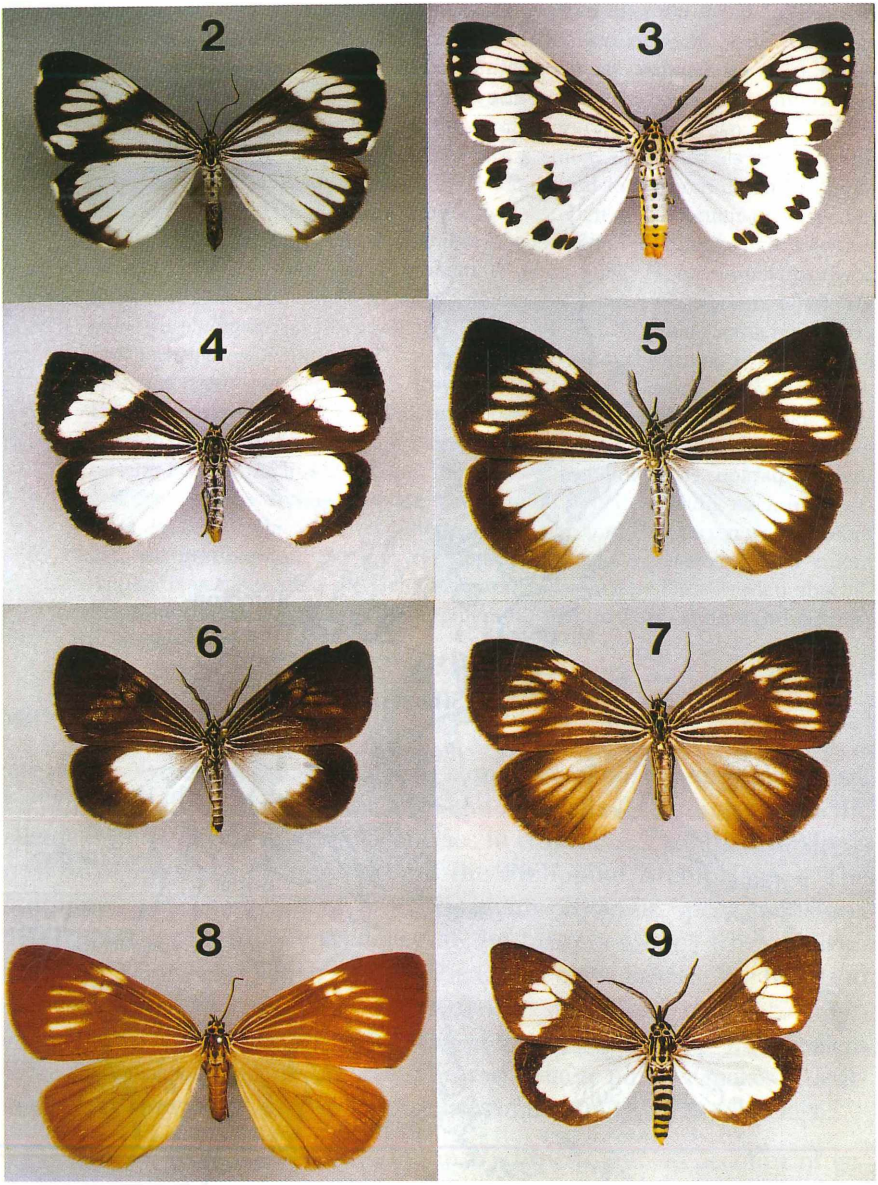


Fig. 2: *Nyctemera coleta* (STOLL), ♀ (Negros). **Fig. 3:** *Nyctemera adversata* (SCHALLER), ♂ (Negros). **Fig. 4:** *Nyctemera tripunctaria* (LINNAEUS), ♀ (Palawan). **Fig. 5:** *Nyctemera radiata* WALKER, ♂ (Negros). **Fig. 6:** *Nyctemera radiata* f. *semibrunnea* SEITZ, ♂ (Mindanao). **Fig. 7:** *Nyctemera radiata* f. *propria* (SWINHOE), ♀ (Leyte). **Fig. 8:** *Nyctemera radiata* f. *loligo* SEITZ, ♀ (Camotes). **Fig. 9:** *Nyctemera baulus* (BOISDUVAL), ♂ (Luzon).

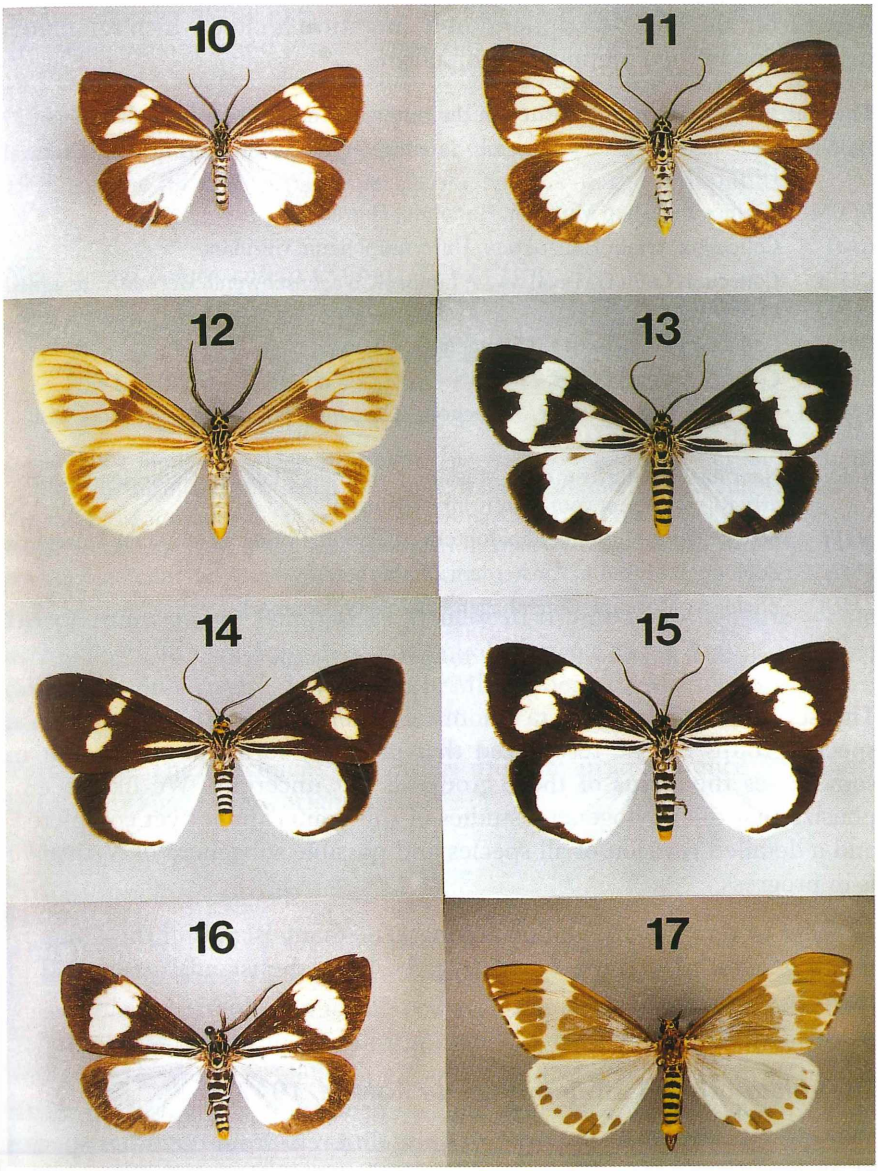


Fig. 10: *Nyctemera latistriga* WALKER, ♀ (Palawan). **Fig. 11:** *Nyctemera sontica* (SWINHOE), ♀ (Sibuyan). **Fig. 12:** *Nyctemera sontica* f. *homologa* SEITZ, ♂ (Cebu). **Fig. 13:** *Nyctemera luctuosa galbana* (SWINHOE), ♀ (Negros). **Fig. 14:** *Nyctemera contrasta contrasta* spec. nov., ♀ (Mindanao, paratype). **Fig. 15:** *Nyctemera contrasta negrosica* subspec. nov., ♀ (Negros, paratype). **Fig. 16:** *Nyctemera contrasta supracontrasta* subspec. nov., ♂ (Palawan, paratype). **Fig. 17:** *Nyctemera arctata albofasciata* (WILEMAN), ♂ (Luzon).

Apart from the type descriptions, only literature is cited which refers to a distribution in the Philippine Archipelago.

The material examined is deposited in the following institutions and collections:

BMNH	The Natural History Museum, London (formerly British Museum [Natural History])
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, USA
CAH	Collection Armin HAUENSTEIN, Untermünkheim, Germany
CCGT	Collection Colin G. TREADAWAY, Limbach-Wagenschwend, Germany, assigned to SMFL
CPK	Collection Peter KAUTT, Tübingen, Germany
CKC	Collection Karel ČERNÝ, Zirl, Austria
CMWM	Museum Thomas WITT, München, Germany, assigned to the Zoologische Staatssammlung, München
RMNH	Nationaal Natuurhistorisch Museum "Naturalis", Leiden, Netherlands (formerly Rijksmuseum voor Natuurlijke Historie)
SMFL	Senckenberg-Museum, Lepidoptera collection, Frankfurt am Main, Germany
ZMA	Zoölogisch Museum, Amsterdam, Netherlands
ZMUC	Zoologisk Museum, Copenhagen University, Denmark
Lfw	Length of forewing (from base to apex in a straight line)

The species are treated in taxonomical order as far as possible. Several species-groups can be recognized that probably form subgenera, but in some cases the status of these groups is yet uncertain. We like to emphasize that the phylogenetic studies of this genus are not yet completed, and a detailed revision of all species and possible subgenera of *Nyctemera* is in progress.

In order to simplify orientation amongst the many islands of the Philippines, a general map is presented (Fig. 1). Only the islands mentioned in the text are marked.

The *coleta*-group (subgenus *Coleta* ROEPKE, 1949)

The species of the *coleta*-group are quite different from the other species of *Nyctemera*. The fringe spots on both wings and the pheromone scales on the foretibia of the male are the most striking characters. The construction of the uncus, which is divided into two branches, a pseudouncus or "tectum" and the actual uncus, forms the most striking character

in the genitalia of the male. The abdomen is white with dorsal dark dots. The wing venation and general construction of the genitalia of both male and female, however, show a close relationship with *Nyctemera*. ROEPKE (1949) proposed the name *Coleta* as a subgenus, but further study has to establish the status of *Coleta*, which could well be of genus-level (DE VOS 1995 a). The *coleta*-group comprises one species on the Philippines.

Nyctemera coleta coleta (STOLL, 1782) (Fig. 2)

Phalaena Geometra coleta STOLL (1782: 153).

Nyctemera coleta: PAGENSTECHER (1885: 19, 1897: 440, 1901: 142), SWINHOE (1892: 140), SEMPER (1899: 495), SEITZ (1915: 267), BARLOW (1983: 75).

Nyctemera coleta coleta: ROEPKE (1949: 52).

General distribution: A widely distributed species. It is found from Ceylon and India through the mainland of oriental Asia, northwards to southern China and Taiwan. To the southeast it occurs as far as the western part of Irian Jaya (Birdshead Peninsula, Roon Island and West Biak). One specimen in the BMNH is labeled with "Bismarck Archipelago", but this locality is not very likely.

Distribution on the Philippines: Widely distributed through the whole archipelago. Known from Basilan, Bohol, Bongao (Sulu Arch.), Cagayan Sulu, Jolo (Sulu Arch.), Leyte, Luzon, Mindanao, Negros, Palawan, Samar, Sibuyan and Siquijor.

Variability: The specimens are rather uniform in appearance and show hardly any significant variability.

The *tripunctaria*-group

This group is closely related to the *coleta*-group, as indicated by similarities in the radiated wing pattern (which, however, lacks the fringe markings of the *coleta*-group) and the construction of the uncus. The uncus is not completely bipartite as in *coleta*, but it is clearly divided in an upper and a lower part, especially in *adversata* and *radiata*. The valvae have a single process, situated between sacculus and cucullus. This process is an extension of the sacculus, which appears from the direction and position of the setae. The abdomen is white with a dark dorsal line or dark dots. In the Philippines three species of the *tripunctaria*-group are found.

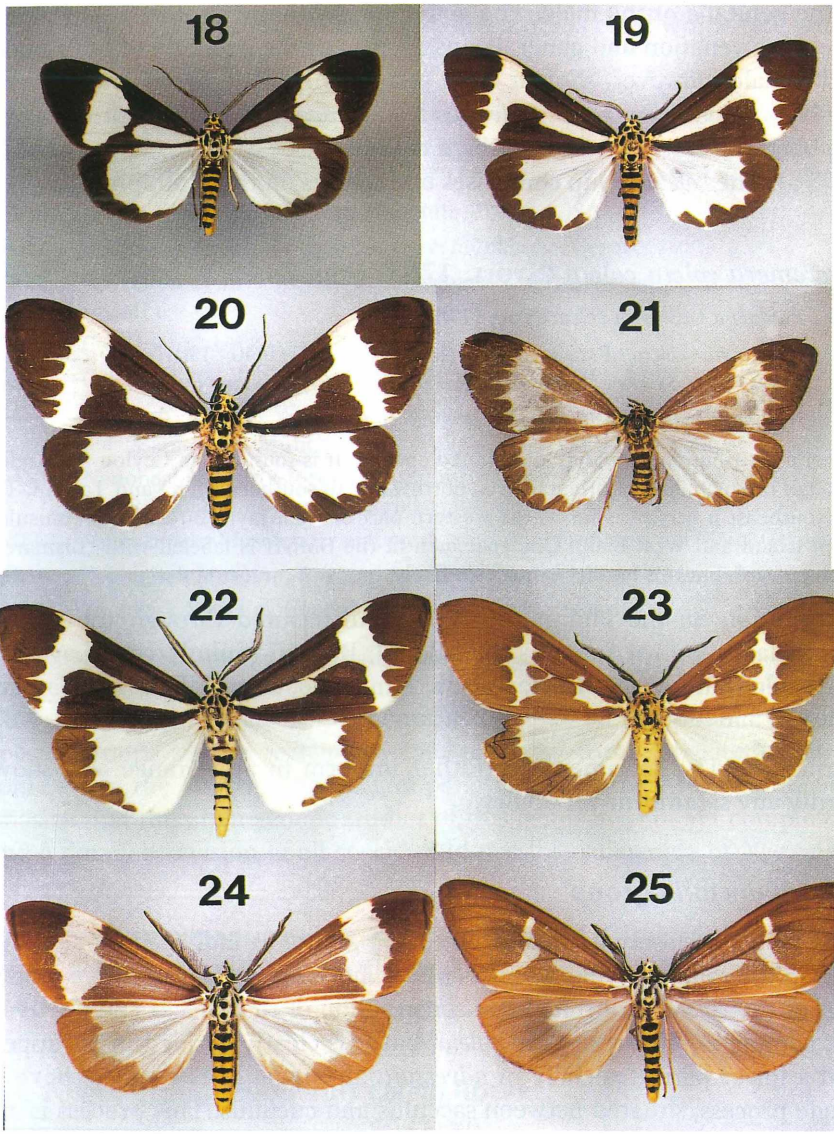


Fig. 18: *Nyctemera consobriniformis* spec. nov., ♂ (Mindanao, holotype). **Fig. 19:** *Nyctemera browni* (SCHULTZE), ♂ (Negros). **Fig. 20:** *Nyctemera palawanica* spec. nov., ♀ (Palawan, holotype). **Fig. 21:** *Nyctemera kinabaluensis* (REICH), ♀ (N. Borneo, Sabah, Mt. Kinabalu). **Fig. 22:** *Nyctemera angustipennis* KISHIDA, ♂ (Luzon). **Fig. 23:** *Nyctemera undulata* spec. nov., ♂ (Mindanao, holotype). **Fig. 24:** *Nyctemera robusta* spec. nov., ♂ (Mindanao, holotype). **Fig. 25:** *Nyctemera lunulata* spec. nov., ♂ (Mindanao, holotype).

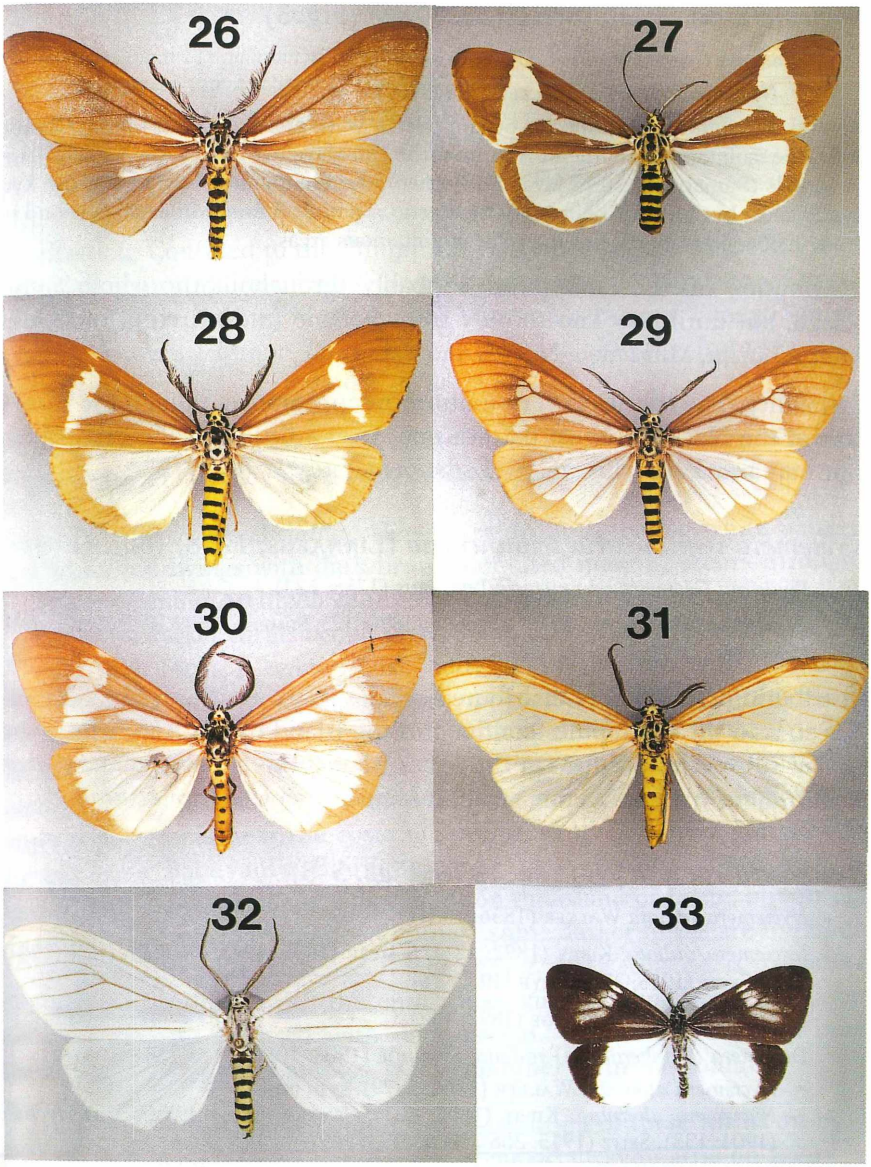


Fig. 26: *Nyctemera lunulata* spec. nov., dark form, ♂ (Mindanao, paratype). **Fig. 27:** *Nyctemera owadai* KISHIDA, ♀ (Luzon). **Fig. 28:** *Nyctemera kishidai* nom. nov., ♂ (Negros). **Fig. 29:** *Nyctemera luzonensis luzonensis* (WILEMAN), ♂ (Luzon). **Fig. 30:** *Nyctemera luzonensis luzonensis* (WILEMAN), local form?, ♂ ("Mindanao"?). **Fig. 31:** *Nyctemera luzonensis squalida* subspec. nov., ♂ (SE Luzon, holotype). **Fig. 32:** *Nyctemera gratia* (SCHULTZE), ♂ (Luzon). **Fig. 33:** *Nyctemera apensis* SEMPER, ♂ (Mindanao).

Nyctemera adversata (Schaller, 1788) (Fig. 3)

Phalaena Geometra adversata Schaller (1788: 52).

= *Nyctemera plagifera* Walker (1854: 400).

General distribution: The species occurs over a wide area: southern China, Ceylon, India, the mainland of Southeast Asia from the Himalaya to Malacca, the Greater Sunda Islands (Sumatra, western Java and Borneo), the Philippines, Taiwan and the Ryu Kyu Islands. In China it reaches the Palaearctic region. It is found from sea-level up to about 3000 meters, but seems to prefer mountainous areas.

Distribution on the Philippines: Probably throughout the whole archipelago, but until now known only from Bongao (Sulu Arch.), Jolo (Sulu Arch.), Luzon, Mindanao, Negros and Palawan.

Variability: The species is very uniform in appearance, though the extension of the blackish brown pattern may vary a little and the ground colour may be cream-white instead of snow-white.

Nyctemera tripunctaria tripunctaria (Linnaeus, 1758) (Fig. 4)

Phalaena Geometra tripunctaria Linnaeus (1758: 523).

Nyctemera tripunctaria: Pagenstecher (1890: 12), Semper (1899: 493), Holloway (1988: 69).

Distribution: This widely distributed species, from Southern China to Sulawesi, is in the Philippines confined to the island of Palawan, where the typical subspecies occurs. On the other islands the closely related *Nyctemera radiata* Walker occurs, where it seems to replace *tripunctaria*.

Nyctemera radiata Walker, 1856 (Figs. 5–8)

Nyctemera radiata Walker (1856: 1664).

Nyctemera radiata: Kirby (1892: 421), Semper (1899: 494), Pagenstecher (1901: 131), Seitz (1915: 272), Bryk (1937: 75).

Leptosoma radiata: Swinhoe (1892: 142).

Deilemera (Tripheromera) radiata: Swinhoe (1903: 70).

= *Nyctemera alternata* Walker (1866: 1879), **syn. nov.**
Nyctemera alternata: Kirby (1892: 421), Semper (1899: 495), Pagenstecher (1901: 133), Seitz (1915: 268), Bryk (1937: 49).
Leptosoma alternatum: Swinhoe (1892: 142).
Deilemera (Tripheromera) alternata: Swinhoe (1903: 70).

= *Nyctemera alternata* f. *semibrunnea* Seitz (1915: 268), Bryk (1937: 50).

= *Leptosoma proprium* Swinhoe (1892: 144), **syn. nov.**

Nyctemera proprium: SEMPER (1899: 495), PAGENSTECHER (1901: 130), BRYK (1937: 75).
Deilemera (Tripheromera) propria: SWINHOE (1903: 71).
Nyctemera propria: SEITZ (1915: 268).

= *Nyctemera propria* f. *loligo* SEITZ (1915: 268).
= *Nyctemera proprium* f. *loligo*: BRYK (1937: 75).
= *Leptosoma eryla* BOISDUVAL, i.l. sensu SEMPER (1899: 494).
= *Leptosoma convexa* BOISDUVAL, i.l. sensu SEMPER (1899: 495).

Distribution: Confined to the Philippines, known from the whole archipelago: Babuyanes, Biliran, Bohol, Bongao, Camiguin de Mindanao, Camotes, Cebu, Leyte, Luzon, Marinduque, Mindanao, Negros, Panay, Samar, Sibutu, Sibuyan, Siquijor. The species is found at altitudes from sea-level up to 2100 meters.

Nyctemera radiata appears to be absent on the island of Palawan, where it seems to be replaced by the closely related species *N. tripunctaria.*

Variability: The typical *radiata* (Fig. 5), with the extended white pattern and white hindwings with dark brown dentated margin, occurs throughout the Philippine Archipelago (except Palawan). However, in some areas more or less darker forms occur, often sympatric with the typical one. An intermediate form, f. *semibrunnea* SEITZ, 1915 (Fig. 6), with darkened forewings and quite typical hindwings, appears to be rare since only three specimens are known (two from Mindanao and one from Sibuyan). The more darkened f. *propria* SWINHOE, 1892 (Fig. 7), which has some white pattern left in de discal part of the hindwing and at least with some white spots in the fascia near the costa of the forewing, is more common and known from Babuyanes, Biliran, Bohol, Leyte, Luzon, Sibutu and Siquijor. This form seems to be dominant on the island of Leyte, but absent on Panay, Negros and Mindanao, though some darker forms are found on Mindanao. The most darkened f. *loligo* SEITZ, 1915 (Fig. 8), is in fact an extreme of f. *propria*, with the entire hindwing darkened and the fascia on the forewing suffused with dark brown. This form has only been found on the island of Camotes, where no other form was found.

Because little is still known about the distribution of these forms on most islands and as the typical and darker forms occur sympatric on many islands, there is no reason to regard any of the forms mentioned as subspecies, even though on Camotes, Panay, Negros and Mindanao only one phenotype occurs. These forms are probably caused by ecological factors.

The *lacticinia*-group (subgenus *Nyctemera* HÜBNER, [1820] sensu stricto)

The *lacticinia*-group (often called *baulus*-group, named after the most common species, but *lacticinia* CRAMER, 1779, is the oldest name) forms the nominotypical subgenus *Nyctemera*. This group has a wide distribution with three Philippine species. The group is characterized by a clear and rather broad fascia on the forewing and a sharply defined dark hindwing margin with the "*Nyctemera*-tooth" at vein 2. The male uncus is beak-shaped with a more or less well developed dorsal keel. The valvae are most characteristic; they have three processes: a small process on the sacculus, an extension of the sacculus (with or without a tooth at the inside), and an extension of the cucullus. Abdomen with pale (often yellow) and dark bands.

Nyctemera baulus baulus (BOISDUVAL, 1832) (Fig. 9)

Leptosoma baulus BOISDUVAL (1832: 200).

Nyctemera baulus: PAGENSTECHER (1900: 55), VAN EECKE (1928: 59), BRYK (1937: 55).

Nyctemera baulus baulus: ROEPKE (1949: 50)

= *Nyctemera mundipicta* WALKER (1859: 184)
Nyctemera mundipicta: SEMPER (1899: 493), PAGENSTECHER (1901: 119), MATSUMURA (1930: 62).
Leptosoma mundipicta: SWINHOE (1892: 141).

= *Nyctemera integra* WALKER (1866: 1879)
Nyctemera integra: KIRBY (1892: 420), PAGENSTECHER (1901: 120).
Deilemera (Tripheromera) integra: SWINHOE (1903: 76).

General distribution: Probably the most widely distributed species of the genus. It is found as far west as India and Ceylon, ranges through oriental Asia to Taiwan, has its easternmost distribution on Samoa and reaches southeastward to Queensland and New Caledonia. It frequents all kinds of habitats, but is often found in cultivated and agricultural areas, from sea-level up to 2000 meters.

Distribution on the Philippines: The species has mainly been found on the island of Luzon. Only a few specimens are known from Mindanao (Zamboanga del Sur, South Cotabato) and Palawan.

Variability: The species is easily recognized and is rather uniform in general appearance in most places, but shows some extreme variation in some areas. In some cases these local forms may be considered as subspecies. One of these forms is f. *secundiana* LUCAS, 1892, which is very common in Queensland and at some localities in Irian Jaya. It has the hindwings much

more darkened, leaving a white oval or circle in the centre of the wing. Two specimens of this form are known from Mindanao. The taxonomy of *N. baulus* is very complex and needs a thorough revision. It is clear by now that *integra* WALKER, 1866 (holotype from the Philippines) is a junior synonym of *baulus baulus* BOISDUVAL, 1832 (holotype from Buru).

Nyctemera latistriga latistriga WALKER, 1854 (Fig. 10)

Nyctemera latistriga WALKER (1854: 397)

Nyctemera latistriga: PAGENSTECHER (1885: 19, 1901: 128), SEMPER (1899: 493), ROEPKE (1949: 55, 1957: 153), HOLLOWAY (1976: 5, 1988: 67).

= *Nyctemera latistriga negritorum* SEITZ (1915: 268), **syn. nov.**
Nyctemera latistriga f. *negritorum:* BRYK (1937: 68).

Distribution: *Nyctemera latistriga* has a wide distribution, from Ceylon and India through the mainland of Southeast Asia and the Sunda Islands to Ambon. It is also widely distributed in the Philippine Archipelago, where it is known from the following islands: Camiguin de Mindanao, Leyte, Luzon, Mindanao, Palawan, Siargao, Tawitawi (Sulu Arch.).

Variability: The species is known for its extreme colour variation, especially on Sumatra, Nias and Java, which makes some specimens almost unrecognizable. No such extreme forms are known from the Philippine islands. In the Philippines *latristriga* has the typical phenotype. SEMPER (1899) remarks that specimens from the Philippines show an "etwas schmälere Aussenbinde" on the forewing and an "etwas breiteren, dunklen Aussenrand" on the hindwing, but we could not trace these differences in the specimens we have seen. The holo- and paratype of *negritorum* SEITZ do not differ from the typical *latistriga* and therefore the name is here regarded as synonym.

Similar species: *Nyctemera latistriga* is very similar to *N. contrasta* spec. nov., which is described below. Since *contrasta* is a very common species it is curious that it was not discovered before. Possible some authors have confused *contrasta* with *latistriga*, but except for the series in the BPBM, all specimens mentioned and depicted in literature, and all old material we have seen in collections, concern *latistriga*.

Nyctemera latistriga is most easily distinguished from *contrasta* by its narrower dark abdominal bands and its dark brown tornal fringes of the hindwing instead of white. The species are furthermore easily distinguished by the genitalia; *latistriga* belongs to the *lacticinia*-group and *contrasta* to the *luctuosa*-group.

Nyctemera sontica (SWINHOE, 1892) (Figs. 11-12)

Leptosoma sonticum SWINHOE (1892: 142).

Nyctemera sonticum: SEMPER (1899: 494), PAGENSTECHER (1901: 132), BRYK (1937: 80), HOLLOWAY (1988: 66).

Deilemera (Tripheromera) sontica: SWINHOE (1903: 79).

Nyctemera sontica: SEITZ (1915: 271).

Nyctemera sontica f. *homologa* SEITZ (1915: 272), BRYK (1937: 80).

= *Deilemera purata* SWINHOE (1917: 335), **syn. nov.**
Nyctemera purata: BRYK (1937: 75).

Distribution: This species has its main distribution throughout the Philippine Archipelago, but is also recorded from Sabah, Northeast Borneo (HOLLOWAY 1988). In the Philippines it is known from the islands of: Bohol, Bongao (Sulu Arch.), Camiguin de Mindanao, Camotes, Cebu, Homonhon, Jolo (Sulu Arch.), Leyte, Luzon, Masbate, Mindanao, Mindoro, Negros, Palawan, Panaon, Panay, Romblon, Samar, Siargao, Sibuyan, Siquijor, Tawitawi (Sulu Arch.) and Ticao. It appears to be a rather common species, found at altitudes between sea-level and 2200 meters.

Variability: The wing pattern is fairly uniform, but some specimens with a more oblique fascia on the forewing are easily confused with *N. radiata*. They differ, however, in wingshape; the termen of the forewing in *sontica* is more straight than in *radiata*. The abdomen of *sontica* is white, with black dorsal dots on the first segments and rudimentary small dots on the other segments, while in *radiata* the white abdomen has a dark grey fine dorsal line.

Most striking, however, is the kind of albinism SEITZ (1915) described as f. *homologa* (Fig. 12) and SWINHOE (1917) as *purata*. In this form the dark pattern is reduced for the greater part, but still more or less recognizable. These "albino" forms are concentrated on the islands of Cebu, Bohol and Camotes, which are close to each other. Since the typical form of *sontica* also occurs on these islands, the "albino" form can not be considered to be a different subspecies. Complete "albino" specimens also exist, until now only four specimens are known from Cebu (SMFL). There is no trace of a dark pattern in both wings; the forewings are bone-white and the hindwings are pure white. Specimens of this form can still be recognized as *sontica* by the wingshape and the pattern on the abdomen.

The *luctuosa*-group

The black and white wing pattern of species of the *luctuosa*-group is very contrasting. The dark cubital vein cutting in the inner margin of the white fascia is a striking character on the forewing, but also occurs in some species of the *lacticinia*-group. A basal white streak is almost always present on the forewing. The abdomen is distinctly pale and dark banded. Though the uncus is claw-shaped without any trace of a keel, the general construction of the genitalia show a distinct resemblance to the *lacticinia*-group, to which they are probably closely related. The valvae have two processes; an extension of the sacculus and an extension of the cucullus. The aedeagus is rather long with a trumpet-shaped distal end. The female genitalia show one larger signum, boat-shaped and curled as in the *lacticinia*-group, but distally often separated from a smaller second part. The lamella postvaginalis is often very large, especially in *luctuosa* and *simulatrix*. There are two Philippine species of the *luctuosa*-group.

Nyctemera luctuosa galbana (Swinhoe, 1892) comb. nov. (Fig. 13)

Leptosoma luctuosum Snellen van Vollenhoven (1863: 42).

Nyctemera luctuosum: Semper (1899: 492).

Leptosoma galbanum Swinhoe (1892: 146).

Nyctemera galbanum: Semper (1899: 492), Pagenstecher (1901: 125), Prout (1918: 317), Bryk (1937: 62).

Deilemera (Tripheromera) galbana: Swinhoe (1903: 80).

Nyctemera galbana: Seitz (1915: 272).

= *Nyctemera luctuosum rostrigera* Prout (1918: 317), Bryk (1937: 70), **syn. nov.**

General distribution: The species *luctuosa* Snellen van Vollenhoven, 1863 is distributed east of Weber's Line. It is found in many forms and a few subspecies throughout the Moluccas, the Philippines, New Guinea, the Bismarck Archipelago, Queensland and the New Hebrides. Only three specimens are known from northern and eastern Sulawesi (SMFL and BMNH), but these may be migrants or, more probably, wrongly labeled specimens. The species is found from sea-level up to 2500 m.

Distribution of subspecies *galbana*: Confined to the Philippines. It is found on the following islands: Bongao (Sulu Arch.), Cebu, Luzon, Mindanao, Negros and Siquijor.

Variability: Subspecies *galbana* is characterized by its extended white pattern. The white fringe-line at the tornus of the hindwing and the white spot in the cell, connected with the large basal patch are its most striking characters. In some females, mostly from Mindanao and Cebu, this white

cell-spot is lacking, giving the wings an almost typical *luctuosa* appearance, though the white fringe-line in the tornus of the hindwing is still present. This phenotype is described as subspecies *rostrigera* PROUT, 1918, but is in fact a local female form.

Nyctemera contrasta spec. nov. (Figs. 14-16, 34 a-d, 35 a-b)

Holotype: ♀, Philippinen, Mindanao, Bukidnon, 40 km NW Maramag, Dalongdong, 800 m, Talakag, 7°53'N, 123°54'E, Waldrand, 1.-3. x. 1988, leg. ČERNÝ & SCHINTLMEISTER, ZMA.

Paratypes (all from the Philippines):
Mindanao: 9 ♂♂, 14 ♀♀, Bukidnon, 45 km NW Maramag, Mt. Binansilang, 1200 m, 7°55'N, 124°40'E, Bergurwald, 2. x. 1988, leg. ČERNÝ & SCHINTLMEISTER; 1 ♂, 3 ♀♀, Bukidnon, Dalongdong, 31. XII. 1991-2. I. 1992; 3 ♂♂, 1 ♀, Bukidnon, 15 km NW Maramag, Mt. Malambu, Mt. Bagong Silang, 30. XII. 1991, 1450 m, prim. forest, leg. ČERNÝ; 3 ♂♂, Bukidnon, 15 km NW Maramag, Mt. Malambu, Mt. Bagong Silang, 29. XII. 1991, 1250 m, sec. forest, leg. ČERNÝ; all these in CKC. • 1 ♂, 19 ♀♀, Bukidnon, 40 km NW Maramag, Dalongdong, 800 m, Talakag, 7°53'N, 123°54'E, Waldrand, 1.-3. x. 1988, leg. ČERNÝ & SCHINTLMEISTER, 1 ♂, 7 ♀♀ in CKC, 3 ♀♀ in CMWM, 4 ♀♀ in CAH, 5 ♀♀ in ZMA. • 1 ♀, Mt. Apo, 28. VIII. 1985, J. H. LOURENS, ZMA. • 1 ♂, 1 ♀, Bukidnon, San Vicente, 1000 m, 3. III. 1989 (♂), 900 m, 23. IX. 1989; 2 ♂♂, 1 ♀, Bukidnon, Lantapan, 28. VIII. 1989 (♂), Mt. Apolang, 1900 m, 28. VIII. 1989, 1500 m, 24. VIII. 1989 (♂); 6 ♀♀, Bukidnon, Mt. Imbayao, 1000 m, 9. VI. 1976, 9. IX. 1988, 700 m, 20. VIII. 1988, 21. VIII. 1988, 8. IX. 1988, 1500 m, 7. IX. 1988; 1 ♂, Bukidnon, Mt. Kalatungan, 26. V. 1998; 1 ♂, 5 ♀♀, Bukidnon, Mt. Kitanglad, Intavas, 25. VII. 1990, Mt. Kitanglad, 16. V. 1995 (♂), 2000 m, 6. I. 1995, 7. I. 1995, 1700 m, 20. II. 1995, 2. III. 1995; 2 ♂♂, 12 ♀♀, Misamis occ., Jiminez, Mt. Malindang, 20. III. 1995, 800 m, 11. II. 1988 (2 ♂♂), 30. I. 1988, 1. II. 1988, 1000 m, 1. XI. 1980, 4. XI. 1980, 29. VI. 1987, 1. XI. 1987, 3. XI. 1987, 5. II. 1988, 1450 m, 27. II. 1982, 1. III. 1982, 1600 m, 3. XI. 1987; 1 ♀, Agusan del Norte, Cabadbaran, 300 m, 13. I. 1981; 1 ♀, Davao, Mt. Magan, 16. VI. 1976; 1 ♂, 8 ♀♀, Davao, Mt. Apo, 2000 m, 26. II. 1994 (♂), 25. II. 1994, 26. II. 1994, 27. II. 1994 (2×), 26. XI. 1994, Mt. Apo, Hot Springs, 1450 m, 16. VI. 1978 (3×); 9 ♀♀, S. Cotabato, Mt. Busa, 1000 m, 19. VII. 1998 (2×), Grandang Tupi, 1000 m, 25. VIII. 1984, Tboli, Lake Maugham, 1300 m, 6. XII. 1983, 12. XII. 1983 (2×), Tboli, Mt. Parker, 1300 m, 4. XI. 1985 (2×), 17. II. 1995; all these in CCGT. • 10 ♂♂, 5 ♀♀, Davao del Sur, Mt. Apo-West, 1200 m, 28.-30. VII. 1993, Sekundärwald, leg. SINIAEV & SCHINTLMEISTER; 3 ♂♂, 6 ♀♀, Bukidnon, Mt. Kitanglad, 750 m, 15. VIII.-15. IX. 1993, leg. V. SINIAEV; 2 ♂♂, Bukidnon, Mt. Kitanglad, 1200 m, 2. VIII. 1993, leg. SINIAEV & SCHINTLMEISTER; 5 ♂♂, 2 ♀♀, Bukidnon, Mt. Kitanglad S-Seite, 1650 m, 5. VIII. 1993, 8.07'N, 124.55'E [sic], leg. SINIAEV & SCHINTLMEISTER; 7 ♂♂, 9 ♀♀, Bukidnon, Mt. Kitanglad, 1700 m, 15. VIII.-15. IX. 1993, leg. V. SINIAEV; 7 ♂♂, 14 ♀♀, Bukidnon, Mt. Kitanglad, 2200 m, 15. VIII.-15. IX. 1993, leg. V. SINIAEV; 4 ♂♂, 4 ♀♀, Prov. Davao del Sur, Mt. Apo, SE-route via Kapatagan, 10.-12. VII. 1996, 1570 m, Primärurwald, leg. Dr. R. BRECHLIN; 18 ♂♂, 12 ♀♀, Misamis, Malasag Mt., 300 m, 8.-15. II. 1996, leg. GUNDOROV; 23 ♂♂, 5 ♀♀,

Bukidnon Prov., Mt. Kitanglad, 1200 m, 1.-7. II. 1996, leg. GUNDOROV; all these in CMWM. • 1 ♀, Misamis Or., Mt. Balatukan, 15 km SW of Gingoog, 1000-2000 m, 30. IV. 1960, H. M. TORREVILLAS; 2 ♂♂, 1 ♀, Misamis Or., Mt. Balatukan, 15 km SW of Gingoog, 1000-2000 m, 27.-30. V. 1960, H. TORREVILLAS; 1 ♂, Misamis Or., Mt. Balatukan, 15 km SW of Gingoog, 1000-2000 m, 1.-5. V. 1960, at light, H. TORREVILLAS; 1 ♂, 1 ♀, Zamboanga del Norte, Masawan, Trail to Mt. Malindang, 1290 m, 4. VII. 1958, rain forest, H. E. MILLIRON; 2 ♀♀, Misamis Or., Mt. Empagatao, 1050-1200 m, 19.-30. IV. 1961, H. TORREVILLAS; 1 ♂, Misamis Or., Mt. Pomalihi, 21 km W. Gingoog City, 800-1000 m, 21. IX. 1965, H. TORREVILLAS, Light Trap; 2 ♀♀, Misamis Or., Mt. Pomalihi, 21 km W. Gingoog City, 800-1000 m, 17. IX. 1965, H. TORREVILLAS, Light Trap; 1 ♀, Misamis Or., Mt. Pomalihi, 21 km W. Gingoog City, 800-1000 m, 2. X. 1965, H. TORREVILLAS, Light Trap; 1 ♀, Misamis Or., Mt. Kibungol, 20 km SE of Gingoog, 700-800 m, 9.-18. IV. 1960, W. TORREVILLAS; 1 ♀, Misamis Or., Minalwang, 1050 m, 24. III.-4. IV. 1961, H. TORREVILLAS; 1 ♀, Walce Duminagat, nr. Mt. Malindang, 5000', no date, H. E. MILLIRON; all these in BPBM. • 1 ♂, 6 ♀♀, S. Cotabato, Parker Mts., Salacafe, 770 m, lighttrap, 2.-12. IV. 1985 (♀♀), Salacafe, El Milil, 1250 m, 7. IV. 1985 (♂), R. A. MÜLLER leg. et coll.; 1 ♂, 2 ♀♀, N. Cotabato, Apo Range, Mt. Apo Peak, 2940-2954 m, 28. IV. 1985, Lake Agko Area, 1400 m, forested area, 1. V. 1985, Lake Venado, 2280 m, 26.-30. IV. 1985 (♂), all leg. et coll. R. A. MÜLLER; 1 ♀, N. Cotabato, Mt. Apo, Philipp. Natl. Oil Comp., lighttrap, 1400-1500 m, V. 1994, leg. A. BUENAFE, coll. R. A. MÜLLER; 1 ♀, Surigao del Sur, Carmen, 2nd Equipment Shop, km 11 Lanang line, 600-650 m, 21.-24. IV. 1995, lighttrap, leg. MÜLLER, BUENAFE & GOROSTIZA, coll. R. A. MÜLLER; 1 ♂, 3 ♀♀, Davao Oriental, Boston, Mt. Agtuuganon, camp 55, 1020 m, 29. V.-7. VI. 1996 (1 ♂, 2 ♀♀), Boston, Caatijan, 500-550 m, 28. V. 1996, leg. MÜLLER, BUENAFE & GOROSTIZA, coll. R. A. MÜLLER; all these ex coll. R. A. MÜLLER in RMNH.

Camiguin de Mindanao: 1 ♀, Mambajao, 19. VII. 1978, 700 ft., CCGT.

Siquijor: 1 ♂, 1 ♀, Campalanas, 20. VI. 1978, 600 ft., CCGT.

Leyte: 1 ♀, Mt. Balocaue, 600 m, 28. V. 1988; 1 ♂, 2 ♀♀, Mahaplag, Mt. Balocaue, 600 m, 29. VIII. 1984 (♂), 26. IX. 1987, 10. V. 1995; 1 ♂, 5 ♀♀, Mahaplag, Hilusig, Mt. Balocaue, 600 m, 19. II. 1982 (♂), 2. IX. 1986, 4. IX. 1986 (2×), 14. XII. 1986, 16. V. 1987, all CCGT. • 1 ♂, Mahaplag, Hilusig, Mt. Balocaue, 600 m, V. 1986, lighttrap, leg. T. BORROMEO, RMNH.

Other material examined: Furthermore many specimens, ♂♂ and ♀♀, are known from Mindanao and Leyte, all from areas already mentioned (CCGT, CMWM & BMNH).

Imago (Fig. 14): Head yellow with single black spots on frons and vertex, in female these spots larger than in male. Palpi black except for basal half of first segment, which is pale yellow. Antennae black, bipectinated, in female this bipectination shorter. Thorax with patagia and tegulae black with yellow edges. Metathorax with broad pale yellow edge, leaving a circular black spot. Abdominal segments with a dark brown and a snow-white band. Abdomen in male with eight, in female with seven dark

bands; seventh and eighth band black. Distal part of abdomen to seventh dark band yolk-yellow in male and female, but in male divided by the eighth dark band. Legs dark grey, inside pale grey or white.

Lfw. 18–23 mm (in holotype 20 mm). Forewing black brown. Fascia consisting of five snow-white spots (Fig. 14); one small and oval shaped spot between costa and radial vein, one larger somewhat square shaped spot in the end of the cell, one very small spot between vein 3 and 4, one large spot just beneath the latter between vein 2 and 3 and one very small spot just beneath this large spot between vein 1 and 2, which is often confluent with the latter. Forewing with snow-white basal streak, almost half the length of dorsum. Vein 1 and dorsum white beneath the basal streak.

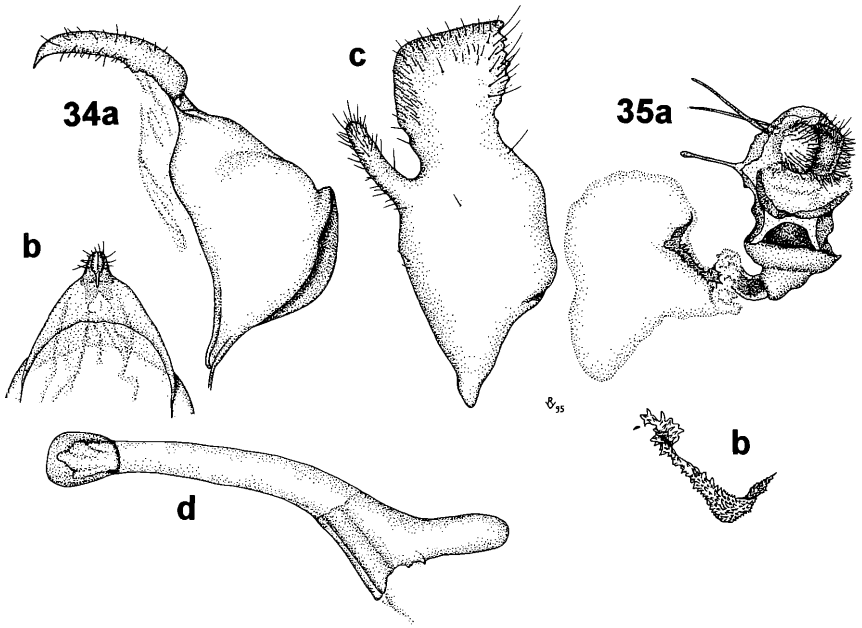
Hindwing snow-white with dark brown margin. Hindwing margin broad at apex and narrowing towards tornus. Fringes at dorsum and tornus white, towards apex gradually changing to dark brown.

Underside less contrastful with grey brown pattern.

Variability: Specimens from Mindanao and Camiguin de Mindanao are rather uniform, but the spots in the forewing fascia sometimes vary in shape. Some specimens have a cream-white or bone-white pattern on the forewing, instead of snow-white. The narrowing hindwing margin may disappear before reaching tornus. Specimens from Leyte are quite variable, sometimes with large patches in the fascia, which are more or less confluent, but never like in *contrasta negrosica* ssp. nov. (see below).

Male genitalia (Figs. 34a–d): Uncus claw-shaped, with downwards bent sharp top (Fig. 34a). Valva with finger-shaped extension of sacculus and broad, almost square shovel-shaped extension of cucullus (Fig. 34c). The latter extension straight and smooth at dorsal side (to sacculus) and top, but dentate at costal side. Both extensions with setae, especially along the sides. Aedeagus rather long, slightly curved, with long coecum (Fig. 34d). Mouth of aedeagus widened trumpet-shaped. No cornuti.

Female genitalia (Figs. 35a–b): Apophyses anteriores and posteriores thin, but of moderate length. Large funnel-shaped antrum consisting of three parts; a broad part next to ostium, a narrower funnel-shaped part and a ribbon-shaped distal part with a darker sclerotized core. The latter part connected with a small, but strongly wrinkled cervix bursae. Bursa copulatrix rather small, shoe-shaped with one signum. Signum (Fig. 35b) long and curled at distal part and, at two third of its length, with rather large teeth along the sides and at distal end.



Figs. **34 a–d:** Male genitalia of *Nyctemera contrasta* spec. nov. **a:** uncus, lateral view. **b:** uncus, ventral view. **c:** right valva, outer side. **d:** aedeagus (after prep. RV 309). **Figs. 35 a–b:** Female genitalia of *N. contrasta* spec. nov. **a:** ventral view. **b:** signum (RV 310).

Similar species: In view of its abundance on Mindanao, it is remarkable that *Nyctemera contrasta* was not discovered before. It probably has been confused with *N. latistriga* which, indeed, looks externally similar to *contrasta*. Some important distinguishing characters are mentioned above in the description of *Nyctemera latistriga*. The two species are, however, not closely related, as is suggested by the different genitalia. *Nyctemera latistriga* belongs to the *lacticinia*-group and *N. contrasta* to the *luctuosa*-group.

Etymology: The name refers to the strongly contrasting white pattern on the almost black wings.

N. contrasta spec. nov. is known across most of the southern Philippines and has three subspecies. *N. contrasta contrasta* is recorded from Mindanao, Camiguin de Mindanao, Siquijor, and Leyte. *N. contrasta negrosica* subspec. nov. is recorded from Negros and Jolo Island (Sulu Arch.). *N. contrasta supracontrasta* subsp. nov. has been found only on Palawan todate.

Nyctemera contrasta contrasta (Figs. 14, 34 a-d, 35 a-b)

Distribution: *Nyctemera contrasta contrasta* is known from Mindanao, Camiguin de Mindanao, Siquijor, and Leyte. On Mindanao it appears to be very common. It is found at altitudes from sea-level up to 2200 m. The moths are attracted to light in primary and secondary forests and secondary bush habitats.

Nyctemera contrasta negrosica subspec. nov. (Fig. 15)

Holotype: ♀, Philippinen, Negros occ., Mt. Canlaon, 4000 ft, 1. XI. 1979, leg. T. TREADAWAY, SMFL.

Paratypes (Philippines):
Negros: 13 ♂♂, 6 ♀♀, Mt. Canlaon, 4000 ft., 23. x.-11. XII. 1979, leg. C.G.T.; 1 ♂, 1 ♀, Mambucal, Mt. Canlaon, 5200 ft., 5. (♂)/6. (♀) IV. 1980; 3 ♀♀, Mambucal, Mt. Canlaon, 800 m, 8. XII. 1984; 1 ♂, Mt. Talinis, 1000 m, 15. x. 1988; all in CCGT. • 1 ♂, Mambucal, Mt. Canlaon, 5200 ft., 5. IV. 1980, ZMA. • 1 ♂, 1 ♀, Mt. Canlaon, 1010 m, W-route via Mambucal, 17.-18. VII. 1996, Primärwald, leg. R. BRECHLIN; 1 ♂, Mt. Canlaon, I.-IV. 1995, SATO; 6 ♂♂, 2 ♀♀, Mt. Canlaon, 600 m, W-route via Mambucal, VII. 1997, Primärwald, coll. Dr. R. BRECHLIN; all in CMWM. • 6 ♂♂, 14 ♀♀, Mt. Canlaon, 600 m, W-route via Mambucal, I.-III. 1997, Primärwald, coll. Dr. R. BRECHLIN; 5 ♂♂, 13 ♀♀ in CMWM, 1 ♂, 1 ♀ in ZMA. • 1 ♀, Mt. Talinas, 1000 m, 29.-31. XII. 1960, H. TORREVILLAS, BPBM.

Sulu Archipelago, Jolo Island: 1 ♀, 14. IX. 1993, leg. J. ABELLA, CCGT.

Distribution: *Nyctemera contrasta negrosica* is mainly recorded from Negros, but has also been found singly on Jolo (Sulu Arch.).

Imago (Fig. 15): The subspecies *contrasta negrosica* only differs from *contrasta contrasta* in wing pattern. All other characters are as described for *contrasta contrasta*.

Lfw. 19-22 mm. Forewing black brown with snow-white fascia. Fascia consisting of confluent patches and dots, but crossed by the dark cubital vein and vein 4. Basal streak snow-white and broad, sometimes even club-shaped. The hindwing snow-white with dark brown margin, which is narrowing towards tornus. Hindwing fringes white, sometimes almost reaching the apex.

Variability: *Nyctemera contrasta negrosica* is rather uniform at all known locations. The patches of the fascia may vary a little in size, but only rarely they are separated.

Etymology: The name *negrosica* is derived from the Island Negros, where this subspecies is abundant.

Nyctemera contrasta supracontrasta subspec. nov. (Fig. 16)

Holotype: ♂, Philippines, Palawan, Mantalingajan, Tagembung, 1150 meter, 18. IX. 1961, Noona Dan Exp. 61-62, Caught by Mercury-light 18.00-06.00, ZMUC.

Paratypes (Philippines): **Palawan:** 1 ♂, Mt. Magcasaw, Mainit, Brooke's Point, 3.-6. X. 1996, 600-900 m, leg. BAL, coll. BRECHLIN, CMWM. • 1 ♂, Mt. Mantalingahan, cold, open rainforst, 1400 m, 8°48.27' N, 117°41.86' E, 18.-19 III. 1999, MV-lamp, leg. A. ZWICK & S. VERDEPRADO; CCGT.

Distribution: The only three specimens known have been found in the southern part of Palawan.

Imago (Fig. 16): Head, thorax and abdomen in general as in *contrasta contrasta*.

Lfw. 20-22 mm. Forewing dark brown. Fascia snow-white, large and broad, touching costa. Innermargin of fascia cut by cubital vein, but not crossed by it. Basal streak large, club-shaped. Dorsum beneath basal streak white.

Hindwing snow-white with rather broad dark brown margin. Hindwing margin not narrowing, ending in the tornus. Margin with distinct "*Nyctemera*-tooth" at vein 2. Fringes dark brown, in tornus of hindwing white, but hardly visible.

Male genitalia: In general as in *contrasta contrasta*, though extension of cucullus, at least in holotype, with larger dentation, but this is a variable feature in *contrasta*.

Similar species: Because of its extended white pattern, larger specimens of ssp. *supracontrasta* are very hard to distinguish from those of *Nyctemera simulatrix consobrina* (HOPFFER, 1874) (DE VOS 1995 b, 1997). However, the narrower dark bands on the abdominal segments, the broader hindwing margin and, of course, the different genitalia are distinct characters of *contrasta supracontrasta*.

Etymology: Because of its even more contrasting wing pattern relative to *contrasta*, it is called *supracontrasta*.

The *arctata*-group (subgenus *Arctata* ROEPKE, 1949)

The *arctata*-group (named *browni*-group by KISHIDA 1994) consists of a complex of at least sixteen species. Twelve of these are found in the Phil-

ippines, of which five are new to science and described below. ROEPKE (1949) proposed the genus name *Arctata* for a new subgenus of which *arctata* WALKER, 1856, is the type species. The subgenus will be reviewed and revised in a later publication (DE VOS, in preparation).

The *arctata*-group can roughly be divided into two subgroups, characterized by the dark wing pattern: the *arctata*-subgroup, with the dark wing pattern irregular and convex between the veins, and the *luzonensis*-subgroup, with the dark wing pattern regular smooth or concave between the veins. The male and female genitalia of the species of this monophyletic group are very characteristic. The male valva are usually very large and longitudinally stretched out, with a long extension of the sacculus. Cucullus in most cases with a small, sometimes even a rudimentary, folded extension. Aedeagus with or without cornutus, in the *luzonensis*-subgroup always without. Female genitalia with lamella postvaginalis strongly, pocket-shaped folded (*luzonensis*-subgroup) or not folded, but sometimes wrinkled (*arctata*-subgroup). Bursa copulatrix with or without signum, in *luzonensis*-subgroup always with small bowl-shaped signum.

The *arctata*-subgroup:

Nyctemera arctata albofasciata (WILEMAN, 1911) (Fig. 17)

Nyctemera arctata WALKER (1856: 1664).

Deilemera arctata albofasciata WILEMAN (1911: 31).

General distribution: *Nyctemera arctata* WALKER, 1856 is widely distributed from the Himalaya through the mainland of Southeast Asia to southern China, Taiwan and the southern islands of Japan in the North and to Sumatra, Java, Borneo and the Lesser Sunda Islands, west of the Wallace Line, in the South-East. Only one specimen has been recorded from Central Sulawesi (ZMA), which may be mislabeled. From the Philippines also just one specimen is known, but its origin is not certain. Several subspecies of *Nyctemera arctata* are recognized.

Distribution on the Philippines: Until now only one male is known from the Philippines: Central-Luzon, IX. 1980, Mt. Isaroque, ex coll. KÜPPERS (CKC). It definitely belongs to subspecies *albofasciata* WILEMAN, 1911, originally described from Taiwan, which is in fact not far from Luzon. It is not certain, however, that the information on the label for this specimen is correct.

Nyctemera consobriniformis spec. nov. (Figs. 18, 36 a–d, 37 a–b)

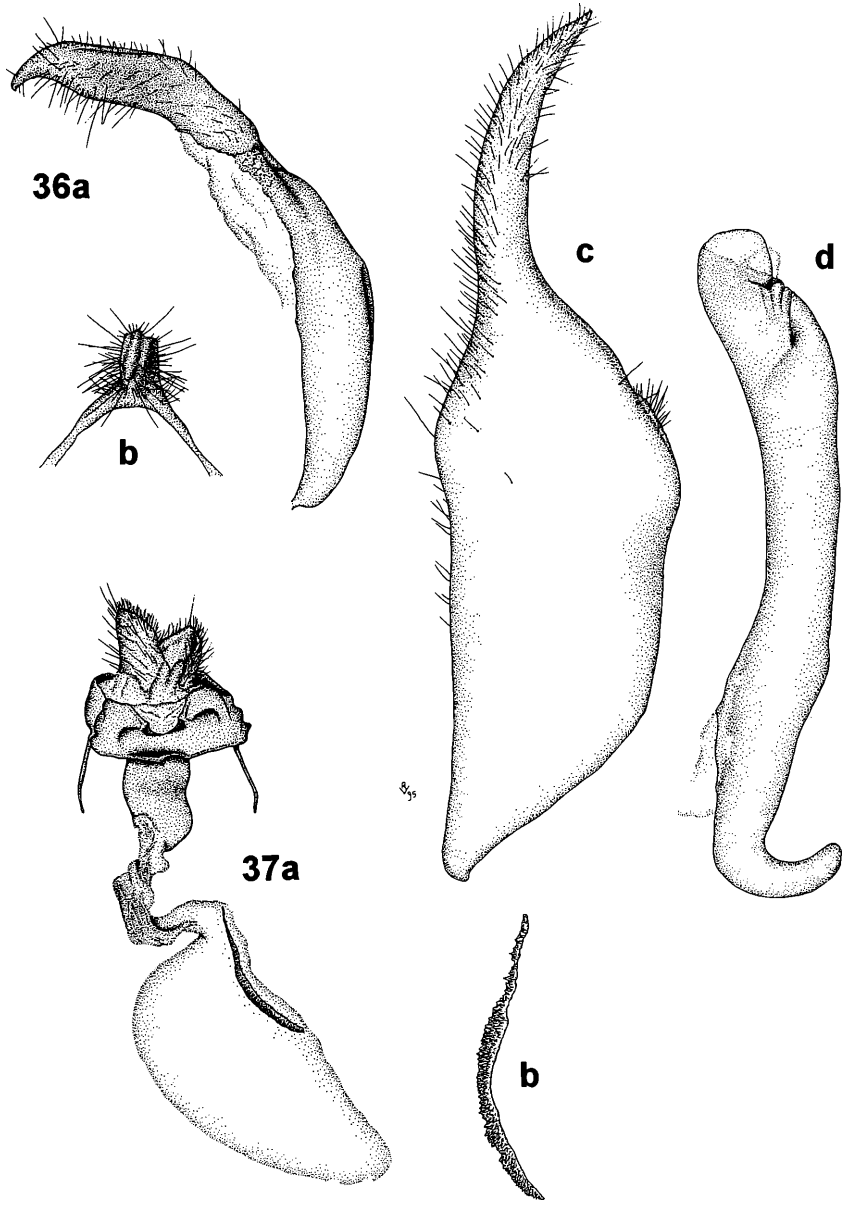
Holotype: ♂, Philippinen, Mindanao, Bukidnon, 40 km NW Maramag, Dalongdong, 800 m, Talakag, 7°53'N, 123°54'E, Waldrand, 1.-3. x. 1988, leg. ČERNÝ & SCHINTLMEISTER, ZMA.

Paratypes (Philippines): **Mindanao:** 9 ♂♂, 4 ♀♀, same data as holotype, 7 ♂♂, 3 ♀♀ in CKC, 1 ♂ in CMWM, 1 ♂, 1 ♀ in ZMA. • 5 ♂♂, 2 ♀♀, Bukidnon, 15 km NW Maramag, Mt. Malambu, Mt. Bagong Silang, 30. XII. 1991, 1450 m, prim. forest, leg. ČERNÝ; 11 ♂♂, 4 ♀♀, Bukidnon, 40 km NW Maramag, Dalongdong, 800 m, 31. XII. 1991-2. I. 1992, leg. ČERNÝ & SCHINTLMEISTER; 1 ♂, Bukidnon, Dalongdong, 800 m, 3. x. 1988; 1 ♂, Bukidnon, Mt. Binansila, 1200 m, 1. x. 1988; all in CKC. • 1 ♂, Bukidnon, Intavas, 1500 m, 1. XI. 1984, CCGT. • 3 ♂♂, 1 ♀, Bukidnon, Mt. Kitanglad, 750 m, 15. VIII.-15. IX. 1993 (2 ♂♂), 1700 m, 15. VIII.-15. IX. 1993 (♂/♀), V. SINIAEV; 1 ♀, Davao del Sur, Mt. Apo, SE-route via Kapatagan, 10.-12. VII. 1996, 1570 m, Primärurwald, leg. Dr. R. BRECHLIN; 2 ♀♀, Bukidnon, Mt. Kitanglad S-Seite, Intavas, Primärurwald, 1650 m, 5. VIII. 1993, 8°07' N, 124°55' E, leg. A. SCHINTLMEISTER & V. SINIAEV; all in CMWM. • 2 ♂♂, Davao Oriental, Boston, Mt. Agtuuganon, camp 55, 1020 m, 29. v.-7. VI. 1996; lighttrap, leg. MÜLLER, BUENAFE & GOROSTIZA, ex coll. R. A. MÜLLER in RMNH.

Distribution: This species has only been found in the mountain regions of the provinces Bukidnon, Davao del Sur and Davao Oriental on the island of Mindanao. The imagines are attracted to light in primary and secondary forests and secondary bush habitats. It is found at altitudes between 750 and 1700 m.

Imago (Fig. 18): Head yellow with black triangular spot on frons, and pear-shaped spot on vertex. Palpi black with yellow base. Antennae black with two white thin longitudinal lines, bipectinate, in female bipectination shorter. Patagia white, with one round black spot. Tegulae white, with one round black spot at base and one oblong black spot in centre. Thorax dorsally white with three median black spots, ventrally yellow with six black spots. Outside of legs grey brown, inside pale brown. Abdomen yellow with black segmental bands.

Lfw. 23-26 mm. Ground colour of forewing dark grey brown. Large white basal streak between vein 1 and 2 and a white dorsal streak, of equal length, between vein 1 and dorsum. White fascia not crossed by dark veins, except for the subcostal vein. The dark medial vein protrudes a little into the inner margin of the fascia. Dark pattern convex, though more or less concave and rather smooth at inner margin of fascia. Hindwing white with dark grey brown margin, with convex "*Nyctemera*-tooth" at vein 2. Margin from tornus to apex broadening. Wing pattern at underside similar to upperside. Female generally a little larger, with more rectangular tornus.



Figs. 36 a–d: Male genitalia of *Nyctemera consobriniformis* spec. nov. **a:** uncus, lateral view. **b:** uncus, ventral view. **c:** right valva, outer side. **d:** aedeagus (RV 326). **Figs. 37 a–b:** Female genitalia of *N. consobriniformis* spec. nov. **a:** ventral view. **b:** signum (RV 346).

Variability: The wing pattern is rather uniform. In three paratypes the fascia is not interrupted by the dark subcostal vein and the forewing dorsum is not white. In some specimens the basal streak touches or is well connected to the fascia.

Male genitalia (Figs. 36a–d): Uncus long, robust and beak-shaped, with rounded dorsal keel and rather blunt top (Fig. 36a). Valva long, stretched out, with a simple finger-shaped extension on sacculus, slightly bent to cucullus (Fig. 36c). Extension of cucullus reduced to a small ridge with setae. Sacculus and extension also with setae. Aedeagus long, coecum hook-shaped (Fig. 36d). Distal part of aedeagus with complex chitinous folds and rounded flap. No cornuti.

Female genitalia (Figs. 37a–b): Apophyses anteriores and posteriores of moderate length. Lamella postvaginalis with small lunular folds and ridge above ostium. Antrum broad and flat, asymmetrically changing in cervix bursae, the latter with many folds and pleats. Bursa copulatrix with one long and slender signum. Signum (Fig. 37b) not curled, only slightly bent, with small dentation at inside.

Etymology: The name is derived from the wing pattern, which is similar to *N. simulatrix consobrina* (HOPFFER, 1874) from northern Sulawesi.

Similar species: *Nyctemera consobriniformis* more or less resembles *N. simulatrix consobrina* (HOPFFER, 1874) from North Sulawesi. It is, however, distinctly different: *Nyctemera simulatrix consobrina* has, among other differences, a strongly concave dark wing pattern and a fascia that is never crossed by a dark subcostal vein. Furthermore the dark rings on the abdominal segments are much broader and the bipectination of the totally black antennae is much longer than in *consobriniformis*.

Nyctemera toxopei VAN EECKE, 1929, from Buru and Ceram, also has a similar pattern, but its forewing termen is straight, instead of rounded. The ground colour of the forewing of *toxopei* is paler brown. The white fascia is larger and broader, almost diamond-shaped, which is not crossed by a dark subcostal vein. The margin of the hindwing of *toxopei* is very narrow, not at all broadening to apex.

Nyctemera browni (SCHULTZE, 1908) (Figs. 19, 38a–f)

Deilemera browni SCHULTZE (1908: 31).

Deilemera arctata browni: SEITZ (1915: 275), BRYK (1937: 89).

Nyctemera arctata browni: CHANG (1989: 136).

Nyctemera browni: KISHIDA (1994: 13).

Nyctemera arctata: ROEPKE (1948: 213), nec WALKER, 1856 (in part).

= *Deilemera conjuncta* WILEMAN (1915: 111).
Nyctemera conjuncta: BRYK (1937: 60).

= *Nyctemera arctata scalarium*: ROEPKE (1949: 49), nec SNELLEN VAN VOLLENHOVEN, 1863 (in part).

Distribution: The species is confined to the Philippine Archipelago. Most records are from the island of Luzon, where it appears to be fairly common, but it was also recorded from Negros (ten specimens), Mindanao and Bongao (Sulu Archipelago) (one specimen each). It is probably widely distributed across the Philippine Archipelago, but evidently rare outside Luzon. *Nyctemera browni* inhabits mountainous areas and is found at altitudes between 300 and 2450 meters. On Palawan it is replaced by the similar species *palawanica* spec. nov.

Similar species: The species is very uniform in appearance and easily recognized by its characteristic wing pattern (Fig. 19). *Nyctemera angustipennis* KISHIDA, 1994 (Fig. 22) and *palawanica* spec. nov. (Fig. 20) (see below) are very similar, though much larger. The hindwing margin of *angustipennis* does not reach the tornus, while in *browni* there is always a distinct tornal patch. The termen of the forewing is rounded in *browni* and straight in *angustipennis*.

Nyctemera kinabaluensis (REICH, 1932) (Fig. 21) is another similar species. A comparison is given under the next species.

Nyctemera palawanica spec. nov. (Figs. 20, 39a–f)

Holotype: ♀, Philippinen, Insel Palawan, Mt. Magcasaw, Mainit, Brooke's Point, 3.-6. x. 1996, 600-900 m, leg. BAL, col. BRECHLIN, CMWM.

Paratypes: **Palawan:** 1 ♀, same data as holotype, CMWM. • 1 ♀, Brooke's Point, Mt. Bayog, III. 1983; 1 ♂, 1 ♀, Mt. Mantalingahan, near "alpine forest", 1600 m, 8°48.76' N, 117°41.71' E, 16.-17 III. 1999 (♀), cold, open rainforest, 1400 m, 8°48.27' N, 117°41.86' E, 18.-19. III. 1999 (♂), MV-lamp, leg. A. ZWICK & S. VERDEPRADO; all in CCGT. • 1 ♂, Mt. Salakot, near top, 950 m, 9°42.49' N, 118° 32.36' E, 25. III. 1998, 160 W MV-lamp, leg. A. ZWICK, CPK.

Distribution: The only specimens known are two ♂♂ and four ♀♀ from the southern part of Palawan.

Imago (Fig. 20): Head pale yellow with black spot on frons and vertex. Palpi black with yellow base. Antennae bipectinate, in ♂♂ the pectination longer, black, spindle from base to one third of length white, fading to

black. Patagia pale yellow, with one round black spot. Tegulae pale yellow, with one round black spot at base and one oblong black spot in centre. Thorax pale yellow with three median black spots, the first spot almost divided in two. Outside of legs dark brown, inside grey white. Abdomen yellow with broad black segmental bands.

Lfw. 26-28 mm. Forewing dark brown. Basal streak white and connected with white fascia by a narrow stripe. Fascia from costa to tornus gradually and slightly narrowing. Brown convex pattern at forewing margin deeply indented. Hindwing white with dark brown irregular margin, brown pattern convex and indented. Tornus with large oblong patch. Hindwing fringes at tornus white.

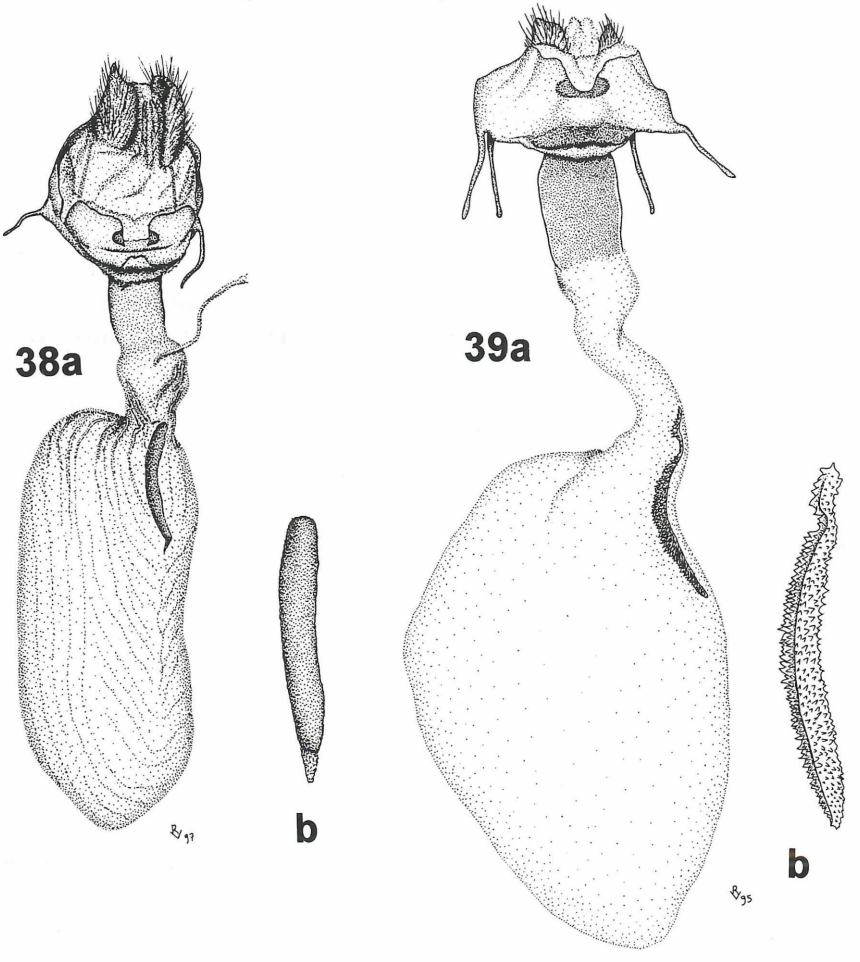
Variability: In one of the known ♀ specimens the white pattern is more extended. The white basal streak is very broad and vein 3 is white, crossing the brown triangle in the centre of the forewing, isolating a rounded brown patch.

Male genitalia (Figs. 39c-f): Uncus beak-shaped, straight, with only the top bent down (Fig. 39c). Uncus dorsally with a gully, running to the top (Fig. 39d). Juxta long, with two parallel sclerotized parts, connected by unsclerotized tissue, forming a "fishtail" Valves with a very characteristic extension of the sacculus (Fig. 39e), broad, half disc-shaped. Cucullus with rudiments of extension only recognizable by the setae at this position. Extension of sacculus also with setae. Aedeagus rather long (Fig. 39f), slightly curved, distally split open at one side for about one third of its length. Coecum long and rather thick. No cornuti.

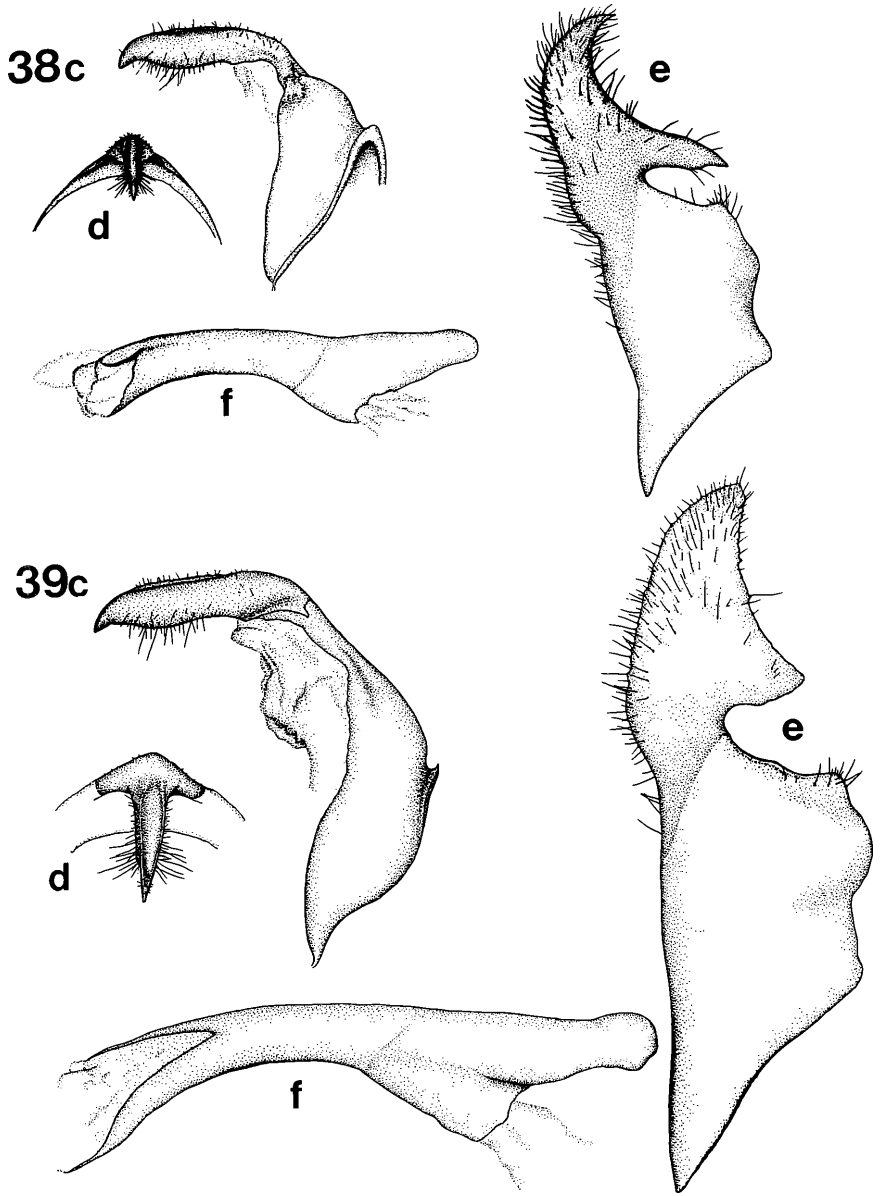
Female genitalia (Figs. 39a-b): Lamella postvaginalis plain, without any distinct ridges. Lunular folds above ostium connected. Antrum broad and flat, distinctly sclerotized. Cervix bursae not clearly defined. Bursa copulatrix with one signum. Signum long and slender, reaching into ductus bursae and nodded at distal part.

Similar species: *Nyctemera palawanica* is very similar to *N. angustipennis* (Fig. 22) and *N. browni* (Fig. 19), but there are some differences which should make it easy to distinguish. *Nyctemera palawanica* is a large species, like *angustipennis*, but the hindwing margin in *palawanica* is not gradually narrowing, but irregular, with a long dark patch in the tornus. The hindwing margin is very similar to that of *browni*, but *palawanica* is a much larger species and the thorax and head are darker yellow in *palawanica*

than in *browni*. The described variety, with the isolated rounded patch in the centre of the forewing, is very similar to *N. kinabaluensis* (Reich, 1932) (Fig. 21) from northern Borneo. The fascia on the forewing of *palawanica* is narrowing towards tornus, or with parallel sides, but not oval-shaped like in *kinabaluensis*. The centre of the forewing without or with only one isolated dark patch, in *kinabaluensis* with one or two patches. The hindwing margin in *palawanica* is irregular with a large dark patch in the tornus, in *kinabaluensis* the hindwing margin is regular with only a rather small dark stripe in the tornus. *Nyctemera palawanica* is larger than *kinabaluensis*.



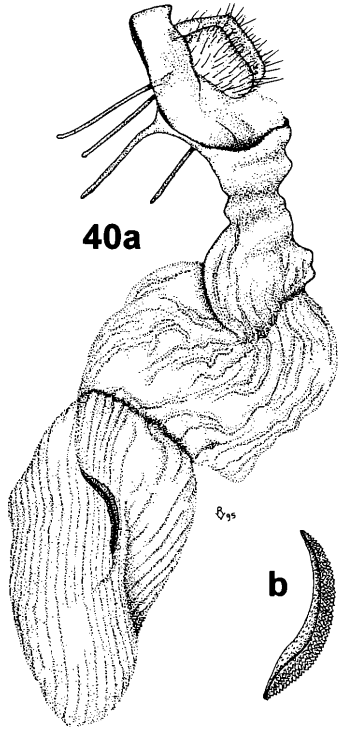
Figs. 38 a–b: Female genitalia of *N. browni*. **a:** ventral view. **b:** signum (RV 363). **Figs. 39 a–b:** Female genitalia of *N. palawanica*. **a:** ventral view. **b:** signum (RV 323).



Figs. **38c–f:** Male genitalia of *N. browni*. **c:** uncus, lateral view. **d:** uncus, ventral view. **e:** right valva, outer side. **f:** aedeagus (RV 324). **Figs. 39c–f:** Male genitalia of *N. palawanica*. **c:** uncus, lateral view. **d:** uncus, ventral view. **e:** right valva, outer side. **f:** aedeagus (RV 404).

The male and female genitalia allow a more easy differentiation. All three species mentioned (*kinabaluensis* here not considered) have, in ♂♂, a gully running dorsally to the top of the uncus (Figs. 38d, 39d, 40d), and the uncus has similar shape. The valves, however, are very chcracteristic. *Nyctemera browni* (Fig. 38e) has a sickle-shaped extension of the sacculus, *palawanica* (Fig. 39e) a half disc-shaped extension, and *angustipennis* (Fig. 40e) a more or less scythe-shaped extension. Furthermore, the genitalia of *palawanica* and *angustipennis* are much larger than those of *browni*. The aedeagi of *browni* (Fig. 38f) and *palawanica* (Fig. 39f) are similar, but that of *palawanica* is more deeply split open distally and longer. The aedeagus of *angustipennis* (Fig. 40f) is very distinct: short, thick, and with a large thorn distally.

Bursa copulatrix of *kinabaluensis* without signum (HOLLOWAY, 1988), *palawanica*, *angustipennis* and *browni* with a long signum. Signum of *palawanica* long, nodded at distal part in ductus bursae (Fig. 39b), cervix bursae not clearly defined, bursa copulatrix globular (Fig. 39a); signum of *an-*



Figs. 40 a–b: Female genitalia of *N. angustipennis*. **a:** ventral view. **b:** signum (RV 325).

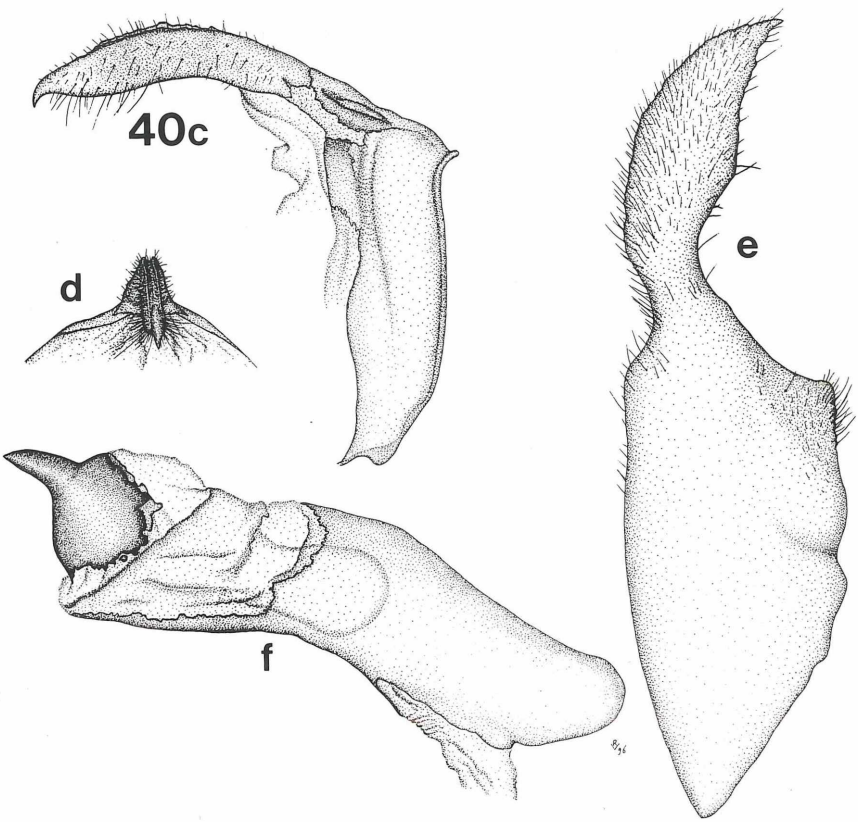
gustipennis simple and bend (Fig. 40b), cervix bursae very large and wrinkled, bursa copulatrix twisted and wrinkled (Fig. 40a); signum of *browni* simple and almost straight (Fig. 38b), cervix bursae small, slightly wrinkled, bursa copulatrix cylindrical (Fig. 38a).

Etymology: The name *palawanica* refers to the Island of Palawan, where this species is found.

Nyctemera angustipennis KISHIDA, 1994 (Figs. 22, 40a–f)

Nyctemera angustipennis KISHIDA (1994: 13).

Distribution: This beautiful species has only been recorded from northern Luzon, in mountainous areas. It is found at altitudes between 800 and 2450 meters. *Nyctemera angustipennis* appears to be rather common.



Figs. 40c–f: Male genitalia of *N. angustipennis*. **c:** uncus, lateral view. **d:** uncus, ventral view. **e:** right valva, outer side. **f:** aedeagus (RV 345).

Similar species: The very uniform wing pattern resembles that of *palawanica* (Fig. 20) and the smaller species *N. browni* (Fig. 19), but the hindwing margin narrows equally towards tornus and lacks the tornal patch. A comparison is given under the previous species.

Nyctemera undulata spec. nov. (Figs. 23, 41a-d, 42a-b)

Holotype: ♂, Philippinen, Mindanao, Bukidnon, Mt. Kitanglad-Süd, Intavas, 2200 m, 15. VIII.-15. IX. 1993, leg. V. SINIAEV, CMWM.

Paratypes: **Mindanao:** 2 ♂♂, 1 ♀, Bukidnon, Mt. Kitanglad-Süd, Intavas, 2200 m, 15. VIII.-15. IX. 1993, leg. V. SINIAEV, CMWM.

Distribution: The only four specimens known of this beautiful species have been found at Mount Kitanglad, in the province of Bukidnon, Mindanao, at an altitude of 2200 meters.

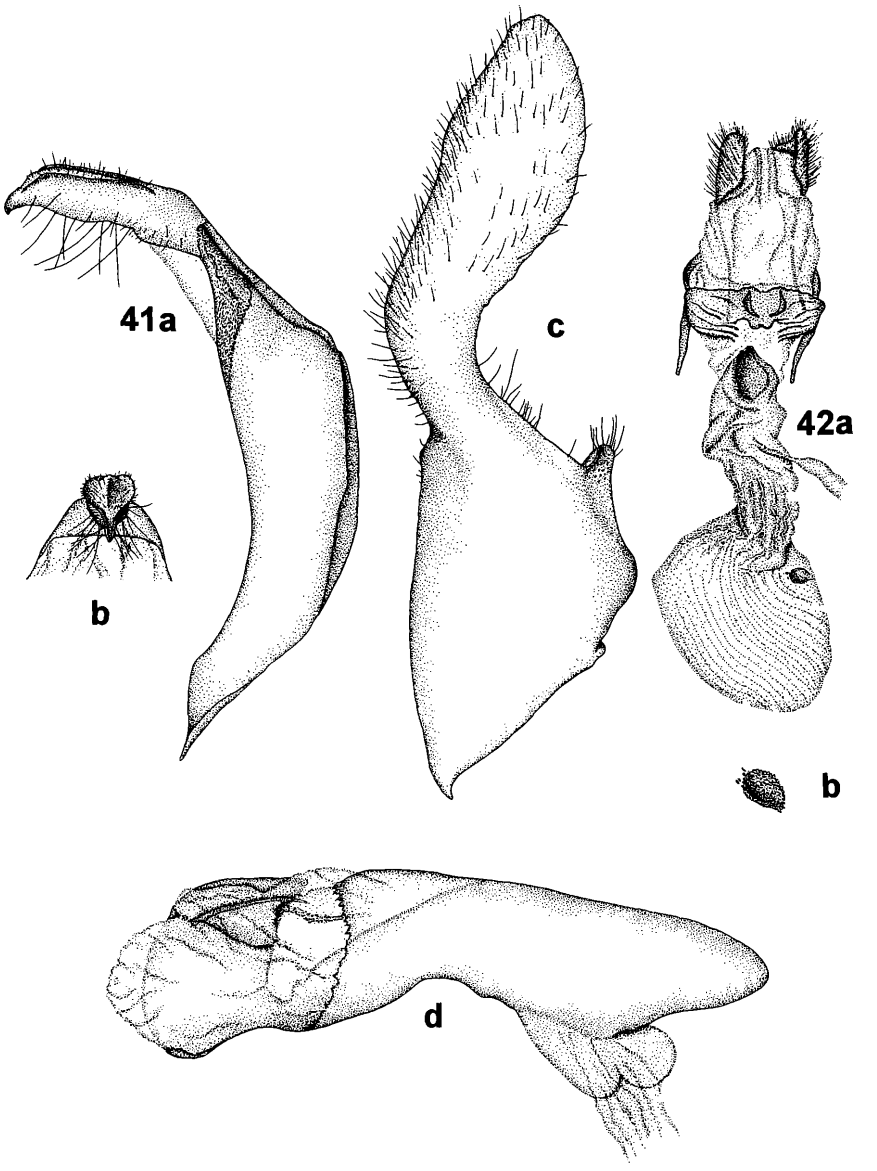
Imago (Fig. 23): Head yellow with one small black spot on vertex. Palpi dark brown. Antennae with yellow spindle and black bipectination, this bipectination in male "shaggy" and longer than in female. Thorax yellow with round black spot on metathorax, patagia with one oval black spot and tegulae with one elongated black spot. Abdominal segments yellow, each with a rather small dorsally black spot, in female with much larger spots, almost forming bands. Abdominal segments ventrally with two black spots, stigmata black. Legs grey brown, pale yellow on inside.

Lfw. 28 mm. Forewing of male brown with irregular shaped white fascia, caused by strongly convex, undulated brown pattern. Fascia narrow, not reaching dorsum or costa. Oval brown spot below cell in fascia. Cell almost completely brown coloured, except for small white spot in the middle, just above cubital vein. Irregular club-shaped white basal streak, at wingbase pale yellow. Tornal fringes grey white.

Hindwing of male white with broad brown margin, undulated by convex pattern. Fringes white, towards apex more checkered with grey brown. Underside identical to upperside, but paler.

Female almost identical, but with white fascia on forewing almost reaching the costa, the white spot in the centre of the cell larger, the oval brown spot in fascia connected with brown middle field and more rounded termen of forewing.

Hindwing of female with distinct white fringes, at apex somewhat checkered with grey brown.



Figs. 41 a–d: Male genitalia of *Nyctemera undulata* spec. nov. **a:** uncus, lateral view. **b:** uncus, ventral view. **c:** right valva, outer side. **d:** aedeagus (RV 349). **Figs. 42 a–b:** Female genitalia of *N. undulata* spec. nov. **a:** ventral view. **b:** signum (RV 362).

Variability: The three males known hardly differ in wing pattern, though in one male the oval brown spot in the white fascia on forewing is connected with the brown middle field.

Male genitalia (Figs. 41 a-d): Uncus elongate beak-shaped, with sharp margin and rather sharp dorsal keel (Figs. 41a-b). Top sharp, weakly bent downwards. Juxta very large, vase-shaped. Valva with large spatula-shaped extension of sacculus, bent near its base (Fig. 41c). Cucullus with small folded extension. Extensions of sacculus and cucullus with setae, also setae between extensions. Aedeagus short and thick (Fig. 41d). Coecum very thick, nose-shaped and gradually narrowing. Aedeagus at distal part with tiny dentation, at one side deeply split open, leaving an axe-shaped caudal part. One cornutus, also axe-shaped with a thick rim at longest side.

Female genitalia (Figs. 42 a-b): Apophyses anteriores of moderate length, rather broad and flattened. Apophyses posteriores long and thin. Lamella postvaginalis with moon-shaped folds next to ostium. Sides of lamella postvaginalis wrinkled, forming about five ridges between ostium and apophyses anteriores. Antrum weakly sclerotized, with wide open "mouth" (ostium). Cervix bursae more sclerotized, flattened and wrinkled, with vein-like ridges. Bursa copulatrix with one signum. Signum (Fig. 42b) small and bowl-shaped, accompanied by some tiny chitinous "drops".

Similar species: In appearance *undulata* somewhat resembles *N. arctata*. Except for the different wingshape, *undulata* has a much broader and continuous hindwing margin, while in *arctata* the margin generally exists of brown spots of various size. Furthermore, the antennae of these species are of different shape; "shaggy" bipectination in *undulata* and regular in *arctata*. The abdomen of *undulata* has black dorsal dots, in *arctata* distinct bands.

Nyctemera undulata also resembles some species of the closely related genus *Deilemera* HÜBNER, [1820], but the shape of its fore- and hindwings is very different. The males of *Deilemera*-species have a characteristic, folded, hindwing dorsum, which is not present in *Nyctemera undulata*.

Etymology: The name refers to the waved (undulated) brown pattern on both wings.

Nyctemera robusta spec. nov. (Figs. 24, 43 a–d, 44 a–b)

Holotype: ♂, Philippinen, Mindanao, Bukidnon, Mt. Kitanglad, 1700 m, 15. VIII.–15. IX. 1993, leg. V. SINIAEV, CMWM.

Paratypes (Philippines): **Mindanao:** 3 ♂♂, 5 ♀♀, Bukidnon, 40 km NW Maramag, Dalongdong, 800 m, Talakag, 7°53'N, 123°54'E, Waldrand, 31. XII. 1991–2. I. 1992, leg. ČERNÝ; 2 ♀♀, Bukidnon, 15 km NW Maramag, Mt. Malambu, Mt. Bagong Silang, 30. XII. 1991, 1450 m, prim. forest, leg. ČERNÝ; 1 ♀, Bukidnon, Mt. Kalatungan, 1450 m, 30. XII. 1991; all in CKC. • 4 ♂♂, 5 ♀♀, Bukidnon, 40 km NW Maramag, Dalongdong, 800 m, Talakag, 7°53'N, 123°54'E, Waldrand, 1.–3. X. 1988, leg. ČERNÝ & SCHINTLMEISTER; 4 ♂♂, 4 ♀♀ CKC, 1 ♀ CMWM. 1 ♂, 5 ♀♀, Bukidnon, 15 km NW Maramag, Mt. Malambu, Mt. Bagong Silang, 29. XII. 1991, 1250 m, sec. forest, leg. ČERNÝ; 4 ♀♀ CKC, 1 ♂, 1 ♀ ZMA. • 1 ♀, Bukidnon, Mt. Binansilang, 1200 m, 2. X. 1988, leg. ČERNÝ & SCHINTLMEISTER; 3 ♂♂, 4 ♀♀, Bukidnon, Mt. Kitanglad, 750 m, 15. VIII.–15. IX. 1993, leg. V. SINIAEV; 1 ♂, Bukidnon, Mt. Kitanglad, 1200 m, VIII. 1993, leg. V. SINIAEV; 7 ♂♂, 11 ♀♀, Bukidnon, Mt. Kitanglad, 1700 m, 15. VIII.–15. IX. 1993, leg. V SINIAEV; 19 ♂♂, 13 ♀♀, Bukidnon, Mt. Kitanglad, 2200 m, 15. VIII.–15. IX. 1993, leg. V SINIAEV; 2 ♀♀, Bukidnon, Mt. Kitanglad, 2600 m, 15. VIII.–15. IX. 1993, leg. V. SINIAEV; 23 ♂♂, 20 ♀♀, Davao del Sur, Mt. Apo, SE-route via Kapatagan, 10.–12. VII. 1996, 1570 m, Primärurwald, leg. Dr. R. BRECHLIN; 1 ♂, 2 ♀♀, Davao del Sur, Mt. Apo-West, 28.–30. VII. 1993, 1200 m, Sekundärwald, leg. SINIAEV & SCHINTLMEISTER; 7 ♂♂, 10 ♀♀, Bukidnon, Mt. Kitanglad S-Seite, Intavas, sek. Wald, 1650 m, 5. VIII. 1993, 8.07'N, 124.55'E [sic], leg. SINIAEV & SCHINTLMEISTER; all in CMWM. • 1 ♀, Bukidnon, Mt. Kitanglad, 1800 m, 2. XI. 1994, CCGT. • 1 ♀, Misamis Or., Mt. Pomalihi, 21 km W Gingoog City, 800–1000 m, 17 IX. 1965, H. M. TORREVILLAS, Light Trap, BPBM.

Distribution: This species has been recorded from Mindanao, mainly in the provinces of Bukidnon and Davao del Sur (Mt. Apo), where it appears to be rather common. Only one female was recorded outside these two provinces, in Misamis Orientale, the northernmost site. It inhabits mountainous areas, where it is found at altitudes between 750 and 2600 m. The imagines are attracted to light in primary and secondary forests.

Imago (Fig. 24): Head white with one black spot on vertex. Palpi short and erect, basal segment dark grey or black, second and third segment grey with dark grey band. Antennae with white spindle and black bipectination, female with shorter bipectination. Thorax dorsally white, with three large black spots in a medial row, patagia with one black spot, tegulae with one round black basal spot and one elongated central spot. Thorax ventrally yellow. Abdomen yolk-yellow, with black segmental bands, these bands confluent with a small dorsal spot. Legs grey brown, inside paler.

Lfw. 25-29 mm. Forewing in basal and middle field subhyaline, grey brown, with broad spool-shaped "smutty" white fascia. Fascia broad at costa and narrow at dorsum, in holotype not crossing the anal vein, but in some paratypes it does. Margin of fascia irregular by convex dark pattern. Veins between wingbase and fascia sprinkled with white, though cubital vein dark brown towards wingbase. Anal vein bright white. Narrow white stripe along full length of dorsum. Outer half of fringes along termen white (only visible in perfect specimens!).

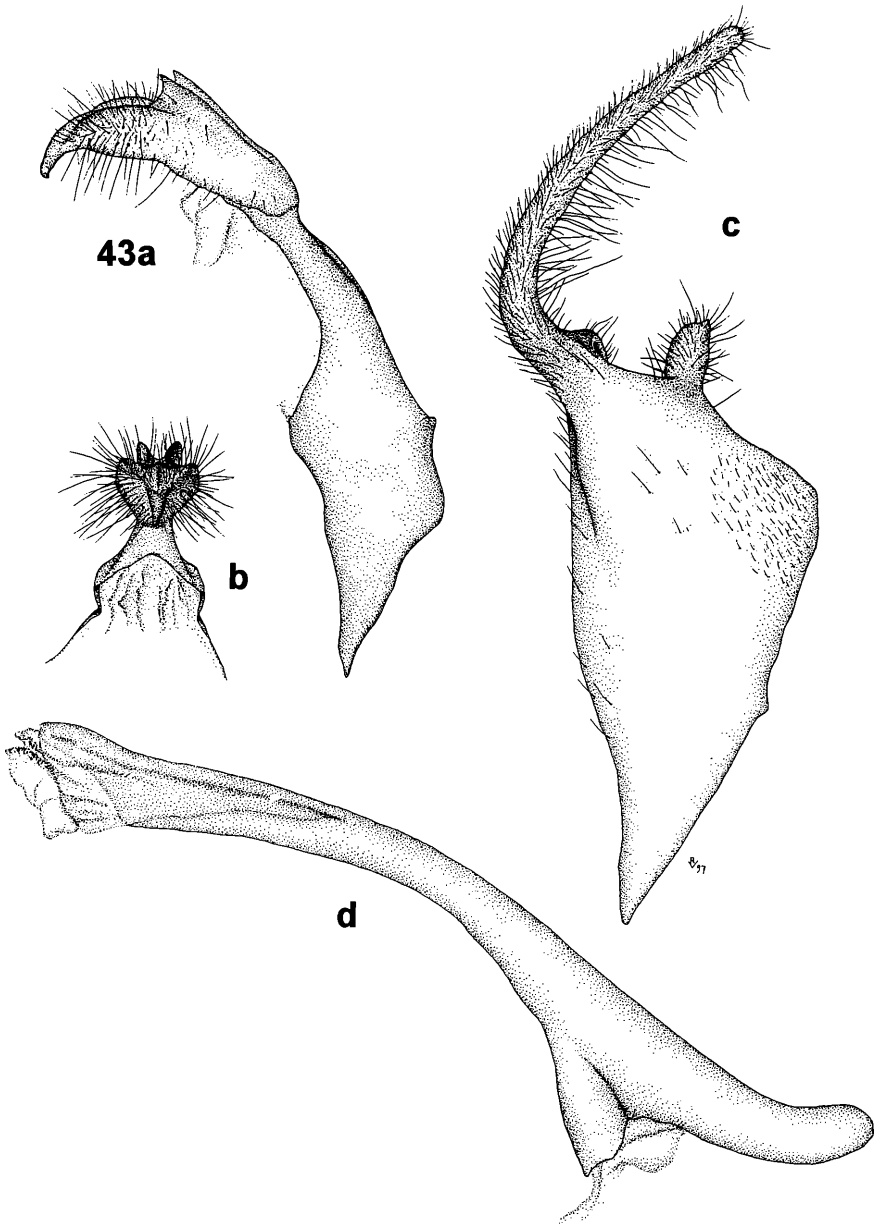
Hindwing subhyaline, "smutty" white. Marginal band of hindwing broad, pale grey brown and not subhyaline. Inner edge of marginal band vague and irregular, suddenly narrowing near tornus. Veins pale grey brown. Outer half of fringes, from tornus to apex, white (only visible in perfect specimens!).

Female as male, but larger in size and with somewhat more extended white pattern. Ground colour paler.

Underside identical to upperside, but paler. Pattern less pronounced.

Variability: The species has a rather uniform wing pattern, but some specimens show one or two brown patches in the upper part of the forewing fascia. The fascia sometimes reaches the dorsum. The ground colour varies in intensity. The wings appear to be worn rather quickly, such that they become paler and lose their fringes very easily. In one rather small specimen the hindwing is pale brown instead of whitish, but the hindwing margin is still darker.

Male genitalia (Figs. 43a-d): Uncus beak-shaped, its top bent down for 45° (Fig. 43a). Uncus dorsally with a weak keel in the centre, starting just behind the top and running over the uncus between two parallel ear-shaped dorsal "wings" (Fig. 43b). These "wings" gradually rise from the caudal part of uncus to the middle. Uncus with long setae, except at the top. Juxta very large, cylindrical, with upper part granulated. Valva large, very long (Fig. 43c). Sacculus with long and slender extension, curved towards cucullus for about 30° Cucullus rather broad with well developed folded extension. Cucullus with short setae, which are longer on extension. Sacculus with few setae, but more on extension, on inside of this extension setae much longer than on outside. Aedeagus very long and slender, slightly curved (Fig. 43d). Coecum long and curved upwards. Distal part of aedeagus deeply split for about 1/3 of its length. No cornuti.

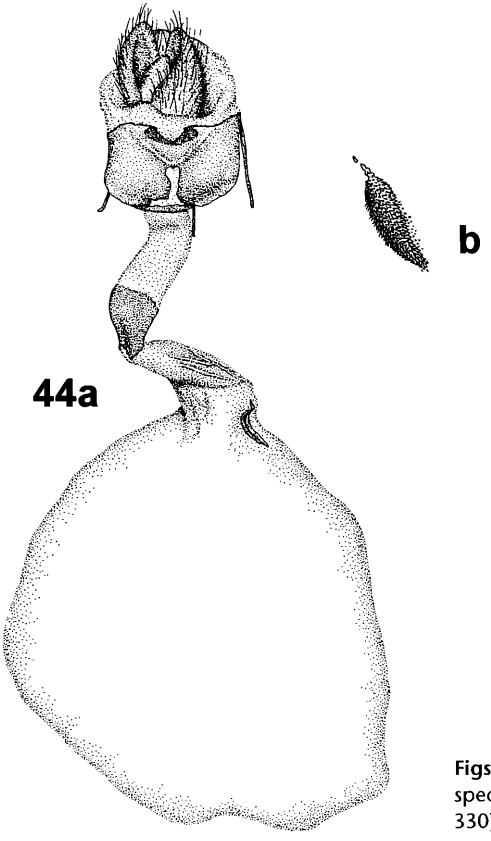


Figs. 43 a–d: Male genitalia of *Nyctemera robusta* spec. nov. **a:** uncus, lateral view. **b:** uncus, ventral view. **c:** right valva, outer side. **d:** aedeagus (RV 348).

Female genitalia (Figs. 44a-b): Apophyses anteriores and posteriores of moderate length and thin. Lamella postvaginalis rather plain with "V"-shaped ridge below ostium. Lunular folds of lamella postvaginalis connected together. Distal part of antrum hardly sclerotized, but connection with cervix bursae distinctly sclerotized, flattened and folded. Cervix bursae slightly sclerotized with few wrinkles. Bursa copulatrix large, when swollen almost globular, with one relatively small signum near entrance. Signum (Fig. 44b) boat-shaped, with a small distal extension, curled down.

Similar species: *Nyctemera robusta* is very characteristic and it can hardly be confused with another species.

Etymology: The imago is very robust, especially in comparison to other closely related species in the *arctata*-group.



Figs. 44 a–b: Female genitalia of *N. robusta* spec. nov. **a:** ventral view. **b:** signum (RV 330).

Nyctemera lunulata spec. nov. (Figs. 25–26, 45 a–d, 46 a–b)

Holotype: ♂, Philippinen, Mindanao, Bukidnon, Mt. Kitanglad Süd, Intavas, 2200 m, 15. VIII.–15. IX. 1993, Primär-Urwald, leg. V. SINIAEV, CMWM.

Paratypes (Philippines): **Mindanao:** 27 ♂♂, 14 ♀♀, same data as holotype, 26 ♂♂, 14 ♀♀ in CMWM, 1 ♂ in ZMA. 3 ♂♂, 4 ♀♀, Bukidnon, Mt. Kitanglad S-Seite, Intavas, sek. Wald, 1650 m, 5. VIII. 1993, 8.07'N, 124.55'E [sic], leg. SINIAEV & SCHINTLMEISTER, 3 ♂♂, 3 ♀♀ in CMWM, 1 ♀ in ZMA. • 15 ♂♂, 6 ♀♀, Bukidnon, Mt. Kitanglad-Süd, Intavas, 1700 m, 15. VIII.–15. IX. 1993, Primär-Urwald, leg. V SINIAEV; 3 ♂♂, 1 ♀, Bukidnon, Mt. Kitanglad-Süd, Intavas, 750 m, 15. VIII.–15. IX. 1993, Primär-Urwald, leg. V SINIAEV; 6 ♂♂, Davao del Sur, Mt. Apo, SE-route via Kapatagan, 10.–12. VII. 1996, 1570 m, Primärurwald, leg. Dr. R. BRECHLIN; all in CMWM. • 2 ♀♀, Bukidnon, Intavas, 1500 m, 1. XI. 1994, Mt. Kitanglad, 1800 m, 2. XI. 1994; both in CCGT.

Other material examined: Further 19 ♂♂ and 8 ♀♀ are known from about the same locations on Mindanao (CMWM).

Distribution: Until now this species has only been found on the island of Mindanao, in the provinces of Bukidnon and Davao del Sur (Mt. Apo). Specimens have been taken at altitudes between 750 and 2200 meters. It is bound to have a very restricted distribution, because no less than 109 specimens are known and the species was not captured until 1993, in spite of its striking appearance.

Imago (Fig. 25): Head white with one black spot on vertex. Palpi short and erect, dark grey or black, with white or pale grey band on distal part. Antennae with white spindle and with black bipectination, which is in male longer than in female and somewhat "shaggy" Thorax with five black spots; one large spot in the centre, two smaller spots in front and two small spots caudally. Thorax dorsally white, but with pale yellow medial band between front and caudal spots. Patagia white with one black spot, tegulae white with one elongated central spot. Thorax ventrally yellow. Abdomen yolk-yellow, with black segmental bands. Legs grey brown, inside paler.

Lfw. 28–29 mm. Forewing brown with white basal streak along cubital vein below the cell. Basal streak straight and about half the length of the cell. Anal vein white, distally fading to brown. Cubital and radial vein of cell darker brown than ground colour. Fascia white and narrow, moon-shaped, crossed by brown cubital vein at end of the cell. Fascia not reaching costa, dorsum or tornus and not touching basal streak. Fringes along dorsum white.

Hindwing almost completely brown, somewhat greyer than forewing, except for white centre. This white centre is oval shaped with vague margins, crossed by light brown veins, and touching wingbase, but not touching costa or dorsum. Dorsum with white fringes to tornus.

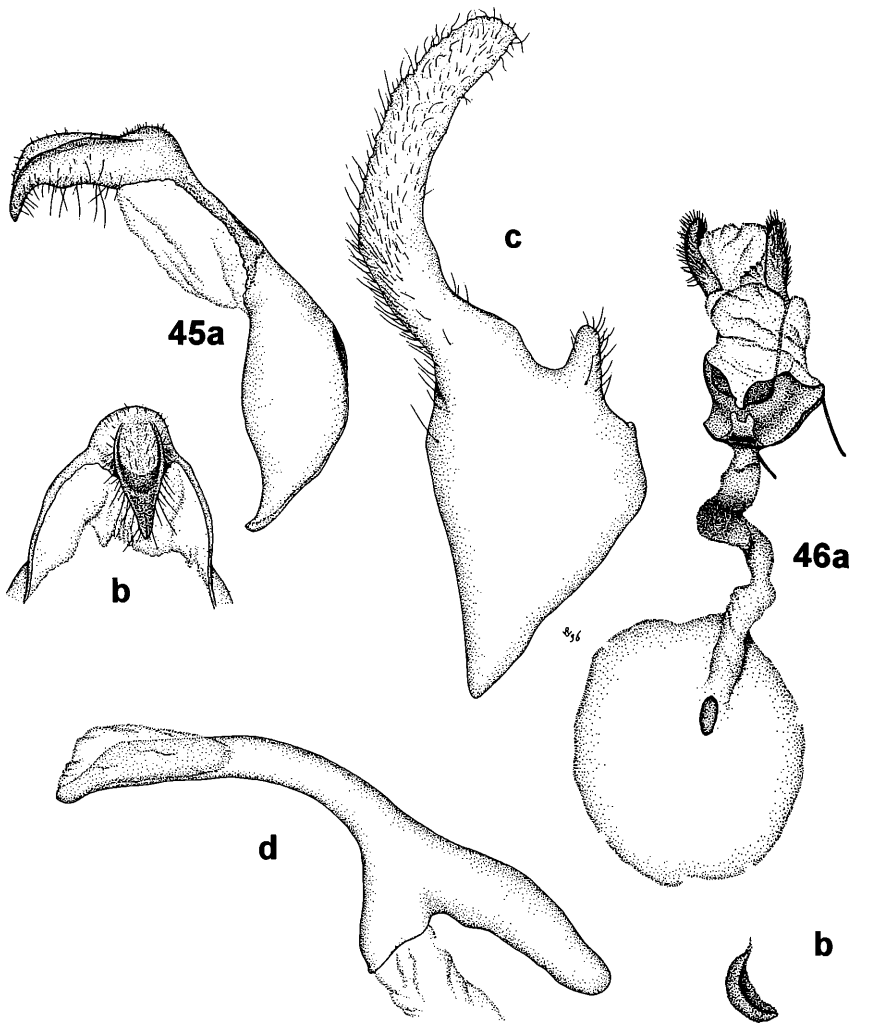
Female in general identical, but its forewings with more rounded termen, costa and apex.

Variability: The white wing pattern appears to be rather variable, though most specimens match the holotype description. In some paratypes the moon-shaped fascia is much shorter, reduced to two small spots or to one very small spot only. In some specimens there is no trace left of the fascia (Fig. 26). The basal streak, however, appears to be rather uniform and is always prominently present. In specimens with reduced or absent fascia the general white pattern is reduced, which results in an almost completely brown hindwing, except for a narrow white streak in the cell. In those specimens the dorsal fringes are partly or completely brown.

Male genitalia (Figs. 45a-d): Uncus beak-shaped, its top bent down for about 90° (Fig. 45a). Two parallel "wings" dorsally running over uncus, rising just behind the top, forming a gully with a hardly visible blunt keel in the middle (Fig. 45b). Juxta rather large and long, consisting of two parallel parts, connected by granulated centre and divided at distal ends. Valva with long regularly bent extension of sacculus (Fig. 45c). This extension equally broad over full length and flattened. Cucullus with small but distinct extension, folded at inside and erect. Both extensions with short setae, setae somewhat frizzled at distal part of sacculus extension. Aedeagus long and thin (Fig. 45d), distinctly curved, distally split open at one side for about one third of its length. Coecum long and rather thick, gradually narrowing. No cornuti.

Female genitalia (Figs. 46 a-b): Apophyses anteriores and posteriores of moderate length, rather thin. Lamella postvaginalis with large and broad oval shaped folds. Lamella postvaginalis more or less arched, above ostium "U"-shaped indented. Antrum weakly sclerotized. Cervix bursae rather broad, flattened and sclerotized, with some vein-like ridges, making a bend of about 90° Bursae copulatrix with one oval and boat-shaped signum (Fig. 46b).

Etymology: The name *lunulata* refers to the moon-shaped fascia, occurring in most specimens, which, like the phases of the moon, can be smaller or even absent in some specimens.



Figs. 45 a–d: Male genitalia of *Nyctemera lunulata* spec. nov. **a:** uncus, lateral view. **b:** uncus, ventral view. **c:** right valva, outer side. **d:** aedeagus (RV 341). **Figs. 46 a–b:** Female genitalia of *N. lunulata* spec. nov. **a:** ventral view. **b:** signum (RV 342).

The *luzonensis*-subgroup:

Nyctemera owadai KISHIDA, 1994 (Fig. 27)

Nyctemera owadai KISHIDA (1994: 16).

Distribution: Confined to the mountain regions of North Luzon. It is found at altitudes between 1000 and 2000 meters.

The species appears to be rare, until now only three males and ten females have been recorded.

Similar species: The wing pattern of *Nyctemera owadai* is very similar to that of *N. kishidai* nom. nov. (= *apoensis* KISHIDA, 1994, Fig. 28) (from Mindanao and Negros) and that of *N. toxopei* VAN EECKE, 1929 (from Buru and Ceram). The most important distinguishing character is the white basal streak on the forewing, being well connected with the fascia in *owadai* (only crossed by the thin brown coloured vein 2), and distinctly separated in *toxopei* and *kishidai*. The brown colour in *owadai* is darker than in the other two species and, in general, *owadai* is the smallest in size. Male and female genitalia of *owadai* are very similar to those of *toxopei*. The folded extension of the cucullus, however, is distinctly developed in *owadai* and rudimentary in *toxopei*. The long extension of the sacculus is thicker and of different shape in *kishidai* than in *owadai* and *toxopei*. The uncus of *owadai* is more robust than in the other two species. The bursa copulatrix of *owadai* is smaller, with a larger signum and a wider cervix bursae, than in *toxopei*. The lamella postvaginalis has two pocket-shaped folds in all three species, but in *kishidai* these are not so deep as in *owadai* and *toxopei*. Another species which more or less resembles *N. owadai* is *N. luzonensis* (WILEMAN, 1915) (from Luzon), but this species has much larger, subhyaline wings and a much paler pattern. The white on both its wings is crossed by brown coloured veins, which distinguishes it from all other species.

Nyctemera kishidai nom. nov. (Figs. 28, 47a–c)

Nyctemera apoensis KISHIDA (1994: 17), nec *apensis* SEMPER, 1899, homonym.

Distribution: The species is confined to the islands Mindanao and Negros of the Philippines. It is found at altitudes between 600 to 2200 meters.

Similar species: *Nyctemera kishidai* resembles *N. owadai* KISHIDA, 1994 (from North Luzon) and *N. toxopei* VAN EECKE, 1929 (from Buru). For a detailed comparison of these species, see the remarks under *owadai*.

Taxonomic remarks: The species was described by KISHIDA (1994) after one male specimen and named *apoensis*, referring to the Apo Range (Mindanao) where this specimen was caught. It is a pity that KISHIDA did not take into account the pre-existing name *apensis* SEMPER, 1899, which is also a *Nyctemera*-species from the Apo Range and has the same etymology. According to Article 58 (13) of the International Code of Zoological Nomenclature (ICZN 1985), *apoensis* KISHIDA, 1994 must be considered a junior homonym of *apensis* SEMPER, 1899 and is replaced by a new name here.

Since KISHIDA's publication, 27 further specimens became known, which allows us to describe the female and its genitalia here.

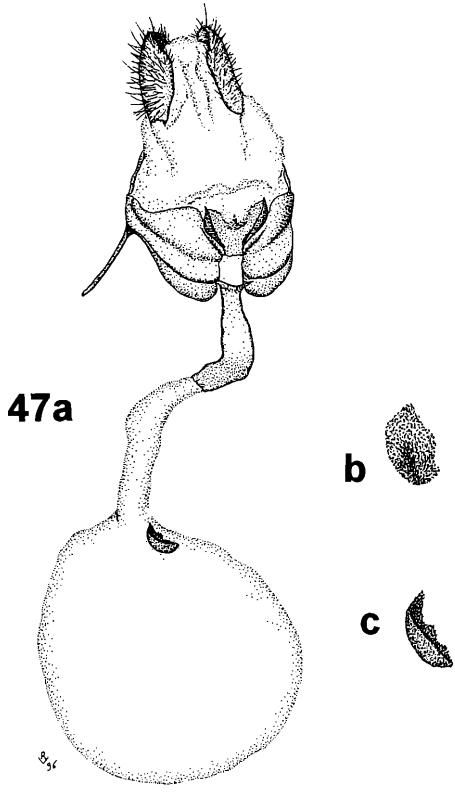
Female imago (Fig. 28): Female very similar to the male, but generally larger. Head and thorax white, but with some yellowish colouring at the margins, as in male. Head with one black spot on vertex. Thorax with three medial large black spots. Patagia with one black spot, tegulae with one basal and one small elongated central spot. Abdomen yolk-yellow, with black more or less reduced segmental bands. Forewing brown with white, straight, basal streak. Fascia white, not interrupted by dark coloured veins and more regular in shape than in male. The fascia is pointing to the basal streak, but not touching it. Fascia sometimes reaching costa, but not reaching tornus. Hindwing subhyaline, white, with brown margin. Fringes white.

Variability: Female and male specimens from Mindanao seem to have a more reduced white pattern compared with the specimens of Negros. In specimens from Mindanao the fascia does not reach the costa of the forewing, while in those from Negros it does. In one female the white pattern is tinged cream. The black bands on the abdomen of the Negros specimens are smaller and, in the female, nearly reduced to dots on the first three segments. The brown hindwing margin of Negros specimens are narrower than those of Mindanao specimens. It would be premature to recognize the Negros specimens as a new subspecies since only three specimens are known. When more material is available the status of this phenotype can probably be established.

Female genitalia (Figs. 47 a-c): Apophyses anteriores and posteriores of moderate length. Lamella postvaginalis with pocket-shaped folds and above ostium with long and narrow moon-shaped folds and heart-shaped chitine plate. A rather strong ridge crosses the middle of the lamella

postvaginalis from ostium to apophyses anteriores. Antrum rather long and flat, ribbon-shaped. Cervix bursae hardly swollen and only slightly sclerotized. Bursa copulatrix with one small and bowl shaped signum (Figs. 47 b–c).

Etymology: Yasunori KISHIDA recognized the species as being new, but named it by a name that could be confusing. Notwithstanding this, he delivered excellent work, and in respect to this we renamed this species after him.



Figs. 47 a–c: Female genitalia of *N. kishidai* nom. nov. **a:** ventral view. **b:** signum, dorsal view. **c:** signum, lateral view (RV 344).

Nyctemera luzonensis (WILEMAN, 1915)

N. luzonensis is known with two subspecies from Luzon:

Nyctemera luzonensis luzonensis (WILEMAN, 1915) (Figs. 29–30)

Deilemera luzonensis WILEMAN (1915: 111).

Deilemera arctata luzonensis: BRYK (1937: 89).

Nyctemera luzonensis: KISHIDA (1994: 15).

= *Nyctemera arctata scalarium* ROEPKE (1949: 49), nec SNELLEN VAN VOLLENHOVEN, 1863 (in part).

Distribution: *Nyctemera luzonensis luzonensis* appears to be confined to the central, mountainous parts of North Luzon, in the provinces of Ifugao, Mountain Province and Nueva Vizcaya. It is found at altitudes between 800 and 2500 meters.

Similar species: *Nyctemera luzonensis luzonensis* is rather uniform in appearance. It is somewhat similar to *N. kishidai* and *N. owadai*, but its subhyaline wings with pale brown pattern makes it very easily recognizable. The dark veins, which cross the white colour on both wings, distinguish it from all other species in the *arctata*-group.

Remark: One specimen in particular, from the CMWM-collection, is worth mentioning. This male specimen (Fig. 30), which looks different from all other specimens, is labeled: "Philippinen, Mindanao, Prov. Davao del Sur, Mt. Apo, SE-route via Kapatagan, 10.–12. VII. 1996, 1570 m, leg. BRECHLIN, Prim[är]wald, Museum Witt" The abdomen has no segmental bands, but dorsal dots. The white on fore- and hindwing is more extended, specially in the hindwing, on which the dark margin is narrower and ending in the tornus. It is, however, not at all certain if this specimen indeed comes from Mindanao, because there are also about nine specimens which are labeled with "Negros" and are definitely not from this location. They match exactly with the specimens from Luzon and because it is known that a few mistakes have been made with labeling specimens of all kinds of Lepidoptera in this lot, it is plausible that this is also the case with *luzonensis luzonensis* from "Negros" and "Mindanao". Therefore it is not justified to describe this only male specimen from "Mindanao" as a different subspecies until more material is available and the location is established.

Nyctemera *luzonensis squalida* subspec. nov. (Figs. 31, 48 a–d, 49 a–b)

Holotype: ♂, Philippines, S. Luzon, Mt. Isarog, I. 1984, leg. LUMAWIG, coll. TREADAWAY, CCGT.

Paratypes: 1 ♂, 1 ♀, Philippines, S. Luzon, Mt. Isarog, I. 1984, leg. LUMAWIG, ♂ ex CCGT in CKC, ♀ in CCGT.

Distribution: This subspecies has only been found on Mount Isarog in the province of Camarines Sur in the southeastern part of Luzon. Until now only three specimens are known.

Imago (Fig. 31): Head pale yellow, thorax grey white, both with black spots as in *luzonensis*. Abdomen yellow, with black bands reduced to dorsal black spots, which are only distinctly visible on the first four or five segments. On the other segments only faint traces of these spots visible. Stigmata black. Antennae bone-white with dark brown bipectination, in female with shorter bipectination than in male. Legs pale yellow.

Lfw. 26–27 mm. Forewing pale yellow, reddish brown pattern reduced and only visible on veins. At the end of subcostal vein a reddish brown patch. Along margin of forewing apex, faded reddish brown, giving the wing a somewhat smokey appearance. Fringes pale yellow. Hindwing and fringes bone-white. Veins and narrow fringe line reddish brown.

Underside of both wings identical to upperside, though with the reddish brown slightly more extended.

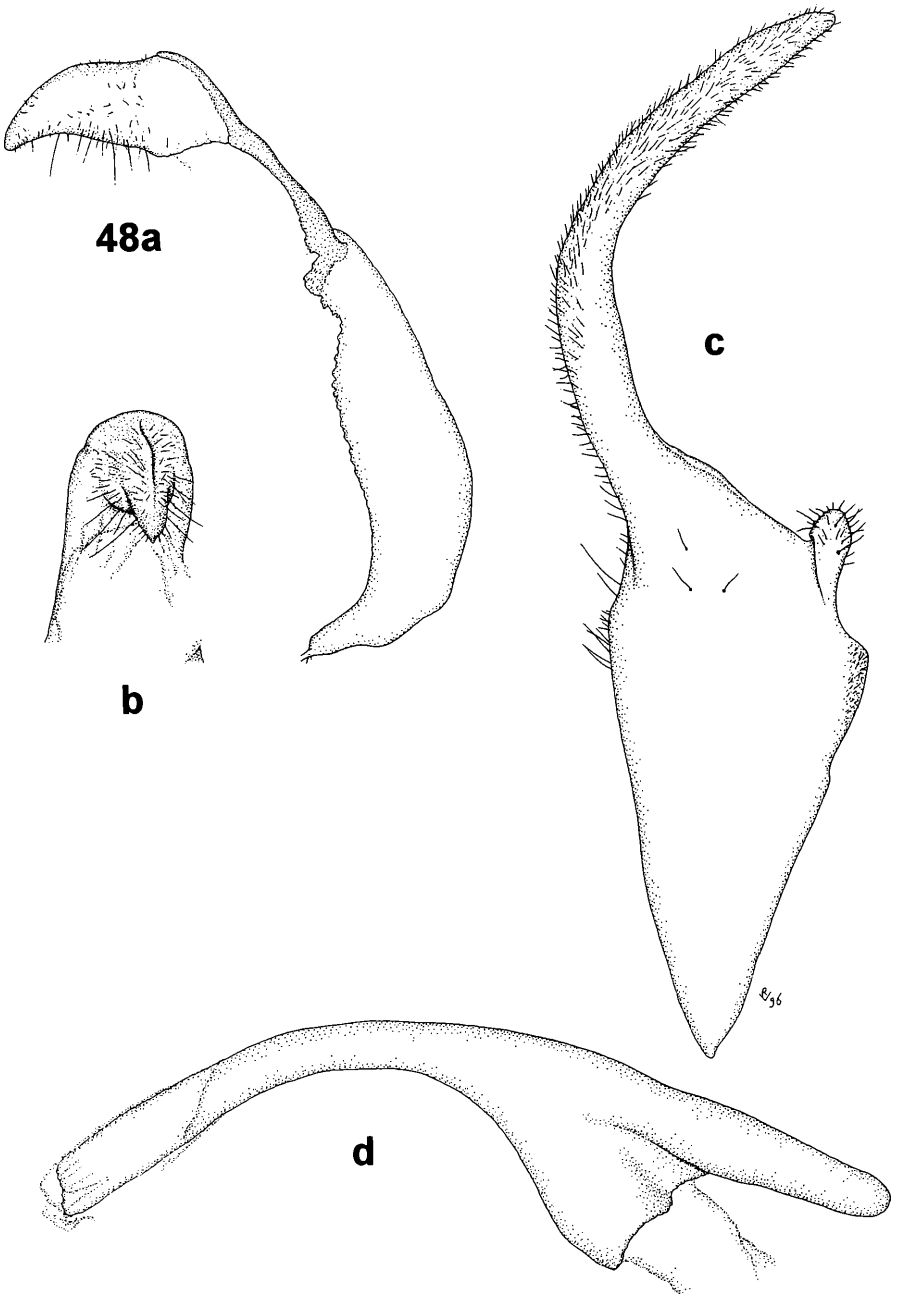
Variability: Male and females hardly differ in colour pattern. In one ♀ the reddish brown pattern is somewhat more emphasized.

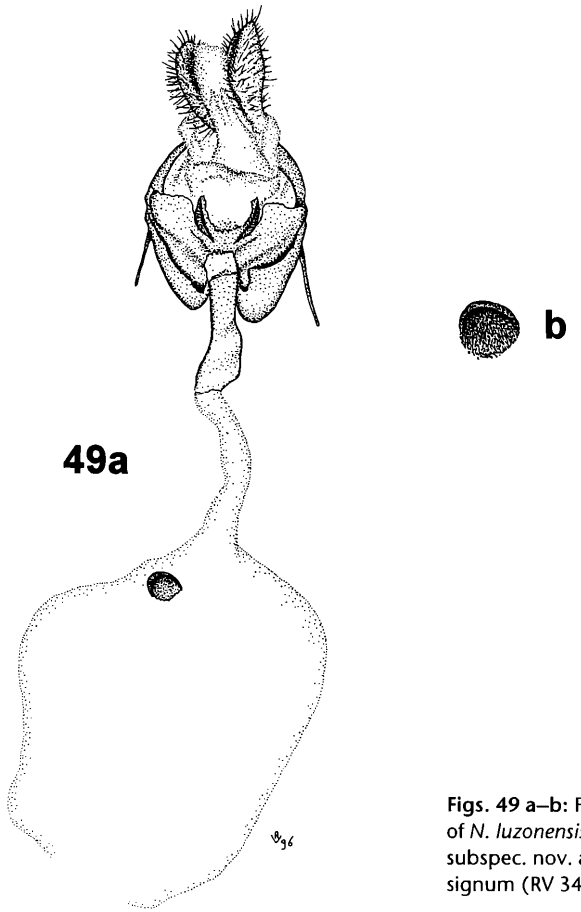
Male genitalia (Figs. 48 a–d): In general the same as in *luzonensis*. Uncus (Figs. 48 a–b) of the only male available less robust than in *luzonensis*. Valvae without significant differences. Aedeagus (Fig. 48 d) in *squalida* slightly longer than in *luzonensis*, but of equal shape.

Female genitalia (Figs. 49 a–b): In general the same as in *luzonensis*, without significant differences.

Etymology: The name was derived from the appearance of the wings, which look dirty (SQUALIDUS, Latin).

Figs. 48 a–d: Male genitalia of *Nyctemera luzonensis squalida* subspec. nov. a: uncus, lateral view. b: uncus, ventral view. c: right valva, outer side. d: aedeagus (RV 339).


48a
b
c
d



Figs. 49 a–b: Female genitalia of *N. luzonensis squalida* subspec. nov. **a:** ventral view. **b:** signum (RV 340).

Nyctemera gratia (Schultze, 1910) (Fig. 32)

Deilemera gratia Schultze (1910: 164).

Nyctemera gratia: Bryk (1937: 63), Kishida (1994: 15).

Nyctemera tripunctaria gratia: Seitz (1915: 267), Roepke (1957: 158).

= *Nyctemera tripunctaria tripunctaria*: Roepke (1949: 61), nec Linnaeus, 1758 (in part).

= *Deilemera venata* Wileman (1915: 111).
Nyctemera venata: Bryk (1937: 86).

= *Migoplastis philippinensis* Rothschild (1933: 192), **syn. nov.**

Distribution: This very peculiar species appears to be confined to Luzon (in mountainous regions in the provinces of Benguet, Ifugao and the Mountain Province) and Negros Occidentale (Mt. Canlaon). It is found at altitudes between 600 and 2450 meters.

Variability: In this pure white species the specimens from Luzon have only the veins of the forewing scarcely dark brown accentuated and show no significant variability. The specimens from Negros usually have a more extended grey suffusion along the veins of the forewing and slightly grey accentuated veins on the hindwing. *Nyctemera gratia* is easily distinguished from all other species by its striking appearance.

Taxonomic remarks: Because of the lack of wing pattern, it is difficult to place the species in one of the two subgroups, but, as indicated by wing-shape and genitalia, it belongs to the *luzonensis*-subgroup. Some characters in the genitalia differ from the other species. The uncus is worm-shaped, instead of beak-shaped. The signum in the bursa copulatrix has been modified to a long row of about eight pieces of different sizes.

The *apensis*-group

Until now the *apensis*-group consists of a single species, the smallest *Nyctemera* in Southeast Asia, *apensis*. The hindwing margin, which is along termen not continued to tornus, but ends at vein 2, forms the most striking character of the wing pattern. The white pattern on the forewing is sprinkled with dark scales. The abdomen is white with vague dark bands and dorsal black dots. The male genitalia are of a rather simple construction. The uncus is more or less beak-shaped, without any keel. The valvae do not have any pronounced extension, but the sacculus is longer than the cucullus and distally sharply pointed. The aedeagus is thin, straight and simple. The female genitalia possess a large cap-shaped lamella postvaginalis. Bursa copulatrix with one, small and spoon-shaped signum.

Nyctemera apensis Semper, 1899 (Fig. 33)

Nyctemera apensis Semper (1899: 496),

Nyctemera apensis: Pagenstecher (1901: 141), Swinhoe (1903: 84), Seitz (1915: 269), Bryk (1937: 51).

Distribution: This is the smallest species of the genus *Nyctemera*. It is endemic to Mindanao and was up to now found on Mt. Apo (North Cota-

bato and Davao del Sur), Mt. Malindang (Misamis Occidentale), Zamboanga del Norte, Bukidnon and the Mt. Parker Range. It inhabits mountainous areas and is found at altitudes between 880 to 2060 meters.

The species appears to be rather rare. We have only seen sixteen specimens in seven collections.

Acknowledgements

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Appendix

Key to the Philippine *Nyctemera*-species, external characters:

1.	Abdomen white, with or without dorsal dark dots, but without distinct segmental bands. Anal segment usually yellow	2
–	Abdomen yellow or white, with more or less distinct dark segmental bands. Anal segment yellow	6
2.	Fringes of fore- and hindwing with a white patch in apex and tornus	*coleta*
–	Fringes of fore- and hindwing without white patch in apex and tornus	3

3. Hindwings in the centre with dark brown patches. Forewings checkered with dark brown pattern *adversata*

– Hindwings without dark patches in centre 4

4. Fascia not crossed by dark veins, basal field with thick white beams and veins. Abdomen white, with yellow anal segment, dorsal dark dots *tripunctaria*

– Fascia crossed by dark veins. Abdomen grey-white with dorsal length stripe 5

5. Patches of fascia pure white. Basal field with distinct white beams and veins. Dark hindwing margin from apex to dorsum and indented *radiata*

– Patches of fascia sprinkled with dark scales. Dark hindwing margin not indented, but straight, running from apex to vein 2 *apensis*

6. Thorax, patagia and tegulae with very large black patches, leaving only very narrow white or yellow margins 7

– Thorax white or yellow, with distinctly separate dots or patches 8

7 Fascia irregular and angular. Basal field of forewing with some white (confluent) patches. Hindwing margin deeply excavated, tornus with white fringes *luctuosa galbana*

– Fascia regular, sometimes composed of separate patches. Basal field with club-shaped basal streak and some white veins. Hindwing margin not deeply excavated, but regular narrowing towards tornus *contrasta*

8. Abdomen white with yellow anal segment, narrow black segmental bands. Hindwing margin with distinct "*Nyctemera*-tooth" on vein 2. Lfw. not more than about 20 mm 9

– Abdomen yellow or white, with broad black segmental bands or dorsal dots. Lfw. 25 mm or more 11

9. Fascia straight, not or hardly crossed by dark veins. Lower part of fascia broad. White basal streak broad, accompanied with some white beams and veins *latistriga*

– Fascia straight or curved, crossed by dark veins. Basal field with many white beams or veins 10

10. Basal field with white veins, no broad beams. Fascia straight. Abdomen with distinct black segmental bands *baulus*

– Basal field with one or two broad white beams and some white veins. Fascia curved with lower and upper patches out of line. Hindwing margin indented. Black segmental bands very narrow, confluent with dorsal dots *sontica*

11. Fore- and hindwings without distinct pattern, pure white or bone-white. Abdomen yellow or yellowish 12

– Fore- and hindwings with distinct dark pattern 13

12. Both wings pure white, forewings with dark veins. Abdomen pale yellow or yellowish with black segmental bands *gratia*

– Wings bone-white or creme coloured. At forewing costa and apex "smoked" with reddish brown, veins reddish brown. Abdomen yellow with black dorsal dots *luzonensis squalida*

13. Dark pattern at least convex at outer margin of fascia and hindwing margin 14

– Dark pattern concave, smooth or indistinct at outer margin of fascia and hindwing margin 19

14. Abdomen yellow with black dorsal dots. Dark wing pattern strongly convex and irregular. Hindwing margin broad. Hindwing fringes checkered with white and grey *undulata*

– Abdomen with dark segmental bands 15

15. Hindwing margin consists of separate dark patches. Thorax yellow. Basal field of forewing with short white streak. Termen of forewing with some white patches *arctata albofasciata*

– Hindwing margin continued. No white patches in forewing termen 16

16. Hindwing margin without convex pattern, not sharply defined. Fascia very large. No basal streak or patch *robusta*

– Hindwing margin with strong convex pattern. On forewing basal streak and fascia connected 17

17. Hindwing margin gradually narrowing, no dark patch in the tornus *angustipennis*

– Hindwing margin irregular, with dark patch in tornus 18

18. Hindwing with dark patch in tornus large, usually as long as or longer than convex tooth on vein 2. Large species, forewing length 26–28 mm *palawanica*

– Hindwing with dark patch in tornus usually smaller than convex tooth on vein 2. Forewing length not more than 25 mm *browni*

19. Outer margin of forewing fascia with dark concave pattern. White pattern on both subhyaline wings crossed by dark veins *luzonensis luzonensis*

– Outer margin of forewing fascia without distinct concave dark pattern. White pattern on both wings not crossed by dark veins 20

20. Dark pattern on both wings very extended. Hindwings almost completely suffused with brown colour. Forewing usually with narrow white moon-shaped fascia and basal streak. In some specimens without fascia *lunulata*

– Both wings without extended dark pattern. Hindwings white with narrow dark margin 21

21. Forewing with basal streak broad and club-shaped, dorsum white. Fascia crossed by subcostal vein. Dark pattern black-brown *consobriniformis*

– Forewing with straight basal streak, no white dorsum 22

22. Forewing with basal streak not connected with fascia, sometimes only divided by the dark vein 2. Margin of fascia rather irregular, slightly concave indented. Fascia does not reach tornus. Pattern pale or reddish brown *kishidai*

– Forewing with basal streak connected with fascia or faintly crossed by vein 2. Outer margin of fascia regular and straight. Fascia reaches tornus. Pattern chocolate brown *owadai*

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