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Revision of the genus *Ommatophora* GUENÉE, 1852 with description of four new species (Lepidoptera: Noctuidae)

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Abstract

Revisionary work on the genus *Ommatophora* GUENÉE, 1852 led to the discovery of further four species from the Indo-Australian Region, which are described here as new: *Ommatophora proverai* ZILLI, PAVESI & VOS **sp.n.** (Lesser Sunda Islands), *O. celebensis* ZILLI, PAVESI & VOS **sp.n.** (Sulawesi), *O. obliquilinea* VOS, PAVESI & ZILLI **sp.n.** (Sulawesi) and *O. orientalis* VOS, PAVESI & ZILLI **sp.n.** (Halmahera, NW New Guinea). The populations of *O. luminosa* from Taiwan are distinguished as ssp. *monotona* ZILLI, PAVESI & VOS **ssp.n.** All species of the genus are very similar in habitus, although they can usually be distinguished by small differences in pattern, which sharply contrasts with the genitalia showing noteworthy differences.

Zusammenfassung

Untersuchungen der Gattung *Ommatophora* GUENÉE, 1852 führten zur Entdeckung von vier weiteren Arten der Indo-Australischen Region, welche hier als neu beschrieben werden: *Ommatophora proverai* ZILLI, PAVESI & VOS **sp.n.** (Kleine Sunda-Inseln), *O. celebensis* ZILLI, PAVESI & VOS **sp.n.** (Sulawesi), *O. obliquilinea* VOS, PAVESI & ZILLI **sp.n.** (Sulawesi) und *O. orientalis* VOS, PAVESI & ZILLI **sp.n.** (Halmahera, NW Neuguinea). Die Populationen von *O. luminosa* von Taiwan werden als Subspecies *monotona* ZILLI, PAVESI & VOS **ssp.n.** unterschieden. Alle Arten der Gattung sind im Habitus sehr ähnlich, obwohl sie üblicherweise durch kleine Verschiedenheiten im Muster unterschieden werden können. Im Gegensatz dazu zeigen die Genitalien nennenswerte Unterschiede.

Key words: Noctuidae, *Ommatophora*, new species, Indo-Australian Region.

Introduction

The genus *Ommatophora* GUENÉE, 1852 is widespread in the Indo-Australian Region, from India and Ceylon eastwards to Southeast China and Taiwan and, across Southeast Asia, to New Guinea. So far only three species have been described in the genus, namely *O. luminosa* (CRAMER, 1780), *O. fulvastra* GUENÉE, 1852 and *O. burrowsi* A.E. PROUT, 1922, although already HOLLOWAY (2005), who circumscribed a monobasic tribe Ommatophorini within the Catocalinae s.l., stressed the existence of a further two undescribed species, from Bali and Sulawesi, respectively. The examination of several specimens of *Ommatophora* from different localities stored in a number of public and private collections

led to confirm both Holloway's findings and identify another two undescribed species. In this article we will therefore review the whole genus providing descriptions to all its members.

Materials and Methods

Abdomens of dry specimens were soaked into KOH 10% overnight and dissected under a binocular with sharp forceps in order to remove the last segments. Male and female armatures were isolated and cleaned in distilled water, with the aedeagi being pulled out for subsequent inflation of vesicae. This was done by cutting the ductus ejaculatorius at its junction with the aedeagus with sharp microsurgical scissors, and then pumping water into the aedeagus using an insulin syringe with blunt needle. Staining was carried out in a light mercurochrome solution (1 commercial mercurochrome 6 H_2O) for 24 h and, following soaking into absolute ethanol, permanent slides were prepared by mounting parts into Euparal. Drawings of the genitalia were taken from the slides with the aid of a camera lucida attached to the binocular, but the vesicae were first drawn before inclusion in order to better represent their three-dimensional structure, with the aedeagi fully immersed in ethanol being kept into position with entomological pins. Views of the aedeagi were taken from the side of vesica showing more complexity.

Types of previously described species of *Ommatophora* were not examined as, due to their allopatric distribution with respect to all members of the genus, their identity was not in doubt. Nevertheless, a potential conflict might occur on the identity of *Phalaena Noctua luminosa* CRAMER, 1780, as explained below in the taxonomic remarks to this species, but right the type(s) of this was not available, as for most of P. CRAMER's types.

Abbreviations for material depositories are as follows:

CGB-ZSM = Collection Gottfried BEHOUNEK (Grafing bei München), to be deposited in Zoologische Staatssammlung (Munich, D)

CGR = Collection Gabor RONKAY (Budapest, HU)

CJHL = Collection Johannes H. LOURENS (Lucena City, Philippines)

CWS = Collection Wolfgang SPEIDEL (Munich, D)

MCZR = Museo Civico di Zoologia (Rome, I)

MNKB = Museum für Naturkunde (Berlin, D)

NCPZ = Noctuoid Collection PROVERA-ZILLI (Rome, I)

NMNS = National Museum of Natural Science, Taichung (Taiwan)

RMNH = Nationaal Natuurhistorisch Museum, Naturalis (former Rijksmuseum van Natuurlijke Historie) (Leiden, NL)

ZMAN = Zoölogisch Museum Amsterdam (Amsterdam, NL)

ZSM = Zoologische Staatssammlung (Munich, D)

Systematic Part

Descriptions

The habitus of various species of *Ommatophora* is extraordinarily homogeneous, which contrasts with noteworthy differences occurring in the genitalia. Accordingly, following a detailed generic description embracing features of all species of the genus, in the description to species unnecessary repetitions will be avoided and solely differential characters will be given.

Ommatophora GUENÉE, 1852

Ommatophora GUENÉE, 1852: 190.

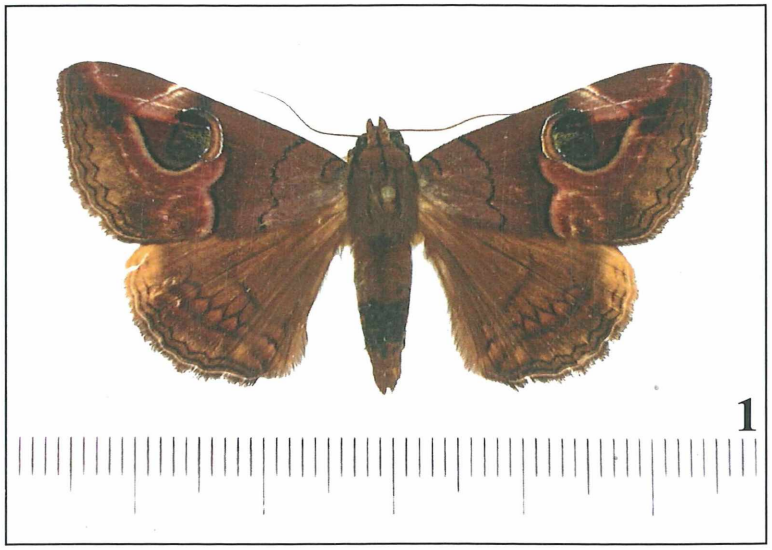
Type species: *Phalaena Noctua luminosa* CRAMER, 1780, by subsequent designation of HAMPSON 1894: 551.

Diagnosis: The genus is best characterised by features of the male and female genitalia, noticeably the flat short lanceolate-elliptic uncus and paired conspicuous spines flanking the lodix (modified female sternum A7). Another probable autapomorphy is represented by the antrum which shows a marked degree of fusion with the internal wall of lodix. In external habitus the most outstanding features are the postmedial line of forewing curled around an eyespot which together make a nicely whorled discal mark. Other spiralled discal marks seen in other Catocalinae have different configurations and appear not to be homologous.

Habitus: Large-sized noctuid moths with broad wings. Head large, eye large, globular, antenna filiform in both sexes, labial palpus greatly upturned, its first two joints stout with compact scaling, and third very thin, long and erect, apically not clubbed and overpassing vertex, proboscis well developed, frons flat, vertex slightly protruding beyond frons, its scaling fairly compact anteriorly and mountingly rougher dorso-posteriorly, here covering neck and leaning on patagia, patagium compactly clothed, comparatively narrow transversely and elongated longitudinally, subquadrate, tegula conspicuous, long, notum without distinct crests, legs stout, with femora and tibiae thickly clothed with long hairs, more conspicuously so in the male sex, in which scale crests also extend dorsally on metatarsus, tarsi spined, hind one somewhat flattened, pectus hairy, abdomen subconical, slightly exceeding in length tornus of hindwing, thickly hairy at apex and on underside, particularly so in the male sex. Body pattern with conspicuous dark brown band extending from junction between first and second palpal segment, crossing side of head proximally to the eye and anterolateral corners of patagium, to side of tegula; thin dark brown midline bisects vertex. Basal and median fields of forewing concolorous and usually darker than distal one, crosslines dark brown or black, subbasal line thin, arched, extending from costa to just below cubitus, absent below this, antemedial thin, distinctly waved, oblique or as a whole convex, postmedial arising well displaced distally along costa, thin, oblique and outwardly oriented up to M_1, then thickened, black, neatly incurving and curling around discal eyespot, touching this inferiorly, below this displaced internally to middle of disc and running either obliquely towards anal margin or outwardly produced into acute projection at CuA_2, eyespot ringed externally by black and preceded by very narrow pale lunule lined internally with white, eyespot with variably extended black inner area(s) and some minute white markings, distal field shared by weakly distinct pale submarginal line into inner area more nicely coloured and external duller one, terminal area with sharp, thin black zigzagging antemarginal and adterminal lines, termen very pale, thus appearing as thin pale line preceding dark base of fringes. Hindwing with dark brown or black crosslines, postmedial line variably expressed, somewhat diffuse and well distinct only at middle of disc, followed by sharp, greatly lobed or zigzagging line with some internervular rays backwards oriented toward postmedial, and beyond this complex line paired rather diffuse lines; terminal area as in forewing. Underside paler than upperside, forewing with minute black discal dot, true postmedial line often indistinct, waved, followed by more distinct, waved line, their trends regular (i.e. with no curling as on upperside), distal field with some diffuse dark shades, lines of terminal area as on upperside but less conspicuous; hindwing with conspicuous discal spot, dark brown or blackish, often pale-centered, postmedial line distinct, irregularly waved, followed by other distinct line preceding dark shade extended on distal field, such shade somewhat interrupted by pale lining of veins and followed by white submarginal line which is usually as broken as to be partly indistinct and partly consists of conspicuous white spots, two-three of which most outstanding; terminal area as on upperside.

Male genitalia: Tegumen longer than vinculum, its lateral branches fairly narrow and flexible, dilated dorsally and inferiorly, vinculum wide, U-shaped, with comparatively wide arms and not produced inferiorly into distinct saccus, valva broad-based, its base extending from inferior part of tegumen to all vinculum arm, sacculus long and narrow, usually bearing hairy field at middle, and ending distally into free robust, heavily sclerotised process, usually incurved distally or curled at very apex, costa often robust, large and expanded, fusing with conspicuous apical, heavily sclerotised termination of valva. Diaphragma very tough. Juxta very tall, consisting of somewhat cordiform superior and inferior soft flexible plates connected by long narrow mesial bar, this occasionally partly unsclerotised. Uncus short lanceolate-elliptic, flat, slightly incurved at very apex, and richly provided with hairs dorsally and at sides. Aedeagus long, narrow and of fairly uniform width, feebly incrassate at junction with ductus ejaculatorius, variably incurved or flexed, with very long coecum often showing reclinate end; vesica small, multi-pouched, smooth or bearing scobinations, cornuti absent.

Female genitalia: Tergum A7 broadly wrapping around terminalia, sternum A7 reduced and modified into tough, heavily sclerotised lamella antevaginalis (lodix), this elongated subrectangular, with posterior midcleft and flanked on each side by outstanding elongated spine, paired lateral pleurites occur proximally to anterolateral corners of lodix, inner wall of lamella fusing with posterior part of ductus bursae (antrum) into ostial complex greatly characteristic between species, ductus bursae short, membranous or heavily sclerotised, bursa copulatrix elongated, with several ridges running between cervical part and fundus bursae, the former sclerotised and curved, the latter membranous but tough; appendix bursae indistinct, ductus seminalis arising from inner posterior end of cervix bursae. Segment A8 short, with wide unsclerotised midventral area, apophyses anteriores medium-elongated; ovipositor short and large, papillae anales fairly soft, subquadrate or triangular in outline, bearing sparse stout short bristles, apophyses posteriores similar to anteriores but feebly longer, somewhat flexible and slightly dilated before apex.



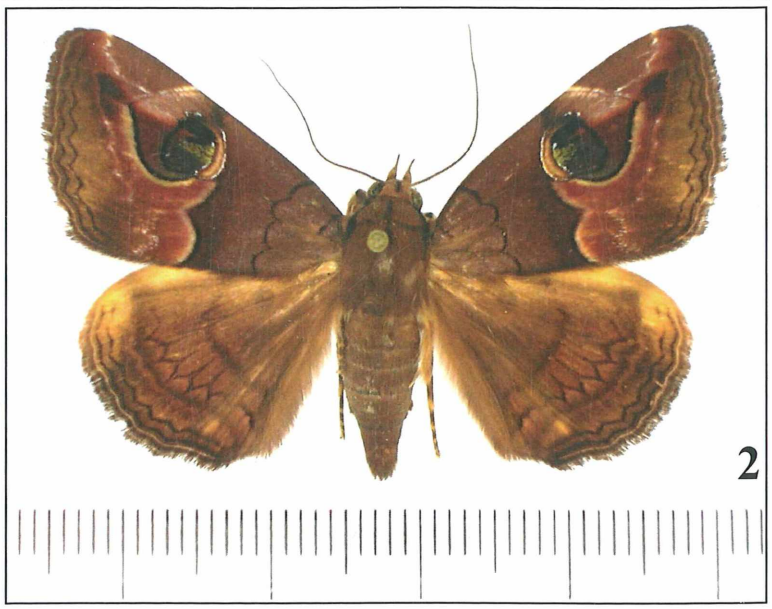


Fig. 1: *Ommatophora luminosa luminosa* (CRAMER, 1780) ♂, Sumatra.
Fig. 2: *Ommatophora luminosa luminosa* (CRAMER, 1780) ♀, Sumatra.

Larva: Following rearings from flowers of *Bauhinia* (Fabaceae) by H.S. Barlow, the larva of *O. luminosa* was described and illustrated by HOLLOWAY (2005). Variably fasciated-mottled with pinkish brown, it is cryptical in facies, and bears paired dorsolateral tubercles on A8.

Ommatophora luminosa (CRAMER, 1780)

(Figs. 1-4, 17-18, 25-27, 38)

Phalaena Noctua luminosa CRAMER, 1780: 147, 175 (Index), pl. 274, fig. D [combination occurs in the index]. Type-locality: Java, Samarang.

Iconography: CRAMER (1780, in 1779-1780: pl. 274, fig. D), HAMPSON (1894: 552, fig. 313), BARLOW (1982: pl. 34, fig. 4), CHEN (1982: pl. 113, fig. 2651; 1999: pl. 62, fig. 3), WANG (1994: 111), FU & TZUOO (2002: 143 (pl. 16), fig. 25), SRIVASTAVA (2002: 319 (pl. 69), fig. 16230, female genitalia), HOLLOWAY (2005: pl. 5, fig. 8, pl. 28, larva, b/w fig. 120, male genitalia, b/w fig. 123, female), KONONENKO & PINRATANA (2005: pl. 11, figs. 14-15).

Habitus (Figs. 1-4, 17-18): Wingspan 45-55 mm. A species fairly uniform in facies across its range except for the Taiwanese populations. Ground colour brown. Postmedial line of forewing well separated externally from discal eyespot, this with black essentially present in its anterior part or, if extending towards middle along inner margin of spot, variably irrorated with yellowish scales, inner margin of spot with feeble, thin white scaling not producing any distinct white dots, rest of spot concolorous with ground colour; postmedial line outwardly produced into acute point at CuA_2, well concave beneath this; underside of hindwing with line preceding distal shade distinctly waved, and shade followed by two major white spots.

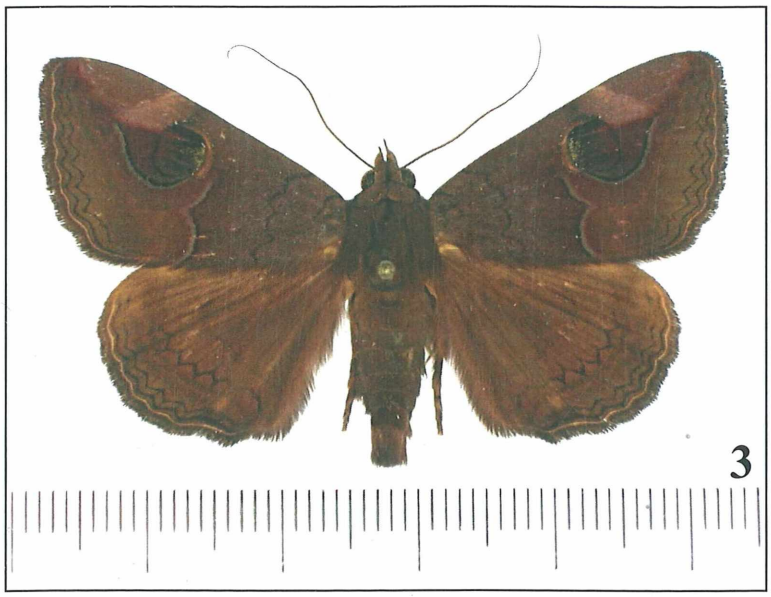
Male genitalia (Figs. 25-27): Saccular process thick at base, apically tapered and slightly curled inwards, costa greatly dilated with the rim folded inwards, forming large protruding lobe at costal angle, then tapered into short stalk ending into trifurcate process, the middle protrusion very tiny. Uncus wide. Aedeagus tubular, slightly sinuous before apex but without any flexions, smooth, with apically reclinate coecum, vesica scobinated with several sclerotised granules and showing main elongated sacculiform, distally projecting lobe.

Female genitalia (Fig. 38): Lodix medium-sized, with rounded sides and posterior lobes, mesial cleft triangular, lateral spines medium-elongated and narrow, broad-based, as long as three fourths of lodix, ending in correspondence with distinct paired triangular processes rising from membrane beneath lodix, ostial complex with sinuous grooves as in Figure 38, antrum indistinct, ostium mesially-positioned, ductus bursae in axis with it, membranous, gradually dilated into cervical part of bursa, this wide and with postero-lateral hump to the left, ridged section of bursa and fundus overall piriform.

Distribution: The most widespread species of the genus, its range extends from Ceylon (BARLOW 1982), Sikkim and Northeast India across Southeast China (Guangxi, Hainan, Hong Kong; Taiwan) and whole Indochina eastwards to Sundaland up to Borneo and Java. Records outside of this area (e.g. HOLLOWAY 1976; KONONENKO & PINRATANA 2005) evidently reflect an old, unsplit concept of "*O. luminosa*"

Diagnostic remarks: *Ommatophora luminosa* is unlikely to be confused with any congeners. In external appearance it is one of the species showing an acute projection of the postmedial line of forewing at CuA_2, the others being *O. fulvastra*, *O. celebensis* sp.n. and *O. proverai* sp.n. The most reliable diagnostic feature in habitus consists of the line beyond postmedial on the hindwing underside which is distinctly waved all through, whereas other species either have it straight or waved only in the anterior section, and in any case none of the species with the acutely projecting postmedial recalled above have it waved. In the male genitalia it is the only species with the costal angle produced into a large rounded lobe; the stalk of the apical process of valva, short and wide, is somewhat reminiscent of that of *O. proverai* and *O. celebensis*, but the termination of the process is different; the aedeagus is not coiled nor flexed in its distal

half, a feature shared only with *O. obliquilinea* sp.n.; the aedeagus of this, however, has a stronger curve before apex, a swollen coecum, and its vesica is not scobinated, whereas in *O. luminosa* the aedeagus is gently sinuous, with a narrow coecum and the vesica is richly provided with sclerotised granules. The fine details of the vesica lobes have proven to be remarkably constant across species, but for the sake of simplicity the reader is addressed to the figures provided here for comparative purposes. In the female genitalia, *O. luminosa* is one of the species in which the ostium bursae is not eccentrically positioned, the others being *O. proverai* sp.n. and *O. obliquilinea* sp.n. Its comparatively wide lodix, oval in outline, elegant grooves of the internal wall of this producing a somewhat lyriform pattern, and flanking spines of medium



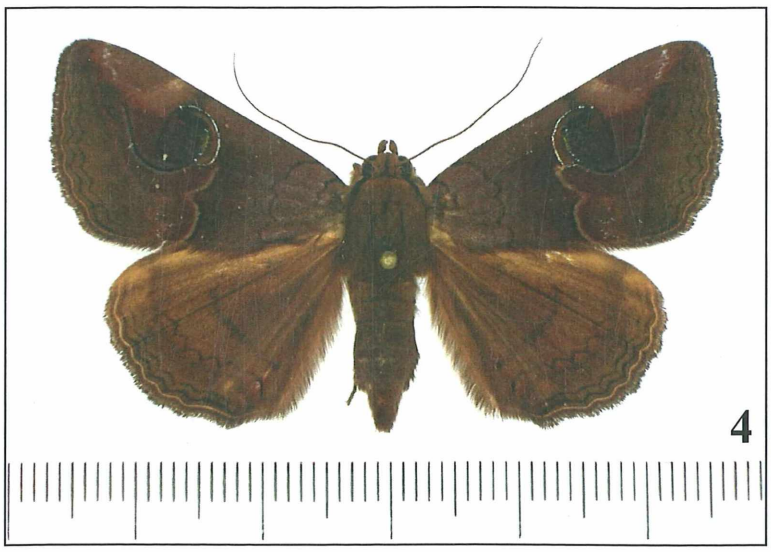


Fig. 3: *Ommatophora luminosa monotona* **ssp.n.**, ♂-Holotype, Taiwan.
Fig. 4: *Ommatophora luminosa monotona* **ssp.n.**, ♀-Paratype, Taiwan.

elongation and width, will serve, among other characters, for a prompt distinction of *O. luminosa* from these species.

Taxonomic remarks: Judging from some features given in the original description and illustration of *Phalaena Noctua luminosa* by CRAMER (1780), particularly the emphasised white lining of pale discal lunule before eyespot, number and position of white dotting on same eyespot, and three white submarginal dots on hindwing underside, there is the chance that the actual identity of *Phalaena Noctua luminosa* corresponds with that of the species occurring in Bali, which might well occur also in Java, type locality of *luminosa*. Nevertheless, as all the specimens that we examined from Java and Bali regularly corresponded with the current concepts of *luminosa* and the "Balinese" species, respectively, there is no evidence that the latter has ever been found in Java. Accordingly, we refrain from changing the current concept of *luminosa* and will describe the species from Bali, and other Lesser Sunda Islands, as new.

Ommatophora luminosa luminosa (CRAMER, 1780)

(Figs. 1-2, 17, 25-26, 38)

Phalaena Noctua luminosa CRAMER, 1780: 147, 175 (Index), pl. 274, fig. D [combination occurs in the index]. Type-locality: Java, Samarang.

Material examined: Several specimens from Burma, Thailand, Vietnam, Peninsular Malaysia, Sumatra, Borneo and Java (in CGB-ZSM, MCZR, RMNH, ZMAN, NCPZ).

Habitus (Figs. 1-2, 17): The nominotypical subspecies of *luminosa* is characterised by the middle chestnut brown ground colour, appreciably contrasting pattern mottled with paler and darker areas, forewing with feeble white markings present and area beyond postmedial line a little rosy, and hindwing with ochreous costal and apical areas.

Distribution: Continental Asia and Greater Sunda Islands.

Ommatophora luminosa monotona ZILLI, PAVESI & VOS ssp.n.

(Figs. 3-4, 18, 27)

Type material:
Holotype: ♂, Taiwan, Prov. Nantou, 3100 m, Hohhuanshan Exp. Station, 24°09' N 121°17' E, 26-28.IX.1999, leg. G. Csorba and B. Herczig; genit. praep. AZ 1561M; in CGR.
Paratypes: 1 ♀, Taiwan, Nantou Prov. Meifong, 24°05' N, 121°10' E, 2250 m, 17-18 September 1999, leg. G. Csorba and B. Herczig; in NCPZ; 1 ♂, 1 ♀, Central Taiwan, Taroko Nat. Park, Hohuanshan, 3000-3300 m, NO Puli, 24°09'27N/ 121°17'34E, 12 Sept. 2002, leg. U. Buchsbaum; in CGB-ZSM (♂), NMNS (♀); 1 ex, Central Taiwan, near Sun Moon Lake, Hoshar, 800 m, 23[°]35'32N/120°53'16E, 20.5.2001, leg. U. Buchsbaum; in CGB-ZSM; 1 ♀, Taiwan, Chungyang Gebirge, Prov. Nantou, Meifeng, 2100-2250 m, 121°10'O, 24°15'N, 6.9.2002, Chen M.Y. & Buchsbaum U. leg.; in ZSM; 1 ♂, idem, 18.5.2004; in ZSM; 1 ♂, idem, 18.5.2006, in ZSM; 1 ♂, 1 ♀, Taiwan, Chungyang Gebirge, Prov. Nantou, Meifeng, 2100-2250 m, 121°10'O, 24°15'N, 20/23.5.2003, Chen M.Y. leg; in NMNS; 1 ♀, Taiwan, I-lan Co., Chilan forest station, 600 m, 3-5.iii.2000, H.Y. Wang leg.; in CWS; 2 ♂♂, Taiwan, Chungyang Gebirge, Prov. Hualien, Tien Shan, Church, 121°30'O, 24°10'N, 6.5.2004, leg. U. Buchsbaum; in ZSM; 1 ♂, idem, 19.10.2006, Chen M.Y. & Buchsbaum U. leg.; in ZSM.

Derivatio nominis: The new subspecies is named after its almost unicolorous ground colour and much less contrasted pattern than the nominotypical subspecies.

Habitus (Figs. 3-4, 18): Ground colour greatly uniform, from moderate to, most often, deep chocolate brown, with much reduced contrast in colour between fields of wings, and white markings reduced to just some tiny scaling.

Male genitalia (Fig. 27): Not appreciably different from those of the nominotypical subspecies.

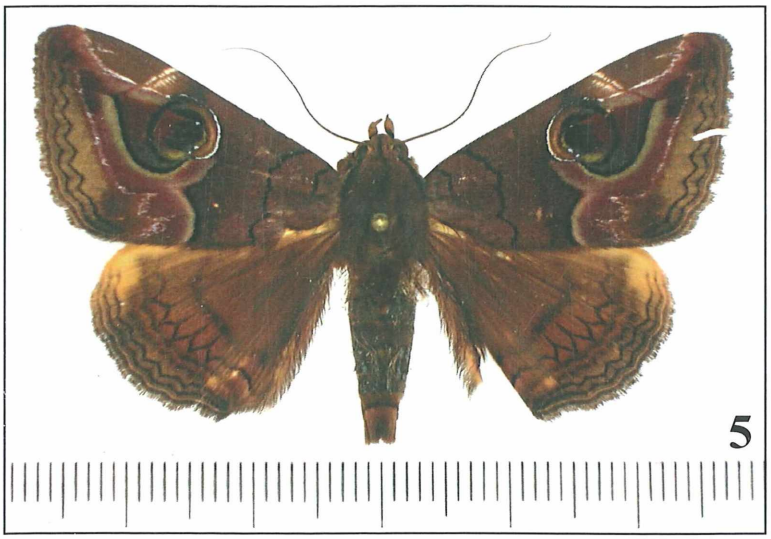
Distribution: Restricted to Taiwan. The authors do not have any information about the habitus of populations from the island of Hainan; CHEN (1982, 1999) illustrates a specimen with normally contrasted pattern from Southern China.

Ommatophora fulvastra GUENÉE, 1852

(Figs. 5-6, 19, 28, 40)

Ommatophora fulvastra GUENÉE, 1852: 191. Type-locality: [Philippines, Luzon] Manilla [= Manila].

Material examined: Several specimens from the Philippines (Luzon, Leyte, Samar and Palawan) (in CGB-ZSM, CJHL, ZMAN, NCPZ).



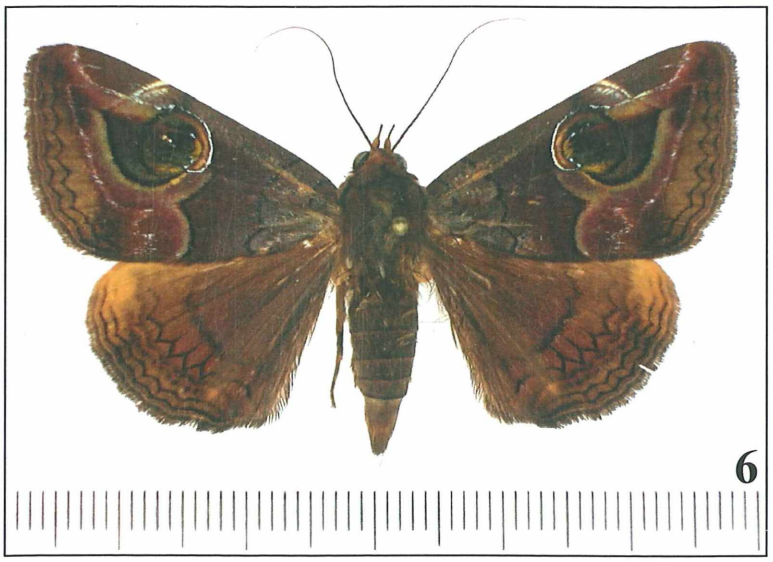


Fig. 5: *Ommatophora fulvastra* GUENÉE, 1852, ♂-topotype, Luzon.
Fig. 6: *Ommatophora fulvastra* GUENÉE, 1852, ♀-topotype, Luzon.

Habitus (Figs. 5-6, 19): Wingspan 41-57 mm. Pattern of upperside fully corresponding to that of *O. luminosa* but somewhat more contrasting, with deeper brown and more vivid ground colour, and different distribution of colours inside eyespot, this with black marking extended all over inner half of spot, showing very feeble and reduced yellowish scaling, and with no thin white line along inner margin, rather tiny anterior and posterior dots in place of it; hindwing with costal and apical areas conspicuously yellowish. Underside fully corresponding also with *luminosa*, except for line beyond postmedial of hindwing nearly straight, that is showing almost no or very feeble crenulations.

Male genitalia (Figs. 28a-d): Saccular process slightly excurved basally, a little incrassate at middle, then incurved towards apex, costa greatly dilated into broad plate and slightly asymmetric between valvae, the right one being wider, costal angles somewhat square-cornered and variable as to sharpness of the tips and evenness of their margins, from smooth to more irregularly outlined or also minutely lobed; apical processes of valvae with long slender stalk and terminally bifid, right one distinctly curved, left one varying from being straighter to fully symmetrical with right one. Uncus comparatively slender, more so at base. Aedeagus distinctly bent, with coecum approximately at 120° with respect to central part and its end even more reclinate, and distal part curved at square angle before full flexion occurring before apex, this bearing small toothed carinal plate, vesica with several small lobes as in Figures 28a-b, a transverse one tipped by some sclerotised granules.

Female genitalia (Fig. 40): Lodix similar in shape to that of *O. luminosa* but larger, with smaller and narrower posterior cleft, lateral spines more posteriorly inserted with respect to lodix than in the above congener, ostium bursae clearly displaced to right, antrum curved, narrow and heavily slerotised, thus fused with internal wall of lodix into rigid structure, ductus bursae with two posterior sclerotised rings, cervical part of bursa fairly wide, with no corrugated hump, ridged part of bursa and fundus overall elongated piriform, the latter very elongated.

Distribution: So far recorded only from the Philippines, including Palawan. Records outside of this area (e.g. TAMS 1924; KONONENKO & PINRATANA 2005) are most likely due to misidentification with the other species dealt with in this paper. Interestingly, despite the geological nature of Palawan, on the Sunda shelf, specimens from this island have proved to belong to *O. fulvastra*, whereas the typical Sundaic species is *O. luminosa*, already present on Mt. Kinabalu in North Borneo (HOLLOWAY 2005).

Diagnostic remarks: Together with *O. luminosa*, *O. proverai* sp.n. and *O. celebensis* sp.n., *O. fulvastra* is one of the species of *Ommatophora* in which the postmedial line of forewing makes an acute projection at CuA_2. This species and its sister taxon *O. celebensis* sp.n. are the members of the genus showing in pattern the most contrasting colours; on the underside of hindwing they are also, together with *O. proverai* sp.n., those in which the line beyond the postmedial is the straightest. The contrasted pattern with distinct yellowish patch at apex of hindwing and fine details of the eyespot will serve for a prompt distinction of *O. fulvastra* from the smaller-sized *O. proverai*. With respect to its closest relative, *O. celebensis*, the only reliable external differences of *O. fulvastra* are probably the slightly more concave superior section of the postmedial line of forewing from costa to projection on M_1, and the less outstanding yellowish apical patch of hindwing. In the male genitalia, *O. fulvastra* is characterised by the widest dorsal part of valva, broadly subrectangular with somewhat square-cornered costal angle, although small marginal crenulations and lobes may occur, and the apical termination is bifurcate (but see Fig. 28c for a partial exception). Differences in the male genitalia with respect to its sister species are given under the description of *O. celebensis*. Because of the presence of a somewhat flat flexion in its distal third, the aedeagus is most similar to that of its sister species, but also to those of *O. orientalis* sp.n. and *O. burrowsi*, those of the last two being however straighter and much more slender, respectively, and with different apical armature and vesica lobes. In the female genitalia, *O. fulvastra* is one of the species showing an eccentrically, viz. non mesially positioned ostium bursae, the others being, *O. burrowsi*, *O. orientalis* and its sister *O. celebensis*. Its antrum is however the least infundibular with respect to congeners, almost tubular, without protruding externally to lodix as in *O. burrowsi*. In comparison with *O. orientalis*, the pair *O. fulvastra* - *O. celebensis* is promptly distinguished by the larger, basally much wider lodix, the shorter and less sharp spines flanking this and thinner cervical part of bursa, while for the separation between the two sister species see under the latter. Interestingly, dissection of a male specimen

from Palawan revealed this to have the most bilaterally symmetrical apical processes of valvae, whereas more or less pronounced asymmetry in the depth of the curve and width of the stalk of the left one was found in specimens from other islands. Nevertheless, as the configuration of the left process was shown to vary also at a certain extent on a same island (e.g. Luzon), and all other features of the male and female genitalia of individuals from Palawan, including the internal ones, do not show any substantial difference, the populations from this island are considered here to belong to the nominotypical subspecies.

Ommatophora celebensis ZILLI, PAVESI & VOS sp.n.

(Figs. 7-8, 20, 29, 41)

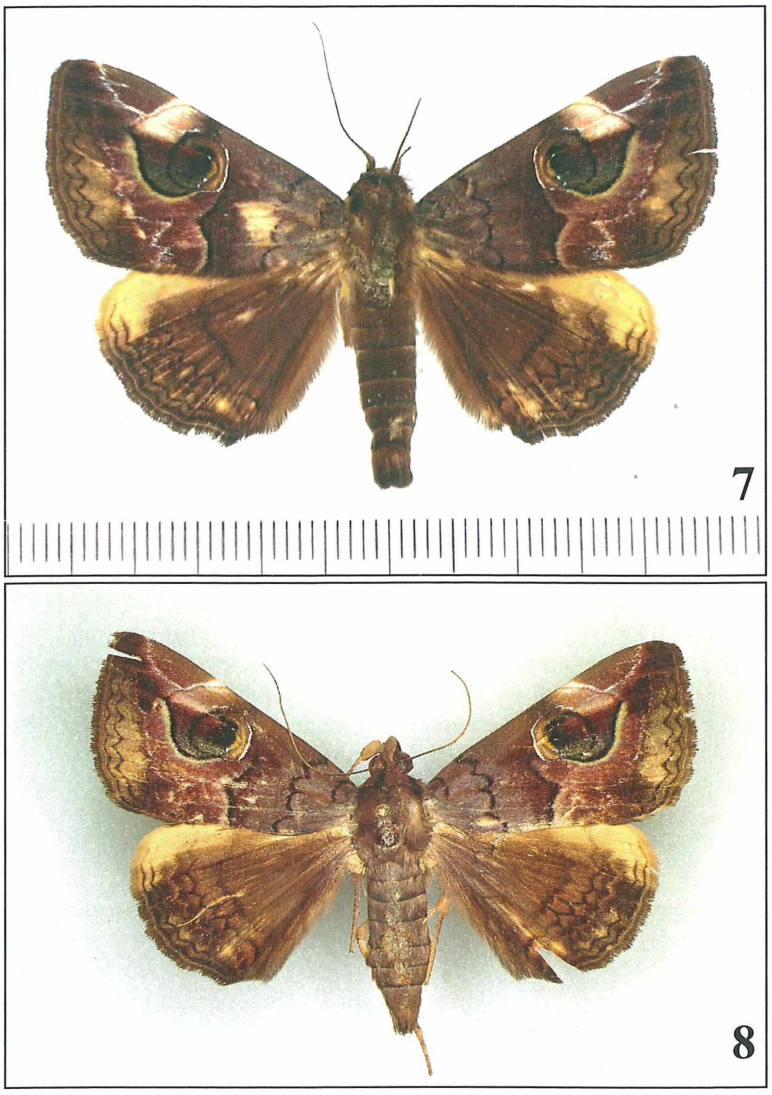


Fig. 7: *Ommatophora celebensis* **sp.n.**, ♂-Holotype, Sulawesi.
Fig. 8: *Ommatophora celebensis* **sp.n.**, ♀-Paratype, Sulawesi.

Type material:
Holotype: ♂, Indonesien, Sulawesi, Puncak Palopo, 900-1300 m, VI.1998, leg. local coll. / Museum Witt; genit. praep. AZ 1562M; in MCZR.
Paratypes: 12 ♂♂, 7 ♀♀, Indonesien, Sulawesi, Puncak Palopo, 650-1300 m, IV-VI.1998, leg. local coll., ex coll. Dr. Ronald Brechlin / Museum Witt; in CGB-ZSM, CWS, MCZR, NCPZ, ZSM; 10 exx., idem, January, October, November 1997, leg. local coll., ex coll. Dr. Ronald Brechlin / Museum Witt; genit. praep. GB 7058m; in CGB-ZSM; 1 ♀, idem, IV.1998; genit. praep. GB 7067f; in CGB-ZSM; 1 ♀, Sulawesi Tengah, Lore Lindu N.P., Rano Rano, 1600 m, 10 km NE Gimpu, 13.iii.1985, J.P. & M.J. Duffels, Stat. 40, Lower montane forest, MV-light; genit. praep. RV1283; in ZMAN; 1 ♂, Gorontalo, [ca. 1920, coll. P.J. van den Bergh]; in ZMAN; 1 ♀, Sulawesi Tengah, Totop Camp, along Batui river, 1°09S 122°31'E, SW of Luwuk, 120 m, 21.x.1989, J.P. Duffels, Sample Sul. 21, Understory/canopy lowland rainforest, at light; in ZMAN; 1 ♀, Sulawesi Selatan, 30 km W Paloppo, 1000 m, 7.iv.1985, J.P. & M.J. Duffels, Stat. 64, Lowland rainforest, ML-light, canopy; in ZMAN; 1 ♂, Celebes, Manado, Tanggarie, 410 m, x.1936, leg. J.P.A. Kalis, coll. J.M.A. van Groenendael; in ZMAN.

Derivatio nominis: The new species is named after Celebes, the old name for the island of Sulawesi.

Habitus (Figs. 7-8, 20): Wingspan 50-53 mm. Facies closely corresponding with *O. fulvastra* but with pattern even more contrasted, superior tract of postmedial line of forewing less concave before projection at M_1, and more extended and vivid yellowish apical patch of hindwing.

Male genitalia (Fig. 29): Apparatus as in *O. fulvastra*, except for saccular process, more uniformly tapered from base to apex, costa less dilated and with less produced costal angle, this rounded in overall outline but also conspicuously and irregularly toothed, and terminal process of valva, trifurcate and with shorter, straighter and wider stalk; asymmetry between valvae essentially consisting of slightly smaller left terminal process, its superior margin more regular. Aedeagus of essentially similar configuration to that of *O. fulvastra*, but more slender and with looser, more open bendings, carinal plate and cornuti absent, vesica slightly larger, with lobes as in Figure 29.

Female genitalia (Fig. 41): Apparatus as in *O. fulvastra*, with broader lodix, U-shaped posterior cleft, antrum uniformly sclerotised and more broadly infundibular, forming at junction with inner wall of lodix a wider and more sinous, partly greatly concave ostium bursae.

Distribution: Sulawesi.

Diagnostic remarks: As noted above, *Ommatophora celebensis* sp.n. is mostly resembling to its sister taxon *O. fulvastra*. Diagnostic hints to distinguish the two species were given here above in form of a comparative description.

Ommatophora proverai ZILLI, PAVESI & VOS sp.n.

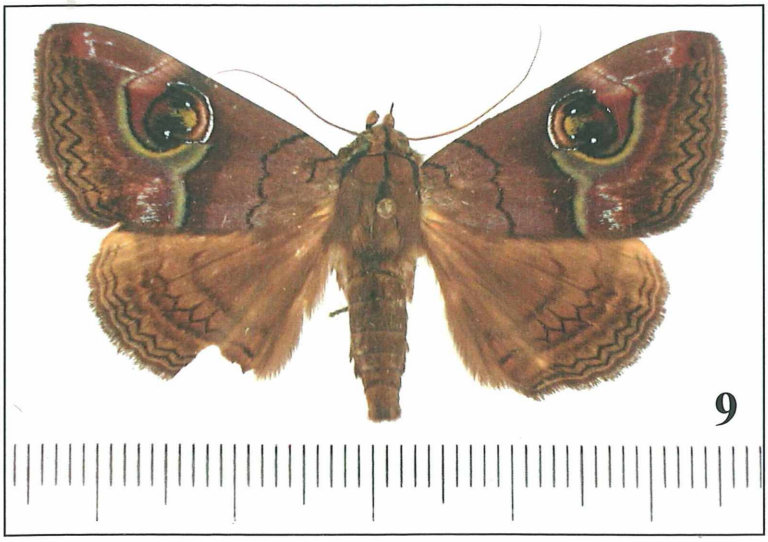
(Figs. 9-10, 21, 30-31, 39)

Type material:
Holotype: ♂, Indonesia, Bali, Sanur, mlm [= above sea level], 14/18.3.83, leg. Provera; genit. praep. AZ 1560M; in MCZR.
Paratypes: 1 ♀, Indonesia, Bali, Sanur, mlm [= above sea level], 14/18.3.83, leg. Provera (abdomen lost); in NCPZ; 1 ♀, idem, 9/13.3.83, leg. Provera; genit. praep. AZ 1567M; in NCPZ; 1 ♂, 1 ♀, Byan Lake, 1300 m, 8/10. Feb. 1997, leg. K. Cerny; in CGB-ZSM; 1 ♂, Besakih, Gunung Agung, 850 m, 2.I.2004, U. Buchsbaum leg.; genit. praep. GB 7063m; in CGB-ZSM.
Additional material examined:
1 ♀, Lombok, Sanaru, Gunung Rinjani, 515 m, 28.12.2003, U. Buchsbaum leg.; genit. praep. GB 7062f; in CGB-ZSM; 1 ♂, 2 ♀♀, O. Flores, 350 m, Suku Tukang, 7.i.1954, J.M.A. van Groenendael; genit. praep. RV1282 (♂); in ZMAN; 1 ♀, O. Flores, 350 m, Suku Tukang, 4.i.1954, J.M.A. van Groenendael; in ZMAN; 1 ♀, Flores, 1200 m, Ruteng, 7.iii.1952, J.M.A. van Groenendael; in ZMAN; 1 ♀, Flores, 1200 m, Ruteng, 24.v.1953, J.M.A. van Groenendael; in ZMAN; 2 ♂♂, Indonesien, N-Tengg. Timur, Flores, 9km südl. Ruteng, Golo Luseng, 1820 m, 27.2-9.3.1992, leg. U. Paukstadt; genit. praep. GB 7065m-7066m; in CGB-ZSM.

Derivatio nominis: The new species is named after Pietro Provera, friend and great fellow in lepidopterological trips with one of us (AZ), who collected part of the type series.

Habitus (Figs. 9-10, 21): Wingspan 43-50 mm. Habitus somewhat more flimsy than congeners, ground colour rather matt chestnut brown, weakly contrasting between fields of forewing, pale lunule

before eyespot lined by white, eyespot small, elliptic, with superior and inferior black areas shared by yellowish scales radiating from inner margin, each bearing white dot which together are outwardly obliquely positioned with respect to postmedial line on dorsum, a tiny white dot at base of yellowish irroration is usually present, postmedial line little produced externally from eyespot at M_1 but in any case well separated from it due to small size of this, projection at CuA_2 of postmedial well distinct, acute, but line smoothly convex below this; pale apical area of hindwing indistinct. Underside with line beyond postmedial of hindwing nearly straight, distal shade followed by three distinct white spots.



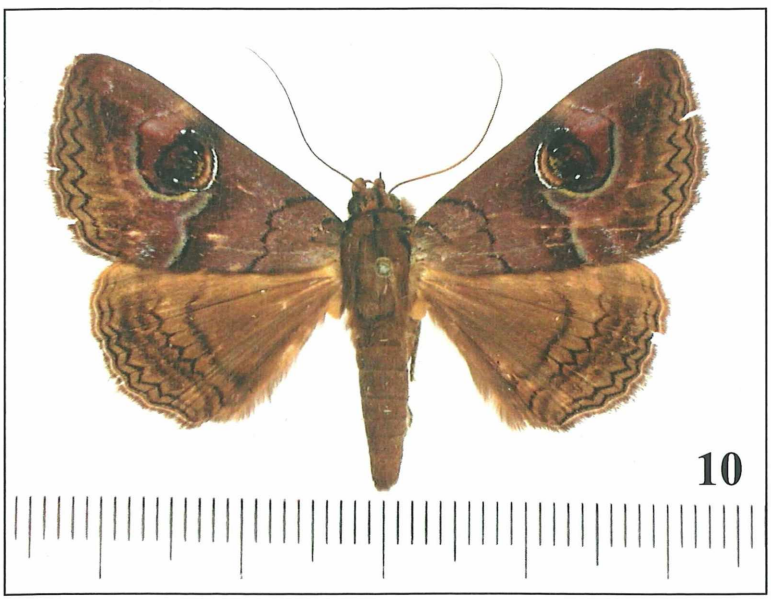


Fig. 9: *Ommatophora proverai* **sp.n.**, ♂-Holotype, Bali.
Fig. 10: *Ommatophora proverai* **sp.n.**, ♀-Paratype, Bali.

Male genitalia (Figs. 30-31): Saccular process stout and straight, slightly incurved only at very apex, costa straight, not forming costal angle and following up in line with superiorly-oriented stout wide apical termination of valva bearing several short irregular lobes along inner margin. Uncus fairly slender, slightly incrassate at middle. Aedeagus with coecum comparatively short and little reclinate at apex,

slender, making full but loose coil before apex, vesica with several small lobes as in Figures 30-31, bearing on side of main corpus some large basal cornuti and sparse smaller ones more distally.

Female genitalia (Fig. 39): Lodix widest at base, its posterior lobes blunt and with internally oblique margins, posterior cleft short triangular; internal wall of lodix with paired elongated inflexion highlighted by lateral crests, lateral spines very long, greatly exceeding length of lodix, ostium bursae sinuous, mesially positioned, opening at bottom of semi-tubular aditus on lamella, ductus bursae in axis with ostium bursae, forming posteriorly feebly infundibular antrum, somewhat tubular wrinkled anteriorly, moderately sclerotised, cervical part of bursa sclerotised, narrow, evenly double-curved, ridged part of bursa long and narrow, fundus bursae small globular, apophyses posteriores longer than in congeners.

Distribution: So far known only from Bali, Lombok and Flores. Interestingly, the distribution of *O. proverai* appears to be wholly independent from the major biogeographic disjunction occurring in the area, as it stretches from Bali, on the Sunda shelf, to Flores, outside this, but the species is apparently absent from nearby Sundanian islands such as Java.

Diagnostic remarks: Due to the postmedial line of forewing making an acute projection at CuA_2 and weakly contrasted pattern *Ommatophora proverai* is likely to be confused only with *O. luminosa*, although it is less contrasted in pattern than nominotypical *luminosa* and more than the Taiwanese subspecies of this (ssp.n. *monotona*). In any case, *O. proverai* differs from *O. luminosa* in external habitus by details of the eyespot and the line following the postmedial on the underside of hindwing, which is waved in *O. luminosa* and in *O. proverai* as straight as in *O. fulvastra* and *O. celebensis* sp.n. The latter ones are however larger-sized, stouter-bodied and with distinctly contrasted pattern on the upperside. These show also only two main white submarginal spots on the underside of hindwing, whereas in *O. proverai* the spots are distinctly three as in the more oriental species of the genus. In the male genitalia the species is promptly distinguished from all congeners by the stout apical termination of valva following up in line with the valva itself, in which no costal angle is therefore produced, and also by the aedeagus, showing a full loose coil before apex but it is not flattened in the relevant section as in other species with a distally flexed aedeagus. The female genitalia of *O. proverai* have a non eccentrically-positioned ostium bursae and are easily distinguished from those of all congeners by the extremely elongated spines flanking the lodix and shape of this, with obliquely truncated tips and straight, lateral and basal margins.

Ommatophora burrowsi A.E. PROUT, 1922

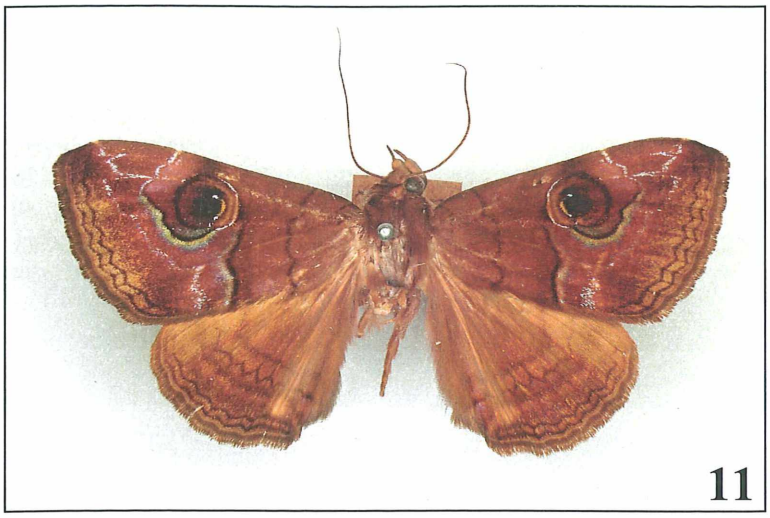
(Figs. 11-12, 22, 32-34, 42-43)

Ommatophora burrowsi A.E. PROUT, 1922: 236, pl. 21, fig. 13. Type-locality: [Ceram] Central Manusela.

Iconography: PROUT (1922, pl. 21, fig. 13).

Material examined: Several specimens from Buru, Ceram, Ambon and Kai Islands (in CGB-ZSM, CWS, MNKB, RMNH, ZMAN).

Habitus (Figs. 11-12, 22): Wingspan 51-57 mm. Ground colour varying from dull middle to chocolate brown, postmedial line of forewing with fairly waved superior tract, then closer to eyespot than in congeners in consequence of large size of eyespot, pale lunule before eyespot lined by thin white, eyespot large, rounded, with black inner area rounded, lined along inner margin by yellowish scales and with superior and inferior white dots almost in axis with postmedial line on dorsum, rest of spot concolorous with ground colour; postmedial line very smoothly projecting with rounded curve at CuA_2, below this from slightly to comparatively concave up to anal margin; pale apical area of hindwing much reduced and weak. Underside with line preceding distal shade of hindwing fairly waved, at least superiorly, and shade followed by two-three major white spots.



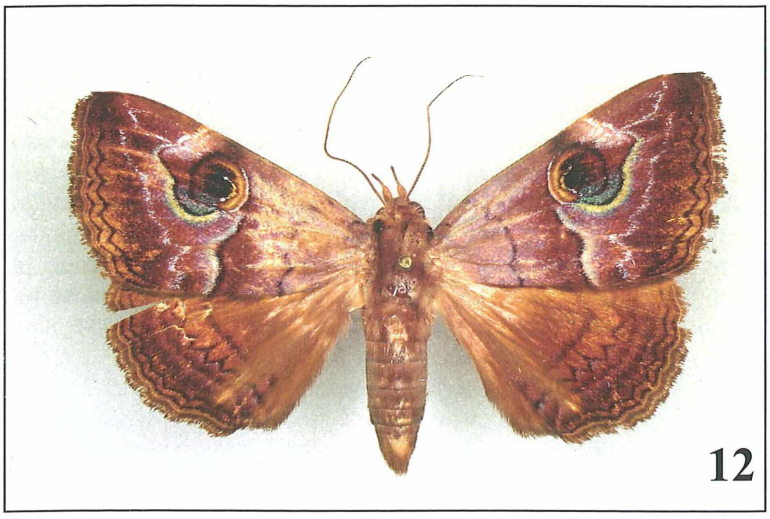


Fig. 11: *Ommatophora burrowsi* A.E. PROUT, 1922, ♂-topotype, Ceram.
Fig. 12: *Ommatophora burrowsi* A.E. PROUT, 1922, ♀, Ambon.

Male genitalia (Figs. 32-34): Armature voluminous, saccular process excurved at base then incurving at apex, costa not greatly produced at costal angle, slightly different between valvae, right one square-cornered, left one smoother and more broadly rounded, both prolonging into extraordinarily long and slender terminal processes of valvae, these asymmetrical also, the right longest and double-curved, the left shorter and regularly arched. Uncus comparatively wide. Aedeagus very long, distinctly bent beyond middle and distally fully flexed, flattened at apex and with irregular multi-lobate carina, vesica with main distal subquadrate lobe and smaller proximal one, both bearing sparse granules, and smaller lobes as in Figures 32-34.

Female genitalia (Figs. 42-43): Lodix fairly narrow, with convex anterior margin and deep posterior cleft between comparatively blunt lobes, lateral spines broad-based but very slender, long, ostium bursae broad, opening at very right of lodix and neatly oblique, antrum heavily sclerotised, broadly infundibular posteriorly, then markedly curved and of uniform width, cervical part of bursa evenly curved and of medium width, as wide as ridged part of bursa, fundus small.

Distribution: Southern Moluccas.

Diagnostic remarks: *Ommatophora burrowsi* was the only known species of the genus with the postmedial line of forewing only smoothly projecting at CuA_2 prior to this study. With respect to the congeners sharing this trait, *O. obliquilinea* sp.n. and *O. orientalis* sp.n., it is characterised in external habitus by the postmedial line slightly more concave below the projection; due to the large size and fully round shape of the eyespot, the whorl done by the postmedial externally to this is probably the thinnest among all relatives, but conclusive traits are those of the filling of the eyespot. In fact, in *O. burrowsi* the black fields are one, unlike *O. obliquilinea* in which they are two shared by yellowish scaling, and the two white dots are more vertically positioned with respect to the markings of both relatives. The pale apical patch of the hindwing is as dull as in *O. obliquilinea*, while this is more conspicuous in *O. orientalis*. On the underside of the hindwing, the line beyond postmedial is substantially straight, much less crenulated than those of *O. obliquilinea* and *O. orientalis*. In the male genitalia, *O. burrowsi* is easily characterised by its remarkably long, slender and unbranched apical terminations of the valvae which have equal only with respect to those of *O. obliquilinea* sp.n., a species in which the saccular process is however of different configuration and there is an odd digitiform process on the costal angle. The aedeagus of *O. burrowsi* has a somewhat flattened flexed section in its distal third like those of *O. fulvastra*, *O. celebensis* sp.n. and *O. orientalis* but, besides being the most slender and elongated of all, shows also several sparse carinal lobes at apex. In the female genitalia, *O. burrowsi* is one of the species of *Ommatophora* showing a markedly eccentric ostium bursae, and may be promptly distinguished from the others, namely *O. fulvastra*, *O. celebensis* sp.n. and *O. orientalis* sp.n., by the greatly infundibular stiff antrum which greatly protrudes outside the right margin of the lodix.

Ommatophora obliquilinea VOS, PAVESI & ZILLI sp.n.

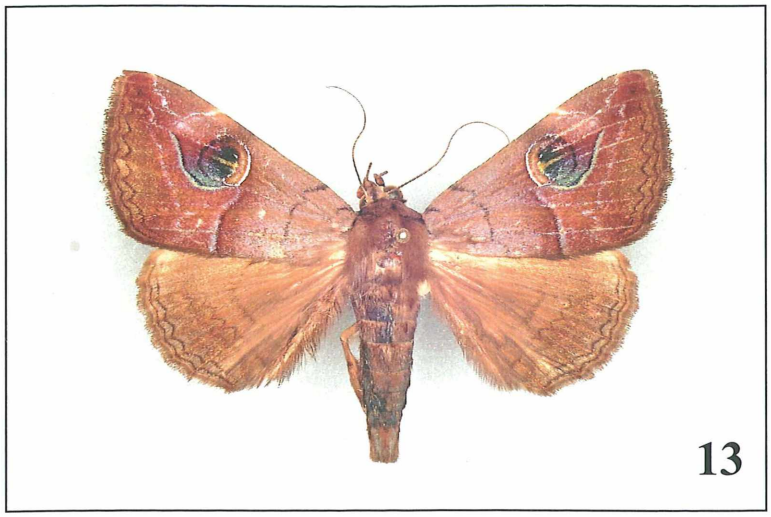
(Figs. 13-14, 23, 35, 44)

Type material:
Holotype: ♂, Sulawesi Tengah, Lore Lindu N.P., Rano Rano, 1600 m, 10 km NE Gimpu, 14.iii.1985, J.P. & M.J. Duffels, Stat. 41, Lower montane forest, MV-light; genit. praep. RV1284; in ZMAN.
Paratypes: 3 ♂♂, 1 ♀, same as holotype; in ZMAN; 1 ♂, Sulawesi Tengah, Lore Lindu N.P., 10 km SE Poloka, 1900 m, 26.iii.1985, M.J. & J.P. Duffels, Stat. 57, Disturbed lower montane forest, ML-light, canopy; in ZMAN; 1 ♂, 2 ♀♀, Indonesia, C. Sulawesi, S of Batas, 60 km N of Wotu along Trans-Sulawesi High way, 21-22.x.1993, Primary rain forest along road, ca. 1000 m, 2°16' S- 120°47'E, at light, J.P. & M.J. Duffels; genit. praep. RV1285; in ZMAN; 1 ♀, Sulawesi Tenggara, Centipede Camp, c. 3°49'S 121°40'E, nr Gng Watowila, NE of Kolaka, 1100 m, 5.xi.1989, J.P. Duffels, Sample Sul. 34, Undisturbed hilly rainforest, At light; in ZMAN; 1 ♀, Minahassa, 1920, coll. P.J. v.d. Bergh; in ZMAN; 2 ♂♂, 2 ♀♀, Sulawesi (S), Puncak Palopo, October 1997, leg. local coll., ex coll. Dr. Ronald Brechlin / Museum Witt; genit. praep. GB 7059m, 7060f; in CGB-ZSM (♂♀), CWS (♀), NCPZ (♂).

Derivatio nominis: The new species takes name after the characteristic trend of the postmedial line of forewing, crossing obliquely the wing.

Habitus (Figs. 13-14, 23): Wingspan 55-59 mm. Ground colour from liver to dark chestnut or chocolate brown, pattern little contrasted and generally resembling that of *O. proverai* or *O. luminosa monotona* ssp.n. but differing from these in the configuration of postmedial line of forewing, very outwardly oblique from middle of disc to dorsum, with smooth convexity in place of acute projection at CuA_2, comparatively wide pale lunule before eyespot. Underside of hindwing with line beyond postmedial deeply waved except in the anal field, and main white submarginal spots in number of three.

Male genitalia (Fig. 35): Armature voluminous, saccular process straight, at apex becoming flat ventrally and with short erect setae and bearing superiorly small process in shape of frustum of cone, costa straight, not produced at costal angle, but having in place short finger-like sparsely setose lobe, and prolonging into extraordinarily long and slender, slightly incurved, terminal processes of valvae, the left longest. Uncus with large globular coecum and evenly curved beyond middle, vesica unarmed, with distal diverticulum and smaller lobes as in Figure 35.



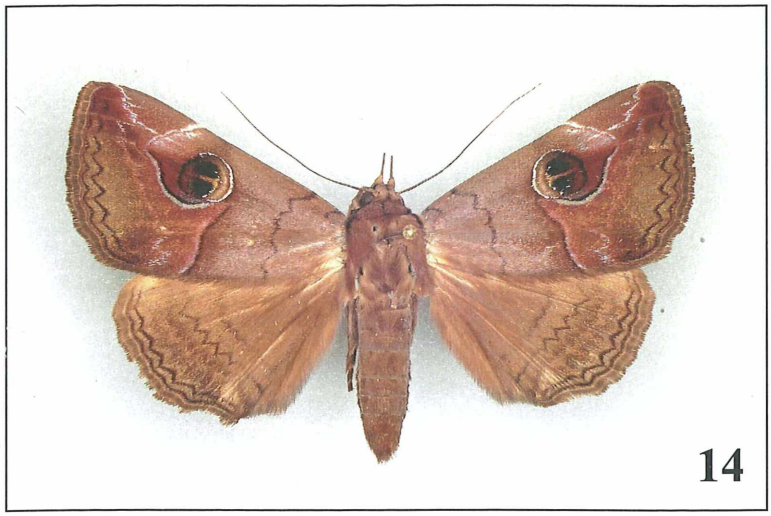


Fig. 13: *Ommatophora obliquilinea* **sp.n.**, ♂-Paratype, Sulawesi.
Fig. 14: *Ommatophora obliquilinea* **sp.n.**, ♀-Paratype, Sulawesi.

Female genitalia (Fig. 44): Lodix subtrapezoidal, widest subbasally, with widely triangular posterior cleft, lateral spines wide lying on basal membrane by their unusually swollen and elongated bases taking the most of the morphological piece, and ending with acute conical projections, ostium bursae mesially positioned, broad, ductus bursae forming posteriorly infundibular, heavily sclerotised antrum, anteriorly membranous, except for scale-like sclerite at very base, cervical part of bursa transverse, well sclerotised and short, ridged part medium-elongated, fundus large sacculiform.

Diagnostic remarks: Among its congeners, *Ommatophora obliquilinea* sp.n. is the species showing the smoothest projection of postmedial line of forewing; furthermore this also crosses very much obliquely the median field, a feature which is somewhat shown also by *O. orientalis* sp.n. and *O. burrowsi*, although at a lesser extent. Due also to its dull colour and little contrasted pattern, *O. obliquilinea* is actually likely to be confused with these two other oriental representatives of the genus but, in addition to characteristics of the postmedial line of forewing, fine details of the eyespot are also different. On the underside, the most similar species is *O. orientalis*, which also shows a line beyond postmedial deeply waved in the anterior half and regularly three white submarginal spots. A sure

identification can be achieved after dissection of the genitalia. The male apparatus of *O. obliquilinea* is superficially similar to that of *O. burrowsi* because of the extremely elongated unbranched apical terminations of valvae, but differs in several respects, noticeably the saccular process, which is tapered and curved at apex in *O. burrowsi*, ventrally flattened and with truncate conical dorsal process in *O. obliquilinea*, the costa, forming an angle in *O. burrowsi* and with a small finger-like lobe in the Sulawesian species, and the relative length the apical processes of valvae, asymmetrical in *O. burrowsi*, the right being the longest, and equal in *O. obliquilinea*. The shape of the aedeagus of *O. obliquilinea* is very different from those of congeners, showing only a major curve with no coiling or flexing in its distal half, thus resembling only to that of *O. luminosa*, which is however much straighter. The female genitalia of *O. obliquilinea*, another species with a non eccentrically-positioned ostium bursae, are by far characterised with respect to all congeners by the extremely large and wide elongated spines flanking the lodix and the wide subtrapezoidal shape of this.

Distribution: So far known only from Sulawesi.

Ommatophora orientalis VOS, PAVESI & ZILLI sp.n.

(Figs. 15-16, 24, 36-37, 45-46)

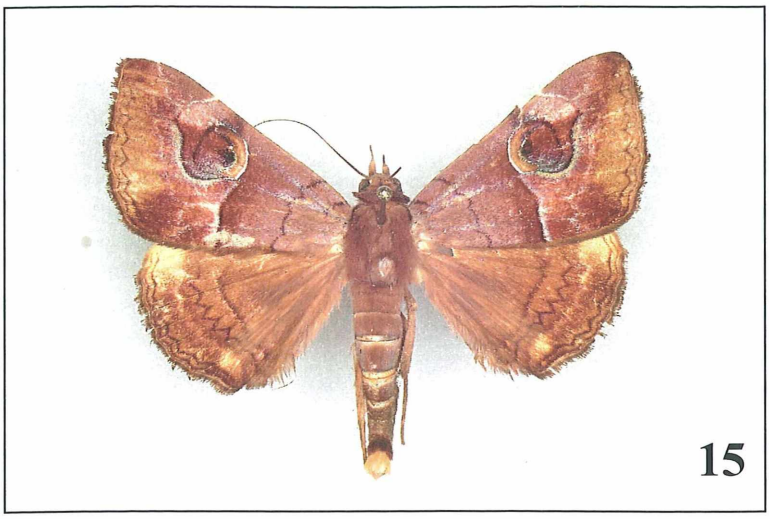
Type material:
Holotype: ♂, Nederlands Indië, Halmahera, Tobelo, ix-x.1936, leg. M.J. van Diejen, coll. J.M.A. van Groenendael; genit. praep. RV 1286; in ZMAN.
Paratypes: 4 ♂♂, 5 ♀♀, Nederlands Indië, Halmahera, Tobelo, ix-x.1936 (2 ♂♂, 5 ♀), vi.1936 (2 ♂♂), leg. M.J. van Diejen, coll. J.M.A. van Groenendael; genit. praep. RV 1287 (1 ♀); in ZMAN; 2 ♂♂, 3 ♀♀, Halmaheira, [ca. 1920, coll. P.J. van den Bergh]; in ZMAN; 1 ♀, Maluku Utara, Halmahera (NW), Stichtstraße Baru-Basale Gn. Talagarama, 550 m, Einschlag Sekundärwald, 3-5.iii.1997, leg. Stefan Naumann; in CWS.
Additional material examined:
1 ♂, Ned. N. Guinea, Sorong, 10.xi.1957, M.P. Kleiman-Evers; genit. praep. RV 1289; 1 ♀, Ned. N. Guinea, Sorong, 1958, M.P. Kleiman-Evers; 1 ♀, Ned. Nw. Guinea, Sorong, 17.vi.1953, coll. J.M.A. van Groenendael; 1 ♂, 2 ♀♀, Indonesia, Irian Jaya, Birdshead Peninsula, ZMA-exp. 1996, Prafi, 200 m, 15 km W Andai, 0°52'S-138°53'E, 13.ii.1996; genit. praep. RV 1290 (1 ♀); 1 ♂, Irian Jaya, Biak Island, A.J. de Boer, Marauw, Biak Beach Hotel, 22 km E Biak, 6-11.i.1997; in ZMAN.

Derivatio nominis: The new species is one of the most easternly distributed within the genus *Ommatophora*, which inspired its name.

Habitus (Figs. 15-16, 24): Wingspan 39-54 mm. Ground colour brownish with lilac reflections, particularly on forewing, pattern fairly contrasted, postmedial line of forewing with fairly convex superior tract, and slightly angled on dorsum at CuA_2, pale yellowish lunule before eyespot fairly wide, eyespot with black area mesially positioned at inner half of spot, undivided by any yellowish, lined internally by thin pale line, usually yellowish at middle and white at extremities, where more or less distinct dots may be produced; underside of hindwing with line beyond postmedial waved except in the anal field.

Male genitalia (Figs. 36-37): Saccular process long and comparatively slender, gradually incurved apically, costa of medium width, forming distinct costal angle, somewhat varying from neatly square-cornered to a little smoother and irregular, apical process of valva long and slender, distinctly incurved. Uncus wide. Aedeagus with little reclinate coecum, distinctly folded on itself and flattened before apex, vesica with small scobinate plate at very base, otherwise unarmed except for sparse very small granules at apex of ventral lobe, other lobes as in Figures 36-37.

Female genitalia (Figs. 45-46): Lodix relatively small and slender, with evenly curved sides and convex anterior margin, posterior cleft short, lateral spines long and very slender, ostium bursae wide concave, opening at middle of right half of internal wall of lodix, ductus bursae wide, membranous except for periostial region (antrum), straight and obliquely positioned so as to lie along midline at junction with bursa, cervical part of bursa very wide, rivalling in size with fundus, smoothly bulging internally at right and neatly cornered at posterior left, ridged part medium elongated, fundus globular.



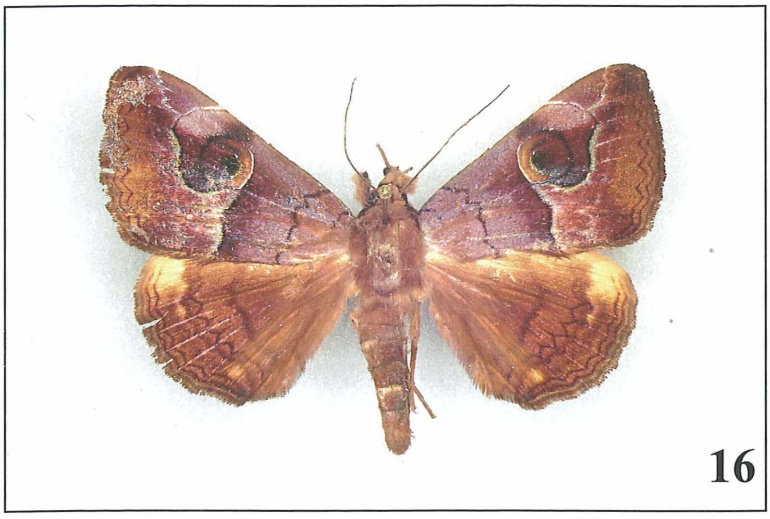
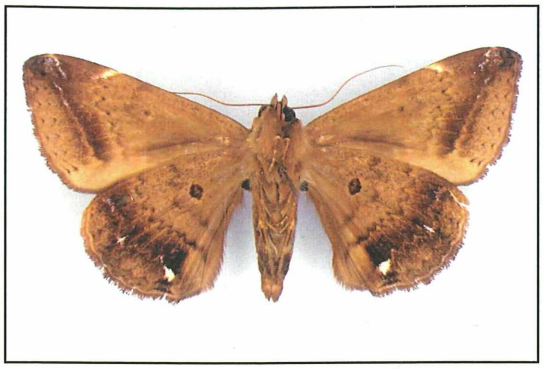


Fig. 15: *Ommatophora orientalis* **sp.n.**, ♂-Paratype, Halmahera.
Fig. 16: *Ommatophora orientalis* **sp.n.**, ♀-Paratype, Halmahera.

Diagnostic remarks: *Ommatophora orientalis* sp.n. is one of the species of the genus without an acutely sharp projection of the postmedial line of forewing at CuA_2, and in this respect it is likely to be confused with *O. burrowsi* and *O. obliquilinea* sp.n., to which the reader is addressed for diagnostic hints. In the male genitalia, the structure of the valvae, with single slender apical terminations, is shared only with *O. burrowsi* and *O. obliquilinea* sp.n., but in these species the processes are much longer. The aedeagus of *O. orientalis* sp.n., in contrast, shows a flattened flexion in its distal half like those of *O. fulvastra*, *O. celebensis* sp.n. and *O. burrowsi* but it is more compact and much straighter proximally than those of these relatives. The eccentric ostium bursae, comparatively small and narrow lodix, flanking spines which are the thinnest and sharpest among all congeners, and broad cervical part of bursa copulatrix, are the most outstanding differential features in the female genitalia of *O. orientalis* with respect to other species of *Ommatophora*.

Distribution: The range of the new species stretches from the Northern Moluccas (Halmahera) to Northwestern New Guinea (Birdshead Peninsula), including Biak.



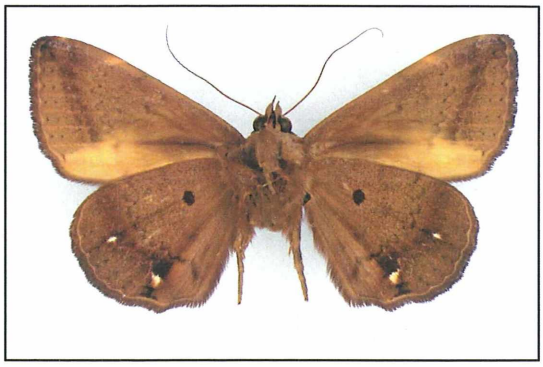
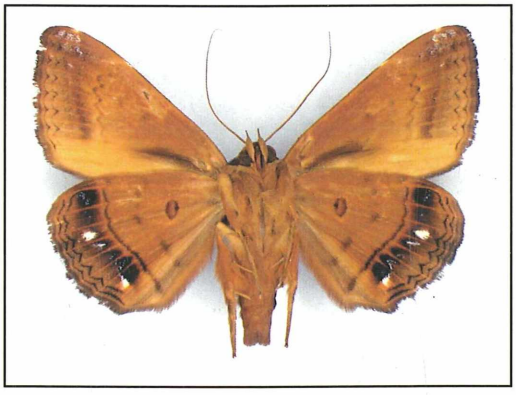


Fig. 17, left: *Ommatophora luminosa luminosa* (CRAMER, 1780), ♂, Sumatra (underside).
Fig. 18, right: *Ommatophora luminosa monotona* **ssp.n.**, ♂-Holotype, Taiwan (underside).



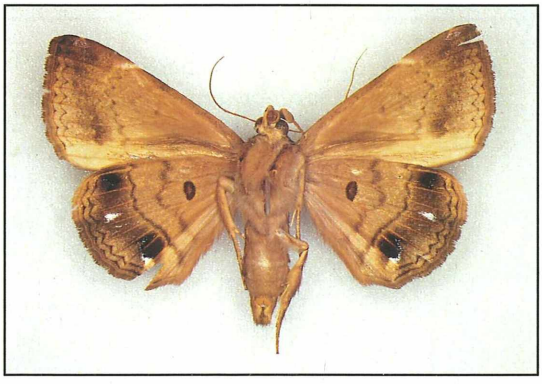
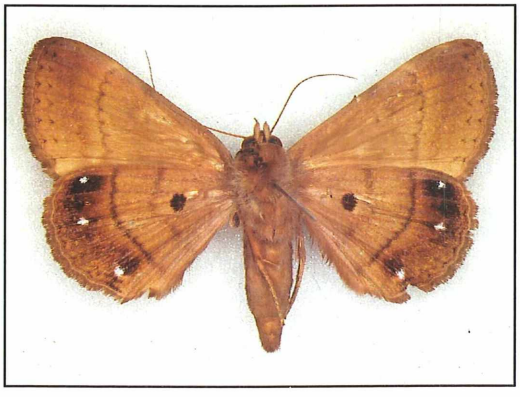


Fig. 19, left: *Ommatophora fulvastra* GUENÉE, 1852, ♂-topotype, Luzon (underside).
Fig. 20, right: *Ommatophora celebensis* **sp.n.**, ♀-Paratype, Sulawesi (underside).



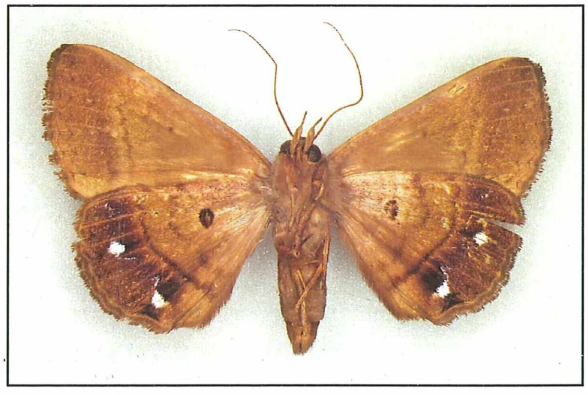
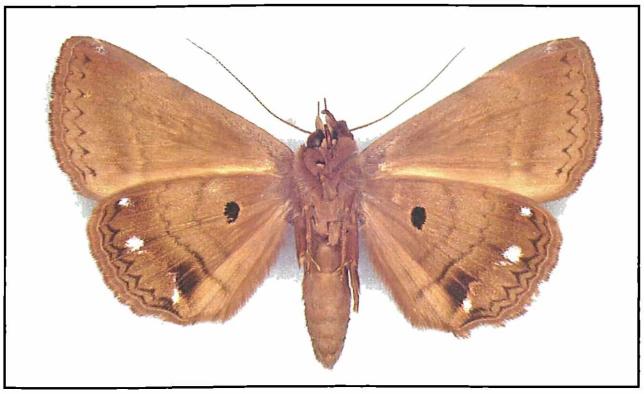


Fig. 21, left: *Ommatophora proverai* **sp.n.**, ♀, Flores (underside).
Fig. 22, right: *Ommatophora burrowsi* A.E. PROUT, 1922, ♀, Ambon (underside).



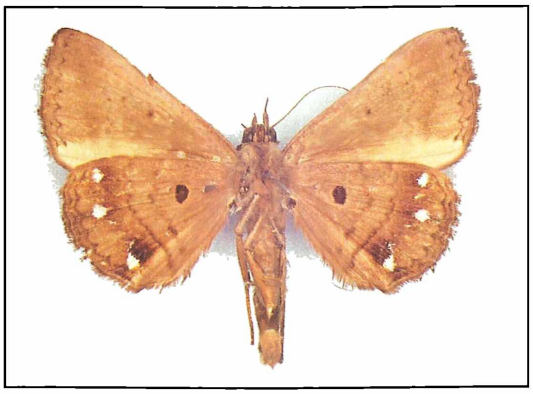


Fig. 23, left: *Ommatophora obliquilinea* **sp.n.**, ♀-Paratype, Sulawesi (underside).
Fig. 24, right: *Ommatophora orientalis* **sp.n.**, ♂-Paratype, Halmahera (underside).

Checklist of the species of *Ommatophora*

luminosa luminosa CRAMER, 1780 [Ceylon, Sikkim, NE India, Burma, Thailand, Vietnam, SE China, Peninsular Malaysia, Sumatra, Borneo and Java]

luminosa monotona ZILLI, PAVESI & VOS **ssp.n.** [Taiwan]

fulvastra GUENÉE, 1852 [Philippines (Luzon, Leyte, Samar, Palawan)]

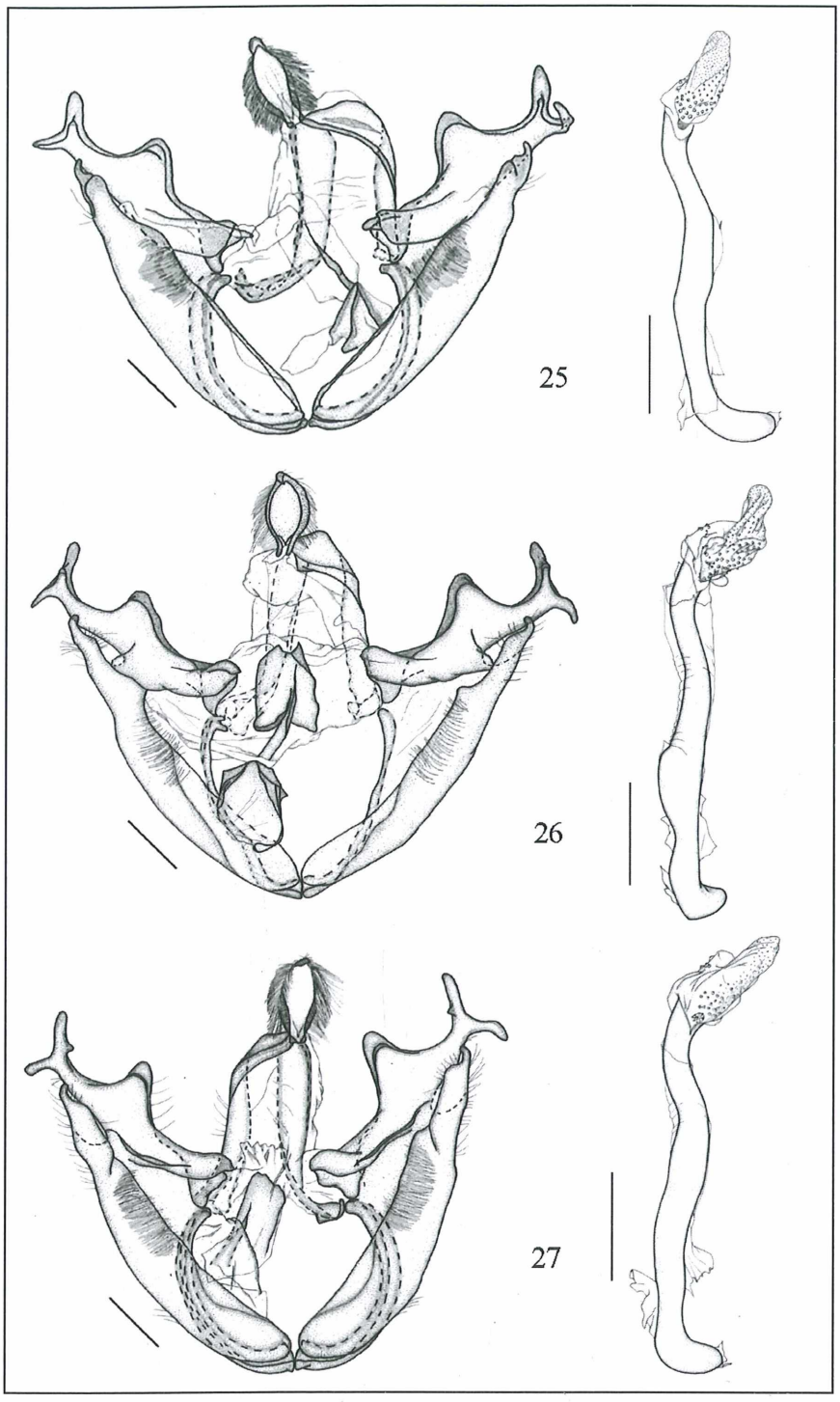
burrowsi A.E. PROUT, 1922 [Buru, Ceram, Ambon and Kai Islands]

proverai ZILLI, PAVESI & VOS **sp.n.** [Bali, Lombok and Flores]

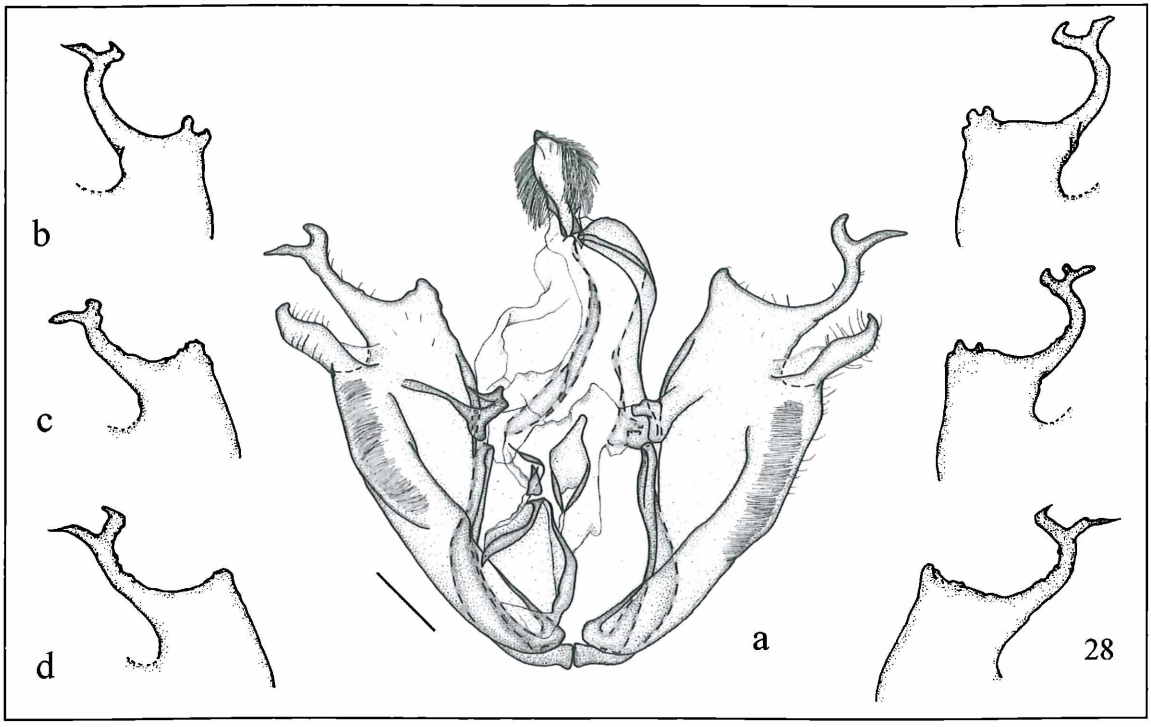
celebensis ZILLI, PAVESI & VOS **sp.n.** [Sulawesi]

obliquilinea VOS, PAVESI & ZILLI **sp.n.** [Sulawesi]

orientalis VOS, PAVESI & ZILLI **sp.n.** [Halmahera, NW New Guinea]



Figs. 25-27: Male genitalia of *Ommatophora luminosa* (CRAMER, 1780) (scale bar = 1 mm).- **Fig. 25**: *O. luminosa luminosa* (CRAMER, 1780), Java.- **Fig. 26**: *O. luminosa luminosa* (CRAMER, 1780), Borneo.- **Fig. 27**: *O. luminosa monotona* **ssp.n.**, Holotype, Taiwan.



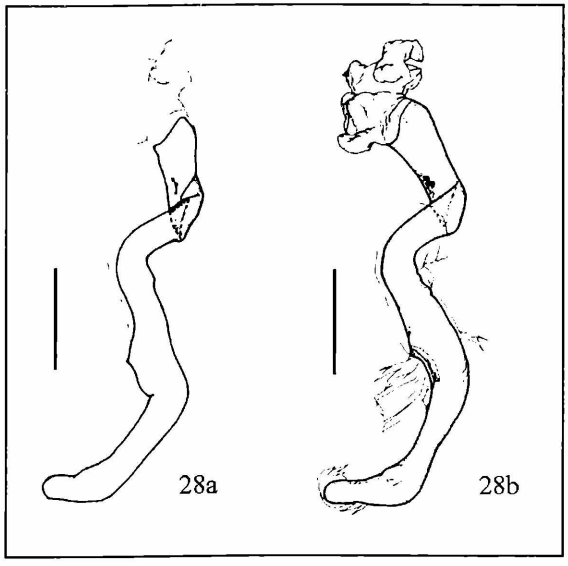
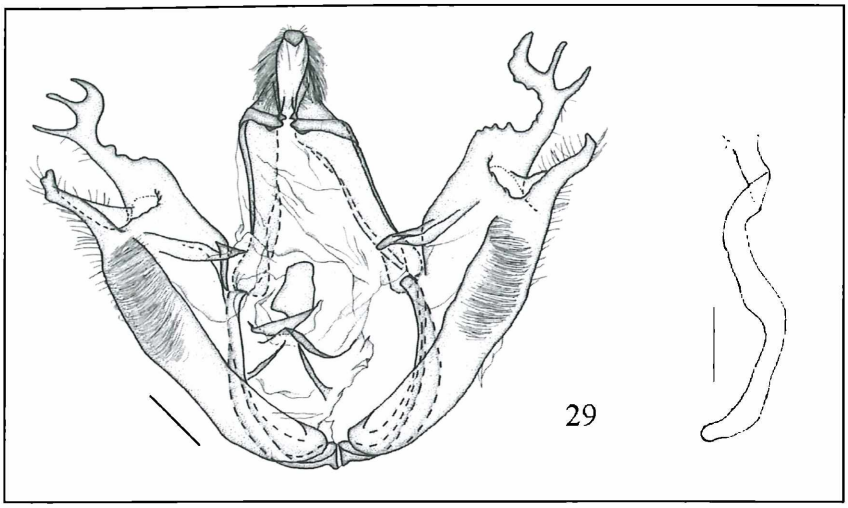
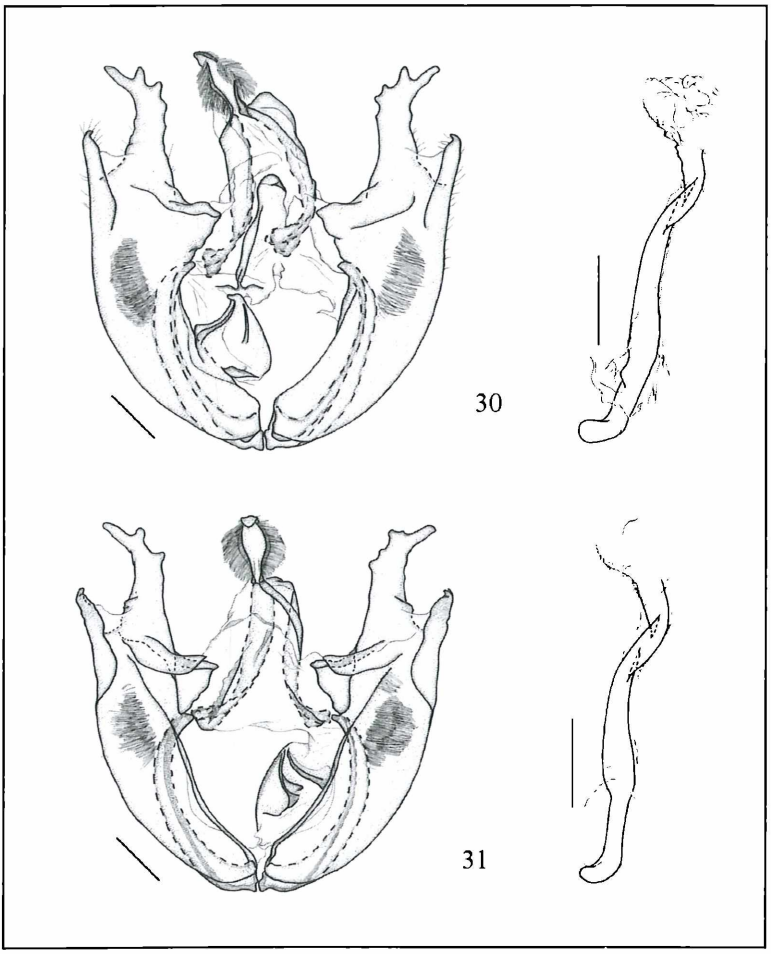


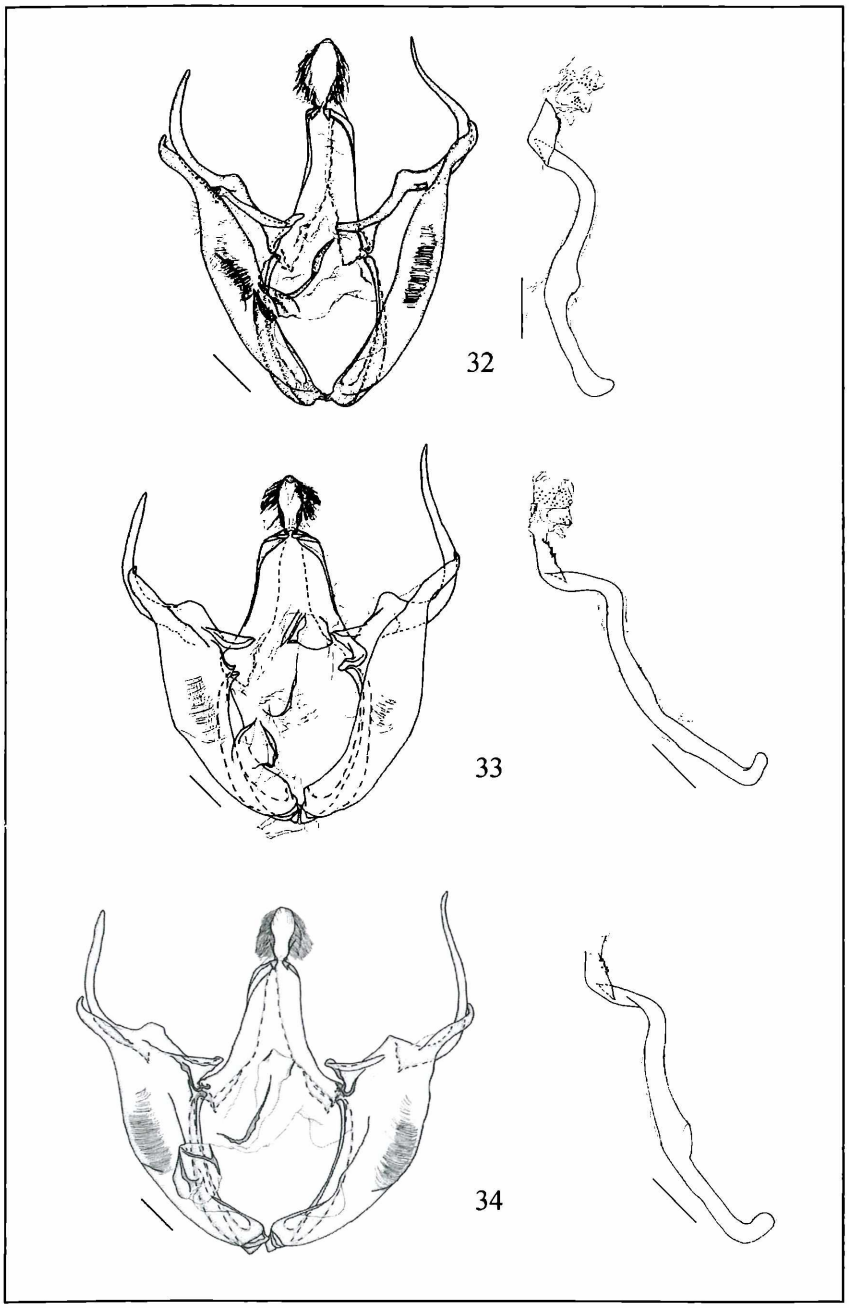
Fig. 28: Male genitalia of *Ommatophora fulvastra* GUENÉE, 1852 (scale bar = 1 mm).- **Fig. 28a**: N Luzon (top middle: full apparatus).- **Fig. 28b**: Palawan (valval costae on top).- **Fig. 28c**: E Luzon (valval costae on middle).- **Fig. 28d**: Leyte (valval costae on bottom).

Aedeagi corresponding to **Figs. 28a,b** on the left.

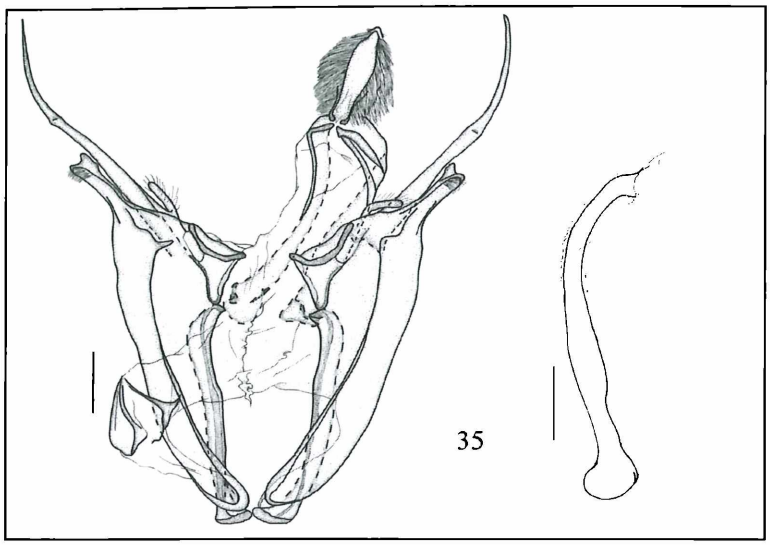


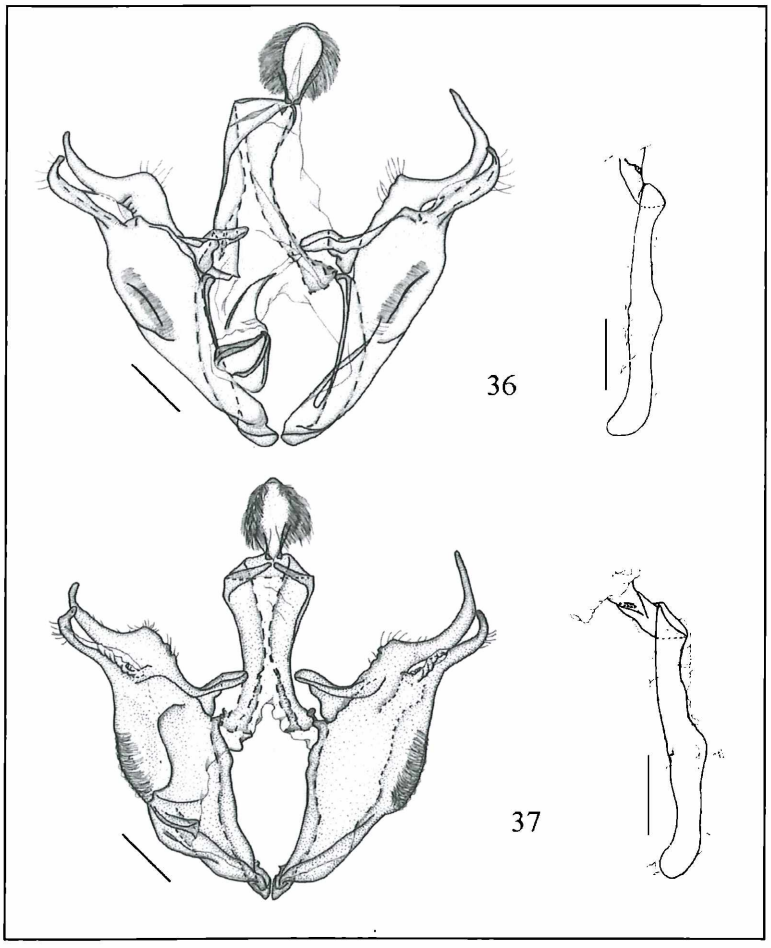


Figs. 29-31: Male genitalia of *Ommatophora* spp. (scale bar = 1 mm). **Fig. 29**: *O. celebensis* **sp.n.**, Holotype, Sulawesi.- **Fig. 30**: *O. proverai* **sp.n.**, Holotype, Bali.- **Fig. 31**: *O. proverai* **sp.n.**, Flores.

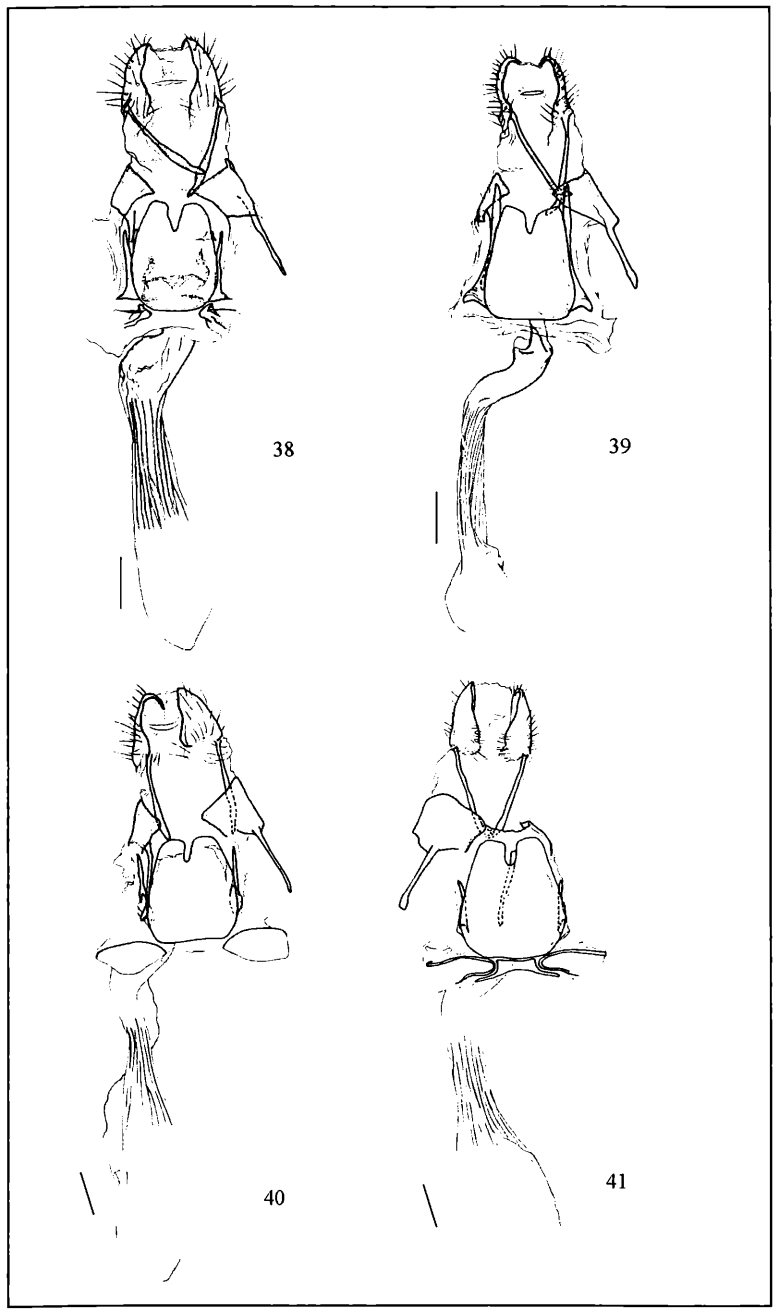


Figs. 32-34: Male genitalia of *Ommatophora burrowsi* PROUT, 1922 (scale bar = 1 mm).- **Fig. 32**: *O. burrowsi* PROUT, 1922, topotype, Ceram.- **Fig. 33**: *O. burrowsi* PROUT, 1922, Kai Is.- **Fig. 34**: *O. burrowsi* PROUT, 1922, Kai Is.

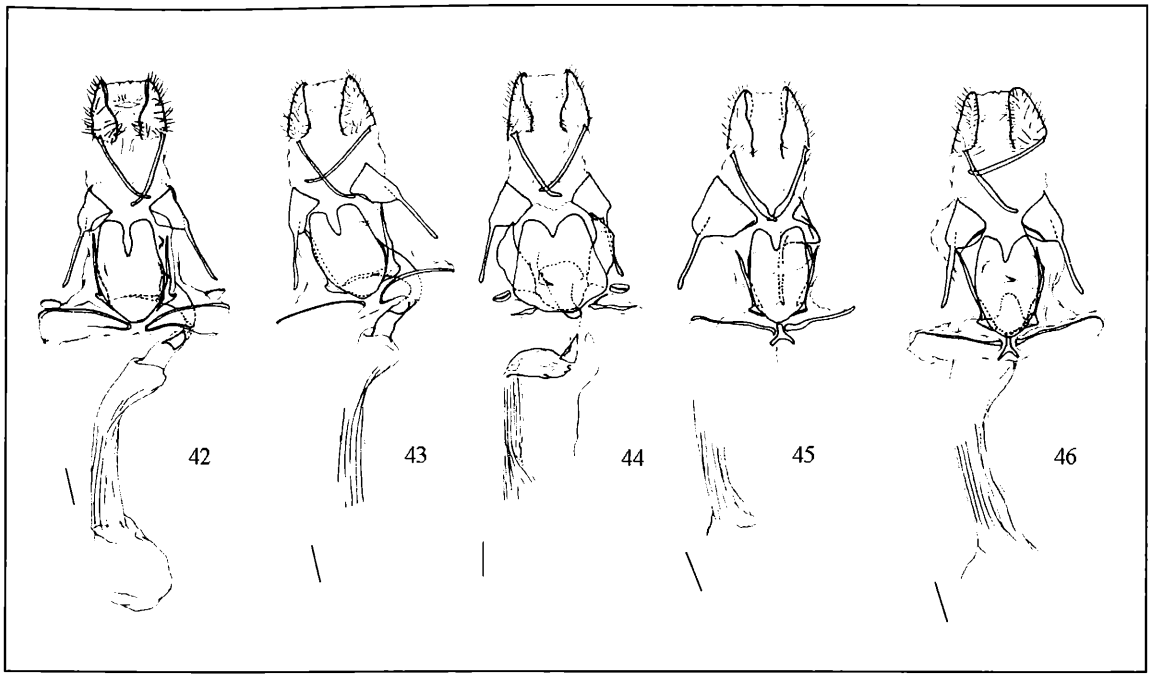




Figs. 35-37: Male genitalia of *Ommatophora* spp. (scale bar = 1 mm).- **Fig. 35**: *O. obliquilinea* **sp.n.**, Holotype, Sulawesi.- **Fig. 36**: *O. orientalis* **sp.n.**, Holotype, Halmahera.- **Fig. 37**: *O. orientalis* **sp.n.**, New Guinea.



Figs. 38-41: Female genitalia of *Ommatophora* spp. (scale bar = 1 mm).- **Fig. 38**: *O. luminosa luminosa* (CRAMER, 1780), Sumatra.- **Fig. 39**: *O. proverai* **sp.n.**, Paratype, Bali.- **Fig. 40**: *O. fulvastra* GUENÉE, 1852, Luzon.- **Fig. 41**: *O. celebensis* **sp.n.**, Paratype, Sulawesi.



Figs. 42-46: Female genitalia of *Ommatophora* spp. (scale bar = 1 mm).- **Fig. 42**: *O. burrowsi* PROUT, 1922, topotype, Ceram.- **Fig. 43**: *O. burrowsi* PROUT, 1922, Buru.- **Fig. 44**: *O. obliquilinea* **sp.n.**, Paratype, Sulawesi.- **Fig. 45**: *O. orientalis* **sp.n.**, Paratype, Halmahera.- **Fig. 46**: *O. orientalis* **sp.n.**, New Guinea.

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