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Description of three new lachryphagous moths of the genus *Mabra* from Thailand, Malaysia, and China (Lepidoptera: Pyralidae)

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Mabra lacriphaga sp. nov. from N. Thailand and W. Malaysia, *Mabra haematophaga* sp. nov. and *Mabra elephantophila* sp. nov., both from N. Thailand and S. W. China, are described with illustrations of the habitus and genitalia. Male adults suck various mammalian body fluids, including wound exudates and lachrymal secretions, from ungulates, proboscideans, and man.

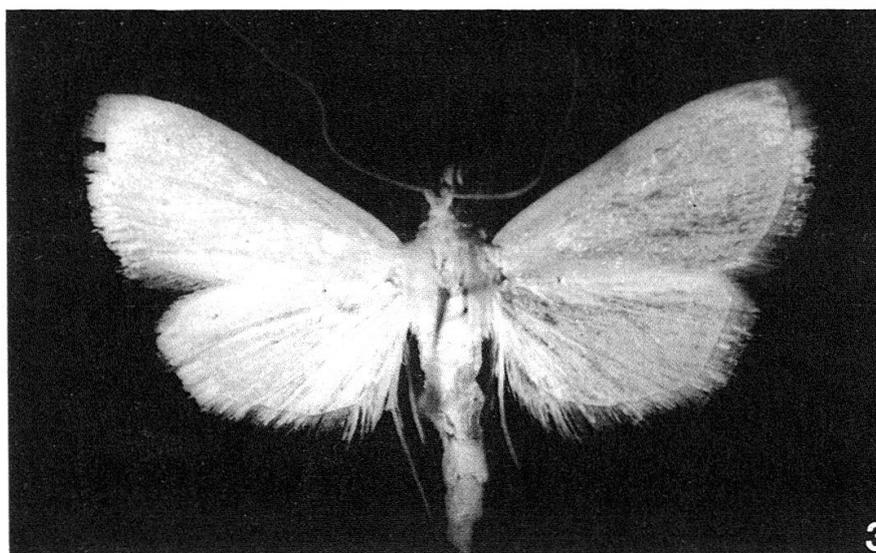
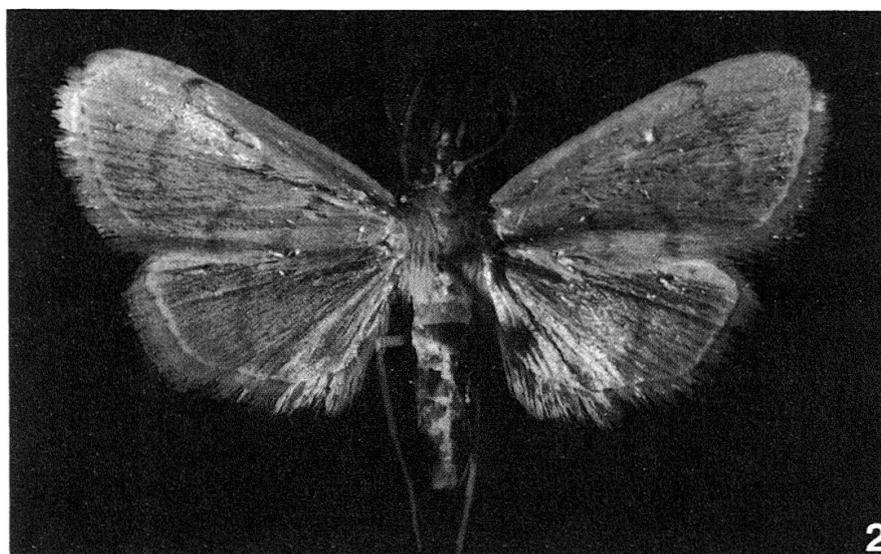
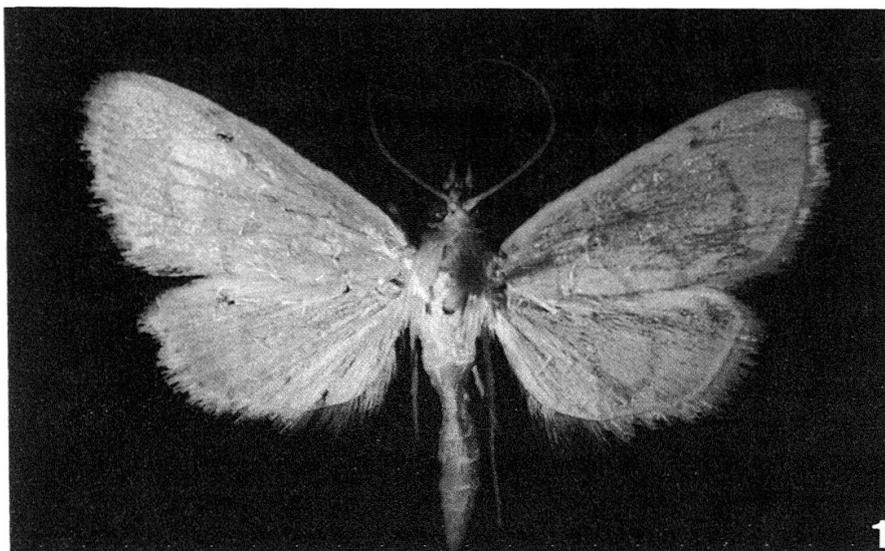
As far back as 1965, in jungle areas of N. Thailand I had time and again observed at night very small pyralids and geometrids in dozens circling around and settling on both domesticated elephants and ourselves as observers, as well as on the vegetation which had come into contact with such hosts. Detailed studies on the biology of zoophilous Lepidoptera in Thailand and Malaysia proved that such moths – in some areas found to belong mainly to *Mabra* and *Scopula* spp. – feed from various skin secretions, mosquito-exuded blood-droplets, wound exudates and lachrymation on many different hosts (Bänziger, 1973 Fig. 1, and in prep.). Main hosts include Indian elephant (*Elephas maximus* L.), water buffalo (*Bubalus bubalis* (L.)), Malayan tapir (*Tapirus indicus* DESMAREST) etc., but occasionally also man.

More recently two species were provisionally named without description as *Mabra elephantophila* sp. nov. and *Mabra haematophaga* sp. nov. in a study on lachryphagous moths observed for the first time in Laos and China (BÄNZIGER, 1983). These two are described below, together with *Mabra lacriphaga* sp. nov. The latter, and *Mabra nigriscripta* SWINHOE, have also been found to be zoophilous; they will be treated from the aspect of their feeding behaviour later on in a more comprehensive study about such Lepidoptera.

Near Chiangdao, N. Thailand, the four species are sympatric in a strict sense as they may be found on or near the same host at the same time.

Mr. M. SHAFFER (pers. comm.) suggested assigning the three new species to *Mabra* MOORE as its type species *eryxalis* (WALKER) is their closest relative. Although the genus seems to include some widely differing species, some of which may eventually have to be transferred to other genera, this allocation seems preferable than to create yet another new genus which may end up being synonymised once the Pyraustinae are revised. Mr. M. SHAFFER also pointed out that *Mabra* is at present wrongly placed in the subfamily Nymphulinae while it correctly belongs to the Pyraustinae.

After the description of three new species of the genus *Scopula* SCHRANK (Geometridae) (BÄNZIGER & FLETCHER, in press), this is the second in a series of studies aiming to elucidate the taxonomic status of zoophilous Lepidoptera.



Figs. 1–3: *Mabra lacriphaga* sp. nov. ♂ (1); *Mabra haematophaga* sp. nov. ♂, paratype (2); *Mabra elephantophila* sp. nov. ♂ (3).

DESCRIPTIONS

Mabra lacriphaga sp. nov.

Figs. 1, 4–7

Type locality: THAILAND: Chiangmai Province, Chiangdao.

Type material: Holotype ♂, THAILAND: Chiangmai Prov., forest place near road Chiangmai-Chiangdao, km 55, 380 m, 2.VI.1982, BÄNZIGER leg., genitalia slide 1276, in coll. Dept. Entomology, Fac. Agriculture, Chiangmai University (DEFACU). 11 paratypes ♂, *ibid.*, and 400 m, 420 m, 680 m, 31.X.1980, 2.VI., 10.VI., 10.VII.1982, 24.IX., 22.X.1983, all BÄNZIGER leg., genitalia slides 1274, 1275, 1322 in British Museum (Natural History), London (BMNH), 1323, 1594, 1624 (DEFACU), 1609, 1630 and 3 additional specimens in coll. BÄNZIGER.

Additional material studied: 23♂, *ibid.*, 9.VIII., 22.XI.1980, 13.V., 8.VIII.1981, 2.VI., 22.X.1982, 24.IX., 5.XI.1983, all BÄNZIGER leg., genitalia slides 722, 860, 1588, 1595, 1596, 1637, 1664, 1666. MALAYSIA: 6♂, Perak State, Padang Rengas, 21., 25., 28.III.1972, genitalia slides 727, 1659, 1660. 3♂, Selangor State, Zoo Negara, Kuala Lumpur, 14.X., 27.XI., 9.XII.1971, all BÄNZIGER leg., genitalia slides 1658, 1661, in coll. BÄNZIGER.

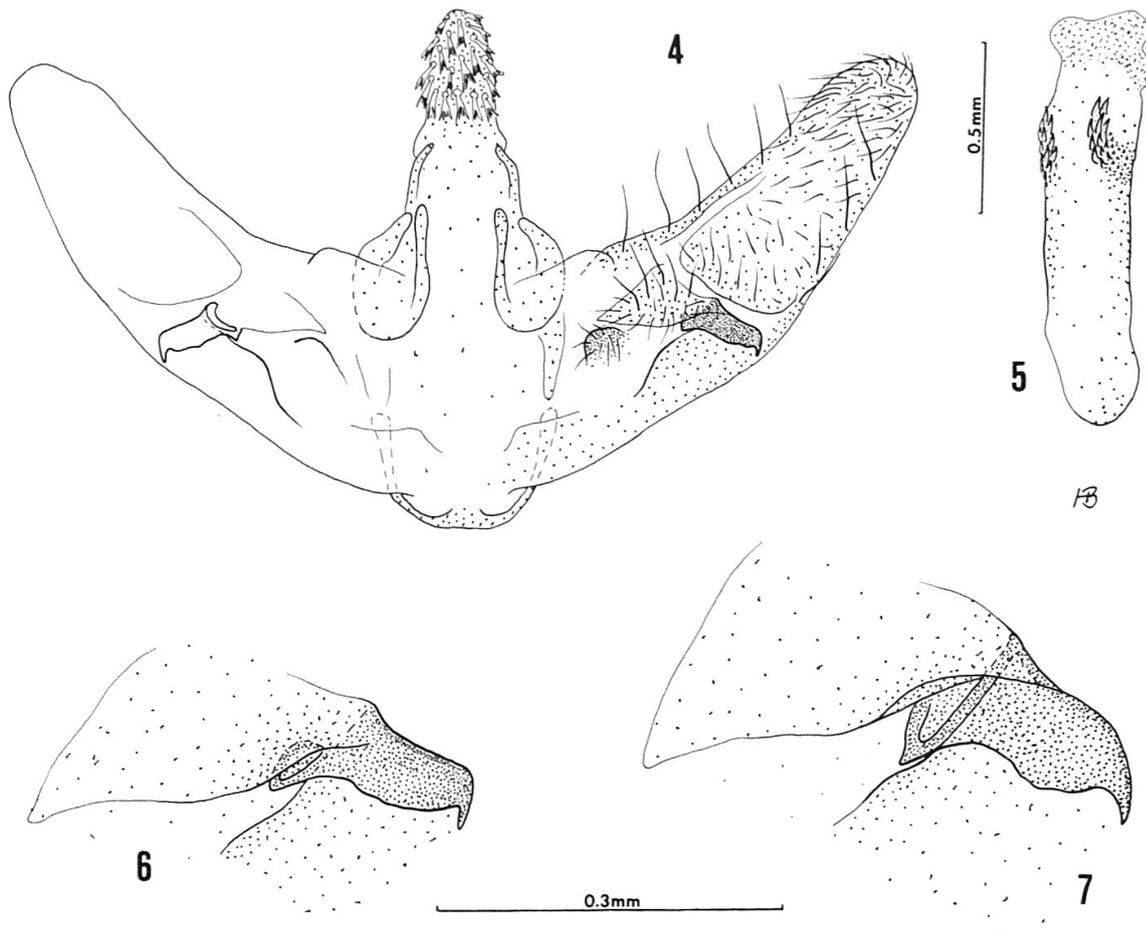


Fig. 4–7: Male genitalia of *Mabra lacriphaga* sp. nov., paratype slide 1609. – 5: Aedeagus. – 6–7: Variation of the sclerotized and unsclerotized part of the clasper, enlarged.

Derivation of name: The species is named after one of the moth's feeding habits, i. e. the imbibing of lachrymal secretion.

Diagnosis: Close to *Mabra haematophaga* sp. nov. and *Mabra elephantophila* sp. nov. However, from the first it differs in the somewhat smaller size, much lighter colouration and slightly less conspicuous wing markings. From the second it differs in the more greyish brown colouration and the much clearer marked lines on wings. Genitalic differences are clear as noted further down. Also reminiscent of *Mabra nigriscripta* SWINHOE – but this is much larger (20–25 mm), darker and with yellow wing margins, and of *Mabra eryxalis* (WALKER) from Ceylon, which has, however, a plain yellow ground colour with brownish grey areas across the center of both wings and much clearer lines.

Description: Male (Fig. 1). Wingspan 14.5–18.0 mm, mean = 16.3 mm, n = 35. Head, thorax and abdomen above yellow, below white. Frons along edge of greyish black eyes white. Palpus darker yellow than head though white below near base. Basal scaling of proboscis pure white, proboscis well developed but little sclerotized, thin and hence soft, with only very few sensillae; it is therefore adapted to gently imbibe fluids without any scratching or piercing capability. Antennae filiform, yellow but below antennal socket white. Legs above yellow, below white though hind leg much lighter than fore leg. Ground colour of fore wing above yellow as body. Costa white from base to near tip. Basal line sometimes faintly marked as short oblique line near inner margin, but mostly not discernible; antemedial curved, generally also faint but nevertheless quite discernible; postmedial first oblique then curved, visible for some 2/3 to 3/4 of the distance from the costa to inner margin. Reniform sometimes just discernible as a somewhat darker, diffuse spot; terminal dots vertically elongated, sometimes nearly forming a continuous line. Hind wing above with general colouration as fore wing though somewhat lighter basally. Postmedial curved, generally faintly marked; terminal dots as in fore wing.

Wings below with metallic shine, fore one greyish in tone but with rather lighter borders; near renal and near base a puff of white scales. Hind wing straw yellow.

Female. Unknown.

Male genitalia (Figs. 4–7). Close to the species mentioned from Thailand, but especially to *haematophaga* and slightly less to *elephantophila*. However, in *lacriphaga* the unsclerotized part of the clasper is basally extended in a more acute angle (shorter and rounded in the other two species). The sclerotized part of the clasper is rather shorter (less than half the width of the valva at that point), stouter and the tip more abruptly recurved than in *haematophaga* and lacking the long, rather acute basal extension present in *elephantophila*. Denticulation of aedeagus as in *haematophaga*, the two lateral patches with teeth not being connected with a continuous band of denticles, while in *elephantophila* this is continuous. Vescica with many tiny spicules.

Biology: Males are oligolachryphagous, i. e. only occasionally imbibing lachrymal secretion at or near the eyes; mostly sucking secretions such as sweat, sebum, mosquito-exuded blood-droplets or wound exudates. These are taken directly on such hosts as the Indian elephant, Malayan tapir, water buffalo or, generally more frequently, from the vegetation where they have been smeared onto. Also repeatedly found sucking perspiration from man (BÄNZIGER, in prep.; also among the moths on photograph Fig. 1, p. 1384, BÄNZIGER, 1973).

Distribution: N. Thailand to W. Malaysia, at altitudes from just over sea level to at least 680 m. Adults found on the wing mainly during the rainy season.

Mabra haematophaga sp. nov.

Figs. 2, 8–11.

Type locality: THAILAND: Chiangmai Prov., Chiangdao.

Type material: Holotype ♂, THAILAND: Chiangmai Prov., forest place near road Chiangmai-Chiangdao, km 55, 400 m, 24.IX.1983, BÄNZIGER leg., genitalia slide 1602, in coll. DEFACU. 6 paratypes ♂, *ibid.*, 380 and 420 m, 2.VI.1982, 22. and 29.X.1983, all BÄNZIGER leg., genitalia slides 1662 (BMNH), 1622 and 1636, in coll. BÄNZIGER. Ban Pang Hai, Doi Saket Distr., 1100 m, 19.IX.1981, BÄNZIGER leg., genitalia slides 940 (BMNH), 1663 (DEFACU). Ban Mae Nai, Doi Suthep-Pui, 1150 m, 30.IX.1981, BÄNZIGER leg., genitalia slide 956 (DEFACU).

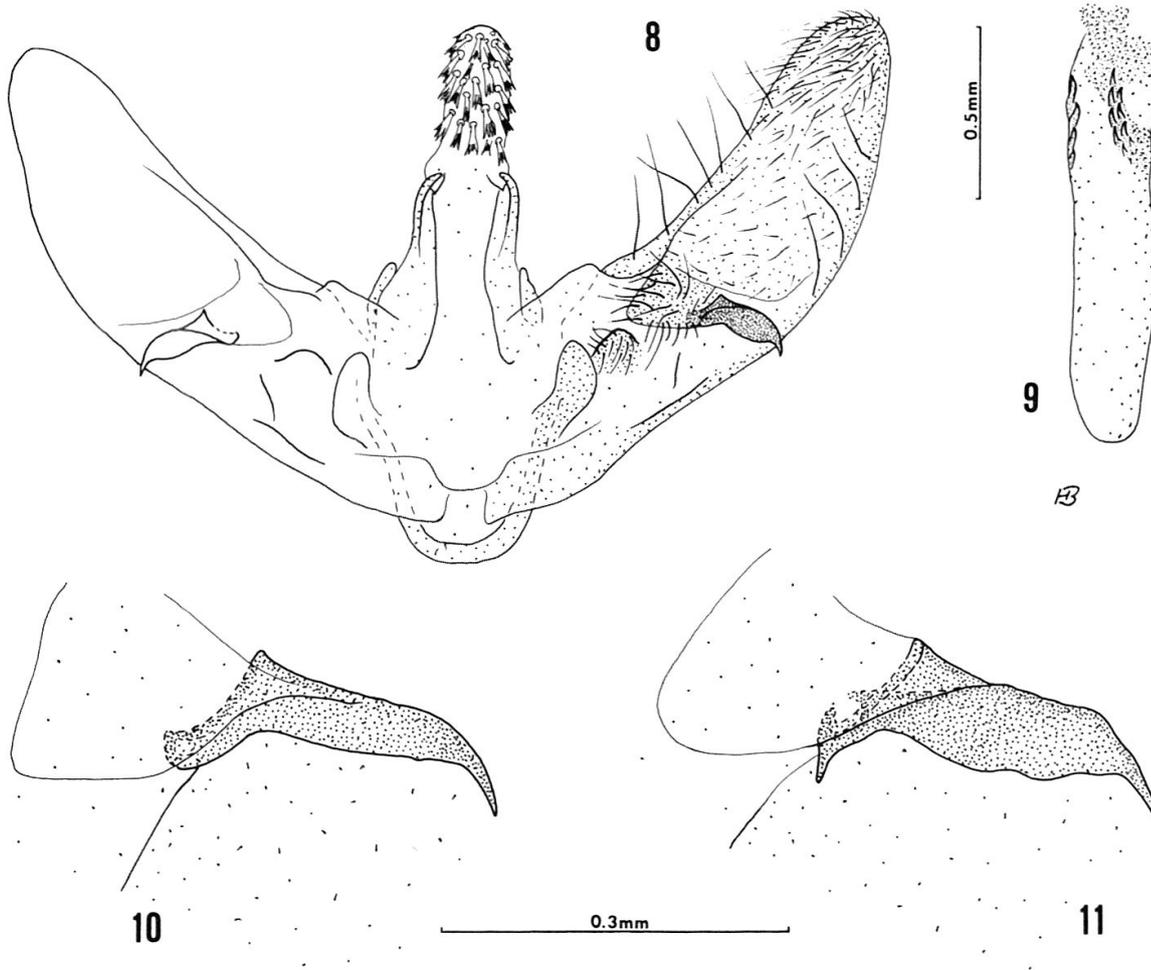


Fig. 8–11: Male genitalia of *Mabra haematophaga* sp. nov., paratype slide 956. – 9: Aedeagus. – 10–11: Variation of the sclerotized and unsclerotized part of the clasper, enlarged.

Derivation of name: The species is named after one of the moth's feeding habits, i. e. the imbibing of blood from wounds and as anal exudate of mosquitoes.

Diagnosis: Close to *lacriphaga* sp. nov. and *elephantophila* sp. nov. However, from the first it differs in the somewhat larger size, rather darker colouration and slightly clearer wing markings. From the second it differs in the much darker colouration, larger size and very much clearer wing markings. Genitalic differences are

as described further down. Also near *nigriscripta* to which it comes closer than the other two species, but the differences are clear and as mentioned above for *lacriphaga*.

Description: Male (Fig. 2). Wingspan 17.3–19.5 mm (1 specimen 16 mm), mean = 18.1 mm, n = 12. Head, palpus and distal part of thorax yellowish brown above, remainder of thorax and abdomen more greyish brown. Head, basal segment of palpus and basal scaling of proboscis pure white underneath. Frons along edge of greyish black eyes whitish. Proboscis and legs as in *lacriphaga*. Ground colour of both wings above greyish brown. Costa yellowish, the outermost row of scales light yellow. Outer margin with fringes also yellowish. Basal, antemedial and postmedial lines and terminal dots similar as in *lacriphaga* but more evident and better defined. Outer margin and fringes of hind wing also yellowish, postmedial line and terminal dots also better defined than in *lacriphaga*.

Wings below with metallic lustre but somewhat more greyish than in *lacriphaga* and hind wing not lighter than fore wing; this with a puff of white scales near renal and wing base. On hind wing a narrow sector near the inner margin much lighter coloured than rest of wing. Fringes on both wings yellow.

Female. Unknown.

Male genitalia (Figs. 8–11). As mentioned close to *lacriphaga* and *elephantophila*. However, in *haematophaga* the unsclerotized part of the clasper basally less elongated than in *lacriphaga*, and rounded. Sclerotized section of clasper more slender and longer (longer than half the width of the valva at that point); tip more drawn out and less suddenly recurved than in both *lacriphaga* and *elephantophila*; also lacking the long basal extension found in the latter. Aedeagus as in *lacriphaga*, the band of denticles not being continuous.

Biology: Males are oligolachryphagous at eyes of elephant; mostly sucking the mentioned mammalian body fluids of elephant, water buffalo, zebu (*Bos indicus*) (L.), as well as perspiration on man (BÄNZIGER, 1973 (the species is among the moths of Fig. 1, p. 1384), 1983, and in prep.).

Distribution: N. Thailand and S. W. China (S. Yünnan Prov.) (BÄNZIGER, 1983). Males found on the wing mainly during the rainy season.

Mabra elephantophila sp. nov.

Figs. 3, 12–14.

Type locality: THAILAND: Chiangmai Province, Chiangdao.

Type material: Holotype ♂, THAILAND: Chiangmai Prov., forest place near road Chiangmai-Chiangdao, km 57, 380 m, 13.V.1981, BÄNZIGER leg., genitalia slide 771, in coll. DEFACU. 6 paratypes ♂, *ibid.*, genitalia slide 773 (DEFACU) and 1 specimen in coll. BÄNZIGER; *ibid.* but km 55, 380 and 400 m, 9.VIII.1980, 2.VI.1982, 24.IX.1983, all BÄNZIGER leg., genitalia slides 1271 (BMNH), 1608 (DEFACU), 859, 1273 in coll. BÄNZIGER.

Additional material studied: *Ibid.*, 4 ♂, 13.V. and 9.VIII.1981, BÄNZIGER leg., genitalia slide 859, in coll. BÄNZIGER.

Derivation of name: The species is named after one of the moth's behaviours, i. e. to follow up elephants to feed from their secretions.

Diagnosis: Close to *lacriphaga* and *haematophaga*. Differs from both in the lighter colouration, virtual complete lack of any wing markings, somewhat, smaller size and in the structure of the male genitalia as mentioned below.

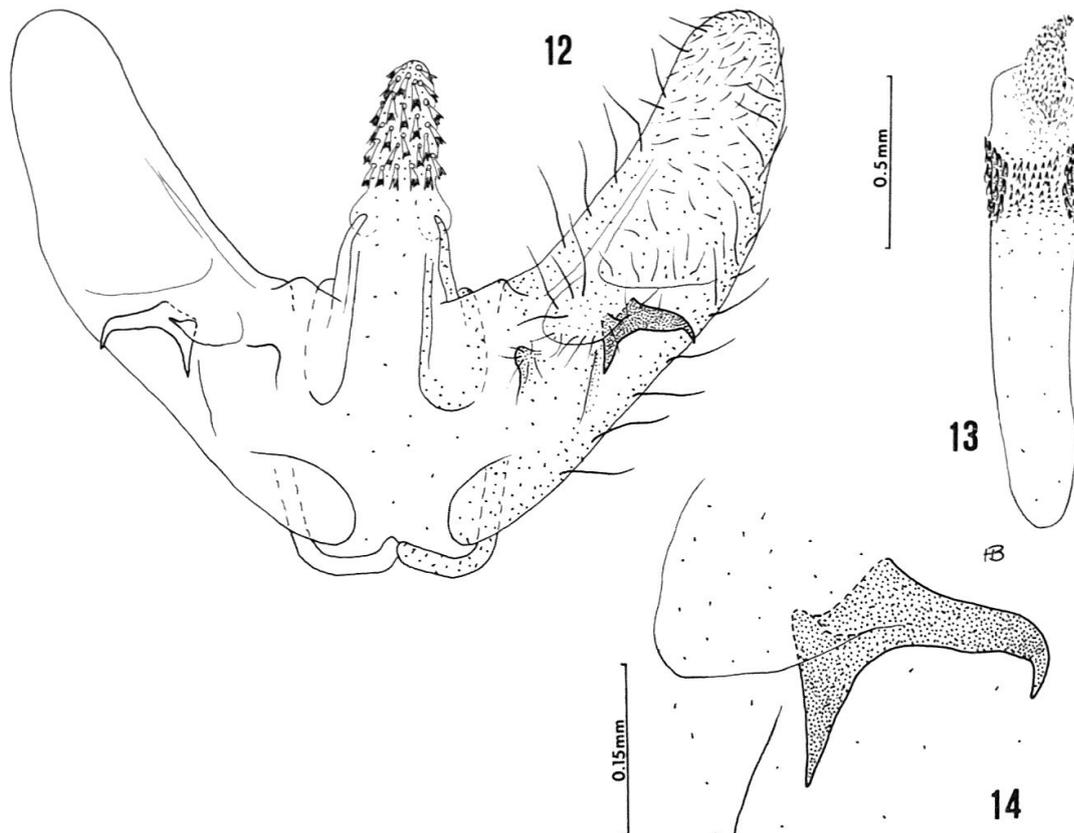


Fig. 12–14: Male genitalia of *Mabra elephantophila* sp. nov., paratype slide 1608. – 13: Aedeagus. – 14: Variation of the sclerotized and unsclerotized part of the clasper, enlarged.

Description: Male (Fig. 3). Wingspan 15.5–18.5 mm, mean = 17.3 mm, n = 12. Head, palpus, proboscis, antenna, thorax, abdomen and legs as in *lacriphaga* but overall colour lighter straw yellow. Wings above also straw yellow, hind one a tiny bit lighter. Markings on the wings virtually completely absent, sometimes extremely faint lines can be guessed in a pattern as in *lacriphaga*. Wings below as in *lacriphaga*.

Female. Unknown.

Male genitalia (Figs. 12–14). Overall shape is in *lacriphaga* and *haematophaga* but unsclerotized part of clasper basally not elongated nor acutely pointed as in *lacriphaga*, but similar to *haematophaga*. Sclerotized section of clasper with distal half quite slender as in the latter species, pointed tip quite strongly recurved; basal half with very long, acutely pointed extension. Aedeagus distinct from both species above as the two patches of lateral teeth are connected, without interruption, by a band of denticles.

Biology: Males are oligolachryphagous on elephant; more often seen imbibing the mentioned body fluids of elephant and water buffalo, and also sucking perspiration on man (BÄNZIGER, 1983, and in prep.).

Distribution: N. Thailand and S. W. China (S. Yünnan) (BÄNZIGER, 1983). Males are found on the wing mainly during the rainy season.

ZUSAMMENFASSUNG

Beschreibung von drei neuen lacriphagen Nachtaltern der Gattung *Mabra* aus Thailand, Malaysia und China (*Lepidoptera: Pyralidae*) – *Mabra lacriphaga* sp. nov., *Mabra haematophaga* sp. nov. und *Mabra elephantophila* sp. nov. werden beschrieben und denen Habitus und Genitalien abgebildet. Die erste Art stammt aus N. Thailand und W. Malaysia, die letzten beiden wurden in N. Thailand und S.W. China beobachtet. Im N. Thailand sind die drei Arten, sowie auch *Mabra nigriscripta* SWINHOE, strikt sympatrisch, da sie gleichzeitig auf oder neben demselben Wirt angetroffen werden können. Die Männchen nehmen als oligolacriphage Imagines gelegentlich Tränenflüssigkeit auf, oder saugen der öfteren verschiedene Körperflüssigkeiten (Schweiss, Serum, Blut an offenen Wunden oder als Analausscheidung von Stechmücken) von oder an Huftieren, Elefanten und gelegentlich Menschen.

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