

# NOTES ON SOME NORTH AMERICAN MOTHS OF THE SUBFAMILY EUCOSMINAE

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Since the publication of my revision of the Eucosminae (U. S. Nat. Mus. Bull. 123, 1923) a large amount of additional material has been received, including the Fernald collection. These accretions have enabled me to make genitalic studies of types, cotypes, or other authentic specimens of species hitherto not available for dissection. They have also disclosed several new species for which names are required. The notes and descriptions in this paper are designed to make this new information available.

In the present paper 16 species and 3 varieties are described as new. The genitalia of 13 previously described species are figured for the first time, and notes are given on 9 other species.

I also take this opportunity to correct some errors in my previous papers dealing with this group, and to offer an amended key to the genus *Hystriophora*.

## THIODIA FORMOSANA SUBCANDIDA, new variety

Like *formosana*, except that hind wing of male is snow white toward base with a dark, smoky fuscous shading toward apex and along termen. This character holds through a long series from the type locality and seems to indicate a local race. In a large series of typical *formosana* before me the hind wings of both males and females are uniformly dark throughout. The genitalia of *subcandida* are also somewhat smaller than those of typical *formosana*, but of the same type.

*Alar expanse*.—17–21 mm.

*Type*.—Cat. No. 41198, U.S.N.M.

*Paratypes*.—In National collection, American Museum, Canadian National, Barnes and Bryant collections.

*Type locality*.—Bilby, Alberta, Canada.

*Food plant*.—Unknown.

Described from male type, 1 female and 20 male paratypes all from the type locality and bearing various June, 1924, dates (Owen Bryant, collector). In the female the hind wing is dark throughout as in typical *formosana*.

## THIODIA INSIGNATA Heinrich

## Figure 1

*Thiodia insignata* HEINRICH, Journ. Washington Acad. Sci., vol. 14, No. 16, 1924, p. 386.

Male genitalia figured from type.

## THIODIA LATENS, new species

## Figure 2

A pale, sordid grayish fuscous species hardly distinguishable from *delphinus* Heinrich except by genitalia.

Palpus, face, head, and thorax ashy grayish white. Fore wing ochereous white, dusted with fuscous, making the general color a pale, sordid fuscous; no distinct maculations except four pairs of white dashes on outer half of costa and an ocelloid patch consisting of a white spot containing one or two short black dashes or dots between two very obscure vertical pale bars, cilia fuscous, peppered with black and white (the scale ends white); termen slanting and slightly concave; veins 3, 4, and 5 approximate at termen. Hind wing concolorous with fore wing; cilia concolorous, with a slightly darker basal band; veins 3 and 4 united.

*Alar expanse*.—15 mm.

*Type*.—In collection Barnes.

*Paratypes*.—Cat. No. 41199, U.S.N.M., also in American Museum and collection Barnes.

*Type locality*.—Monachee Meadows, Tulare County, Calif. (8,000 feet).

*Food plant*.—Unknown.

Described from male type and seven male paratypes, all from the type locality ("July 8-14").

A distinct species easily distinguished by its genitalia, but in pattern and color very like *delphinus*. Specimens of the latter from its type locality have a paler ground color and a dark patch on base of fore wing which is lacking in *latens*. These characters, however, will not always serve, for in a series of *delphinus* before me (also from Monachee Meadows) the maculations are very obscure, the ground color darker, and the moths not to be distinguished from typical *latens* except by their genitalia (the genitalia and their tuftings making the end of the male abdomen considerably larger in *delphinus*).

## THIODIA LEPIDANA (Walsingham)

## Figure 7

Three specimens of this species collected by George V. Copley at Chilcotin, British Columbia ("15-IX-1925"), have been received from E. H. Blackmore. Two of these are now in his collection and one (a male) is in the United States National Museum. In both

pattern and genitalia *lepidana* resembles *kokana* Kearfott, which may be nothing but an eastern variety. The harpe of *lepidana* is somewhat smaller, however, and the cucullus more pointed at (costal) apex.

Male genitalia figured from specimen in the National collection.

THIODIA PARVANA (Walsingham)

Figure 6

The National collection has received from Dr. Annette Braun a male which, except for locality, answers in detail to Walsingham's description. In external characters it is similar to *fertoriana* Heinrich, but in genitalia quite distinct. It was collected at Yellowstone National Park Lake, Wyo. ("VII-5-24").

Male genitalia figured.

THIODIA PASTIGIATA, new species

Figure 3

A grayish white species with faint maculations and a fine black subterminal line in cilia of fore wing; similar to *griseocapitana* but lacking any trace of ochreous shading, with different marking of the cilia and different genitalia.

Palpus, face, head, and thorax white with a few black-brown spots on outer side of palpus, on sides of face near eyes, and on side of head just over base of antenna, and with a faint dusting of similarly colored scales on anterior margin of thorax; palpus scarcely extending the length of the head beyond it. Fore wing finely clouded and scatteringly lined with blackish brown scales giving it, to the naked eye, a rather sordid grayish white color; under magnification the dark markings show as a series of fine well-spaced lines on costa, a somewhat heavier series of crosslines on dorsum toward base indicating faintly a half basal patch, a slight clouding on dorsum near tornus, a similar clouding at apex of cell and toward termen, and two vertical dark lines (well separated) in ocelloid area; white ground color most appreciable on outer half of costa and as a white subapical costa spot; cilia white, with blackish brown basal dustings and a similarly colored subterminal line; veins 3, 4, and 5 not approximate at termen; termen slanting and straight. Hind wing smoky white; cilia white with a faintly darker basal band and (toward apex) a similar subterminal band; veins 3 and 4 stalked.

Male genitalia of type figured.

*Alar expanse*.—16-20 mm.

*Type*.—In collection Barnes.

*Paratypes*.—Cat. No. 41200, U.S.N.M., also in American Museum and collection Barnes.

*Type locality*.—Monachee Meadows, Tulare County, Calif.

*Food plant*.—Unknown.

Described from male type, eight male and four female paratypes, all from the type locality (8,000 feet, "July 8-14"). Nearest to *griseocapitana* Walsingham, which it precedes in my arrangement.

**THIODIA BUCEPHALOIDES** (Walsingham)

Figure 4

A series of moths reared ("VIII-14-1925" and "IX-9-1925") from larvae boring in the roots of *Chrysothamnus linifolius* Greene and collected at Grand Junction, Colo., by George Englehardt, of the Brooklyn Museum, are now in the National collection. A specimen has also been deposited in the Barnes collection. These correspond to the female in the American Museum, mentioned in my revision of the Eucosminae, and are undoubtedly Walsingham's species or a Colorado variety thereof. The genitalia show them to be specifically distinct from *offectalis* Hust.

Male genitalia figured from specimen in the National collection.

**EUCOSMA FANDANA** Kearfott

Figure 12

A male of this species from the Fernald collection (Colorado, Oslar, "157") is now in the National collection.

Male genitalia figured.

**EUCOSMA LATICURVA**, new species

A tawny yellow species with two broad, irregular, longitudinal, silver markings on fore wing.

Palpus white; second joint shaded on outer side with tawny yellow and fuscous. Head white. Thorax tawny yellow with some white scaling on posterior margin and with posterior two-thirds of tegula white. Fore wing tawny yellow with a broad silver white band starting from base of dorsum (where it occupies all of extreme base except a narrow margin of costa), curving up to vein 12, thence down to mid dorsum, broadening somewhat and then connecting by a narrow spur with a square white patch at tornus, the whole forming a broad serpentine band extending from base to tornus; a broad crescentiform spot occupying outer third of costa and inclosing on costa a small patch of the ground color; an obscure narrow white patch on termen extending from just below apex to vein 5; a sparse dusting of blackish scales scattered along the margins of the white markings and along base of cilia; cilia pale ochreous.

Hind wing pale smoky fuscous; cilia paler with a dark basal band.

Male genitalia similar to those of *agasizzii* except somewhat smaller; in size between those of *agasizzii* and *bolanderana*.



*Alar expanse*.—22 mm.

*Type*.—Cat. No. 41201, U.S.N.M.

*Paratype*.—In collection Barnes.

*Type locality*.—"Sierra Nevada," Calif.

*Food plant*.—Unknown.

Described from male type from the Fernald collection ("No. 3029") and one male paratype from the Barnes collection ("Mount Shasta District," California).

Close to *agasizzii* Robinson, from which it chiefly differs in the broader and more strongly curved median serpentine band.

EUCOSMA DAPSILIS, new species

Figure 9

A brown species with irregular, moderately broad, silver-white markings on fore wing.

Palpus fuscous, white scaled beneath toward base and with second joint white on inner side toward apex. Head and thorax ashy fuscous (the scales brown with white tips) with posterior extremity of thorax whitish. Fore wing ground color light brown; a small white spot on extreme base at middle; from dorsum close to base an irregular white bar extending upward to top of cell at one-fourth; beyond this an  $\infty$  shaped, moderately broad white band extending from basal third of dorsum almost to tornus; from top of this a white spur extends backward and upward to top of cell, sometimes fusing with the first white bar; at outer extremity of the  $\infty$  band two parallel white streaks to tornus, extending into the cilia; on mid dorsum a narrow white spot which sometimes extends backward and fuses with the beginning of the  $\infty$  band; on costa just beyond middle a crescentiform white band with an included small white costal spot; a larger white costal spot on costa near apex; two strong white costal dashes on termen below apex, fusing at their bases and extending into the cilia; cilia slightly paler than the ground color of wing; underside of wing fuscous with the white markings strongly indicated on outer half of costa and on termen and on cilia below apex and at termen, other white markings faintly indicated; veins 3, 4, and 5 well separated at termen. Hind wing fuscous, nearly concolorous with fore wing; underside shaded with whitish; the white forming a rather conspicuous spot on costa near apex; cilia paler with a dark basal band.

Male genitalia figured from type.

*Alar expanse*.—27-28 mm.

*Type*.—Cat. No. 41202, U.S.N.M.

*Paratypes*.—In collection Barnes, American Museum, and Canadian National collection.

*Type locality*.—Yellowstone National Park, Wyo.

*Food plant.*—Unknown.

Described from male type and four male paratypes from the type locality.

A striking and distinct species falling between *laticurca* and *bolanderana* in our arrangement; but different from both in ground color, pattern, and genitalia.

EUCOSMA RUSSEOLA, new species

Figure 20

An unmarked reddish ochereous species with pale hind wings.

Palpus whitish ochereous on inner side; reddish ochereous on outer side, darkest toward apex. Face and head whitish ochereous; head tufts shading into reddish ochereous. Thorax and fore wing a unicolorous reddish ochereous, in dark specimens almost rust color; no ocelloid patch; in one specimen a few scattered very minute black scales toward termen; cilia concolorous with wing and with a dark (brownish) basal band; veins 3, 4, and 5 not approximate at termen; termen decidedly slanting and very slightly concave. Hind wing pale whitish ochereous, more white toward base and more yellowish toward apex and termen; cilia sordid whitish with a slightly darker basal band; veins 3 and 4 very long stalked.

Male genitalia of the *morrisoni-agricolana-pergandiana* type; figured from type.

*Alar expanse.*—20 mm.

*Type.*—Cat. No. 41203, U.S.N.M.

*Paratypes.*—In National collection, American Museum, and collection Barnes.

*Type locality.*—Los Angeles, Calif.

*Food plant.*—Unknown.

Described from male type ("June 11 '21—No. 127M," Karl R. Coolidge, collector) from the type locality and two males and one female from Loma Linda, Calif.

An easily recognized species resembling in color Kearfott's *immaculana*, but with narrower fore wing, paler hind wing, and quite different genitalia. In our arrangement would precede *luridana* Walsingham.

EUCOSMA EBURATA, new species

Figure 11

An ivory-colored species close and similar to *invicta* Walsingham, but with basal patch and outer fascia on fore wing much fainter (almost obsolete) and with no clear white unmarked area on mid dorsum.

Palpus sordid white, shaded with ferruginous-ochereous, especially on under side and toward apex; third joint entirely hidden under scaling of second. Face and head ferruginous-ochereous. Thorax

white, somewhat dusted with pale brown on anterior margin. Fore wing white, finely cross-lined with pale leaden gray and ochereous, giving the wing a grayish white color; an angulate dark basal patch very faintly indicated; a similar obscure patch on dorsum before tornus connecting with an even fainter marking from just beyond middle of costa and with it forming an almost obsolete angulate fascia; ocelloid patch an obscure white patch inwardly margined by a few black scales; above ocelloid patch a scattering of black scales; occasionally a few black scales on middle of cell at base and at outer angle of the basal patch; costal striations narrow, faint, continuous from base to apex; cilia white, with a broad basal peppering of black scales and a fuscous and black shading at apex; veins 3, 4, and 5 not approximate at termen; termen concave. Hind wing smoky fuscous; cilia white with a dark basal band.

Male genitalia figured from type.

*Alar expanse*.—22–25 mm.

*Type*.—In collection Barnes.

*Paratype*.—Cat. No. 41204, U.S.N.M., also in American Museum and collection Barnes.

*Type locality*.—Mohave County, Ariz.

*Food plant*.—Unknown.

Described from male type and three female paratypes, all from the type locality ("Aug. 24–31"). I have also before me a female from San Diego, Calif., and a somewhat smaller male from Paradise, Cochise County, Ariz., which are presumably the same or varieties of the same species.

EUCOSMA PERSOLITA, new species

Figure 14

An ashy white species with an oblique dark dash above dorsum beyond base and a dark triangular patch on dorsum near tornus.

Palpus, face, head, and thorax ashy white (the scales pale fuscous tipped with white), somewhat darker on outer side of palpus. Fore wing white, somewhat dusted with pale fuscous, making the ground color an ashy white, and with blackish fuscous maculations; beyond base above dorsum an oblique dark dash; on dorsum before tornus a prominent triangular dark patch; on costa beyond area of fold several narrow dark dashes interspaced with white lines; a conspicuous dark spot at apex, and bordering outer margin of ocelloid patch and curving above it a thin dark line; the costal maculations and apical spot faintly repeated on undersurface; ocelloid patch consisting of two broad, obscure, sordid white bars inclosing a black dot near their upper margins; cilia white dusted with blackish fuscous and with a dark basal line; veins 3, 4, and 5 somewhat approximate at termen; termen slightly concave. Hind wing pale ochereous fuscous; cilia white with a broad dark basal band and a dark outer shading.

Male genitalia similar to those of *matutina* Grote, but larger; figured from paratype in National collection.

*Alar expanse*.—14–21 mm.

*Type*.—In collection Barnes.

*Paratypes*.—Cat. No. 41205, U.S.N.M., also in American Museum, Canadian National, and Barnes collections.

*Type locality*.—San Benito, Tex.

*Food plant*.—Unknown.

Described from male type, 15 male and 3 female paratypes from the type locality ("Mch. 16–23," "Apr. 1–7"), and 12 male and 1 female paratypes from Brownsville, Tex. (various February and March dates).

Closest to *totana* Kearfott, which it resembles also somewhat in genitalia and from which it differs chiefly in the paler ground color and darker (more blackish) maculations of its fore wing. Follows *totana* in my arrangement.

**EUCOSMA PERPROPINQUA, new species**

Figure 13

A pale ocherous or whitish ocherous species of the *occipitana-reversana-daemonicana* group with an obscure dark patch in cell of fore wing near base and another on dorsum near tornus (these dark markings almost disappearing in some specimens), three or four rather conspicuous pure white spots on outer half of costa (in females), and veins 3 and 4 of hind wing united.

Palpus white dusted with ocherous fuscous on outer side. Face and head white. Thorax whitish ocherous. Fore wing white, dusted with pale ocherous fuscous, making the ground color a pale ocherous (in the male type much lighter, almost white); a slight dusting of darker (fuscous) scales on cell near base; on dorsum (or just above dorsal margin) before tornus a faint indication of a similar dark patch; costa of the ground color, weakly striated toward base and, on outer half, with three or four rather broad white spots with some fuscous dusting on the interspaces between (not distinguishable in the male type where the costal markings are obscured by diffusion of the whitish ground color); extreme apex dark; terminal margin below apex white; ocellus obsolete, represented by a couple of obscure brown dots or dashes; cilia rather strongly dusted with fuscous and with a distinct white dash just below apex; veins 3, 4, and 5 not approximate at termen; termen straight and slanting. Hind wing nearly concolorous with fore wing; cilia sordid white with a slightly darker basal band and (in dark specimens) a faint indication of a median band; veins 3 and 4 united.



Male genitalia similar to those of *occipitana*, but with cucullus perceptibly broader in proportion to rest of harpe. Figured from type.

*Alar expanse*.—20–26 mm.

*Type*.—In collection Barnes.

*Paratypes*.—Cat. No. 41206, U.S.N.M., also in American Museum, Canadian National, and Barnes collection.

*Type locality*.—Selis Post Office, Indian Oasis, Pima County, Ariz.

*Food plant*.—Unknown.

Described from male type and six female paratypes all from the type locality ("1–15 April" and "15–30 April," 1923, O. C. Poling, collector). I have also before me three females that I take to be the same species from Loma Linda, Calif.

In both pattern and genitalia this species is close to *occipitana* Zeller, *daemonicana* Heinrich and *reversana* Kearfott. From the first it differs in its paler ground color and generally larger size; from the two latter in the absence of a dark patch in outer area of cell and in its obscure dark markings generally. From all three it differs in details of genitalia.

#### EUCOSMA SHASTANA (Walsingham)

##### Figure 10

The National collection now has an authentic specimen (male) of this species (a Walsingham "type" from the Fernald collection). The genitalia show this to be quite distinct from what I identified as *shastana* and figured in my revision of the Eucosminae. In pattern the two forms are similar except that the outer dorsal patch on fore wing of the true *shastana* is decidedly excavate above and much broader than the outer dorsal patch of my supposed *shastana*. The latter, I am now convinced, is only a large variety of *tahoensis* Heinrich. I am describing it below under the varietal name *subditiva*.

Male genitalia of the Walsingham "type" figured.

#### EUCOSMA TAHOENSIS SUBDITIVA, new variety

*Eucosma shastana* HEINRICH (not Walsingham), U. S. Nat. Mus. Bull. 123, 1923, pp. 79, 113, fig. 221.

Palpus, face, head, and thorax ochereous fuscous; thorax with some slight dusting of fuscous, and with scale tips of tegulae white. Fore wing sordid whitish ochereous marked with fuscous; an outwardly slanting fuscous bar from dorsum near base to top of cell, constituting with a slight fuscous shading at extreme base the remains of a dark basal patch; on dorsum before tornus a large, irregularly triangular fuscous patch; above and behind it in cell near its apex a slight clouding of fuscous; below apex a conspicuous blotch of fuscous shading; costa faintly clouded with fuscous and with several fine darker fuscous striations to middle, beyond middle with four conspicuous fuscous dashes, interspaced with white and increasing in size

toward apex; all the larger fuscous markings more or less margined by black scales; ocelloid patch obscure, whitish ocherous; cilia ashy fuscous with two or three obscure white dashes below apex; veins 3, 4, and 5 not approximate at termen; termen slanting and very slightly concave. Hind wing smoky fuscous; cilia concolorous, with a dark basal band and the tips of the scales white.

*Alar expanse*.—27 mm.

*Type*.—In collection Barnes.

*Paratype*.—Cat. No. 41207, U.S.N.M., also in American Museum.

*Type locality*.—Deer Park Springs, Lake Tahoe, Calif.

*Food plant*.—Unknown.

Described from male type and two male paratypes from the type locality ("June 24-30"). These specimens I had previously determined as *shastana* Walsingham (see above) and the genitalia of the type I had figured under that name in my revision of the Eucosminae (fig. 221). I have also before me three males from Warner Mountains, "three miles east of Davis Creek," Modoc County, Calif. ("24-31 July 1922, 5,500 feet, A. W. Lindsey, collector"), which I take to be merely a color variety. They have similar genitalia and pattern but are considerably paler, the ground color being distinctly white. I should not name this variety at all were it not for the fact that its genitalia are about twice the size of those of typical *tahoensis*. If the species is a stem borer this may not be significant; but in the absence of intergrades and any information on larvae or life history it seems advisable to keep the two forms separate.

**EUCOSMA NUNTIA, new species**

Figure 15

A pale whitish gray species with a faint white transverse line from tornus to costa just beyond middle.

Palpus white, faintly dusted on outer side with fuscous. Antenna white, annulated with light brown. Face and head white. Thorax and fore wing white, finely dusted with ocherous fuscous, giving them a whitish (or cream) gray color; costa of fore wing faintly striated with white from base to apex; ocelloid patch obscure, consisting of three short black dashes or dots on a whitish field; from the latter a thin straight white line to the white strigulae of mid costa; cilia pale ocherous fuscous and white, finely dusted with black; underside of wing somewhat darker, finely and evenly dusted with fuscous. Hind wing but slightly darker than fore wing, pale fuscous; cilia white with a dark basal band.

Male genitalia of type figured.

*Alar expanse*.—19-23 mm.

*Type*.—In collection Barnes.

*Paratype*.—Cat. No. 41208, U.S.N.M., also in collection Barnes.

*Type locality*.—Callao, Juab County, Utah.

*Food plant*.—Unknown.

Described from male type, one male and one female paratype, all from the type locality and dated "17-IV-22" (males) and "23-VI-22" (female).

Similar in pattern to *corosana* Walsingham, but paler and lacking all traces of a dark basal patch in fore wing, also quite different in genitalia. Follows that species in our arrangement.

EUCOSMA INQUADRANA (Walsingham)

Figure 17

*Aphelia ? inquadrana* WALSINGHAM, Trans. Ent. Soc. London, 1884, p. 134.

*Bactra inquadrana* (Walsingham) FERNALD, In Dyar List N. Amer. Lepid., No. 5008, 1902.—BARNES and McDONNOUGH, Check List Lepid. Bor. Amer., No. 6791, 1917.

*Eucosma inquadrana* (Walsingham) HEINRICH, U. S. Nat. Mus. Bull. 132, 1926, p. 191.

Male genitalia figured from specimen in National collection from Sells Post Office, Pima County, Ariz. ("April-May, 1923").

*Alar expanse*.—14-18 mm.

*Type*.—In British Museum.

*Type locality*.—Arizona.

*Food plant*.—Unknown.

EUCOSMA MIROSIGNATA, new species

Figure 19

A whitish species of the *pulveratana* group with two prominent dark brown markings on dorsum of fore wing.

Palpus white, the scales on outer side spotted with ochreous fuscous and pure white at the tips, giving them a somewhat ashy hue. Head and thorax ashy white, scales colored as on the palpus. Fore wing white, dusted and lined with pale brown and ochreous fuscous; the costal striations pale brown, most distinct on outer half; at apex a rather conspicuous spot of the same color and below it a similarly colored subapical bar extending from middle of termen to outer fourth of costa; below this and just above ocellus an obscure clouding of dark (fuscous ochreous) scaling; on dorsum two very conspicuous, sharply contrasted, dark brown markings, a rather broad outwardly curved bar near basal third and extending up nearly to top of cell and a shorter triangular patch just before tornus, both these brown markings sharply defined and edged with white; ocelloid patch obscure, consisting of two silvery white vertical bars inclosing a dark shaded patch of the ground color; cilia white, heavily peppered with blackish and pale brown; veins 3, 4, and 5 approximate at termen; termen convex. Hind wing pale smoky fuscous; cilia slightly paler, with an obscure, somewhat darker basal band.

Male genitalia similar to those of *pulvertana* Walsingham, but with stronger, more numerous (6) marginal spines at apex of cucullus and with sacculus more bluntly rounded at incurvation of neck of harpe. Figured from type.

*Alar expanse*.—13–22 mm.

*Type*.—In collection Barnes.

*Paratype*.—Cat. No. 41209, U.S.N.M., also in American Museum, Canadian National, and Barnes collections.

*Type locality*.—Baboquivari Mountains, Pima County, Ariz.

*Food plant*.—Unknown.

Described from male type ("15–30 Oct., 1924," O. C. Poling, collector), 15 female paratypes from the type locality (dated "15–30 April," "1–15 May," "15–30 May," "27–31 July," "1–15 Sept.," and "15–30 Nov.," all O. C. Poling's 1924 collecting), 2 female paratypes from Loma Linda, Calif. (dated "Aug. 24–31" and "Oct. 16–23"), 1 female paratype from Claremont, Calif., 1 female paratype from San Diego, Calif. ("Aug. 14, 1920," Karl R. Coolidge), and 1 female paratype labeled "California." A few of these females have been in our collection for some time, either unplaced or under erroneous names, confused with *Eucosma pulveratana*, *Suleima helianthana*, or *S. lagozana*. The species is very close to *pulveratana* and *sudana*. From the former it differs chiefly in the paler (more whitish) ground color of the fore wing and from the latter in the absence of any pronounced median costal spot and the less dilated subapical bar of fore wing. From both it differs in slight details of the genitalia.

EUCOSMA JUNCTICILIANA (Walsingham)

Figures 18, 32.

In Bulletin 123, United States National Museum (p. 123), I expressed some doubt that what Fernald and others had determined as *juncticiliana* and what had been going under that name in our collections was really Walsingham's species. The acquisition by the United States National Museum of the Fernald collection has enabled me to make genitalia slides of specimens from the type locality and actually determined by Walsingham. Two of these are labeled "type" and are very likely cotypes from the original Walsingham series, one is labeled "*Rhyacionia juncticiliana* Walsingham, Cal.," and the other has simply a name label without locality or other data. The four are all males and in genitalia agree with the Walsingham specimen in the American Museum (mentioned in my revision), and differ appreciably from what we have been commonly calling *juncticiliana*, too much so, I now believe, to permit us to consider the two forms as anything but separate species. The *juncticiliana* of authors being therefore without a name, I am describing it below as a new species.



Male genitalia of *juncticiliana* figured from cotype in National collection.

*Food plant*.—Unknown.

**EUCOSMA DERELICTA**, new species

Figure 30

*Eucosma juncticiliana* (authors, not Walsingham) FERNALD, in Dyar List N. Amer. Lepid., No. 5121, 1902 (part).—KEARFOTT, Proc. U. S. Nat. Mus., vol. 28, 1905, p. 354; Can. Ent., vol. 37, 1905, p. 209.—HEINRICH, U. S. Nat. Mus. Bull. No. 123, 1923, p. 122, fig. 155.

In color and markings similar to *juncticiliana*, though somewhat more variable, the dark markings shading from tawny red to reddish fuscous.

Palpus tawny red. Head and thorax rosy whitish to tawny red. Fore wing rosy whitish, minutely cross streaked with wavy lines of tawny red or dark reddish fuscous, and shading to a dark oblique central fascia outwardly margined by a white line (the latter usually somewhat angulate toward costa); postmedian area paler, shading to tawny red or dark reddish fuscous toward apex; in darker specimens the pale ground color is less obvious, the red more suffused, and there is a more or less defined dark angulate basal patch; termen edged by a black line; cilia of the ground color somewhat shaded with red. Hind wing smoky fuscous; cilia sordid whitish with a dark basal band.

Right harpe of male genitalia figured. Genitalia also figured in United States National Museum Bulletin No. 123 (fig. 155) over the name *juncticiliana*.

*Alar expanse*.—12–18 mm.

*Type and paratypes*.—Cat. No. 41210, U.S.N.M.; paratypes also in American Museum, Canadian National, and Barnes collections.

*Type locality*.—Tryon, N. C.

*Food plant*.—Solidago.

Described from male type from the type locality ("8-13-04, Fiske, collector"); one male paratype from Plummer Island, Md. (Busck, August, 1903); two male paratypes from Essex County Park, N. J. (Kearfott, "July 22" and "Aug. 13"); one male paratype from New Brighton, Pa. (Merrick, "VII-26-07"); one male paratype from Hampton, N. H. (S. A. Shaw, "VII-25-1911"); one male paratype from Hymers, Ontario ("July 8-15"); one male paratype from Kings County, Nova Scotia ("14-July-25"); one male paratype from Bilby, Alberta (O. Bryant, "July 12, 1924"); one male paratype from Fraser Mills, British Columbia (L. E. Marmont, "10-VIII-20"); two male paratypes from Hot Springs, Green River, Wash. ("July 8-15"); and one male paratype from Denver, Colo. (Oslar). These are from a large series of males and females in the National, American Museum, and Barnes collections from Massachusetts, New

Hampshire, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, Florida, Missouri, Colorado, Washington, British Columbia, Alberta, Manitoba, Ontario, and Nova Scotia.

Distinguished from *juncticiliana* Walsingham and *excusabilis* Heinrich chiefly by genitalia. The genitalic differences separating the three are shown in Figures 30, 31, and 32. (Note differences in shape of cucullus in *juncticiliana* and *excusabilis*, and the position of the sacculus spur and the peculiar spining of incurvate area (neck) of harpe in *derelecta*). Superficially *derelecta* is readily separable only on one character, the shape of the termen of fore wing. In *juncticiliana* and *excusabilis* this is a trifle convex, while in *derelecta* it is very slightly concave and somewhat less slanting.

EPIBLEMA SERANGIAS (Meyrick)

Two more specimens of the species are now before me. One of these (a male labeled, "Oslar, Chimney Gulch, Golden, Colo., July") is in the National collection. The other, also a male (labeled, "Oslar, Bear Creek, Morrison, collector"), is in the Barnes collection. The former shows a queer freak in venation, having veins 3 and 4 of hind wing connate rather than stalked. The latter is normal, and both agree with the type in other details of genitalia and pattern.

EPIBLEMA HIRSUTANA (Walsingham)

Figure 8

Two specimens, a male and female, sent to Fernald by Walsingham, are now in the National collection. Both are from California and the male is labeled "Type."

The species is very close to *infelix* Heinrich, but apparently distinct, differing in its smaller size, shorter costal fold (not reaching middle of wing), more incurvate neck of harpe, and weaker spining in area surrounding clasper.

Male genitalia figured.

EPIBLEMA PERICULOSANA Heinrich

One specimen (male) in collection Barnes, labeled "Davis Creek, Modoc County, Calif., A. W. Lindsey, June, 1922."

EPIBLEMA ABBREVIATANA (Walsingham)

A male in collection Barnes from Jemez Springs, N. Mex.

SONIA VOVANA (Kearfott)

Mr. George Englehardt has discovered the food plant of this species and reared a male which is now in the National collection. The adult was reared from larvae boring in the main stems of *Senecio filifolius* Nuttall, and collected by him in Canon, Ariz., in 1925. Moth issued August 25, 1925.

## EPINOTIA XANDANA (Kearfott)

I was in error in my revision of the Eucosminae (U. S. National Museum Bull. 123, 1923, p. 205) in placing this as a synonym of *vertumnana* Zeller. It is a good species. Kearfott's *yandana*, however, falls as a synonym of *xandana*, which latter name should replace that of *yandana* in couplet 36 of my key.

## EPINOTIA SUBVIRIDIS, new species

## Figure 22

A species of the *hopkinsana* group with costal fold, a pale yellowish green tint on the lighter areas of fore wing and the dark patches strongly margined with black lines.

Palpus, face, and head sordid creamy ochereous; third joint of palpus somewhat darker, exposed. Thorax ochereous with a faint greenish tinge. Fore wing with light areas pale greenish and dark patches smoky fuscous; an outwardly angulate dark basal patch more or less broken and suffused toward base with the pale ground color, and outwardly margined by a strong black line; a similar black angulate crossline just beyond base, and between it and outer black line of basal patch a black line extending from dorsum to cell, and on costa opposite it a black dot; on dorsum near tornus a subquadrate dark patch, its upper outer angle touching the lower inner angle of a similar subapical costal patch; edging the inner margin of the subternal patch and extending beyond it to mid costa, a strong black sinuate line; a similar, oppositely angulate black line edging the outer margin of the subternal and the inner margin of the subapical patches; ocelloid area with a narrow vertical line of ochereous scales dividing the pale ground color; similar pale ochereous slightly raised scales bordering the black lines, and a few obscure ochereous lines and dustings scattered over the pale areas of the wing; cilia pale smoky fuscous with a strong black basal line and with scale ends white; veins 3, 4, and 5 approximate at termen; termen concave. Hind wing very pale smoke color; cilia sordid whitish with a slightly darker basal band.

Male genitalia of type figured.

*Alar expanse*.—16–20 mm.

*Type and paratype*.—Cat. No. 41211, U.S.N.M.

*Paratypes*.—In American Museum and collections Barnes and Blackmore.

*Type locality*.—San Diego, Calif.

*Food plant*.—*Cupressus macrocarpa*.

Described from male type and female paratype from the type locality (July and August); one female paratype labeled, "6523, iss. 5 Apr. 95, on Monterey cypress, California, G. C. Brackett"; two female paratypes from Victoria, British Columbia ("16–VIII–21")

and "18-VIII-21," W. R. Carter, collector, Blackmore No. 481); and one female paratype from Fraser Mills, British Columbia (L. E. Marmont, "9-IX-1922," Blackmore No. 661).

The species is close to *hopkinsana* Kearfott, but readily distinguished by its stronger black lining, less distinctly green tint, stronger dark patches on fore wing, and its unforked uncus. In *hopkinsana* this organ is distinctly bifid.

EPINOTIA BASIPUNCTANA (Walsingham)

Figure 21

Two Walsingham specimens from the Fernald collection (a male and female labeled "Type") are now in the United States National Museum. The genitalia are like those of *sublicana* Walsingham except that the lateral arms of gnathos are less strongly chitinized.

Male genitalia of type figured.

EPINOTIA MARMOREANA Heinrich

*Epinotia marmoreana* HEINRICH, U. S. Nat. Mus. Bull. 123, 1923, p. 222.

In describing this species I overlooked a character which would place it in group A rather than B of the genus. The male has a strong appressed costal fold reaching well beyond the middle of fore wing. With this character it would follow *silvertoniensis* Heinrich in my arrangement.

EPINOTIA CRENANA (Hübner)

Five specimens from Sebec Lake, Me., are now in the National (two) and Barnes (three) collections. As far as I know, this is the first eastern North American record for this species.

EPINOTIA CERCOARPANA (Dyar)

Two specimens (male and female "June 8-15") from Paradise, Cochise County, Ariz., in collection Barnes.

EPINOTIA NONANA (Kearfott)

Figure 16

Several specimens from various Colorado localities are now before me. Male genitalia figured from specimen in collection Barnes labeled, "Sneffels Mts., Ouray County, Colorado, Oslar, August."

EPINOTIA SEORSA Heinrich

Figure 23

*Epinotia seorsa* HEINRICH, Journ. Washington Acad. Sci., vol. 14, No. 16, 1924, p. 392.

Male genitalia of type figured.



## ANCHYLOPERA TENEBRICA, new species

A dark fuscous species with unicolorous basal patch and outer dark band on fore wing and with the white basal area of costa somewhat obscured by dark dusting.

Palpus fuscous shaded with sordid white toward base and on inner side. Face, head, and thorax brownish fuscous. Fore wing with basal patch, outer dark band and tornal area fuscous brown more or less dusted with blackish brown; outer subcostal area paler brown; basal half of costa whitish gray with several fine dark brown dashes on costal edge and a slight dusting of dark scales on the whitish ground beneath, the pale costal area continuing as an obscure whitish gray band between basal patch and outer dark band to dorsum and thence in a curve above tornal dark area to termen near tornus; outer half of costa with eight strong white dashes, the inner one continued as a leaden metallic line along outer margin of outer dark band; at apex a prominent dark spot; cilia fuscous shading to dirty white at tornus and with a white subapical spot cut by a thin black line. Hind wing pale smoky fuscous; cilia slightly paler.

Male genitalia as in *spiraeifoliana* but smaller, nearly two-thirds size of those of *spiraeifoliana*.

*Alar expanse*.—12–13 mm.

*Type and paratype*.—Cat. No. 41212, U.S.N.M.; paratypes also in Canadian National and Bryant collections.

*Type locality*.—Bilby, Alberta, Canada.

*Food plant*.—Unknown.

Described from male type and three male paratypes from the type locality (O. Bryant, June 1, 1924, and June 12, 1924).

Close to *spiraeifoliana* Clemens. Distinguished by its darker color, less distinctly white basal costal area, and much smaller genitalia.

## ANCHYLOPERA MIRA, new species

A species of the *burgessiana-laciniana* group with fawn brown basal patch and a red outer bar on fore wing.

Palpus and face white. Head ochereous. Thorax fawn brown, paler (more ochereous) toward anterior margin; tegula white with slight ochereous shading. Fore wing with ground color bright ochereous; basal patch fawn brown with outer margin slanting; outer bar distinctly reddish and containing two black longitudinal streaks; base of costa white, unmarked; costa beyond outer bar marked by several reddish brown dashes interspaced with white and with a large reddish spot at apex; area between basal patch and outer bar of the ground color somewhat dusted with white; cilia pale ochereous with a white subapical spot broken by a slight black dash. Hind wing very pale smoky fuscous, almost white in some specimens; cilia white.

Male genitalia as in *burgessiana*.

*Alar expanse*.—13–15 mm.

*Type and paratypes*.—Cat. No. 41213, U.S.N.M.; also paratypes in American Museum, Canadian National, and Barnes collections.

*Type locality*.—Chimney Gulch, Golden, Colo. (Oslar).

*Food plant*.—Unknown.

Described from male type, female paratype, and four male paratypes from the type locality, dated "April" (type and three other males), "6-14-07" (female) and "7-15-04" (one male); one male paratype from Clear Creek, Colo. (Oslar, "5-30-07"); and one female paratype from Denver, Colo. (Oslar, "6-14-04").

Besides the above I have before me specimens from St. Johns, Quebec (W. Chagnon, "3-VI-14," male without abdomen), Palos Park, Chicago, Ill. (A. Kwiat, "VI-4-04," male without abdomen), New Hampshire (male, no date), Wisconsin (male, no date), and Vavenby, British Columbia (Theo. A. Moilliet, "22-V-1924," Blackmore No. 797, male).

This is the form to which I referred in my revision of the Eucosminae (U. S. National Museum Bull. 123, p. 242) as a possible variety of *platanana* Clemens. I am inclined now to believe that it is a good species, closer if anything to *burgessiana* than to *platanana*.

ANCHYLOPERA MIRA FURVESCENS, new variety

A dark variety and presumably a food plant race of the preceding species. Ground color of fore wing more suffused with fuscous, especially in terminal area; basal patch very dark brown; outer bar dark red and more diffused, the red blending into the fuscous of the terminal area, which has none of the contrasted yellow color of typical *mira*. Hind wing smoky fuscous; cilia slightly paler, sordid.

Genitalia as in typical *mira*.

*Alar expanse*.—12.5–14 mm.

*Type*.—In American Museum.

*Paratypes*.—Cat. No. 41214, U.S.N.M.; also in Canadian National and Barnes collections.

*Type locality*.—New Haven, Conn.

*Food plant*.—Unknown.

Described from male type from the Kearfott collection of the American Museum ("VI-10"); one female paratype from the Fernald collection without locality label; two female paratypes from New Hampshire (one from Dublin, August Busck, collector; the other with only the New Hampshire label); and one female paratype from Quebec (A. W. Hanham "266").

In color much like the European *derasana* Hübner.

## ANCYLIS ALBAFASCIA, new species

Figure 5

A dark brown species with a narrow white transverse fascia on fore wing from costa before middle to outer third of dorsum.

Palpus white, shaded with pale fuscous on outer side and toward apex. Head and thorax glossy fuscous brown. Fore wing very dark brown; costa with two pairs of short white dashes before middle and four pairs on outer half; from the first pair of antimedial costal dashes a narrow but somewhat irregular band of white scales extends to outer third of dorsum, forming to the naked eye a thin white transverse fascia; no ocelloid patch; in terminal area a couple of very obscure, thin, semimetallic curved bands continue from the first and second postmedian pair of white costal dashes (not visible except under magnification); some faint white scaling at termen near tornus; cilia shining metallic fuscous with a couple of strong white dashes below apex, at extreme apex of the general wing color. Hind wing dark brown, but slightly paler than fore wing; cilia paler with a dark basal band, the scale ends toward apex whitish.

Male genitalia figured from type.

*Alar expanse*.—11-14 mm.

*Type*.—In Barnes collection.

*Paratypes*.—Cat. No. 41215, U.S.N.M.; also in American Museum and Barnes collections.

*Type locality*.—Mineralking, Tulare County, Calif.

*Food plant*.—Unknown.

Described from male type, four male and three female paratypes from the type locality ("June 24-30" and "July 1-7"); one male paratype and two female paratypes from San Bernardino, Calif. ("June 1-7").

A distinct species, not to be confused with anything else in the genus. In genitalia nearest to *unguicella* Linnaeus, which species it precedes in my arrangement, but with much slenderer harpes.

## HYSTRICOPHORA OCHREICOSTANA (Walsingham)

Figure 29

In a paper published in the Journal of the Washington Academy of Sciences (vol. 14, No. 16, 1924, p. 393) I expressed the opinion that *ochreicostana* was nothing but a variety of *taleana* Grote. I had noted the differences in the harpes of the two and the color differences on basal half of costa of fore wing, but had overlooked entirely a very striking character in the tergite of the eighth abdominal segment. In *taleana* this part is distinctly excavate, while in *ochreicostana* it is produced as a blunted triangle (compare figs. 27, 29). Such

differences are more than can be expected between varieties; and the two (*taleana* and *ochreicostana*) must be held as distinct species.

The type of *taleana* (or what remains of it, two detached fore wings on card mounts) is in the Fernald collection of the United States National Museum, and not in the British Museum as I had written.<sup>1</sup>

**HYSTRICOPHORA LORICANA (Grote)**

Figures 24, 26

*Phoxopterus loricana* GROTE, Can. Ent., vol. 12, 1880, p. 218.

*Ancylis loricana* (Grote) FERNALD, in Dyar List N. Amer. Lepid., No. 5265.—

BARNES and McDUNNOUGH, Check List Lepid. Bor. Amer., No. 7202, 1917.—HEINRICH, U. S. Nat. Mus. Bull. No. 123, 1923, p. 253.

The acquisition by the United States National Museum of the Fernald collection has enabled me to make a genitalia slide of the type and only available specimen of this species, and to place it where it properly belongs, in *Hystricophora* rather than *Ancylis*. In pattern and coloration it fits nicely with *taleana*, *ochreicostana* and *decorosa*, the four forming a compact group of similarly marked but very distinct and easily recognized species.

**HYSTRICOPHORA DECOROSA, new species**

Figures 25, 28

Similar to the foregoing but much darker, with more restricted orange-yellow costal marking, differently shaped unspined tergite of eighth abdominal segment (compare figs. 26, 28), and differently shaped harpes. In *loricana* they are symmetrical and the ventral element of the divided harpe is very broad (roughly triangular) while in *decorosa* they are asymmetrical and the ventral element is very narrow and elongate (compare figs. 24, 25).

Antenna with basal joint black; ocherous beyond. Palpus sordid ocherous, shading to fuscous at apex. Head, thorax, and fore wing semilustrous blackish fuscous; on costa of fore wing near apex a conspicuous triangular orange colored spot, bordered inwardly by a narrow dull metallic band extending from outer fourth of costa to termen below apex and broken by three pale costal dashes interspaced with black; the two inner dashes sordid whitish ocherous and the apical dash clear white; a somewhat larger orange blotch occupying area between ocelloid patch and termen; ocelloid patch consisting of two short black dashes between two short obscure metallic vertical bars; termen edged by a fine black line; cilia lustrous, dark, nearly concolorous with ground color of wing. Hind wing concolorous with fore wing; cilia but very little paler.

Harpes of male genitalia and tergite of eighth abdominal segment figured from type.

<sup>1</sup>Journ. Wash. Acad. Sci., vol. 14, 1924, p. 393,



*Alar expanse*.—13–15 mm.

*Type*.—Cat. No. 41216, U.S.N.M.

*Paratype*.—In American Museum.

*Type locality*.—"Enterprise, Florida."

*Food plant*.—Unknown.

Described from male type and one male paratype from the type locality (P. Laurent, collector, "4-16" and "4-17"); the former from the Fernald collection and the latter from the American Museum.

The addition of this species and *loricana* to the genus and the changes that have been made since the publication of my revision of the Eucosminae make it necessary to amend the specific key given in that paper. The amended key follows:

KEY TO THE SPECIES OF HYSTRICOPHORA

1. Fore and hind wings both white ..... *vestaliana* (Zeller).  
Fore and hind wings not both white; if fore wing white, hind wing fuscous or dark brown ..... 2
2. Outer part of costa and terminal area of fore wing strongly marked and shaded with bright orange yellow ..... 3  
Outer part of costa and terminal area not so marked ..... 6
3. Head bright orange yellow ..... 4  
Head blackish or bronzy fuscous ..... 5
4. Basal half of fore wing yellowish, lighter than ground color of wing.  
..... *ochreicostana* (Walsingham).  
Basal half of fore wing not yellowish, of the ground color... *taleana* (Grote).
5. Head, thorax, and ground color of fore wing bronzy fuscous, shining.  
..... *loricana* (Grote).  
Head, thorax, and ground color of fore wing blackish fuscous, semilustrous.  
..... *decorosa* (Heinrich).
6. Fore wing white, whitish gray, whitish ocherous, or pale brownish gray... 7  
Fore wing ocherous brown, dull golden ocherous, golden fawn, or pale saffron ..... 10
7. Ground color of fore wing sordid whitish ocherous..... *roessleri* (Zeller).  
Ground color of fore wing white, whitish gray, or pale brownish gray.... 8
8. A well-contrasted pale spot near tornus; paler than rest of wing.  
..... *ostentatrix* Heinrich.  
No such contrasted pale spot near tornus; tornus at least no paler than ground color..... 9
9. Fore wing grayish white, blotched on dorsal half with brownish; cilia of hind wing with dark basal band..... *asphodelana* (Kearfott).  
Fore wing nearly pure white; cilia of hind wing without dark basal band.  
..... var. *seraphicana* Heinrich.
10. Ground color of fore wing ocherous brown, more brown than yellow, nowise golden..... 11  
Ground color of fore wing more golden than brown..... 12
11. Fore wing without ocelloid markings above tornus..... *stygiانا* (Dyar)  
Fore wing with two or three short fine black dashes above tornus.  
..... var. *californiae* Heinrich.
12. Costa of fore wing straight from before middle of apex... *paradisiae* Heinrich.  
Costa of fore wing slightly arched before apex ..... 13
13. Fore wing a dull golden fawn color..... *leonana* Walsingham.  
Fore wing a pale golden saffron color..... *aurantiana* Walsingham.

## EXPLANATION OF PLATES

The drawings accompanying this paper were made under the author's supervision by Miss Mary Foley, of the Bureau of Entomology. The photographs were taken by Mr. J. G. Pratt, of the Bureau of Entomology.

## PLATE 1

## Male genitalia (Eucosminae)

- FIG. 1. *Thiodia insignata* Heinrich.  
 2. *Thiodia latens* Heinrich.  
 3. *Thiodia pastigiata* Heinrich.  
 4. *Thiodia bucephaloides* (Walsingham).  
 5. *Ancylis albafascia* Heinrich.  
 6. *Thiodia parvana* (Walsingham).  
 7. *Thiodia lepidana* (Walsingham).  
 8. *Epiblema hirsutana* (Walsingham).

## PLATE 2

## Male genitalia (Eucosminae)

- FIG. 9. *Eucosma dapsilis* Heinrich.  
 10. *Eucosma shastana* (Walsingham).  
 11. *Eucosma eburata* Heinrich.  
 12. *Eucosma fandana* Kearfott.

## PLATE 3

## Male genitalia (Eucosminae)

- FIG. 13. *Eucosma perpropinqua* Heinrich.  
 14. *Eucosma persolita* Heinrich.  
 15. *Eucosma nuntia* Heinrich.  
 16. *Epinotia nonana* (Kearfott).

## PLATE 4

## Male genitalia (Eucosminae)

- FIG. 17. *Eucosma inquadrana* (Walsingham).  
 18. *Eucosma juncticiliana* (Walsingham).  
 19. *Eucosma mirosignata* Heinrich.  
 20. *Eucosma russeola* Heinrich.  
 21. *Epinotia basipunctana* (Walsingham).  
 22. *Epinotia subviridis* Heinrich.  
 23. *Epinotia seorsa* Heinrich.  
 24. *Hystricophora loricana* (Grote).

## PLATE 5

## Structural characters (Eucosminae)

- FIG. 25. *Hystricophora decorosa* Heinrich; harpes of male genitalia.  
26. *Hystricophora loricana* (Grote); dorsal tergite of eighth abdominal segment.  
27. *Hystricophora taleana* (Grote); dorsal tergite of eighth abdominal segment.  
28. *Hystricophora decorosa* Heinrich; dorsal tergite of eighth abdominal segment.  
29. *Hystricophora ochreicostana* (Walsingham); dorsal tergite of eighth abdominal segment.  
30. *Eucosma derelicta* Heinrich; right harpe of male genitalia.  
31. *Eucosma excusabilis* Heinrich; right harpe of male genitalia.  
32. *Eucosma junciciliana* (Walsingham); right harpe of male genitalia.









1 *insignata*



5 *albafascia*



2 *latens*



6 *parvana*



3 *pastigiata*



7 *lepidana*



4 *bucephaloides*



8 *hirsutana*

MALE GENITALIA OF EUCOSMINAE

FOR EXPLANATION OF PLATE SEE PAGE 22



9

*dapsilis*



10

*shastana*



11

*eburata*



12

*fandana*

MALE GENITALIA OF EUCOSMINAE

FOR EXPLANATION OF PLATE SEE PAGE 22



13 *perpropinqua*



14 *persolita*



15 *nuntia*



16 *nonana*



17 *inquadrana*



21 *basipunctana*



18 *juncticiliana*



22 *subviridis*



19 *mirosignata*



23 *seorsa*



20 *russeola*



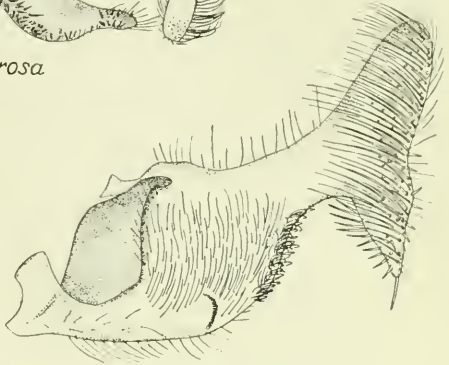
24 *loricana*



25 *decorosa*



26 *loricana*



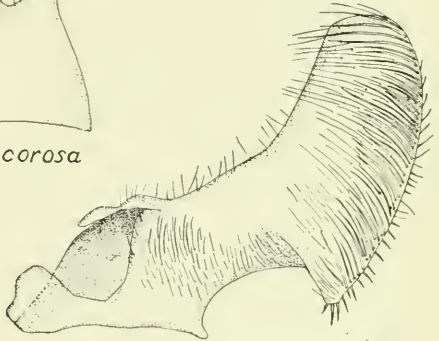
30 *derelicta*



28 *decorosa*



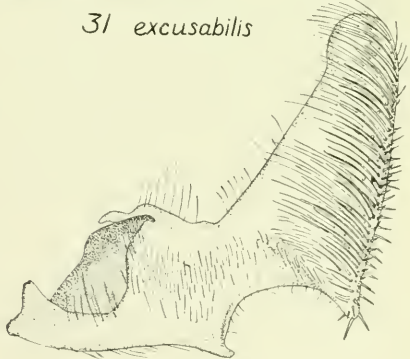
27 *taleana*



31 *excusabilis*



29 *ochreicostana*



32 *juncticiliana*

STRUCTURAL CHARACTERS OF EUCOSMINAE

FOR EXPLANATION OF PLATE SEE PAGE 23



