

BULLETIN OF THE ALLYN MUSEUM

3621 Bayshore Rd.
Sarasota, Florida 34234

Published By
Florida Museum of Natural History
University of Florida
Gainesville, Florida 32611

Number 132

ISSN-0097-3211

14 June 1991

TAXONOMIC NOTES AND DESCRIPTIONS OF NEW TAXA IN THE NEOTROPICAL HESPERIIDAE

PART II, HETEROPTERINAE AND HESPERIINAE, *VINIUS* GROUP

Stephen R. Steinhauser

Research Associate, Allyn Museum of Entomology.

3621 Bayshore Road,
Sarasota, Florida 34234

Table of Contents

Introduction	2
Methods and Procedures	3
Part IIa, HETEROPTERINAE	3
<i>Dalla</i> Mabilie, 1904	3
<i>Dalla nubes</i> , new species	4
<i>D. superior</i> Draudt, 1923, revised status	5
<i>D. ligilla</i> (Hewitson, 1877)	5
<i>D. dividuum</i> (Dyar, 1913)	5
<i>D. pincha</i> , new species	7
<i>D. xantha</i> , new species	8
<i>D. bos</i> , new species	10
<i>D. pura</i> , new species	11
<i>D. lethaea</i> (Schaus, 1913), new status	13
<i>D. simplicis</i> , new species	13
<i>D. puracensis</i> , new species	15
<i>D. puracensis quindio</i> , new subspecies	17
<i>D. p. cotopa</i> , new subspecies	17
<i>D. calima</i> , new species	18
<i>D. crithote</i> (Hewitson, [1874])	20

Part IIB, HESPERIINAE (<i>Vinius</i> Group & misc.)	20
<i>Lento lotus</i> (Bell, 1947), new combination	20
<i>L. grosso</i> , new species	20
<i>L. lora</i> Evans, 1955, new status	22
<i>L. ludo</i> Evans, 1955, new status	22
<i>L. genta</i> Evans, 1955, new status	22
<i>Anthoptus epictetus</i> (Fabricius, 1793)	22
<i>A. insignis</i> (Plötz, 1882), new combination	22
<i>Nastra lherminier</i> (Latreille, [1824])	23
<i>Zalomes</i> Bell, 1947	23
<i>Nylla</i> L. D. & J. Y. Miller, 1972, new synonymy	24
<i>Zalomes biforis</i> (Weymer, 1890)	24
<i>Z. merida</i> Evans, 1955, new status	24
<i>Z. conspicua</i> (Hayward, 1941), new status	24
<i>Z. wanda</i> Evans, 1955, new status	24
<i>Z. illimanensis</i> Evans, 1955, new status	24
<i>Z. banco</i> , new species	24
<i>Z. coto</i> , new species	26
<i>Z. allynorum</i> (L. D. & J. Y. Miller, 1972), new combination	27
<i>Z. cordillera</i> (L. D. & J. Y. Miller, 1972), new combination	27
<i>Z. naco</i> , new species	28
<i>Wahydra</i> , new genus	30
<i>Wahydra kenava</i> (Butler, 1870), new combination	32
<i>W. tassa</i> (Evans, 1955), new combination	32
<i>W. thisbe</i> (Hayward, 1941), new combination	32
<i>W. vola</i> (Evans, 1955), new combination	32
<i>W. bella</i> (Hayward, 1938), new combination	33
<i>W. dores</i> (Bell, 1959), new combination	33
<i>W. subhebetis</i> , new species	33
<i>W. nieblensis</i> , new species	35
<i>W. obscura</i> , new species	36
<i>Pheraeus covadonga loxicha</i> , new subspecies	38
<i>P. odilia argus</i> (Draudt, 1923), revised status	39
<i>Artines pavo</i> Draudt, 1923, new synonymy	39
<i>Pheraeus manes</i> , new species	41
<i>P. montes</i> (Bell, 1947)	42
<i>P. rumba kofan</i> , new subspecies	42
<i>P. jaruensis</i> , new species	43
<i>P. maria</i> , new species	44
<i>Mellana amicus</i> (Bell, 1942)	47
Acknowledgements	47
Literature cited	47

Introduction

This paper is a continuation of the study started in part I, Pyrginae (Steinhauser, 1989) and represents part of the continuing effort to clarify the systematics of the HesperIIDae. Many biologists believe that the introduction of new taxa belongs exclusively in the field of revisionary or phylogenetic studies and should not be indulged in solely for the sake of describing and naming them. This approach to taxonomy has much in its favor, if for no other reason than to avoid rushing into publication with every new variation that comes to light, often cluttering the literature with synonyms. On the other hand, if I waited until I had the necessary data and had done the required study for formal revision of a genus, group or tribe before publishing information gleaned from curatorial efforts, most of these data would never be brought to light. If such observations are not published, other students of HesperIIDae might never be aware of some of the areas in need of revisionary study.

With these remarks I will now proceed with my observations of new taxa and new arrangements in the Heteropterinae and in the *Vinius* group of the Hesperinae. Future papers in this series will treat other portions of the Hesperinae and, if needed, go back to include new data in the Pyrginae and Heteropterinae.

Methods and Procedures

In general, I have followed the same methods and procedures used in Part I. It should be noted, however, that there is a sort of evolutionary process involved in an individual's methodology. Techniques improve with practice; what seemed reasonable and logical a few years ago often becomes obsolete when considered in the light of new evidence. In earlier papers dealing with different portions of the "C-Group" of the Pyrginae (Steinhauser, 1981, 1983, 1986), I ignored certain aspects of male genitalia such as the juxta and transtilla and the ventral aspect of the saccus; in female genitalia I artificially flattened the distal portions. Other earlier efforts to illustrate genitalia *in situ* (Steinhauser, 1972), or to figure them with photographs (Steinhauser, 1974), were not successful. I now regret these actions.

Wing venation and genitalia nomenclature are the same as used in Part I. In genitalic preparations, I follow the normal procedures of maceration in 10% KOH, washing and cleaning, and storage in vials instead of mounting on slides. In place of washing and storage in 70% alcohol, I prefer distilled water for washing and glycerin for storage. With female genitalia, I leave the 8th tergite in its natural position as far as possible, avoid flattening, and view the genitalia from different viewpoints depending on the features to be considered. With male genitalia it is nearly always necessary to separate the various parts in order to obtain unobstructed views of essential features. The abdominal integuments are preserved and stored in separate vials. In the genitalia figures, I have reduced the amount of stippled shading used, where its only purpose was esthetic.

When dealing with antennal measurements, I use, for purposes of the club/antenna ratio, the socket where the antenna joins the head as the antenna base and whatever is being used as the club end becomes the antenna tip. For comparison of antennal length with the forewing costa, I use the extent of the antenna along the costa in a perfectly mounted specimen. As the first, or proximal, segment of the nudum, I use the first segment on which the denuded portion reaches its proximal edge. Nudum counts are expressed as either a single figure, indicating no clear point of separation of apiculus from club, or as two figures separated by a slash (/), the first being the number of segments on the club, the second the number on the apiculus. Nudum averages are based primarily on total count, secondarily on divided count.

Part IIa, HETEROPTERINAE

Dalla Mabille, 1904

Mabille established the genus *Dalla* with 47 included species, of which Lindsey, 1921 selected *Cyclopides eryonias* Hewitson, 1877 as type species. Earlier, Felder & Felder, [1867] had established the genus *Eumesia* with the single species, *E. semiargentea* Felder & Felder, [1867] as its type species by monotypy. Evans, 1955 was the first to note that, on taxonomic grounds, the two generic names are synonymous, but incorrectly rejected *Eumesia* because the holotype of *semiargentea* is a hesperiid to which a satyrid head had been attached. This incorrect action was duly noted by Hemming, 1967. Bridges, 1983 and 1988a, placed in *Eumesia* all of the species that Evans had listed as *Dalla* species; he changed this treatment (1988b) and placed all species in *Dalla*, including *semiargentea*.

A request has been submitted to the ICZN (Steinhauser *et al.*, 1990) to suppress *Eumesia* and place it on the Official Register of Rejected Names. Anticipating agreement with this request I use the well known name *Dalla* instead of *Eumesia* for the new taxa described below.

Dalla nubes, new species

Figures 1, 2 (♂); 66 (♂ genitalia)

MALE: Upperside: Forewing dark brown, lightly overlain with ochreous hairs in basal third, especially noticeable in basal half of Cu_2-2A . Pale ochreous semi-hyaline spots as follows: three conjoined subapical spots with their inner edges in line in R_3-R_4 to R_5-M_1 , the latter larger; a fourth minute subapical spot in M_1-M_2 on right wing, merely suggested on left; quadrate cell spot centered behind origin of R_1 , extending across cell but not reaching cell end; large triangular spot in Cu_1-Cu_2 , nearly reaching base of the space, longest along Cu_2 , reaching beyond cell spot along cubitus but not entering M_3-Cu_1 , separated from cell spot by dark vein; smaller rhomboid spot in mid M_3-Cu_1 , separated by about its own length from spot in Cu_1-Cu_2 ; narrow streak in Cu_2-1A immediately behind Cu_2 but not reaching $1A$, centered behind spot in Cu_1-Cu_2 but shorter. Fringe concolorous.

Hindwing same brown as forewing, narrowly whitish along costa, with long ochreous hairs in basal two thirds of wing behind radial sector and M_1 . Opaque ochreous spot in cell from origin of Cu_2 combined with large spot in M_1-M_3 to form a single long ovate discal spot crossed by a very faint, irregular darker transverse streak at cell end; small triangular ochreous spot in M_3-Cu_1 , extending from its base nearly to the distal end of the discal spot from which it is separated by the dark vein; slightly larger quadrate spot in Cu_1-Cu_2 centered behind origin of Cu_1 , not reaching base of space and ending distally at center of spot in M_3-Cu_1 , separated from it and the discal spot by dark vein. Fringe concolorous but with intermixed ochreous scales.

Underside: Forewing same brown as above but of limited extent; hyaline spots as above except for streak in Cu_2-1A . Costa and apical area, which tapers to a point on the termen in mid Cu_1-Cu_2 , rufous; Cu_2-1A behind hyaline spot in Cu_1-Cu_2 , $1A-2A$ except for extreme base and the tornal area beyond spot in Cu_1-Cu_2 , anal cell except for base and extreme tornus, all opaque pale yellow. Fringe greyish ochreous brown.

Hindwing rufous, markings from above visible, paler than ground color but not clearly contrasting with it, faintly outlined in rufous distally, veins slightly darker rufous. Fringe concolorous, some dark scaling at vein ends.

Palpi missing. Antennae slightly longer than half costa; shaft dark brown above, ochreous beneath, strongly checkered in front; club stout, arcuate; apiculus pointed; nudum 14, ochreous, darker at tip. Head and thorax dark brown; abdomen brown above, rufous beneath. Legs ochreous; fore tibiae with a few spines and long, heavy, central epiphyses slightly overlapping tarsi; mid legs missing; hind tibiae spined, bearing two subequal pairs of spurs.

Genitalia: Tegumen short; uncus long, slender (in lateral view narrower than arms of vinculum), undivided and with the usual dense dorsal hair tuft of *Dalla*; gnathos long (shorter than uncus), its distal end finely dentate. Valvae symmetrical, narrow and long (1.7 x combined length of tegumen and uncus); harpe extends caudad slightly beyond ampulla, upturned dorsad at distal end, overlapping ampulla; dorsal half of ampulla projecting distad. Penis very long and slender (1.4 x length of valva), with single small dentate cornutus, phallobase very short, almost non-existent. Juxta and transtilla prominent. Saccus very long, about half length of penis.

FEMALE: Unknown.

Wing measurements: Forewing ♂ holotype, 18 x 9½ mm.

Type material: Only the holotype, Mexico: Chiapas, Rancho Las Nubes near Tapillula (cloud forest), 14-15.vii.73, R. Wind, bearing the following labels: printed white label, MEXICO: CHIAPAS Rancho Las Nubes nr. Tapillula (cloud forest) 14-15. vii.1973 Robert Wind #29; printed white label, A. C. Allyn Acc. 1973-33; printed and hand printed white label, Genit. Vial SRS- 2575; printed and hand printed red label, HOLOTYPE ♂ *Dalla nubes* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881017/1,2 & 881017A/1,2. The holotype is deposited in the Allyn Museum of Entomology.

D. nubes belongs in Evans' *polycrates* group of *Dalla* and is closest to *D. hesperioides*

(Felder & Felder, [1867]) from which it differs principally in lacking the large forewing ochreous spot in Cu_2-2A and by its undivided uncus instead of bifurcate as in *hesperioides*.

Dalla superior Draudt, 1923, revised status

Dalla superior Draudt, 1923:922, pl.179f

Dalla epiphanaeus superior Draudt, Evans, 1955:24

There are, in addition to the maculation differences noted by Evans (1955:24), small, but consistent genitalic differences between *epiphanaeus* (Felder & Felder, [1867]) and *superior*. The transtilla of *epiphanaeus* projects prominently cephalad unlike *superior*, and the cornuti are somewhat different. These, coupled with the fact that they are sympatric, at least in Ecuador, leads me to re-establish the separate specific rank of *superior*. It is very possible that *D. gaujoni* (Mabille, 1897) and perhaps one or more of the four Evans subspecies of *epiphanaeus* should be similarly treated, but I have not had the opportunity to examine them critically.

Dalla ligilla (Hewitson, 1877)

Figure 67 (♂ genitalia)

Cyclopides ligilla Hewitson, 1877:325

= *Butleria ligilla* Plötz, 1884:292

Plötz, in his description of *ligilla*, lists it as "*Ligilla* HS. i.l.", indicating that it is based on a Herrich-Schäffer specimen labelled by him as "*ligilla*". Hewitson published his description under the title, "Descriptions of twenty-three new species of Hesperidae from his own collection", but the type is not in the BM(NH) as would be expected. Mielke (pers. comm.) informs me that the Hewitson type is from the Herrich-Schäffer collection at ZMHU. It is possible that the same specimen was the type for each *ligilla*, or perhaps the Herrich-Schäffer specimen had either been compared with the Hewitson type or was based on Hewitson's description.

In any event, the name *ligilla* (Plötz) is both a synonym and secondary homonym of *ligilla* (Hewitson) and an unavailable name. I have not seen the female, nor has it been described.

Dalla dividuum (Dyar, 1913)

Figures 68 (♂ genitalia); 98 (♀ genitalia)

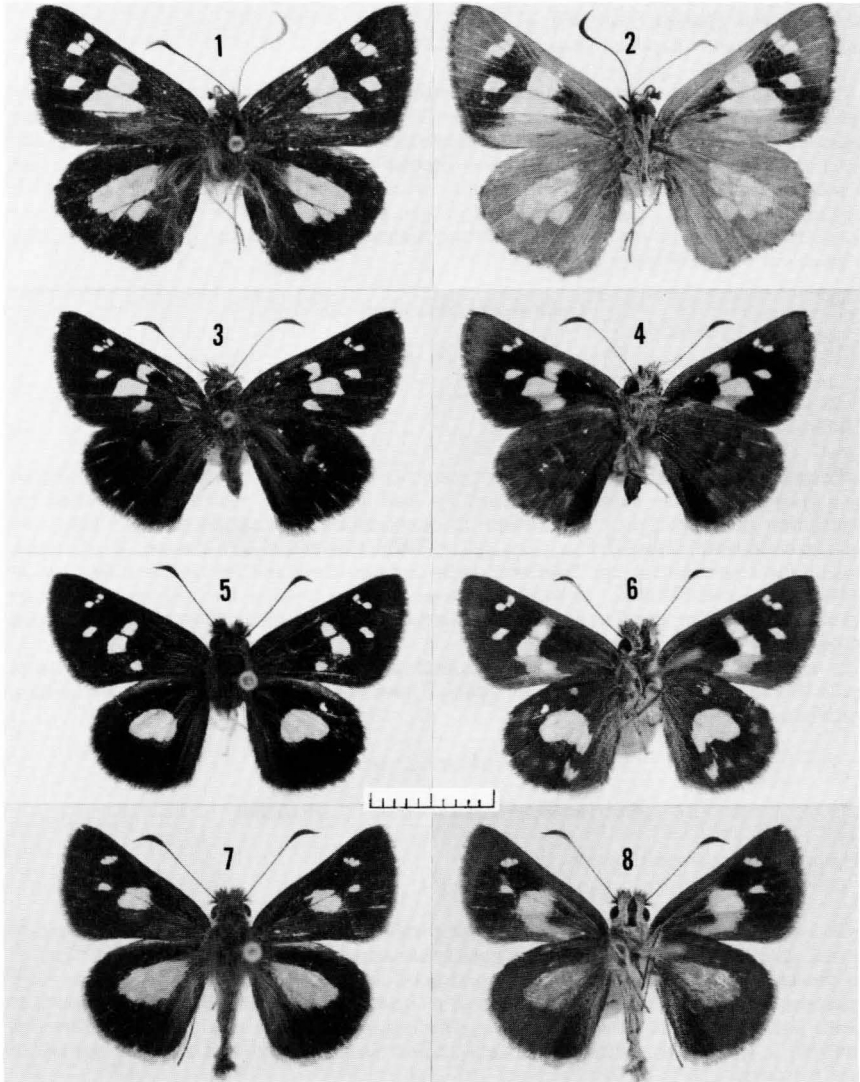
Argopteron dividuum Dyar, 1913:281

= *Dalla ligilla* (Hewitson), Evans (1955:27)

On a visit to the BM(NH) in 1983 I photographed all the *Dalla* types in that collection as well as examples of other species whose types are elsewhere. The specimen of "*ligilla*" (as determined by Evans) that I photographed, is actually a male of *dividuum* from Guerrero, Mexico and it is quite likely that at least part of the remaining 12 males that Evans had determined as *ligilla* are also *dividuum*, which, as was shown by Freeman (1967:61), is specifically distinct from *ligilla*, albeit closely related, and therefore was raised from synonymy.

The principal maculation differences between the two species are: 1) upperside forewing spot in M_3-Cu_1 of *ligilla* is elongate, fills the base of that space and is contiguous with the cell spot and the spot in Cu_1-Cu_2 , whereas in *dividuum* it is small, round or quadrate, and completely separate; 2) the upperside hindwing discal band of *ligilla* is yellow, broader, and more contiguous than *dividuum*; 3) on the underside hindwing of *ligilla* there are two spots in $Sc+R_1-R_s$, subterminal and discal, whereas in *dividuum* there are three spots, subbasal, discal and postdiscal.

In the ♂ genitalia, the uncus of *ligilla* is somewhat broader, the harpe of *ligilla* is produced dorsad and cephalad and very finely serrate; that of *dividuum* is more rounded and more coarsely serrate; the ampullae are differently shaped and the dorsal hair tuft from the uncus of *ligilla* is much denser.



Figures 1-8. (Scale line = 1 cm) *Dalla* spp. 1,2 *D. nubes*, new species, ♂ Holotype upperside (1), underside (2) (Photo Nos. 881017/1,2) Mexico: Chiapas. 3,4 *D. pincha*, new species, ♂ Holotype upperside (3), underside (4) (Photo Nos. 881017/3,4) Ecuador: Pichincha. 5,6 *D. xantha*, new species, ♂ Holotype upperside (5), underside (6) (Photo Nos. 881017/5,6) Colombia: Tolima. 7,8 *D. bos*, new species, ♂ Holotype upperside (7), underside (8) (Photo Nos. 881017/7,8) Colombia: Cauca.

The female is slightly larger than the male, but marked essentially the same, although the underside hindwing markings are less distinct. A figure of the female genitalia is included as the females of most *Dalla* species are very rare in collections and their genitalia seldom illustrated. I have seen the female genitalia of only eight *Dalla* species, all of which have certain rather unusual features in common, including long apophyses posteriores; a double corpus bursae, the more cephalad of which appears to be without internal spicules, whereas the other is at least finely spiculate and may bear rather prominent signa; the ductus seminalis is connected to the ductus bursae ventrally or latero-ventrally at or near the first (caudad) corpus bursae.

Dalla pincha, new species

Figures 3, 4 (♂); 69 (♂ genitalia)

MALE: Upperside: Forewing dark brown, basal third with sparse ochreous hairs, semi-hyaline ochreous spots as follows: three contiguous subapical spots in R_2 - R_4 (more or less round), R_4 - R_5 (very small), R_5 - M_1 (largest, rectangular), in a line directed toward mid termen; cell spot extending across cell, its outer edge immediately behind origin of R_2 and evenly rounded or straight, its inner edge centrally excavate; large rhomboid spot in Cu_1 - Cu_2 , approximately centered behind outer edge of cell spot and its inner edge more or less even with the inner edge of the cell spot from which it is separated by the dark vein; small, variably shaped spot in M_1 - Cu_1 , not reaching base of space, separated from spot in Cu_1 - Cu_2 by about 1 mm; small, variably shaped, more or less opaque spot in Cu_2 -2A, reaching 2A, but only reaching Cu_2 in three paratypes, its outer edge about in line with inner edge of spot in Cu_1 - Cu_2 . Fringe concolorous.

Hindwing same dark brown as forewing, basal third behind radial sector with long ochreous hairs; narrow transverse, semi-opaque ochreous bar at cell end varying from 0.4 to 1.3 mm wide (0.5 mm in holotype), average of type series of nine, 0.7 mm; in the three paratypes with a wider cell end bar, there is an additional small triangular spot in base of Cu_1 - Cu_2 . Fringe rufous, slightly paler at tornus.

Underside: Forewing same dark brown as above, slightly paler in anal cell. Costa and apical area, which tapers to a point on the termen in mid Cu_1 - Cu_2 , rufous; hyaline spots as above, rimmed with shining ochreous scales; spot in Cu_2 -2A large, quadrate, opaque yellow, its inner, convex edge even with inner edge of spot in Cu_1 - Cu_2 , its outer, concave edge more or less even with outer edge of spot in Cu_1 - Cu_2 . Fringe dark greyish brown, somewhat rufous in apical area.

Hindwing rufous with vague narrow, darker brown, jagged postdiscal band from R_s to Cu_2 ; broader vague dark brown discal band from $Sc+R_1$ to Cu_2 , broadest at cell end where it encloses an indistinct narrow paler bar; vague, minute darker points at vein ends along termen immediately before fringe; 1A-2A, 2A-3A and anal cell dark brown with some ochreous scaling. Fringe rufous, paler at its base between vein ends.

Palpi hairy, dark brown peppered with yellow and ochreous scales and hairs; third segment moderately long, slender, porrect, almost completely hidden in hairs of second segment. Antennae slightly longer than half costa; shaft dark brown above, yellowish white beneath, prominently checkered in front; club dark brown, heavily scaled ochreous above, yellowish white beneath, dark brown at base in front; apiculus stout, arcuate, pointed; nudum ochreous brown, last segment darker, 12-14 (holotype 14) averaging 13.6 in five of type series with complete antenna. Head and thorax dark brown; abdomen above dark brown with ochreous scaling, rufous beneath. Legs ochreous; fore tibiae with a few spines and long slender epiphyses reaching tarsi; mid tibiae spined, single pair of spurs; hind tibiae sparsely spined, two pairs of spurs.

Genitalia: Tegumen moderately short; uncus moderately long, bearing a very dense dorsal hair tuft, narrow in lateral view, broader in dorsal view, where it widens at distal end and is narrowly and shallowly bifurcate like *D. quasca* Bell, 1947; gnathos slender, not dentate, shorter than uncus. Valvae symmetrical, long and narrow, 1.7 x combined length of tegumen and uncus; end of harpe dentate, produced dorsad over ampulla and recurved cephalad;

ampulla evenly rounded, narrow, about as long as harpe. Penis long, slender, 1.1 x length of valva, strongly dentate at distal end; phallobase very short, almost non-existent, no cornutus. Saccus short, broad, triangular; juxta and transtilla prominent.

FEMALE: Unknown.

Wing measurements: ♂ forewing $13\frac{1}{2} \times 7\frac{1}{2}$ to $15 \times 8\frac{1}{2}$ mm (holotype, 15×8 mm), averaging 14.7×7.9 mm in type series of nine.

Type material: Holotype ♂, Ecuador: Pichincha; Niebli, NW slope Vol. Pichincha, 3500 m, viii.71, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: PICHINCHA Niebli, NW Slope Vol. Pichincha 3500 m.; viii.1971 R. de Lafebre; printed white label, A. C. Allyn Acc. 1971-41; printed and hand printed red label, HOLOTYPE ♂ Dalla pincha S. R. Steinhauser; printed and hand printed white label, SRS Database No. 291; printed and hand printed white label, Allyn Museum Photo Nos. 881017/3,4 & 881017A/3,4. Eight ♂ paratypes, five same data as holotype; one Ecuador: Loja; Villonaco 3600 m, ii.73, R. de Lafebre; two Ecuador: Chimborazo; Chahuarpata 1300 m, iv.73, R. de Lafebre, (one, Genit. Vial SRS-2572). The holotype and eight paratypes are deposited in the Allyn Museum of Entomology.

This insect is very close, genitally, to *D. quasca*, from which it differs in having a slightly broader uncus and valva, the difference so slight that the two taxa cannot be separated by genitalia alone. Evans' sketch of *D. mars* Evans, 1955 appears somewhat similar, but I have not examined its genitalia for direct comparison and the sketch is somewhat lacking in details. The maculation of *pincha* is quite unlike *quasca* or its Ecuadorean subspecies, *equatoria* Bell, 1947, most noticeably in the very small hindwing cell-end spot of *pincha* in contrast with the large spot of both *quasca* forms. It is much closer to *mars*, from which it differs in the complete lack of the pale hindwing cell-end spot in *mars* on the upperside and the coincident lack of a pale center to the dark discal band at the end of the cell beneath. The forewing cell spot of *mars* does not extend across the cell as in *pincha*.

The fore tibial epiphyses of *mars*, *quasca* and *pincha* are all long and reach the tarsus. Based on genitalic similarity, I have placed *pincha* following *quasca* in the *cypselus* group of Evans' phylogenetic arrangement despite its lack of prominent hindwing markings.

Dalla xantha, new species

Figures 5, 6 (♂); 70 (♂ genitalia)

MALE: Upperside: Forewing dark blackish brown, a few scattered yellowish hairs in basal third; yellowish white hyaline spots as follows: three contiguous subapical spots separated by dark veins in R_3-R_4 (more or less square), R_4-R_5 (smallest, round), R_5-M_1 (largest, quadrate), their inner edges more or less in a line directed toward mid termen; small, more or less triangular cell spot centered between origins of R_2 and R_3 , not reaching radius; larger, more or less rhomboid spot in Cu_1-Cu_2 , its edges more or less in line with edges of cell spot, widest along Cu_2 , separated from cell spot by dark vein; small, more or less quadrate spot in M_3-Cu_1 , only slightly larger than spot in R_5-M_1 , separated from spot in Cu_1-Cu_2 by more than its own width; small spot in mid 1A-2A, subequal to spot in M_3-Cu_1 , situated basad of spot Cu_1-Cu_2 . Fringe nearly concolorous but slightly greyer distally.

Hindwing same blackish brown as forewing, narrowly paler along costa, basal half behind radial sector with sparse long greenish yellow hairs. Large, more or less reniform opaque pale yellow discal spot consisting of cell-end spot conjoined with spots in M_1-M_3 , extreme base of M_3-Cu_1 , Cu_1-Cu_2 and Cu_2-2A , the veins between also pale yellow. Fringe slightly paler brown than ground color, becoming somewhat yellowish at tornus.

Underside: Forewing dark brown with minor ochreous scaling in base of costal cell; paler in anal cell; dark grey in basal portion of Cu_2-2A ; costa and apical area, which tapers to a point on termen in mid Cu_1-Cu_2 , dark rufous; hyaline spots from above repeated and rimmed with shining yellow scales which cover veins between the spots where they are contiguous and which extend forward of the cell spot to Sc; spot in 1A-2A replaced by

large quadrangular opaque yellow spot in Cu_2-2A joining the discal spots ahead of it to form a single, hooked, pale yellow discal band from Sc to 2A.

Hindwing the same dark brown as forewing, lightly overscaled yellowish behind 1A, more or less tinged dark rufous in costal and distal portion; large, reniform, opaque yellow discal spot as above; small, round, opaque yellow spot against Sc+R, in Sc+R-Rs basad of the center of the space; slightly larger subternal yellow spot in Cu_2-2A midway between discal spot and termen, and forming anal end of a curved row of postdiscal spots starting in the outer portion of Sc+R-Rs, these spots indistinct, rufous, and sometimes with central yellow scaling. Fringe brown, slightly paler at tornus.

Palpi hairy, dark brown mixed with pale greenish yellow hairs, third segment moderately long, slender, porrect, nearly hidden in hairs of second segment. Antennae about half costa, shaft black brown above, pale yellow beneath, prominently checkered in front; club stout, arcuate, pointed, black brown above and at base in front, yellow beneath. Nudum rufous brown becoming darker at tip, very constant at 13 segments in 18 of the 19 specimens in type series including holotype, 12 segments in one paratype. Head and thorax dark brown, covered with brown and yellow hairs with a more or less green reflection; abdomen dark brown above with some yellow scales, pale yellow beneath. Legs dark brown, heavily overscaled ochreous; fore tibiae with long stout epiphyses reaching and slightly overlapping tarsi; mid and hind tibiae spined, mid tibiae with one, hind tibiae with two pairs of spurs.

Genitalia very similar to *D. mesoxantha* (Plötz, 1884). Tegumen short, broad, slightly hollowed centrally above; uncus relatively short, distally hooked in lateral view, produced cephalad over hollowed portion of tegumen, in dorsal view rather broad, shallowly and narrowly bifurcate, slightly hollowed above and bearing a very dense dorsal hair tuft; gnathos simple, not dentate, shorter than uncus; valvae symmetrical, long and relatively narrow (twice the combined length of tegumen and uncus), harpe upturned dorsad over ampulla and recurved cephalad in a long, narrow, heavily dentate arm; ampulla evenly rounded, obliquely upturned dorsad, extends caudad only about to base of recurved arm of harpe; penis moderately short, more or less equal in length to valva, rather stout, distally broadened, dentate on left side distally, phallobase very short, single small dentate cornutus; saccus very short, broad; juxta and transtilla prominent.

FEMALE: Unknown.

Wing measurements: ♂ forewing $13\frac{1}{2} \times 7\frac{1}{2}$ mm to $15\frac{1}{2} \times 8\frac{1}{2}$ mm (holotype 15×8 mm), averaging 15.0×8.0 mm in type series of 19.

Type material: Holotype ♂, Colombia: Tolima; Hda. Japon, Rio Ambeima, [La Marina area], 2000 m, 9.vi.74, S.R. & L.M. Steinhauser, bearing the following labels: printed and hand printed white label, COLOMBIA: Tolima; HDA. JAPON, RIO AMBEIMA 9/VI/1974 2000 m. No. CH-391 Coll by S. R. y L. M. Steinhauser; printed and hand printed white label, A. C. Allyn Acc. 1974/23; printed and hand printed red label, HOLOTYPE ♂ Dalla xantha S. R. Steinhauser; printed and hand printed white label, Genit. Vial SRS-2563; printed and hand printed white label, SRS Database No. 300; printed and hand printed white label, Allyn Museum Photo Nos. 881017/5,6 & 881017A/5,6. There are 18 ♂ paratypes, all by the same collectors, nine same data as holotype (one, Genit. Slide SRS-35); five same location as holotype dated 10.vi.1974 (4) and 11.vi.1974 (1); one same data as holotype but 2100-2200m, dated 8.vi.1974; one Colombia: Tolima; Rio San Fernando, La Marina area 1500 m, 3.vi.1974; one Colombia: Tolima; Queb. La Junta above La Marina, 2000-2200 m, 5.vi.1974; one Colombia: Valle del Cauca; Rio Calima (below dam), 1300 m, 10.i.1976, Genit. Vial SRS-2564. The holotype and 18 paratypes are deposited in the Allyn Museum of Entomology.

D. xantha is very closely related to *D. frater* (Mabille, 1878), *D. mesoxantha* (Plötz, 1884), *Butleria virius* Mabille, 1897, a synonym of *mesoxantha*, and *D. merida* Evans, 1955. *D. frater* is a slightly smaller insect (forewing 14 mm), has a relatively complete band of underside hindwing postdiscal yellowish spots, and its uncus is much narrower at the distal end. The underside hindwing markings of *merida* are very similarly arranged to those of *xantha*, but more diffuse and dark orange rather than pale yellow and the ground color is rufous rather than dark brown.

I am not completely certain of the identity of *mesoxantha*. Plötz described the underside hindwing as red-brown with a dark yellow discal spot, a point toward the costa and a washed out band at the termen. He did not mention a tornal spot and did not specify where the costal spot was located. Evans described it as "Unh generally unmarked except for the central area and a subtornal spot." A specimen from Venezuela from the Kaden collection in the series of 26 males in the BM(NH) is labeled "Type", but Evans does not list the type of *mesoxantha* among the BM types. This specimen, unlike the holotype of *virius*, has a sub-basal yellowish spot in Sc+R₁-Rs as does *xantha*, and a slightly larger subtornal spot, found in both *virius* and *xantha*, but not mentioned by Plötz, and otherwise agrees with the holotype of *virius* and the description of *mesoxantha* in the generally rufous color of the hindwing beneath, unlike the dark brown of *xantha*. I have not examined the genitalia of this BM(NH) "Type" nor of the holotype of *virius*. My late wife, Levona, and I collected a series of 13 males from Colombia: Valle del Cauca; Rio Anchicayá, 1150 m in 1973-75, which match the *virius* holotype and which I have determined as *mesoxantha*. They differ from *xantha* in underside ground color, rufous instead of dark brown, the color of the discal spot, ochreous yellow rather than pale yellow, by the hindwing fringe, rufous instead of brown as in *xantha* and by the absence of the sub-basal yellow spot in Sc+R₁-Rs of the underside hindwing; they also have a somewhat narrower recurved harpe process. Other differences noted are forewing length (15.0 mm) for *xantha*, 16 mm for the holotype of *virius* and 16.2 mm, the average of the series of 13 Colombian *mesoxantha*, and a very slight difference in nudum count: 13 in 18 specimens and 12 in one for *xantha*; 13 in 9 specimens and 14 in four for *mesoxantha*. The antennae of the holotype of *virius* and the BM(NH) "Type" of *mesoxantha* are damaged and the nudum could not be counted.

A detailed study of geographic variation and close examination of the type material is needed to clarify the relationships in this group of *Dalla* forms.

Dalla bos, new species

Figures 7, 8 (♂); 71 (♂ genitalia)

MALE: Upperside: Forewing dark blackish brown lightly overscaled ochreous in basal third. Opaque pale ochreous spots as follows: three small, contiguous subapical spots in R₅-R₄ to R₅-M₁ in a line directed approximately toward mid termen, not separated by dark veins except in worn specimens; triangular cell spot, its longest side along the cubitus between origins of Cu₁ and Cu₂, slightly nearer to Cu₁ but not reaching either and extending forward usually beyond mid cell but not reaching the radius; a larger rhomboid to subtriangular spot in Cu₁-Cu₂, nearly filling the base of that space and usually reaching the origin of Cu₁, separated from cell spot by dark cubital vein; a small, slightly elongate spot in M₃-Cu₁ near its base, narrowly separated from spot in Cu₁-Cu₂. In one paratype there is an additional small streak in Cu₂-1A behind the spot in Cu₁-Cu₂ which is represented in the holotype and four paratypes by two or three ochreous scales, but completely missing in the other four paratypes. Basal half of fringe concolorous, outer half rufous.

Hindwing the same dark brown as forewing, narrowly paler along costa, with long ochreous hairs in basal half behind radial sector. Large, elongate, ovoid, opaque, ochreous discal spot, darker than forewing spots, in cell where it nearly reaches the base, basal third of M₁-M₃, extreme base of M₃-Cu₁, Cu₁-Cu₂ and Cu₂-1A, nearly reaching 1A. Fringe forward of 1A (approximately) concolorous in basal half, rufous to ochreous in outer half; behind 1A entirely ochreous.

Underside: Forewing dark brown as above, overscaled ochreous in basal two thirds of cell, becoming more grey brown in anal cell and basal third of 1A-2A; costa and apical area beyond subapical spots and tapering to a point on termen approximately at Cu₂, rufous. Ochreous spots from above repeated slightly enlarged; cell spot and conjoined spot in Cu₁-Cu₂ extended full width to 1A, and thence to 2A as dense opaque yellow scaling extending and thinning toward the base in 1A-2A, thus forming a broad, inwardly hooked discal band with the veins ochreous between the spots. Fringe rufous.

Hindwing rufous with more or less violet gloss, becoming dark brown with scattered ochreous scales behind 1A. Discal spot as above but poorly defined and heavily overscaled

rufous. Fringe rufous, slightly paler at tornus.

Palpi hairy, dark brown with intermixed ochreous hairs; third segment slender, moderately long, porrect, nearly hidden in hairs of second segment. Antennae somewhat longer than half costa, reaching about to subapical spots; shaft dark brown prominently checkered yellowish white above and in front, slightly paler but still checkered beneath; club stout, arcuate, black brown above, basal half pale yellow behind, base black brown in front before dark rufous nudum of 12-13 segments (holotype 12) averaging 12.9 in type series of 10 specimens; apiculus pointed. Head and thorax dark brown with long ochreous brown hairs, very faint green reflection. Abdomen dark brown above with ochreous scaling, ochreous beneath. Legs dark brown overscaled ochreous; fore tibiae with minute central epiphyses; mid tibiae spined, one pair spurs, hind tibiae smooth, two pairs spurs.

Genitalia: Tegumen rounded, moderately short; uncus slightly longer than tegumen, in lateral view produced cephalad over tegumen, slightly hooked caudally, in dorsal view pear shaped, undivided, narrow distally, bearing the usual dense dorsal hair tuft; gnathos as long as uncus with prominent, divergent, shagreened lateral arms connected centrally by a weakly sclerotized membrane; valvae symmetrical, moderately long (1.6 x combined length of tegumen and uncus), slender, harpe narrow, obliquely produced dorsad as a slender dentate arm reaching dorsad just beyond narrow rounded ampulla at its distal end; penis long (1.2 x length of valva), slender, phallobase very short, single small dentate cornutus; saccus moderately long, subequal to uncus, narrow; juxta and transtilla prominent, transtilla with a pair of lateral, caudally directed, slender pointed arms on either side of penis.

FEMALE: Unknown.

Wing measurements: ♂ forewing 14 x 7½ to 15½ x 8 mm (holotype 15 x 8 mm) averaging 14.6 x 7.8 mm in the type series of 10 specimens.

Type material: Holotype ♂, Colombia: Cauca; Parque Nac. de Purace, Paramo del Buey, above Coconuco, 3000 m, 10.iii.76, S.R. & L.M. Steinhauser, bearing the following labels: printed white label, COLOMBIA: CAUCA Purace Ntl. Pk. Param (sic!) del Buey 3000m. 10.iii.1976 S. & L. Steinhauser; printed white label, A. C. Allyn Acc. 1976-9; printed and hand printed red label, HOLOTYPE ♂ Dalla bos S. R. Steinhauser; printed and hand printed white label, SRS Database No. 332; printed and hand printed white label, Allyn Museum Photo Nos. 881017/7,8 & 881017A/7,8. There are nine ♂ paratypes, all same location (sometimes worded differently on label) and collectors as holotype, seven (one, Genit. Vial SRS-2542) same date as holotype and two (one, Genit. Vial SRS-2548) dated 30.i.1976. The holotype and eight paratypes are deposited in the Allyn Museum of Entomology.

D. bos keys out to the first part of Evans' *caenides* group. Its maculation comes closest to that of *D. ticias* (Mabille, 1897), *D. caenides* (Hewitson, 1868), *D. mora* Evans, 1955 and a new species described below. Details of the differences between these taxa will be discussed following the description below of the next new species.

Dalla pura, new species

Figures 9, 10 (♂); 72 (♂ genitalia)

MALE: Upperside: Forewing dark brown with scattered orange ochreous hair scales in basal third. Opaque orange ochreous spots as follows: subapical spots in R_4 - R_5 (minute in holotype, rectangular in paratype), R_5 - M_1 (the largest), sometimes a few scattered scales forming a third spot in R_3 - R_4 (present in paratype, absent in holotype); small triangular lower cell spot behind origin of R_1 , not reaching radius; large subtriangular (holotype) to quadrate (paratype) spot in Cu_1 - Cu_2 nearly reaching base of that space, its inner edge more or less in line with inner corner of cell spot; small subtriangular spot in M_3 - Cu_1 , not reaching base of that space and narrowly separated from spot in Cu_1 - Cu_2 ; spot in Cu_2 -2A, slightly larger than cell spot, its inner edge more or less in line with inner edge of spot in Cu_1 - Cu_2 , not reaching 2A; where they adjoin, the spots are separated by the dark veins.

Fringe concolorous at base, slightly paler distally, especially at tornus.

Hindwing same dark brown as forewing, very slightly paler along costa; basal half behind Rs with long ochreous hairs. Large elongate opaque orange ochreous discal spot in cell (nearly to base), M_1 - M_3 , M_3 - Cu_1 (extreme base), Cu_1 - Cu_2 , and extending slightly behind Cu_2 into Cu_2 -1A, the outer lower edge of this spot slightly indented behind Cu_1 . Fringe brown at apex, paler than ground, becoming ochreous at tornus.

Underside: Forewing dull dark brown, very slightly paler in anal cell; costa and apical area rufous. Spots repeated from above but no trace of subapical spot in R_3 - R_4 ; lower discal spot in Cu_2 -2A yellow behind 1A and widened, reaching 2A and beyond. Where spots adjoin, veins are concolorous. Fringe rufous.

Hindwing rufous forward of 1A, dark brown behind 1A with scattered yellowish scales more concentrated in basal area. Discal spot from above repeated but somewhat obscured by heavy rufous overscaling, its distal edge faintly darker. Fringe rufous, becoming ochreous at tornus.

Palpi hairy, dark brown with strong admixture of yellow hairs, third segment slender, porrect, nearly concealed in hairs of second segment. Antennae slightly longer than half costa, shaft dark brown behind, yellowish beneath, prominently checkered yellow above and in front; club stout, arcuate, dark brown above and at base in front, yellowish behind and beneath, nudum rufous brown becoming dark brown distally on each segment and toward pointed tip, 12 segments. Head and thorax dark brown with rufous and ochreous hairs which show a slight green reflection; abdomen dark brown, lightly scaled ochreous above, heavily so beneath. Legs dark brown with ochreous hairs and scales; fore tibiae with small central epiphyses, slightly larger than in *bos*, but not nearly reaching tarsi; mid tibiae spined with single pair of spurs; hind tibiae smooth with two pairs of spurs.

Genitalia: Tegumen rounded, moderately short; uncus slightly longer than tegumen, in lateral view produced somewhat over tegumen, slightly hooked caudally, in dorsal view centrally ovoid, narrow, and with undivided slender caudal extension, bearing the usual dense dorsal hair tuft; gnathos considerably shorter than uncus with small, bi-lobed, shagreened terminal portion. Valvae symmetrical, 1.4 x combined length of tegumen and uncus, slender; harpe narrow, dorsally dentate, not bent dorsad, extending slightly distad of rounded ampulla but only overlapping it slightly near its base. Penis long (1.3 x length of valva), slender; phallobase very short; single small dentate cornutus. Saccus short, narrow, bluntly rounded at cephalad end. Juxta and transtilla prominent; transtilla projecting caudad only slightly on either side of penis.

FEMALE: Unknown.

Wing measurements: Holotype ♂ forewing $14\frac{1}{2}$ x 8 mm, paratype ♂ $15\frac{1}{2}$ x 8 mm).

Type material: Holotype ♂, Colombia: Cauca; Parque Nac. de Purace, Paramo del Buey above Coconuco, 3000 m, S.R. & L.M. Steinhauser, 10.iii.76, bearing the following labels: printed white label, COLOMBIA: CAUCA Purace Ntl. Pk., Param (*sic!*) del Buey 3000m. 10.iii.1976 S. & L. Steinhauser; printed white label, A. C. Allyn Acc. 1976-9; printed and hand printed white label, Genit. Vial SRS-2545; printed and hand printed red label, HOLOTYPE ♂ Dalla pura S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881017/9,10 & 881017A/9,10. There is one ♂ paratype same data as holotype. The holotype and paratype are deposited in the Allyn Museum of Entomology.

D. pura is closely related to *D. bos*, with which it is sympatric in the Paramo del Buey, and to *D. ticias*, *D. caenides* and *D. mora*. The more or less circular hindwing discal spot of *ticias*, more distinct on the underside than the others, separates it from the rest in which the discal spot is elongate. There are only two subapical spots in *caenides*; *ticias* may have only two and in *pura*, if a third spot is present above as a few orange scales, it is absent on the underside; *bos* and *mora* have three. There is no cell spot in *caenides*, but present in *mora*, *bos* and *pura*, and may be present in *ticias*. The upperside forewing spot in Cu_2 -1A is present in *ticias*, *pura* and *mora*, absent in *caenides* and usually absent in *bos*. In the male genitalia, the gnathos arms are widely divergent, prominent, and subequal in length to the uncus in *ticias*, *caenides*, *mora* and *bos*, but narrowly divergent, small, and much shorter than the uncus in *pura*. The caudally directed arms of the transtilla

are moderately long in *mora* and *bos*, short in *ticidas*, *caenides* and *pura*. The ampulla of *mora* extends caudad well beyond the harpe, is considerably shorter than the harpe in *caenides* and *pura* and subequal in *bos* and *ticidas*.

Dalla lethaea (Schaus, 1913), new status

Butleria lethaea Schaus, 1913:360, Pl.54, f.15

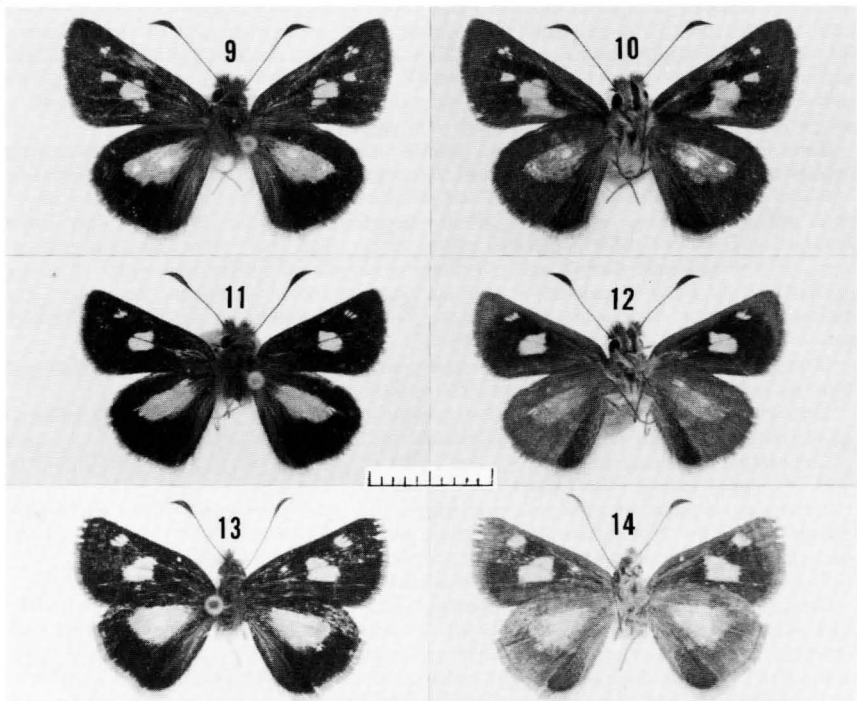
Dalla lalage lathaea (sic!) (Schaus), Evans (1955:37, Pl.56)

D. lethaea is raised to specific rank rather than a subspecies of *lalage* (Godman, [1900]) because of considerable genitalic differences, as illustrated by Evans, and probable sympatry; *lalage* was described from Guerrero, Mexico and *lethaea*, described from Costa Rica, has also been taken in Oaxaca, Mexico.

Dalla simplicis, new species

Figures 11, 12 (♂); 13, 14 (♀); 73 (♂ genitalia); 99 (♀ genitalia)

MALE: Upperside: Forewing dark brown with scattered ochreous scaling in basal third. Opaque orange ochreous spots (yellowish white in three of the 26 paratypes) as follows: three subapical spots in R_2 - R_4 to R_5 - M_1 in a line directed toward mid termen, the spot



Figures 9-14. (Scale line = 1 cm) *Dalla* spp. 9,10 *D. pura*, new species, ♂ Holotype upperside (9), underside (10) (Photo Nos. 881017/9,10) Colombia: Cauca. 11-14 *D. simplicis*, new species, ♂ Holotype upperside (11), underside (12) (Photo Nos. 881017/11,12) Colombia: Cauca; ♀ Paratype upperside (13), underside (14) (Photo Nos. 890622/10,11) Colombia: Quindio.

in R_3 - R_4 missing in one paratype but present on the underside; a triangular lower cell spot behind the origin of R_1 , but not reaching the radius, its lower edge against the cubitus usually reaching to origin of Cu_1 ; a somewhat larger, quadrate to rhomboid spot in Cu_1 - Cu_2 adjoining the cell spot; the veins between adjoining spots darkened. Fringe paler brown than ground color tending to become ochreous at tornus.

Hindwing same dark brown as forewing, paler along costa, with long ochreous and brown hairs behind R_s in basal half. Large elliptical, opaque orange ochreous discal spot (yellowish white in the three paratypes that have yellowish white forewing spots) formed from conjoined spots in the cell (but not reaching its base), in the base of R_s - M_1 , in M_1 - M_3 , usually in the extreme base of M_3 - Cu_1 and in the base of Cu_1 - Cu_2 . The veins within this discal spot were concolorous. Fringe ochreous.

Underside: Forewing dull dark brown, only faintly paler in anal cell; costa and apical area nearly to subapical spots, rufous. Opaque orange ochreous spots as above (pale yellow if pale above), with addition of a minute spot in M_3 - Cu_1 , narrowly separated from spot in Cu_1 - Cu_2 , found in 10 paratypes. There is additional yellow scaling extending the discal band into Cu_2 -2A in two of the paratypes that have the spot in M_3 - Cu_1 and minor yellow scaling in Cu_2 -1A in seven other paratypes including two with no spot in M_3 - Cu_1 . The veins between adjoining spots are concolorous. Fringe rufous.

Palpi hairy, dark brown with ochreous and brown hairs; third segment slender, porrect, nearly hidden in hairs of second segment. Antennae slightly greater than half costa; shaft dark brown above, yellowish beneath, prominently checkered in front; club stout, arcuate, dark brown above, pale yellow behind and at base beneath; nudum 12 to 13 (12 in holotype and 12 paratypes, 13 in 11 paratypes), usually dark brown but may be rufous more or less darkened distally on each segment. Head and thorax dark brown with brown hairs; abdomen dark brown above, ochreous beneath. Legs dark brown, heavily scaled ochreous and with ochreous hairs; fore tibiae with minute central epiphyses; mid tibiae spined with single pair of spurs; hind tibiae smooth with two pairs of spurs.

Genitalia: Tegumen short, rounded; uncus moderately long, in lateral view extends cephalad over tegumen, caudally hooked, in dorsal view ovoid, bearing dense dorsal hair tuft and with long slender undivided and untapered caudal extension; gnathos shorter than uncus, undivided, with small shagreened central portion at caudal end. Valvae symmetrical, short (1.05 x combined length of tegumen and uncus); harpe narrow, not dentate, not upturned dorsad, not overlapping rounded ampulla with which it extends caudad equally. Penis moderately long (1.5 x length of valva); phallobase very short; single dentate cornutus. Saccus short, rounded. Juxta and transtilla small but prominent, transtilla with short, pointed lateral arms.

FEMALE: Upperside: Forewing as male; one paratype like the darker male form, one like the paler. Cell spot narrowly reaches radius in both.

Hindwing as male; paler paratype has ochreous rather than yellowish white discal spot of the male, although slightly paler than in the darker paratype.

Underside: Forewing as male, but costa and apical area of the paler paratype is pale yellowish grey rather than rufous.

Hindwing as male but pale yellowish grey in the paler paratype where male is rufous; darker paratype with subterminal mauve scaling between radius and Cu_2 . In both paratypes the pale discal spot is more prominent than in the male.

Palpi, antennae, head, thorax, legs and abdomen as male. Antennal nudum 12.

Genitalia: Lamella postvaginalis smooth, deeply and narrowly indented centrally on caudal margin. Lamella antevaginalis not developed except as lateral lobes of the eighth sternite. Antrum weakly sclerotized. Ductus bursae short, with a poorly defined internal sclerotized process cephalad of the antrum. Ductus seminalis attached ventrally at cephalad end of internal sclerotized process. Corpus bursae double, with internal spicules, no signa. Papillae anales rather quadrate; apophyses posteriores long; apophyses anteriores very short, barely developed.

Wing measurements: ♂ forewing 12 x 6 mm to 13 x 7 mm (holotype 12½ x 6 mm) averaging 12.54 x 6.54 mm in type series of 27. ♀ forewing 12½ x 6½ mm in both paratypes.

Type material: Holotype ♂, Colombia: Cauca; Parque Nac. de Purace, Paramo del Buey above Coconuco, 3000 m, 10.iii.76, S. R. & L. M. Steinhauer, bearing the following labels: printed white label, COLOMBIA: CAUCA Purace Ntl. Pk., Param (sic!) del Buey 3000 m. 10.iii.1976 S. & L. Steinhauer; printed white label, A. C. Allyn Acc. 1976-9; printed and hand printed white label, Genit. Vial SRS-2566; printed and hand printed red label, HOLOTYPE ♂ *Dalla simplicis* S. R. Steinhauer, printed and hand printed white label, SRS Database No. 342; printed and hand printed white label, Allyn Museum Photo Nos. 881017/11,12 & 881017A/11,12. There are 26 ♂ and two ♀ paratypes, 24 ♂ same data as holotype (one ♂, Genit. Vial SRS-2646); one ♂, Colombia: Quindio-Tolima; La Linea (Quindio pass) 3300 m 9.xi.74 S. R. & L. M. Steinhauer (Genit. Vial SRS-2547); one ♂, Ecuador: Pichincha; La Viudilla 3500 m vii.1971, R. de Lafebre (Genit. Vial SRS-2567); two ♀, Colombia: Quindio; TV Tower at Quindio pass (La Linea), 28.i.86, J. B. Sullivan, (1, Allyn Museum Photo Nos. 890612A/16,17 & 890622/10,11, Genit. Vial SRS-3195), (one, Genit. Vial SRS-3196). The holotype and 26 ♂ paratypes are deposited in the Allyn Museum of Entomology; the two ♀ paratypes are in the collection of J. Bolling Sullivan.

D. simplicis is close to *D. seirocastnia* Draudt, 1923 and *D. pantha* Evans, 1955. It is smaller than either; a series of 13 ♂ *seirocastnia* from the type locality of *simplicis* have the forewing length varying between 14 and 15 mm (Evans indicates 13 mm but Draudt's figure measures 15); Evans indicates 14 mm for *pantha*. On the upperside, in the hindwing discal spot of *seirocastnia*, the cubital veins are darkened, but not in *simplicis* nor *pantha*; the forewing cell spot of both *seirocastnia* and *pantha* extends nearly full width across the cell, but tapers to a point and does not reach the radius in ♂ *simplicis*. On the underside, the forewing discal band extends broadly behind the cell in *seirocastnia* and *pantha*, but is usually completely lacking in *simplicis*; the forewing spot in M_3-Cu_1 , sometimes present in *simplicis*, is missing in *seirocastnia* and in the holotype of *pantha*; there are usually some postdiscal dark markings on the hindwing of *seirocastnia* not found in the other two.

The ♂ genitalia are quite different in all three: the valva of *pantha* is similar to that of *simplicis* but has a longer harpe; the harpe of *seirocastnia* is very distinct in being very broad and caudally excavate in the center. The uncus of *simplicis* is undivided and slender, that of *seirocastnia* broad and laterally bilobed, rather similar to *pantha*. I have not seen the females of *seirocastnia* nor *pantha* for comparison with female *simplicis*.

Dalla puracensis, new species

Figures 15, 16 (♂); 74 (♂ genitalia)

MALE: Upperside: Forewing dark brown with a few scattered ochreous scales in basal third. Opaque yellow discal band composed of three spots separated by dark veins in cell, Cu_1-Cu_2 and Cu_2-2A . The cell spot triangular, centered behind origins of R_1 and R_2 , usually not quite reaching radius; spot in Cu_1-Cu_2 large, quadrangular, its inner edge in line with inner edge of cell spot, extending distad beyond origin of Cu_1 , causing band to be sharply convex on its outer margin; spot in Cu_2-2A smaller, oblique, more or less quadrate, subequal to cell spot and extending basad slightly along 2A causing inner edge of band to be concave. No subapical spots. Fringe rufous.

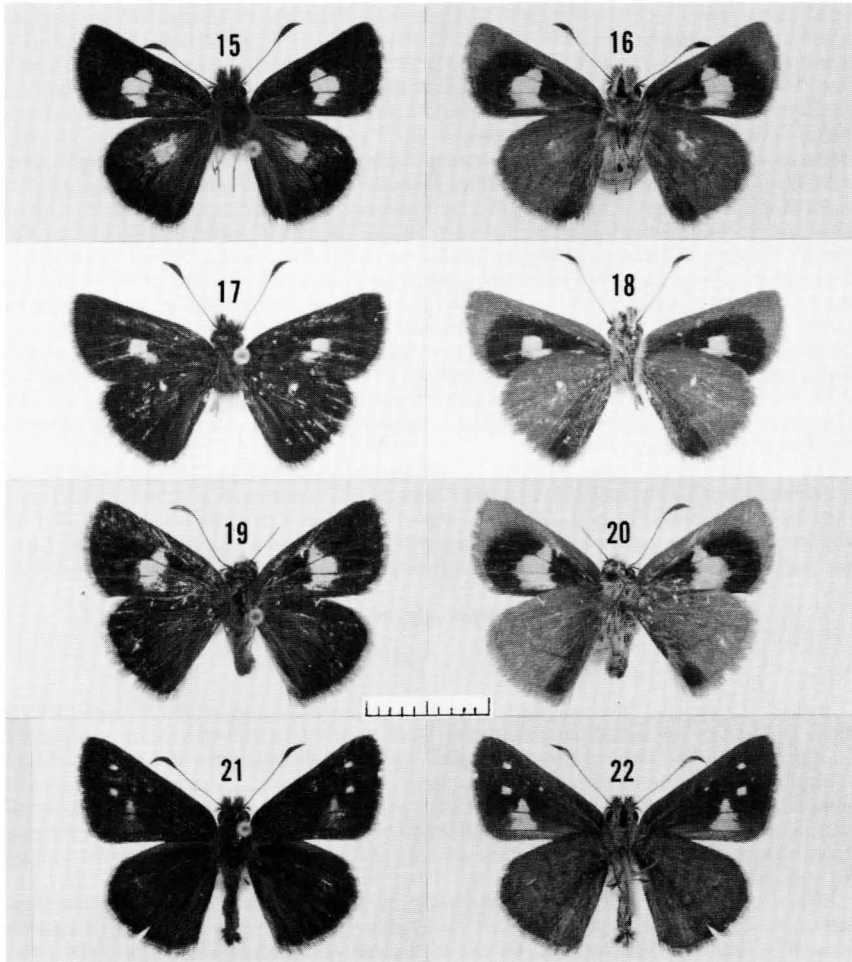
Hindwing the same dark brown as forewing, very slightly paler along costa; basal half behind R_s lightly clothed with long ochreous hairs. Opaque yellow cell end spot covering somewhat less than half the cell. Distad of the cell, in M_1-M_3 , there is scattered yellow scaling forming a vague distal extension of the cell spot. Fringe rufous.

Underside: Forewing dull dark brown, costa and apical area rufous. Discal band from above repeated, slightly more ochreous except in Cu_2-2A where it is expanded by a halo of pale yellow overscaling. Fringe rufous.

Hindwing rufous, becoming dull dark brown behind 1A with more or less heavy scattered ochreous scaling. Discal yellow spot from above barely suggested. Fringe rufous.

Palpi hairy, dark brown with admixed brown and ochreous hairs; third segment slender, correct, almost completely hidden in hairs of second segment. Antennae slightly greater

than half costa; shaft dark brown above, yellowish white beneath, checkered in front; club stout, arcuate, dark brown above, yellowish white beneath; nudum brown, dark at tip of apiculus, 12 segments in holotype and three paratypes, 11 in one paratype. Head and thorax dark brown clothed in brown and ochreous hairs. Abdomen above dark brown with ochreous scales and hairs, ochreous beneath. Legs dark brown, heavily scaled ochreous; fore tibiae with minute central epiphyses; mid and hind tibiae spined, mid tibiae with a single pair of spurs, hind tibiae with two, of which the upper pair is somewhat



Figures 15-22. (Scale line = 1 cm) *Dalla* spp. 15,16 *D. puracensis*, new species, ♂ Holotype upperside (15), underside (16) (Photo Nos. 881017/13,14) Colombia: Cauca. 17,18 *D. puracensis quindio*, new subspecies, ♂ Holotype upperside (17), underside (18) (Photo Nos. 890622/12,13) Colombia: Quindio. 19,20 *D. puracensis cotopa*, new subspecies, ♂ Holotype upperside (19), underside (20) (Photo Nos. 881017/15,16) Ecuador: Cotopaxi. 21,22 *D. calima*, new species, ♂ Holotype upperside (21), underside (22) (Photo Nos. 881017/17,18) Colombia: Valle del Cauca.

reduced.

Genitalia: Tegumen short, broad, rounded; uncus with paired broad hairy lobes overlapping tegumen, caudal extension very broad in dorsal view; gnathos bifurcate, shagreened, extending caudad beyond uncus. Valvae symmetrical, slender, moderately long (1.4 x combined length of tegumen and uncus); harpe distally upturned, extends caudad beyond the rather narrow ampulla. Penis long (1.4 x length of valva), slightly flared at distal end; phallobase very short; single small, dentate cornutus. Saccus relatively short, only slightly tapered. Juxta and transtilla prominent, transtilla caudally trifid.

FEMALE: Unknown.

Wing measurements: ♂ forewing 13 x 6½ mm in type series of five.

Type material: Holotype ♂, Colombia: Cauca; Parque Nac. de Purace, Paramo del Buey above Coconuco, 3000 m, 10.iii.76, S. R. & L. M. Steinhauser, bearing the following labels: printed white label, COLOMBIA: CAUCA Purace Ntl. Pk., Param (*sic!*) del Buey 3000 m. 10.iii.1976 S. & L. Steinhauser; printed white label, A. C. Allyn Acc. 1976-9; printed and hand printed white label, Genit. Vial SRS-2558; printed and hand printed red label, HOLOTYPE ♂ *Dalla puracensis* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881017/13,14 & 881017A/13,14. There are four ♂ paratypes: three same data as holotype (one, Genit. Vial SRS-3199), one, same location and collectors as holotype, 30.i.1976. The holotype and four paratypes are deposited in the Allyn Museum of Entomology.

D. puracensis is probably more closely related to *D. seirocastnia* and *D. pantha* than to any other species. This will be discussed following the descriptions below of two new subspecies of *puracensis*.

Dalla puracensis quindio, new subspecies

Figures 17, 18 (♂)

MALE: Upperside: Forewing as *puracensis*, but spots in Cu₁-Cu₂ and Cu₂-2A smaller; cell spot missing. Hindwing as *puracensis*, but without discal markings.

Underside as *puracensis* except for smaller forewing spots in Cu₁-Cu₂ and Cu₂-2A and lack of forewing cell spot. Hindwing unmarked.

Palpi, antennae, head, thorax, legs and abdomen as *puracensis*, but no apparent fore tibial epiphyses. Antennal nudum 12.

Genitalia as *puracensis*.

FEMALE: Unknown.

Wing measurements: ♂ forewing 13 x 6½ mm in both specimens of the type series.

Type material: Holotype ♂, Colombia: Quindio; Alto Rio Quindio, E. above Salento, 2500 m, 24.1.1987, J. Bolling Sullivan, bearing the following labels: printed and hand printed white label, Jan. 24 1987 Alto Rio Quindio East above Salento Quindio, Colombia J. Bolling Sullivan (hand printed on reverse, 2500m); hand printed white label, JBS-104; printed and hand printed white label, Genit. Vial SRS-3197; printed and hand printed red label, HOLOTYPE ♂ *Dalla puracensis quindio* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 890612A/18,19 & 890622/12,13; printed and hand printed white label, Allyn Museum Acc. No. 1989-5. There is one ♂ paratype, same data as holotype, dated 25.i.1987. The holotype is deposited in the Allyn Museum of Entomology; the paratype is in the collection of J. Bolling Sullivan.

The principal difference between *quindio* and *puracensis* is the lack of forewing cell spot and hindwing discal spot in *quindio*.

Dalla puracensis cotopa, new subspecies

Figures 19, 20 (♂)

MALE: Upperside: Forewing as *puracensis* but spot in Cu₂-2A is larger, more quadrate,

not oblique.

Hindwing as *puracensis* but lacking discal yellow markings as in *quindio*.

Underside as *puracensis* but forewing spot in Cu_2-2A is larger.

Palpi missing; antennae as *puracensis*, nudum 12 in holotype and one paratype; head, thorax and abdomen as *puracensis*; legs as *puracensis* but no fore tibial epiphyses.

Genitalia as *puracensis*.

FEMALE: Unknown.

Wing measurements: ♂ forewing 13 x 7 mm in holotype and one ♂ paratype.

Type material: Holotype ♂, Ecuador: Cotopaxi; Rio Mulatos, 4000 m, x.1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: COTOPAXI Rio Mulatos, 4000 m.; x.1971 R. de Lafebre; printed white label, A. C. Allyn Acc. 1972-2; printed and hand printed red label, HOLOTYPE ♂ *Dalla puracensis cotopa* S. R. Steinhäuser; printed and hand printed white label, Allyn Museum Photo Nos. 881017/15,16 & 881017A/15,16. There is one ♂ paratype, Ecuador: Cotopaxi; Milimbanco 3900 m, ix.1971, R. de Lafebre (Genit. Vial SRS-2568). The holotype and paratype are deposited in the Allyn Museum of Entomology.

D. p. cotopa differs from *puracensis* principally in lacking hindwing markings as well as the other small differences noted in the description. It differs from *D. p. quindio* in having a forewing cell spot. The lack of fore tibial epiphyses may be a furtherance of the apomorphic development that has reduced the size of the epiphysis in many of the Heteropterinae.

I consider *puracensis* and its subspecies, *quindio* and *cotopa* to be closely related to *D. seirocastnia* and *D. pantha* on the basis of the distinctive latero-dorsal lobes of the uncus and the broad terminus of the uncus. They are immediately distinguished from all other *Dalla* species by the presence on the forewing of a prominent pale discal band but no subapical spots.

Dalla calima, new species

Figures 21, 22 (♂); 75 (♂ genitalia)

MALE: Upperside: Forewing dark brown with scattered, sparse, pale yellow scales more concentrated in basal area but may extend thinly to apex; in the type series of 12 specimens, three, including the holotype have relatively plentiful yellow scales in the apical area, eight have at least a trace, and one has no pale scaling distad of the basal third. There are small white or whitish spots as follows: opaque white subapical spot in R_5-M_1 ; a second subapical spot in R_4-R_5 is present in three paratypes as an opaque white dot, in the holotype and three paratypes as a trace, but completely lacking in five paratypes; opaque white spot in M_3-Cu_1 ; an upper cell spot may be present, more or less centered between origins of R_1 and R_2 , opaque white in two paratypes, a pale trace due to view of underside pale spot through semi-transparency in the holotype and five paratypes, but completely lacking in four paratypes; a rather poorly defined spot in Cu_1-Cu_2 behind the origin of Cu_1 , usually seen only due to transparency from below, but as an opaque white transverse dash in one paratype, and with some opaque white scaling in another; the underside white spot in Cu_1-2A shows above as one or two vague pale smudges. Fringe paler brown.

Hindwing same dark brown as forewing, slightly paler along costa, clothed in long, fine, paler brown hairs mostly behind R_5 ; otherwise unmarked. Fringe pale brown.

Underside: Forewing dull dark brown, somewhat ferruginous in costal and apical areas, paler, greyish in anal cell; sparse, scattered pale yellowish scales generally forward of the cubitus. Opaque pale yellowish white spots as follows: subapical spot in R_5-M_1 ; a second subapical spot in R_4-R_5 in three paratypes, present as a trace of pale scaling in the holotype and two paratypes, absent in six paratypes; upper cell spot prominent in the holotype and seven paratypes, absent in three paratypes and a mere trace in one paratype; at least a trace of spots in M_1-M_2 and M_2-M_3 in four paratypes, present only in M_1-M_2 in three paratypes, present only in M_2-M_3 in the holotype, completely missing in four paratypes;

M₂-Cu₁; Cu₁-Cu₂; large spot in Cu₂-2A which becomes paler white in 1A-2A. Fringe concolorous.

Hindwing rather ferruginous brown, heavily overscaled ochreous grey; an indistinct, irregular, narrow postdiscal band of darker brown, outwardly concave crescents from Sc+R₁-Rs to Cu₂-2A and a similar double discal band, like a chain of round links, passing through the cell end; a very vague dark dash in mid cell. Fringe concolorous.

Palpi hairy, dark brown with intermixed dark brown and pale yellow hairs; third segment slender, porrect, nearly hidden in hairs of second segment. Antennae slightly greater than half costa; shaft dark brown behind, yellowish beneath, prominently checkered above and in front; club stout, arcuate, dark brown above, yellowish beneath; nudum 11 in holotype, 12 in 12 measurable paratypes, brown, becoming darker at tip of apiculus. Head and thorax dark brown with minor ochreous hairs and scales, abdomen dark brown above, scaled ochreous beneath. Legs dark brown, heavily scaled ochreous; fore tibiae with very minute central epiphyses usually completely hidden in the tibial hairs; mid and hind tibiae spined, single pair of spurs on each.

Genitalia: Tegumen ovoid, long, narrow; uncus slender, undivided, subequal in length to tegumen; gnathos long, slender, reaches caudal end of uncus, lightly shagreened at tip. Valvae symmetrical, slender, about as long as combined length of tegumen and uncus; harpe long, slender, of even width, dentate, especially at distal end, curved evenly dorsad, bent inward at end, only slightly overlapping narrow, evenly rounded ampulla, if at all. Penis long, slender, about 1.3 x length of valva; phallobase short; single small cornutus terminating in a single large sharp point and armed with three or four small teeth. Saccus narrow, rather short. Juxta and transtilla prominent, transtilla shallowly U-shaped at caudal end.

FEMALE: Unknown.

Wing measurements: ♂ forewing 12 x 6 mm to 13½ x 7 mm (holotype), averaging 12.82 x 6.75 mm in type series of 14.

Type material: Holotype ♂, Colombia: Valle del Cauca; Rio Calima, below dam, 1300 m, 24.i.76, S.R. & L.M. Steinhauser, bearing the following labels: printed and hand printed white label, COLOMBIA: Valle del Cauca; Rio Calima, below dam 1300m. 24/I/1976 No. CH-1445 Coll. by S.R. y L.M. Steinhauser; printed and hand printed white label, A. C. Allyn Acc. 1974/23; printed and hand printed white label, Dalla NEAR eburones ♂ Det: S.R. Steinhauser; printed and hand printed red label, HOLOTYPE ♂ Dalla calima S. R. Steinhauser; printed and hand printed white label, SRS Database No. 369; printed and hand printed white label, Allyn Museum Photo Nos. 881017/17,18 & 881017A/17,18. There are 13 ♂ paratypes, five same data as holotype (one, Genit. Vial SRS-2796), three same location and collectors as holotype dated 10.i.76 (one, Genit. Vial SRS-2560), one same location as holotype, dated 10.i.76, Leg. D. Bouton, three same location as holotype dated 6.ii.87, Leg. J. Bolling Sullivan, one Colombia: Valle del Cauca; Rio Anchicayá 1150 m, 30.xii.73, S.R. & L.M. Steinhauser. The holotype and 10 paratypes are deposited in the Allyn Museum of Entomology; three paratypes are in the collection of J. Bolling Sullivan.

D. calima is very closely related to *D. crithote* (Hewitson, 1874). In a series of 15 ♂ *crithote* from Ecuador, including the holotype, the forewing length varied from 13 mm (holotype) to 14 mm, averaging 13.43 mm. Another series of seven ♂ *crithote* from Colombia: Valle del Cauca; Rio Anchicayá varied from 14 to 15 mm, averaging 14.43 mm and may represent a separate subspecies. At 12.82 mm, the ♂ forewing of *calima* is slightly smaller.

The principal differences between *calima* and *crithote* are in the forewing maculation which is much more pronounced in *crithote*. Specific differences are: 1) the upperside forewing of *crithote* has three subapical spots, the upper two of which are faint in two specimens but distinct in 20, including the holotype, whereas in *calima*, six paratypes have but a single subapical spot in R₅-M₁, the holotype and three paratypes show a trace of a second spot and four paratypes have a definite second spot in R₄-R₅, but the spot in R₄-R₅ is always absent; 2) the upperside forewing cell spot is clearly present in 19 *crithote*,

including the holotype, and present as a trace in the other three, whereas it is present as a trace in the holotype and six paratypes of *calima*, clearly present in two paratypes, but absent in five; 3) on the upper and underside forewing of *crithote* there are always spots in M_1 - M_2 and M_2 - M_3 distad of the subapical spots, whereas in *calima* they are present only on the underside as traces and usually not in both spaces; 4) the underside forewing cell spot is always present and prominent in *crithote*, whereas in *calima* it is small in the holotype and nine paratypes, a trace in one paratype and absent in three. In addition to these maculation differences, the antennal nudum is black in *crithote*, brown in *calima*.

In the ♂ genitalia the only consistent difference I could find is in the cornutus; the prominent long tooth of *calima* is missing in *crithote* (see Fig. 76). I cannot treat *calima* as a subspecies of *crithote* as they are sympatric at the Rio Anchicayá in Colombia.

Dalla crithote (Hewitson, 1874)

Figure 76 (♂ genitalia)

Cycloptides crithote Hewitson, 1874:[121], Pl.61, f.15,16

Because of the great similarity between *crithote* and *D. calima*, I have also figured the male genitalia of *crithote* in a bit more detail than shown in previous illustrations (Hayward, 1943:f.12; Evans, 1955:Pl.56, f.62), for comparison with *calima*.

Part IIb, **HESPERIINAE** (*Vinius* Group & misc.)

Lento lotus (Bell, 1947), new combination

Mnestheus lotus Bell, 1947(1330):7,8, f.3

= *Lento flavocostata* (Plötz, 1884), Evans (1955:57)

Evans described *flavocostata* as having "a narrow irregular discal band from space 2 to space 6" on the underside hindwing. This band is not shown in the Seitz illustration (Pl. 183f) and Plötz's description does not clarify this discrepancy. The band is present in *lotus*, which is more heavily marked and with broader ochreous bands than *flavocostata*. The ♂ genitalia illustrated by Evans for *flavocostata* shows the uncus narrowly bifurcate in ventral view, and the gnathos broadly so, whereas in *lotus* the uncus is entire and quite narrow and the gnathos is narrowly bifurcate, features not shown in Bell's illustration. These taxa are sympatric in Rio de Janeiro, Brasil and must be treated as separate species.

Lento grosso, new species

Figures 23, 24 (♂); 77 (♂ genitalia)

MALE: Upperside: Forewing with oval brand in base of Cu_1 - Cu_2 ; origin of Cu_2 much nearer origin of Cu_1 than wing base. Ground color ochreous with dark brown distal border from about the end of Sc on the costa to slightly distad of mid anal cell on the inner margin. There is a poorly defined dark brown spot covering the bases of R_5 - M_1 and M_1 - M_2 , extending slightly into the cell end as dark brown scaling forward of the trace of the median vein and further extending basad as sparse dark brown scaling along the median nearly to mid cell, this spot connected to the distal border at the apex between R_2 and R_5 . There is another vague dark brown smudge at the base of the anal cell. Fringe ochreous brown at apex becoming ochreous at tornus.

Hindwing dark brown with large, approximately circular, ochreous discal area covering distal third of cell and extending from R_s to 1A, reaching to within about $\frac{1}{2}$ mm of the termen, not entering base of R_s - M_1 and vaguely extended to wing base by ochreous overscaling in base of cell and Cu_2 -1A. Basal half or more of wing behind M_1 clothed in long ochreous hairs, more heavily concentrated along 1A as a narrow ochreous streak. Fringe ochreous.

Underside: Forewing ochreous, slightly paler than above. There is a poorly defined dark brown streak at cell end extending into M_1 - M_3 as dark brown scaling; the base of $Sc-R_{11}$, basal third of cell, basal portion of Cu_2-1A distad to outer edge of brand, base of Cu_1 - Cu_2 just covering the brand, all of $1A-2A$ except a narrow central streak behind $1A$, all of the anal cell, a rectangular terminal spot in Cu_2-2A and a smaller preterminal spot in Cu_1 - Cu_2 are all dark brown. In the distal half of the costa and along the termen there is a dark brown hairline, slightly heavier at vein ends. Fringe concolorous.

Hindwing same ochreous ground color as forewing except for the following: dark brown with scattered ochreous scales in $2A-3A$; dark brown dots at vein ends and suggestion of a dark terminal hairline. Fringe concolorous.

Palpi ochreous with some dark brown hairs above; third segment long, slender, pointed, brown above, ochreous beneath. Antennae greater than half costa, brown above, ochreous beneath, very faintly checkered; clubs broken. Head and thorax brown, heavily clothed in ochreous hairs. Abdomen brown above with ochreous scaling, ochreous beneath. Legs ochreous; fore tibiae with long epiphyses overlapping tarsi; mid tibiae missing; hind tibiae smooth, with two pairs of spurs.

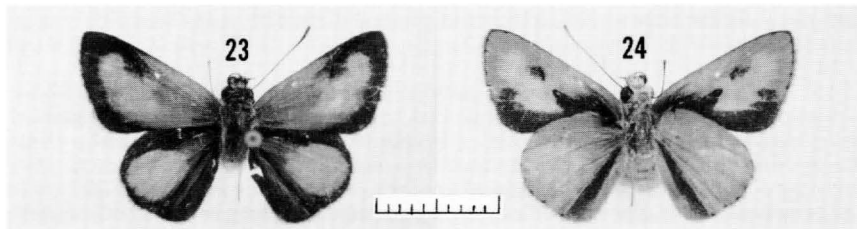
Genitalia: Uncus broad, undivided, slightly excavate at caudal end in dorsal or ventral view; gnathos, in ventral view, twice the width of uncus but tapering caudally to a bilobed end approximately the width of the uncus which is slightly longer. Valvae symmetrical, broad, slightly longer than combined length of tegumen plus uncus; harpe very broad, its caudal end a bluntly rounded triangle, not dentate; ampulla a slender "finger" widely divergent from harpe and shorter. Penis long, nearly twice the length of the valva, slender; phallobase very short; long, slender, weakly sclerotized cornutus, nearly half the length of the penis. Saccus rather long, tapered. Juxta and transtilla not prominent.

FEMALE: Unknown.

Wing measurements: Forewing δ holotype, 14 x 7 mm.

Type material: Only the holotype δ , Brasil: Mato Grosso; km 876 Cuiaba-Santarem Hwy. 15.vii.78, C. Callaghan, bearing the following labels: printed and hand printed white label, BRASIL: MATO GROSSO km. 876 Cuiaba-Santarem Hy.; 15.vii.1978 C. Callaghan; printed and hand printed white label, Allyn Museum Acc. 1985-8; printed and hand printed white label, Genit. Vial SRS-2629; printed and hand printed red label, HOLOTYPE δ *Lento grosso* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881017/21,22 & 881017A/21,22. The holotype will be deposited in the Universidade Federal do Paran, Curitiba, Brasil, but is temporarily on loan to the Allyn Museum of Entomology.

L. grosso is unlikely to be confused with other *Lento* species because of its generally larger size and its very extensive ochreous coloring, more so than in any other species. The forewing venation and brand are like that of *L. imerius* (Pltz, 1884), thus differing from all other *Lento* species with the possible exception of *L. vicinus* (Pltz, 1884) for which the brand and venation have not been described. The δ genitalia of *grosso* are broadly similar to the *L. krexoides* (Hayward, 1940) group of species discussed below.



Figures 23,24. (Scale line = 1 cm) *Lento grosso*, new species δ Holotype upperside (23), underside (24) (Photo Nos. 881017/21,22) Brasil: Mato Grosso.

Lento lora* Evans, 1955, new statusLento krexoides lora* Evans, 1955:58, Pl.57

Evans described three new taxa as subspecies of *krexoides*, *lora*, *ludo* and *genta*. These are not common in collections and insufficient distributional data have been accumulated to prove their geographic isolation from each other and from *krexoides*. The ♂ genitalia of all four taxa are individually distinct and quite different from the others, thus all three of Evans' subspecies are raised to specific rank. (See below)

Lento ludo* Evans, 1955, new statusLento krexoides ludo* Evans, 1955:58, Pl.57***Lento genta* Evans, 1955, new status***Lento krexoides genta* Evans, 1955:58, Pl.57***Anthoptus epictetus* (Fabricius, 1793)**

Figures 78 (♂ genitalia); 100 (♀ genitalia)

Hesperia epictetus Fabricius, 1793(3):1:330

The genitalia of both sexes of *A. epictetus* are figured to show its congenerity with *Hesperia insignis* Plötz, 1882, as discussed below.

***Anthoptus insignis* (Plötz, 1882), new combination**

Figures 79 (♂ genitalia); 101 (♀ genitalia)

Hesperia insignis Plötz, 1882(43):316*Nastra insignis* (Plötz, 1882), Evans (1955:127)=? *Cobalus nigritulus* Mabilie, 1883(27):lxii

There are so many similarities between *A. insignis* and *A. epictetus* that their congenerity becomes obvious. Both species have smooth mid tibiae, unlike *Hesperia lherminier* Latreille, [1824], type species of *Nastra* Evans, 1955, with three or four heavy spines on the mid tibiae; the antennal nudum is blackish brown in *epictetus* and *insignis*, pale brown in *lherminier*. Other features such as the long fore tibial epiphysis, long antennal club, nudum of 3/8, hind tibiae with two pairs of spurs, and lack of secondary sexual characters in the male are common to all three. In the ♂ genitalia, the similarities between *insignis* and *epictetus* are striking. Both have widely bifurcate uncus and gnathos of nearly identical form. Both have heavily shagreened lateral processes on the gnathos, absent in *lherminier*. Both have a short, rather broad saccus, unlike the long slender saccus of *lherminier*. Both have a long slender penis without cornutus or terminal decoration, unlike the much broader penis of *lherminier* with its prominent cornutus and large ventral tooth at the distal end of the penis.

In the ♀ genitalia, *insignis* and *epictetus* are nearly identical; their lamellae post-vaginales are straight on their caudal margins, very narrow longitudinally and covered with microtrichia, that of *lherminier* is deeply bifurcate, strongly sclerotized and smooth. The lamellae antevaginales of *epictetus* and *insignis* are broad, with two deeply divided, caudally pointed lateral lobes, densely covered with microtrichia, but that of *lherminier* is not developed at all. The antra of *epictetus* and *insignis* are long, well sclerotized, with small, sclerotized dorsal tubes directed caudad at their cephalad ends where the ducti seminales are connected, and, at their caudal ends, bear prominent ventral, caudally projecting central processes between two lateral "prongs". These "prongs" more or less

coincide with the caudal edge of the lamella antevaginalis in *epictetus*, but are well separated caudad from it and more prominent in *insignis*, in which the central caudal process is broader and may be shallowly excavate caudally. The antrum of *insignis* is shorter than that of *epictetus*, but the antrum of *lherminier* is shorter still and without processes at either end. Other differences are illustrated in the genitalia figures of the three species.

There is some doubt about the synonymy of *Cobalus nigrutilus* which was based on a ♀ from Panama. Since the ♀ of *insignis* is superficially indistinguishable from *epictetus*, *nigrutilus* might easily be a synonym of either. Examination of the genitalia of the type is required to be sure of the relationship.

Evans (1955:7) divided the Hesperinae into eight groups, H through O, and described group I. **Vinius Group** as "Tawny forms extracted from *Apaustus Group* [J] for convenience." This artificial division resulted in two clearly congeneric species being placed in different groups.

Nastra lherminier (Latreille, [1824])

Figures 80 (♂ genitalia); 102 (♀ genitalia)

Hesperia l'Herminier Latreille, [1824] 9(2):777

The genitalia of both sexes of *lherminier* are illustrated to demonstrate the considerable differences that exist between it and *epictetus* and *insignis*, as discussed above.

Zalomes Bell, 1947

= *Nylla* L. D. & J. Y. Miller, 1972, new synonymy

Bell established the genus *Zalomes* to include species superficially like *Molo* Godman, 1900 but differing in wing shape, male secondary sex characters and hind tibiae. He included two species, *colobus* Bell, 1947, the type species, now treated as a synonym of *Hesperia biforis* Weymer, 1890, and *Molo conspicua* Hayward, 1941. When Hayward described *conspicua*, he also illustrated the ♂ genitalia of *Pamphila kenava* Butler, 1870, which had been removed to *Molo* by Mabille (1904:158), and of what he thought to be *Pamphila humeralis* Mabille, 1878, now treated as a synonym of *Hesperia mango* Guénéé, 1865, the type species of *Molo*. What Hayward thought was *humeralis* was actually *Molo apella* Schaus, 1913, now treated as a species of *Racta* Evans, 1955. He recognized that *kenava* was not congeneric with *conspicua*, but did not state his reasons.

Evans placed *kenava* in *Zalomes* despite its differences from *biforis* in ♂ brands and hind tibial spurs, and subdivided it into five subspecies. He also split *biforis* into five subspecies: the nominate, *conspicua*, *merida* Evans, 1955, *wanda* Evans, 1955 and *illimanensis* Evans, 1955.

L. D. & J. Y. Miller, 1972 established a new genus, *Nylla*, to accommodate two new species they described from Ecuador: *cordillera*, the type species, and *allynorum*. They noted the superficial resemblance of *Nylla* to both *Molo* and *Racta*, but considered it structurally closer to *Zalomes*. Unfortunately, the only examples they had of *Zalomes* for comparison were of *kenava*, which they correctly recognized as not congeneric. However, both *cordillera* and *allynorum* are congeneric with *biforis*, and are therefore *Zalomes* species, making *Nylla* a synonym of *Zalomes*.

Zalomes encompasses a group of high altitude taxa which, although not necessarily rare in the field, are rather scarce in collections, probably because so few collectors ever reach their habitat. Evans had before him at the BM(NH) a total of 17 ♂, 5 ♀, including 7 ♂, 3 ♀ of *biforis*, only the ♂ type of *merida*, 2 ♂, 1 ♀ of *conspicua*, 2 ♂ of *wanda* and 5 ♂, 1 ♀ of *illimanensis*. At the AME there are 43 ♂, 9 ♀, including 2 ♂, 2 ♀ of *biforis*, 9 ♂, 1 ♀ of *allynorum*, 23 ♂, 3 ♀ of *cordillera* and 9 ♂, 3 ♀ in three new species to be described below. These three, as well as the two species described by the Millers are all very similar to *biforis* and sympatric with it in Colombia and/or Ecuador. The known

range of *biforis* is from southern Ecuador (Loja) to central Colombia; *cordillera* has been taken all through Ecuador and into central Colombia; *allynorum* is known from central Ecuador and south central Colombia; *conspicua* is known from northern Ecuador to northern Peru and the three new species described below are all from Ecuador. Considering their distribution pattern, these taxa cannot be considered subspecies, which raises the question of subspecific relationships for the other three: *merida*, known from a single ♂ from Venezuela, *wanda*, known from 2♂ from northern Peru and *illimanensis* from southern Peru and Bolivia. I prefer to treat them as separate and distinct species rather than subspecies, because I do not know to which non-sympatric taxon they are most closely related.

Zalomes biforis (Weymer, 1890)

Figures 81 (♂ genitalia); 103 (♀ genitalia)

Hesperia biforis Weymer, 1890:127, Pl.4, f.9
= *Zalomes colobus* Bell, 1947:9-10, f.8

The ♂ and ♀ genitalia of *biforis* are illustrated to show differences from other *Zalomes* species (see discussion following descriptions below of new species).

Zalomes merida Evans, 1955, new status

Zalomes biforis merida Evans, 1955:67

Zalomes conspicua (Hayward, 1941), new status

Molo conspicua Hayward, 1941:530,531, f.13
Zalomes biforis conspicua (Hayward), Evans (1955:67)

Zalomes wanda Evans, 1955, new status

Zalomes biforis wanda Evans, 1955:67

Zalomes illimanensis Evans, 1955, new status

Zalomes biforis illimanensis Evans, 1955:68

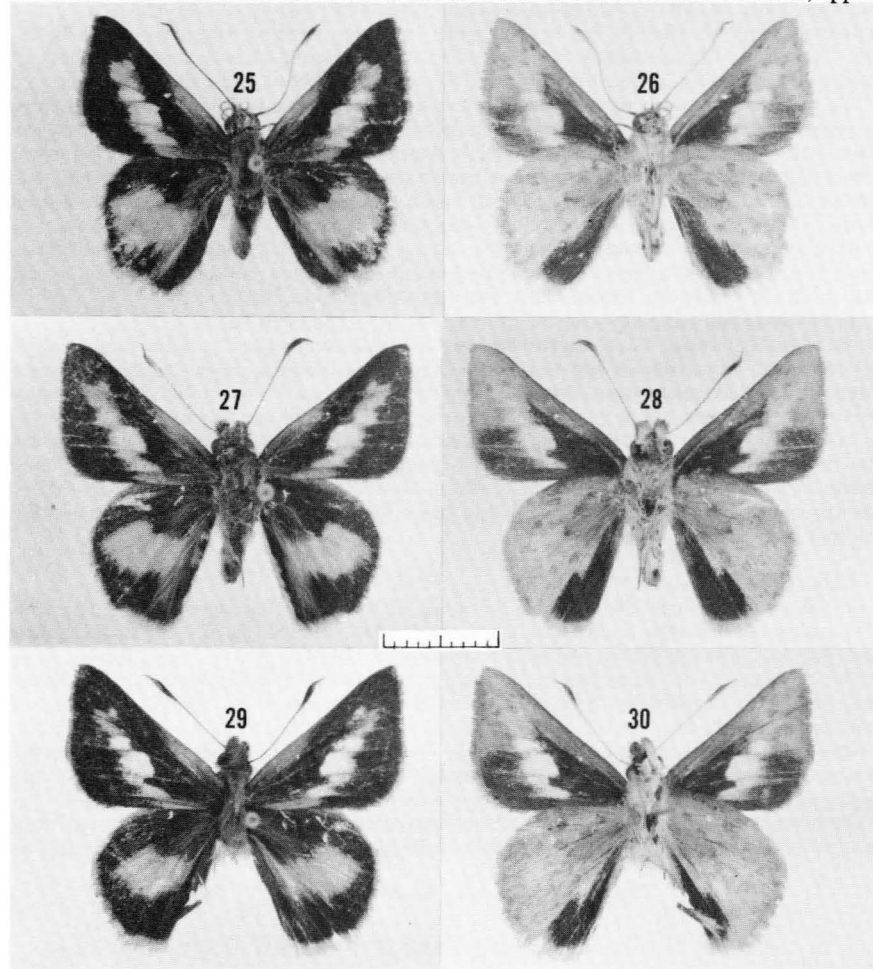
Zalomes banco, new species

Figures 25, 26 (♂); 82 (♂ genitalia)

MALE: Upperside: Forewing dark brown with poorly defined orange fulvous markings as follows: costal streak in the costal cell, Sc-R₁ from base to slightly beyond origin of R₁, upper discal cell from base to origin of R₁, lower discal cell from base to origin of Cu₂, beyond which it is continued as scattered fulvous scaling to about midway between origins of Cu₁ and Cu₂; an irregular discal band from approximately the center of the anal cell to R₅-M₁, beyond which it is continued faintly by a few orange scales in the base of R₄-R₅. The spot in R₅-M₁ is approximately half the size of that in M₁-M₂ and their inner edges are more or less in line. The largest spot, in Cu₁-Cu₂, and the smaller spot above it in M₂-Cu₁ are centrally semi-hyaline. Cu₂ arises from the cell much nearer to the cell base than to the origin of Cu₁. There is a small, angular, dull, dark grey brand bordered with black in the base of Cu₁-Cu₂, a similar, slightly longer brand behind Cu₂ and appressed to it, extending from the origin of Cu₂ to the distal end of the angular brand, and a smaller brand forward of 2A. Fringe fulvous, becoming paler, more yellow at the tornus, then dark brown on inner margin.

Hindwing the same dark brown as forewing, paler and yellowish along the costa. Large, poorly defined orange fulvous discal spot from R_s-M_1 , where it is heavily speckled with dark brown scales, to midway between 2A and 3A. The spot nearly reaches the termen in M_1-M_3 , where the dark brown border is less than 1 mm, becoming slightly broader behind M_3 and widening to about 3 mm in Cu_2-2A . Behind 2A the orange fulvous is extended to the termen in the forward half of 2A-3A. The cell is entirely dark brown, but clothed in long ochreous hairs in the basal two thirds. Behind the cubitus, the wing is clothed in long hairs, dark brown in the brown areas and orange fulvous in the fulvous areas. Fringe fulvous, slightly paler and much longer in the tornal area.

Underside: Forewing discal band as above but only extending from M_1 to 2A. The area basad of this band and behind mid cell is dull dark brown. The costal cell is fulvous; upper



Figures 25-30. (Scale line = 1 cm) *Zalomes* spp. 25,26 *Z. banco*, new species, ♂ Holotype upperside (25), underside (26) (Photo Nos. 881129/3,4) Ecuador: Cotopaxi. 27-30 *Z. coto*, new species, ♂ Holotype upperside (27), underside (28) (Photo Nos. 881129/5,6); ♀ Paratype upperside (29), underside (30) (Photo Nos. 881129/7,8) Ecuador: Cotopaxi.

half of the discal cell fulvous with yellow scaling; apical area distad of the discal band and barely distinguishable from it, pale yellow, heavily shaded fulvous, with indistinct fulvous spots in an arc from R_2-R_3 to M_2-M_3 , the spot in R_5-M_1 , which coincides with the upperside spot of the discal band, is offset proximad from this arc. Behind the fulvous spot in M_2-M_3 is a large, vague, fulvous area distad of the semi-hyaline spot in M_3-Cu_1 . There are small, indistinct fulvous spots on the termen in the centers of spaces R_2-M_1 to Cu_1-Cu_2 . Behind the yellowish apical area and distad of the discal band from Cu_1-Cu_2 to the anal cell, dark brown with rather heavy yellow overscaling. Fringe pale fulvous, yellowish at fringe base.

Hindwing pale yellow, irregularly shaded fulvous; dark brown in 2A-3A and all of 1A-2A except for a small ochreous area at termen and a central ochreous patch. Small, indistinct fulvous spots as follows: along termen in centers of spaces $Sc+R_1-Rs$ to Cu_1-Cu_2 ; two additional spots in $Sc+R_1-Rs$, one in center, one near base; postdiscal spots in R_5-M_1 , M_3-Cu_1 , and Cu_1-Cu_2 ; discal spot and vague broad basal area in Cu_2-1A ; vague cell-end spot and fulvous scaling in basal part of cell. Fringe pale fulvous, yellower at tornus.

Palpi fulvous above with intermixed brown hairs and scales, pale yellow beneath; third segment dark brown, very short, conical; palpi missing in holotype. Antennae much greater than half costa; shaft brown above, yellow beneath, not checkered; club long, one-third the antennal length, dark brown above, yellow beneath, bent to angled apiculus beyond widest point; nudum fulvous, 7/8 in both holotype and paratype. Head and thorax dark brown, heavily clothed in fulvous hairs. Eyes red. Abdomen dark brown with fulvous hairs above, clothed ochreous on the sides, pale yellow beneath. Legs heavily scaled fulvous with long yellow hairs; fore tibiae with long slender epiphyses overlapping the tarsi; mid and hind tibiae heavily spined, each bearing a single pair of spurs.

Genitalia: Tegumen round; uncus slender, divergent; gnathos bifurcate, arms slender, pointed, close together or crossed, considerably shorter than uncus. Valvae symmetrical; harpe narrow, but with a very broad dorsal process which overlaps the ovoid ampulla as an irregular, bluntly pointed triangle extending dorsad to just beyond dorsal edge of ampulla, the harpe itself projects inward as a ridge where it is fused to the dorsal process; this ridge very irregular, almost serrate toward its cephalad end and overlapping the dorsal process. Penis stout, subequal in length to valva; phallobase moderately long; cornutus a sharply pointed, heavily sclerotized, thorn-like tooth, the paratype has a second, minute tooth. Saccus short, broad. Juxta and transtilla very prominent, but transtilla mostly membranous.

FEMALE: Unknown.

Wing measurements: Forewing ♂ holotype, 17 x 9 mm; ♂ paratype, 16½ x 8½ mm. Type material: Holotype ♂, Ecuador, Cotopaxi; Milimbanco 3900 m, ix.1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: COTOPAXI Milimbanco, 3900 m.; 1x (*sic!*).1971 R. de Lafebre; printed white label, A. C. Allyn Acc. 1972-2; printed and hand printed red label, HOLOTYPE ♂ *Zalomes banco* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881129/3,4 & 881129A/3,4,5; printed and hand printed white label, Genit. Vial SRS-2810 (dissected after photograph). There is one ♂ paratype (Genit. Vial SRS-2594), same data as holotype. The holotype and paratype are deposited in the Allyn Museum of Entomology.

Including the three new species described here, there are 10 species in *Zalomes*, all very similar. The differences between them will be discussed following the descriptions below.

Zalomes coto, new species

Figures 27, 28 (♂); 29, 30 (♀); 83 (♂ genitalia); 104 (♀ genitalia)

MALE: Upperside as described above for *Z. banco* with the following differences: the distal edge of the forewing discal band is slightly more irregular in *coto*; the forewing basal costal area of *coto* is slightly darker fulvous than *banco*; the hindwing discal fulvous spot of *coto* is slightly darker and much less extensive, the dark brown terminal border

of *coto* is slightly less than 1 mm only in M_1 - M_2 , then expands more or less evenly to 4 mm in Cu_2 -2A, and the fulvous streak in the upper half of 2A-3A does not reach the termen.

Underside as described for *banco* except that the pale yellow scaling scattered in the distal half of the anal cell of the forewing of *banco* is missing in *coto*, and the fulvous spots on the hindwing of *coto* are slightly more prominent and often with pale centers.

Palpi, antennae, eyes, head, thorax, abdomen and legs as *banco*. *Nudum* 7/8 in holotype and three ♂ paratypes, last segment of apiculus very long.

Genitalia as *banco* but uncus arms slightly less divergent, gnathos nearly as long as uncus, very small, weakly developed superuncus, more or less heart-shaped in dorsal view, penis slightly more slender and with two thorn-like cornuti.

FEMALE as male with the following exceptions: upperside forewing discal band narrower, the spot in R_2 - M_1 almost detached proximad from the band, the spot in the anal cell extended to the wing base, the spots in M_3 - Cu_1 and Cu_1 - Cu_2 more hyaline; the fulvous discal spot of the upperside hindwing is slightly smaller and the fulvous streak behind 2A very faint.

Genitalia: Lamella postvaginalis trifid, with very fine microtrichia, the central protrusion small, narrow, round-ended, extending caudad equally with the broader outer processes, each of which bears a small, caudally pointed, triangular flange on its outer ventral edge. Lamella antevaginalis long, rather narrow, spatula-shaped and fused to the antrum and an irregular sclerotized process at the caudal end of the ductus bursae, which contains a moderately sclerotized internal tube reaching nearly to the corpus bursae where it gradually fades. The ductus seminalis is attached mid dorsally to the ductus bursae at approximately the point where the internal tube meets the process fused to the lamella antevaginalis. Corpus bursae more or less cylindrical, with fine internal spiculation.

Wing measurements: ♂ forewing 17 x 8½ mm to 18 x 9 mm (holotype), averaging 17.38 x 8.75 mm for type series of four ♂; ♀ forewing 18 x 9½ mm to 18½ x 10 mm, averaging 18.25 x 9.75 mm for two ♀ paratypes.

Type material: Holotype ♂, Ecuador: Cotopaxi; Milimbanco, 3900 m, ix.1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: COTOPAXI Milimbanco, 3900 m.; 1x (*sic!*).1971 R. de Lafebre; printed white label, A. C. Allyn Acc. 1972-2; printed and hand printed red label, HOLOTYPE ♂ *Zalomes coto* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881129/5,6 & 881129A/6,7. There are three ♂ and two ♀ paratypes: two ♂ (one, Genit. Vial SRS-2595), one ♀ (Genit. Vial SRS-2593, Allyn Museum Photo Nos. 881129/7,8 & 881129A/8,9) same data as holotype; one ♂ Ecuador: Cañar; Tipococha, 3625 m, i.1975, R. de Lafebre; one ♀ (Genit. Vial SRS-2591) Ecuador: Imbabura; Mojanda, 3750 m, xii.1971, R. de Lafebre. The holotype, three ♂ paratypes and two ♀ paratypes are deposited in the Allyn Museum of Entomology.

Discussion of the characters distinguishing *coto* from other *Zalomes* species will follow the descriptions below.

Zalomes allynorum (L. D. & J. Y. Miller, 1972), new combination

Figures 84 (♂ genitalia); 105 (♀ genitalia)

Nylla allynorum L. D. & J. Y. Miller, 1972:4,5, f.5-8,16

The genitalia of both sexes of *allynorum* are illustrated to show the differences from other *Zalomes* species.

Zalomes cordillera (L. D. & J. Y. Miller, 1972), new combination

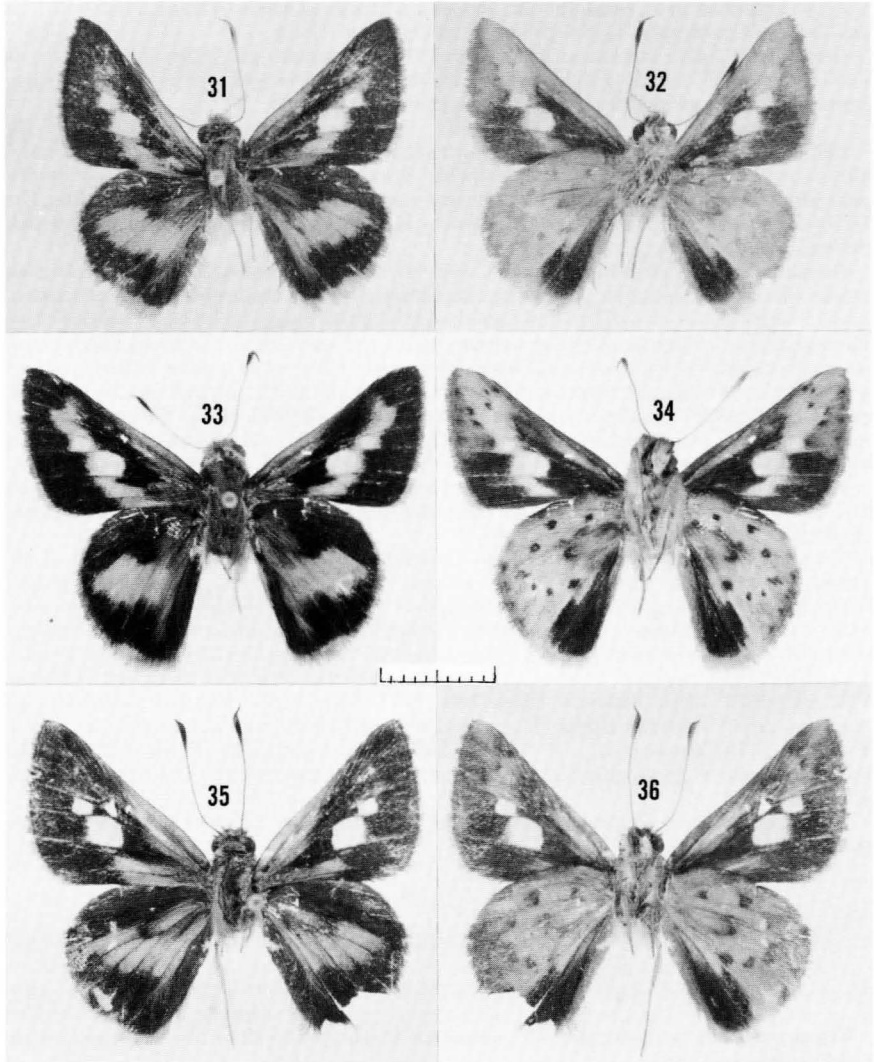
Figures 31, 32 (♀); 85 (♂ genitalia); 106 (♀ genitalia)

Nylla cordillera L. D. & J. Y. Miller, 1972:3,4, f.3,4,13,15

The female of *cordillera* is illustrated for the first time and the genitalia of both sexes shown for comparison with other *Zalomes* species.

Zalomes naco, new species

Figures 33, 34 (♂); 35, 36 (♀); 86 (♂ genitalia); 107 (♀ genitalia)



Figures 31-36. (Scale line = 1 cm) *Zalomes* spp. 31,32 *Z. cordillera* (L.D. & J.Y. Miller, 1972) ♀ upperside (31), underside (32) (Photo Nos. 881129/1,2) Ecuador: Cañar; Tipococha 3625 m. 33-36 *Z. naco*, new species, ♂ Holotype upperside (33), underside (34) (Photo Nos. 881129/9,10) Ecuador: Loja; ♀ Paratype upperside (35), underside (36) (Photo Nos. 881129/11,12) Ecuador: Imbabura.

MALE: Upperside as described for *banco* with the following differences: forewing brands blacker; forewing fulvous markings generally slightly darker, especially on costa where the basal fulvous area is continued nearly to the apex and joins the discal band because of more or less heavy fulvous scaling on the costa and in R_3 - R_4 and R_4 - R_5 ; the spot of the discal band in the anal cell extends to the base; the hindwing discal fulvous spot is much deeper fulvous than in *banco*, even more than in *coto*, much narrower than *banco*, slightly narrower than *coto*, the dark border in Cu_2 -2A, 5 mm; fulvous streak behind 2A does not reach termen.

Underside as described for *banco*, but the forewing discal band is quite clearly marked as a yellow band from Cu_1 , widening somewhat to the apex, the semi-hyaline spot in Cu_1 - Cu_2 offset proximad, spot in Cu_2 -2A pale yellow, narrow, extended distad in Cu_2 -1A by dusting of yellow scales; costa and distal half of upper cell and the area forward of Cu_1 distad of the discal band is deep fulvous; the small fulvous spots described in *banco* are prominent and dark fulvous brown. Hindwing slightly more fulvous than *banco*, the spots prominent dark fulvous brown.

Palpi, head, thorax, abdomen and legs as *banco* but somewhat darker fulvous; antennae as *banco*, but the last segment of the apiculus is very long and darker, nudum 4/7 in holotype and one paratype, 3/7 in one paratype; eyes red.

Genitalia: Tegumen narrower than *banco*, with prominent superuncus; uncus bifurcate, arms rather broad and short, nearly parallel; gnathos bifurcate, arms convergent but not crossed, broader than *banco* and round-ended. Valvae symmetrical, harpe narrow, extends slightly caudad of broad ampulla which is overlapped by the small, roundly pointed dorsal process of the harpe. Penis stout, shorter than valva, dentate ventrally and on right side at caudal end; phallobase moderately short; cornutus a single small tooth. Saccus long; juxta and transtilla prominent but much smaller than in *banco*.

FEMALE: Upperside as male but forewing discal band nearly obsolete forward of hyaline spots in M_3 - Cu_1 and Cu_1 - Cu_2 ; there is a hint of a semi-hyaline dot in R_5 - M_1 and some scattered dark fulvous scaling in M_1 - M_3 ; the fulvous spot in Cu_2 -1A is reduced to a very small streak behind the spot in Cu_1 - Cu_2 ; the spots in 1A-2A and the anal cell prominent, extend from inner edge of spot in Cu_1 - Cu_2 to wing base. Fringe as male but much darker. Hindwing as male but discal spot narrower, more like a band, the spots separated by dark veins, spot in Cu_2 -2A continued to wing base, basal two thirds of cell heavily scaled fulvous.

Underside: Forewing as male, but discal band reduced to the two prominent hyaline spots and a narrow yellowish fulvous streak from the hyaline spot in M_3 - Cu_1 to the apex, the costal and apical area dark fulvous, nearly obscuring the dark spots, upper cell streak yellow fulvous, no trace of discal band behind Cu_2 . Fringe dark fulvous becoming fulvous at tornus.

Hindwing as male, but somewhat darker, duller, the spots dark fulvous, not brown.

Palpi, head, thorax, eyes, abdomen and legs as male; antennae as male, nudum 4/7.

Genitalia: Lamella postvaginalis trifid, the central protrusion short, with microtrichia, not extending caudad as far as the lateral processes which are sharply pointed and separated from the central process by the sinuous caudal margin; lamella antevaginalis short, broad, lanceolate, with paired lateral arms directed cephalad, the lamella more or less fused with the antrum; ductus seminalis joins ductus bursae mid dorsally more or less at antrum; corpus bursae ovoid, finely spiculose.

Wing measurements: ♂ forewing $17\frac{1}{2} \times 9$ mm to $18\frac{1}{2} \times 10$ mm (holotype), averaging 18.00×9.33 mm for type series of three ♂; ♀ forewing $20 \times 10\frac{1}{2}$ mm.

Type material: Holotype ♂, Ecuador: Loja; Villonaco, 3600 m, i.1973, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: LOJA Villonaco 3600 m.; i.1973 R. de Lafebre; printed white label, A. C. Allyn Acc. 1973-9; printed and hand printed white label, Genit. Vial SRS-2583; printed and hand printed red label, HOLOTYPE ♂ Zalomes naco S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881129/9,10 & 881129A/10,11. There are two ♂ and one ♀ paratypes: one ♂ Ecuador: Cotopaxi; Milimbanco, 3900 m, ix.1971, R. de Lafebre; one ♂ (Genit. Vial SRS-2597) Ecuador: Pichincha; Niebli, i.1972, R. de Lafebre; one ♀ (Genit. Vial SRS-2588;

Allyn Museum Photo Nos. 881129/11,12 & 881129A/12,13) Ecuador; Imbabura; Mojanda, 3750 m, xii.1971, R. de Lafebre. The ♂ holotype, two ♂ and one ♀ paratypes are deposited in the Allyn Museum of Entomology.

If Evans' descriptions of *Zalomes* species are accurate, it should be simple to identify *Z. conspicua* in which three spots of the forewing discal band, M_3-Cu_1 , Cu_1-Cu_2 and Cu_2-2A , are semi-hyaline (Hayward was not specific on this point), and *Z. wanda*, in which all the spots are opaque. His descriptions of *Z. illimanensis* and *Z. merida* are insufficiently detailed to be sure of their identity. I have examined males of the remaining six species and females of five. The six males may be distinguished by the following features: Upperside hindwing discal spot of *banco* is larger than in any of the other species and has a much narrower distal dark border separating it from the termen. Underside forewing yellowish discal band is barely distinguishable from the yellow fulvous apical area in *banco*, *coto* and *cordillera*, but quite distinct in *biforis*, *allynorum* and *naco*. The small dark spots of the underside are very faint in *banco* and *coto*, distinct but not prominent in *biforis* and *cordillera*, prominent in *allynorum* and *naco*.

In the male genitalia, the uncus arms, viewed dorsally, are narrow and taper to sharp points in *banco*, *coto*, *allynorum* and *cordillera*, broader, not tapered and round-ended in *biforis* and *naco*. There is a superuncus from the tegumen in all but *banco*. The gnathos arms of *banco*, *coto* and *biforis* are slender, more or less tapered, convergent or crossed; those of *allynorum* and *cordillera* are broad, round-ended and more or less parallel; those of *naco* are more slender than *allynorum* but broader than *banco* and round-ended. The uncus arms are appreciably longer than the gnathos arms in *biforis*, *banco*, *allynorum* and *naco*, slightly longer in *coto*, shorter in *cordillera*. The saccus is relatively long in *biforis*, *allynorum* and *naco*; rather short in *cordillera*; very short in *banco* and *coto*. The penis is without terminal teeth in all but *naco*. The cornutus is a single large tooth in *biforis*, *banco* (may have a second minute one), *allynorum* and *cordillera*; two prominent but unequal teeth in *coto* (also *conspicua*); a single small tooth in *naco*. The dorsal harpe process is very large and broad in *biforis*, *banco* and *coto*, slightly narrower in *allynorum*, narrow in *cordillera*, small and narrow in *naco*. There are other differences, but these should suffice to separate the males of these six species.

The five females can be distinguished by the following features: Underside forewing yellowish discal band is barely distinguishable in *coto*, more or less clearly marked in *cordillera* and *biforis*, very clearly marked in *allynorum*, narrow and broken in *naco*. The upperside forewing discal band is prominent and extends clearly to the cell end in all but *naco*. The underside hindwing fulvous spots are prominent in *allynorum* and *naco* but rather faint in the others.

In the female genitalia, the central protrusion of the lamella postvaginalis is prominent, broad and bluntly pointed in *biforis*, prominent, narrow, round-ended in *coto*, only barely protruding and not prominent in *allynorum*, a prominent pointed triangle in *cordillera*, a small, bluntly pointed process between two small lateral arms in *naco*. The lamella antevaginalis is very broad, flatly rounded in *biforis*, long and spatula shaped in *coto*, very short in *allynorum*, lanceolate in *cordillera* and *naco*.

Wahydra, new genus

Figure 37 (♂ wing venation, *W. kenava*)

Type species: *Pamphila kenava* Butler, 1870

As mentioned above in the discussion of *Zalomes*, *kenava* is not congeneric with *biforis*, the type species of *Zalomes*. A new genus is required, and because Hayward was the first to recognize this fact, I will name it after him in the form of a meaningless anagram of his name. The gender of *Wahydra* is to be considered feminine.

The antennae are long, reaching to about the end of the forewing cell at 0.6 of the costal length. The club is long, about one third the total antennal length, bent obtusely to a long apiculus beyond thickest part of club; nudum of 12 to 13 segments, two or three

of which may be considered to be on the club. Palpi quadrate, extend forward beyond frons about the width of the eye, third segment more or less erect, short, conical, nearly hidden in hairs of second segment. Eyes red. Fore tibiae smooth, with large epiphyses slightly overlapping tarsi, mid tibiae spined and bearing a single pair of spurs, hind tibiae spined, with two pairs of spurs. Forewing with prominent tripartite stigma from just below the origin of Cu_1 , curving to slightly basad of mid 2A. The stigma, shown stippled in Fig. 37, consists of a large elongate spot in Cu_1-Cu_2 and two smaller spots in Cu_2-1A

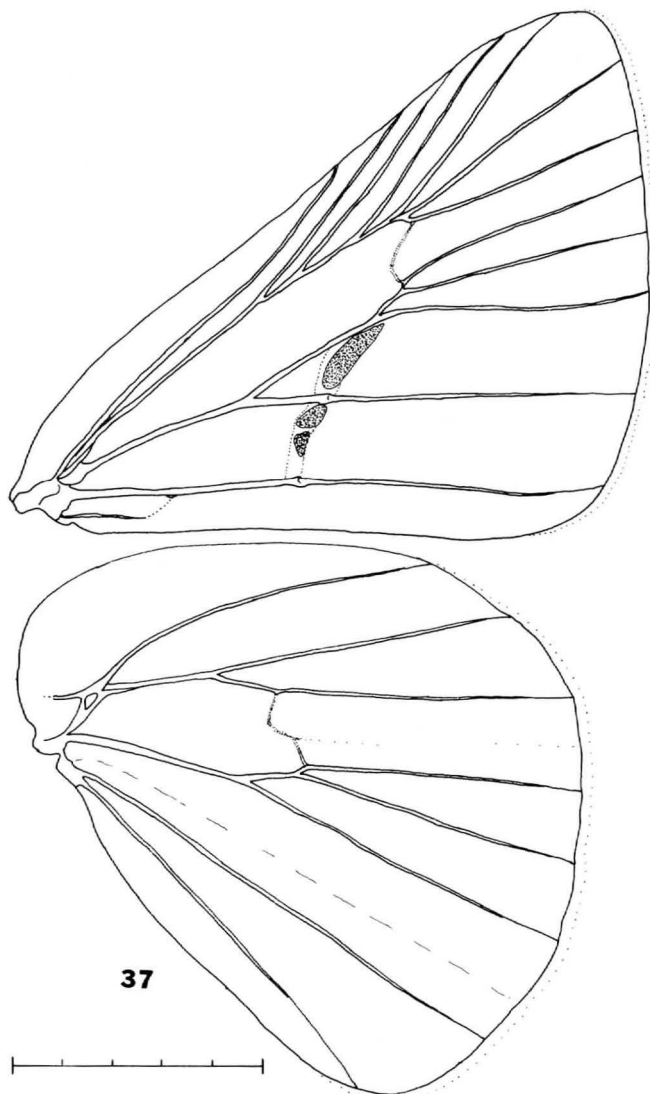


Figure 37. (Scale line = 5 mm) *Wahydra*, new genus, wing venation *W. kenava* (Butler, 1870) ♂ (Slide No. SRS-2811) Ecuador: Cañar; Tipococho 3625 m.

and 1A-2A, but not reaching 2A. It is covered with dull grey androconial scales; a narrow area basad of the stigma and extending to vein 2A, outlined in Fig. 37 by a dotted line, is covered with shiny black scales which partially overlap the androconia. Forewing vein Cu_2 arises from the cell somewhat nearer to the origin of Cu_1 than to the cell base. Forewing vein M_2 at its base curves toward M_3 and is much closer to M_3 than to M_1 . On the hindwing, R_s arises from the cell much nearer to cell end than base, but nearer to base than is the origin of Cu_2 , which arises much nearer to Cu_1 than to base; Cu_2 arises very near cell end. The discocellular veins are weakly developed and form a zigzag cell closure. Veins M_2 and 1A are not developed at all.

The male genitalia are characterized by a slightly asymmetrical, short, bifurcate uncus and gnathos, both of which are slightly longer on the right side. The vinculum projects caudad as lateral processes on each side extending past the base of the gnathos, and there is a prominent superuncus from the tegumen. The valvae are symmetrical, with narrow, dorsally curved harpe, dentate at its distal end and usually projecting distad past the small ampulla. The penis is very slightly curved to the right caudally. The sacculus is short.

The female genitalia have a bilobed lamella postvaginalis, covered with microtrichia, and varying in shape between species. The lamella antevaginalis is centrally deeply and broadly divided and asymmetrical, projecting caudad as two lateral pointed processes flanking the lamella postvaginalis, the right process wider than the left. The antrum is small and the ostium bursae left of center. The ductus bursae gradually swells to form corpus bursae, with no clear point of separation. The corpus bursae is without signa, but internally spiculate. The ductus seminalis is connected to ductus bursae mid dorsally at antrum.

***Wahydra kenava* (Butler, 1870), new combination**

Figures 87 (♂ genitalia); 108 (♀ genitalia)

Pamphila kenava Butler, 1870:506

Molo kenava (Butler): Hayward, 1941:530, f.12

Zalomes k. kenava (Butler): Evans, 1955:68, Pl.58

The genitalia of both sexes of *kenava* are illustrated to show the general form of *Wahydra* genitalia as well as differences from other *Wahydra* species. I have not seen *W. tassa* (Evans, 1955), *W. thisbe* (Hayward, 1941), *W. vola* (Evans, 1955) nor *W. bella* (Hayward, 1938), all treated by Evans as subspecies of *kenava*, nor have I seen *Zalomes dores* Bell, 1959. The same problem exists here as in *Zalomes*, five taxa previously treated as subspecies but not necessarily all geographically isolated, and equally as similar to some of the other new taxa described below as to each other. I will treat them as separate species.

***Wahydra tassa* (Evans, 1955), new combination**

Zalomes kenava tassa Evans, 1955:68

***Wahydra thisbe* (Hayward, 1941), new combination**

Phlebodes thisbe Hayward, 1941:529, f.10

Zalomes kenava thisbe (Hayward), Evans (1955:68)

Hayward's figure of the male genitalia indicates the presence of a cornutus, which is not found in *kenava*. The very important dorsal, ventral and lateral views of the tegumen, uncus, gnathos, vinculum and sacculus are not shown.

***Wahydra vola* (Evans, 1955), new combination**

Zalomes kenava vola Evans, 1955:69

Wahydra bella (Hayward, 1938), new combination*Phlebodes bella* Hayward, 1938:455, f.26*Zalomes kenava bella* (Hayward), Evans (1955:69)*Wahydra dores* (Bell, 1959), new combination*Zalomes dores* Bell, 1959:5,6, f.4,5,19

Bell's figure of the male genitalia shows only the valva which is quite different from *kenava*, as the harpe does not extend distad of the ampulla. It may not belong in *Wahydra*, but since Bell considered it a *Zalomes* species, apparently following Evans in including *kenava* in *Zalomes*, I will treat it as belonging here until proven otherwise.

Wahydra subhebetis, new species

Figures 38, 39 (♂); 40, 41 (♀); 88 (♂ genitalia); 109 (♀ genitalia)

MALE: Upperside: Forewing dark brown with orange fulvous markings as follows: costal cell from base to about end of Sc with a more or less heavy scattering of fulvous scales; a small elongate spot in R_5-M_1 which may extend into R_4-R_5 ; an irregular discal band of four spots, separated by dark veins in M_3-Cu_1 (triangular), Cu_1-Cu_2 , Cu_2-2A (the portion in Cu_2-1A smaller than that in $1A-2A$), and a streak with interspersed dark brown scales in the anal cell extending proximad to about the wing base; the discal band is inwardly bordered by the dark grey and black stigma which is slightly broader than in *kenava*. There is minor scattered fulvous scaling, mostly in the basal area. Fringe inwardly brown, outwardly mixed brown and fulvous at apex, becoming fulvous at tornus.

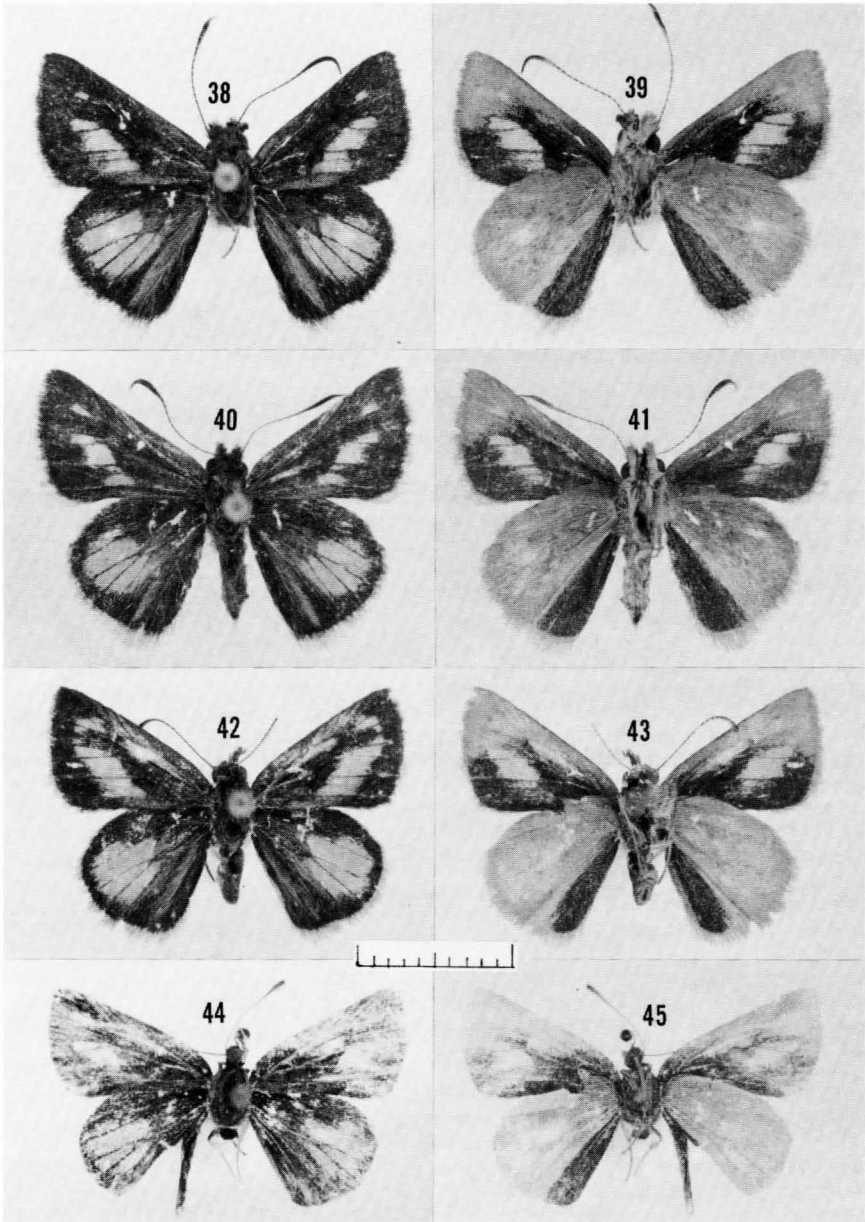
Hindwing same dark brown as forewing with a large round postdiscal spot covering all of M_1-M_3 , M_3-Cu_1 and Cu_1-Cu_2 except for a narrow (approximately 1 mm), dark brown terminal border, and extending into mid $Rs-M_1$ and mid Cu_2-1A , the veins dark brown. This postdiscal spot does not enter the cell except as scattered fulvous scaling. There is a separate narrow fulvous streak along both sides of $2A$ from nearly the wing base to nearly the termen. Behind M_1 the wing is clothed in long fulvous hairs extending nearly to the outer edge of the postdiscal spot, and reaching the termen below $2A$. Fringe orange fulvous.

Underside: Forewing dull ochreous with minor fulvous scaling; discal spots in M_3-Cu_1 and Cu_1-Cu_2 repeated from above, bright orange; the subapical spot barely visible but clearer ochreous than the surrounding apical area; spot in Cu_2-2A paler, more yellow, interspersed with dark brown scales which may be scattered distad of the spot; lower half of cell and area behind it to inner margin dull dark brown except for the discal spots, most of M_2-M_3 and M_3-Cu_1 , and the upper outer corner of Cu_1-Cu_2 . Fringe fulvous, may be a few brown scales near apex.

Hindwing the same dull ochreous, the fulvous overscaling slightly stronger, tending to be concentrated into very vague post discal spots; $1A-2A$ and $2A-3A$ dull dark brown, heavily overscaled ochreous; anal cell ochreous. Fringe dull ochreous.

Palpi as described for the genus, densely haired in mixed dark brown, ochreous and fulvous; third segment black-brown. Antennae black-brown, shaft prominently checkered pale yellow, club pale yellow beneath; nudum 13 in holotype and two paratypes with antennae, brown, becoming darker toward tip of apiculus. Head and thorax dark brown with fulvous hairs and scales; abdomen dark brown above with fulvous scales, ochreous beneath. Legs dark brown, heavily scaled fulvous outside, ochreous inside, structurally as described for the genus.

Genitalia as described for the genus; superuncus narrow; uncus narrow and narrowly divided, space between arms in dorsal view slightly less than arm width; gnathos wider, each arm nearly as wide as uncus, the arms separated by slightly less than their width; gnathos extends distad slightly beyond uncus. Distal portion of harpe much broader and



Figures 38-45. (Scale line = 1 cm) *Wahydra* spp. 38-41 *W. subhebetis*, new species, ♂ Holotype upperside (38), underside (39) (Photo Nos. 881129/17,18); ♀ Paratype upperside (40), underside (41) (Photo Nos. 881129/19,20) Colombia: Tolima-Quindio. 42-45 *W. nieblensis*, new species, ♂ Holotype upperside (42), underside (43) (Photo Nos. 881129/13,14); ♀ Paratype upperside (44), underside (45) (Photo Nos. 881129/15,16) Ecuador: Pichincha.

more sharply angled dorsad than in *kenava*. Penis slightly more curved in dorsal view than in *kenava*.

FEMALE as male but upperside fulvous markings reduced. On the underside, the dull ochreous color is darker than the male and the forewing discal spot in Cu_2-2A may be entirely obsolete. Rest as male; antennal nudum 13 in the two paratypes.

Genitalia as described for the genus; lamella postvaginalis quite small, lobes round, deeply divided; lamella antevaginalis right lateral arm, like *kenava*, not tapered, but broader than in *kenava*.

Wing measurements: ♂ forewing 13 x 7 mm to 14 x 7½ mm, averaging 13.38 x 7.38 mm in the type series of four (holotype, 13 x 7½ mm); ♀ forewing 13 x 7 mm and 13½ x 7 mm in the two paratypes.

Type material: Holotype ♂, Colombia: Tolima-Quindio; La Linea (Quindio Pass), 3100 m, 3.v.1974, S. R. & L. M. Steinhauser, bearing the following labels: printed white label, COLOMBIA: TOLIMA La Linea, 3100 m. 3.v.1974 S. & L. Steinhauser; printed white label, A. C. Allyn Acc. 1974-23; printed and hand printed white label, Genit. Vial SRS-2606; white paper triangle with glued-on right hind leg; printed and hand printed red label, HOLOTYPE ♂ Wahydra subhebetis S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881129/17, 18 & 881129A/18, 19. There are three ♂ and two ♀ paratypes: two ♀ same data as holotype (one, Allyn Museum Photo Nos. 881129/19, 20 & 881129A/20, 21; one, Genit. Vial SRS-2605); two ♂ Ecuador: Cotopaxi; Milimbanco, 3900 m, ix.1971, R. de Lafebre; one ♂ (Genit. Vial SRS-2600) Ecuador: Pichincha; Niebli, NW slope Vol. Pichincha, 3500 m, viii.1971, R. de Lafebre. The ♂ holotype, three ♂ and two ♀ paratypes are deposited in the Allyn Museum of Entomology.

W. subhebetis is very close to *W. kenava*, from which the males differ superficially in the slightly broader forewing stigma of *subhebetis*, which results in there usually being no dark brown patch between the stigma and the fulvous discal spot in Cu_2-1A , nearly always prominent in *kenava*. On the underside, *kenava* is brighter ochreous with usually more or less well marked small discal and postdiscal fulvous spots. The male genitalia differ in the superuncus, very broad and expanding laterally in *kenava*, narrow and not expanded in *subhebetis*; the uncus and gnathos arms, widely separated in *kenava*, narrowly so in *subhebetis*; the form of the harpe is different as described above.

The principal superficial differences between the females of *kenava* and *subhebetis* are in the upperside hindwing fulvous markings, the fulvous spot in M_3-Cu_1 of *kenava* being much smaller due to the broad darkening of veins M_3 and Cu_1 , and in the underside ground color, differing as in the males. The genitalia differ in the shape of the arms of the lamella antevaginalis, as described above and in the lamella postvaginalis, very broad and bilobed in *kenava*, very narrow and bilobed in *subhebetis*.

Wahydra nieblensis, new species

Figures 42, 43 (♂); 44, 45 (♀); 89 (♂ genitalia); 110 (♀ genitalia)

MALE: Upperside: Forewing as described above for *subhebetis* with the following differences: the forewing discal band is more even, its outer margin not "stepped"; there are usually at least traces of fulvous spots in M_1-M_2 , M_2-M_3 and R_4-R_5 , often fulvous scaling in R_3-R_4 and usually more or less dense ochreous scaling in R_1-R_2 , R_2-R_3 , $Sc-R_1$, costal cell and basal three quarters of the upper cell; the central part of the lower cell and basal areas of Cu_1-Cu_2 and Cu_2-2A are lightly sprinkled with ochreous scales. Fringe fulvous, a few brown scales at apex.

Hindwing as *subhebetis* but fulvous streak along 2A missing or greatly reduced.

Underside as *subhebetis* but forewing ochreous spot in Cu_2-2A missing or greatly reduced.

Palpi (missing in holotype), antennae (broken in holotype); nudum 12 in the one paratype with complete antenna; head, thorax, legs, abdomen as *subhebetis*.

Genitalia as described for the genus; superuncus broad, expanded laterally at distal end, weakly bilobed; uncus and gnathos arms of more or less equal caudal extent, widely

separated; harpe somewhat more heavily dentate at its distal end than in *kenava*, ampulla projects caudad as narrow point and is narrowly separated from harpe; penis more curved than in *kenava*.

FEMALE appears to be very similar to male; the single ♀ paratype is badly worn, palpi missing, antennae broken.

Genitalia as described for the genus; lamella postvaginalis very broad, broader than in *kenava* and expanded laterally, the central caudal indentation very shallow; arms of the lamella antevaginalis taper to sharp points.

Wing measurements: ♂ forewing $11\frac{1}{2} \times 6$ mm to 12×7 mm (holotype, $12 \times 6\frac{1}{2}$ mm), averaging 11.80×6.50 mm for type series of five; ♀ forewing $12\frac{1}{2} \times 6\frac{1}{2}$ mm.

Type material: Holotype ♂, Ecuador: Pichincha; Niebli, NW slope Vol. Pichincha, 3500 m, viii.1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: PICHINCHA Niebli, NW slope Vol. Pichincha 3500 m.; viii.1971 R. de Lafebre; printed white label, A. C. Allyn Acc. 1971-41; printed and hand printed red label, HOLOTYPE ♂ *Wahydra nieblensis* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881129/13,14 & 881129A/14,15. There are four ♂ and one ♀ paratypes: two ♂, one ♀ (Genit. Vial SRS-2608; Allyn Museum Photo Nos. 881129/15,16 & 881129A/16,17) same data as holotype; one ♂ Ecuador: El Oro; Bellavista, 550 m, v.1971, R. de Lafebre; one ♂ (Genit. Vial SRS-2579) Ecuador: Imbabura; Vol. Cotacachi, 3750 m, xi.1971, R. de Lafebre. The ♂ holotype, four ♂ and one ♀ paratypes are deposited in the Allyn Museum of Entomology.

The *Wahydra* species closest to *nieblensis* are *kenava*, *thisbe* and *subhebetis*, from which *nieblensis* can be distinguished by its smaller size; more extensive fulvous costal area on the upperside forewing, nearly connecting with the more extensive fulvous subapical markings; its more even upperside forewing discal band; lack of a fulvous streak along 2A of the upperside hindwing. The genitalic differences are discussed in the respective descriptions.

Wahydra obscura, new species

Figures 46, 47 (♂); 48, 49 (♀); 90 (♂ genitalia); 111 (♀ genitalia)

MALE: Upperside: Forewing dark brown with fulvous and ochreous superscaling, very light in tornal area, slightly heavier in apical area and concentrated into small, poorly defined, very vague spots as follows: R_5-M_1 (holotype and two paratypes), M_3-Cu_1 (entire type series of four), Cu_1-Cu_2 (holotype and two paratypes, faintly suggested in third), a distally diminishing streak distad of the stigma in 1A-2A (holotype and one paratype, barely visible in two paratypes). Stigma as in *W. kenava*, slightly narrower than in *subhebetis*. Fringe inwardly dark brown, outwardly paler grey-brown.

Hindwing same dark brown as forewing, no indication of a postdiscal spot except for scattered fulvous scaling. Fringe pale grey-brown with more or less fulvous tint.

Underside: Forewing fulvous with ochreous scaling in costal area and apical third of wing, the ochreous scaling slightly more concentrated toward termen; rest of wing dull dark brown; poorly defined pale ochreous spots as follows: a narrow oblique streak in Cu_1-Cu_2 (holotype and two paratypes, barely visible in one paratype); small spot in M_3-Cu_1 ; small spot, often very obscure, in R_5-M_1 . Fringe fulvous.

Hindwing fulvous, more or less heavily scaled ochreous; faintly suggested postdiscal fulvous spots due to absence of ochreous scaling; 1A-3A dull dark brown with fulvous scaling; anal cell fulvous. Fringe fulvous.

Palpi (missing in holotype) as described for the genus, dark brown with intermixed fulvous hairs, third segment dark brown. Antennae dark brown, shaft prominently checkered pale ochreous, pale ochreous beneath club, nudum 12 in one paratype, 13 in two paratypes, apiculus broken in holotype. Head and thorax dark brown with minor fulvous scaling, abdomen dark brown above, heavily scaled pale ochreous beneath. Legs as described for the genus, dark brown, scaled ochreous.

Genitalia as described for the genus; superuncus broad, but not expanded laterally; lateral processes of vinculum broad, terminally rounded, ventrally more or less serrate; uncus and gnathos arms widely separated, right side appreciably longer than left; valvae very much like *kenava*; penis finely dentate ventrally at caudal end; juxta projects caudad in two pointed lateral arms.

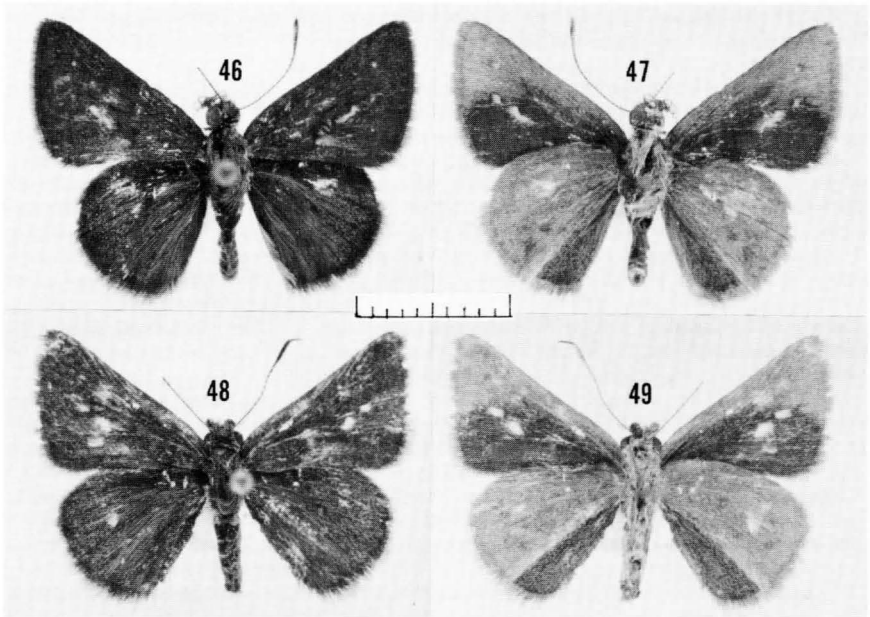
FEMALE as male, but forewing discal spots on upper and underside paler, whitish. Antennal nudum 12 in three paratypes.

Genitalia as described for the genus; lamella postvaginalis very broad, similar to *nieblensis* but lobes slightly rounder, lateral expansion slightly less; arms of lamella antevaginalis tapered and pointed as in *nieblensis*.

Wing measurements: ♂ forewing 12 x 7 mm to 13½ x 7½ mm (holotype 13 x 7½ mm), averaging 12.75 x 7.25 mm for type series of four; ♀ forewing 13½ x 7½ mm to 14 x 8 mm, averaging 13.67 x 7.67 mm for three paratypes.

Type material: Holotype ♂, Ecuador: Cotopaxi; Rio Mulatos, 3800 m, iv.1971, R. de Lafebre, bearing the following labels: printed white label, ECUADOR: COTOPAXI Rio Mulatos, 3800 m.; iv.1971 R. de Lafebre; printed white label, A. C. Allyn Acc. 1971-18; printed and hand printed red label, HOLOTYPE ♂ *Wahydra obscura* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 881129/21,22 & 881129A/22,23. There are three ♂ and three ♀ paratypes: two ♂, one ♀ (Genit. Vial SRS-2281) Ecuador: Cotopaxi; Milimbanco, 3900 m, ix.1971, R. de Lafebre; one ♂ (Genit. Vial SRS-2282) Ecuador: Pichincha; flanks of Vol. Antisana, 2950 m, vii.1971, R. de Lafebre; two ♀ (one, Allyn Museum Photo Nos. 881129/23,24 & 881129A/24,24A) Ecuador: Napo; Papallacta, 4000m, xi.1971, R. de Lafebre. The ♂ holotype, three ♂ and three ♀ paratypes are deposited in the Allyn Museum of Entomology.

There is little chance of confusing *obscura* with any other *Wahydra* species because of its almost complete lack of upperside markings. The species closest to it are *dores* and



Figures 46-49. (Scale line = 1 cm) *Wahydra obscura*, new species, ♂ Holotype upperside (46), underside (47) (Photo Nos. 881129/21,22) Ecuador: Cotopaxi; ♀ Paratype upperside (48), underside (49) (Photo Nos. 881129/23,24) Ecuador: Napo.

bella, both with reduced but prominent markings.

Pheraeus covadonga loxicha, new subspecies

Figures 50, 51 (♂); 52, 53 (♀); 91 (♂ genitalia); 112 (♀ genitalia)

MALE: Upperside: Forewing dark brown; costa, from base to about the end of R_2 , fulvous. There is a curved, fulvous discal band from 2A to the costa in R_2 - R_3 where it is very faint, merely a few fulvous scales, distad of which it consists of three subapical opaque spots in R_3 - R_4 (the smallest), R_4 - R_5 and R_5 - M_1 (the largest); an opaque spot in M_1 - M_2 , slightly smaller than that in R_5 - M_1 ; an opaque spot in M_2 - M_3 , slightly larger than R_5 - M_1 ; a large spot in M_3 - Cu_1 , centrally semi-hyaline, nearly as long as the dark border distad of it is wide, and reaching the base of the space; a still larger, more or less quadrate spot in Cu_1 - Cu_2 , centrally semi-hyaline, its inner edge centrally projecting inward, its outer edge concave; a spot in Cu_2 -2A consisting of a narrow opaque dash behind the spot in Cu_1 - Cu_2 , connected to a long streak in 1A-2A, which extends narrowly along 2A, nearly to the wing base and is centrally more or less semi-hyaline; the outer edge of this composite spot is deeply excavate. There is an obscure dark brown sagittate brand in the base of Cu_1 - Cu_2 bordering the discal band. Fringe dark brown, becoming ochreous grey at tornus.

Hindwing dark brown with long fulvous hairs covering the cell, in Cu_2 -1A, and in 2A-3A nearly reaching the termen, but not forming a distinct hair tuft. There is a large ovoid opaque fulvous discal spot beyond the cell end in M_1 - M_3 , M_3 - Cu_1 and Cu_1 - Cu_2 , the veins within it more or less dark. Fringe fulvous.

Underside: Forewing dark brown from lower half of cell to inner margin, anal cell not paler. Costa, upper half of cell and apex rather dark fulvous, the apical fulvous area extending along the termen to M_3 - Cu_1 , behind which it tapers to a point on the termen at the end of Cu_2 . Discal band from above repeated, but spots in R_3 - R_4 to M_2 - M_3 visible on the fulvous ground only because they are very narrowly edged dark brown. Spots in M_3 - Cu_1 and Cu_1 - Cu_2 as above; no fulvous markings behind Cu_2 . Fringe fulvous, browner toward apex.

Hindwing fulvous except for 1A-3A which is mostly dark brown but with fulvous color invading its borders. There are small, nearly conjoined dark brown spots at cell end in M_1 - M_2 and M_2 - M_3 , and very small dark brown discal dots in $Sc+R_1$ - R_s , R_s - M_1 , M_3 - Cu_1 , Cu_1 - Cu_2 and Cu_2 -1A, forming an arc well distad of the cell end spots. Fringe fulvous.

Palpi quadrate, dark brown with admixed fulvous scales above, entirely fulvous in front; third segment short, conical, dark brown, barely protruding beyond scales of second segment. Antennae somewhat longer than half costa; shaft dark brown above, prominently checkered fulvous beneath; club narrow, bent to apiculus beyond its thickest point, dark brown above and fulvous at base, fulvous beneath and dark brown just before apiculus; nudum brown, 5/7. Head dark brown, frons mostly fulvous. Thorax and abdomen dark brown above, abdomen yellowish white beneath. Legs fulvous; fore tibiae with large epiphyses extending over tarsi; mid tibiae with single pair of spurs, a few prominent spines; hind tibiae with two pairs of spurs, lightly spined.

Genitalia as *P. covadonga* Freeman, 1969; uncus shallowly bifurcate in dorsal view, narrower than prominently bifurcate gnathos; in lateral view, uncus and gnathos broader than tegumen, shallowly separated. Valvae with prominently serrate, inwardly bent harpe with small but prominent dorsal prong at distal end; ampulla rounded, projecting dorsad beyond harpe which extends much farther caudad. Penis slender, straight, slightly longer than valva, phallobase moderately long, vesica opening dorsal, finely dentate on right side, no cornutus. Juxta prominent. Saccus moderately long, broad.

FEMALE: Upperside: Forewing dark brown, marked similarly to male, but costal fulvous scaling only reaches mid cell; discal band greatly reduced, consisting of a single minute opaque fulvous subapical spot in R_5 - M_1 ; small, narrow, ovoid, pale fulvous semi-hyaline spot in M_3 - Cu_1 ; larger, quadrate semi-hyaline spot in Cu_1 - Cu_2 ; minute, narrow, opaque pale fulvous streak in Cu_2 -1A centered behind inner edge of spot in Cu_1 - Cu_2 ;

quadrate, opaque pale fulvous spot in mid 1A-2A, extending narrowly along 2A nearly to base. Fringe brown, paler at tornus.

Hindwing as male, but discal spot reduced and less distinct.

Underside: Forewing as male, but discal band reduced, consisting of three minute dark brown subapical spots in R_3 - R_4 to R_5 - M_1 , prominent semi-hyaline spots in M_3 - Cu_1 and Cu_1 - Cu_2 as above and a trace of fulvous scaling in mid Cu_2 -1A. Hindwing as male.

Palpi, antennae, head, thorax, abdomen and legs as male.

Genitalia as *covadonga*; lamella postvaginalis narrow, with small, prominent, U-shaped central indentation on caudal edge, its dorsal surface covered with microtrichia, ventral surface smooth. Lamella antevaginalis not developed, but the 7th-8th intersegmental cuticula bears paired, weakly sclerotized patches which, in a two dimensional drawing, appear to be the lamella antevaginalis, but are not. Antrum short, well developed, ductus seminalis attached dorsally at its cephalad end. Ductus bursae forms a single spiral loop cephalad of antrum, then gradually expands to form the long corpus bursae; both ductus and corpus internally spiculate. Papillae anales straight edged; apophyses posteriores moderately long. Apophyses anteriores not developed.

Wing measurements: Forewing ♂ holotype, $12\frac{1}{2} \times 6\frac{1}{2}$ mm; ♀ paratype, $12\frac{1}{2} \times 6\frac{1}{2}$ mm.

Type material: Holotype ♂, Mexico: Oaxaca; Candelaria Loxicha 550m 18.x.1969, E. C. Welling, bearing the following labels: printed and hand printed white label, MEXICO: OAXACA Loxicha, Candelaria 550 m. 18-x-1969 E. C. Welling; printed and hand printed white label, A. C. Allyn Acc. 1970-14; printed and hand printed white label, Genit. Vial SRS-2616; printed and hand printed red label, HOLOTYPE ♂ *Pheraeus covadonga loxicha* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo No. 890612A/0,1 & 890622/14,15. There is one ♀ paratype, same locality and collector as the holotype, 8.xi.1969, Genit. Vial SRS-2617; Allyn Museum Photo No. 890612A/2,3 & 890622/16,17. The ♂ holotype and ♀ paratype are deposited in the Allyn Museum of Entomology.

Both the ♂ and ♀ genitalia of *loxicha* are essentially identical to those of *covadonga*, indicating their conspecificity. The holotype ♂ of *covadonga* has a forewing length of 13 mm and the allotype ♀ 12 mm (Freeman, 1969:29,30); a series of three ♂ and two ♀ in the AME from the type locality all have forewing lengths of $13\frac{1}{2}$ mm. Apart from this slight size difference, the males of *loxicha* differ from *covadonga* in the underside markings as follows: the forewing of *loxicha* lacks the preterminal row of slightly darker spots found in *covadonga*; on the hindwing of *covadonga*, the cell end spot is much larger and white pupilled, and the discal row of spots is much more prominent and generally with pale centers. These same hindwing differences occur in the female and the rather prominent preterminal dark markings of *covadonga* are lacking in *loxicha*; the upperside hindwing of *loxicha* has a more or less prominent fulvous discal spot, missing in *covadonga*.

The exact distribution patterns are unknown. To date, *covadonga* has been found only in the type locality, Ciudad Valles, in San Luis Potosi, Mexico; whereas *loxicha* is known only from the holotype ♂ and paratype ♀ from Oaxaca at Candelaria Loxicha. There is in the AME a small (12 mm forewing) ♀ from Veracruz, near Coatzacoalcos with almost no upperside markings and the underside markings a mix of *covadonga* and *loxicha*, which may represent another taxon or perhaps a hybrid. The paucity of material makes definite conclusions difficult.

Pheraeus odilia argus (Draudt, 1923), revised status

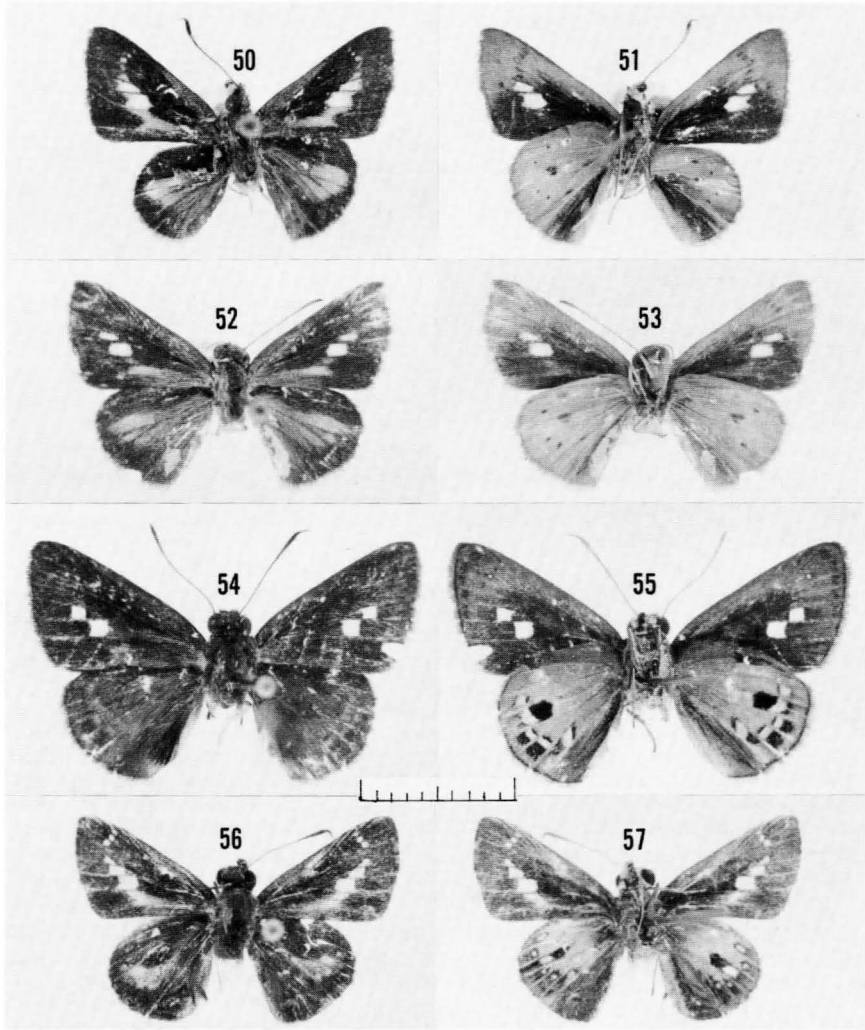
Padraona argus Draudt, 23 May, 1923:946, pl.183e

= *Artines pavo* Draudt, 9 July, 1923:987, pl. 190a, new synonymy

= *Pheraeus odilia pavo* (Draudt), Evans (1955:73)

Assuming that Evans was correct in synonymizing *pavo* and *argus*, and it certainly appears that he was, it is obvious from the publication dates of the Seitz fascicles that *argus* is the senior synonym and takes precedence. It should be noted, as pointed out

by Mielke (pers. comm.), that the publication dates for these two Draudt names are different in the English language edition of Seitz; I have used the original German language edition dates.



Figures 50-57. (Scale line = 1 cm) *Pheraeus* spp. 50-53 *P. covadonga loxicha*, new subspecies, ♂ Holotype upperside (50), underside (51) (Photo Nos. 890622/14,15); ♀ Paratype upperside (52), underside (53) (Photo Nos. 890622/16,17) Mexico: Oaxaca. 54,55 *P. manes*, new species, ♂ Holotype upperside (54), underside (55) (Photo Nos. 890622/18,19) Brasil: Espirito Santo. 56,57 *P. rumba kofan*, new subspecies, ♂ Holotype upperside (56), underside (57) (Photo Nos. 890622/20,21) Colombia.

Pheraeus manes, new species

Figures 54, 55 (♂); 92 (♂ genitalia)

MALE: Upperside: Forewing dark brown, a few pale ochreous scales in the base of the costal cell; two subapical hyaline white spots in R_4 - R_5 (minute) and R_5 - M_1 (a dot); a large, square, hyaline white spot near the base of Cu_1 - Cu_2 and a completely separate, somewhat smaller, nearly square, hyaline white spot forward of it in M_3 - Cu_1 ; there is a faint, narrow, opaque pale yellow streak in 1A-2A, against 2A, its outer end behind the inner edge of the spot in Cu_1 - Cu_2 . There is a weakly defined, dark brown sagittate band in the base of Cu_1 - Cu_2 . Fringe brown, shaded somewhat with grey at tornus.

Hindwing the same brown as forewing, slightly paler in anal cell, unmarked except for the merest suggestion of a vague row of postdiscal pale spots. There are long brown hairs in and behind the cell and a prominent, erectile hair tuft arising from a pocket-like fold near the base of 2A-3A, its hairs very dark brown distally, slightly paler at the base. Fringe brown, greyer distally and at the tornus.

Underside: Forewing blackish brown in and behind cell, not paler on inner margin. Costal and apical areas paler brown with light fulvous overscaling; hyaline spots as above, an additional subapical white dot in R_3 - R_4 , the other two subapical spots narrowly edged dark brown; Cu_2 -2A is entirely blackish brown with no pale streak in 1A-2A. There is a subterminal row of vaguely defined double dark spots from R_4 - R_5 to Cu_1 - Cu_2 , separated from the dark terminal line by the paler brown of the apical area.

Hindwing rather pale grey-brown with scattered overscaling of pale ochreous and whitish scales, slightly darker in Cu_2 -2A. There is a poorly defined ochreous discal area extending from about the outer fourth of the cell just beyond the origin of Cu_2 and filling the basal portions of Rs - M_1 , M_3 - Cu_1 , Cu_1 - Cu_2 and very narrowly of M_1 - M_3 . Just beyond the end of the cell in M_1 - M_3 is a large, quadrate, dark brown spot inwardly bordering a somewhat smaller, opaque, shining bluish white spot which is one of five such spots forming a postdiscal band from Rs - M_1 to Cu_2 -1A, the spots of which are offset distad in M_3 - Cu_1 and Cu_1 - Cu_2 ; there are a few bluish white scales faintly suggestive of a sixth spot in Sc + R_1 - Rs . These pale spots are inwardly and outwardly bordered dark brown, the inner edging narrow except in M_1 - M_3 ; the outer edging narrow in Rs - M_1 , formed of separate dark brown dots in M_1 - M_2 and M_2 - M_3 , larger square spots in M_3 - Cu_1 and Cu_1 - Cu_2 , and a somewhat smaller spot in Cu_2 -1A. The veins between the pale spots and their dark borders are ochreous, extending distally as rays from the discal ochreous patch nearly to the termen. The subterminal area between the prominent dark brown terminal line and the postdiscal band is heavily overscaled ochreous. Cell Cu_2 -1A from about the origin of Cu_2 and extending to the terminal dark line and to slightly behind vein 1A is very heavily overscaled yellow as is the outer two thirds of vein 2A. The anal cell is overscaled whitish. Fringe pale grey brown.

Palpi missing; antennae slightly longer than half costa, shaft dark brown, not checkered, club narrow, dark brown above, pale fulvous beneath, bent to apiculus just beyond thickest portion; nudum dark brown, 4/9. Head dark brown with shining blue green reflection; thorax dark brown with very minor green reflection; abdomen dark brown above, whitish beneath with dark brown median stripe. Legs dark brown, overscaled whitish and fulvous; fore tibiae with large epiphyses overlapping tarsi; mid tibiae spined, with single pair of spurs; hind tibiae spined, with two pairs of spurs.

Genitalia very similar to *P. argynnis* (Plötz, 1884); uncus undivided, in dorsal view broad and rounded, caudally constricted to a narrow rounded "finger"; gnathos bifurcate, the lobes wide in ventral view and very narrowly separated, extending caudad slightly beyond uncus. Valvae broad, harpe broad, bluntly square ended with a small inwardly projecting pointed tooth from its dorso-caudal corner; ampulla extends dorsad only very slightly beyond harpe. Penis long, 1.4 x length of valva, slender, rather straight; vesica opening dorsal, a very few fine teeth ventrally on the right side, no cornutus; phallobase moderately long. Juxta prominent but small. Saccus moderately long, rather narrow and only slightly tapered in ventral view.

FEMALE: Unknown.

Wing measurements: Forewing ♂ holotype, 14½ x 7½ mm.

Type material: Only the holotype, Brasil: Espirito Santo; Santa Teresa, 900 m (7-8).iv.1973, C. Callaghan, bearing the following labels: printed and hand printed white label, BRASIL: ESPIRITO SANTO Santa Teresa 900 m. 7-8.iv.1973 C. Callaghan; printed white label, Allyn Museum Acc. 1973-24; printed and hand printed white label, Genit. Vial SRS-2620; printed and hand printed red label, HOLOTYPE ♂ *Pheraeus manes* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 890612A/4,5 & 890622/18,19. The holotype will be deposited in the Universidade Federal do Paraná, Curitiba, Brasil, but is temporarily on loan to the Allyn Museum of Entomology.

The nearest species to *manes* is *P. argynnis*, which is more heavily marked above and much darker and more ferruginous beneath. The blue-white markings of the hindwing of *argynnis* are more conspicuous, extend prominently into Sc+R₁-R_s and have greatly reduced dark edging. In the male genitalia, the valva of *argynnis* is somewhat longer and with a deeper step between harpe and ampulla; the saccus of *manes* is much narrower.

Pheraeus montes (Bell, 1947)

Figures 93 (♂ genitalia); 113 (♀ genitalia)

Artines montes Bell, 1947:6, f.6

nec Pheraeus montes (Bell), Evans (1955:75, pl.58)

Although there are many similarities between Bell's and Evans' descriptions, the genitalia of *montes* Bell and *montes* Evans, if one is to believe Evans' figure, are quite different. In addition to the genitalic differences, Bell's *montes* has the upperside forewing fulvous spot in 1A-2A completely separate from that in Cu₁-Cu₂ whereas Evans' description clearly indicates that they are adjoining. On the underside hindwing, *montes* Bell is "pale fulvous brownish" with a "yellow central area", and in the submarginal band, the ill defined dark spots are usually elongated outwardly toward the termen, whereas Evans' description indicates a yellow underside hindwing with the row of postdiscal dots sharply defined as in *Vinius exilis* (Plötz, 1883). They are not the same insects; the identity of *montes* Evans, *nec* Bell, is not known.

I have figured the genitalia of both sexes of *montes* as Bell's illustration does not show certain important details in the male, and the female heretofore has not been figured.

Pheraeus rumba kofan, new subspecies

Figures 56, 57 (♂); 94 (♂ genitalia)

MALE: Upperside: Forewing dark brown with ochreous scaling in costal cell and extending into basal third of upper cell. Hyaline centered ochreous spots as follows: three subapical in R₂-R₄ (smallest), R₄-R₅ and R₅-M₁ (largest) in a straight line directed to just behind mid termen; triangular spot in M₂-M₃; larger, subtriangular spot in M₃-Cu₁; still larger quadrate spot in Cu₁-Cu₂. Behind the spot in Cu₁-Cu₂ is an opaque ochreous streak in Cu₂-1A, more or less connected to a similar, longer streak in 1A-2A which nearly reaches wing base along 2A; behind this is a vague streak in the anal cell. There is a poorly defined dark brown sagittate brand in the base of Cu₁-Cu₂. Fringe brown, somewhat greyish at tornus.

Hindwing the same dark brown as forewing, slightly paler in costal cell, clothed in long ochreous brown hairs in and behind cell; bearing a prominent, red brown, erectile hair tuft arising from a pocket-like fold in about mid 2A-3A. There is a poorly defined discal fulvous spot, strongest in M₁-M₃ well distad of cell end, and in the basal three-fifths of M₃-Cu₁ and Cu₁-Cu₂, the spot weakly continued forward by fulvous scaling in Rs-M₁. Fringe

brown, becoming fulvous at tornus.

Underside: Forewing dark brown, heavily overscaled fulvous in costal area, more lightly in apical area and on discocellular veins at cell end. Discal and subapical spots as above, spot in Cu_2-2A reduced, not extending basad; no fulvous scaling in anal cell which is not paler. Fringe as above.

Hindwing dark brown with large, poorly defined discal fulvous patch in about the central half of the wing, between $Sc+R_1$ and $1A$, but extended basad by scattered fulvous scaling and distad as rays produced by fulvous scaling on the veins and reaching the dark terminal line. The fulvous discal area is bordered distally by a curved postdiscal row of pale blue-white spots, broadly bordered dark brown and extending from $Sc+R_1-R_2$ to Cu_2-1A , the spot in M_1-M_3 the largest and very prominent, offset basad, its inner dark brown border wider than the spot and nearly reaching cell end. The anal cell overscaled fulvous. Fringe dark brown becoming fulvous at tornus.

Palpi dark brown with fulvous scales, third segment short, conical. Antennae slightly longer than half costa; shaft dark brown above, very faintly checkered fulvous in front; club slender, dark brown above, fulvous beneath, bent to apiculus beyond thickest part; nudum brown, 3/8. Head dark brown with fulvous scales; thorax and abdomen dark brown, scales rubbed from abdomen beneath. Legs dark brown, scaled fulvous on outside; fore tibiae with large epiphyses just reaching tarsi; mid tibiae spined, with single pair of spurs; hind tibiae spined, with two pairs of spurs.

Genitalia almost exactly as *rumba* Evans, 1955; uncus undivided, broad; gnathos broader than uncus, bifurcate, the arms very heavily sclerotized, in lateral view concave ventrally. Valvae broad, harpe distally rounded, densely covered with microtrichia; ampulla extends dorsad beyond harpe producing a "stepped" dorsal edge to the valva. Penis long, 1.3 x length of valva, slender, centrally concave ventrally, vesica opening dorsal, finely dentate on right side only; no cornutus; phallobase long. Juxta slender, ribbon-like. Saccus long, broad, only slightly tapered, shorter and not as broad as *rumba*.

FEMALE: Unknown.

Wing measurements: Forewing ♂ holotype, $11\frac{1}{2} \times 6$ mm.

Type material: Only the holotype, Colombia: Santa Rosa, Kofan Indian village, Headwaters of Rio Migue, 23.x.1970, ex M. Simon, bearing the following labels: hand printed white label, COLUMBIA (*sic!*): SANTA ROSA Kofan Indian Village Headwaters of Rio Migue 23.x.1970 ex M. Simon; printed white label, Allyn Museum Acc. 1984-43; printed and hand printed white label, Genit. Vial SRS-2613; printed and hand printed red label, HOLOTYPE ♂ *Pheraeus rumba kofan* S. R. Steinhäuser; printed and hand printed white label, Allyn Museum Photo Nos. 890612A/6,7 & 890622/20,21. The holotype ♂ is deposited in the Allyn Museum of Entomology.

P. r. kofan differs from its nearest relative, *rumba*, by its greatly reduced and paler upperside markings. On the underside, the forewing of *rumba* is predominantly fulvous rather than brown and the hindwing discal fulvous patch is darker and expanded to cover most of the wing.

Pheraeus jaruensis, new species

Figures 58, 59 (♂); 95 (♂ genitalia)

MALE: Upperside: Forewing dark brown with scattered ochreous scaling in costal cell, continued very thinly to apical area. There is a poorly defined postdiscal band composed of very small hyaline spots in R_2-R_5 and R_6-M_1 , similar, slightly larger spots in M_3-Cu_1 and Cu_1-Cu_2 , these hyaline spots rimmed with ochreous scales; the rest of the band formed of sparse ochreous scaling in R_3-R_4 and M_1-M_3 and heavier, more extensive ochreous scaling in Cu_2-2A and the anal cell. There is a dark brown, more or less sagittate band in the base of Cu_1-Cu_2 . Fringe dark brown.

Hindwing the same dark brown as forewing with long ochreous and brown hairs in and behind the cell. There are sparse scattered fulvous scales beyond the cell end in M_1-M_3 and in the terminal quarters of $Rs-M_1$ and M_3-Cu_1 and a few fulvous scales near the termen

in Cu₁-Cu₂, Cu₂-2A and the anal cell; the rest of the anal cell pale yellowish white. There is a prominent erectile hair tuft arising from a pocket-like fold near the base of 2A-3A, its hairs very dark brown terminally, paler near the base. Fringe dark brown.

Underside: Forewing dark brown, becoming black brown behind the cell; a few scattered fulvous scales in costal and apical areas. The spots in R₃-R₄, R₄-R₅, R₅-M₁, M₂-Cu₁ and Cu₁-Cu₂ repeated from above. Anal cell not paler. Fringe dark brown, slightly paler at tornus.

Hindwing dark brown; there is a vague suggestion of a discal patch formed by scattered dark fulvous scales in the distal third of the cell, the bases of M₃-Cu₁ and Cu₁-Cu₂ and centrally in Cu₂-2A, this fulvous scaling continued along the veins to the termen. Distad of this faintly fulvous area is a curved postdiscal row of shining blue spots from Sc+R₁-R₈ to Cu₂-1A, the spot in M₁-M₃ offset basad and inwardly bordered by a prominent, large, quadrate black spot extending to cell end; the other blue spots more or less broadly bordered black brown. The anal cell is somewhat paler. Fringe dark brown, becoming paler at tornus.

Palpi quadrate, dark brown with admixed ochreous and fulvous scales, the third segment rather short, conical, dark brown, protruding somewhat from the hairs of the second segment. Antennae longer than half costa; shaft dark brown above, very faintly checkered pale yellow in front; club narrow, dark brown above, pale yellow beneath, bent to apiculus beyond thickest part; nudum dark brown, 3/8 (tip of apiculus broken, nudum count estimated). Head, thorax and abdomen dark brown. Legs dark brown; fore tibiae with large epiphyses slightly overlapping tarsi; mid tibiae spined, with single pair of spurs; hind tibiae apparently smooth, with two pairs of spurs.

Genitalia: Uncus undivided, very broad, square, projects slightly beyond bifurcate gnathos. Tegumen with short, triangular superuncus. Valvae moderately broad; harpe rounded distally but produced to a sharp point dorsally which projects dorsad slightly beyond the weakly developed ampulla. Penis short, very slightly shorter than valva, slender; vesica opening distal and dorsal, not dentate; distal end of penis vaguely and shallowly bifurcate; no cornutus, but vesica very finely dentate; phallobase very short, curved ventrad. Juxta ribbon-like. Saccus moderately long, not tapered.

FEMALE: Unknown.

Wing measurements: Forewing ♂ holotype, 11½ x 6½ mm.

Type material: Only the holotype, Brasil: Rondonia; Jarú, 5.iii.1976, C. Callaghan, bearing the following labels: printed and hand printed white label, BRASIL: RONDONIA Jarú 5.iii.1976 C. Callaghan; printed white label, A. C. Allyn Acc. 1976-15; printed and hand printed white label, Genit. Vial SRS-2273; printed and hand printed red label, HOLOTYPE ♂ *Pheraeus jaruensis* S. R. Steinhauser; printed and hand printed white label, Allyn Museum Photo Nos. 890612A/8,9 & 890622/22,23. The holotype will be deposited in the Universidade do Paraná, Curitiba, Brasil, but is temporarily on loan to the Allyn Museum of Entomology.

Superficially, *jaruensis* is somewhat similar to *P. unia* (Butler, 1870) from Hispaniola, but lacks the prominent underside hindwing orange area. The genitalia of *unia* have not been illustrated.

Pheraeus maria, new species

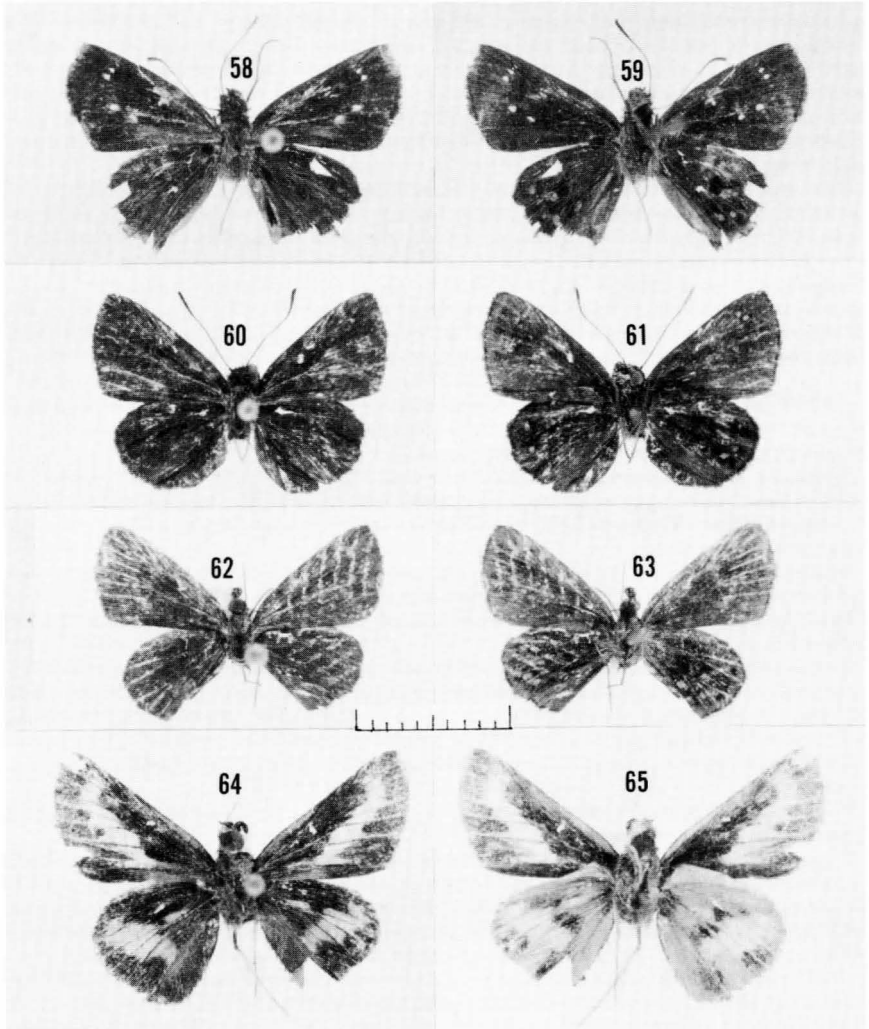
Figures 60, 61 (♂); 62, 63 (♀); 96 (♂ genitalia); 114 (♀ genitalia)

MALE: Upperside: Forewing dark brown with a very few scattered fulvous scales in base of costal cell. There may be faint traces of subapical spots in at least R₁-R₄ and R₅-M₁ (these are present as one to five yellowish white scales in the holotype, but absent in the single ♂ paratype). The wing is otherwise unmarked; there is no brand. Fringe dark brown.

Hindwing the same dark brown as forewing with sparse, long fulvous brown hairs in and behind cell; anal cell slightly paler. There is a prominent reddish brown, erectile hair tuft arising from a pocket-like fold basad of 2A-3A (the tuft has been lost in the holotype,

leaving only its root scar). The wing is otherwise unmarked. Fringe dark brown.

Underside: Forewing dark brown with a very few scattered fulvous scales in basal and apical areas. There are three pale bluish white subapical spots with vague darker brown borders in R_3 - R_4 to R_5 - M_1 , forming an arc, slightly convex distally, and very faint indications of a pale spot just basad of mid M_3 - Cu_1 . Except for a slightly darker brown terminal line, the wing is otherwise unmarked.



Figures 58-65. (Scale line = 1 cm) *Pheraeus* and *Mellana* spp. 58,59 *P. jaruensis*, new species, ♂ Holotype upperside (58), underside (59) (Photo Nos. 890622/22,23) Brasil: Rondonia. 60-63 *P. maria*, new species, ♂ Holotype upperside (60), underside (61) (Photo Nos. 890626/3,4) Peru: Madre de Dios; ♀ Paratype upperside (62), underside (63) (Photo Nos. 890626/5,6) Brasil: Rondonia. 64,65 *M. amicus* (Bell, 1942) upperside (64), underside (65) (Photo Nos. 890626/7,8) Ecuador: Chimborazo.

Hindwing dark brown with a very few scattered fulvous scales rather randomly distributed. There is a postdiscal band of poorly defined, pale, shining blue spots from Sc+R₁-Rs to Cu₂-1A, those in M₁-M₂ and M₂-M₃ offset basad. The postdiscal area, from about the distal third of the cell nearly to the terminal dark brown line, is very dark brown, but not forming distinct borders to the pale spots. Fringe brown.

Palpi quadrate, dark brown with fulvous scaling, third segment dark brown, moderately long, conical, prominently protruding from the hairs of the second segment (palpi missing in holotype). Antennae longer than half costa, shaft dark brown, not checkered, club slender, bent to apiculus beyond thickest part, dark brown above, yellowish white beneath; nudum brown, 10 segments. Head and thorax dark brown; abdomen dark brown with dense patches of black androconial scales on the 4th to 7th tergites. Legs dark brown with fulvous scaling on inside; fore tibiae with large epiphyses slightly overlapping tarsi; mid tibiae with a few spines and one pair of spurs; hind tibiae apparently smooth, two pairs of spurs.

Genitalia: Uncus undivided, somewhat bulbous distally in dorsal view; gnathos bifurcate. Tegumen, cephalad of uncus suture, more heavily sclerotized, suggestive of a vestigial superuncus. Valvae rather short, harpe distally rounded, more or less completely fused to ampulla, the suture marked by an inwardly projecting curved process. Penis long, 1.3 x length of valva, slender, slightly sinuous in dorsal view, ventrally concave at ductus ejaculatorius; phallobase long; vesica opening dorso-dextral, curved row of small teeth on ventral side; no cornutus, but vesica is finely dentate. Juxta small but prominent, transtilla mostly membranous. Saccus long, narrow, round ended.

FEMALE: Upperside: Forewing as male but the very sparse overscaling in base of costal cell is more yellowish white. Whitish subapical spots in R₁-R₃ and R₅-M₁, and small, vague, whitish postdiscal spots in M₃-Cu₁ and Cu₁-Cu₂.

Hindwing as male, unmarked, but no hair tuft.

Underside: Forewing as male with addition of whitish postdiscal spots in M₃-Cu₁ and Cu₁-Cu₂, but subapical spot in R₃-R₄, as well as the dark edging to the pale spots, is missing, perhaps due to rubbing.

Hindwing as male but blue spots slightly more prominent; there is a narrow streak of fulvous scales on the discocellular veins at cell end.

Palpi missing; antennae broken. Head, thorax, abdomen and legs as male, but no androconial scales on abdomen.

Genitalia (partly eaten by psocids): Lamella postvaginalis centrally indented on caudal margin; lamella antevaginalis not developed. Antrum short; ductus seminalis attached dorsally at cephalad end of antrum, forward of which the ductus bursae is singly spiralled and gradually widens to spiculose corpus bursae of undetermined shape. Papillae anales rather long, straight edged; apophyses posteriores rather short; apophyses anteriores not developed.

Wing measurements: Forewing ♂ holotype, 10½ x 6½ mm; ♂ paratype, 11 x 6 mm; ♀ paratype, 10½ x 6 mm.

Type material: Holotype ♂, Peru: Madre de Dios; Rio Alto Madre de Dios approx. 15 km below Shintuya, 420 m, 11.vii.1980, J. F. Douglass, bearing the following labels: printed and hand printed white label, PERU: MADRE de DIOS left bank, Rio Alto Madre de Dios, ca. 15 river km. downstream 420 m. 11.vii.1980 J. F. Douglass; printed and hand printed white label, J. F. Douglass No. 749; printed white label, Allyn Museum Acc. 1980-19; white paper triangle with hind leg glued on; printed and hand printed white label, Genit. Prep. SRS-1299; printed and hand printed red label, HOLOTYPE ♂ *Pheraeus maria* S. R. Steinhäuser; printed and hand printed white label, Allyn Museum Photo Nos. 890612A/10,11, 890622/24,25 & 890626/3,4. There are one ♂ and one ♀ (Genit. Vial SRS-2814, Allyn Museum Photo Nos. 890612A/12,13 & 890626/5,6) paratypes, Brasil: Rondonia; Jaru, 31.vii.1976 (♂) and 5.viii.1976 (♀), C. Callaghan. The holotype and two paratypes are deposited in the Allyn Museum of Entomology.

Apparently the nearest relative to *maria* is *P. jaruensis*, from which *maria* is easily distinguished by its almost unmarked upper surface, lack of a forewing brand in the male, and the dense abdominal androconial patches in the male. These morphological differences

are probably sufficient to warrant a separate genus for *maria*, but since those species with the hindwing tuft present have been left in *Pheraeus* (the tuft is lacking in the type species), I leave this new species there as well. It and *jaruensis* are further examples of the artificiality of the separation of the "I" and "J" groups of Hesperinae on the basis of wing color.

Mellana amicus (Bell, 1942)

Figures 64, 65 (♂); 97 (♂ genitalia)

I had re-described this insect as a new species in the genus *Molo*, based on a single male from Chimborazo province, Ecuador, but Mielke (pers. comm.) kindly pointed out to me its synonymy with *Atrytone amicus* Bell, 1942, also from Ecuador. Rather than attempt to change the figure numeration and the plates, I have left them in with corrected captions. There is some doubt as to the correct generic placement of *amicus*, but I leave it as established by Evans until such time as the necessary revisions are made.

Acknowledgments

I owe thanks to many people who, directly and indirectly, have been helpful in the preparation of this paper. I am especially indebted to Dr. Olaf H. H. Mielke for his critical review of the manuscript and many helpful suggestions. I also wish to thank Drs. Lee D. and Jacqueline Y. Miller for their support, encouragement and numerous valuable editorial improvements, and to Jackie especially for preparing the photos used and for her patience in teaching me how to use the word processor, over and over and over again.

Literature Cited

- Bell, E. L., 1942. New Genera and new Species of Neotropical Hesperiidæ (Lepidoptera: Rhopalocera). *American Mus. Novit.* 1205:1-9, 14f.
- , 1947. New species and subspecies of Neotropical Hesperiidæ (Lepidoptera, Rhopalocera). *American Mus. Novit.* 1330:1-9, 8f.
- , 1947. A new genus and some new species and subspecies of Neotropical Hesperiidæ (Lepidoptera, Rhopalocera). *American Mus. Novit.* 1354:1-12, 10f.
- , 1959. Descriptions of some new species of Neotropical Hesperiidæ (Lepidoptera: Rhopalocera). *American Mus. Novit.* 1962:1-16, 27f.
- Bridges, C.A., 1983. *Lepidoptera: Hesperiidæ*, Notes on species-group names. Urbana, Ill. publ. by author:ii; I.1-129; II.2- 41; III.1-62; IV.1-30; V.1-13.
- , 1988a. *Catalogue of Hesperiidæ (Lepidoptera: Rhopalocera)*. Urbana, Ill. publ. by author:vii; I.ii; I.1- 205; II.ii; II.1-67; III.ii; III.1-78; IV.ii; IV.1-54; V.ii; V.1-20; VI.ii; VI.1-7; App.I:ii,1;App.II:ii,1-8.
- , 1988b. *Annotations on the Catalogue of Hesperiidæ*. Urbana, Ill., publ. by author.1-5:14pp.
- Butler, A. G., 1870. Descriptions of some new diurnal Lepidoptera, chiefly Hesperiidæ. *Trans. ent. Soc. London* 18(4):485-520.
- Draudt, M., 1917-1924. *Die amerikanischen Tagfalter*. In *Seitz*, *Grossschmette*. Erde 5.
- Dyar, H. G., 1913. Descriptions of new Lepidoptera chiefly from Mexico. *Proc. U.S. natl. Mus.* 44(1951):279-324.
- Evans, W. H., 1955. *A catalogue of the American Hesperiidæ in the British Museum (Natural History) Part 4: Hesperinae and Megathyminæ*. London: v + 499pp., pls.54-88.
- Fabricius, J. C., 1792-1799. *Entomologia systematica*. . . . Copenhagen, C. G. Proft. 8vo 4 vol. + suppl.
- Felder, C. von & R. Felder, 1865-1875. *Rhopalocera*. In *Reise der Osterreichischen Fregatte "Novara"*. . . . Vienna: vi + 549pp., 140pls.
- Freeman, H. A., 1967. New Records, and Notes on the Status of Some Hesperiidæ from Mexico. *J. Res. Lep.* 6(1):59-64

- , 1969. Records, new species and a new genus of HesperIIDae from Mexico. *J. Lep. Soc.* 23(Suppl.2):1-62, pls.1-15.
- Godman, F.D., 1900. In Godman, F.D. & O. Salvin, 1879-1901. *Biologia Centrali-Americana. Insecta. Lepidoptera-Rhopalocera.* 3 vols. London.
- Guénéé, A., 1865. In Vinson, A. *Voyage à Madagascar au couronnement de Rhadama II.* Annexe F. Paris vi+575 pp. ill.
- Hayward, K. J., 1938. Hesperioidea Argentina VIII. *An. Soc. cient. Argentina* 126:429-459, 43f.
- , 1940. Hesperioidea Argentina. XII. *An. Soc. cient. Argentina* 130:70-94, 14f.
- , 1941. Further new species of Neotropical HesperIIDae from Ecuador (Lepidoptera). *Revta. Ent. Rio de J.* 12(3):521-531, 14f.
- , 1943. Estudios sobre Hesperides Neotropicales (Lep. Hesp.) I. Sobre la Sinonimia y Organos Genitales de ciertas Especies del Genero "Dalla" Mabille. *Acta zool. Lilloana* 1:45-53, 15f.
- Hemming, A. F., 1967. The generic names of the butterflies.... (Lepidoptera: Rhopalocera). *Bull. Brit. Mus. (Nat. Hist.) Entomology Suppl.* 9:509pp.
- Hewitson, W.C., 1852-1877. *Illustrations of new species of exotic Butterflies....* London, Van Voorst 5 vols.
- , 1867-1868. Descriptions of one hundred new species of HesperIIDae. London. 1:ii + 25 pp.; 2:26-56.
- , 1877. Descriptions of twenty-three new species of HesperIIDae from his own collection. *Ann. Mag. nat. Hist.* 4(20):319-328.
- Klots, A. B., 1956. Lepidoptera. In S. L. Tuxen, *Taxonomist's Glossary of Genitalia in Insects.* Copenhagen: 97-111, f.121-132.
- Latreille, P. A., 1819-1824. In Latreille & Godart, *Encyc. Meth.* 9 & Suppl.:828pp.
- Lindsey, A.W., 1921. The Hesperioidea of America North of Mexico. *Univ. Iowa Studies Nat. Hist.* 9(4):3-114.
- Mabille, P., 1878. Descriptions de Lépidoptères nouveaux du groupe des Hespérides (55-60). *Petites Nouv. ent.* 2(199):242.
- , [1879]. *Catalogue des Hespérides du Musée Royal d'Histoire Naturelle de Bruxelles.* *Ann. Soc. ent. Belg.* 21:12-44.
- , 1883. Description d'hespériens. *C. r. Soc. ent. Belg.* 27:li-lxxviii.
- , 1897. Description de Lépidoptères nouveaux. *Ann. Soc. ent. Fr.* 66:182-231, ill.
- , 1903-1904. Lepidoptera Rhopalocera. Family HesperIIDae. *Gen. Insectorum* 17:1-210.
- Miller, L. D., 1969(1970). Nomenclature of wing veins and cells. *J. Res. Lep.* 8(2):37-48.
- Miller, L.D. & J.Y. Miller, 1972. New high-altitude HesperIIDae from Mexico and Ecuador (HesperIIDae). *Bull. Allyn Mus.* 49:1-23, 65f.
- Plötz, C., 1882. Die Hesperiiinen-Gattung *Hesperia* Aut. und ihre Arten. *Stett. ent. Ztg.* 43(7-9):314-344, 43(10-12):436-456.
- , 1883. Die Hesperiiinen-Gattung *Hesperia* Aut. und ihre Arten. *Stett. ent. Ztg.* 44(1-3):26-64, 44(4-6):195-233.
- , 1884. Die Hesperiiinen-Gattung *Butleria*, Kirb. und ihre Arten. *Stett. ent. Ztg.* 45:290-295.
- , 1884. Die Hesperiiinen-Gattung *Apaustus* Hbn. und ihre Arten. *Stett. ent. Ztg.* 45(4-6):151-166.
- Schaus, W., 1913. New species of Rhopalocera from Costa Rica. *Proc. zool. Soc. London* 3:339-367, 5pls.
- Seitz, A. (ed.), 1907-1924. *Grossschmetterlinge der Erde. V. Die Amerikanischen Tagfalter.* Stuttgart, Alfred Kernan: 1139pp., 203 pls.
- Steinhauser, S. R., 1972. The Genus *Zestusa* (HesperIIDae) in El Salvador with Description of a New Species. *J. Lep. Soc.* 26(3):127-132, 5f.
- , 1974. Notes on Neotropical Nymphalidae and HesperIIDae with descriptions of new species and subspecies and a new Genus. *Bull. Allyn Mus.* 22:1-38, 94f.
- , 1981. A revision of the *proteus* group of the Genus *Urbanus* Hübner. *Lepidoptera: HesperIIDae.* *Bull. Allyn Mus.* 62:1-41, 61f.
- , 1983. Notes on *Ridens* Evans, 1952 with description of a new species from Mexico. *Bull. Allyn Mus.* 79:1-7, 6f.

- , 1986. A review of the skippers of the *narcosius* group of Species of the genus *Astraptus* Hübner (*sensu* Evans, 1952) and erection of a new genus. Lepidoptera: Hesperidae. Bull. Allyn Mus. 104:1-43, 79f.
- , 1989. Taxonomic Notes and Descriptions of new Taxa in the Neotropical Hesperidae. Part I, Pyrginae. Bull. Allyn Mus. 127:1-70, 109f.
- , L.D. Miller, J.Y. Miller & C.A. Bridges, 1990. Case 2720: *Dalla Mabilie*, 1904 (Insecta, Lepidoptera): proposed conservation. Bull. Zool. Nomenclature 47(3).
- Weymer, G., 1890. Lepidopteren gesammelt auf einer Reise durch Colombia, Ecuador, Peru, Brasilian, Argentinien und Bolivien in den Jahren 1868-1877 von Alphons Stübel. In A. Stübel, Reisen in Süd-amerika. Berlin, A. Asher & Co.:vi+82pp, 9pls.

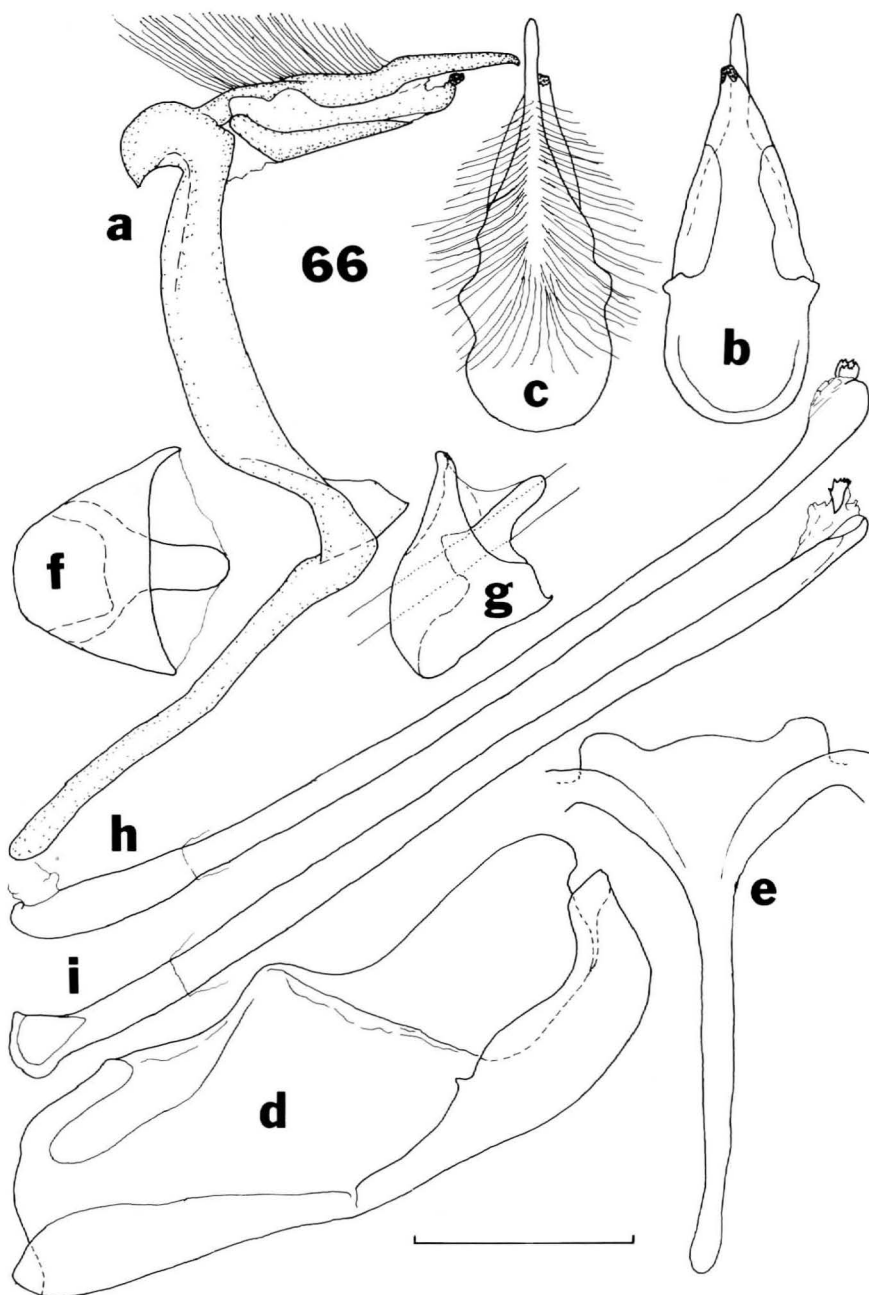


Figure 66. (Scale line = 1 mm) ♂ genitalia. *Dalla nubecula*, new species, Holotype, Mexico: Chiapas (Genit. Vial SRS-2575); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral e) saccus-ventral; f,g) transtilla and juxta-dorsal (f), lateral (g); h,i) penis and cornutus-dorsal (h), lateral (i).

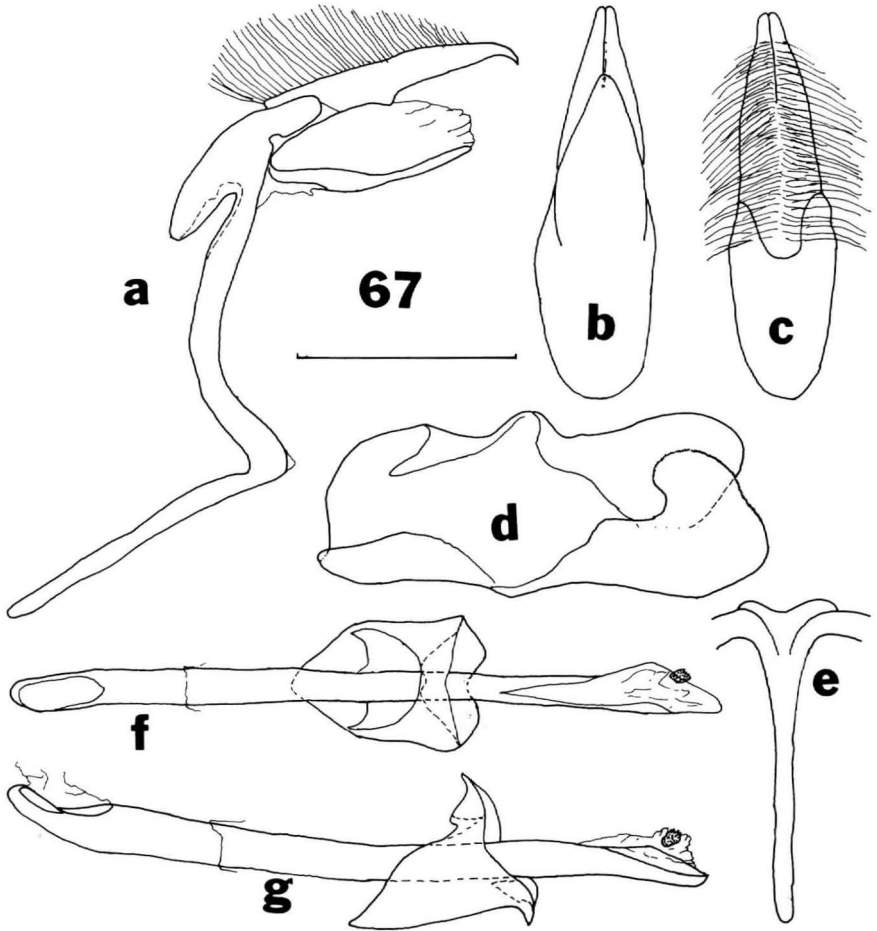


Figure 67. (Scale line = 1 mm) ♂ genitalia. *Dalla ligilla* (Hewitson, 1877), Mexico: Chiapas; Santa Rosa Comitan (Genit. Vial SRS-2803); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g) transtilla, juxta, penis and cornutus-dorsal (f), lateral (g).

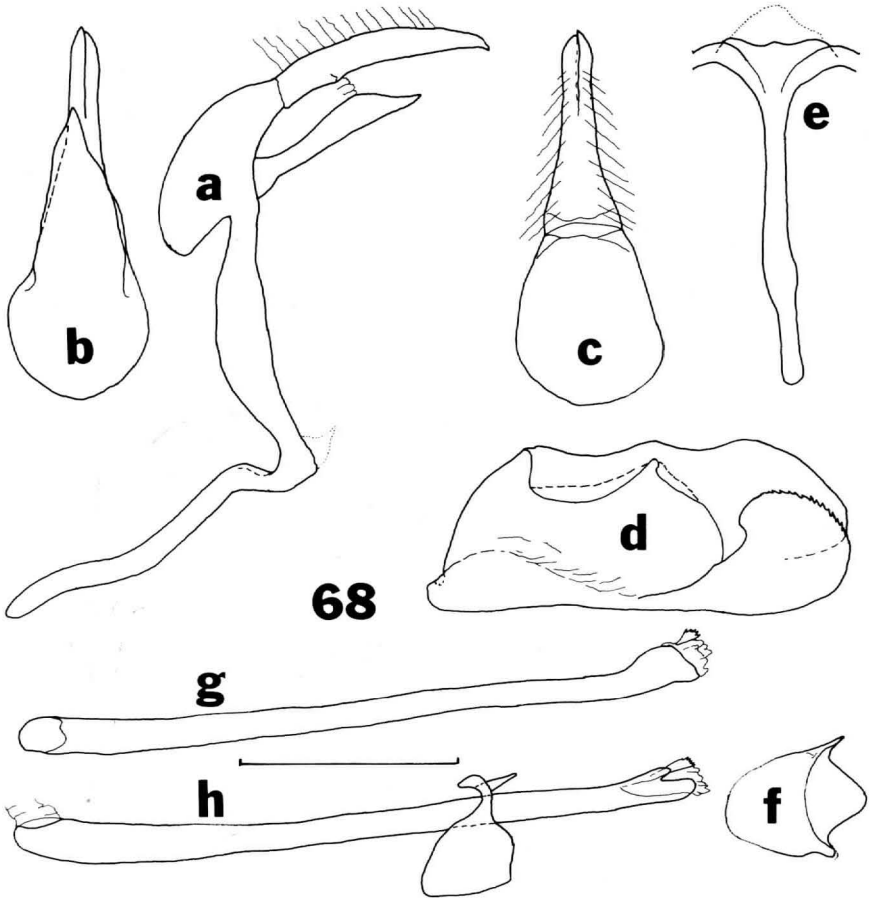


Figure 68. (Scale line = 1 mm) ♂ genitalia. *Dalla dividuum* (Dyar, 1913), Mexico: Colima; La Salada (Genit. Vial SRS-2801); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla and juxta-dorsal; g) penis and cornutus-dorsal; h) transtilla, juxta, penis and cornutus-lateral.

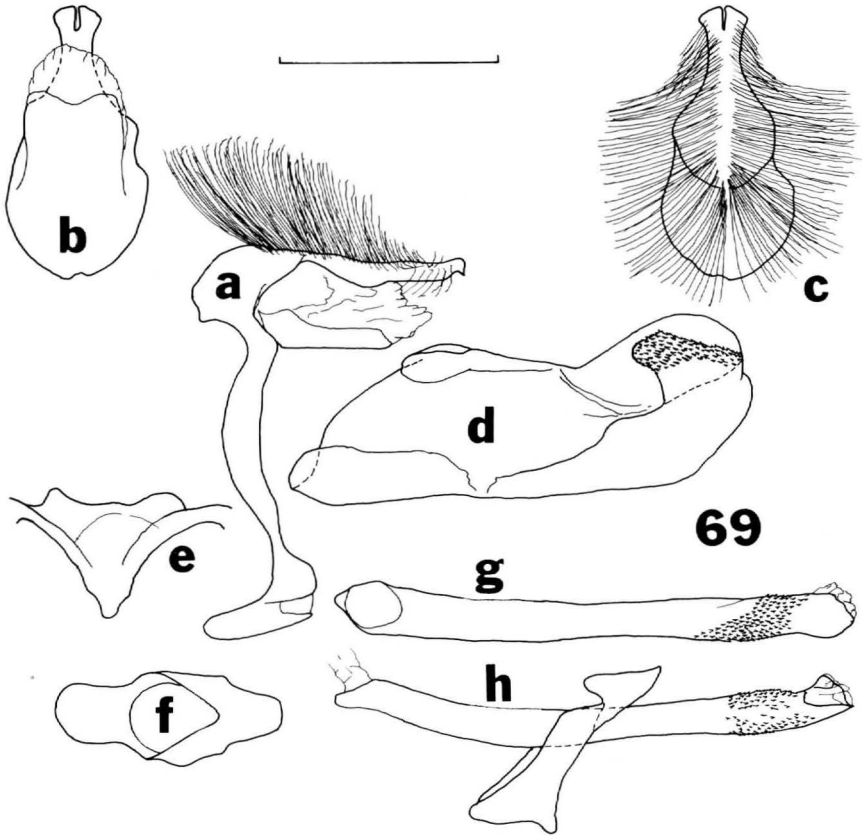


Figure 69. (Scale line = 1 mm) ♂ genitalia. *Dalla pincha*, new species, Paratype, Ecuador: Chimborazo (Genit. Vial SRS-2572); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla and juxta-dorsal; g) penis-dorsal; h) transtilla, juxta and penis-lateral.

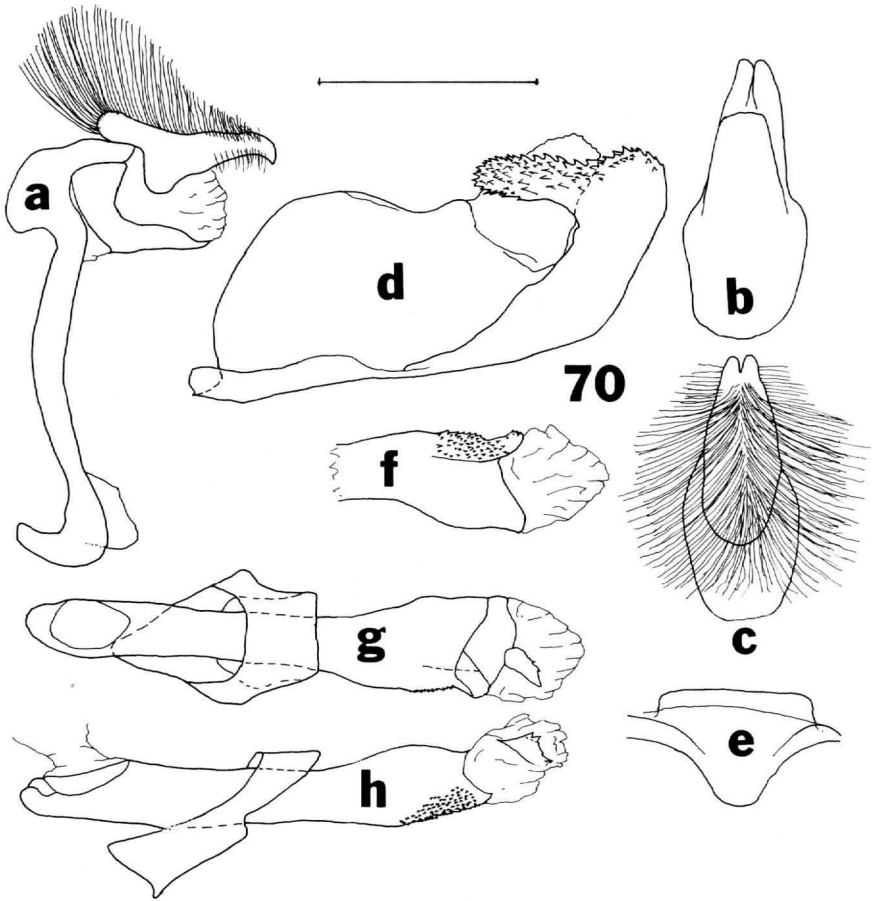


Figure 70. (Scale line = 1 mm) ♂ genitalia. *Dalla xantha*, new species, Holotype, Colombia: Tolima (Genit. Vial SRS-2563); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) caudal end of penis-ventral; g,h) transtilla, juxta, penis and cornutus-dorsal (g), lateral (h).

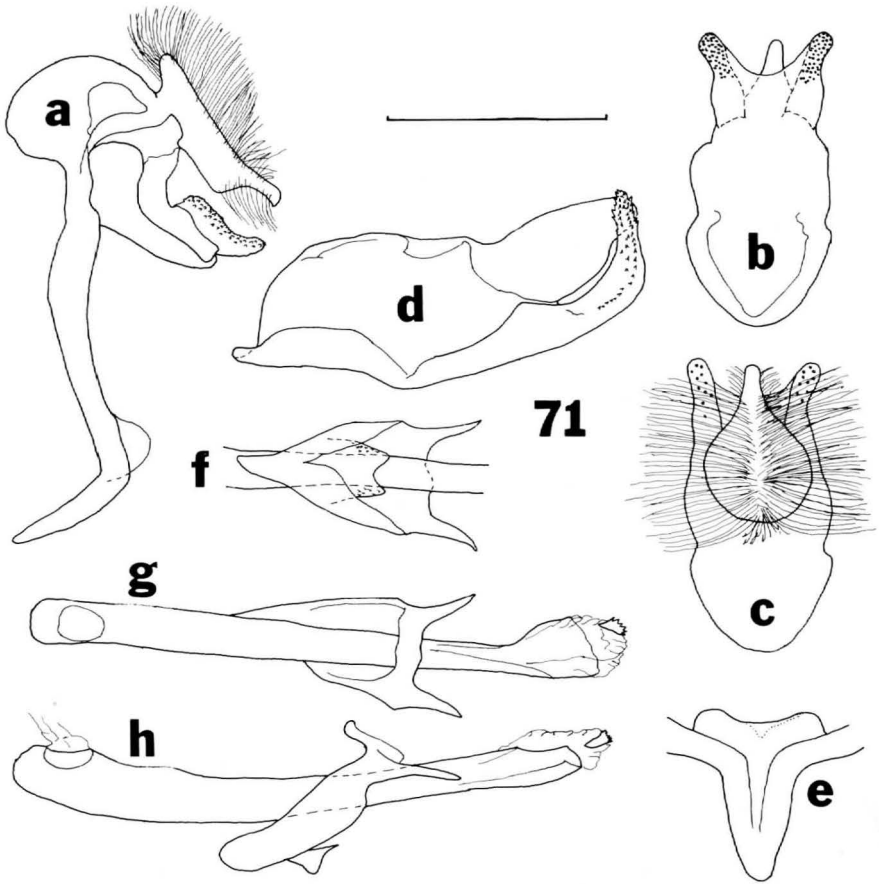


Figure 71. (Scale line = 1 mm) ♂ genitalia. *Dalla bos*, new species, Paratype, Colombia: Cauca (Genit. Vial SRS-2542); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla and juxta-ventral; g,h) transtilla, juxta, penis and cornutus-dorsal (g), lateral (h).

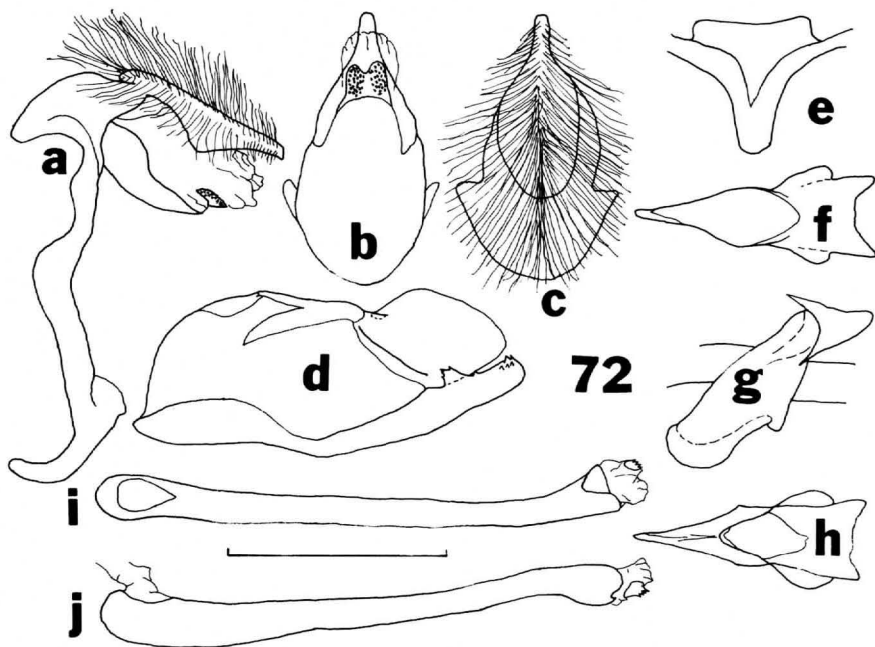


Figure 72. (Scale line = 1 mm) ♂ genitalia. *Dalla pura*, new species, Holotype, Colombia: Cauca (Genit. Vial SRS-2545); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g,h) transtilla and juxta-dorsal (f), lateral (g), ventral (h); i,j) penis and cornutus-dorsal (i), lateral (j).

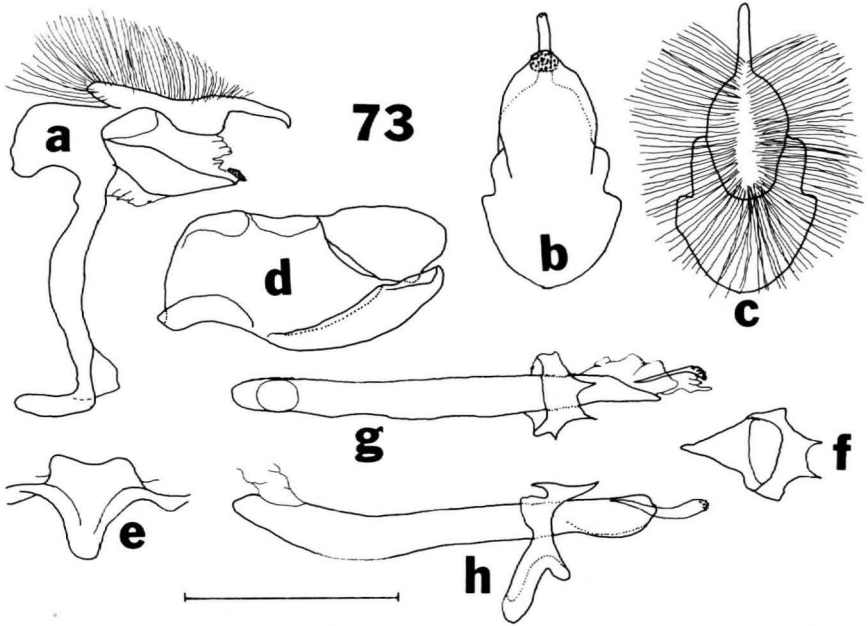


Figure 73. (Scale line = 1 mm) ♂ genitalia. *Dalla simplicis*, new species, Holotype, Colombia: Cauca (Genit. Vial SRS-2566); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla and juxta-dorsal; g,h) transtilla, juxta, penis and cornutus-dorsal (g), lateral (h).

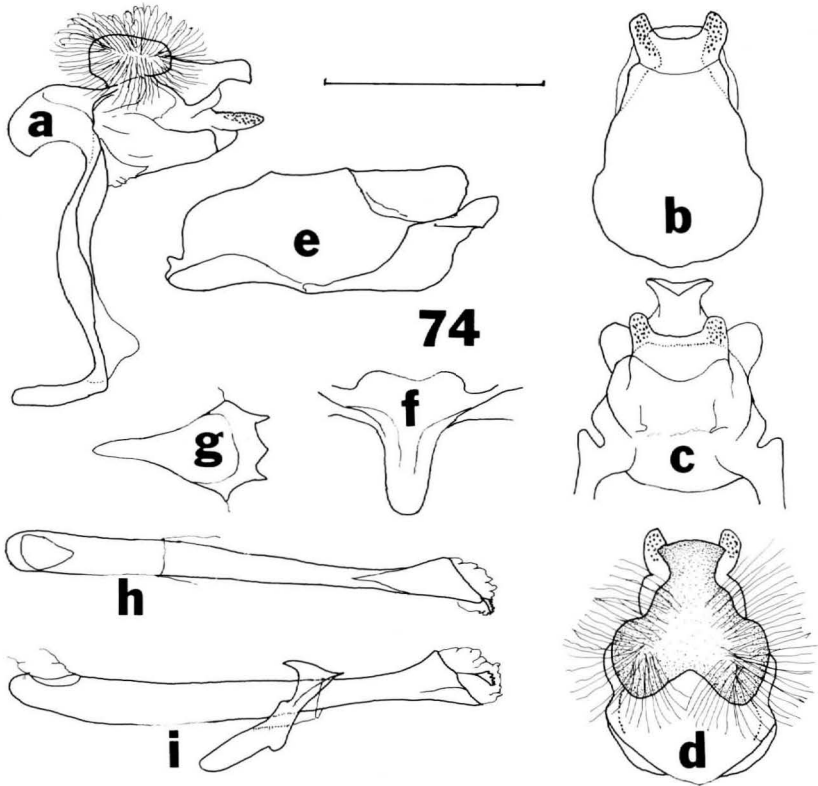
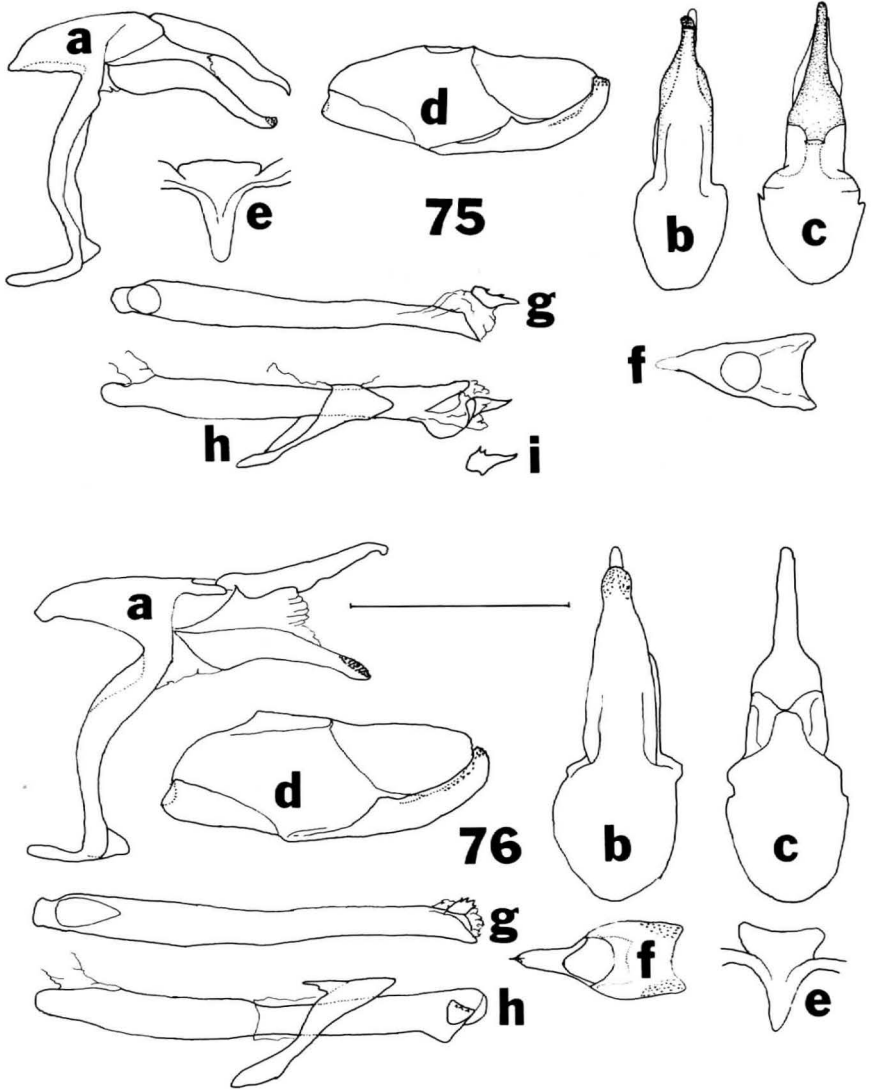


Figure 74. (Scale line = 1 mm) ♂ genitalia. *Dalla puracensis*, new species, Holotype, Colombia: Cauca (Genit. Vial SRS-2558); a) tegumen, uncus, gnathos and associated structures-lateral; b,c,d) same-ventral (b), ventro-caudal (c), dorsal (d); e) right valva (interior-lateral); f) saccus-ventral; g) transtilla and juxta-dorsal; h) penis and cornutus-dorsal; i) transtilla, juxta, penis and cornutus-lateral.



Figures 75,76. (Scale line = 1 mm) *Dalla* spp. ♂ genitalia. 75 *D. calima*, new species, Paratype, Colombia: Valle del Cauca (Genit. Vial SRS-2560); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla and juxta-dorsal; g) penis and cornutus-dorsal; h) transtilla, juxta, penis and cornutus-lateral; i) cornutus. 76 *D. crithote* (Hewitson, 1874), Colombia: Valle del Cauca, Rio Anchicayá 1150 m (Genit. Vial SRS-2559); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla and juxta-dorsal; g) penis and cornutus-dorsal; h) transtilla, juxta, penis and cornutus-lateral.

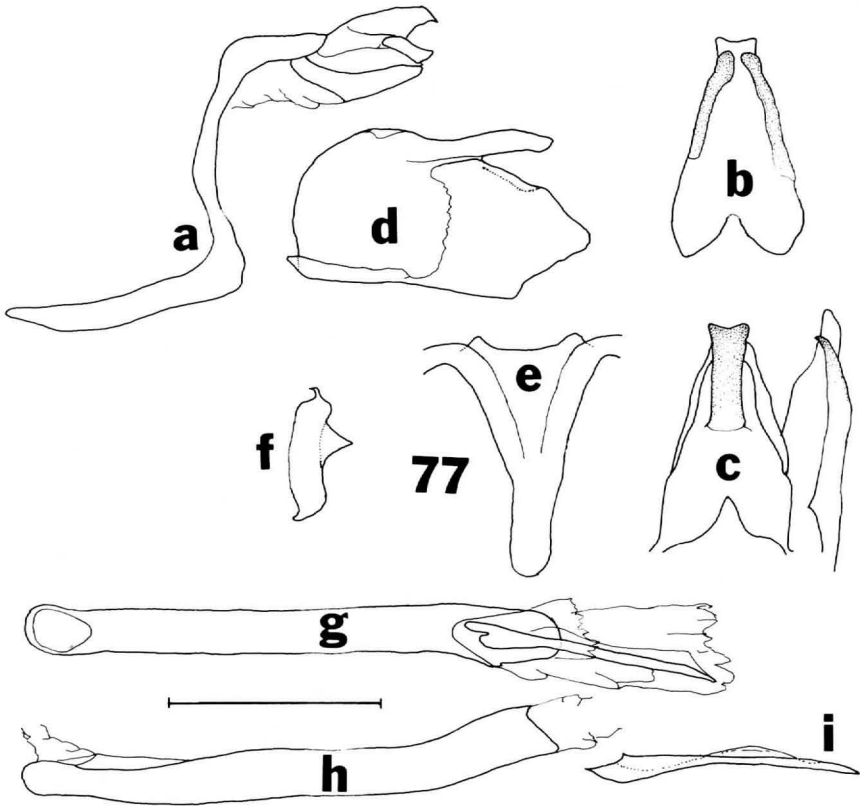


Figure 77. (Scale line = 1 mm) ♂ genitalia. *Lento grosso*, new species, Holotype, Brasil: Mato Grosso (Genit. Vial SRS-2629); a) tegumen, uncus, gnathos and associated structures-lateral; b) same-ventral; c) same plus left valva-dorsal; d) right valva (interior)-lateral; e) saccus-ventral; f) juxta-ventral; g) penis and cornutus-dorsal; h) penis-lateral; i) cornutus-lateral.

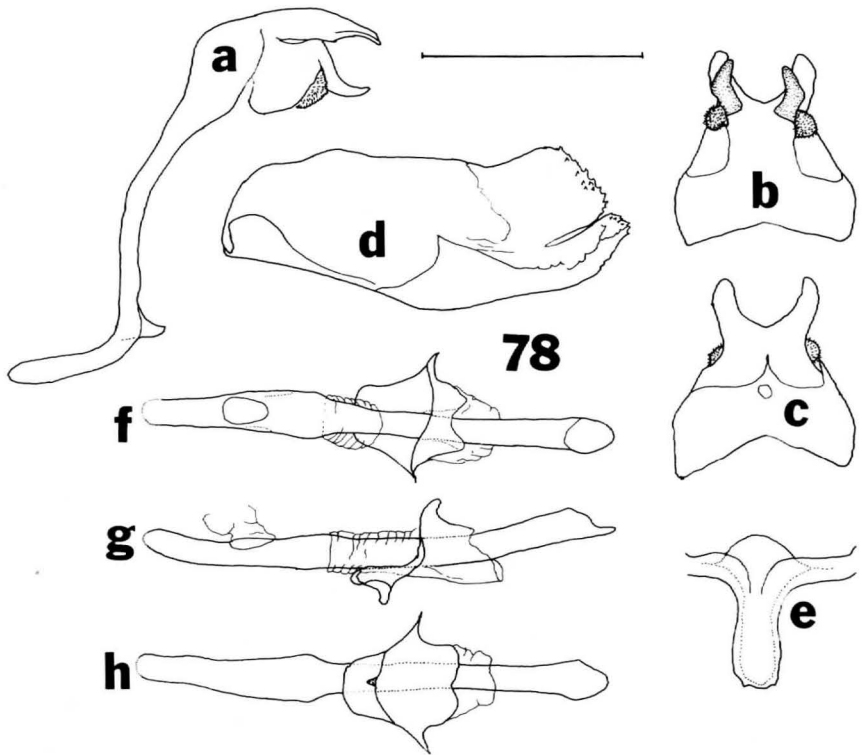
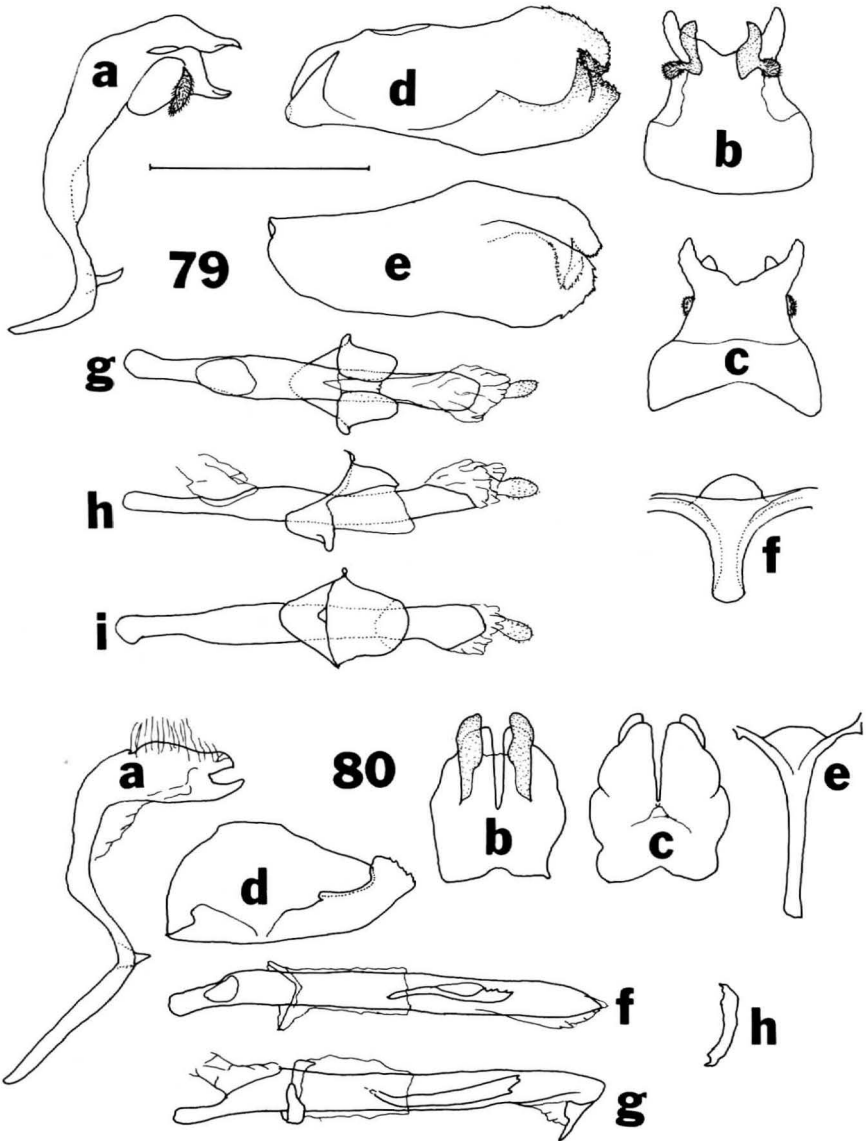


Figure 78. (Scale line = 1 mm) ♂ genitalia. *Anthoptus epictetus* (Fabricius, 1793), El Salvador (Genit. Vial SRS-2308); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g,h) transtilla, juxta and penis-dorsal (f), lateral (g), ventral (h).



Figures 79,80. (Scale line = 1 mm) *Anthoptus* and *Nastra* spp. ♂ genitalia. 79 *A. insignis* (Plötz, 1882), Trinidad (Genit. Vial SRS-2296); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d,e) right valva-lateral (interior) (d), (exterior) (e); f) saccus-ventral; g,h,i) transtilla, juxta and penis-dorsal (g), lateral (h), ventral (i). 80 *N. lherminier* (Latreille, [1824]), U.S.A.: Tennessee (Genit. Vial SRS-2804); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g) transtilla, juxta, penis and cornutus-dorsal (f), lateral (g); h) juxta-ventral.

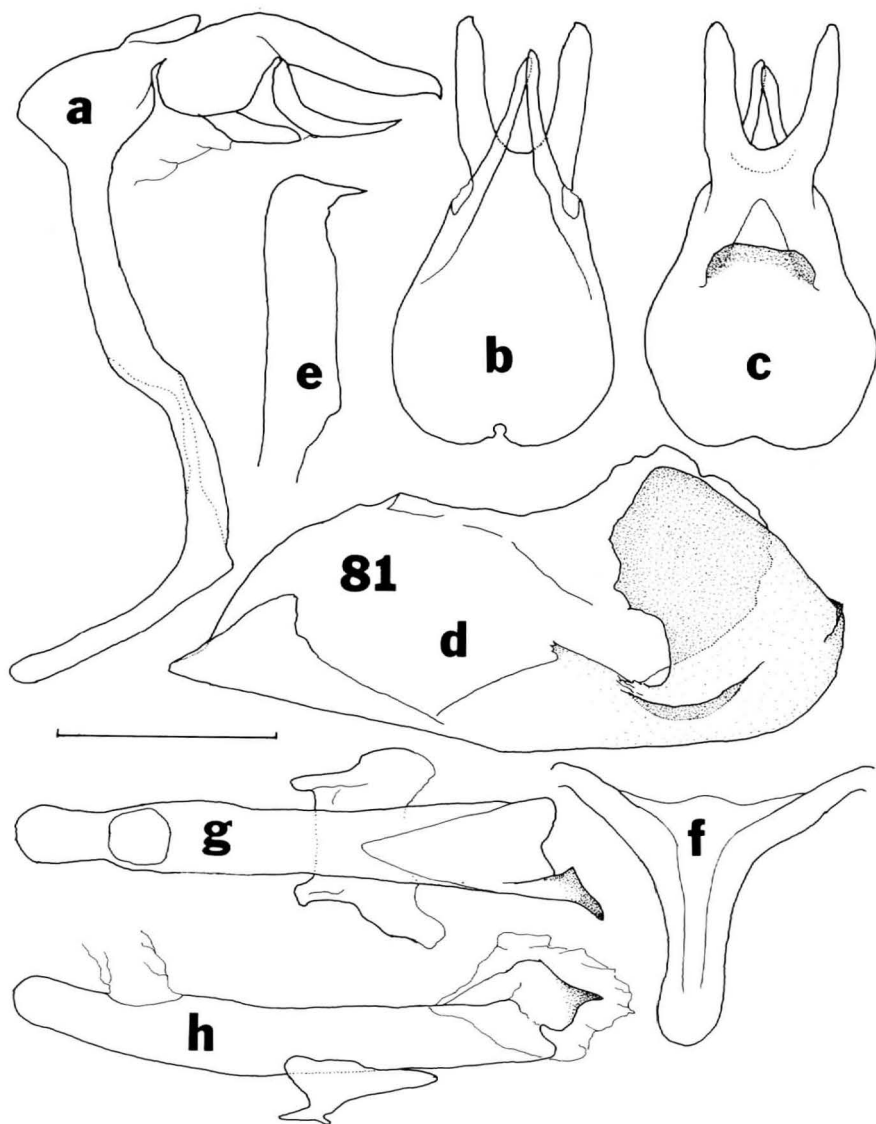


Figure 81. (Scale line = 1 mm) ♂ genitalia. *Zalomes biforis* (Weymer, 1890), Ecuador: Alad-Sangay 3097 m (Genit. Vial SRS-2590); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d,e) right valva-lateral (interior) (d), dorsal (e); f) saccus-ventral; g,h) juxta, penis and cornutus-dorsal (g), lateral (h).

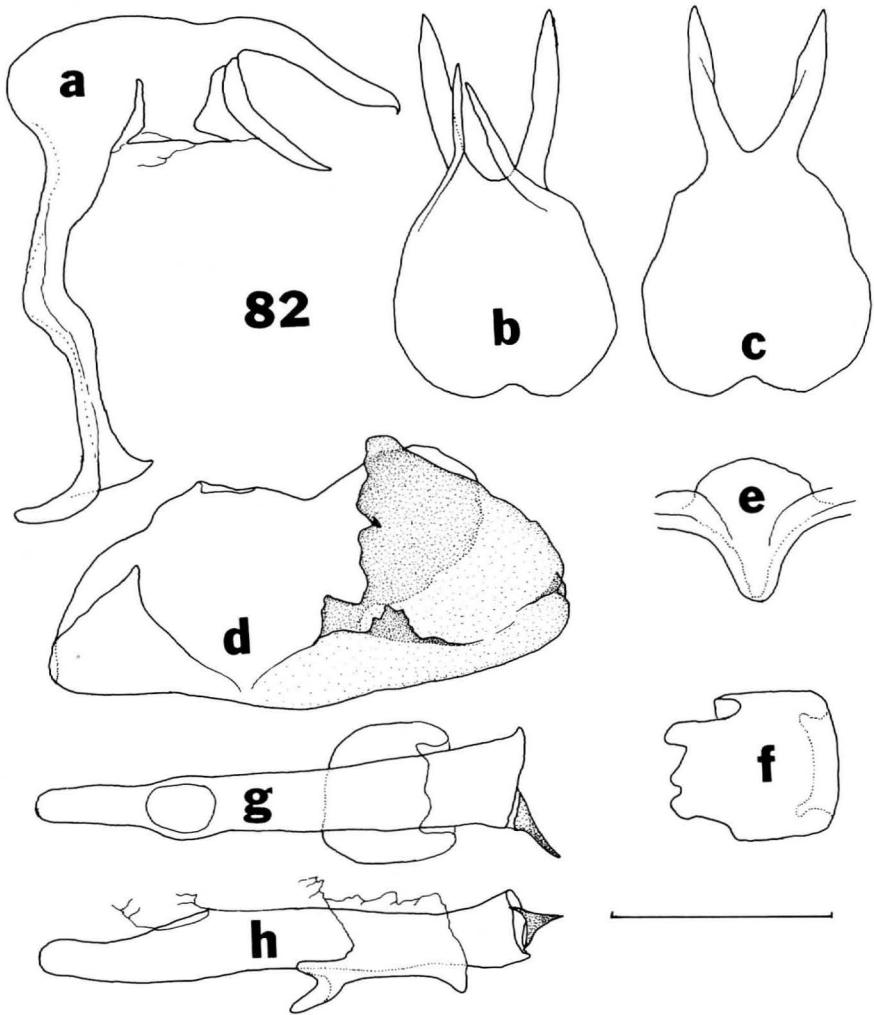


Figure 82. (Scale line = 1 mm) ♂ genitalia. *Zalomes banco*, new species, Holotype, Ecuador: Cotopaxi (Genit. Vial SRS-2810); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) juxta-ventral; g,h) transtilla (mostly membranous), juxta, penis and cornutus-dorsal (g), lateral (h).

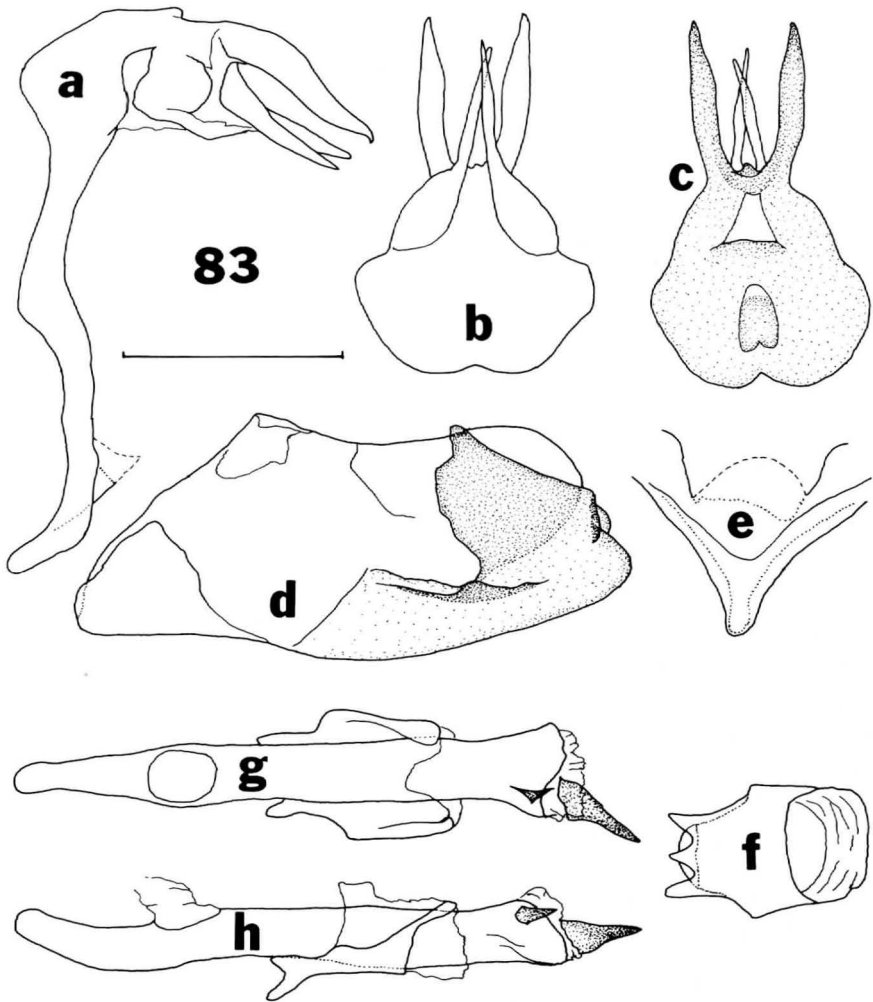


Figure 83. (Scale line = 1 mm) ♂ genitalia. *Zalomes coto*, new species, Paratype, Ecuador: Cotopaxi (Genit. Vial SRS-2595); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) juxta-ventral; g,h) transtilla (mostly membranous), juxta, penis and cornuti-dorsal (g), lateral (h).

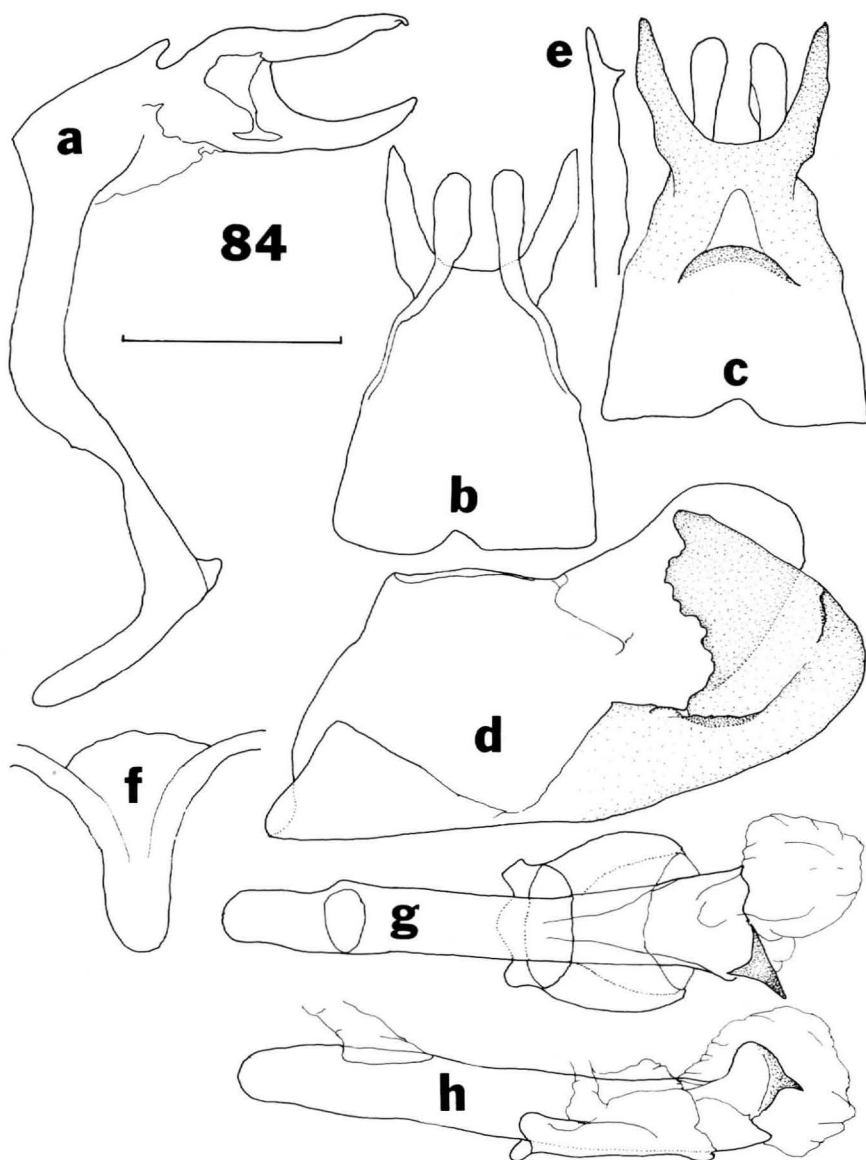


Figure 84. (Scale line = 1 mm) ♂ genitalia. *Zalomes allynorum* (L.D. & J.Y. Miller, 1972), Colombia: Cauca; Purace Nat'l. Park above Coconuco, 3000 m (Genit. Vial SRS-2581); a) tegumen, uncus, gnathos and associated structures-lateral; b, c) same-ventral (b), dorsal (c); d, e) right valva-lateral (interior) (d), dorsal (e); f) saccus-ventral; g, h) transtilla (mostly membranous), juxta, penis and cornutus-dorsal (g), lateral (h).

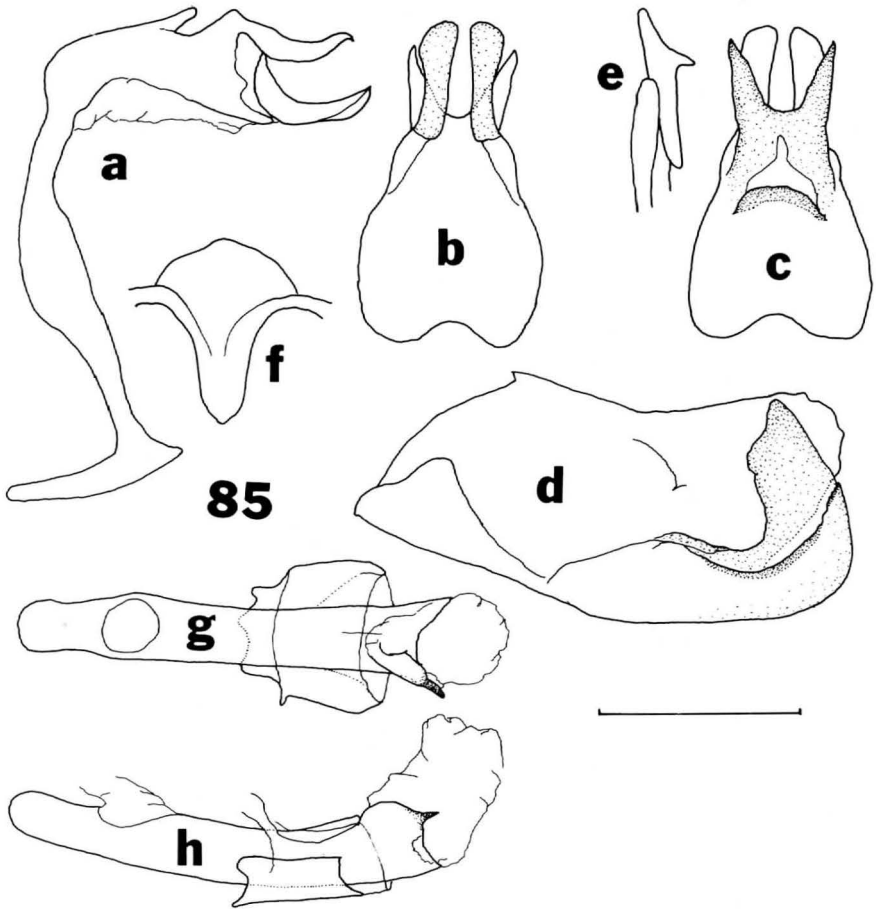


Figure 85. (Scale line = 1 mm) ♂ genitalia. *Zalomes cordillera* (L.D. & J.Y. Miller, 1972), Colombia: Tolima-Quindio; La Linea (Quindio Pass) 3100 m (Genit. Vial SRS-2582); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d,e) right valva-lateral (interior) (d), dorsal (e); f) saccus-ventral; g,h) transtilla (mostly membranous), juxta, penis and cornutus-dorsal (g), lateral (h).

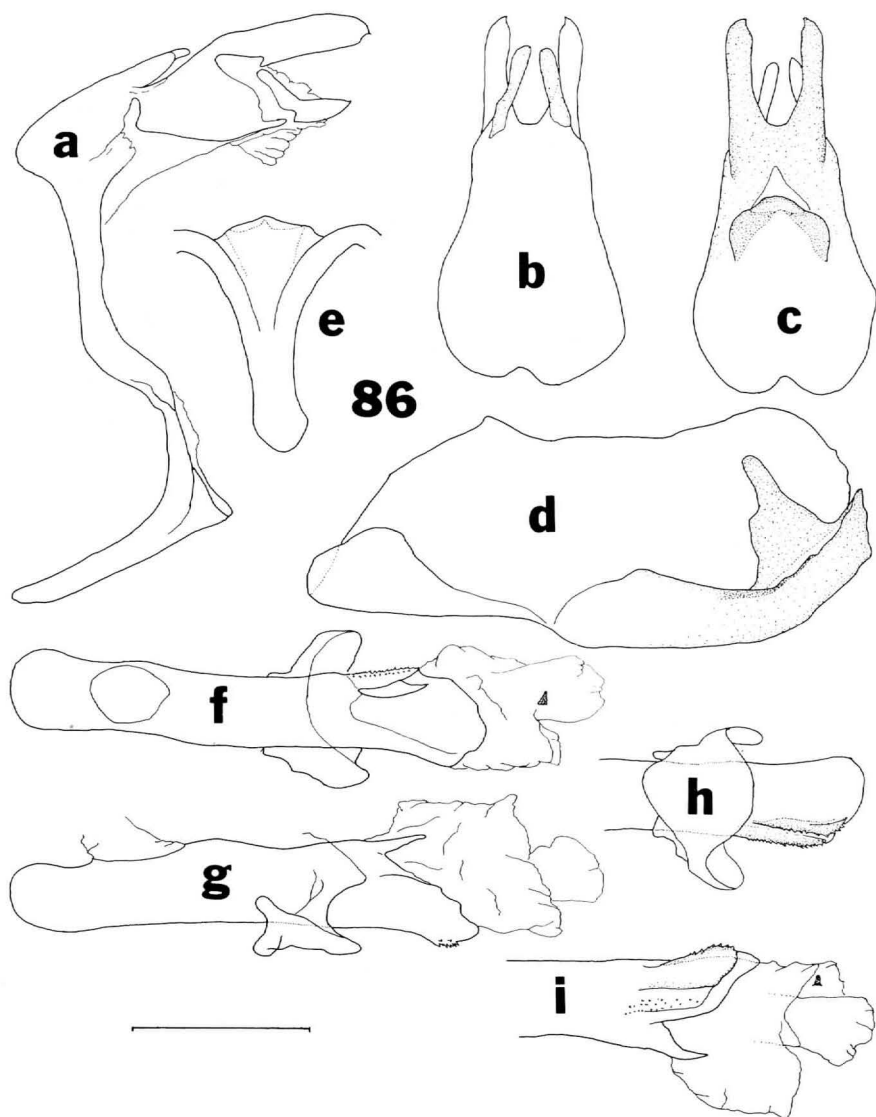
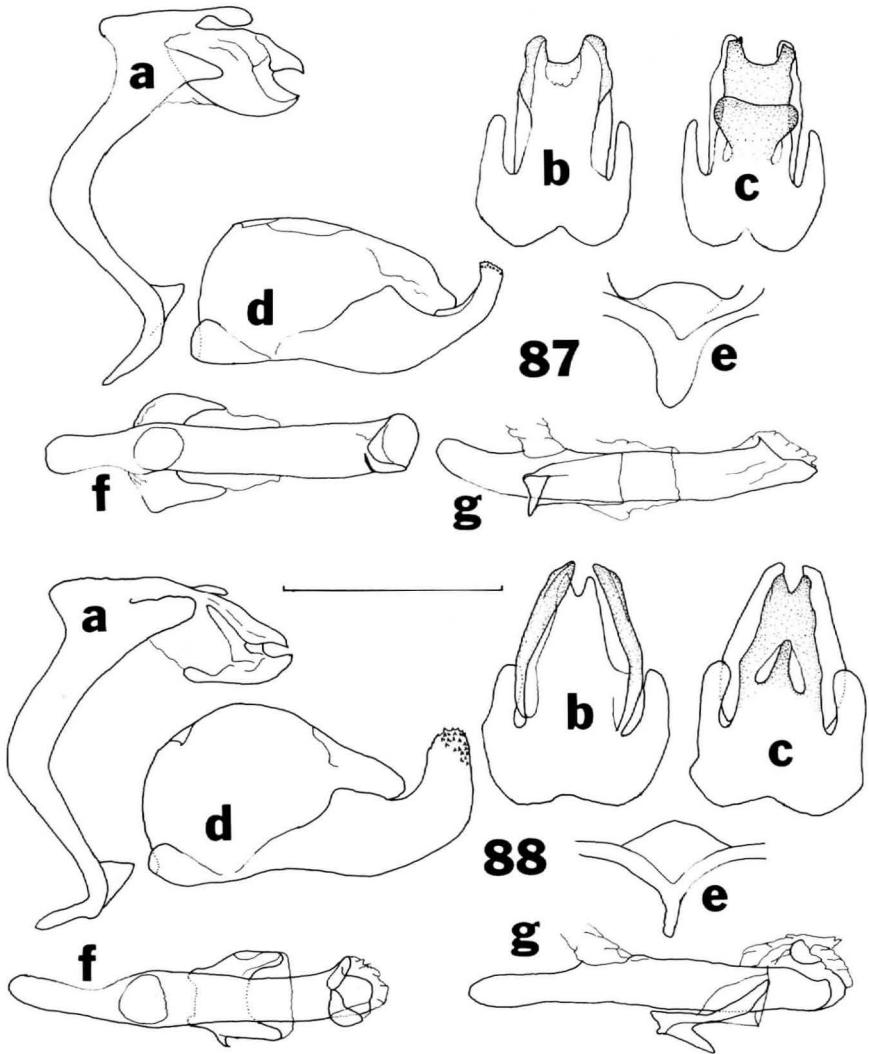
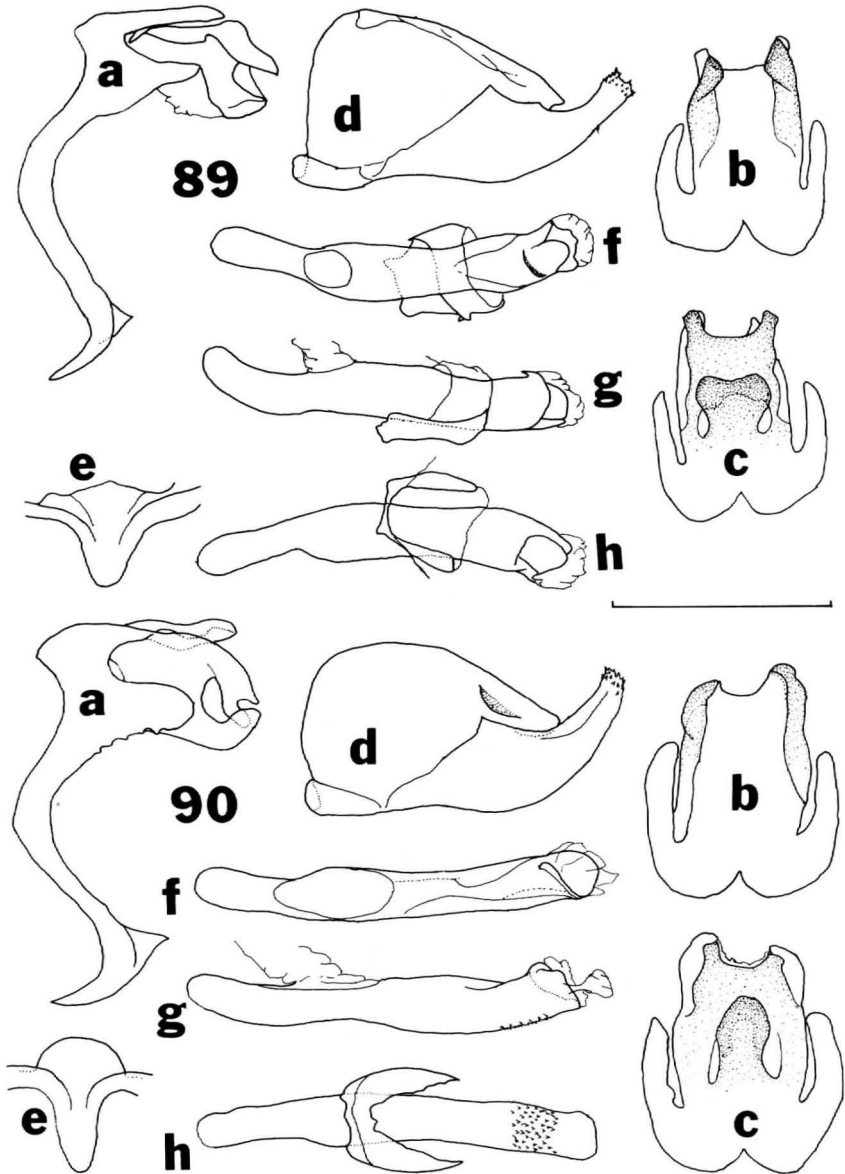


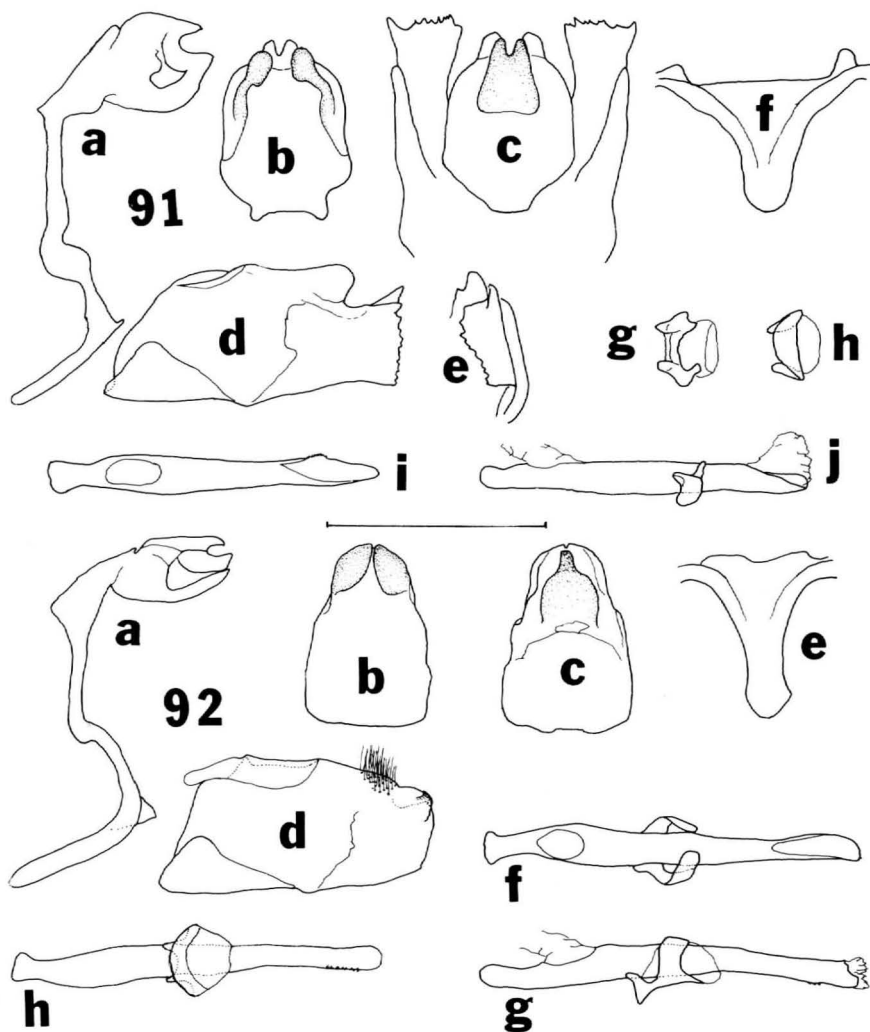
Figure 86. (Scale line = 1 mm) ♂ genitalia. *Zalomes naco*, new species, Holotype, Ecuador: Loja (Genit. Vial SRS-2583); a) tegumen, uncus, gnathos and associated structures-lateral; b, c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f, g, h) transtilla (membranous), juxta, penis and cornutus-dorsal (f), lateral (left) (g), ventral (distal end of penis) (h); i) distal end of penis-lateral (right).



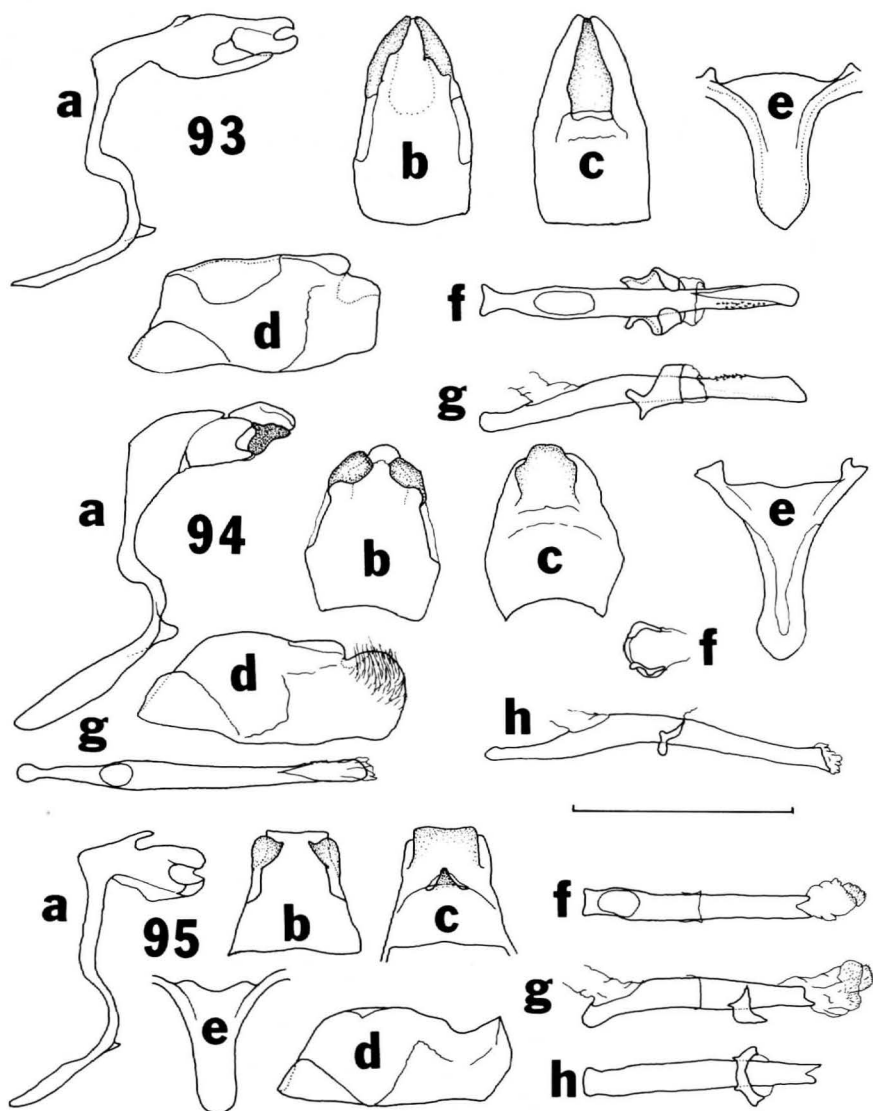
Figures 87,88. *Wahydra* spp. ♂ genitalia. 87 *W. kenava* (Butler, 1870), Ecuador: Oriente; Sadzayacu (Genit. Vial SRS-2601); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g) juxta and penis-dorsal (f), lateral (g). 88 *W. subhebetis*, new species, Paratype, Ecuador: Pichincha (Genit. Vial SRS-2600); same letter designations as figure 87.



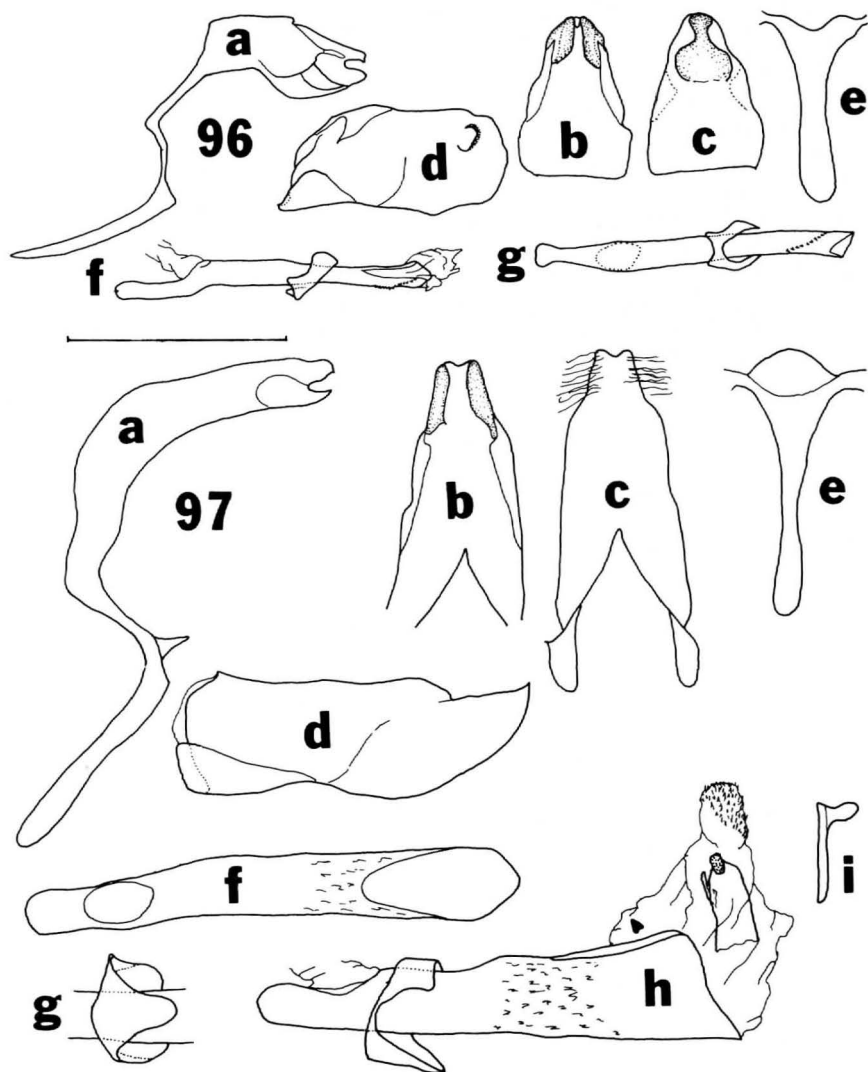
Figures 89,90 (Scale line = 1 mm) *Wahydra* spp. ♂ genitalia. 89 *W. nieblensis*, new species, Paratype, Ecuador: Imbabura (Genit. Vial SRS-2579); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g,h) transtilla (membranous), juxta and penis-dorsal (f), lateral (g), ventral (h). 90 *W. obscura*, new species, Paratype, Ecuador: Pichincha (Genit. Vial SRS-2282); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g) penis-dorsal (f), lateral (g); h) juxta and penis-ventral.



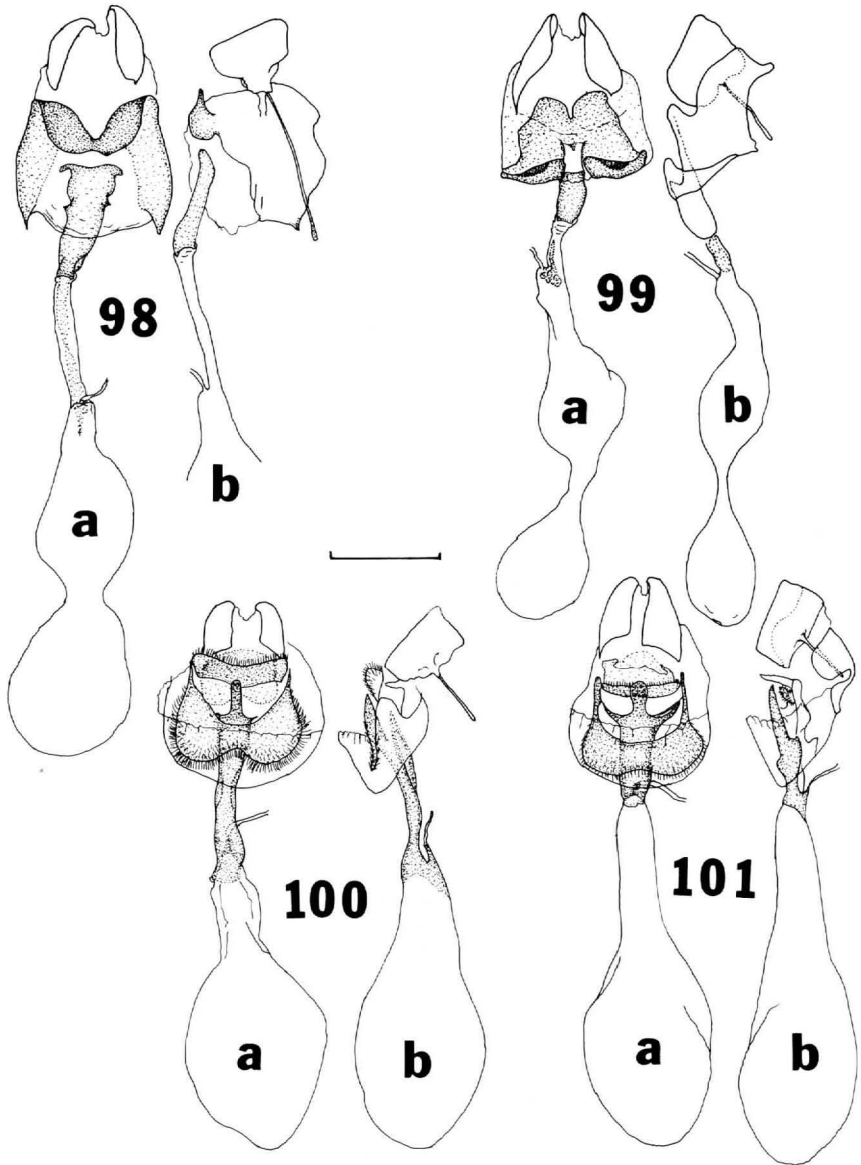
Figures 91,92. (Scale line = 1 mm) *Pheraeus* spp. ♂ genitalia. 91 *P. covadonga loxicha*, new subspecies, Holotype, Mexico: Oaxaca (Genit. Vial SRS-2616); a) tegumen, uncus, gnathos and associated structures-lateral; b) same-ventral; c) same, including valvae-dorsal; d,e) right valva-lateral (interior) (d), viewed from rear (e); f) saccus-ventral; g,h) transtilla and juxta-dorsal (g), ventral (h); i) penis-dorsal; j) transtilla, juxta and penis-lateral. 92 *P. manes*, new species, Holotype, Brasil: Espirito Santo (Genit. Vial SRS-2620); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g,h) transtilla, juxta and penis-dorsal (f), lateral (g), ventral (h).



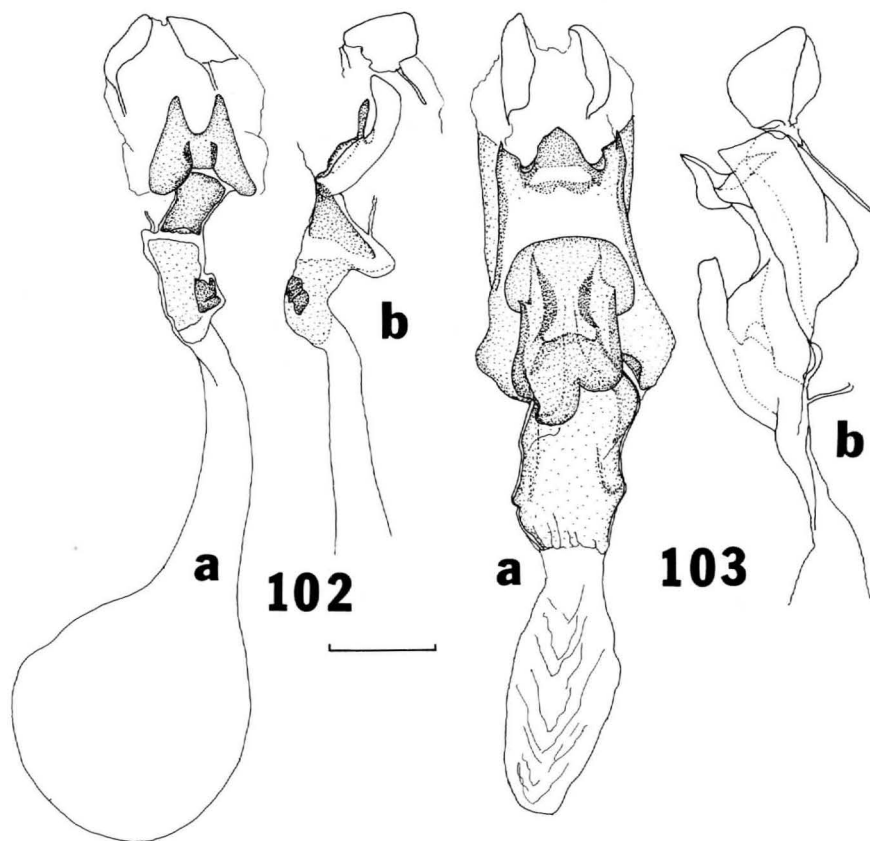
Figures 93-95. (Scale line = 1 mm) *Pheraeus* spp. ♂ genitalia. 93 *P. montes* (Bell, 1947), Brasil: Espírito Santo; nr. Santa Cruz (Genit. Vial SRS-2618); a) tegumen, uncus, gnathos and associated structures-lateral; b, c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f, g) transtilla, juxta and penis-dorsal (f), lateral (g). 94 *P. rumba kofan*, new subspecies, Holotype, Colombia: Santa Rosa (Genit. Vial SRS-2613); a) tegumen, uncus, gnathos and associated structures-lateral; b, c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) transtilla (membranous) and juxta-dorsal; g) penis-dorsal; h) transtilla (membranous), juxta and penis-lateral (f), lateral (g), ventral (h). 95 *P. jaruensis*, new species, Holotype, Brasil: Rondonia (Genit. Vial SRS-2273); a) tegumen, uncus, gnathos and associated structures-lateral; b, c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) penis-dorsal; g, h) juxta and penis-lateral (g), ventral (h).



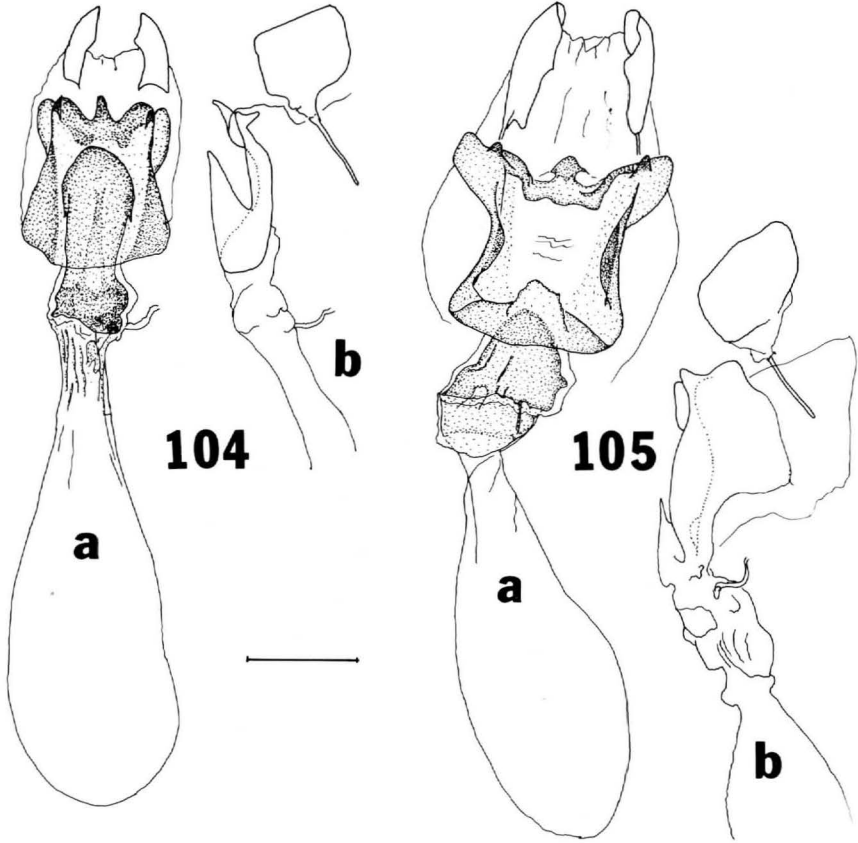
Figures 96,97 (Scale line = 1 mm) *Phraeus* and *Mellana* spp. ♂ genitalia. 96 *P. maria*, new species, Holotype, Peru: Madre de Dios (Genit. Vial SRS-1299); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f,g) transtilla (mostly membranous), juxta and penis-lateral (f), ventral (g). 97 *M. amicus* (Bell, 1942) Ecuador: Chimborazo (Genit. Vial SRS-1658); a) tegumen, uncus, gnathos and associated structures-lateral; b,c) same-ventral (b), dorsal (c); d) right valva (interior)-lateral; e) saccus-ventral; f) penis-dorsal; g) transtilla and juxta-ventral; h) transtilla, juxta, penis and cornuti-lateral; i) larger cornutus, different view.



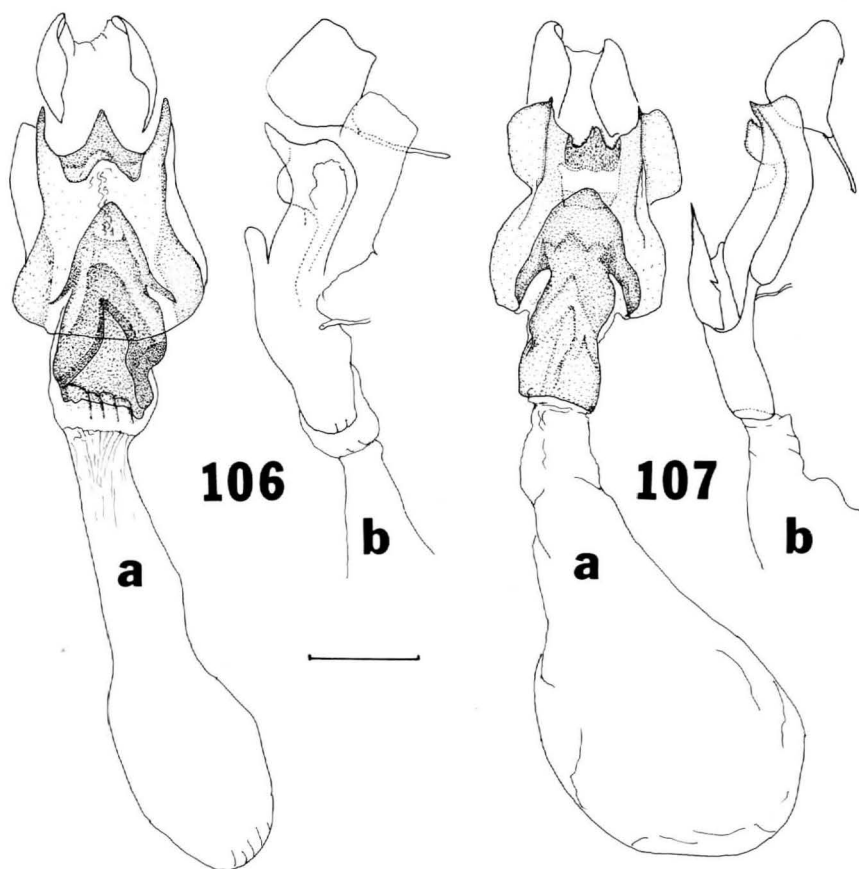
Figures 98-101. (Scale line = 1 mm) *Dalla* and *Anthoptus* spp. ♀ genitalia. In all figures, (a) is ventral view, (b) lateral. 98 *D. dividuum* (Dyar, 1913), Mexico: Chiapas; El Chorradero 2100' (Genit. Vial SRS-2802). 99 *D. simplicis*, new species, Paratype, Colombia: Quindio; La Linea 3300 m (Genit. Vial SRS-3195). 100 *A. epictetus* (Fabricius, 1793), Peru: Loreto; Iquitos (Genit. Vial SRS-2260). 101 *A. insignis* (Plötz, 1882), Mexico: Oaxaca; Candelaria Loxicha (Genit. Vial SRS-2345).



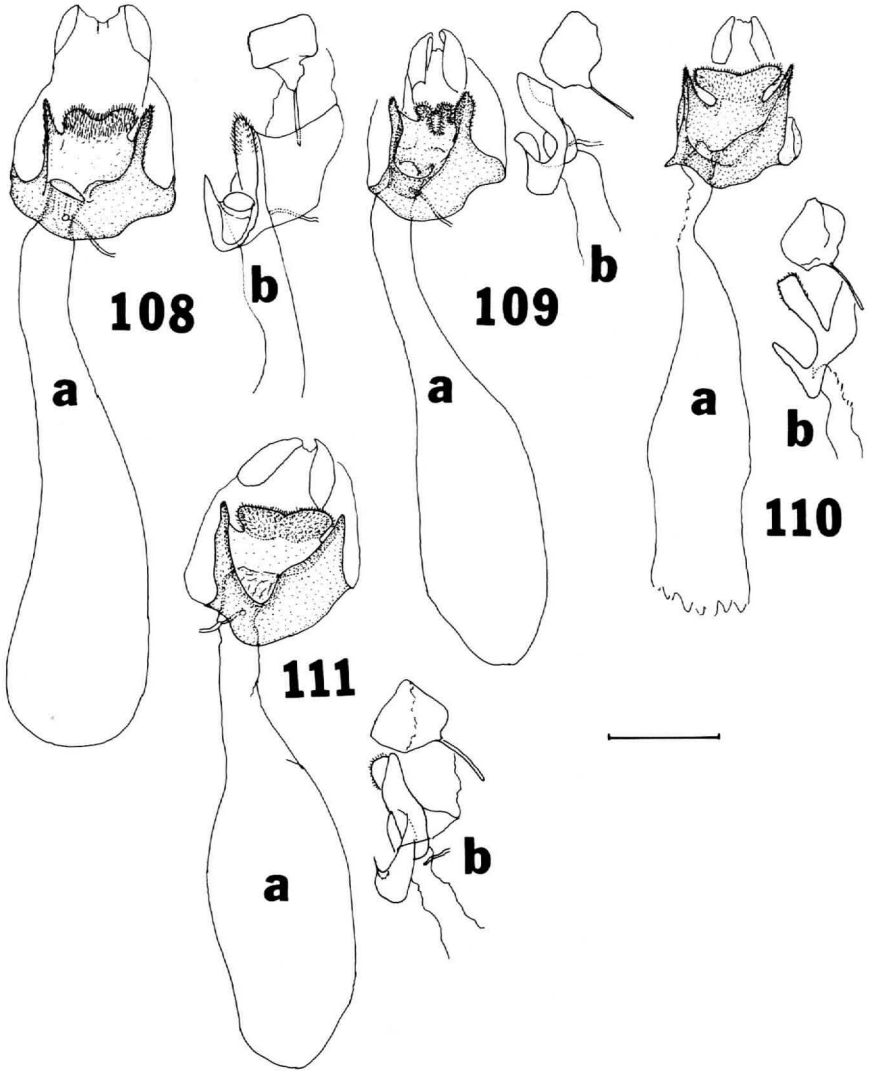
Figures 102,103. (Scale line = 1 mm) *Nastra* and *Zalomes* spp. ♀ genitalia. In both figures, (a) is ventral view, (b) lateral. 102 *N. lherminier* (Latreille, [1824]), U.S.A.: Texas; Bexar, San Antonio (Genit. Vial SRS-2805). 103 *Z. biforis* (Weymer, 1890), Ecuador: Imbabura; Vol. Cotacachi 3750 m (Genit. Vial SRS-2585, file number for JYM No. M-7332).



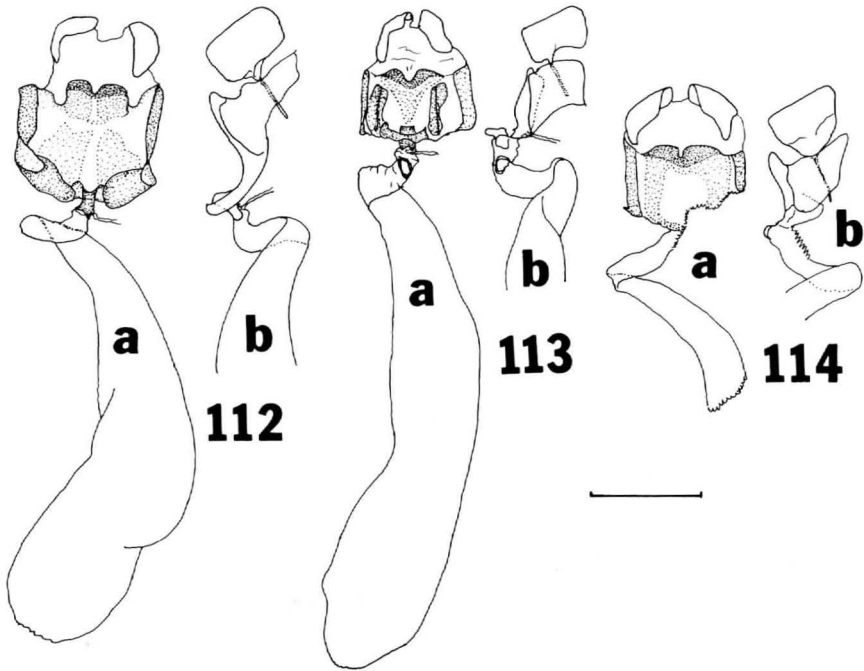
Figures 104,105. (Scale line = 1 mm) *Zalomes* spp. ♀ genitalia. In both figures, (a) is ventral view, (b) lateral. 104 *Z. coto*, new species, Paratype, Ecuador: Cotopaxi (Genit. Vial SRS-2593). 105 *Z. allynorum* (L.D. & J.Y. Miller, 1972), Paratype, Ecuador: Cotopaxi; Milimbanco 4090 m (Genit. Vial SRS-2586, file number for JYM No. M-7333).



Figures 106,107. (Scale line = 1 mm) *Zalomes* spp. ♀ genitalia. In both figures, (a) is ventral view, (b) lateral. 106 *Z. cordillera* (L.D. & J.Y. Miller, 1972), Paratype, Ecuador: Imbabura; Vol. Cotacachi 3750 m (Genit. Vial SRS-2592). 107 *Z. naco*, new species, Paratype, Ecuador: Imbabura (Genit. Vial SRS- 2588).



Figures 108-111. (Scale line = 1 mm) *Wahydra* spp. ♀ genitalia. In all figures, (a) is ventral view, (b) lateral. 108 *W. kenava* (Butler, 1870), Ecuador: Cotopaxi; Rio Mulatos 3800 m (Genit. Vial SRS-2604). 109 *W. subhebetis*, new species, Paratype, Colombia: Tolima (Genit. Vial SRS-2605). 110 *W. nieblensis*, new species, Paratype, Ecuador: Pichincha (Genit. Vial SRS-2608); jagged lines indicate psocid damage. 111 *W. obscura*, new species, Paratype, Ecuador: Cotopaxi (Genit. Vial SRS-2281).



Figures 112-114. (Scale line = 1mm) *Pheraeus* spp. ♀ genitalia. In all figures, (a) is ventral view, (b) lateral. 112 *P. covadonga loxicha*, new subspecies, Paratype, Mexico: Oaxaca (Genit. Vial SRS-2617). 113 *P. montes* (Bell, 1947), Brasil: Espirito Santo; nr. Santa Cruz (Genit. Vial SRS-2619). 114 *P. maria*, new species, Paratype, Brasil: Rondonia (Genit. Vial SRS-2814); jagged lines indicate psocid damage.

This public document was promulgated at a cost of \$3,735.21 or \$5.34 per copy. It makes available to libraries, scholars and all interested persons the results of researches in Entomology.