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A REVISION OF THE *PROTEUS* GROUP OF THE GENUS *URBANUS* HUBNER LEPIDOPTERA: HESPERIIDAE

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Introduction

The *proteus* group is defined as the green or blue-bodied, brown-tailed species of the Genus *Urbanus* and includes the first 11 species of Evans' (1952) key to the species of *Urbanus* (C.13.1 through 11). Evans included an additional 3 sub-species and placed two published names in synonymy, one of which will be removed as it does not belong in *Urbanus*. One of his sub-species will be re-raised to specific rank and one will be placed in synonymy. To the resultant 15 names must be added 4 published subsequent to Evans' work, of which 2 will become synonyms, and 2 new species to be described in this paper. The *proteus* group presently comprises 16 species, one sub-species and 4 synonyms. Some of the 16 species are readily identified by either superficial or genitalic characters, but several are so similar that their separation is very difficult, especially among the females where no secondary sexual characters such as presence or absence of a costal fold on the forewing exist to aid in differentiation.

In the nearly 200 years between the publication of Linné's *Systema Naturae* and Evans' *Catalogue* only 7 new names were added to the *proteus* group, one of which is a sub-species of and another a synonym of *proteus*. I am sure that during this time many serious students of *Hesperiidae* tended to avoid the group because of the great variety of what appeared to be forms and variations of but a few species. A short history of some of the confusion should be of interest.

I have not seen Scudder's (1872) description of *domingo*, the first new name since 1758, and therefore do not know if or how he compared it to *proteus*. Butler (1877) gave a straightforward description of *esmeraldus* and very briefly noted its differences from *proteus*. Plötz (1880), in describing *proteoides* as having small forewing hyaline spots differentiated it from *proteus* which he described with large hyaline spots. Since there is great variability in the size of these spots within any series of *proteus* and as *proteoides* was from North America, where the only known species is *proteus*, the historic treatment of *proteoides* as a synonym of *proteus* is undoubtedly correct.

Godman and Salvin (1893) recognized 2 species, *proteus* and *esmeraldus,* but noted that *proteus* existed in two forms, one with the under hindwing central band composed of separate spots (typical) and the other with this band entire; these latter probably were *belli.* Their genitalia figure for *proteus* is probably *belli,* but could also be either *viterboana* or *pronta*; that for *esmeraldus* is correct.

I have not seen Ehrmann's (1907) original description of *viterboana,* however Draudt's (1921) paraphrasing of this description compares it only to "*Thymele*" *harpagus* Felder, 1867, a species currently placed in the Genus *Ridens* Evans, 1952. It is interesting to note that a specimen in the Carnegie Museum bearing a handwritten Ehrmann determination label as *T. harpagus* Feld. is actually a new species described below as *magnus.* Draudt mentions a hindwing tail length of 4½ mm, a probable typographical error as the tail length of the type is 9½ mm.

Draudt (1921) mentioned 4 names in addition to *viterboana* above: *proteus, domingo, proteoides* and *esmeraldus.* He illustrated *proteus,* the dorsal view of which appears to be correct, but the ventral aspect is apparently of *belli.* He considered *domingo* a synonym of *proteus,* whereas it is a valid sub-species, and treated *proteoides* as the Antillean sub-species of *proteus* despite its named habitat of North America. His description of *proteus* applies to *belli* and that of *esmeraldus* to *pronta.* He placed *viterboana* in a list of doubtful species.

Williams (1926) was sufficiently in doubt about the validity of separate species within the group that, in describing 2 new species, *huancavillcas* and *acawoios,* he stated that both, and also *esmeraldus,* might well be but forms or aberrations of *proteus.* In addition to the new species, he illustrated ♂ genitalia of 2 examples of "*esmeraldus*", one of which is *esta* and the other *evona,* and 3 examples of "*proteus*", only one of which is correct, the other 2 being either *belli, viterboana* or *pronta.* He was apparently unaware of Ehrmann's description of *viterboana,* which Holland (1927) considered to be a "— varietal or aberrational form of *Eudamus proteus* —" and mentioned being "— impressed with the very wide range of variation, and the considerable number of fixed local races of *E. proteus* which exist."

Hayward (1935) described one new species, *belli,* based on three females. In 1948 he included 5 illustrations of *proteus* group skippers, of which 3 are mis-identified, and 3 illustrations of ♂ genitalia, of which one is mis-identified. Evans named 5 of the above published misidentifications and was himself guilty of 2, but of the 7 new names he introduced, only one is placed in synonymy. Fortunately, despite his sometimes ambiguous descriptions, lack of illustrations and deplorable genitalic caricatures, he did clear up far more confusion than he created, though at times during this study I doubted it.

Linné probably never realized just how appropriate was his selection from Greek mythology of the name he used for the first described taxon from this group of 16 species, so many of which have been masquerading under misapplied names for over 200 years.

Procedures

Many institutions and individuals cooperated in lending material for this study though the major portion of the material was from the Allyn Museum of Entomology. Specimens from the various collections are identified as follows: Allyn Museum - no notation; American Museum of Natural History - AMNH; British Museum (Natural History) - BMNH; Carnegie Museum - CM; Terhune S. Dickel collection - TD; Stanley S. Nicolay collection - SN; Herman Strecker collection - HS.

Altogether 1488 specimens were examined: 2 (both holotypes) AMNH; 11 (including 8 holotypes and one paratype) BMNH; 47 (including 3 holotypes and one paratype) CM; 11 TD; 7 (including one neotype now in the Allyn Museum) SN; 23 HS and 1387 from the Allyn Museum including one holotype and 4 paratypes.

191 ♂ and 94 ♀ genitalic dissections were prepared and camera lucida drawings made for comparison purposes of these plus 16 additional ♂ dissections from other

sources. Several hundred specimens were partially examined without dissection to confirm tentative determinations.

Because different views of ♂ genitalia may be diagnostically significant, most genitalia preparations were stored in vials in glycerine rather than permanently mounted on slides. The preparation of ♀ genitalia requires a bit more care than ♂ genitalia because of the lack of sclerotization of many of the parts. These dissections were also stored in vials to permit review in changed positions. Since many diagnostic features are seen best if the genitalic armature is spread out and flattened, I cut through the dorsal side of the ostium oviductus and the 8th tergite, if it had not been removed, thus separating the papillae anales and allowing the sterigma to be spread out flat.

I have tried to follow the genitalic terminology of Klots (1956), but to avoid any misunderstanding, the diagnostically useful features of both ♂ and ♀ genitalia as used in this paper are identified in figures **2** and **3**. If my application of terms in any way disagrees with Klots, it is un-intentional and does not represent an attempt to revise the terminology.

The nomenclature proposed by Miller (1970) for veins and intraneural cells of the wings is used throughout; the veination for *Urbanus* is illustrated in figure **1a**. I have followed Evans (1952) in terminology applicable to the antennae as illustrated in figure **1b**.

Urbanus Hübner, [1807]

Urbanus Hübner, [1807]. Type species by selection by Hemming (1933, Entomologist 66:200): *Papilio proteus* Linné, 1758.

= *Goniurus* Hübner, [1819] (1816-1826): 104. Type species by selection by Westwood [1852]: 510: *Papilio proteus* Linné, 1758.

= *Eudamus* Swainson, 1831: pl. 48. Type species by original designation: *Papilio proteus* Linné, 1758.

= *Lyroptera* Plötz, 1881: 500. Type species by monotypy: *Papilio proteus* Linné, 1758.

Hübner published no text describing *Urbanus* in his *Sammlung*, but included illustrations of 12 species. Hemming (1933) selected *proteus* as the type species from among the four earliest published plates, thus re-introducing *Urbanus* which had been largely ignored since its publication, and replacing, correctly, the widely accepted *Goniurus* and *Eudamus*.

Evans (1952) defined *Urbanus* as the tailed Pyrginae with a long forewing cell (⅔ of costa), erect palpi with the third segments parallel, hooked antennae with more nudum on the apiculus than the club and genitalia with deeply divided uncus and undivided gnathos. *Urbanus*, thus defined, is closely related to the genera *Ridens* Evans, 1952, *Astraptes* Hübner, [1819], *Calliades* Mabille and Boullet, 1912 and *Autochton* Hübner, [1823].

It is my intention eventually to review the remainder of the genus *Urbanus* as presently constructed. This may require at least partial revision of some of the related genera; some species now placed in *Astraptes*, for example, appear more closely related to the *proteus* group than do some of the brown-bodied species now assigned to *Urbanus*. I shall not, therefore, present a new definition of the genus at this time, as it undoubtedly would require subsequent modification.

The *proteus* group of the genus *Urbanus* is a very compact unit showing but little specific variation in morphology. The ♂ genitalia all have a deeply divided uncus and undivided gnathos, both of which show some interspecific variation. The straight, stout, cylindrical penis with a cornutus consisting of a bundle of spines, and the rather long saccus show no specific differences. The greatest specific variation is in the valvae although some species are so similar that genitalic characters alone do not suffice to separate them.

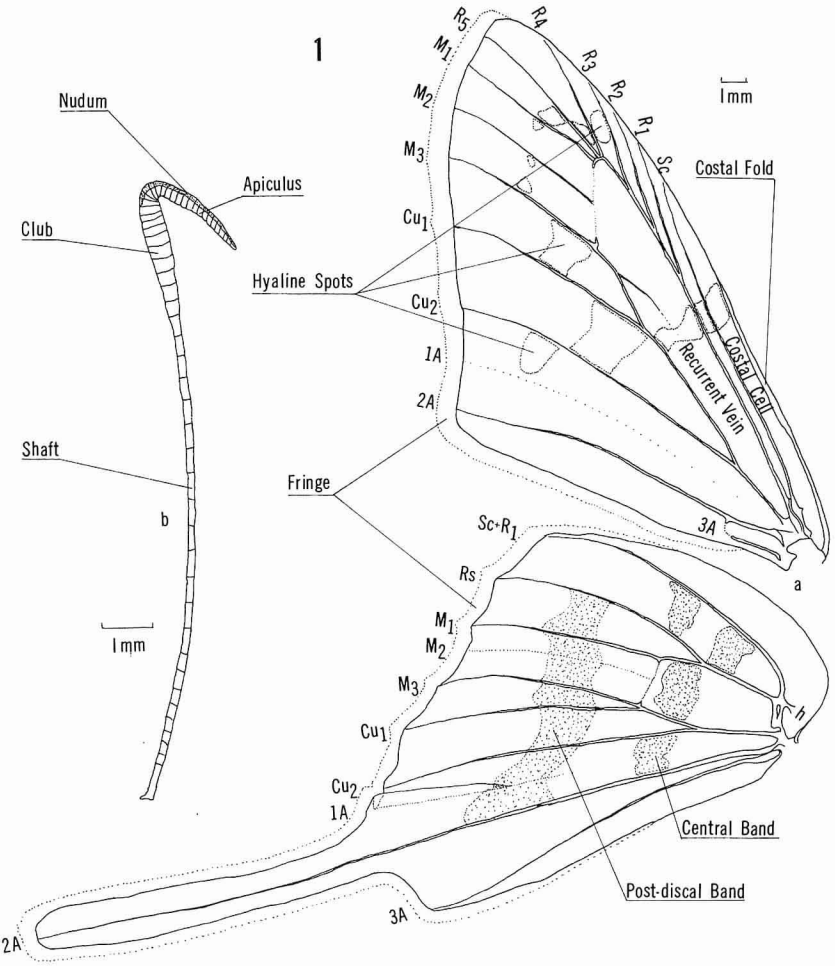


Figure 1. *Urbanus.* a) Wing veination and maculation; b) Antenna; *U. p. proteus,* Ecuador: Imbabura: Rio Lita 600-650 m., Slide SRS-476.

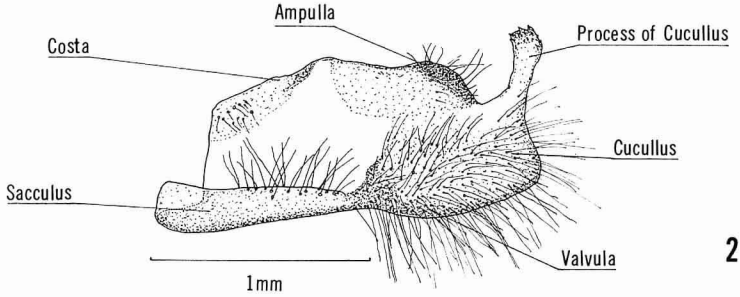


Figure 2. *Urbanus.* Valva of ♂ genitalia illustrating nomenclature used; *U. esmeraldus,* Colombia: Valle del Cauca: Cali, Cañas Gordas 1000 m., Genit. Prep. SRS-16.

The ♀ genitalia all have a well developed, setose lamella postvaginalis and a weakly to moderately sclerotized lamella antevaginalis that is always smaller than the lamella postvaginalis. The ductus bursae is a simple membranous tube more or less abruptly swelling to an unadorned ovoid corpus bursae. The antrum is weakly sclerotized and short; the accessory glands are large, prominent, "crinkled" sacs very similar to those in the allied genera.

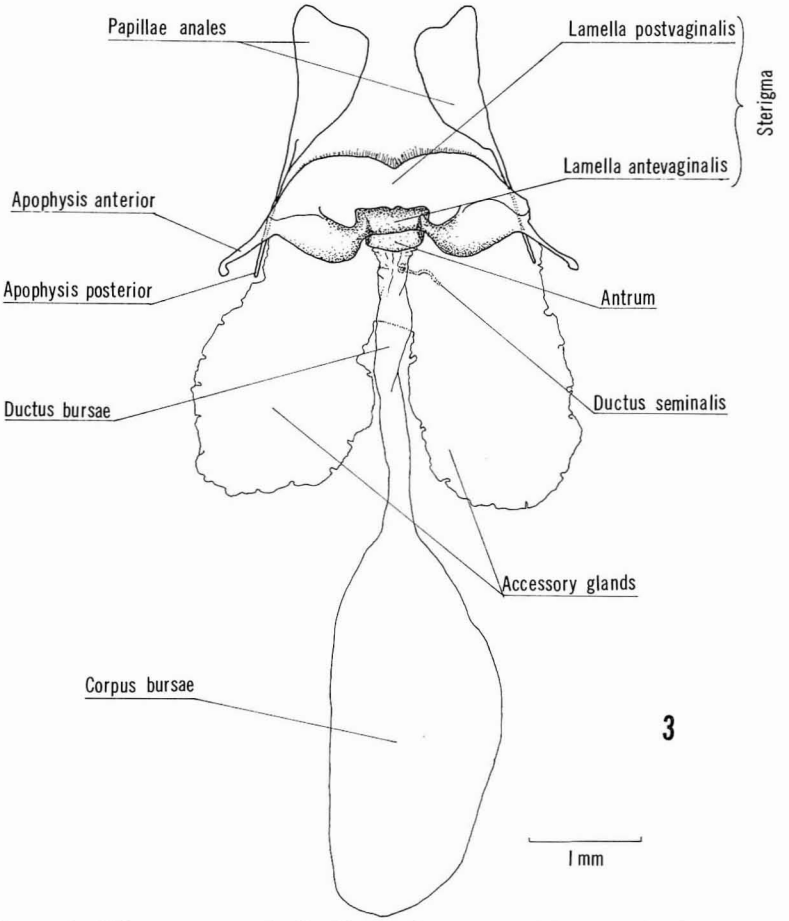


Figure 3. *Urbanus.* ♀ genitalia illustrating nomenclature used; *U. p. proteus,* Guatemala: Km. 170 C. A. Hwy. 9400', Genit. Prep. SRS-402.

The antennae have a sharply hooked apiculus in living specimens. This hooked feature is not always apparent in dried specimens; sometimes the apiculus dries at an obtuse angle or in an arc. Evans (1952) leaned heavily on the quantity and distribution of bare antennal segments (nudum) of the club in generic classification. He described the nudum numerically as x/y; x being the number of denuded segments on the unreflexed portion of the club and y the number on the apiculus. In his key separating the genera of Group C of the *Pyrginae* he assigns to *Urbanus* a nudum figure of $^{5}/_{15}$; in his description of the genus he uses $^{2}/_{18}$. The total number of nudum segments of a specimen

is absolute; the ratio between club and apiculus involves a subjective decision.

To obtain some idea of the nudum variation within the *proteus* group I counted the segments on 83 specimens representing 15 species. The mean for these 83 falls between $^{5}/_{17}$ and $^{4}/_{18}$, varying between extremes of $^{4}/_{14}$ and $^{7}/_{19}$. There appears to be some variation between species or groups of species, but the individual variation is too great to allow use of this characteristic for specific determinations. For those interested in this sort of data I have summarized the measurements in Table **1.**

Table 1.

Summary of Antennal Nudum Data

Species	No.	Extremes	Average
proteus (incl. *domingo*)	15	4/18-6/19	4.9/18.3
viterboana	8	3/16-4/18	3.6/16.8
dubius	5	3/16-4/17	3.2/17.0
belli	6	3/17-4/17	3.3/17.5
huancavillcas	1	4/14	4/14
pronta	8	4/16-6/18	4.9/17.1
pronus	6	3/18-4/19	3.8/18.2
viridis	1	5/17	5/17
esmeraldus	8	4/19-6/19	5.0/18.9
esma	3	5/19-7/19	6.0/18.7
evona	5	4/17-5/17	4.8/16.8
elmina	4	4/16-5/16	4.3/16.5
esta	6	5/16-5/18	4.7/17.2
prodicus	4	4/16-5/17	4.5/16.8
magnus		antennae	missing
acawoios	3	5/17-6/17	5.7/16.7
Ave. of total specimens	83	4/14-7/19	4.5/17.5
Ave. of 15 species			4.5/17.2

The antennae above are dark brown. Beneath, the shaft is dark brown with faint pale checkering, the club and apiculus pale yellow to whitish with some central darkening of the club in some species. The head, thorax and abdomen are dark brown above, heavily overlaid with green or blue hair scales. The palpi and frons beneath are whitish to pale brown; thorax and abdomen brown with whitish scales at the abdominal junctions. The legs are distally brown, proximally whitish; foretibiae with prominent epiphysis, midtibiae with single pair of terminal spurs, not spined, hind tibiae doubly spurred, not spined. The males have a forewing costal fold in some species.

The upper surface of the wings is brown, with the basal $^{1}/_{4}$ of the forewing and basal 80-95% of the hindwing clothed in blue or green hair scales. The forewing maculation consists of hyaline spots forming a more or less continuous central band from about mid-costa towards the tornus (spots in the costal cell, Sc-R_1, discal cell, Cu_1-Cu_2 and Cu_2-1A,2A) and a discontinuous post-discal band formed of 3 small subapical spots in R_3-R_4, R_4-R_5 and R_5-M_1, a larger spot in M_3-Cu_1 and in some forms small to minute spots in M_1-M_2 and M_2-M_3. The forewing fringe is paler and usually more or less checkered (darker at vein ends). The hindwing has a dark brown tail of varying length and is generally unmarked, though in paler forms the dark markings from beneath may show through. The fringe is whitish and more or less checkered.

The under surface has a paler brown ground color variously shaded (purplish, violet, whitish) with darker brown spots and bands. On the forewing the hyaline spots are repeated as above, those of the postdiscal band and in Cu_1-Cu_2 and Cu_2-2A distally bordered darker brown forming a continous sub-terminal band proximally bordered by the hyaline spots and distally parallel to the termen from which it is separated by a

dark brown terminal hairline and a pre-terminal band of ground color. The fringe is as above. The hindwing has a dark central band of separate or conjoined spots in $Sc+R_1$-Rs (usually 2 separate spots, but may be conjoined or outer spot missing), discal cell (sometimes extending caudad into Cu_1-Cu_2 but usually this feature is obscured by overlying hair scales) and Cu_2-2A, and a dark post-discal band (usually entire but may be broken into separate spots by pale veins) extending from Rs to 1A. In one species the ground color in $Sc+R_1$-Rs is the same dark brown as the band thus extending the band to $Sc+R_1$. The tornal area is usually the same dark brown as the post-discal band and separated from it by a variable band of ground color or paler than ground color. The extent and intensity of this paler edging to the tornal spot of the post-discal band (Cu_2-2A) and to the cell spot of the central band is frequently of diagnostic value. The fringe is as above.

Keys to the species of the *proteus* Group, Genus *Urbanus*

Four separate keys have been prepared: superficial and genitalic keys for both sexes. In most cases where differences in superficial characters are not sufficiently clear to guarantee separation of closely related species, the differences in genitalic characters are, and vice versa.

Superficial key to *proteus* group species (♂), Genus *Urbanus*

1 FW costal fold present 2
1' FW no costal fold or merely a trace 12
2 FW length more than twice width ..... *acawoios*
2' FW length less than twice width 3
3 HW tails short, HW measured beneath from costal "shoulder" to tip of tail exceeds FW length by less than 2mm, giving an overall squat aspect; upperside golden-green clothing extends to within 1 - 1.5 mm of HW fringe ..... *esma*
3' HW longer than FW by more than 2 mm; UPH blue or green clothing ends 2 mm or more from fringe 4
4 UNH central band composed of separated spots 8
4' UNH central band entire, though subcostal spots may be separate 5
5 Antennal club and apiculus wholly pale yellow beneath; UNH central band entire, slightly broadened at costa and separated from postdiscal band by whitish area ..... *huancavillcas*
5' Antennal club beneath centrally darkened; UNH area between central and post-discal bands paler but not whitish 6
6 Upperside basal clothing blue 7
6' Upperside basal clothing green ..... *belli*
7 UNH postdiscal band clearly ending cephalad at Rs; ground color distad of band paler than band; distal pale edging to cell and sub-tornal spots faint ..... *viterboana*
7' UNH postdiscal band continued to $Sc+R_1$; ground color distad of band same as band and separated from it by narrow pale streak widened slightly towards costa; distal pale edging to cell and subtornal spots prominent ..... *dubius*
8 Upperside blue-green clothing without well defined distal border on HW; antennal club and apiculus usually wholly pale yellow beneath; UNH central band subcostal spots about equal in size ..... *proteus*
8' Upperside bring green or blue clothing with well defined distal border on HW, at least when viewed in side light 9
9 UNH postdiscal band broken into separate spots by pale veins; distal pale edging to cell and subtornal spots prominent, white ..... *pronta*
9' UNH postdiscal band entire 10
10 FW no subapical hyaline spots in M_1-M_2 and M_2-M_3 11
10' FW with subapical hyaline spots in M_1-M_2 and/or M_2-M_3; UNH central band

subcostal spots unequal, distal spot smaller or absent ..... *esmeraldus* (part)
11 UNH subcostal spots of central band about equal in size; antennal club usually darkened beneath ..... *evona*
11' UNH outer subcostal spot of central band smaller than inner or missing; antennal club usually wholly pale yellow beneath ..... *esmeraldus* (part)
12 UNH dark markings, especially central band, very poorly defined and barely contrasting with ground color, presenting a washed-out appearance ..... *elmina*
12' UNH dark markings prominent ..... 13[a]
13 UNH postdiscal band more or less broken into separate spots by pale veins 14
13' UNH postdiscal band entire 16
14 UNH distal pale edging to cell and subtornal spots prominent; smaller insect, FW 20-23 mm 15
14' UNH this distal pale edging very faint; larger insect, FW 23-27 mm ..... *magnus*
15 Antennal club beneath not or only slightly darkened ..... *viridis*
15' Antennal club beneath prominently darkened ..... *pronus*
16 UNH color purple brown ..... *prodicus*
16' UNH color light to dark brown, rarely with a slight violet hue ..... *esta*

Genitalic key to *proteus* group species (♂), Genus *Urbanus*

1 Ampullae of the valvae symmetrical or nearly so 2
1' Ampulla of right valva with straight or concave dorsal edge, that of left valva convex 14
2 Valvae symmetrical or nearly so 3
2' Valvae not symmetrical 13
3 Valvae with prominent dorsally projecting process of the cucullus 4
3' Cucullus may be more or less dentate for part or all of dorsal edge and produced dorsad but without prominently projecting dorsal process 6
4 Dorsal process of cucullus spatulate 5
4' Dorsal process short, terminally dentate, but not spatulate ..... *elmina*
5 Dorsal process long and slender ..... *esmeraldus*[b]
5' Dorsal process relatively short and stout ..... *esma*[b]
6 Cucullus short, heavily dentate dorsally and on inner face, caudal end broadly rounded and not or only slightly projecting caudad beyond dorsal dentate portion 7
6' Cucullus long, bluntly or sharply pointed caudally, or, if rounded, produced caudad well beyond dorsal dentate area 8
7 Dorsal dentate area of cucullus dorsally straight and projecting caudad beyond rounded caudal end of cucullus; viewed ventrally, uncus arms basally parallel, terminally convergent, gnathos broadly rounded caudally ..... *acawoios*
7' Dorsal dentate area of cucullus rounded dorsally; caudal end of cucullus projecting caudad of dentate area; viewed ventrally, uncus arms divergent, gnathos bluntly pointed caudally ..... *pronus*
8 Dorsal edge of ampulla a relatively smooth convex curve 9
8' Dorsal edge of ampulla with a rounded shoulder caudally where it joins the cucullus, the rest of its dorsal edge irregular but more or less straight or concave . 10
9 Cucullus short with strongly dentate dorsal projection just cauded of ampulla, rest of dorsal edge smooth ..... *proteus*
9' Cucullus long, entire dorsal edge dentate ..... *magnus*
10 Cucullus long, sharply pointed caudally, entire dorsal edge dentate . *huancavillcas*
10' Dorsal edge of cucullus not entirely dentate 11
11 Dentate portion of dorsal edge of cucullus more or less rounded, usually not projecting dorsad beyond dorsal edge of ampulla 12

[a]Examination of the genitalia will probably be needed to separate the remaining species; see the genitalic key.
[b]*Esmeraldus* and *esma* are easily separated by superficial characters.

11' Dentate portion of dorsal edge of cucullus more or less pointed, usually projecting dorsad beyond dorsal edge of ampulla ..... *belli*[c] & *pronta*[c]
12 Cucullus long, sharply pointed caudally, dorsally concave caudad of dentate area ..... *dubius*[c]
12' Cucullus shorter, more or less triangular, usually bluntly pointed caudally but may be rounded or sharply pointed, variable ..... *viterboana*[c]
13 FW with costal fold; right valva with long spatulate dentate dorsal process of cucullus as in *esma*; left valva with shorter dentate dorsal process, usually not spatulate ..... *evona*
13' FW no costal fold; dorsal processes as in *evona* but shorter and often subequal in size though left usually shorter than right ..... *esta* (part)
14 Right valva dorsal process of cucullus spatulate or broad and rounded, not tapering 15
14' Right valva dorsal process of cucullus not spatulate, tapering to blunt or sharp point, or if not tapered, narrow ..... *prodicus*
15 Dorsal process of cucullus very broad and short, left about equal to right; viewed ventrally, uncus arms widely separate, parallel, tegumen projecting laterally at right angle from uncus ..... *viridis*
15' Dorsal process of cucullus narrower and longer, left usually shorter than right; viewed ventrally, uncus arms divergent, no lateral tegumen projection ... *esta* (part)

Superficial key to *proteus* group species (♀), Genus *Urbanus*

1 UNH central band composed of separated spots 2
1' UNH central band entire, though subcostal spots may be separate 11
2 UPH basal green clothing without clearly defined distal border; antennal club and apiculus usually wholly pale yellow beneath; UNH subcostal spots of central band approximately equal in size ..... *proteus*
2' UPH basal green or blue clothing with a clearly defined distal border, at least when viewed in side light 3
3 UPH bright golden-green clothing nearly reaches fringe ..... *esma*
3' UPH clothing green or blue, its distal border at least 2 mm from fringe 4
4 FW length less than twice width 5
4' FW length more than twice width; UPH clothing rather dull green, dark markings from below visible, at least the postdiscal band ..... *acawoios*
5 UNH postdiscal band more or less broken into separate spots by paler veins 6
5' UNH postdiscal band entire 8
6 UNH distal white edging to cell and subtornal spots prominent 7
6' UNH this distal white edging very faint ..... *magnus*
7 UNH distal pale edging and pale veins very prominent, sharply contrasting with dark markings ..... *pronta*[d]
7' UNH distal pale edging evident but not prominent, much less contrast .. *pronus*[d,e]
8 UNH dark markings, especially central band, very poorly defined, barely contrasting with ground color, presenting a washed-out appearance ..... *elmina*
8' UNH dark markings prominent 9
9 UNH ground color pale whitish brown; distal pale edging to subtornal spot of postdiscal band prominent, white; distal subcostal spot of central band much smaller than proximal spot or missing; FW usually with subapical hyaline spots in M_1-M_2 and/or M_2-M_3 ..... *esmeraldus*
9' UNH ground color brown, if pale and somewhat whitish, distal pale edging to subtornal spot of postdiscal band pale brown; subcostal spots of central band more or less equal in size; FW no subapical spots in M_1-M_2 and M_2-M_3 10
10 UNH ground color purple brown; distal pale edging to cell and subtornal spots faint ..... *prodicus*

[c]The genitalia of *viterboana, belli, pronta* and *dubius* are very similar and quite variable. The separation of these species on the basis of genitalia alone is uncertain; see superficial key.

[d]These species are very difficult to determine without examination of the genitalia; see genitalic key.
[e]*Viridis* will probably key to here, but the ♀ is still unknown.

10' UNH ground color brown, occasionally with slight violet hue; pale edging to cell and subtornal spots more or less prominent ..... *esta*[d] & *evona*[d]
11 Antennal club and apiculus beneath wholly pale yellow; UNH subcostal spots of central band conjoined; area between central and postdiscal bands whitish (♀ unknown, these characters based on ♂) ..... *huancavillcas*
11' Antennal club beneath centrally darkened; UNH area between central and postdiscal bands paler but not whitish 12
12 Upperside basal clothing blue 13
12' Upperside basal clothing green ..... *belli*
13 UNH postdiscal band extending cephalad to Rs as usual; ground color distad of band paler than band; distal pale edging to cell and subtornal spots faint ..... *viterboana*
13' UNH postdiscal band extending cephalad to $Sc+R_1$; ground color distad of band same as band and separated from it by narrow pale streak widened slightly towards costa; distal pale edging to cell and subtornal spots prominent ..... *dubius*

Genitalic key to *proteus* group species (♀), Genus *Urbanus*[f]

1 Papillae anales prominently concave terminally 2
1' Papillae anales straight, slightly convex or slightly concave terminally 7
2 Lamella postvaginalis with deep "U"-shaped central indentation caudally 3
2' Lamella postvaginalis with shallow "U"-shaped central indentation or broadly concave caudally 4
3 Lamella antevaginalis moderately sclerotized with prominent central indentation caudally ..... *esta*[g] & *elmina*[g]
3' Lamella antevaginalis weakly sclerotized, broadly concave caudally ..... *prodicus* (part)
4 Lamella antevaginalis weakly sclerotized, broadly concave caudally 5
4' Lamella antevaginalis moderately to strongly sclerotized and either centrally excavate caudally or caudally produced 6
5 Sterigma broad longitudinally, its anterior margin more or less straight or slightly convex centrally and concave on either side ..... *prodicus* (part)
5' Sterigma very narrow longitudinally, its anterior margin usually convex centrally and bowed laterally ..... *esmeraldus*
6 Sterigma broad longitudinally, its anterior margin with deep central concavity; lamella antevaginalis strongly sclerotized with broad, sinuously margined, central caudal projection ..... *proteus*
6' Sterigma narrow longitudinally, its anterior margin broadly convex; lamella antevaginalis well sclerotized, its caudal margin centrally excavate but not prominently produced caudad ..... *evona*
7 Lamella postvaginalis with deep central indentation caudally 8
7' Lamella postvaginalis with shallow central indentation caudally 10
8 Corpus bursae long and bent to banana shape or hooked like letter "J" 9
8' Corpus bursae a simple oval, not bent ..... *magnus*
9 Corpus bursae bent to banana shape, not hooked like letter "J" ..... *viterboana*
9' Corpus bursae hooked like "J" ..... *belli*[g] (part) & *pronus*[g]
10 Corpus bursae hooked like "J" ..... *belli*[g] (part)
10' Corpus bursae oval, not bent or hooked 11
11 Corpus bursae small, sub-spherical; lamella postvaginalis with central broad caudal concavity ..... *acawoios*
11' Corpus bursae large, oval 12
12 Lamella postvaginalis caudally more or less straight with small central

[f] ♀ ♀ of *viridis* and *huancavillcas* are unknown and I have not seen *esma*, none of which are included in this key.
[g] These species are difficult to separate on genitalic characters alone; see superficial key.

indentation, or if rounded, centrally broadly concave or with prominent indentation ..... *pronta*

12' Lamella postvaginalis caudally broadly rounded with very slight or no central indentation ..... *dubius*

The individual species and subspecies are described below. Because of the broad general similarity between them, the descriptions are limited to the diagnostically significant features, the general characteristics having already been described for the group as a whole.

Urbanus proteus (Linné), 1758

This species is found over a wider range than any other in the group and is the only species found regularly in the continental U. S. Its range extends from as far north as Connecticut (rarely), across the southern U. S. through Mexico, Central America, the Antilles, and South America as far south as northern Argentina. Specimens from the Antilles show a slight variation from the remarkably constant continental form, sufficient I believe, to warrant subspeciation, though this is not universally accepted, as will be discussed below.

Urbanus proteus is characterized by the green or blue-green coloring of the upper surface of the hindwing gradually shading off distally rather than having a sharply defined distal border when viewed in a side light. In the central band of the forewing the hyaline spot in the cell may touch the spot in Cu_2-Cu_3 which may touch that in Cu_3-1A, but these spots seldom overlap (see page 14). The subapical spots in M_1-M_2 and M_2-M_3 are usually present in the males, at least as traces, and always in the females. These spots, when well developed, are in the form of transverse linear dashes across each cell; when less well developed they are centrally constricted, often to the point of separation into two dots either or both of which may be missing. The ♂ forewing bears a distinct costal fold.

The under surface ground color is medium brown, often with a purplish cast, especially on the hindwing. The central band of the hindwing is composed of separated spots of which the cell spot is usually the largest and may be continued across the base of Cu_1-Cu_2, though this feature is often obscured by long, overlying hair scales. The cell spot is bordered distally by an obscure thin whitish line. The two subcostal spots are approximately equal in size. The postdiscal band is entire and usually more sharply defined proximally than distally, the proximal border often with a thin dark line separating it from the ground color area. The paler than ground distal edging to the subtornal spot in Cu_2-1A is very faint or absent.

The hindwing fringe is white to pale brown, checkered dark brown at the vein ends and appears whiter than the other species because the dark checkering does not reach the distal fringe margin. The forewing fringe is darker, especially towards the apex, and more or less strongly checkered. The antennal club beneath is usually wholly pale yellow but may be slightly darkened centrally in some individuals. The females are slightly larger than the males on the average, have slightly longer hindwing tails and generally more prominent hyaline markings on the forewing.

Genitalically, *proteus* males are easily distinguished by the symmetrical valvae with broad evenly rounded ampullae and short cucullus with a short, heavily dentate dorsal projection. The shape of the caudal end of the cucullus is very variable individually. The uncus arms, viewed ventrally, are short and divergent; the gnathos terminally rounded. The most characteristic features of the female genitalia are the heavily sclerotized lamella antevaginalis with a broad, sinuously margined, central caudal projection and the longitudinally broad sterigma with a deep central concavity in its anterior margin. The papillae anales are prominently concave terminally, the lamella postvaginalis has a shallow central caudal indentation or is broadly concave caudally, the ductus bursae is a narrow untapered tube and the corpus bursae a simple oval.

Key to the subspecies of *Urbanus proteus*

1 FW almost always with at least traces of subapical hyaline spots in M_1-M_2 and/or M_2-M_3; fringe usually checkered to FW apex; hyaline spots relatively large; upperside basal clothing dull green, seldom shaded blue ..... *proteus*

1' ♂ FW often with no subapical hyaline spots in M_1-M_2 and M_2-M_3, these spots usually present in ♀; FW fringe checkering usually does not reach apex; Hyaline spots smaller; upperside basal clothing tending toward blue, brighter; insect generally darker ..... *domingo*

Urbanus proteus proteus (Linné), 1758

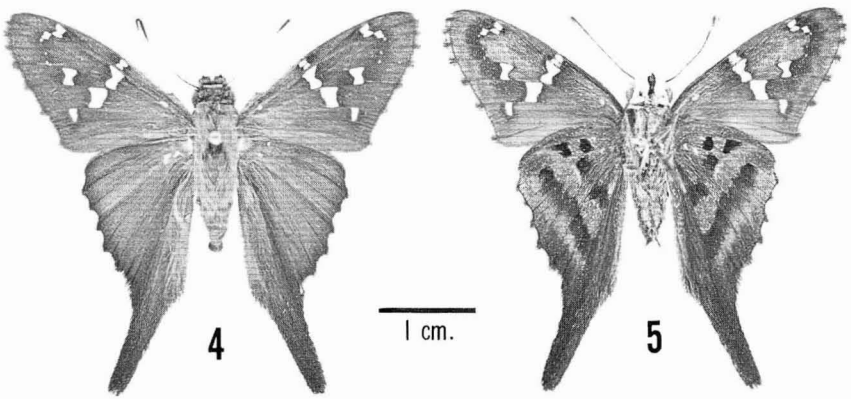
Figures 4, 5 (♂), 1 (♂ wing & antenna), 33 (♂ genitalia), 3 (♀ genitalia)

Papilio proteus Linné, 1758: 484. Type locality "*Gramine Americes*". Type lost; Neotype designated (see below).

= *Goniurus proteoides* Plötz, 1880: 11. Type locality N. America, location of type unknown.

= *Urbanus proteides, Auctorum* (*nec* Plötz, 1880).

As can be seen from the above key, the differences between *U. p. proteus* and *U. p. domingo* are more readily observed in populations than in single specimens; individual exceptions to the key are common. In general, the features characterizing *proteus* are the almost universal presence of subapical hyaline spots in M_1-M_2 and/or M_2-M_3 of the forewing, the comparatively large size of the hyaline spots, the prominent white fringe of the hindwing, the pronounced checkering of the forewing fringe (usually reaching the apex) and the dull green color of the upper surface usually with little or no blue.



Figures 4-5. *Urbanus proteus proteus* (Linné), Neotype ♂ *Papilio proteus* Linné, 1758, North Carolina: Craven Co.: MCAS Cherrypoint; upper (4) and under (5) surfaces (Photos 022680-5/6).

The type of *proteus* has been lost or destroyed. Dr. Lee D. Miller very kindly contacted the Ludovica Ulrica Museum in Upsala and the Linnaean Society in London on my behalf, but was unable to discover its whereabouts. Aurivillius (1882) refers to Clerck's (1764) figure 1, Pl. 42 as the type figure of *proteus* thus indicating that the type specimen was not to be found in the MLU at Upsala in 1882. R. I. Vane-Wright (1979, pers. Comm. to L. D. Miller) stated that it is not in the collection of the Linnaean Society of London.

In order to avoid possible future confusion I have designated as neotype of *Papilio proteus* Linné, 1758 a ♂ specimen from North Carolina. Linné probably received much of his North American material from sea captains visiting there. It is reasonable to assume that the original type may have come from somewhere in the tidelands of the southeastern U. S.; *"Habitat in Gramine Americes"* neither confirms nor contradicts this assumption. There are three labels on the pin of the neotype: a printed data label, "MCAS, Cherrypoint Craven Co. N. C. coll. by S. S. Nicolay" with the handwritten date, "20 Sept. '59"; a printed determination label, "Det. S. S. Nicolay" bearing the handwritten name, *"Urbanus proteus* ♂ L."; a printed red neotype lable, "Neotype — designated by" bearing the handwritten notation, "Papilio proteus Linné, 1758. Syst. Nat. Ed. 10 p: 484 S. R. Steinhauser 1980". It has been deposited in the type collection of the Allyn Museum of Entomology, Sarasota, Florida.

The neotype (figures 4 & 5) has a forewing length of 23 mm, forewing width from costa to tornus of 12 mm and hindwing tail 10 mm long. Its antennal nudum numbers $^{5}/_{19}$; the antennal club beneath is somewhat darkened centrally. In all other respects its description is as given above and in the general descriptions of the *proteus* group and *Urbanus proteus*.

A random sample of 16 ♂ and 15 ♀ *proteus* showed the following wing measurements: ♂ forewing averaged 22.2 mm from base to apex and 11.8 mm from costa to tornus, varying from 21 x 11 to 24 x 13; average hindwing tail length was 10 mm. ♀ forewing averaged 24.3 x 12.8 mm varying from 21.5 x 11.5 to 27 x 14; average tail length was 12.5 mm.

325 specimens of this subspecies were examined from the following areas: U. S. A. 28 ♂, 25 ♀; Mexico 78 ♂, 61 ♀; Guatemala 4 ♂, 2 ♀; El Salvador 37 ♂, 34 ♀; Nicaragua 1 ♂; Costa Rica 2 ♂; Colombia 13 ♂, 8 ♀; Venezuela 1 ♀; Ecuador 7 ♂, 5 ♀; Brasil 5 ♂, 3 ♀; Argentina 4 ♂, 4 ♀; no data 3 ♀. 23 preparations of ♂ and 6 of ♀ genitalia were made and studied.

Urbanus proteus domingo (Scudder), 1872

Figure 6 (♂)

Eudamus domingo Scudder, 1872: 69. Type locality Haiti, type probably in Museum of Comparative Zoology, Harvard Univ., Cambridge, Mass.

The features characterizing *domingo* are the frequent lack of subapical hyaline spots in M_1-M_2 and M_2-M_3 of the ♂ forewing, the comparatively small size of the hyaline

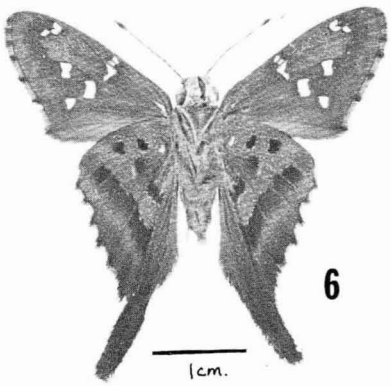


Figure 6. *Urbanus proteus domingo* (Scudder) ♂ under surface (Photo no. 121779-31); Jamaica: Newcastle.

spots, the hindwing fringe being usually pale brown rather than white, the forewing fringe checkering usually not reaching the apex, and the tendency, especially in the females, for the upperside basal clothing to be blue-green. These features are difficult to measure, yet when a series of Antillean specimens is compared directly with a continental series, the differences are apparent although some individuals from either series might fit better in the other. There is some sexual dimorphism; the females have larger hyaline spots, always have subapical hyaline spots in M_1-M_2 and/or M_2-M_3 and tend to be bluer.

A random sample of 10 ♂ and 11 ♀ specimens showed the following wing measurements: ♂ forewing averaged 22.5 mm from base to apex and 12.2 mm from costa to tornus, varying from 21 x 12 to 24 x 13; average hindwing tail length was 10 mm. ♀ forewing averaged 23.5 x 12.6 mm., varying from 21.5 x 11.5 to 25 x 13.5; average tail length was 13 mm.

The only measurable characters that I found to separate the two subspecies are the presence or absence of the above mentioned subapical hyaline spots in the males (present in 96% of *proteus* and 43% of *domingo*), complete separation of the hyaline spots in the cell and Cu_2-Cu_3 (45% ♂, 7% ♀ *proteus* and 100% ♂, 36% ♀ *domingo*), Cu_2-Cu_3 and Cu_3-1A (93% ♂, 50% ♀ *proteus* and 100% ♂, 86% ♀ *domingo*). The Antillean series unfortunately contained only 16 ♂ and 15 ♀ specimens compared to 179 ♂ and 146 ♀ for the *proteus* series, but a trend is recognizable.

The subspeciation of *proteus* is not accepted by all lepidopterists; Brown and Heineman (1972) agree with Comstock (1944) that "there seems to be no reasonable ground for establishing subspecies". On the other hand, Scudder considered the forms sufficiently distinct to warrant naming *domingo* as a species and Evans treated it as a valid Antillean subspecies differing from *proteus* by being "darker, markings more or less reduced, as well as chequering of cilia."

31 specimens of *domingo* were examined from the following localities: Cuba 2 ♀; Haiti 2 ♂, 2 ♀; Puerto Rico 2 ♀; Jamaica 11 ♂, 6 ♀; Bahamas 1 ♀; St. Croix 2 ♂, 1 ♀; Martinique 1 ♂, 1 ♀. 4 preparations of ♂ and 2 of ♀ genitalia were made and studied.

Urbanus viterboana (Ehrmann), 1907

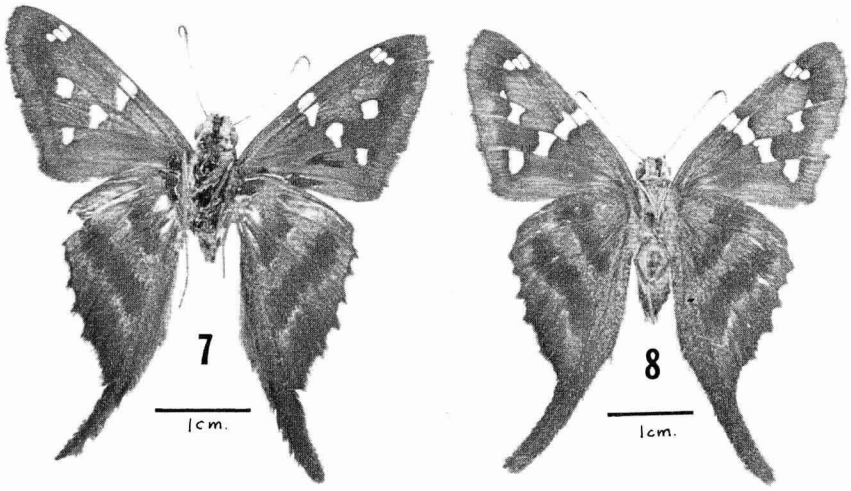
Figures 7 (♂), 8 (♀), 34 (♂ genitalia), 49 (♀ genitalia)

Thymele viterboana Ehrmann, 1907: 321. Type locality Colombia: Socorro, type in CM.

The ♂ forewing has a costal fold. In both sexes, the forewing bears the usual complement of hyaline spots, those in the ♀ generally larger than in the ♂. Either sex may have a subapical spot in M_2-M_3 but seldom in M_1-M_2. The subapical spots are not present in the holotype. The upper surface basal hair scale clothing is bright blue, occasionally with a green tint. On the hindwing this basal clothing is sharply defined distally. The under surface ground color varies from a medium brown (holotype) to a dark purple gray. The under hindwing central band is entire; the subcostal spots may be conjoined resulting in a widening of the band at the costa, or separate, making the band bifurcate. A few individuals exhibit nearly complete separation of these spots not only from each other but also from the rest of the band. The postdiscal band is entire; the pale distal edging to the subtornal spot of this band and to the cell spot of the central band is very faint.

The hindwing fringe is white to pale brown and checkered dark brown at the vein ends; forewing fringe is only slightly paler than the ground color and faintly checkered, usually to the apex. The antennal club beneath is prominently darkened centrally.

A random sample of 15 ♂ and 13 ♀ specimens gave the following wing measurements: ♂ forewing averaged 23.4 mm from base to apex and 13.1 mm from costa to tornus, varying from 22 x 12 to 25 x 14 (holotype 25 x 13.5); average hindwing tail length 9 mm, varying from 7 to 10 (holotype 10 mm); ♀ forewing averaged 25.8 x 14.5, varying from 23 x 13 to 28 x 16; average hindwing tail length 12 mm, varying from 10 to 14.



Figures 7-8. *Urbanus viterboana* (Ehrmann). 7 Holotype ♂ under surface (Photo no. 121979-3), head of different species glued on; Colombia: Socorro (CM); 8 ♀ under surface (Photo no. 121779-2); Colombia: Cauca: Bolivar, Aguas Gordas 16-1800 m.

In the ♂ genitalia, viewed ventrally, the uncus arms are narrowly separated, deeply divided and nearly parallel, diverging slightly towards the tips; the gnathos is slender, bluntly pointed. The valvae are symmetrical, long and relatively slender, the ampulla with a rounded shoulder caudally where it meets the cucullus, its dorsal margin sinuous. The cucullus has a moderately dentate dorsal area which may be dorsally more or less pointed, but usually rounded, just caudad of the ampulla and seldom projecting dorsad beyond the dorsal edge of the ampulla. The cucullus is very variable, more or less an isosceles triangle, sharply to bluntly pointed caudally and often with the dorsal edge more or less concave.

In the ♀ genitalia the terminal margins of the papillae anales are nearly straight; the anterior margin of the sterigma slightly concave centrally; the lamella postvaginalis has a deep central indentation caudally; the lamella antevaginalis is weakly sclerotized, its caudal margin with a broad shallow central concavity; the ductus bursae is short, tapered; corpus bursae long, bent to banana shape.

129 specimens were examined from the following countries: Mexico 35 ♂, 18 ♀; Guatemala 1 ♂, 2 ♀; El Salvador 10 ♂, 17 ♀; Costa Rica 6 ♂, 4 ♀; Panama 4 ♂, 3 ♀; Colombia 16 ♂, 6 ♀; Ecuador 7 ♂. 34 ♂ and 6 ♀ genitalia preparations were made and studied in addition to that of the holotype.

This is perhaps the most variable species in the *proteus* group. It and its close relatives, *belli, dubius* and *pronta* are clearly distinct entities, yet some individuals can be very difficult to place, suggesting that there may be considerable hybridizing between them. There is less chance of confusing *viterboana* with *pronta* than with *belli* and *dubius* because of the prominent division of the under hindwing band into separate spots. It can be distinguished from *belli* by the upper surface color being blue in *viterboana* and green in *belli.* The shape of the valvae is individually quite variable in both species, making separation of the males on the basis of genitalia alone rather difficult. However, when confronted with a blue-green individual, it usually can be determined with little doubt on the basis of the valvae; in *viterboana* the dorsal dentate area of the cucullus seldom projects dorsad beyond the dorsal edge of the ampulla, whereas in *belli* it usually does project dorsad. Females can be separated genitalically by the shape of the corpus bursae which is hooked like a letter "J" in *belli* and bent to a

banana shape in *viterboana*. From *dubius* it can be distinguished superficially by the under hindwing distal pale edging to the cell and subtornal spots which are very faint in *viterboana* and prominent in *dubius*, and by the continuation of the postdiscal band to the costa in *dubius* but only to vein Rs in *viterboana*. Genitalically the males are difficult to separate, but the females can be distinguished, usually without dissection, by the shape of the caudal edge of the lamella postvaginalis which is a smooth, almost uninterrupted curve in *dubius*, but deeply indented centrally in *viterboana*.

Urbanus dubius, new species

Figures 9, 10 (♂), 11, 12 (♀), 38 (♂ genitalia), 51 (♀ genitalia)

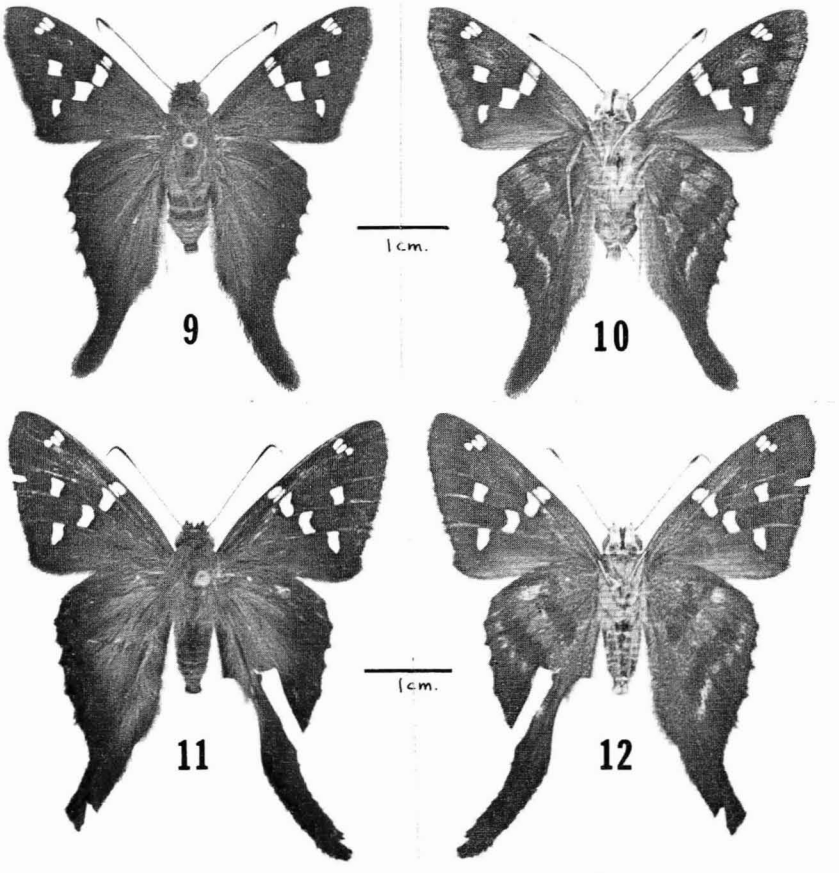
The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; one ♀ paratype has a subapical hyaline spot in M_2-M_3, in the rest of the type series there are no subapical hyaline spots in M_1-M_2 or M_2-M_3. The upper surface basal hair scale clothing is bright blue and sharply defined distally on the hindwing. The under surface ground color is gray-brown. The under hindwing central band is entire although the subcostal spots are separate from each other, and the distal subcostal spot is either narrowly connected to or separate from the cell spot. In both sexes the cell spot is narrowly but prominently white bordered distally; the females have a whitish spot distad of the distal subcostal spot. The postdiscal band is entire and extends cephalad to Sc+R_1-Rs. The band is distally bordered by a more or less prominent narrow whitish streak broadened slightly towards the costa and very prominent in Cu_2-1A; distad of this streak the wing color is as dark, or nearly so, as the postdiscal band. The hindwing fringe is white and prominently checkered; the forewing fringe above is as dark as the rest of the wing except in the tornal area where it is slightly paler between the veins; the under forewing fringe is slightly paler, but the checkering is only discernible in the tornal area. The antennal club beneath is prominently darkened centrally.

The forewings of the two ♂ paratypes measured 22 x 12 and 23 x 12.5 mm for an average of 22.5 mm from base to apex and 12.2 mm from costa to tornus. The hindwing tails each measured 9 mm. The holotype ♀ forewing measured 26.5 x 14.5 mm; the hindwing tail 13.5 mm. The average ♀ forewing measurements for the 3 specimens of the type series was 26.0 x 14.7 mm, varying from 24 x 14 to 27.5 x 15.5. Only the holotype had a measurable hindwing tail.

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided, narrowly separated and parallel; the gnathos is slender and bluntly pointed. The valvae are symmetrical, long and slender, the ampulla with a rounded shoulder caudally where it meets the cucullus, its dorsal margin sinuous or shallowly concave. The cucullus is long, slender, and sharply pointed terminally with a moderately dentate, rounded dorsal area just caudad of the ampulla and not projecting dorsad beyond the shoulder of the ampulla. The dorsal margin of the cucullus caudad of the dentate area is concave and more or less irregularly serrated.

In the ♀ genitalia the terminal margins of the papillae anales are more or less straight; the anterior margin of the sterigma a nearly straight line; the lamella postvaginalis is broadly rounded caudally with a very slight shallow central indentation or no indentation at all; the lamella antevaginalis is very weakly sclerotized, its caudal margin slightly concave; the ductus bursae is broad, not or only slightly tapered; corpus bursae oval, not bent.

Type material: Holotype ♀, Colombia: Valle del Cauca: Rio Anchicayá 1150 m, 15-ii-75, S. R. & L. M. Steinhauser; 2 Paratype ♀, one with same data as Holotype; one from Ecuador: Tunguruhua: Rio Negro, Feb. 1976, R. de la Febvre; 2 ♂ Paratypes (probably siblings), same locality and collector as Holotype, *ex* larvae on undetermined food plant, eclosed 2-ii & 4-ii-74. The entire type series is deposited in the Allyn Museum of Entomology.



Figures 9-12. *Urbanus dubius*, new species. 9-10 Paratype ♂ upper (9) and under (10) surfaces (Photos 121779-32/33); Colombia: Valle del Cauca: Rio Anchicayá 1150 m. 11-12 Holotype ♀ upper (11) and under (12) surfaces (Photos 121779-15/16); Colombia: Valle del Cauca: Rio Anchicayá 1150 m.

2 ♂ and 2 ♀ genitalia preparations were made and studied.

Dubius is very closely related to *viterboana*, the only species with which it is likely to be confused. The females are easier to distinguish than the males and for this reason a female was chosen as the holotype. The characteristics by which they may be separated are given in the description of *viterboana*.

Urbanus belli (Hayward), 1935, new combination

Figures 13, 14 (♂), 35 (♂ genitalia), 50 (♀ genitalia)

Goniurus belli Hayward, 1935: 256. Type locality Argentina: Salta, type probably in Museo de Buenos Aires.

= *Urbanus viterboana alva* Evans, 1952: 87. Type locality Mexico: Veracruz: Atoyac, type in BMNH.

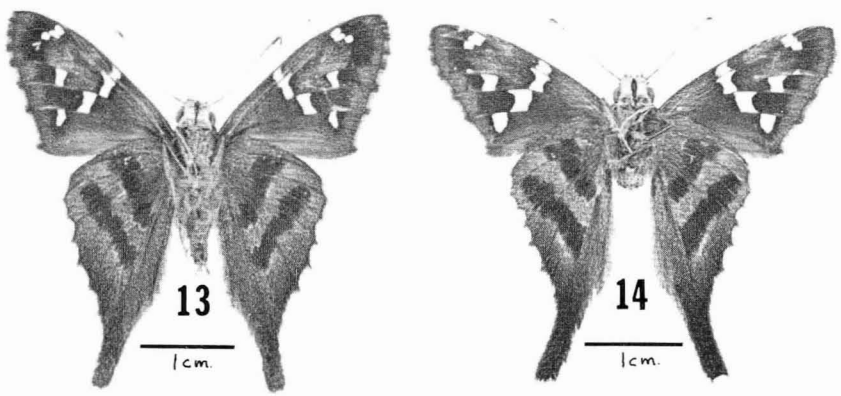
The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; the subapical spots in M_1-M_2 and M_2-M_3 are usually absent although more likely to occur in M_2-M_3 alone than in both. The upper surface basal hair scale clothing is green, occasionally with a blue tint and is sharply defined distally on the hindwing. The underside ground color is usually a medium brown, with or without a purple tint, but a few individuals have a purple gray ground color as is common in *viterboana*. The under hindwing central band is entire and usually widened or bifurcate at the costal end, but rarely may be of constant width. Occasionally the distal subcostal spot is separated from the band and rarely the proximal spot as well. The pale distal edging to the cell spot is very faint. The postdiscal band is entire; the pale distal edging to the subtornal spot faint. The forewing fringe is only slightly paler than the ground color, and faintly checkered, usually to the apex; the hindwing fringe is pale brown to white, checkered dark at the vein ends. The antennal club beneath is centrally darkened.

A random sample of 12 ♂ and 10 ♀ specimens gave the following wing measurements: ♂ forewing averaged 21.8 mm from base to apex and 12.1 mm from costa to tornus, varying from 18.5 x 10 to 25 x 13.5 (holotype of *alva* measured 22 x 12); hindwing tail length averaged 8 mm, varying from 7.5 to 10 (holotype of *alva* measured 9 mm); ♀ forewing averaged 23.2 x 13.0, varying from 21 x 12 to 25 x 14; hindwing tail length averaged 10, varying from 9.5 to 11.

In the ♂ genitalia, viewed ventrally the uncus arms are narrowly separated, deeply divided, nearly parallel and diverging slightly towards the tips; the gnathos is slender, more or less pointed. The valvae are symmetrical, the ampulla with a rounded shoulder caudally where it meets the cucullus, its dorsal margin sinuous. The cucullus is quite variable, ranging from a short, blunt triangle to a long, slender, sharply pointed form with concave dorsal edge. It has a dentate dorsal area just caudad of the ampulla, which may be rounded or sharply pointed and usually protrudes dorsad beyond the dorsal edge of the ampulla.

In the ♀ genitalia the terminal margins of the papillae anales are more or less straight; the anterior margin of the sterigma a nearly straight line; the lamella postvaginalis with a moderately deep to occasionally shallow central indentation caudally; the lamella antevaginalis weakly sclerotized, its caudal margin with a broad shallow central concavity; the ductus bursae long and tapered; corpus bursae long, hooked like the letter "J".

271 specimens were examined from the following countries: Mexico 26 ♂, 11 ♀; Guatemala 4 ♂, 1 ♀; El Salvador 105 ♂, 97 ♀; Costa Rica 1 ♂, 2 ♀; Panama 2 ♂, 2 ♀;



Figures 13-14. *Urbanus belli* (Hayward). 13 ♂ under surface (Photo no. 121879-13); El Salvador: Sta. Tecla 900 m. 14 ♂ (Holotype of *U. viterboana alva* Evans) under surface (Photo no. 121979-5); Mexico: Veracruz: Atoyac (BMNH).

Colombia 9 ♂, 8 ♀; Ecuador 1 ♂; Bolivia 1 ♂; Argentina 1 ♂. 31 ♂ and 10 ♀ genitalia preparations were made and studied.

Evans considered *belli* and *alva* to be subspecies of *viterboana*. He separated *alva* from *belli* on the basis of the even width throughout of the under hindwing central band and a longer hindwing tail in *belli*. However, he listed one specimen each of both *belli* and *viterboana* from Yungas, La Paz; Bolivia, and one each of *belli* and *alva* from Tucuman, Argentina. This overlap of "subspecies" was in addition to the much more widespread overlap of *alva* and *viterboana* which occupy common territory from Mexico to Bolivia. I have seen specimens of *belli, sensu* Evans from Mexico and El Salvador. In view of the lack of genitalic difference between *alva* and *belli* and the broad overlap of their geographic ranges I have placed *alva* in the synonymy of *belli*, which I re-raise to specific rank.

It should be mentioned here that I have not seen the type of *belli*, a female, nor any of the males later determined by Hayward (1948) as *belli*. Hayward did not illustrate the genitalia of any of these and the possibility exists that *belli* and *alva* are distinct entities, but until such time as examination of these specimens proves this true, I must consider *alva* to be a synonym of *belli*.

Evans prepared ♂ genitalia by "dry dissection" which involved tearing the genitalia from the abdomen and gluing the pieces to a card on the insect pin. Frequently the parts were badly broken in the process. This apparently happened to the type of *alva*. Portions of the valvae were left attached to the vinculum which remained in the abdomen. These not only do not fit the broken bases of the valvae glued to the card, but actually overlap them, indicating that the valvae on the card are from a different specimen than the type. In the unlikely event that *alva* should prove to be a valid species, distinct from *belli*, this could create a problem.

Urbanus huancavillcas (Williams), 1926

Figures 16 (♂), 37, 61 (♂ genitalia)

Eudamus huancavillcas Williams, 1926: 72. Type locality Ecuador: Huigra, type in CM.

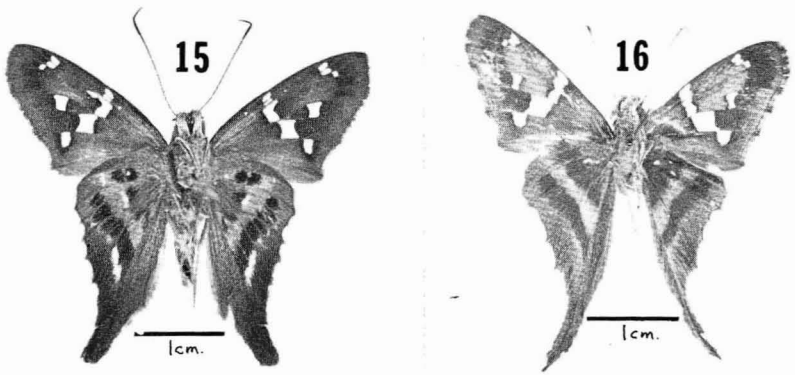
The following description is based solely on the ♂ holotype, the only specimen I have seen. S. S. Nicolay has two males in his collection which he took in September, 1975 at 1700 m. on the Loja-Catamayo Rd, Loja Prov. Ecuador. The female is unknown.

The ♂ forewing has a costal fold and bears the usual complement of hyaline spots including a minute dot in M_2-M_3. The central spots are large, those in the cell, Cu_1-Cu_2 and Cu_2-1A overlapping. The under surface ground color is pale brown, more or less over-scaled white and violet. On the under forewing, the dark band distad of the hyaline spots is broader than in other species, especially towards the apex. The under hindwing central band is entire and blends into the darker-than-ground basal area making the basal third of the wing dark brown. The postdiscal band is entire; the distal pale edging to the subtornal spot faint. The narrow area between the dark bands is prominently over-scaled whitish, more or less obscuring the distal pale edging to the cell spot of the central band. The antennal club beneath is wholly pale yellow.

The three known ♂ specimens gave the following wing measurements: forewing averaged 21.2 mm from base to apex and 11.8 mm from costa to tornus, varying from 20.5 x 11.5 in the holotype to 22 x 12; hindwing tail length averaged 9.3 mm varying from 9 to 10 (holotype).

The genitalia slide of the ♂ holotype is missing and I have illustrated the genitalia from Williams' (1926) drawing of the right valva (Figure **37**) and from genitalia kindly supplied by Nicolay from one of his specimens (Figure **61**). The genitalia are characterized by the symmetrical valvae with slender pointed cucullus, more or less strongly dentate for the entire length of its dorsal edge. The only other species with this same feature, *magnus*, differs in having a smoothly convex dorsal edge of the ampulla which is straight or concave in *huancavillcas*.

Huancavillcas is one of the group of 4 species with the under hindwing central band entire, and can be readily separated from the others, *viterboana, belli* and *dubius,* by the prominent, narrow white area separating the under hindwing dark bands and by the distinctive form of the ♂ valva. Evans mistakenly determined 2 specimens in the BMNH, a ♂ and a ♀, as *huancavillcas,* based on the shape of the ♂ valva. He apparently ignored Williams' figure of the adult skipper and re-described *huancavillas* (*sic*) on the basis of these specimens which now form part of the type series of a new species, *magnus,* described below.



Figures 15-16. *Urbanus* spp. 15 *U. pronta* Evans, Holotype ♂ under surface (Photo no. 121779-18); Honduras: San Pedro Sula (BMNH). 16 *U. huancavillcas* (Williams), Holotype ♂ under surface (Photo no. 121879-16); Ecuador: Huigra (CM).

Urbanus pronta Evans, 1952

Figures 15 (♂), 36 (♂ genitalia), 52 (♀ genitalia)

Urbanus pronta Evans, 1952: 88. Type locality Honduras: San Pedro Sula, type in BMNH.

The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots, but usually no subapical spots in M_1-M_2 and M_2-M_3 although there may be a dot cephalad of M_3 and rarely a spot also in M_1-M_2. The upper surface basal hair scale clothing is blue-green and is sharply defined distally on the hindwing. The under surface ground color is gray-brown, with or without a slight purple tint. The under hindwing central band is composed of separate spots although the cell spot and that in Cu_2-1A may be coalesced by their extension through the base of Cu_1-Cu_2. The postdiscal band is broken into separate spots by the pale veins, usually prominently so. The cell spot of the central band and the subtornal spot and often the entire postdiscal band are prominently white edged distally. The hindwing fringe is white and prominently checkered; the forewing fringe is barely paler than the ground color and faintly checkered to the apex. The antennal club beneath is prominently darkened centrally.

A random sample of 11 ♂ and 11 ♀ specimens gave the following wing measurements: ♂ forewing averaged 22.2 mm from base to apex and 12.1 mm from costa to tornus, varying from 18.5 x 10 to 25 x 13.5; (the holotype ♂ measured 22 x 11.5); hindwing tail length averaged 8 mm, varying from 6 to 9 (holotype tail length 6 mm); ♀ forewing averaged 25.2 x 13.5, varying from 22 x 12 to 27 x 15; hindwing tail length averaged 11 mm, varying from 10 to 12.

In the ♂ genitalia, viewed ventrally the uncus arms are narrowly separated, deeply divided and nearly parallel; the gnathos is moderately broad, more or less pointed. The valvae are symmetrical, the ampulla with a rounded shoulder where it meets the cucullus, its dorsal margin sinuous. The cucullus is quite variable, ranging from a short, blunt triangle to a long, slender, sharply pointed form with concave dorsal edge. It has a dentate dorsal projection just caudad of the ampulla which is usually more or less pointed and protrudes dorsad slightly beyond the dorsal edge of the ampulla.

In the ♀ genitalia the terminal margins of the papillae anales are more or less straight or slightly convex; the anterior margin of the sterigma is a nearly straight line; the lamella postvaginalis is caudally more or less straight with a small central indentation, or rounded and broadly concave centrally or with a prominent but shallow indentation; the lamella antevaginalis is weakly sclerotized, its caudal margin more or less sinuous; the ductus bursae is not or only slightly tapered; corpus bursae large, oval, not bent.

113 specimens were examined from the following countries: Mexico 15 ♂, 9 ♀; El Salvador 14 ♂, 23 ♀; Honduras 1 ♂; Costa Rica 2 ♂; Panama 3 ♂, 2 ♀; Colombia 17 ♂, 10 ♀; Venezuela 1 ♀; Ecuador 6 ♂, 3 ♀; Peru 1 ♂; Brasil 3 ♂, 1 ♀; Argentina 1 ♂; no data 1 ♂. 20 ♂ and 11 ♀ genitalia preparations were made and studied.

It is unlikely that *pronta* will be confused with other species; those similar to it superficially are very distinct genitalically and vice versa.

Urbanus pronus Evans, 1952

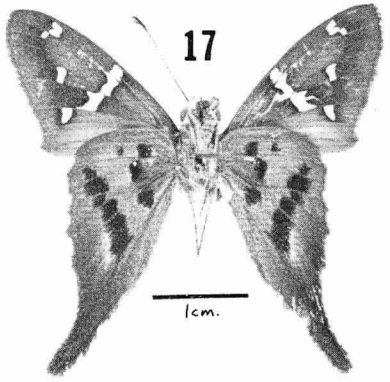
Figures 17 (♂), 42 (♂ genitalia), 54 (♀ genitalia)

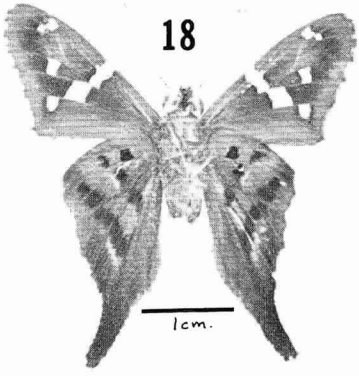
Urbanus pronus Evans, 1952: 89. Type locality Ecuador: Ambato, type in BMNH.
= *Urbanus plinius* Bell, 1956: 1-5. Type locality Bolivia: Santa Cruz, type in AMNH.

The ♂ upper forewing has no costal fold. In both sexes the forewing bears the usual complement of hyaline spots, the subapical spots in M_1-M_2 and M_2-M_3 usually missing. The upper surface blue-green hair scale clothing is sharply defined distally on the hindwing. The under surface ground color is gray-brown, occasionally with a violet tint. The under hindwing central band is composed of prominently dark separated spots, any of which, however, may coalesce with an adjacent spot in some individuals. The subcostal spots are much closer to each other than in other species with separate spots. The postdiscal band is broken into separate spots by the pale veins, but less prominently than in *pronta*. The pale distal edging to the cell and subtornal spots is prominent but there is rarely any pale edging to the rest of the postdiscal band. The hindwing fringe is white to pale brown and checkered dark brown at the vein ends; forewing fringe is much darker, barely paler than the upperside ground color and is weakly checkered to the apex. The antennal club beneath is centrally darkened.

A random sample of 6 ♂ and 6 ♀ specimens gave the following wing measurements: ♂ forewing averaged 22.1 mm from base to apex and 12.3 mm from costa to tornus, varying from 21 x 11.5 to 23 x 13 (holotype ♂ measured 22 x 12 with hindwing tail 8 mm; ♂ holotype of *plinius* measured 23 x 12.5 with hindwing tail 10 mm); hindwing tail length averaged 8.5 mm, varying from 8 to 10; ♀ forewing averaged 23.0 x 12.6, varying from 21 x 11 to 25 x 14; average hindwing tail length was 11.5 mm, varying from 11 to 12.

In the ♂ genitalia, viewed ventrally the uncus arms are slender, narrowly separated, deeply divided and slightly divergent; the gnathos is moderately broad and bluntly pointed. The valvae are symmetrical, the ampullae more or less evenly rounded dorsally as in *proteus*. The cucullus is short, terminally rounded, heavily dentate dorsally and on the inner face, the dorsal edge of this dentate area rounded; the caudal end of the cucullus protrudes caudad beyond the dentate area, but only slightly. The penis is somewhat shorter than in other species.





Figures 17-18. *Urbanus* spp. 17 *U. pronus* Evans, Holotype ♂ under surface (Photo no. 121979-7); Ecuador: Ambato (BMNH). 18 *U. viridis* Freeman, Holotype ♂ under surface (Photo no. 121879-3); Mexico: Veracruz: Fortin de las Flores (AMNH).

In the ♀ genitalia the terminal margins of the papillae anales are more or less straight; the anterior margin of the sterigma is a nearly straight line; the lamella postvaginalis with a deep central indentation caudally; the lamella antevaginalis is weakly sclerotized, its caudal margin more or less sinuous; the ductus bursae is more or less tapered; corpus bursae large, hooked to shape of the letter "J".

43 specimens were examined from the following countries: Mexico 1 ♂; Costa Rica 1 ♂; Panama 1 ♀; Colombia 18 ♂, 2 ♀; Ecuador 7 ♂, 7 ♀; Peru 2 ♂, 1 ♀; Bolivia 1 ♀; Brasil 1 ♀; Argentina 1 ♂. 9 ♂ and 10 ♀ genitalia preparations were made and studied in addition to the genitalia slide of the holotype of *plinius*.

Superficially, *pronus* males are separated from *pronta* males by the costal fold of *pronta*, but may be confused with males of *magnus*, *viridis* and *prodicus*, from which they are easily distinguished by the distinctive form of the valva, often visible without dissection. The females can be separated from the females of *magnus* and *pronta* by the intensity of the pale distal edging to the cell and subtornal spots of the under hindwing, which is very faint in *magnus*, very prominent in *pronta* and moderate in *pronus*. The female of *viridis* is unknown. The surest way to distinguish ♀ *pronus* is by the shape of the corpus bursae which is large and hooked like the letter "J", a characteristic of only one other species, *belli*, which is immediately separated by superficial features.

Pronus enjoyed many years of anonymity due to a small error by Evans who used the wrong genitalia sketch to illustrate it. The genitalia attached to the type are illustrated in Figure **42a** and in retrospect can be seen to agree with Evans' description "Cuiller not produced at all, end rounded: upper edge of right clasp somewhat protruding.", but in no way resemble his illustration, which appears to be of *esta*. Had Evans' sketch actually been of *pronus*, Bell undoubtedly would not have named *plinius* as a new species. Comparison of the genitalia figures of *pronus* and *plinius* (Figures **42 a** and **b**) shows clearly that the two are identical.

Urbanus viridis Freeman, 1970

Figures 18 (♂), 43 (♂ genitalia)

Urbanus viridis Freeman, 1970: 88-89. Type locality Mexico: Veracruz: Fortín de las Flores, type in AMNH.

The ♂ forewing has no costal fold, bears the usual complement of hyaline spots, but has no subapical spots in M_1-M_2 and M_2-M_3. The ♀ is unknown. The under surface

ground color is medium brown. The under hindwing central band is composed of separate spots darker than the postdiscal band which is broken into spots by the more or less paler veins as in *pronus*, not prominent pale veins as in *pronta*. The distal pale edging to the subtornal spot is more or less prominent; that to the cell spot less prominent but not faint. The hindwing fringe is pale brown, checkered dark brown at the vein ends; the forewing fringe is slightly paler than ground color and checkered to the apex where it becomes noticeably paler in R_4-R_5. Antennal club beneath mostly pale, but with a few dark scales centrally.

The holotype ♂ forewing measured 21.5 mm from base to apex and 11.5 mm from costa to tornus; the hindwing tail length was 8 mm.

In the ♂ genitalia, viewed ventrally the uncus arms are rather short, widely separated and parallel; the gnathos very broad and bluntly rounded; the tegumen projecting laterally at right angles to the uncus. The ampullae of the valvae are asymmetrical, the dorsal edge of the right ampulla being straight, that of the left convex; otherwise the valvae are symmetrical. The dorsal processes of the cuculli are essentially symmetrical, very broad and short, and heavily dentate dorsally.

Viridis is most closely related to *pronus*, *magnus* and *prodicus*. It can be distinguished from *pronus* and *magnus* by the distinctively different form of the valvae and from *prodicus*, which has the postdiscal band of the under hindwing entire, whereas it is broken into separate spots in *viridis*, by the small differences in the shapes of the valvae (see key) and by the prominent lateral tegumen projections in *viridis* which Freeman (1979, pers. comm.) informs me are present also in the other 2 ♂ specimens of *viridis* in his collection.

I have seen only one specimen, the ♂ holotype from Mexico.

Urbanus esmeraldus (Butler), 1877

Figures 19 (♂), 2, 39 (♂ genitalia), 53 (♀ genitalia)

Goniurus esmeraldus Butler, 1877: 146. Type locality Brasil: Amazonas: Villa Bella, type in BMNH.

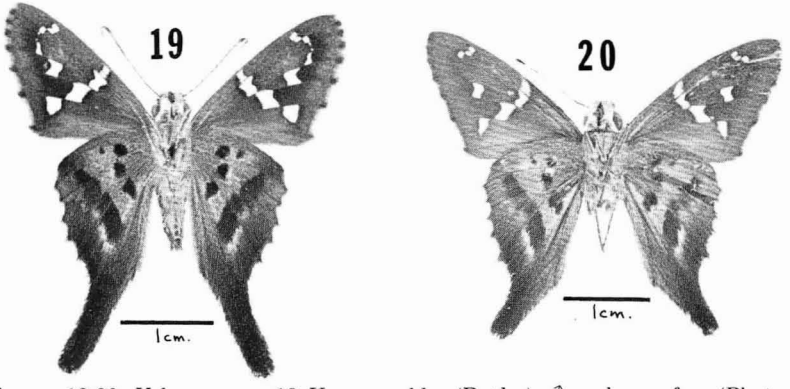
The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; the subapical spots in M_1-M_2 and/orM_2-M_3 are usually present and prominent, however about 20% of the males and 5% of the females examined lacked these subapical spots. The upper surface basal hair scale clothing is bright blue-green and sharply defined distally on the hindwing. The under surface ground color is medium brown; on the under hindwing, the area between the central and postdiscal bands and proximad of the central band is more or less heavily overscaled whitish. The central band is composed of separate spots, darker than the postdiscal band. The distal of the 2 subcostal spots is smaller than the proximal and often missing entirely; the distal pale edging to the cell spot is faint. The postdiscal band is entire and proximally bordered by a darker hairline within the band; the distal pale edging to the subtornal spot is prominent. The distal portion of Sc+R_1-Rs is darker than the area between the bands, giving the appearance of a continuation of the postdiscal band to the costa as in *dubius*. The hindwing fringe is a sullied white, checkered dark brown at the vein ends; the forewing fringe is pale brown, faintly checkered to the apex. The antennal club beneath is usually wholly pale yellow, but may be centrally darkened in some individuals.

A random sample of 12 ♂ and 12 ♀ specimens gave the following wing measurements: ♂ forewing averaged 21.2 mm from base to apex and 11.8 mm from costa to tornus, varying from 18 x 10 to 23 x 13; average hindwing tail length was 9 mm, varying from 7 to 10; ♀ forewing averaged 23.5 x 12.8, varying from 22 x 12 to 25 x 14; average hindwing tail length was 12 mm, varying from 11 to 14.

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided, widely separated and more or less parallel; the gnathos is moderately broad and bluntly

pointed. The valvae are symmetrical and characterized by the long, spatulate, terminally dentate dorsal process of the cucullus. The form of the processes is quite variable individually (see Figures 2 and 39) but they are never prominently asymmetrical.

In the ♀ genitalia the terminal margins of the papillae anales are prominently concave; the anterior margin of the sterigma is broadly convex, the sterigma very narrow longitudinally; the lamella postvaginalis has a shallow central indentation caudally; the lamella antevaginalis is weakly sclerotized and broadly concave caudally; the ductus bursae is usually narrow and not, or only slightly tapered; corpus bursae oval, not bent.



Figures 19-20. *Urbanus* spp. 19 *U. esmeraldus* (Butler), ♂ under surface (Photo no. 121879-18); Colombia: Valle del Cauca: Cali, Cañas Gordas 1000 m. 20 *U. esma* Evans, Holotype ♂ under surface (Photo no. 121779-6); Brasil: "Amazones" *recte* Para: Obydos (*sic*)(BMNH).

234 specimens were examined from the following countries: Mexico 20 ♂, 30 ♀; Guatemala 2 ♀; El Salvador 68 ♂, 41 ♀; Honduras 1 ♂, 2 ♀; Costa Rica 2 ♂; Panama 3 ♂, 2 ♀; Colombia 36 ♂, 17 ♀; Ecuador 1 ♂; Peru 1 ♂, 1 ♀; Brasil 4 ♀; French Guiana 1 ♀; Trinidad 2 ♂. 27 ♂ and 11 ♀ genitalia preparations were made and studied.

Esmeraldus can be readily distinguished from its near relative, *esma*, by the upper surface basal hair scale clothing which in *esma* is golden green and nearly reaches the base of the fringe on the hindwing, whereas in *esmeraldus* it is blue-green and ends at least 2 mm from the hindwing fringe. Genitalically, the males of *esma* have a shorter dorsal process of the cucullus than *esmeraldus;* I have not seen the female of *esma* and do not know how it differs genitalically from *esmeraldus.*

Evans treated *Goniurus platowii* Plötz, 1880 (*nec* 1881 Evans) as a synonym of *esmeraldus*, probably basing his decision on a statement by Godman (1907) that *platowii* was "Probably a var. of *Eudamus esmeraldus*, Butl., with the dark bands on the underside of the secondaries coalescent." Plötz' original description of *platowii*, "Hfl. unten veilgrau mit grossem, rhombischen, auswärts gezackten braunen Mittelfleck, in der Mitte desselben und an der äussern Grenze in Z. 1^{c} mit weissen Möndchen. Oberseite dunkelbraun, Leib und Flügelwurzeln glänzend grün, die Mittelbinde der Vfl. wie bei *Proteus*, doch mit grösseren Glasflecken, der Fleck in Z.3 mehr genähert, von Z.4-8 bilden kleinere Flecken ein zusammenhängendes, geschwungenes Band vor der Spitze. Hfl. mit schmalem zierlichen Schwanz.", agrees quite well with Draudt's (1921) illustration, but in no way resembles *esmeraldus*. However there is some similarity between this illustration and *Aguna megaeles* (Mabille), suggesting that *platowii* may more properly belong in *Aguna* than *Urbanus*. In light of the above, I am removing *platowii* from the synonymy of the *proteus* group.

Urbanus esma Evans, 1952

Figures 20 (♂), 41 (♂ genitalia)

Urbanus esma Evans, 1952: 90. Type locality Brasil: "Amazones" *recte* Para: Obydos (*sic*), type in BMNH.

The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; there are no subapical spots in M_1-M_2 and M_2-M_3, at least in the males. The upper surface basal hair scale clothing is a bright golden green and extends on the hindwing to within 1-1.5 mm of the fringe base. The under surface ground color is rather pale brown, over-scaled whitish on the hindwing especially in the inter-band area and proximad of the central band. The dark markings (posthyaline-spot band) of the under forewing are very faint and reduced. The under hindwing central band is composed of separate spots; the distal subcostal spot is smaller than the proximal. The pale edging to the cell spot is not prominent. The postdiscal band is entire; the distal pale edging to the subtornal spot prominent and, according to Evans, in the female continued towards the costa as a pale, macular band. The area distad and cephalad of the postdiscal band is nearly as pale as the area between the bands, unlike *esmeraldus*. The hindwing fringe is pale brown to white and checkered dark brown at the vein ends; the forewing fringe is only slightly paler than ground color and faintly checkered, usually not reaching the apex. The antennal club beneath is centrally darkened.

Wing measurements were made of only 2 males including the type, which measured 22.5 mm from base to apex and 11.5 mm from costa to tornus; the hindwing tail was 5 mm, and the hindwing, measured beneath from the costal "shoulder" to the tip of the tail was 24 mm. The other ♂ forewing measured 23 x 12.5; hindwing 24; hindwing tail 5 mm. The relatively short hindwing tail gives this insect an over-all squat aspect; the ♂ hindwing width as measured above, exceeds the forewing length by less than 2 mm.

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided, more or less widely separated and only slightly divergent; the gnathos is broad and narrowly rounded. The valvae are symmetrical and bear a long, spatulate dorsal process of the cucullus, that is generally shorter and stouter than the process in *esmeraldus*.

The ♀ genitalia are unknown to me.

6 ♂ specimens were examined from the following countries: Panama 1; Brasil 4; and Trinidad 1.

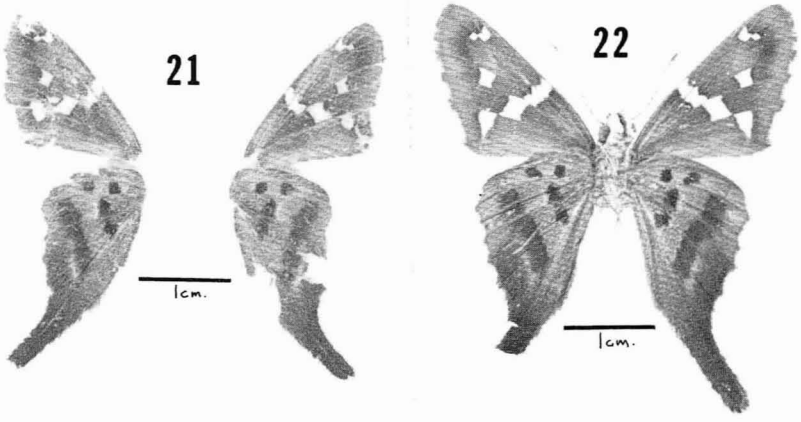
Esma is unlikely to be confused with other species. The differences between it and its nearest relative, *esmeraldus*, are detailed in the description of that species.

Urbanus evona Evans, 1952

Figures 21 (♂), 22 (♀), 40 (♂ genitalia), 55 (♀ genitalia)

Urbanus evona Evans, 1952: 90. Type locality Guatemala: Zapote, type in BMNH.

The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; the subapical spots in M_1-M_2 and M_2-M_3 are usually absent, rarely a trace in M_2-M_3. The upper surface basal hair scale clothing is blue-green and sharply defined distally on the hindwing. The under surface ground color is medium brown, often with a violet to rosy tint. The under hindwing central band is composed of separate spots; the subcostal spots are approximately equal in size; the distal pale edging to the cell spot is more or less faint. The postdiscal band is entire; the distal pale edging to the subtornal spot more or less prominent. The hindwing fringe is pale brown, checkered dark brown at the vein ends; the forewing fringe is only slightly paler than ground color and checkered to the apex where it is noticeably paler in R_4-R_5. The antennal club beneath is usually more or less darkened centrally.



Figures 21-22. *Urbanus evona* Evans. 21 Holotype ♂ under surface (Photo no. 121779-22); Guatemala: Zapote (BMNH); the specimen was badly smashed in the post and the wings reconstructed from the fragments. 22 ♀ under surface (Photo no. 121879-5); Guatemala: Santa Rosa: El Naranjo.

A random sample of 6 ♂ and 8 ♀ specimens gave the following wing measurements: ♂ forewing averaged 20.8 mm from base to apex and 11.3 mm from costa to tornus, varying from 19 x 11 to 23 x 13; hindwing tail length averaged 8 mm, varying from 7 to 9 (holotype ♂ measured 21 x 11 with hindwing tail 8 mm); ♀ forewing averaged 22.4 x 12.4, varying from 20 x 11 to 24 x 13; hindwing tail length averaged 11 mm, varying from 10 to 12.

In the ♂ genitalia, viewed ventrally the uncus arms are relatively short, widely divergent; the gnathos is broad and bluntly pointed. The valvae are asymmetrical, but the ampullae are more or less symmetrical. The right valva has a long, spatulate, terminally dentate dorsal process of the cucullus as in *esma;* the left valva bears a shorter dentate dorsal process which is usually not spatulate.

In the ♀ genitalia the terminal margins of the papillae anales are prominently concave; the anterior margin of the sterigma is broadly convex, the sterigma narrow longitudinally; the lamella postvaginalis is rather flattened caudally with a shallow central identation; the lamella antevaginalis is well sclerotized, its caudal margin centrally excavate; the ductus bursae is broad and slightly tapered; corpus bursae long, oval, not bent.

51 specimens were examined from the following countries: Mexico 7 ♂, 2 ♀; Guatemala 5 ♂, 1 ♀. El Salvador 12 ♂, 21 ♀; Costa Rica 1 ♂, 1 ♀; Colombia 1 ♂. 8 ♂ and 4 ♀ genitalia preparations were made and studied.

Superficially *evona* closely resembles *esta*; the males are immediately separated by the presence of a costal fold in *evona.* Positive identification of the females depends on examination of the genitalia. The caudal edge of the lamella postvaginalis is rather flattened and with a shallow central indentation in *evona,* but is deeply indented centrally in *esta,* a feature that often can be observed without dissection.

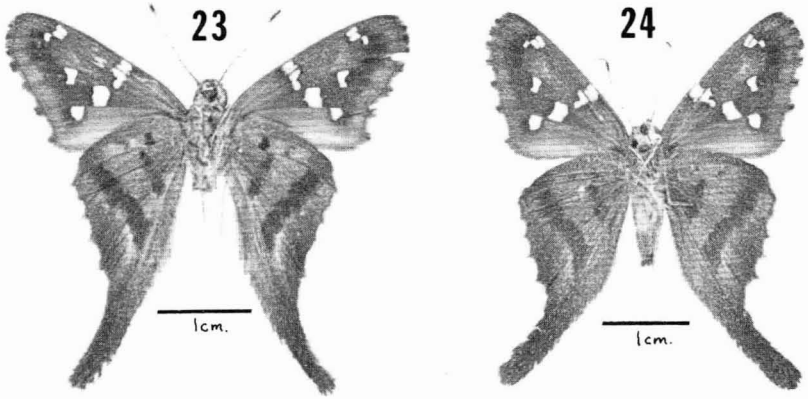
The holotype of *evona* was badly damaged in the post when shipped from the BMNH. Fortunately it was possible to solve the jig-saw puzzle and reconstruct the wings so that they could be photographed, which had not been done before.

Urbanus elmina Evans, 1952

Figures 23 (♂), 24 (♀), 44 (♂ genitalia), 58 (♀ genitalia)

Urbanus elmina Evans, 1952: 90. Type locality Ecuador: Tunguruhua: Baños: Rio Pastaza, type in BMNH.

The ♂ forewing is without a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; no subapical spots in M_1-M_2 and M_2-M_3. The upper surface basal hair scale clothing is bluish green and sharply defined distally on the hindwing. The under surface ground color is gray-brown, usually with a more or less strong violet tint. The under hindwing central band is composed of separate spots, the subcostal spots obsolescent, the distal one often missing. The distal pale edging to the cell spot is usually indiscernible. The postdiscal band is entire; the distal pale edging to the subtornal spot is faint or very faint. All the dark markings, but especially the central band are indistinct, barely contrasting with the ground color, giving a washed-out appearance. The fringes are as in *evona*. The antennal club beneath is usually wholly pale yellow.



Figures 23-24. *Urbanus elmina* Evans. 23 Holotype ♂ under surface (Photo no. 121879-20); Ecuador: [Tunguruhua]: Baños: Rio Pastaza (BMNH). 24 ♀ under surface (Photo no. 121779-8); Ecuador: Tunguruhua: Baños 1850 m.

A random sample of 8 ♂ and 8 ♀ specimens gave the following wing measurements: ♂ forewing averaged 20.7 mm from base to apex and 11.9 mm from costa to tornus, varying from 19 x 11 to 23 x 13 (holotype ♂ measured 23 x 13); hindwing tail averaged 10 mm, varying from 9 to 11 (holotype ♂ hindwing tail 10 mm); ♀ forewing averaged 21.7 x 12.3, varying from 18 x 10 to 23 x 13; hindwing tail length averaged 11 mm, varying from 10 to 12.

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided and divergent; the gnathos is relatively broad and bluntly pointed; the valvae are symmetrical, the ampulla with a rounded shoulder caudally where it meets the cucullus from which it is separated by a relatively deep, narrow cleft. The dorsal edge of the ampulla is sinuous; the cucullus is bluntly pointed caudally and bears a short, non-spatulate, terminally dentate dorsal process. The penis is relatively short.

In the ♀ genitalia the terminal margins of the papillae anales are prominently concave; the anterior margin of the sterigma is slightly convex or nearly straight; the lamella postvaginalis has a deep central indentation caudally; the lamella antevaginalis is moderately sclerotized, its caudal margin with a prominent central indentation; the ductus bursae is broad and tapered; corpus bursae small, oval.

77 specimens were examined from the following countries: Colombia 2 ♂, 2 ♀; Ecuador 52 ♂, 21 ♀. 7 ♂ and 5 ♀ genitalia preparations were made and studied.

Due to the washed-out appearance of the under hindwing of *elmina*, it is not likely to be confused with other species except in badly worn or rubbed specimens. These may require genitalic examination for positive identification.

Urbanus esta Evans, 1952

Figures 25 (♂), 45 (♂ genitalia), 56 (♀ genitalia)

Urbanus esta Evans, 1952: 91. Type locality Brasil: S. Paulo: Alto de Serra, type in BMNH.

The ♂ forewing is without a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; no subapical spots in M_1-M_2 and M_2-M_3. The upper surface basal hair scale clothing is blue-green with a sharply defined distal border on the hindwing. The under surface ground color is medium brown, occasionally with a violet tint. The under hindwing central band is composed of separate spots; the subcostal spots are subequal in size; the distal pale edging to the cell spot is faint. The postdiscal band is entire, usually with a darker hairline along its proximal border; the distal pale edging to the subtornal spot is more or less prominent, but may be faint in some individuals. The fringes are as in *evona*. The antennal club beneath is usually wholly pale yellow but may be slightly darkened centrally in some individuals.

A random sample of 14 ♂ and 10 ♀ specimens gave the following wing measurements: ♂ forewing averaged 19.8 mm from base to apex and 10.9 mm from costa to tornus, varying from 18 x 10 to 21.5 x 12 (the holotype ♂ measured 19 x 10); the hindwing tail averaged 8 mm, varying from 7.5 to 9 (holotype tail length was 8 mm); ♀ forewing averaged 20.8 x 11.6, varying from 18 x 10 to 23.5 x 13; hindwing tail length averaged 10.5 mm, varying from 10 to 12.

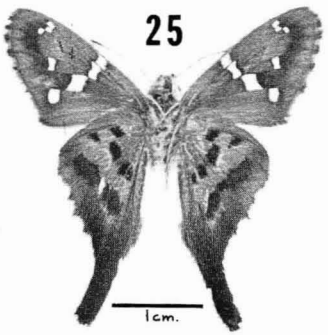


Figure 25. *Urbanus esta* Evans, Holotype ♂ under surface (Photo no. 121779-25); Brasil: S. Paulo: Alto de Serra (BMNH).

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided, divergent; the gnathos is broad and bluntly pointed. The valvae are asymmetrical in one or both of two respects: the ampullae are usually asymmetrical in that the dorsal edge of the ampulla of the right valva is usually straight or concave, that of the left valva convex, although these edges are often so irregular as to appear more or less symmetrical; the dorsal process of the left cucullus is usually shorter than that of the right, although they are sometimes nearly equal. The right dorsal process is nearly always spatulate, the left seldom so; both are strongly dentate terminally and individually quite variable.

In the ♀ genitalia the terminal margins of the papillae anales are prominently concave; the anterior margin of the sterigma is more or less straight, usually with a small pointed central indentation; the lamella postvaginalis has a prominent deep, often narrow, central indentation caudally that is frequently extended cephalad as a fold; the lamella antevaginalis is moderately sclerotized and has a prominent central indentation caudally; the ductus bursae is broad and slightly tapered; corpus bursae small, oval.

156 specimens were examined from the following countries: Mexico 7 ♂, 7 ♀; Guatemala 6 ♂, 3 ♀; El Salvador 5 ♂, 6 ♀; Panama 1 ♀; Colombia 40 ♂, 29 ♀;

Ecuador 25 ♂, 12 ♀; Brasil 13 ♂, 2 ♀. 22 ♂ and 19 ♀ genitalia preparations were made and studied.

Esta is more likely to be confused with *evona* than other species; the differences between them are given in the description of *evona*. It is also rather similar to *magnus*, *viridis*, *pronus* and *prodicus* and can be distinguished from the first three by the entirety of the under hindwing postdiscal band in *esta*, which is more or less broken into separate spots by the paler veins in the other 3. In worn specimens the presence or absence of this spot separation may not be clear, requiring genitalic examination.

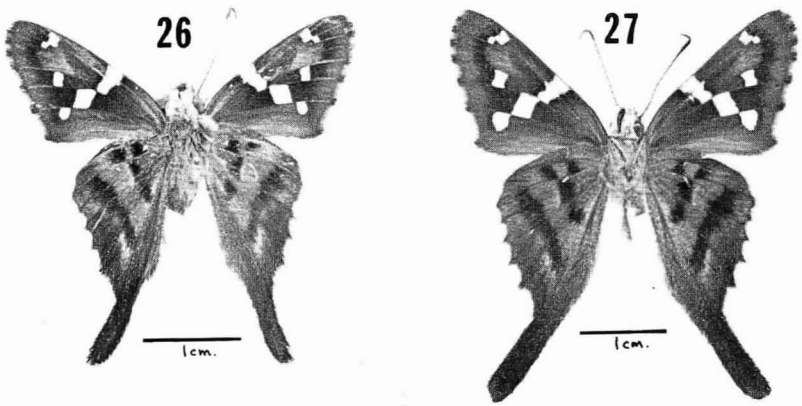
Both sexes of *esta* can be distinguished from *prodicus* by the under surface ground color which is purple brown in *prodicus* and medium brown, with or without a violet tint, in *esta*. Genitalically the males differ in the shape of the dorsal process of the right cucullus, which is spatulate or broad and rounded, not tapering, in *esta* and tapering to a blunt or sharp point, or, if not tapered, narrow, in *prodicus*. The females differ in the form of the lamella antevaginalis which is weakly sclerotized and broadly concave caudally in *prodicus*, moderately sclerotized and with a prominent central indentation caudally in *esta*.

Urbanus prodicus Bell, 1956

Figures 26 (♂), 27 (♀), 46 (♂ genitalia), 59 (♀ genitalia)

Urbanus prodicus Bell, 1956: 5-6. Type locality Mexico: Jalapa, type in AMNH.
= *Urbanus hubbellus* Freeman, 1969: 267-268. Type locality Mexico: Sinaloa: Sinaloa, type in AMNH.

The ♂ forewing is without a costal fold or may have a very feeble one. In both sexes the forewing bears the usual complement of hyaline spots; no subapical spots in M_1-M_2 and M_2-M_3. The upper surface basal hair scale clothing is blue-green and sharply defined distally on the hindwing. The under surface ground color is purple brown to rose brown. On the under hindwing, the central band is composed of separate spots slightly darker than the postdiscal band. The subcostal spots are approximately equal in size. The postdiscal band is entire, slightly narrower and more irregular than in other species and usually is proximally bordered by a darker hairline within the band. The distal pale edging to the cell and subtornal spots is faint. The fringes are as in *evona*. The antennal club beneath is wholly pale yellow.



Figures 26-27. *Urbanus prodicus* Bell. 26 ♂ (Holotype of *U. hubbellus* Freeman) under surface (Photo no. 121979-11); Mexico: Sinaloa: Sinaloa (AMNH). 27 ♀ under surface (Photo no. 121779-10); El Salvador: Cerro Verde 2000 m.

A random sample of 9 ♂ and 6 ♀ specimens gave the following wing measurements: ♂ forewing averaged 21.7 mm from base to apex and 12.1 mm from costa to tornus, varying from 20 x 10.5 to 23 x 13 (holotype ♂ measured 22 x 12; ♂ holotype of *hubbellus* measured 20 x 10.5); the hindwing tail length averaged 9 mm, varying from 8 to 10 (holotype ♂ hindwing tail length 10 mm; *hubbellus* 8 mm); ♀ forewing averaged 23.2 x 12.8, varying from 22.5 x 12 to 24 x 13.5; hindwing tail length averaged 11, varying from 10 to 12.

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided and divergent; the gnathos is broad and sharply pointed. The valvae are characterized by the asymmetrical ampullae, the right ampulla being more or less straight or slightly concave dorsally, the left ampulla convex. The dorsal processes of the cuculli are also more or less asymmetrical; the right dorsal process tapers to a blunt or sharp point, or if not tapered, is quite narrow; the left dorsal process is generally broader and blunter than the right and both are more or less dentate terminally. There is great individual variation in the form of the valva as can be seen in Figure **46**.

In the ♀ genitalia the terminal margins of the papillae anales are concave; the anterior margin of the sterigma is a nearly straight line; the lamella postvaginalis usually has a moderately deep and variably broad central indentation caudally; the lamella antevaginalis is weakly sclerotized, its caudal margin broadly concave; the ductus bursae is long and tapered; corpus bursae moderately long, oval, not bent.

28 specimens were examined from the following countries: Mexico 6 ♂, 3 ♀; Guatemala 1 ♀; El Salvador 9 ♂, 9 ♀. 7 ♂ and 6 ♀ genitalia preparations were made and studied in addition to those of the types of *prodicus* and *hubbellus*.

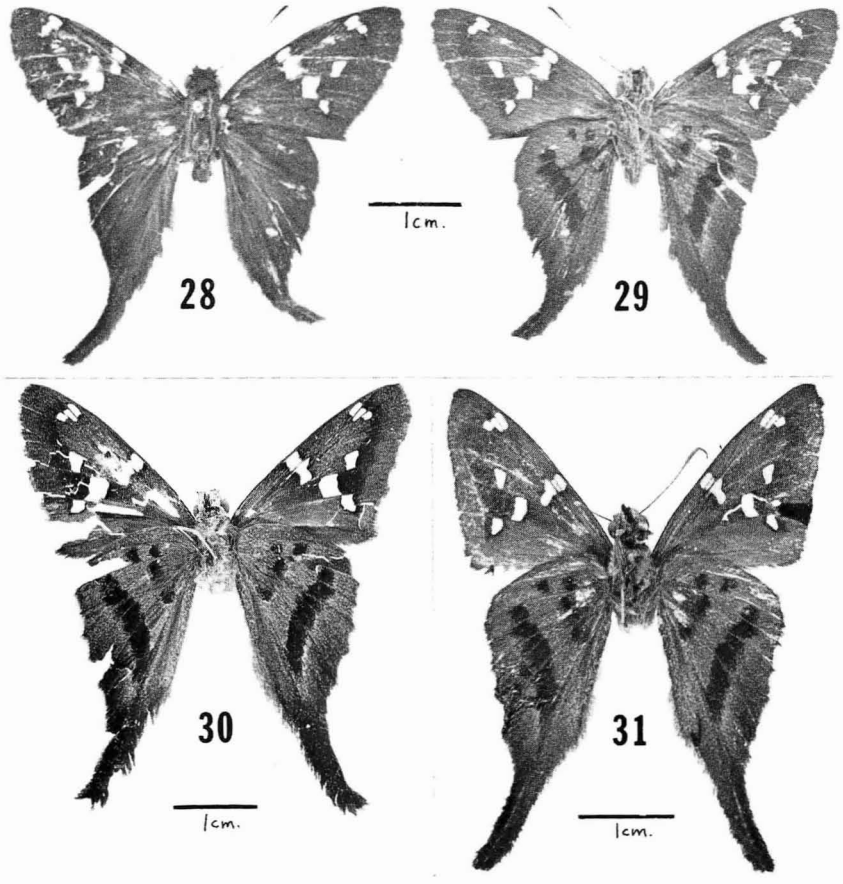
Prodicus might be confused with *esta, evona, pronus, magnus* and *viridis*. It can be readily separated from the last three in which the under hindwing postdiscal band is broken into separate spots by the paler veins, whereas this band is entire in *prodicus*. From *evona*, the males are immediately distinguished by the costal fold of *evona*, missing in *prodicus*. ♀ *prodicus* can be distinguished superficially by its purple brown ground color beneath compared with the medium brown of *evona*. Genitalically ♀ *evona* has a narrow sterigma with a broadly convex anterior margin and a centrally excavate caudal margin to the lamella antevaginalis compared with the relatively broad sterigma with nearly straight anterior margin and the broadly concave caudal margin of the lamella antevaginalis in *prodicus*. The separation of *prodicus* from *esta* is discussed in the description of that species.

As can be seen in Figure **46**, the valvae of *hubbellus* are different from those of *prodicus*, which led Freeman to describe it as a new species. However, examination of a series of ♂ genitalia (9 genitalia preparations plus 5 examinations of the valvae in place) indicate a great variability in the form of the valvae, and those of *hubbellus* fall well within the range of variation. I must, therefore, place *hubbellus* in synonymy.

Urbanus magnus, new species

Figures 28, 29, 31 (♂), 30 (♀), 47 (♂ genitalia), 60 (♀ genitalia)

The ♂ forewing is without a costal fold. In both sexes the forewing bears the usual complement of hyaline spots; no subapical spots in M_1-M_2 and M_2-M_3 of the 2 males of the type series, a minute dash present in M_2-M_3 of the ♀ paratype. The upper surface basal hair scale clothing is blue-green with a well defined distal border on the hindwing. The under surface ground color is medium brown; the under forewing has the usual dark band distad of the hyaline spots. The under hindwing central band is composed of separate spots generally no darker than the postdiscal band. The subcostal spots are approximately equal in size; the distal spot is much further from the cell spot than the proximal. The postdiscal band is more or less broken into separate spots by the slightly paler veins. The distal pale edging to the cell and subtornal spots is very faint. The hindwing fringe is pale brown and checkered dark brown at the vein ends; the forewing fringe is much darker and faintly checkered to the apex. The antennal club beneath is centrally darkened.



Figures 28-31. *Urbanus magnus*, new species. 28-29 Holotype ♂ upper (28) and under (29) surfaces (Photos 121779-26/27); Ecuador: El Topo: Rio Pastaza 4200' (BMNH). 30 Paratype ♀ under surface (Photo no. 010280-19); Ecuador: Angamarca (BMNH). 31 Paratype ♂ under surface (Photo no. 121879-9), head of a different species glued on; Colombia: Cauca Valley (CM).

The forewing of the ♂ holotype measured 23.5 mm from base to apex and 12.5 mm from costa to tornus, the hindwing tail 10 mm; the one ♂ paratype measured 26 x 15 with a 12 mm hindwing tail, giving averages of 24.5 x 13.8 forewing and 11 mm hindwing tail. The one ♀ paratype measured 27 x 14 with a 12 mm hindwing tail.

In the ♂ genitalia, viewed ventrally the uncus arms are relatively short and stout, narrowly separated and parallel; the gnathos is moderately broad and curves evenly to a sharp terminal point. The valvae are symmetrical and characterized by an even curve to the dorsal edge of the ampulla as in *proteus* rather than being shouldered as in *viterboana* and others. There is a short rounded dentate dorsal projection of the cucullus just caudad of the ampulla and protruding slightly dorsad beyond the adjacent ampulla margin; the remainder of the dorsal edge of the cucullus is concave and heavily dentate over its entire length. Terminally the cucullus is sharply or bluntly pointed.

In the ♀ genitalia the terminal margins of the papillae anales are slightly concave; the anterior margin of the sterigma is broadly excavate centrally, the sterigma broader longitudinally than in other species; the lamella postvaginalis has a deep central indentation caudally; the lamella antevaginalis is weakly sclerotized, more or less convexly protruding caudally; the ductus bursae is long, slender, not tapered; corpus bursae oval, not bent.

Type material: Holotype ♂, Ecuador: El Topo: Rio Pastaza, 4200' M. G. Palmer; Paratype ♂, Colombia: Cauca Valley; Paratype ♀, Ecuador: Angamarca, R. P. I. Blanc 1895. The holotype and ♀ paratype are in the BMNH, the ♂ paratype in the CM.

Of the three known specimens of *magnus*, the ♂ holotype and ♀ paratype were badly damaged in transit from the BMNH and subsequently repaired, more or less restoring them to their original shape. The ♂ paratype from the CM is a much repaired specimen that at various times was a part of the Ehrmann collection, the Pitchard collection and the Holland collection. Where the repairs, which include the gluing on of a head from a specimen not of the *proteus* group, were done is not known, but the fact that it is a "composite" specimen precluded its use as holotype even though it is in better condition than the other two. The 2 specimens from the BMNH were misidentified as *huancavillas* (*sic*) by Evans, who obviously had not paid much attention to Williams' (1926) figure of *huancavillcas*.

Magnus appears to be most closely related to *pronus* and *viridis*. It can be separated from them superficially by the lack of prominent distal pale edging to the cell and subtornal spots of the under hindwing and by its generally larger size. Genitalically, ♂ *magnus* is readily distinguished from superficially similar species by the distinctive form of the valva, with its evenly rounded ampulla and dentate dorsal edge of the cucullus. The females can be separated from those of *pronus* by the shape of the corpus bursae which is oval in *magnus* and hooked like the letter "J" in *pronus*. The ♀ of *viridis* is still unknown.

Urbanus acawoios (Williams), 1926

Figures 32 (♂), 48 (♂ genitalia), 57 (♀ genitalia)

Eudamus acawoios Williams, 1926: 73. Type locality British Guiana: Potaro, type in CM.

The ♂ forewing has a costal fold. In both sexes the forewing bears the usual complement of hyaline spots, which are very small in the male. There are no subapical spots in M_1-M_2 and M_2-M_3. The forewing is very narrow, its width from costa to tornus being less than half the length from base to apex. The upper surface basal hair scale clothing is a rather dull dark green; on the hindwing the dark markings from beneath show through faintly. The under surface ground color is medium brown; on the forewing the dark band distad of the hyaline spots is very faint, barely darker than the ground color. The under hindwing central band is composed of separate spots, generally smaller than in other species and less distinct than in any but *elmina*. The postdiscal band is entire and narrow; the distal pale edging to the subtornal spot prominent. This pale edging to the cell spot of the central band is faint.

The 9 ♂ and 6 ♀ specimens measured gave the following wing sizes: ♂ forewing averaged 21.1 mm from base to apex and 9.9 mm from costa to tornus, varying from 19 x 8.5 (holotype) to 22 x 10.5; hindwing tail length averaged 8 mm, varying from 7 (holotype) to 9 mm; ♀ forewing averaged 21.5 x 10.1, varying from 20.5 x 9.5 to 22.5 x 10.5; hindwing tail length averaged 9.5 mm, varying from 9 to 10.

In the ♂ genitalia, viewed ventrally the uncus arms are deeply divided, narrowly separated and somewhat convergent terminally; the gnathos is broad and terminally rounded, almost squared. The valvae are symmetrical, the cucullus very short and heavily dentate dorsally and on its inner face, its caudal margin rounded and not protruding caudad as far as the dorsal dentate area, which has a straight dorsal margin.

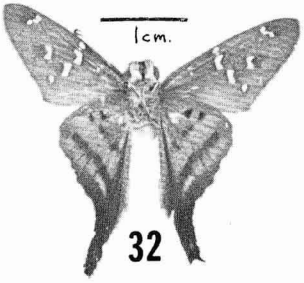


Figure 32. *Urbanus acawoios* (Williams), Holotype ♂ under surface (Photo no. 121779-12); British Guiana: Potaro (CM).

This dorsal dentate area is separated from the broadly rounded shoulder of the ampulla by a deep cleft.

In the ♀ genitalia the terminal margins of the papillae anales are slightly concave; the anterior margin of the sterigma is more or less straight; the lamella postvaginalis has a very broad, shallow central concavity caudally; the lamella antevaginalis is very weakly sclerotized, its caudal margin broadly concave; the ductus bursae is moderately broad and slightly tapered; corpus bursae small, subspherical.

15 specimens, all from the CM and from the following countries were examined: Guatemala 1 ♀; Colombia 1 ♂, 1 ♀; Brasil 3 ♂; Venezuela 1 ♂, 2 ♀; Guyana 2 ♂; Trinidad 2 ♂; no data 2 ♀. 2 ♂ and 1 ♀ genitalia preparations were made and studied. The genitalia slide of the holotype ♂ is missing.

It is very difficult to confuse *acawoios* with any other species because of its very narrow forewing.

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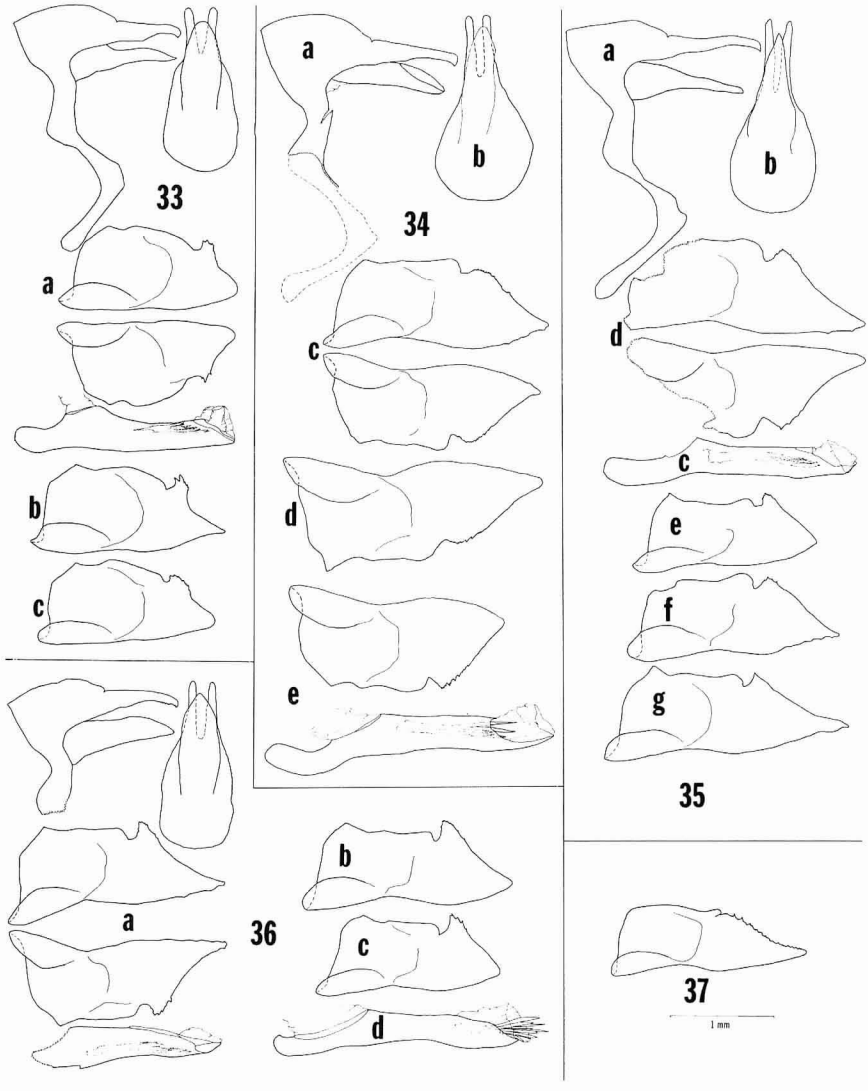
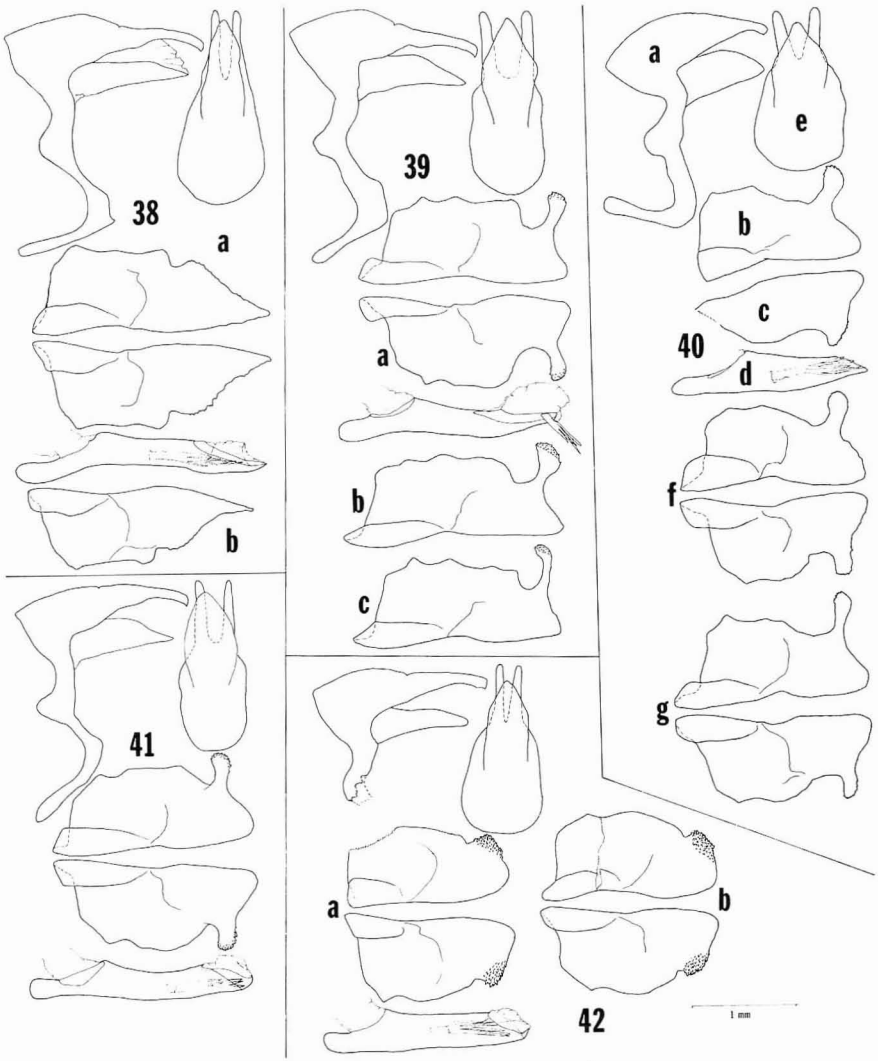
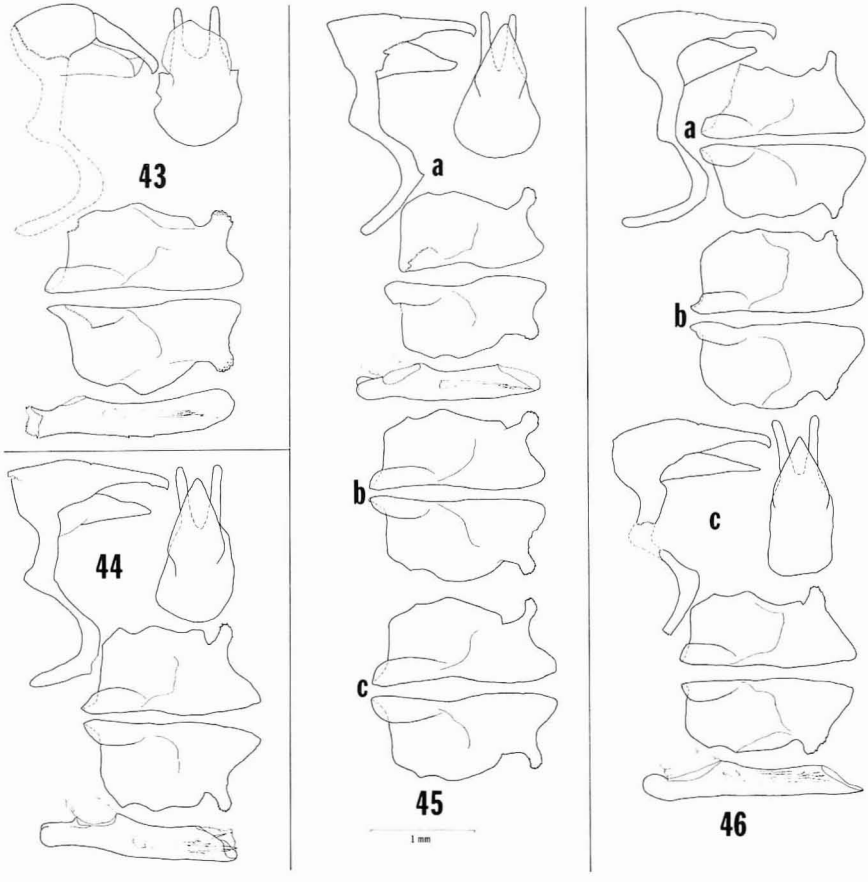


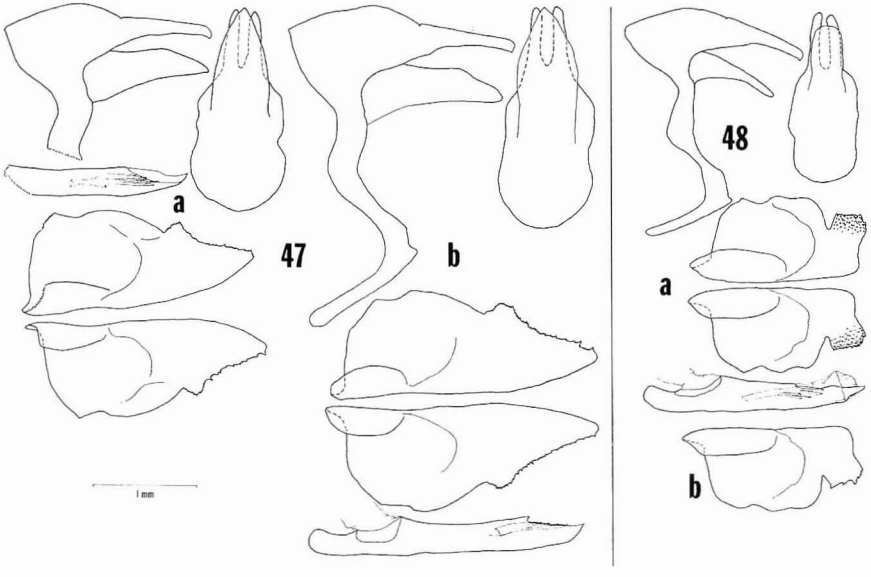
Figures 33-37. *Urbanus* spp. ♂ genitalia. 33 *U. p. proteus*: a - U. S. A.: Florida: Dade Co.: Homestead (Genit. Prep. SRS-300); b - Colombia: Valle del Cauca: Cali, Cañas Gordas 1000 m. (Genit. Prep. SRS-315); c - Mexico: Veracruz: Catemaco (Genit. Prep. SRS-294). 34 *U. viterboana*: a (dashed lines represent missing parts drawn from other specimen), b, c (penis missing) - Holotype (CM), Colombia: Socorro (Genit Prep. M-3218); d - Colombia: Cauca: Aguas Gordas 16-1800 m. (Genit. Prep. SRS-269); e -Mexico: Chiapas: Sta. Rosa Comitan (Genit. Prep. SRS-261). 35 *U. belli*: a, b, c -Holotype of *U. viterboana alva* Evans (BMNH), Mexico: Veracruz: Atoyac, d -unknown specimen (BMNH) glued to card with holotype (see text) (Genit. Prep. SRS-453); e -Colombia: Cauca: Santander 950 m. (Genit. Prep. SRS-286); f - (BMNH), Bolivia: Yungas & La Paz 1000 m. (det. as *belli* by W. H. Evans) (Genit. Prep. SRS-430); g - El Salvador: Cerro San Jacinto 8-900 m. (Genit. Prep. SRS-246). 36 *U. pronta*: a -Holotype (BMNH), Honduras: San Pedro Sula (Genit. Prep. SRS-452); b - El Salvador: Sta. Tecla 900 m. (Genit. Prep. SRS-358); c - Peru: Huanuco: Tingo Maria (Genit. Prep. SRS-363); d - (TD), Panama C. Z.: Pipeline Rd. (Genit. Prep. SRS-348). 37 *U. huancavillcas* -Holotype (CM) (after Williams, not to scale, genitalia slide missing).



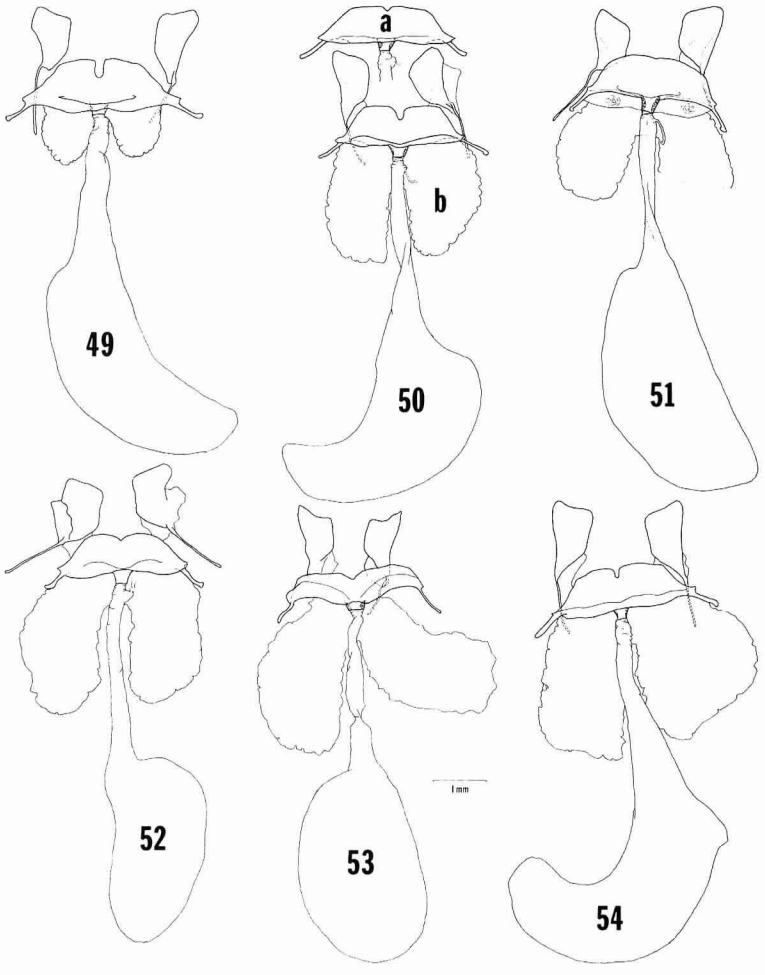
Figures 38-42. *Urbanus* spp. ♂ genitalia: 38 *U. dubius*: a - Paratype, Colombia: Valle del Cauca: Rio Anchicayá 1150 m. (Genit. Prep. SRS-474); b - Paratype, same data as (a)(Genit. Prep. SRS-7). 39 *U. esmeraldus*: a - Colombia: Tolima: Payandé 950 m. (Genit. Prep. SRS-327); b - El Salvador: Ilopango 500 m. (Genit. Prep. SRS-323); c - Mexico: Tamaulipas: Gomez Farias (Genit. Prep. SRS-331). 40 *U. evona*: a, b, c, d - Holotype (BMNH), Guatemala: Zapote (Genit. Slide BMNH-467); e, f - Guatemala: Santa Rosa: El Naranjo (Genit. Prep. SRS-398); g - Mexico: Chiapas: Ocotal (Genit. Prep. SRS-401). 41 *U. esma* Holotype (BMNH), Brasil: Para: Obidos (Genit. Prep. SRS-451). 42 *U. pronus*: a - Holotype (BMNH), Ecuador: Ambato (Genit. Prep. SRS-450); b - Holotype of *U. plinius* (AMNH), Bolivia: Santa Cruz (Genit. Slide AMNH-G2290).



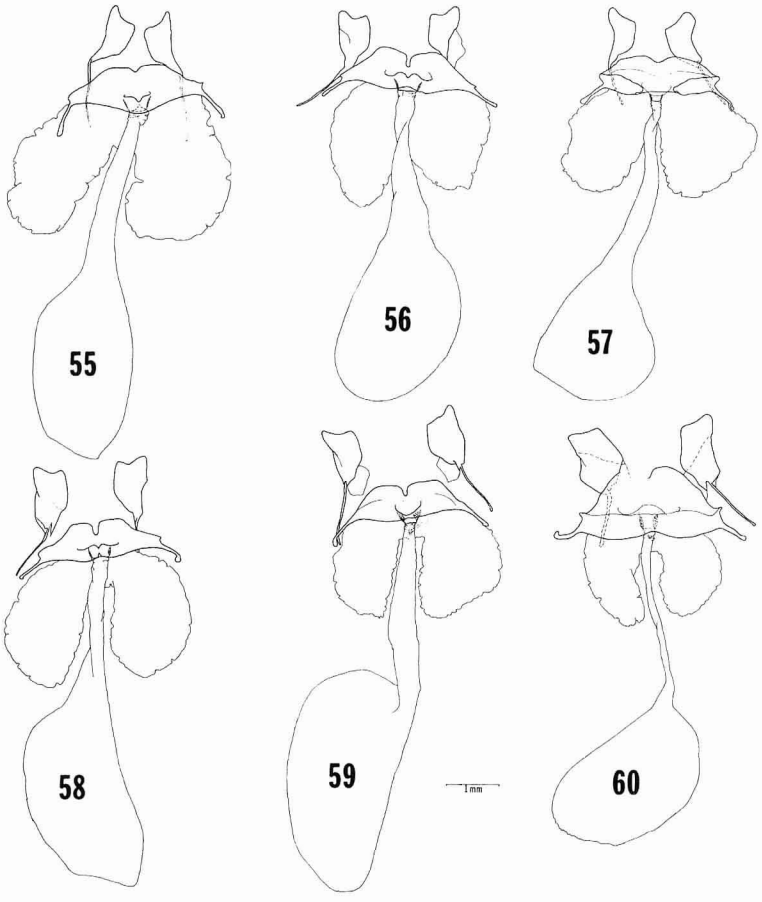
Figures 43-46. *Urbanus* spp. ♂ genitalia: 43 *U. viridis* Holotype (AMNH), Mexico: Veracruz: Fortin de las Flores (Genit. Prep. H-437 Freeman). 44 *U. elmina* Holotype (BMNH), Ecuador: Baños: Rio Pastaza 5-7000' (Genit. Prep. SRS-455). 45 *U. esta*: a - Holotype (BMNH), Brasil: S. Paulo: Alto de Serra (Genit. Prep. SRS-454); b - Ecuador: Napo: Rio Coca 300 m. (Genit. Prep. SRS-142); c - Peru: Junin: Chanchamayo (Genit. Prep. SRS-156). 46 *U. prodicus*: a - Holotype (AMNH), Mexico: Jalapa (Genit. Slide AMNH-G2287); b - El Salvador: Metapán 1300 m. (Genit. Prep. SRS-132); c - Holotype of *U. hubbellus* (AMNH), Mexico: Sinaloa: Sinaloa (Genit. Prep. H-421 Freeman).



Figures 47-48. *Urbanus* spp. ♂ genitalia: 47 *U. magnus*: a - Holotype (BMNH), Ecuador: El Topo: Rio Pastaza 4200' (Genit. Prep. SRS-428); b - Paratype (CM), Colombia: Cauca Valley (Genit. Prep. SRS-387). 48 *U. acawoios*: a (CM) - Brasil: Nova Olinda: Rio Purus (Genit. Prep. SRS-384); b (CM) - same data as (a) (Genit. Prep. SRS-385).



Figures 49-54. *Urbanus* spp. ♀ genitalia: 49 *U. viterboana*, Colombia: Valle del Cauca: Lago Calima 1500 m. (Genit. Prep. SRS-472). 50 *U. belli*: a - Mexico: Chiapas: Mt. Huitepec (Genit. Prep. SRS-459); b - El Salvador: Sta. Tecla 900 m. (Genit. Prep. SRS-423). 51 *U. dubius* Holotype, Colombia: Valle del Cauca: Rio Anchicayá 1150 m. (Genit. Prep. SRS-475). 52 *U. pronta*, Colombia: Villavicencio (Genit. Prep. SRS-410). 53 *U. esmeraldus*, Mexico: Chiapas: San Quintin (Genit. Prep. SRS-373). 54 *U. pronus*, Ecuador: Napo: Rio Coca 300 m. (Genit. Prep. SRS-416).



Figures 55-60. *Urbanus* spp. ♀ genitalia: 55 *U. evona*, El Salvador: Cerro Miramundo 2300 m. (Genit. Prep. SRS-136). 56 *U. esta*, Colombia: Cauca: Rio Ovejas 14-1500 m. (Genit. Prep. SRS-446). 57 *U. acawoios* (CM), Colombia: Magdalena: Bonda 250' (Genit. Prep. SRS-386). 58 *U. elmina*, Colombia: Tolima: La Aurora, Rio Cambrín 1300 m. (Genit. Prep. SRS-406). 59 *U. prodicus*, El Salvador: Cerro Verde 2000 m. (Genit. Prep. SRS-379). 60 *U. magnus* Paratype (BMNH), Ecuador: Angamarca (Genit. Prep. SRS-429).

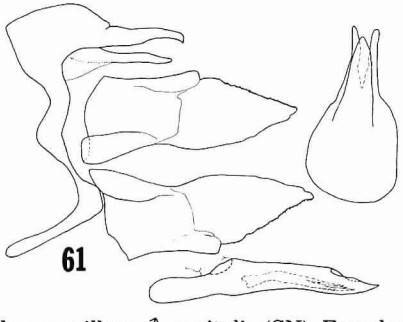


Figure 61. *Urbanus huancavillcas* ♂ genitalia (SN), Ecuador: Loja: Loja-Catamayo Rd., 1700 m. (Genit. Prep. H-736 Nicolay).

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