BULLETIN OF THE ALLYN MUSEUM

Published by
THE ALLYN MUSEUM OF ENTOMOLOGY
Sarasota, Florida

Number . . . 44 10 May 1977

STUDIES IN THE GENERA OF AMERICAN HAIRSTREAKS[1]. 4.

A New Genus of Hairstreak from Central and South America (Lycaenidae: Eumaeini)

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Of the four species listed by Draudt in Seitz (1922) in the *Teucria*-Group (105), two were described from the female, the author never having seen the male. It is obvious that Dr. Draudt to, had not seen the males at the time he assembled the material for his study. *'Thecla' teucria* Hewitson, the nominate species of the Draudt grouping is the single species that does not belong with the other three listed. In the Seitz (1922) *Avoca*-Group (50) are three species that do belong to this new genus along with the majority of species in the *Teucria*-Group. There are a number of morphological features that establish the identity of this rather closely related group of species and provide ample generic affinity. One other characteristic apparently shared by all is an almost incredible rarity. With the exception of the new species *julia*, which is possibly a grass-feeder of the Central Brazilian plateau (a rather tenuous assumption), no specific clues to the ecology or biology are available for the remaining species.

The new genus has a wide but apparently very thin distribution pattern covering most of tropical Central and South America, but with very large gaps where no species in the genus has been taken or recorded.

The following abbreviations are used to indicate the collections from which specimens have been examined and data recorded in the course of this study: (AME) Allyn Museum of Entomology, Sarasota, Florida; (AM) American Museum of Natural History, New York, N. Y.; (USNM) Smithsonian Institution, Washington, D. C.; (CM) Carnegie Museum, Pittsburgh, Pennsylvania; (MCZ) Harvard Museum of Comparative Zoology, Cambridge, Massachusetts; (BM) British Museum (Natural History), London, England; (GBS) Gordon B. Small collection, Balboa, Canal Zone; (HK) H. L. King collection, Sarasota, Florida; (KB) Dr. Keith S. Brown collection, Campinas, São Paulo, Brazil; (N) the author's collection.

[1]. It has become apparent to this author that many, continuing and detailed studies will be required in order to determine a comprehensive and clear relationship of species to genera in the American hairstreaks. It has been suggested that such a research effort be recognized and formalized in the titling of these studies. This then, constitutes number 4. in a series that, in effect, began with the description of the genus *Symbiopsis*, Journ. Lep. Soc. vol 25, 1971 (Suppl. 1), the generic review of *Arcas*, Journ. Lep. Soc. vol 25(2), 1971 as number 2 and the review of the genera *Panthiades* and *Cycnus*, Bull. Allyn Mus., #35, 1976 as number 3.

Magnastigma, New genus

Type species: *Thecla tegula* Hewitson, 1868.

Hindwing with one or two tails, rudimentary or absent at the end of vein Cu_1, normal at the end of Cu_2. Male with an enormous scent spot filling a large part of the forewing cell-end and a larger portion of the wing area adjacent thereto (Fig. **1**); forwing squared, apex rather sharp, outer margin relatively straight or slightly curved. Palpi short, thick, porrect, densely covered with scales. Eyes with obscure, very short bristles. Antennae black and white checked, long; club pale-tipped, only slightly thicker than the shaft.

Male genitalia with a relatively short, stout saccus, vinculum stout, heavily chitinous, relatively narrow basad, abruptly broadened at the tegumen; tegumen and vinculum extended along the same plane; falces narrow, angular, without carina, the terminal arm evenly tapered to a point. Valvae variable in length, separate, moderately narrow with a lateral, wing-like process extending from the anterior section, the posterior end drawn out to a point. Aedeagus length 1½ times the diameter of the complete genital ring, stout, almost straight or curved slightly dorsad; with a single pointed cornutus inside the posterior end; the ventral portion of the aedeagus terminal end flattened and flared abruptly to the right. (Fig. **3c**).

Female genitalia with both dorsal and ventral plates sclerotized, the dorsal and ventral openings smooth-edged, the ostium bursae a wide-mouthed funnel, the ductus bursae a relatively long narrow, sclertized tube, jointed or broken 2/3 of its length, coupled to the terminal portion by a short, membraneous hinge. The terminal cervix bursae chitinous, emptying directly into the corpus bursae, the latter a rounded, unadorned sac.

A careful examination of both sexes of *'Thecla' teucria* reveals many morphological differences that separate this species from those in *Magnastigma*. The male has no scent spot on the upperside of the forewing, the inner margin of the

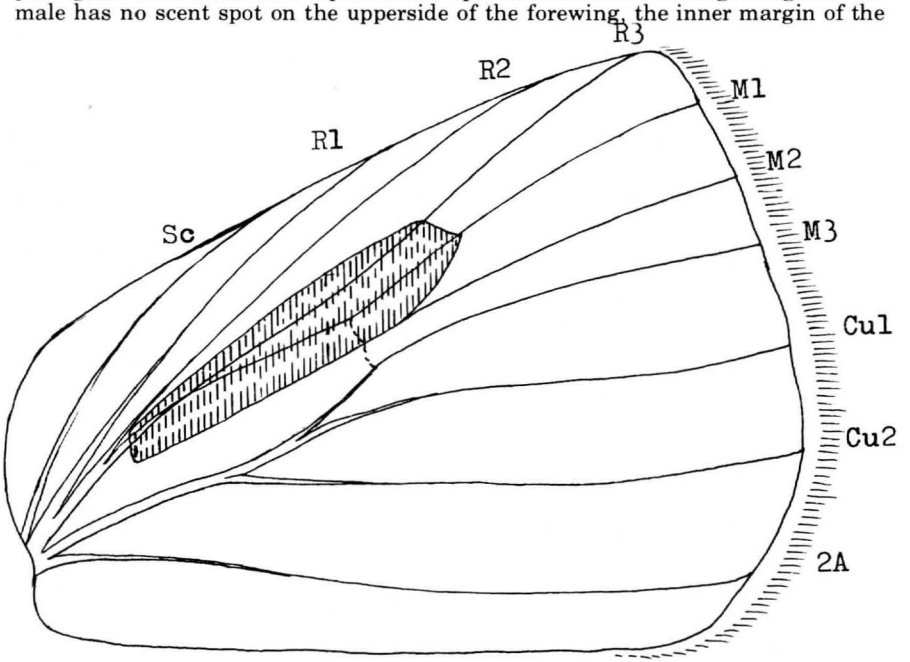

Figure 1. *Magnastigma* forewing; sketch of upperside male right forewing with outline of scent spot.

forewing has a distinct convex curve and there are specialized scales on the costal margin and inner disc on the upperside of the hindwing and at the discal center of the inner margin on the underside of the forewing. The female shows none of these specialized features, but is clearly associated with the male. The genitalia of both sexes are markedly different from those in this new genus.

Although species in this new genus bear some resemblance to those remaining in Draudt's Avoca-Group (50), the male scent spot, the somewhat less complex underside pattern on the hindwing and genitalia of both sexes serve at once to separate them.

Key to the Species of *Magnastigma*

1 Upperside of hindwing with discal area cerulean blue 3
Upperside of hindwing without or with very little blue scaling 2
2 Underside of hindwing with a linear submarginal line of red crescents from costa to inner margin; a tiny species, length of forewing 10 mm or less ..... *julia*
Underside of hindwing discal and submarginal markings white; two large red spots at apex ..... *tegula*
3 Underside of hindwing without red markings at wing apex 4
Underside of hindwing with obvious red submarginal markings at apex 5
4 Underside of fore and hindwings dark brown with greyish-white scaling on the postmedian band and along the submarginal area below the apex ..... *elsa*
Underside of fore and hindwings brown with sparse discal and submarginal markings and white overscaling ..... *casmilla*
5 Underside of hindwing light brown; white postdiscal crescents placed distally almost touching submarginal markings (Rep. of Panama) ..... *milto*
Underside of hindwing brown with a purplish cast in the submarginal area; white discal markings nearer wing center (Eastern Brazil) ..... *hirsuta*

Magnastigma tegula (Hewitson)
Figs. 2A, 2B, 3, 4, 20

Thecla tegula Hewitson, 1868: 4. *ibid,* 1869, 1:129, 2: pl. 52, figs. 291, 292. Kirby, 1871: 393. Druce, 1907: 6161. Draudt *in* Seitz, 1922, 5:801, pl. 158i. Comstock & Huntington, 1964, 72:122.

Original description:

"Upperside. Male. — Dark grey-brown. Anterior wing with an unusually long discal spot. Posterior wing with some grey lunular spots near the anal angle. Underside rufous-grey. Both wings crossed beyond the middle by a band of white, broken into lunular spots on the posterior sides with white. Posterior wing with two tails; a white spot on the middle of the costal margin: the anal angle (which is irrorated with white and marked by two black spots) and the apex (which is bordered on both sides with white) brick-red: the space between them irrorated with white.

Exp. 1 3/10 inch. Hab. Amazon

In the collection of H. W. Bates"

The female was briefly described by Druce (1907) as follows:

"... Differs from the male in being without the long discal brand of the forewing and the bluish-grey scales near the anal angle of the hindwing . . ."

In amplification of the foregoing: in the male the dark grey-brown of the forewing has a dark steel-blue cast, the "unusually long discal spot" is the paler brown male scent spot that fills a large part of the dorsal forewing cell and an even larger part of the adjacent wing area. The base and lower discal portion of the hindwing

are lightly dusted with blue scales, the anal lobe contains a tiny orange-red spot. The forewing underside has a postmedian band reaching from R_3 to Cu_2 with a faint inward extension to the inner margin beginning at Cu_2. On the hindwing, white discal crescents form the inner edge of the dark purple-brown distal half of the wing, separating it from the paler silky-brown basal half. At the apex are two obvious, conjoined brick-red spots. The red cubital spot and anal lobe spot are joined by a wide bridge of red scaling and each is centered with a small black spot. The tail

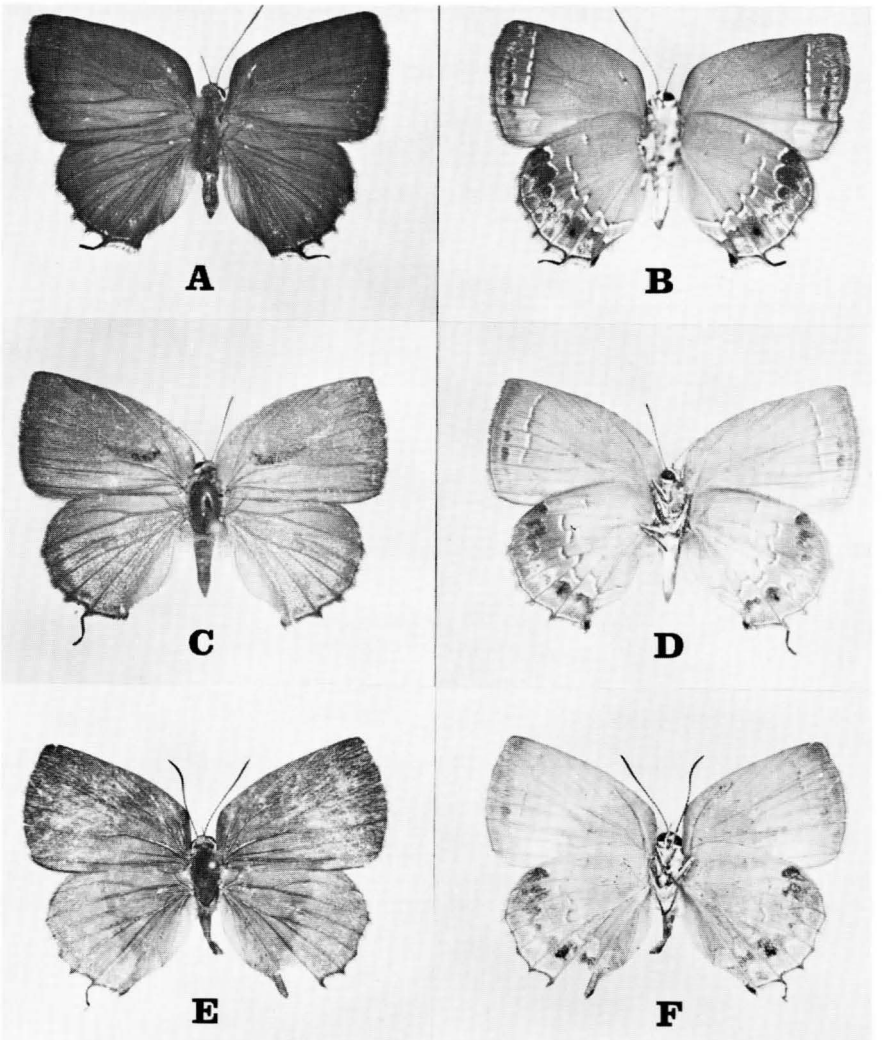

Figure 2. *Magnastigma* species: (A) *Magnastigma tegula* (Hewitson) ♂ Joao Pessoa, Paraiba, Brazil, June 1961 (Jorge Kesselring); (B) underside of (A); (C) *M. hirsuta* (Prittwitz) ♂ holotype, "Rio" Brazil; (D) underside of (C); (E) *M. hirsuta* ♀, Summaré, 500m., Rio de Janeiro, GB, Brazil 30 April 1969 (S. S. Nicolay); (F) underside of (E).

at the end of Cu_1 is rudimentary, that at Cu_2 is fully formed and white-tipped.

The Druce (1907) description of the female does not agree completely with a specimen I have placed as *tegula*. The only difference is on the upperside of the hindwing which, instead of being plain brown, has considerable dusting of pale blue scaling scattered below vein M2, particularly along the outer margin but becoming rather sparse in the discal area. The underside pattern is identical to that of the male.

The Hewitson (1869) illustrations are excellent and those in Seitz (1922) recognizably good. However, the species is very rare and seldom seen in collections. To cite parameters of variation within the species is virtually impossible due to the scarcity of material upon which to base such a study.

Hewitson (1869), Seitz (1922) and Druce (1907) list the habitat of *tegula* as the "Amazon". This is a vast area. To be more specific, I have seen no specimens collected in the western Amazon Basin or its enormous drainage of the eastern Andes. The few specimens I have seen and studied are from the eastern coast of Brazil from Paraiba south to Bahia and from Cuyaba in Mato Grosso.

Specimens examined: BRAZIL: *Paraiba* — Joao Pessoa, June'61, 1♂ (N). *Esperitu Santo* — Conc. da Barra, May'69 1♂ (N). *Mato Grosso* — Chapada 'near' Cuyaba, 1♀ (MCZ).

Magnastigma hirsuta (Prittwitz)
Figs. 2C, 2D, 2E, 2F, 5, 6, 20

Thecla hirsuta Prittwitz, 1865: 321. Kirby, 1871: 400. Giacomelli, 1923: 12. Druce, 1907: 569. Draudt *in* Seitz, 1922, 5:771. Comstock & Huntington, 1960, 68: 182. Ebert, 1970: 41.

Original description:

"Hirsuta nov spec.

Eine sehr ausgezeichnete Art; 1♀, Grösse und Form einer Thecla Quercus. Oberflügel graubraun, blaustaubig. Zwischen dem zweiten und dritten Ast der Costale steht nahe an der Wurzelspitze beginnend ein keulenförmiger, grauer,

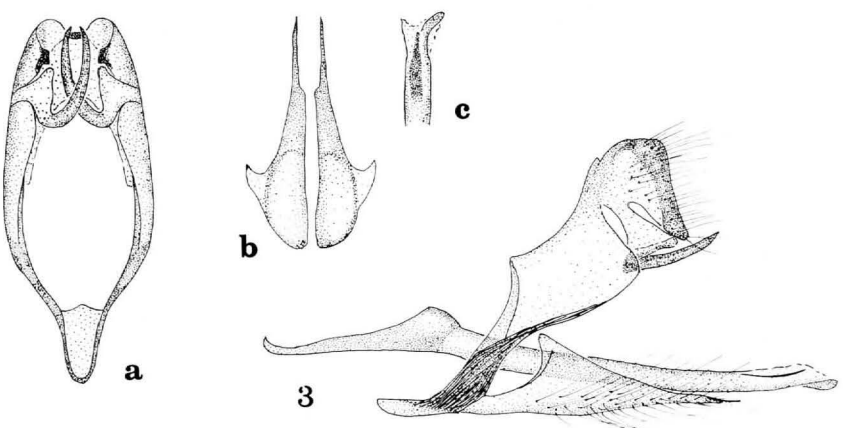

Figure 3. Male genitalia of *M. tegula* (Hewitson) lateral view with aedeagus in place; (a) ventral view with valvae and aedeagus removed; (b) valvae; (c) ventral view of aedeagus termen.

vertiefter Fleck, der etwa 2 1/2 Linien vor dem Aussenrande endet. An seiner Spitze am dritten Costal-Aste unmittelvar über der Medianader steht in der sehr kleinen Discoidalzelle ein zapfenförmiger, rauhhaariger, schwarzer Fleck, der unter der Lupe aus mehreren Börstenhauschen zusammengesetzt erscheint.

Die Unterflugel sind 2/3 schön blau, Vorderrand dunkel bestäubt.

Eine dunkle linie vor den Franzen, eicht darüber eine nach dem Innenwinkel sich verlaufende und undeutliche Schattenbinde.

Am untersten Ast der Medianader steht das schwarze, an der Spitze weisse

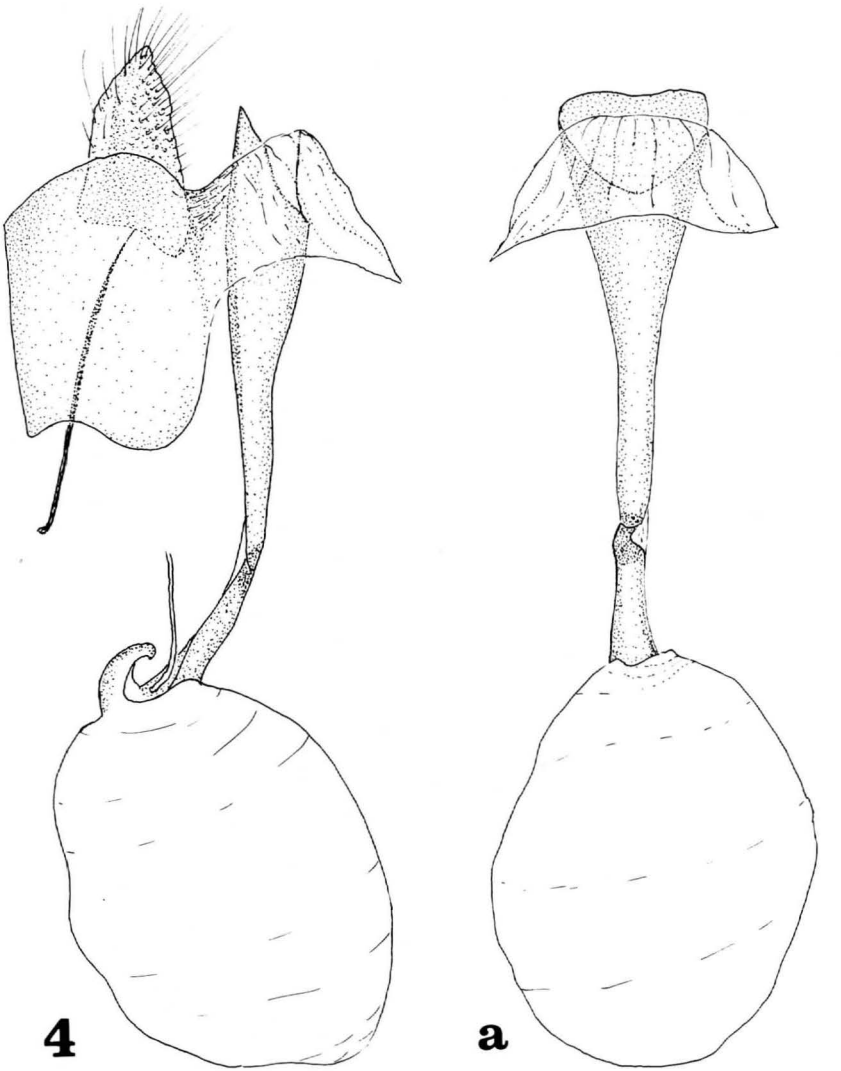

Figure 4. Female genitalia of *M. tegula* (Hewitson) lateral view; (a) ventral view with ovipositor removed.

Schwänzchen.

In dem blauen Felde sind die Adern braun. Fransen grau- und weissscheckig. Unterseite, Vorderflügel hellgrau, vor, dem Aussenrande eine dunklere Binde aus kleinen verloschenen Flecken, daneben nach Innen zwei einzelne solche Flecken, ziemlich in der Mitte des Aussenrandes als Spur einer zweiten Punktreihe. Dann die gewöhnliche weisse Linie, eine Bleilinie.

Die Fühler, deren Kolben fehlen, sind schwarz und weiss geringelt. Abdomen und Thorax braun, unten Palpen, Leib und Füsse weisslich."

As Draudt points out in Seitz (1922), the Prittwitz description is obviously that of a male rather than a female.

Male: Length of forewing, 14 mm. Upperside: Forewing dark brown, with a faint steel-blue lustre in the disc. A large chocolate-brown, club-shaped scent spot fills much of the cell and extends into the surrounding wing area. Hindwing light blue in the ventral half with dark veins. Costal margin and apex dark brown to below vein M_1 with a heavy black marginal line from Rs to the anal lobe with two indistinct small black submarginal spots. Fringes pale, checked with dark scaling at vein ends. Underside: Forewing silky, grey-brown with a slightly curved white submarginal line with an inner dark edge from the costa to Cu_2, then broken inward to the inner margin. Two lines of small vague dark lunules lie between the submarginal line and the dark terminal line. Hindwing silky grey-brown with a faint purple cast and an isolated dark-margined white crescent just below the midcostal margin. A postdiscal series of uneven linear white crescents with dark inner margins from the costal margin to the inner margin, separates the darker, well-marked outer 1/3 of the wing from the unmarked inner portion. There are two prominent red spots surrounded by dark sooty-brown in the apex submarginal area; a black-centered red cubital spot and a red-arched spot above the the black anal lobe spot. Between the apex and anal lobe is a series of vague, dark brown submarginal crescents and lunules dusted in white scaling. There is a thin terminal dark line with a white inner margin. Fringes pale brown; palpi, legs, thorax and abdomen beneath greyish-white. Antennae black and white checked.

Female: Length of forewing, 13 mm. Upperside: Forewing and hindwing dark brown. Underside: Wing pattern and maculation the same as that of the male.

The fact that no illustration of this species has existed until this time has caused considerable past confusion in the ability to clearly recognize *hirsuta* and to separate the two species, *hirsuta* and *casmilla*. Ebert (1970) makes Hewitson's *'Thecla' casmilla* a synonym of *'Thecla' hirsuta*. Through the kind cooperation of Dr. H. J. Hannemann of the Humboldt University Museum in Berlin, I have been

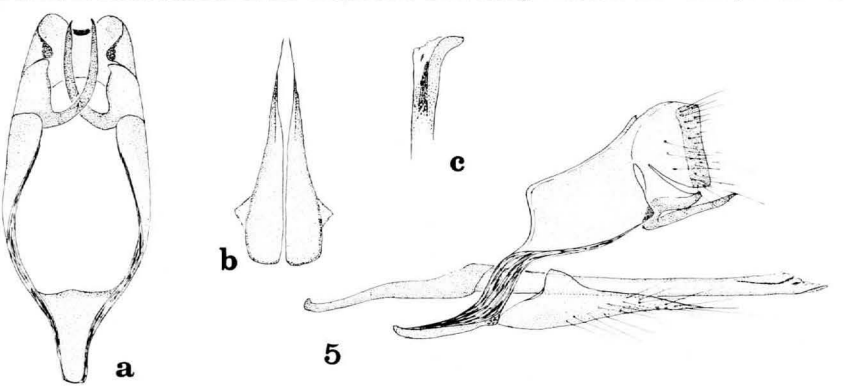

Figure 5. Male genitalia of *M. hirsuta* (Prittwitz) lateral view with aedeagus in place; (a) ventral view with valvae and aedeagus removed; (b) valvae; (c) ventral view of aedeagus termen.

able to examine the Prittwitz type of *hirsuta* and must disagree with this arrangement based on differences in color and pattern found on both upper and lower wing surfaces. I find *hirsuta* more closely related in wing pattern, color and outline to *tegula* than to *casmilla*.

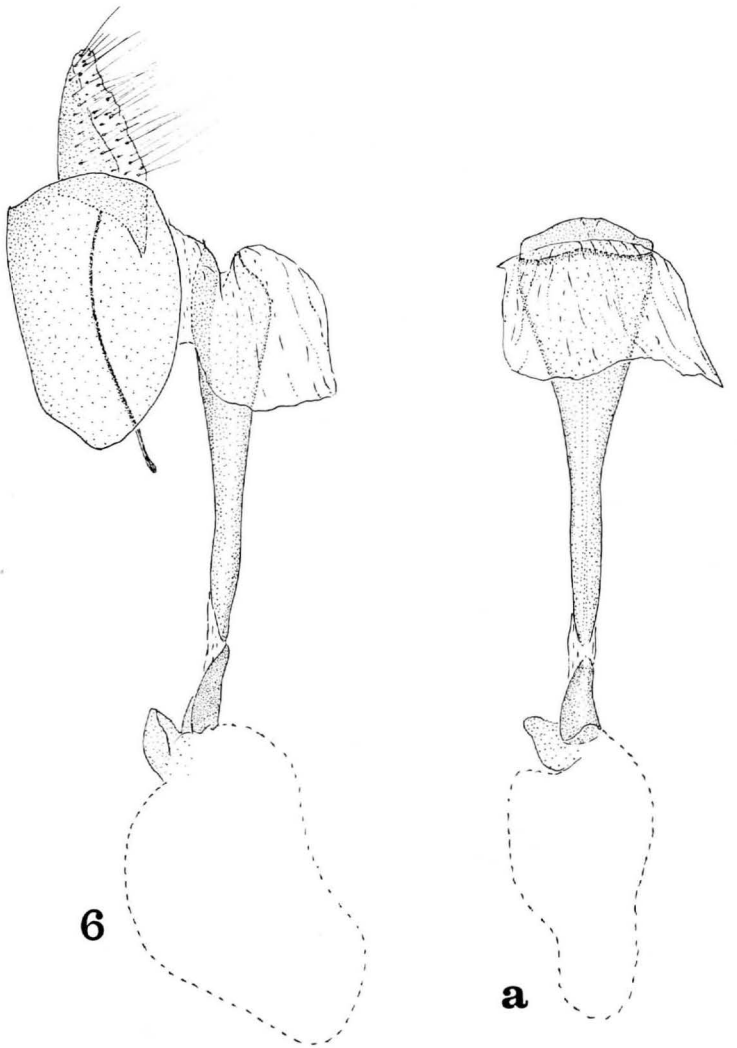

Figure 6. Female genitalia of *M. hirsuta* (Prittwitz) lateral view; (a) ventral view with ovipositor removed.

Nowhere does Prittwitz' original description mention the obvious red markings on the underside of the hindwing in the submarginal area of the wing apex. His failure to include these clearly critical markings will never be known, but, as it is written, the description can be applied very well to Hewitson's *casmilla*, which features much reduced markings on the underside of the hindwing. The Seitz (1922) paraphrased summary of the original description is a remarkably excellent capsule description *not* of *hirsuta* but rather *casmilla* for indeed, in the male *casmilla*, the two red spots at the apex of the hindwing underside are almost obsolete. The dark patch appearing at the base of the male scent spot (Fig. **2C**) is an area of disturbed and ruffled scales that have become discolored.

So little is known of *hirsuta* and the species so uncommonly rare, it is difficult to determine its full range with any precision. A label on the type carries a neatly penned 'Rio' in black ink. I have examined one additional male specimen collected by Mr. Curtis Callaghan in the Restinga area of Guanabara. I took the female described above at Summaré in Rio de Janeiro in 1969. In spite of more than 100 years difference in age and its rather worn condition, it is nearly identical to the male type on the underside wing pattern. At present, the known habitat of *hirsuta* is limited to the area of Rio de Janeiro, Brazil.

Magnastigma casmilla (Hewitson)
Figs. 7A, 7B, 7C, 7D, 8, 9, 20

Thecla casmilla Hewitson, 1874:177, figs, 521, 522. Kirby, 1877:778. Draudt *in* Seitz, 1922, 5:801, figs. 158i, k. Comstock & Huntington, 1959, 67:176. Ebert, 1970:41.

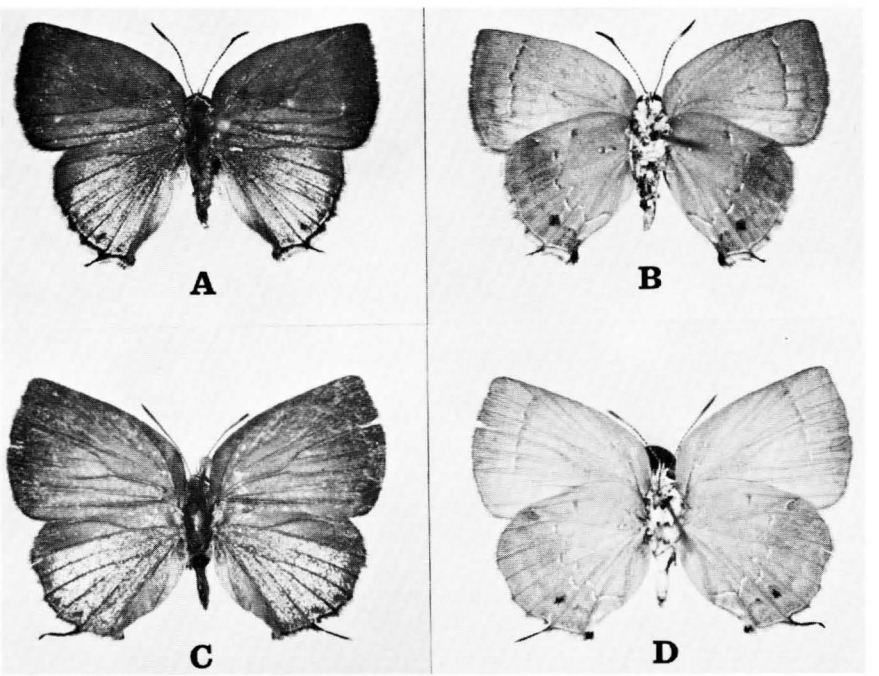

Figure 7. *Magnastigma* species: (A) *Magnastigma casmilla* (Hewitson) ♂, Nova Teutonia, Sta. Catarina, Brazil, 22 Sept. 1956 (Fritz Plaumann); (B) underside of (A); (C) *M. casmilla* ♀, Nova Teutonia, Sta. Catarina, Brazil, 10 June 1954 (Fritz Plaumann); (D) underside of (C).

Original description:

"Upperside. Female. — Dark brown. Anterior wing tinted with blue towards the inner margin. Posterior wing with one tail: blue with the costal and outer margins dark brown: a submarginal line of blue at the base of the tail.

Underside pale rufous-brown. Both wings crossed beyond the middle by a band of dark brown bordered outwardly with white, straight on the anterior wing, zigzag and without a distinct W on the posterior wing. Anterior wing with two or three submarginal brown spots. Posterior wing with a submarinal band of lunular spots bordered inwardly with white, red-brown near the apex which is clouded with brown, scarlet near the anal angle: a minute black spot above the tail crowned with scarlet: a brown spot bordered outwardly with white near the middle of the coastal margin.

Exp. 1 3/20 inch.

In the Collection of W. C. Hewitson, from Brazil (Rogers)."

Male: Length of forewing, 13 mm. Upperside: Forewing dark brown with a dusting of pale blue scaling along the inner margin. A large brown club-shaped scent spot fills much of the cell and extends into a large part of the surrounding wing area. Hindwing pale, powder-blue below vein Rs, with a wide dark margin along the costa and apex, tapering to a thin marginal dark line below vein M_1, with small submarginal dark spots below vein M_2. Veins darkened, fringes pale, faintly checked at vein ends. Underside: Forewing grey-brown with a straight postdical white line with an inner dark edge from the costa to Cu_2; a vaguely defined row of brown crescents just inside the outer margin. Hindwing with a small black-edged white spot below the mid-costal margin. A vague, undulating, uneven discal line of faint white crescents with dark inner edges runs from the costa to the inner margin, separating the pale silky-brown basal half of the wing from the darker brown outer half. The apex heavily clouded darker brown with a tiny submarginal patch of red scales; the cubital spot red with a tiny black center; the small anal lobe spot black with a small arched red inner margin. Fringes pale; antennae black and white checked; legs, palpi and underside of thorax and abdomen greyish-white.

Specimens examined: BRAZIL: Parana — Iguassu, 24 Dec. 1921, 1♂ (BM); Castro, 2900 ft. (No date), 1 ♀ (BM). Santa Catarina — Nova Teutonia, 22 Sept.

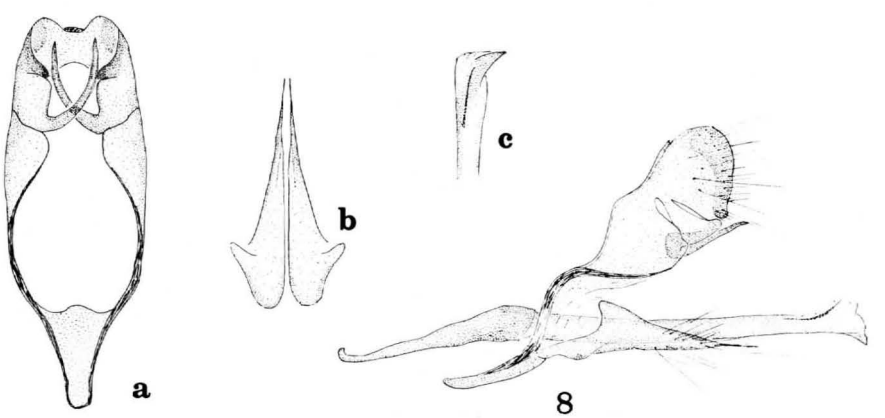

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Figure 8. Male genitalia of *M. casmilla* (Hewitson) lateral view with aedeagus in place; (a) ventral view with valvae and aedeagus removed; (b) valvae; (c) ventral view of aedeagus termen.

1956, 1 ♂ (N); 10 June 1954, 1 ♀ (N). Rio Grande do Sul — Pelotas, 14 April 1959, 1 ♀ (AM).

The Hewitson (1874) description of the female type is brief but, together with the illustrations, provides an accurate picture of this sex. The Seitz' (1922) illustrations are also of the female. Essentially, the female is identical to the male, but lacks the large scent spot on the upper side of the forewing, has a wider dark outer margin on the hindwing upper side. The red marking on the underside of the hindwing are also larger and more noticeable, particularly at the wing apex.

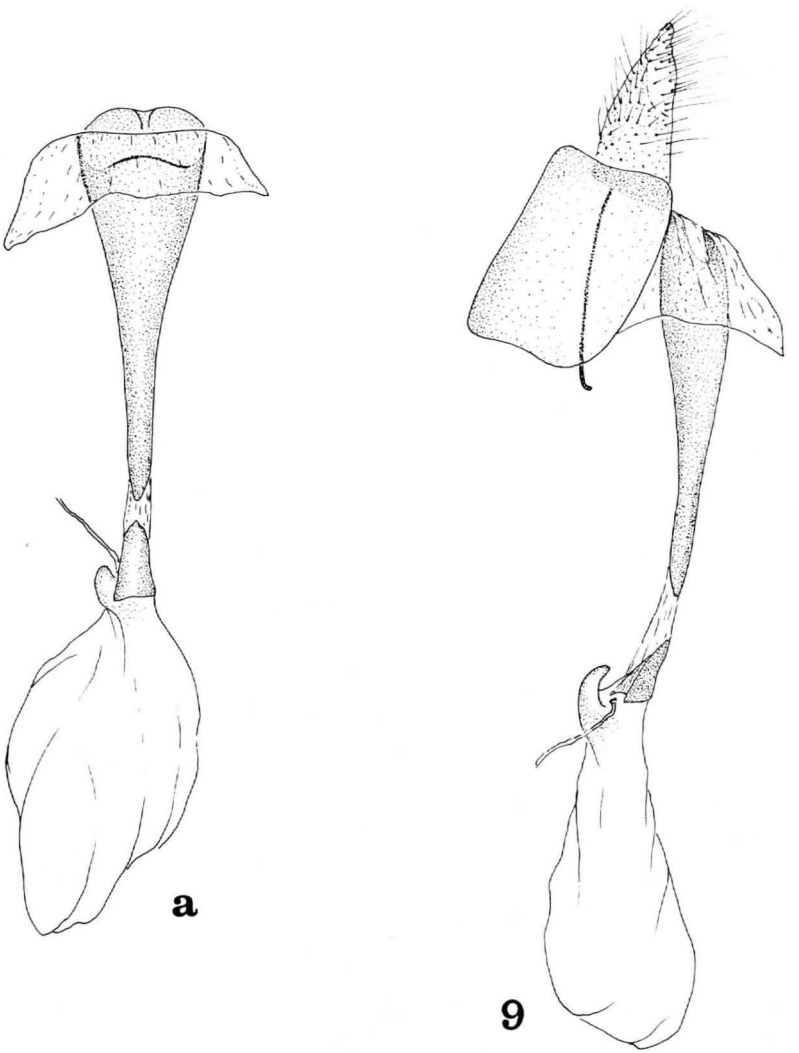

Figure 9. Female genitalia of *M. casmilla* (Hewitson) lateral view; (a) ventral view with ovipositor removed.

The wings are also more rounded in the female.

The past confusion surrounding *casmilla* and *hirsuta* has been previously discussed with the latter species and will not be repeated here. The two specimens of *casmilla* so generously provided for study by the British Museum (Natural History) were carefully compared to Hewitson's type by R. I. Vane-Wright of the museum staff. I have carefully compared these specimens with the type of *hirsuta*. The differences have already been noted and are obviously seen in the accompanying photographs. Future researchers in this group may be able to develope a clearer relationship between *tegula*, *hirsuta* and *casmilla*, based on life history and ecological studies, for it is obvious that they are closely related. And, it would be very difficult indeed to separate the three species based solely upon differences in the genitalia of either or both sexes.

Seitz (1922) lists the range of *casmilla* as Rio Grand do Sul and Santa Catarina. In addition to the specimens sent for examination and study, the British Museum series of *casmilla* contains specimens from the Brazilian state of São Paulo, a single male marked "Rio", a specimen from central Paraguay and additional specimens from the state of Paraná. I would estimate the range of *casmilla* to be the southeastern coastal states of Brazil from São Paulo southward and extending into northeastern Paraguay and Argentina.

Magnastigma milto (Godman & Salvin)
Figs. 10A, 10B, 10C, 10D, 11, 12, 20

Thecla milto Godman & Salvin, 1887, 2:83, 3: pl. 57, figs. 22, 23. Draudt *in* Seitz, 1922, 5:801, pl. 158i. Comstock & Huntington, 1961, 69:168.

This species is very similar in appearance, especially on the underside, to *Magnastigma tegula*. The brief original description was given in Latin; the species may be characterized as follows:

Male: Length of forewing, 12-14 mm. Upperside: Forewing black-brown with a faint dark blue tint near the base and inner angle; a very long club-shaped brown scent spot fills part of the cell and a large part of the anterior and distal wing area surrounding it. Hindwing powder-blue with a wide dark costal margin, with black veins and black marginal spots at tornus in Cu_1 and Cu_2; a few red scales at the anal lobe. Tails white-tipped, very short at the end of Cu_1, normal at Cu_2; abdominal fold pale brown. Underside: Forewing light brown with a postdiscal broken white line with a narrow dark proximal edge from M_1 to Cu_2 then faintly on to the inner margin; a few vague submarginal dark spots. The postdiscal white line of the hindwing is in the form of individual lines and crescents, broken at each vein, separating the dark purple-brown outer third of the wing from the discal and basal pale brown area. The two large brick-red apical spots are proximally white-edged; a small black spot near Cu_1 is enclosed by a large red cubital spot bridged over Cu_2 to the black anal lobe spot; the marginal area between the apex and cubital spot heavily dusted in bluish-white; The white spot mid-costa is tiny and faint. There is a narrow black line with fringes faintly checked. Abdomen above dark brown, below, cream colored. Antennae checked black and white with the club tip pale red-brown.

Female: Length of forewing, 14-15 mm. Upperside: Forewing the same as the male without the scent spot; hindwing the same as the male but with the blue discal area smaller and confined generally to a narrow sub-marginal band from M_1 to the anal lobe. Underside: The same as in the male, but on the hindwing the red spots larger, and the wings generally a bit more rounded and full.

The Godman & Salvin (1887) illustration of the type, a female, is excellent, but not particularly typical; the females vary considerably and none I have examined have as much blue on the upper side of the hindwing as is illustrated. The illustration more clearly represents the male, rather than the female. The Seitz (1922) illustration of the underside is good. The differences between this species

and *tegula*, to which it is obviously very closely related are: on the upper side, the much greater expanse of blue scaling on the hindwing in both sexes, especially in the male; and on the underside, the postdiscal line, particularly on the forewing is closer to the outer margin in *milto*. There are subtle differences in the genitalia as may be noted in the illustrations.

Specimens examined: PANAMA: *Canal Zone* — Los Rios, Jan. 1 ♀ (N); Rodman, Feb. 1 ♀ (N); La Pita, April 1 ♀ (N); Cocoli, Nov., Dec., June 1 ♂, 2 ♀ (GBS,N);

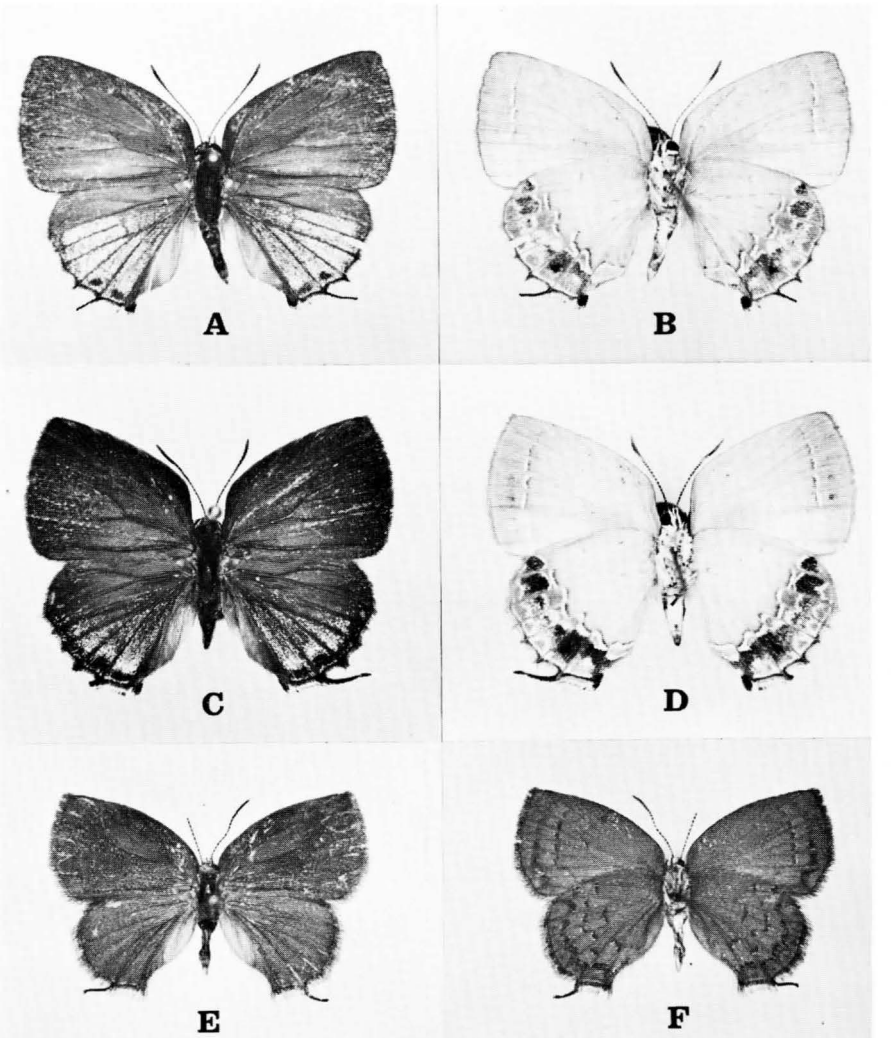

Figure 10. *Magnastigma* species: (A) *Magnastigma milto* (Godman & Salvin) ♂, Cerro Campana, Panama, 29 February 1964 (G. B. Small); (B) underside of (A); (C) *M. milto* ♀, San Juan Hill, Rodman, Canal Zone, 16 February 1975 (Joe Melton, III); (D) underside of (C); (E) *M. julia* Nicolay, holotype ♂, Brazil Country Club, Distrito Federal, Brazil, 15 May 1969 (S. S. Nicolay); (F) underside of (E).

Ft. Clayton, Jan. 2 ♀ (HK, GBS); Madden Dam 1 ♀ (HK); Ft. Kobbe 1 ♂, 1 ♀ (AME, HK); Gamboa, June 1 ♂ (GBS); Gatun, Jan., April 1 ♂, 1 ♀, Farfan, Jan. 1 ♀ (GBS); Summit, April, March 2 ♂ (GBS); Piña 1 ♀ (HK). *Panama Prov.* — Cerro Campana, Feb. 1 ♂, 1 ♀ (HK, N).

Milto appears to be a species endemic to the Republic of Panama; I have seen no specimens collected elsewhere. The Godman & Salvin type was collected in the 'Chiriqui District' of Panama.

Magnastigma julia, new species
Figs. 10E, 10F, 13, 14, 20

Male: Length of forewing, 10 mm. Upperside: Forewing dark brown with concolorous fringes; a very large dark grey scent spot fills much of the cell, extending into the spaces between R_2 thru M_2. Hindwing dark brown with concolorous fringes; a single white-tipped black tail at the end of Cu_2; a few scattered white scales submarginally from M_3 to Cu_2. Underside: Forewing brown with a faint purplish cast; a dark brown submarginal line broken into isolated spots by each vein from apex to tornus; a post-median line of dark brown crescents located between each vein from M_1 to Cu_2; a small brown median spot angled across the space below vein Cu_2 to the inner margin. Hindwing dark purple-brown with brown fringes, white-tipped toward the tornal margin. A sub-marginal row of red crescents edged proximally in black from the apex to the inner margin; a dark brown, irregular, broken median line from the costal margin to the inner margin; a dark brown cell-end streak. Abdomen beneath pale yellow, dorsally dark brown; antennae brown and white checked. Palpi, thorax and legs greyish white.

Female: Length of forewing, 9 mm. Upperside: The same as in the male, but without the forewing scent spot and the submarginal white scaling on the hindwing tornal area. Underside the same as the male.

Holotype, male, Brasilia Country Club, Distrito Federal, BRAZIL, 1200m., 16 May 1969, leg. S. S. Nicolay. Allotype, female, Km. 290, Rio-Belo Highway, Baracena, Minas Gerais, BRAZIL, 11 May 1969, leg. S. S. Nicolay. Paratypes, 19

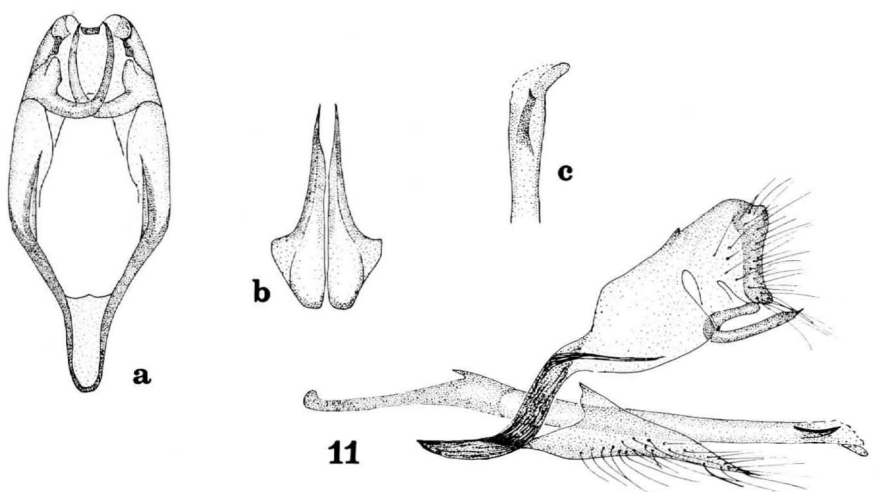

Figure 11. Male genitalia of *M. milto* (Godman & Salvin) lateral view with aedeagus in place; (a) ventral view with valvae and aedeagus removed; (b) valvae; (c) ventral view of aedeagus termen.

males and 6 females with the same locality data as the holotype with dates of 15 and 16 May 1969; 2 males and 1 female with the same data as the female allotype. The holotype and a paratype female will be placed in the Allyn Museum of Entomology, Sarasota, Florida. The female allotype will remain in the author's collection. Paratypes will be placed in the National collection at the Smithsonian Institution, Washington D. C., in the British Museum (Natural History) London, England, and in the Museo National, Rio de Janeiro, Brazil. The remaining paratypes are in the collection of Dr. Keith S. Brown and in the author's collection.

It is little wonder that *M. julia* has escaped the attention of those collectors

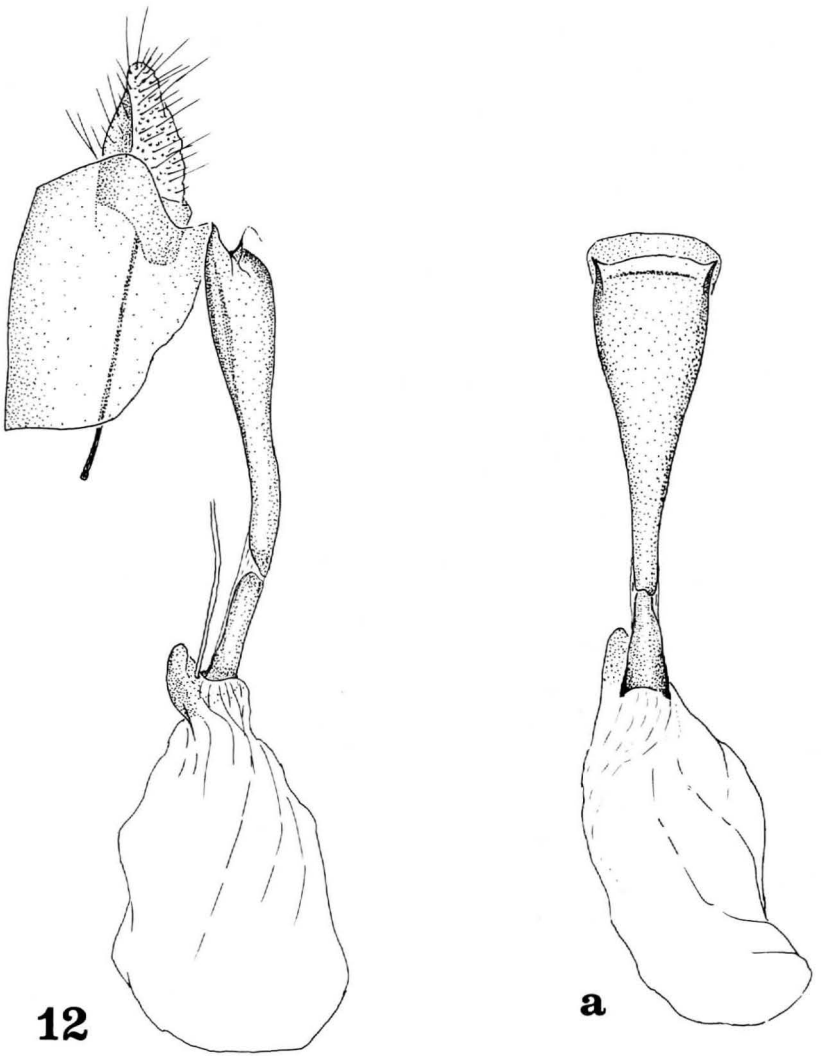

Figure 12. Female genitalia of *M. milto* (Godman & Salvin) lateral view; (a) ventral view with ovipositor removed.

who have in the past searched the Planalto of central Brazil. We first found it along the edge of a sparsely wooded area in the tall, partially dried grass of a small field. It flew just above the grass and, being so tiny and almost of the same color as its surroundings, was extremely difficult to detect and follow in flight. I suspect we flushed many more specimens of this tiny hairstreak than we ever saw or caught.

I would expect *julia* to be distributed over much of the central Brazilian Planalto, particularly in the states of Minas Gerais and Goiás. At present, its known distribution is confined to the two localities where the type series was taken.

This interesting and intriguing little species is named for Julia Brown, the daughter of Dr. Keith and Kay Brown of Campinas, São Paulo, Brazil.

Magnastigma elsa elsa (Hewitson)
Figs. 15A, 15B, 16. 20

Thecla elsa Hewitson, 1877: 198, pl. 79, figs. 639, 640. Kirby, 1877: 856. Druce, 1906: 589. Schaus, 1920: 176; Draudt, *in* Seitz, 1922: 771, fig. 154g. Hoffman, 1940: 710. Comstock & Huntington, 1960, 68:52.

Thecla primno Godman & Salvin, 1887, 2:47, 3: pl. 53, figs. 25, 26. Druce, 1906: 587. Comstock & Huntington, 1962, 70:178.

Original description:

"Upperside. Female. — Cerulean-blue. Anterior wing with the costal and outer margins very broadly dark brown. Posterior wing with two tails: the costal margin and apex broadly dark brown: three caudal spots and the outer margin black.

Underside rufous-brown. Anterior wing white from the first median nervure to the anal angle: crossed at the middle by a linear band of white, and near the outer margin by a series of black spots bordered above with white. Posterior wing with a lunular spot near the base, a band of three spots below this, and an angular spot at the middle all white: crossed beyond the middle by a series of black spots bordered above with white: the lobe black crowned with white: the outer margin brown, bordered inwardly with white.

Exp. 1 1/2 inch.

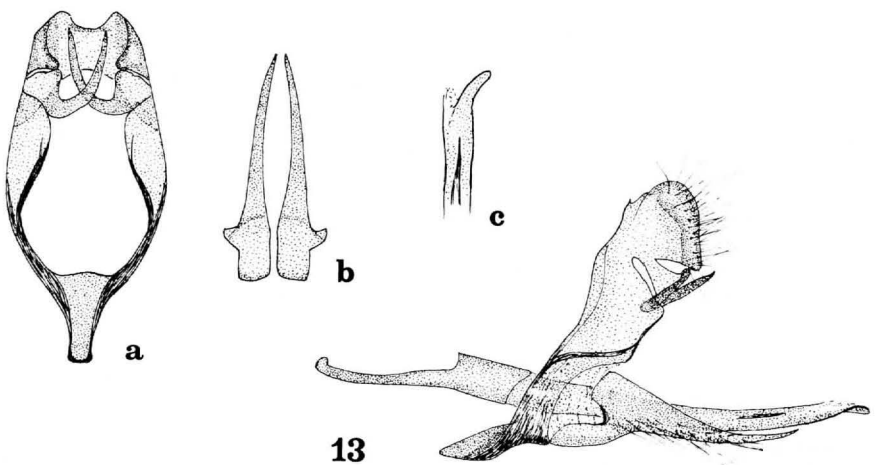

Figure 13. Male genitalia of *M. julia* Nicolay, lateral view with aedeagus in place; (a) ventral view with valvae and aedeagus removed; (b) valvae; (c) ventral view of aedeagus termen.

In the Collection of Dr. Staudinger, from Chiriqui (Ribbe)."

The Hewitson original description, extremely brief as usual, is that of a female. The differences between male and female in *elsa* are slight however, and consist primarily of the very large, dark grey scent spot that fills a large part of the forewing cell and an even larger part of the wing area surrounding the cell. The 'cerulean blue' in the disc of the forewing is therefore confined to the area below vein Cu_2, in the female extending somewhat into the lower cell area. *Elsa*, the type being from the mountains of northern Panama, is very dark brown on the underside, particularly on the hindwing, the narrow white spots of the median band and the cell-end streaks standing out in sharp contrast. The post median band, composed of narrow, crescent-shaped white spots edged distally in black, stands out clearly from the inner margin to just beyond mid-wing, but fades into the dark ground color above M_1. The original description does not include a small tornal red spot above the white-edged black spot of the anal lobe, nor the tiny red, black-centered cubital spot between the two tails; both are visible in the specimens I have examined that were taken from localities near the type locality in Panama.

The male genitalic features of *elsa* are quite consistent with the two subspecies and show only minor differences in the valvae. These are most certainly well

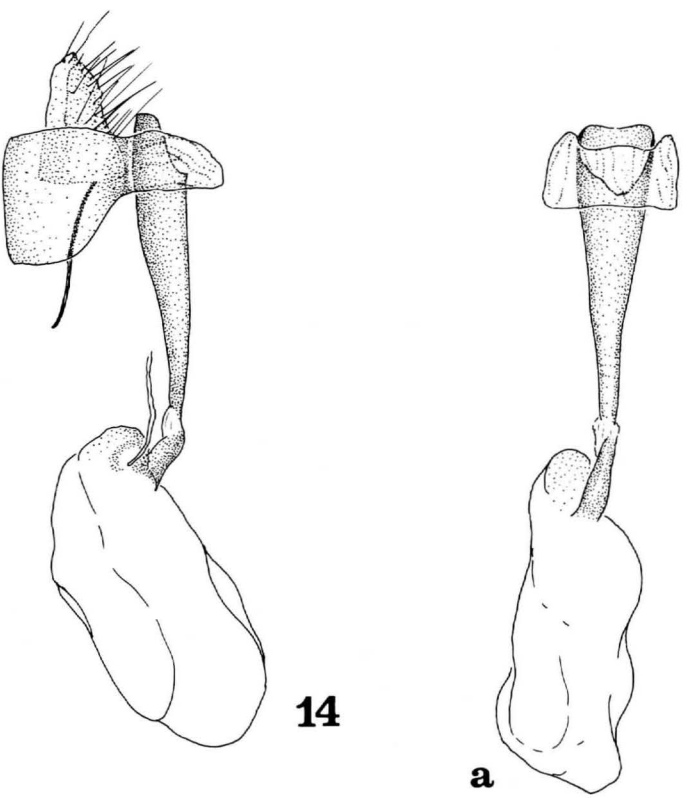

Figure 14. Female genitalia of *M. julia* Nicolay, lateral view; (a) ventral view with ovipositor removed.

within the parameters of individual variation within a species complex and I do not consider them of sufficient magnitude as to warrant being given separate species status. Unfortunately, the very limited material available does not support such a positive statement about the female, but I would suspect that whatever variation appeared (if any) would be minor.

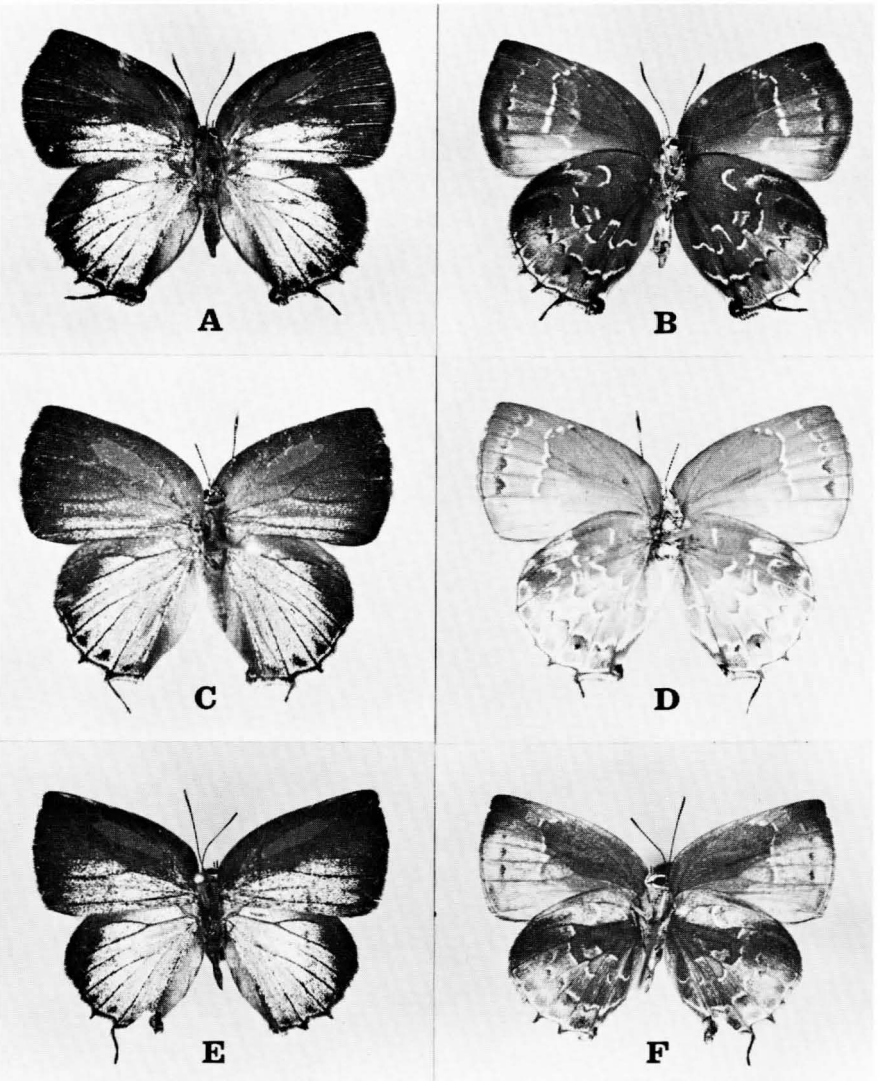

Figure 15. *Magnastigma* species: (A) *Magnastigma elsa elsa* (Hewitson) ♂, El Valle, Cocle, Panama, 19 May 1973 (G. B. Small); (B) underside of (A); (C) *M. elsa primnoza* (Dyar) ♂, Santocomapan, Veracruz, Mexico, May 1955 (T. Escalante); (D) underside of (C); (E) *M. elsa venezolana* Nicolay, holotype ♂, Caracas, Venezuela, 12 Dec. 1920 (W. J. Kaye); (F) underside of (E).

I find neither the Hewitson (1877) or the Godman & Salvin (1887) illustrations of the underside particularly clear or helpful, although the upperside color and patterns are clearly recognizable as females of the species. The nominate form of *elsa* is apparently endemic to the Republic of Panama. The two subspecies extend the range of this taxon northward thru Central America into Mexico and south into Venezuela and most probably Colombia, although I have seen no records of its capture in the latter country.

Specimens examined: PANAMA: Cocle — El Valle, 19 May '73, 800m 1 ♂ (GBS); Cerro Campana, 30, Nov. 1974,. 2000 ft., 1 ♀ (GBS).

Magnastigma elsa primnoza (Dyar)
Figs. 15C, 15D, 17, 18, 20

Thecla primnoza Dyar, 1912: 41. Schaus, 1920: 176. Draudt *in* Seitz, 1922: 771, 823. Comstock & Huntington, 1962, 70:178.

Original description:

"Wings black above, shaded with light blue on basal two-thirds of inner margin of forewing below cell, over most of hindwing, except apex and a row of marginal spots; a blue line at base of fringe, which is white-tipped; long tail at end of vein 2 white-tipped. Costa of forewing strongly angled near base in both sexes; male with a brand of dark grey scales extending subcostally, the brand nearly as long as half the length of the wing. Beneath dark grey; forewing with a wavy white line beyond the middle, which is broken at vein 2 and lost in the whitish inner shading below; a submarginal row of whitish lunules, filled outwardly with whitish above and with blackish below. Hindwing grey on the basal third, washed with whitish beyond; a near white crescent in the cell; three white lunules below and beyond, followed by a curved line of lunules across the wing at about the middle; another line at outer third, less distinctly lunular and edged without with dark; a black dot with red within above vein 2; some grey clouding before the termen; a terminal dark line; fringe whitish. Expanse, 30 mm.

Cotypes. — One male, one female, No. 14277, U.S.N.M., Misantla, Mexico,

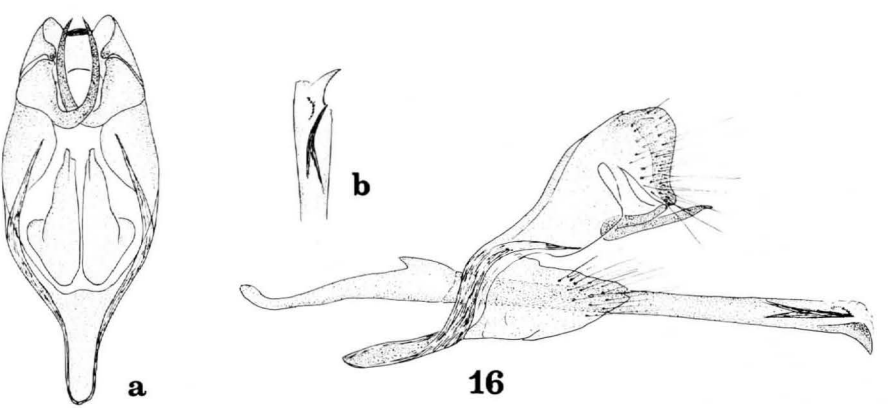

Figure 16. Male genitalia of *M. elsa elsa* (Hewitson) lateral view with aedeagus in place; (a) ventral view with aedeagus removed; (b) ventral view of aedeagus termen.

June, 1911 (R. Muller); Santa Rosa, State of Vera Cruz, Mexico, May, 1906 (W. Schaus).

This is allied to *T. primno* Godman and Salvin, of which the male is unknown. The very peculiar male sex mark will readily distinguish this group."

Although there is a subtle difference in the blue of the upper surface (a faint violet shading in *primnoza*), the essential and obvious differences between *elsa* and the subspecies *primnoza* occur on the underside of the hindwing. The basic brown ground-color is much paler and confined to the basal 1/3 of the wing in *primnoza*, extending to the outer margin to some degree above vein M_1. The postmedian band of narrow white crescents is extended to the wing apex rather than being lost in the ground color, as is the case in nominate *elsa*. The red cubital spot between the tails is present as is the red crescent above the black anal lobe spot. In summary, *primnoza* is a slightly smaller and paler species than *elsa*, particularly on the underside.

Specimens examined: In addition to both of Dyar's cotypes, the following have been studied: MEXICO: *San Luis Potosí* — Cd. Valles, June-July '66-73, 5 ♂ (AME,CM); El Salto, Aug. '62, 1 ♂ (CM); Palitla, Nov. '71, 1 ♂ (N). *Vera Cruz* — Presidio, May, June, 2 ♂ (AME) Santocomopan, May '55, 1 ♂ (AME). GUATEMALA: San Sebastian Retalhuleu, 1 ♂ (AM). EL SALVADOR: Santa Tecla, Feb. '54, 1 ♂ (N). No data 1 ♂ (AM).

The range of *primnoza* is from the state of San Luis Potosí in the northeast of Mexico, south along the east coast of Mexico then southeast through central Mexico and south into El Salvador.

Magnastigma elsa venezolana, new subspecies
Figs. 15E, 15F, 19, 20

Male: Length of forewing, 16 mm. Upperside: Forewing black-brown with a large discal area of light blue extending from wing base into interspace M_3-Cu_1. Scent spot as for the genus, dark chocolate-brown. Hindwing light blue with three dark sub-marginal spots from spaces 2A to M_3; a dark terminal line from 2A through M_3 then widening to 3 mm at the costal margin. Veins dark. Underside: Forewing dark brown in the discal area with a broad pale grey wash from the base along the

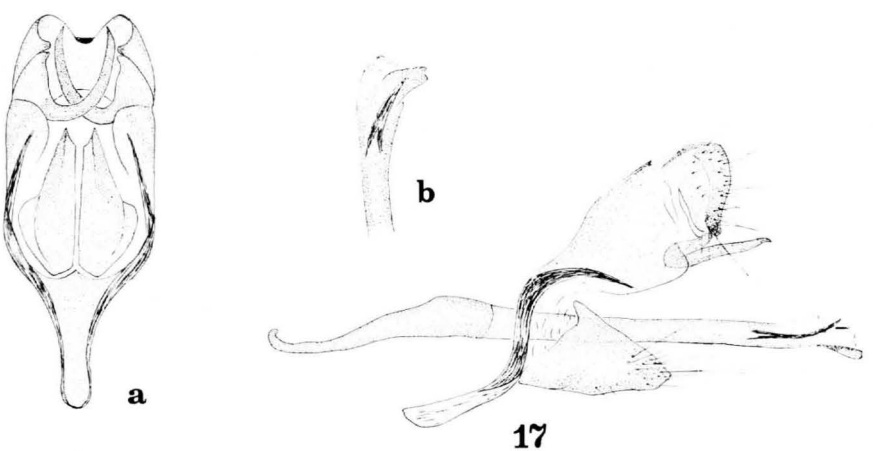

Figure 17. Male genitalia of *M. elsa primnoza* (Dyar) lateral view with aedeagus in place; (a) ventral view with aedeagus removed; (b) ventral view of aedeagus termen.

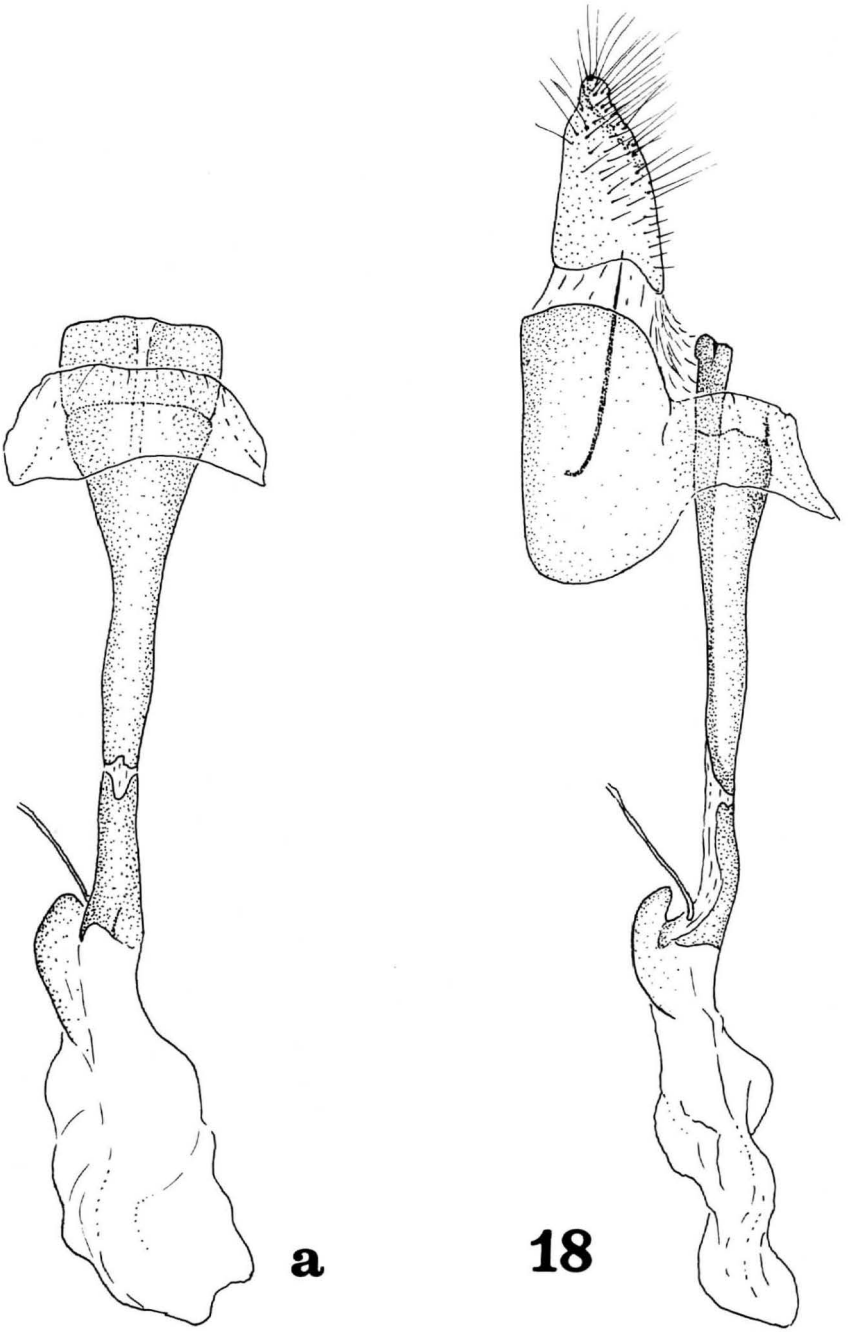

Figure 18. Female genitalia of *M. elsa primnoza* (Dyar) lateral view (a) ventral view with ovipositor removed.

inner margin to termen and thence to M_2 covering the outer one-third of the wing. Interspaces from M_2 thru R_3 dark brown; submarginal dark streaks from Cu_2 to R_3; an uneven discal white line from the costal margin to Cu_2. Hindwing costal margin heavily dusted with pale grey to below Rs; basal two-thirds of the wing from Rs to 2A dark brown with an irregular series of white median discal crescents from Rs to the inner margin; a line of faint dark-edged white post-discal crescents from M_1 to inner margin. Cubital spot and anal lobe spot faint, composed of a few orange-red scales centered with a tiny dark pupil. A narrow dark brown terminal line dusted inwardly with white from the anal lobe to M_1; fringes pale.

Female: Unknown.

Holotype, Male, Caracas, Venezuela, 12 December 1920, W. J. Kaye. The holotype is located in the Allyn Museum of Entomology, Sarasota, Florida.

The primary differences in the subspecies *venezolana* and nominate *elsa* are found on the underside of the wings. *Elsa* is a dark insect with very little pale grey scaling, particularly in the areas where *venezolana* is the palest — along the costal margin of the hindwing and the outer third of the forewing below vein M_3. The anal lobe and cubital spots are almost extinct in *venezolana* and quite large and bright and obvious in *elsa*. The blue scaling on the upper side of both fore and hindwings is more extensive in this subspecies than in nominate *elsa* with a corresponding reduction in the width of the dark margins. *Venezolana* appears to be intermediate in color and pattern between *primnoza* and *elsa*.

I estimate that the range of *venezolana* would include the northern coastal mountain areas of both Venezuela and Colombia, although I have no knowledge of *elsa* or its subspecies having been taken at any locality in Colombia.

ACKNOWLEDGMENTS

I wish to express my particular appreciation and thanks to Dr. H. J. Hannemann of the Zoological Museum, Humboldt University of Berlin who sent the Prittwitz type of *M. hirsuta* for this study, and to Mr. R. I. Vane-Wright of the British Museum (Natural History) who sent a pair of Hewitson's *M. casmilla*. I am most grateful to these gentlemen for their help and expression of trust and confidence.

In addition, my thanks to Dr. F. H. Rindge, American Museum of Natural History, Mr. Wm. D. Field, Smithsonian Institution, and Mr. Harry K. Clench, Carnegie Museum for their assistance and cooperation that allowed me to examine

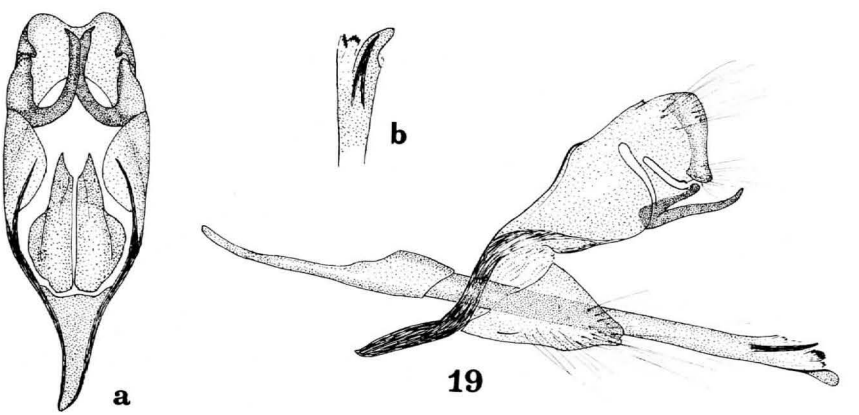

Figure 19. Male genitalia of *M. elsa venezolana* Nicolay, lateral view with aedeagus in place; (a) ventral view with aedeagus removed; (b) ventral view of aedeagus termen.

and use the collections in their care. The bibliographic reference file compiled and maintained by Mr. Field at the Smithsonian was of great help and value in the preparation of this work. To Dr. J. Ben Ziegler, Summit, New Jersey, Mr. G. B. Small, Canal Zone and Mr. H. L. King, Sarasota, Florida go my appreciation and thanks for their helpful suggestions and critical reading of the manuscript.

My special thanks to Dr. Lee D. Miller and the staff of the Allyn Museum of Entomology who made available all of its many resources and complete access to its outstanding collection, scientific facilities and technical help. The complete photographic work was done by Mr. A. C. Allyn, the line drawings by the author.

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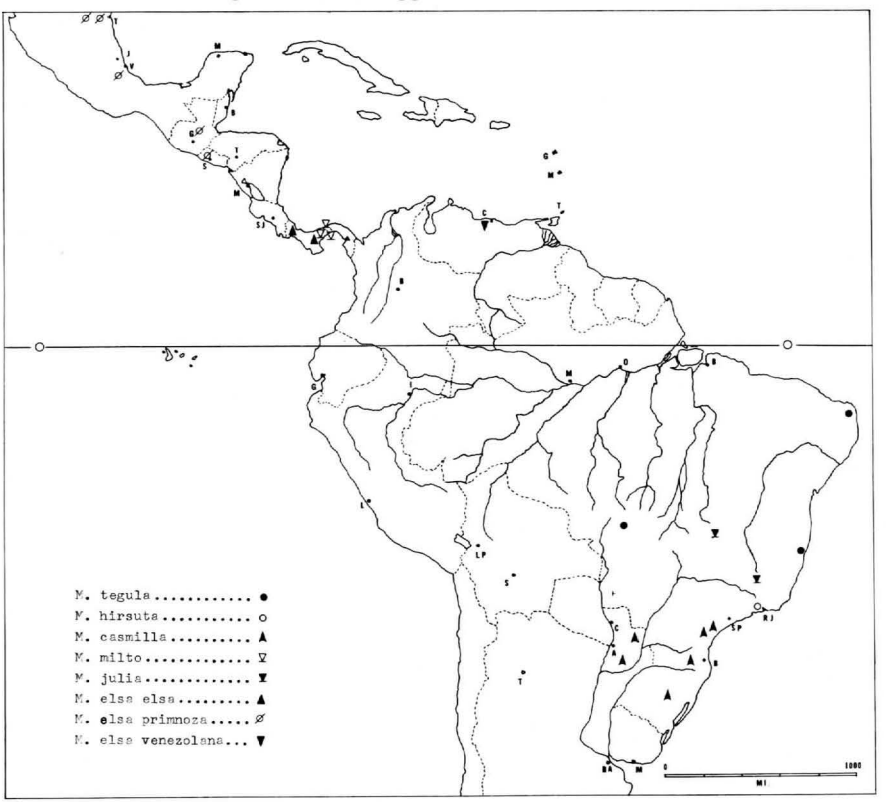

Figure 20. Distribution of species in the genus *Magnastigma*.

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