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STUDIES IN THE GENUS *HYLEPHILA* BILLBERG, I. INTRODUCTION AND THE *IGNORANS* AND *VENUSTA* SPECIES GROUPS (HESPERIIDAE: HESPERIINAE)

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ABSTRACT. This paper, the first of three, introduces the primarily South American genus *Hylephila* Billberg (1820) and notes the great similarity of both the male and the female genitalia. Four species groups are recognized, and a key to these based on superficial characters is provided. These assemblages—the *boulleti* group (nine or ten species), the *ignorans* group (two species), the *venusta* group (three species), and the *phyleus* group (ten species)—are diagnosed and their distributions are mapped and/or discussed. The first three groups are almost entirely Andean (or are from nearby ranges at high elevations) and are nearly or quite allopatric, and additionally, are scarce in collections. The *phyleus* group expresses the geographic range of the genus (from the length and breadth of South America, plus the Antilles, north to the United States, coast to coast), largely owing to one familiar, weedy species, *H. phyleus* (Drury 1773).

Two species groups are treated in this paper. The *ignorans* group with *H. ignorans* (Plötz) and *H. adriennae,* **new species** and the *venusta* group, with *H. lamasi*, **new species,** *H. venusta* (Hayward) and *H. kenhaywardi* MacNeill, **new name** [new name for *H. venusta haywardi* (Ureta 1956), not Bryk (1944)] are described and figured comparatively including their male and female genitalia (those of the female for the first time). Ova of three of the species were obtained by dissection, and these are briefly described for the first time. Because of some confusion about the relationship of *Hylephila* with *Linka lina* (Plötz), this is discussed and the male and its genitalia are figured comparatively.

Additional key words: South America, biogeography, altiplano, oreal biomes (high mountain), *Linka lina*, páramos, genitalia (male and female).

INTRODUCTION

The principally Andean and Patagonian genus *Hylephila* Billberg (1820) is a tightly knit unit of about twenty-five species based mainly upon features of the male and female genitalia and of the short antennae, each with a (usually) minute apiculus, superficial appearance notwithstanding. The species are medium-sized (forewing length to 17 mm) to small (forewing length at least 8 mm), generally orangish, hesperiine skippers belonging to the "M" group of Evans (1955) along with the close relatives *Polites* Scudder (1872) and *Wallengrenia* Berg (1897) (MacNeill 1975, 1993). Males may or may not have a stigma.

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The genus occurs through the Austral regions of the Western Hemisphere and the oreal (high mountain) biomes of South America as well. It spans the North American continent from New York to northern California (plus very recently nearly all of the Hawaiian Islands [Tashiro & Mitchell 1985]). It is present in almost all of the Antilles, Central America, and all of South America from northern Colombia to Pcia. Magallanes in southern Chile. Most of that distribution can be attributed to just one weedy species, *H. phyleus* (Drury 1773), the type of the genus and the only one that occurs on the mainland north of Colombia.

In the most recent review of the genus Evans (1955) named several taxa and ended up with eleven species. One of these, *H. fassli* Draudt (1923), has been shown by Mielke (1993) and Mielke and Schroeder (1994) to belong to the genus *Thespieus* Godman (1900). All ten of the remaining species recognized by Evans we will retain in our treatments. Several of the subspecies recognized by Evans and by Ureta (1956) will be elevated to species rank, and about ten species will be described as new in this and subsequent papers.

These studies were initiated by one of us (J.H.) in Chile so that he could complete his ongoing work on the butterflies of Chile. We agreed to collaborate on the *Hylephila* study in the middle 1960's but with neither of us able to devote much time to it. Until recently our collaboration consisted of one of us (J.H.) preparing and studying hundreds of genitalic dissections, and both of us periodically exchanging information, accumulating material, and interpreting what we were seeing in the laboratory and in the field. The present paper is based upon our notes and further intensive study by C.D.M.

These studies, which are continuing, will be presented in three papers. This, the first, comprises the introductory matter and the treatment of the two smallest species groups. The second (by C.D.M.) will treat the *boulleti* group, restricted to the Andes of central and southern Peru, eastern Bolivia, northern Chile and Argentina. The third paper (also by C.D.M.) will treat the remainder of the genus, the *phyleus* group from North and South America.

TECHNIQUES, METHODS, AND MATERIALS

Since the synonymies of all the taxa treated by Evans (1955) were listed in that work, they will not be repeated in these papers unless there are concept changes. Generally only citations of illustrations or post-Evans references will be listed in our synonymies. For species previously described, redescriptions will treat only characters not previously described or emphasized.

Terminology for stigmal characters is a modification of that used by

MacNeill (1964, 1993); for venation, MacNeill (1964); for the intervein spaces, Miller (1970); for genitalia, Klots (1970), Burns (1987), and MacNeill (1993).

The genitalia were dissected after soaking the abdomen in a 10% KOH solution overnight at room temperature (C.D.M.) or right after gently heating for short periods prior to dissection (by J.H.). Dissected genitalia were compared, illustrated, and stored in, a glycerin medium. Dissections by J. Herrera are cited as JH, by C. D. MacNeill as CDM, and by J. M. Burns as JMB.

A number of female abdomens were, in addition, and prior to KOH treatment, soaked overnight in a 10% "901" solution (active ingredient trisodium phosphate) (by C.D.M.) using the technique discussed by VanCleve and Ross (1947) and by Thompson (1954). This technique was used to recover hesperiid eggs from dried museum specimens as reported by MacNeill (1964) and Herrera et al. (1991). It was possible to estimate the general size of ova, the nature of the reticulation, the number of ova per female, and, on one occasion, the first instar chaetotaxy of a *Hylephila* larva by this method. Ova were measured using an ocular micrometer. Reticulation was observed by letting the alcohol storage medium dry briefly from the egg surface. Successful recovery of ova was well under fifty percent per dissection.

THE GENITALIA

The male genitalia of the single North American species have been illustrated adequately since Scudder (1889). The Skinner and Williams (1924) figures, reproduced in Lindsey et al. (1931), clearly define the genus by showing well the very distinctive triangular-shaped valva and the enormous juxta. Eaton (1932) was the first to illustrate comparatively both a South American species and *H. phyleus*, and he captured a few of the important differences as well as some of the similarities. Hayward (1934b) figured the male genitalia of *H. phyleus*; but his illustration is remarkably similar to Godman's (1900) inadequate figure, showing identical distortions and misinterpretations. Although he treated two additional species in the text of a previous paper (Hayward 1934a), he offered no genitalic comparisons; so his figure is of little use beyond generic discrimination. Again, Hayward (1937) figured (badly) the genitalia of *H. phyleus* and *H. fasciolata* (Blanchard), exaggerating the differences and obscuring the similarities; and he (Hayward 1940) compared the male genitalia of two additional species showing features that he misinterpreted or features that did not exist. The figures by Hayward (1950), by Evans (1955), and by Ureta (1956) are not useful. The genitalic figures of Draudt's (1923) types by Mielke (1993) and by Mielke

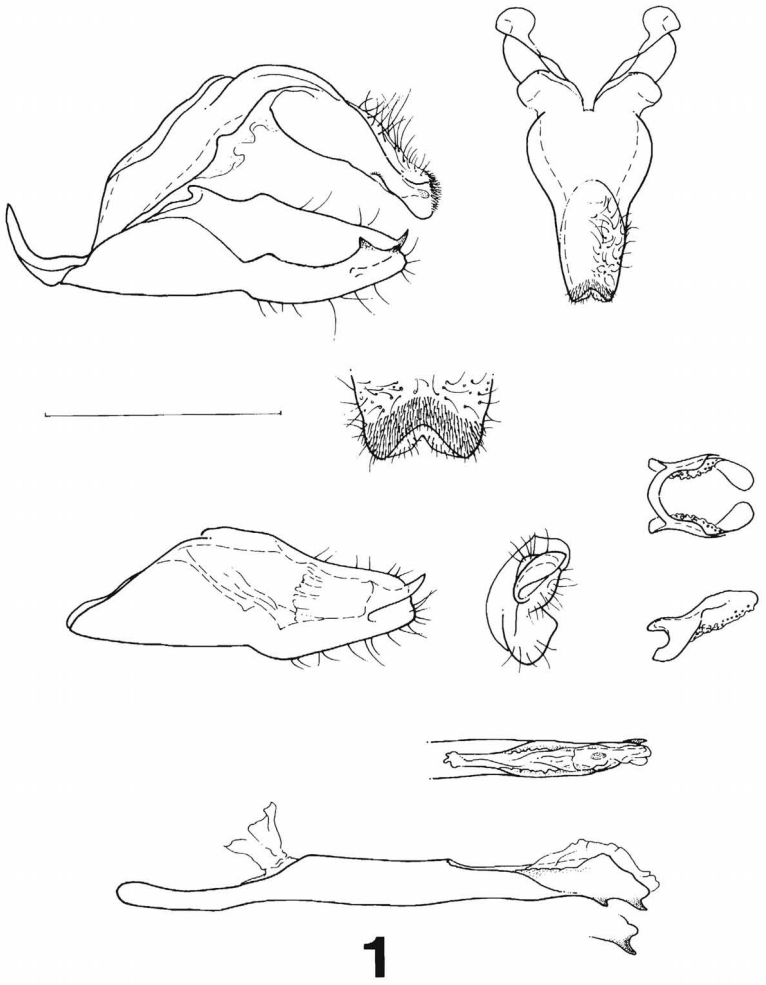

FIG. 1. Male genitalia of *Linka lina*. Uncus (lateral and dorsal aspects, tip enlarged), valvae (right outer and caudal aspects), juxta (left lateral and ventral aspects), penis (left lateral aspect and caudal one-half dorsal aspect). Páramo E. Usaquen, IX-3-70, Cundinamarca, COLOMBIA, R. E. Dietz (genitalic dissection # ♂5028-JH) (USNM). Scale = 1 mm.

and Schroeder (1994), however, are sufficiently accurate for us to recognize the taxon *H. peruana* Draudt.

The male genitalia are extremely important tools useful in the recognition of the genus, in the clustering of taxa into species groups, and in the discrimination of species. The female genitalia are more conservative but are very useful at the genus and species group levels and are only slightly less so at the species level. The discriminatory differences at the

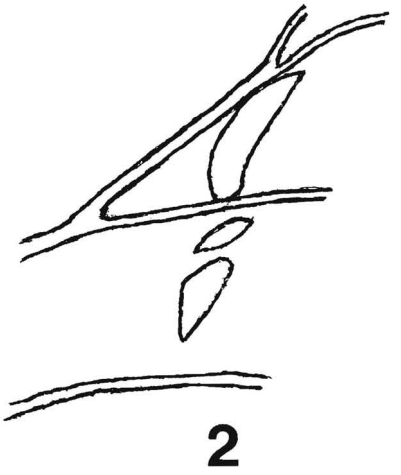

FIG. 2. Male stigma pockets of *Hylephila adriennae*, paratype. N. of Duriamena Valley, II-16-75, Sierra Nevada de Santa Marta, COLOMBIA, G. I. Bernard (genitalic dissection # ♂3997-JH) (CDM). Left forewing underside (partial aspect).

species level often are in minute features of the pectines, titillators, and cornuti in males and in proportions of the ductus bursae in females.

The male genitalia of *Hylephila* (Figs. 9–13) always have the vinculum conspicuously inclined caudad (from ventral to dorsal), hence the basal margin of the valva (that margin against the vinculum from near the saccus to the appendix angularis) is usually much longer than the dorsal margin. The ventral margin of the valva is a shallow, convex curve to the, often beaked, caudal horizontal cleft, which in caudal view is somewhat diagonally inclined mesad and slightly expanded laterally as opposing flanges ornamented with knuckle-like dentitions.

The uncus is moderately sclerotized and bears dorsally a pair of darkened pectines (MacNeill 1993) and ventrally, the paired, more or less sclerotized, terminally minutely hirsute, gnathos. The transtilla is small, vague, and not to scarcely sclerotized. The juxta is massive, very elongate, anteriorly with a midventral projection and short, stout, paired lateral prongs projecting forward, and caudally bearing paired dorsal humps and a pair of ventrolateral, ragged clefts separating an irregularly defined midventral "floor." The penis is slender and at its caudal end bears, dorsolaterally, two thorn-like, unidentate titillators (Burns 1987, see comment below) usually basally attached to the penis by slender sclerotic straps (more or less inconspicuous) folded inward until the vesica is everted. The term "titillators" seems more applicable than the MacNeill (1993) use of "rostella" since these are "hinged" and eversible

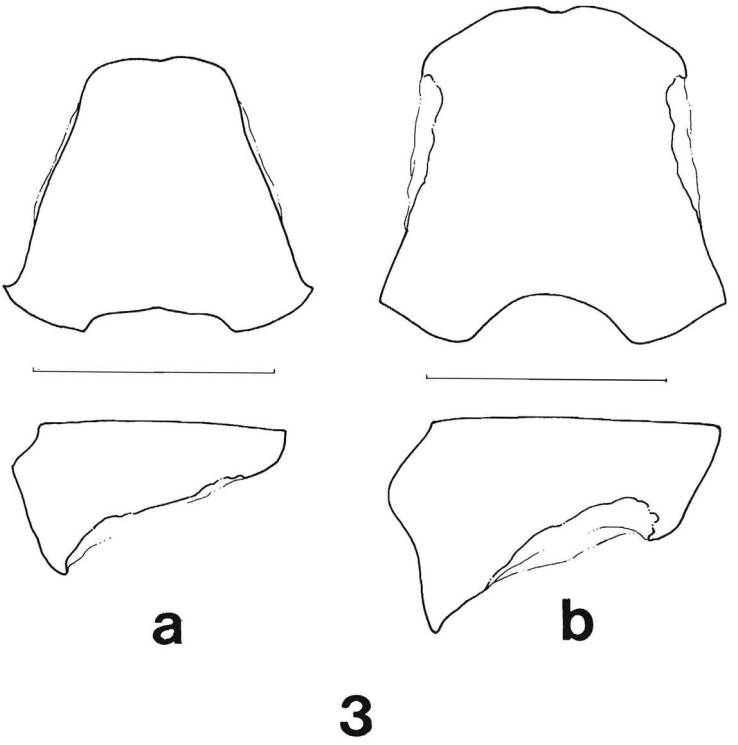

FIG. 3. Male eighth tergites (dorsal and left lateral aspects) of two species of *Hylephila*. **a.** *H. ignorans*, upper Albarregas Valley, 3250–3500 m, VI-20-75, Cordillera de Mérida, Mérida, VENEZUELA, M. J. Adams (genitalic dissection # ♂6107-CDM) (CDM). **b.** *H. adriennae*, paratype, Headwaters of Rio Cambirumeina, S. slope Cerro Icachui, 4000–4400 m, COLOMBIA, A. M. Shapiro & A. R. Shapiro (genitalic dissection # ♂3918-JH) (UCD).

and, in one species, the connection to the penis is completely absent so that they appear as free vesical structures. Also present is a pair of vesical cornuti, usually bidentate, best seen when the vesica is everted.

The eighth tergite is caudally narrowed and bears, near the caudal margin, a vestiture of long, stiff, bristle-like scales arising from enlarged, posteriorly directed, tuberculate sockets (Figs. 4–8). These scales are brittle and easily break. Several apparently penetrate and occasionally lodge in the ventrolateral pleural membranes caudad of the eighth segment of some females during copulation (Fig. 20). The function, if any, of this phenomenon is unknown.

The female genitalia (Figs. 14–20) usually have the eighth sternite at least weakly sclerotized and the eighth tergite with the apophyses anteriores sclerotically conjoined with the, usually medially undivided,

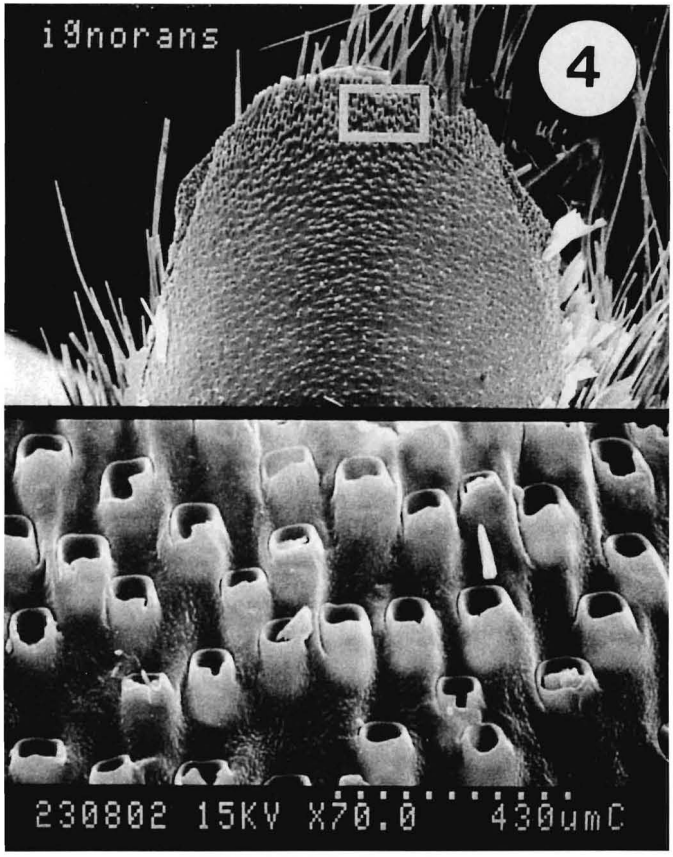

FIG. 4. Male eighth tergite (dorsal aspect) of *H. ignorans* (descaled to show caudal array of tuberculate bristle-sockets at 70× with inset enlarged below to 143 microns/cm), Cabana de los Curas, Páramo Los Conejos—Páramo La Culata, 3500 m, II-12-83, B. Rodriques & J. DeMarmels (# ♂SEM-2-CDM) (MIZA).

lamella postvaginalis. The ostium bursae is very broad. The ductus bursae has the antrum dorsally usually well sclerotized (but not in the species groups treated here) at least proximally (but not usually conjoined caudad with the lamella postvaginalis) and often dorsally with an irregular longitudinal inward fold at least caudally, and ventrally the lamella antevaginalis is plicate membranous and caudally very broad. The ductus bursae cephalad of the antrum is abruptly constricted, then asymmetrically and tortuously wrinkled (usually with a left-lateral pouch) and bent dorsad to the dorso-left-lateral ductus seminalis but ventrally expanded cephalad under the dorsocephalad positioned corpus bursae.

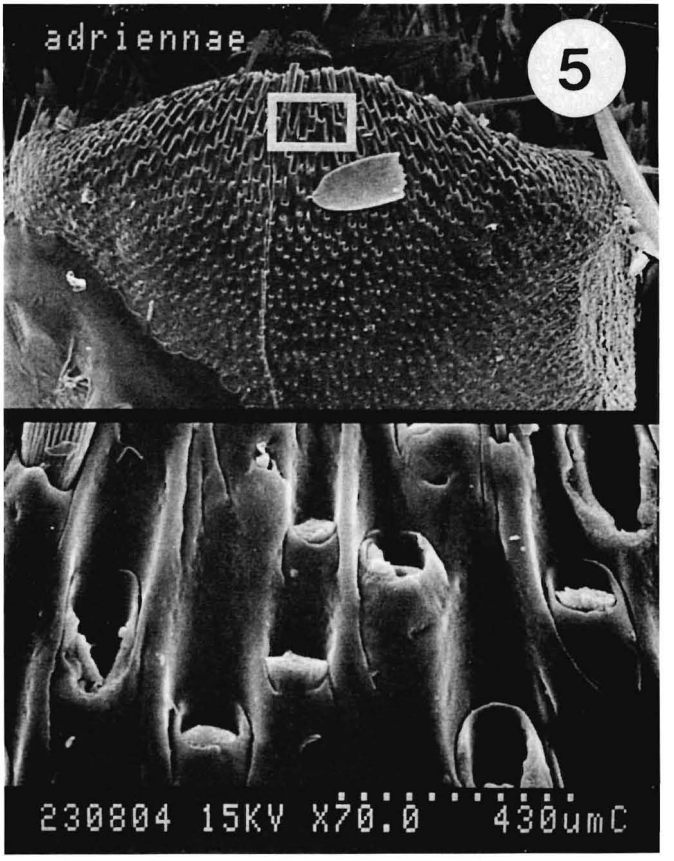

FIG. 5. Male eighth tergite (dorsal aspect) of *H. adriennae,* paratype (descaled to show caudal array of tuberculate bristle-sockets at 70× with inset enlarged below to 143 microns/cm), same data as Fig. 3**b** (# ♂SEM-3-CDM) (CDM).

THE SPECIES GROUPS

Considerations of male and female genitalia together with general appearance and geographic distribution suggest that the genus *Hylephila* sorts rather easily into four distinct species groups, each of which has significant Andean or Patagonian representation.

Artificial Key to Species Groups

1- Tegulae usually black with contrasting, broadly pale yellow edges when fresh or worn; from high ranges in central Peru south to northern Argentina and Chile ..... *boulleti* Group

– Tegulae usually pale golden to orange-brown owing to an even vestiture of long, golden hairs; or if worn and with contrasting, broad, pale edging, from the Andes of central Chile south to Pcia. Coihaique and adjacent Argentina 2

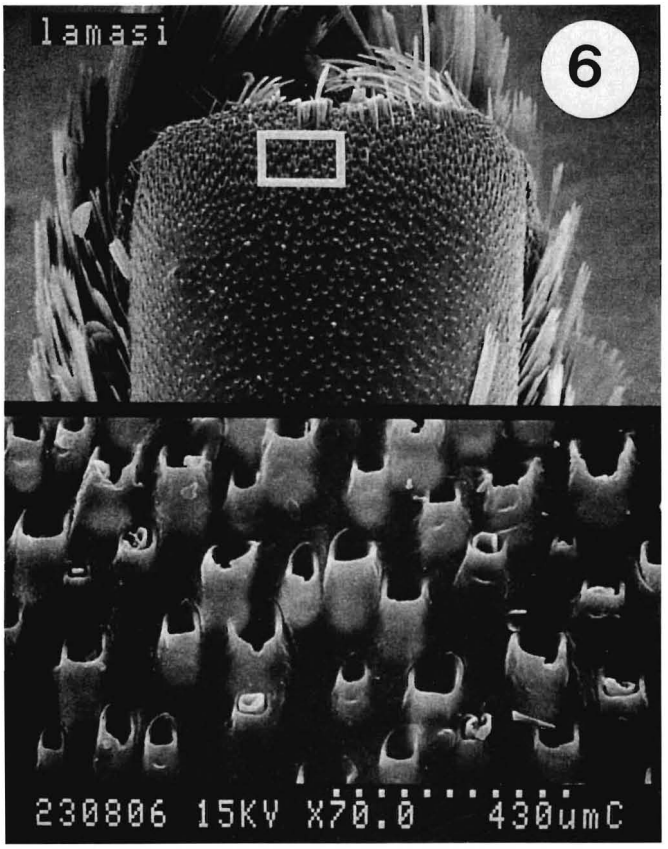

FIG. 6. Male eighth tergite (dorsal aspect) of *H. lamasi*, paratype (descaled to show caudal array of tuberculate bristle-sockets at 70× with inset enlarged below to 143 microns/cm), Salinas de Chilca, Lima, PERU, IV-14-74, G. Lamas, (# ♂SEM-5-CDM) (CAS).

2- Palpal vestiture of second segment anteriorly shaggy with long, black hairs mixed with pale, hair-like scales; restricted to páramos of high northern ranges in Colombia and Venezuela ..... *ignorans* Group
– Palpal vesititure of second segment anteriorly of imbricate, broad, whitish scales, or if shaggy, few or no black hairs anteriorly, the black hairs restricted to the ventral face and anterolateral angles; not in high, northern páramos of Colombia and Venezuela 3
3- Males without a stigma; hindwing below with dark streaks and pale veins and/or with a pale ray from cell nearly to margin; in Andes of Chile and Argentina; or if no pale ray from hindwing cell to margin, from central coastal Peru ..... *venusta* Group
– Males with a stigma; hindwing below without such markings; or if with a pale ray, from high Andes of Ecuador; range of genus ..... *phyleus* Group

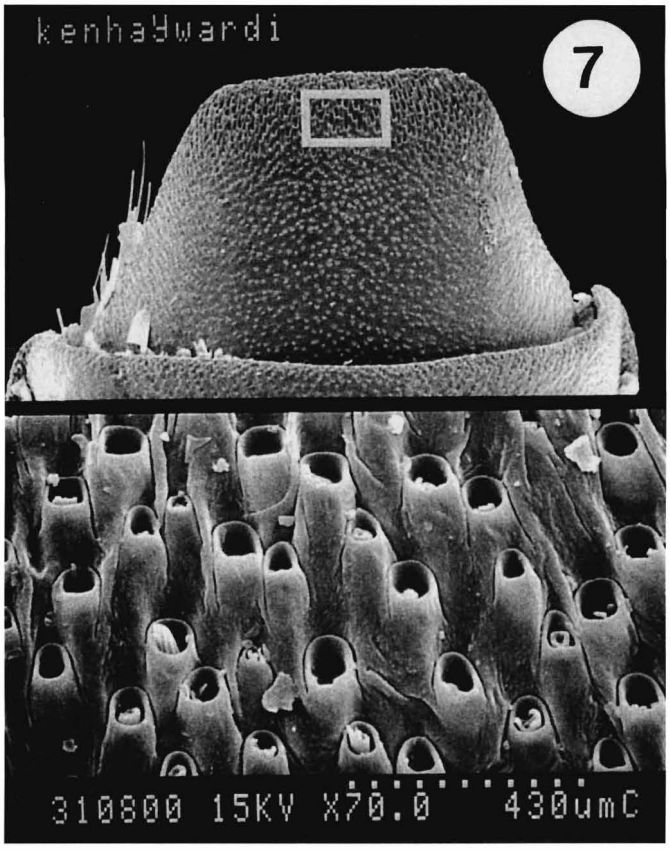

FIG. 7. Male eighth tergite (dorsal aspect) of *H. kenhaywardi* (descaled to show caudal array of tuberculate bristle-sockets at 70× with inset enlarged below to 143 micron/cm), Caballo Muerto, 4000 m, Salar de Maricunga, Copiapó, CHILE, J. Herrera (# ♂SEM-6-CDM) (CDM).

THE *PHYLEUS* GROUP

Only one of these groups, the *phyleus* group, represents the geographic range of the genus. The oreal portion of this group's range is in the páramos of the Ecuadoran (and north Peruvian?) Andes (Fig. 32). Farther south, in Peru, Bolivia, Chile and Argentina it overlaps, but generally subtends, the high Andean ranges of two other species groups, the *boulleti* and *venusta* groups. This group comprises about ten species of medium-sized, tawny to bright orange skippers having prominent stigmata in males and having females often conspicuously darker in wing pattern. The markings vary; but on the hindwings below they usually lack a well defined, contrasting pale ray in space M1–M3, and the veins

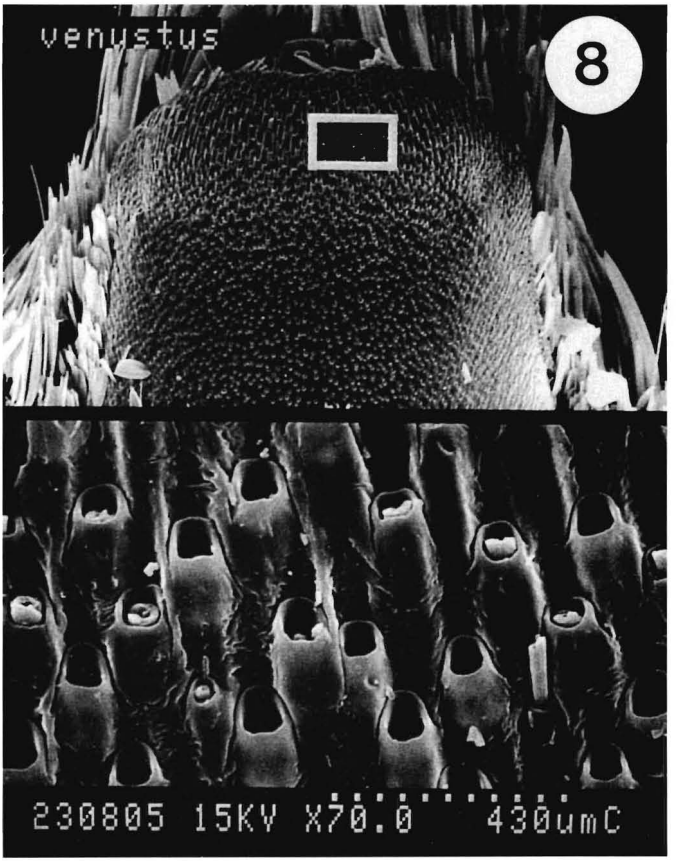

FIG. 8. Male eighth tergite (dorsal aspect) of *H. venusta* (descaled to show caudal array of tuberculate bristle-sockets at 70× with inset enlarged below to 143 microns/cm), Termas Chillán, Ñuble, CHILE, II-21-65, J. Herrera (# ♂SEM-4-CDM) (CDM).

do not appear to be conspicuously pale. The male forewings tend to be quite pointed apically, and the hindwings usually have a prominent tornus. The tegulae appear to be golden because they are uniformly clothed with long, golden, hair-like scales. The hind tibiae bear the usual two pairs of spurs. The dorsal part of the antrum in females is well sclerotized, and in males the gnathos is usually scarcely sclerotized and is not massive nor divergent ventrad from the uncus (but the uncus may be bent dorsad from the gnathos). The uncus often has a pair of dorsolateral, anterior horns.

The remaining three groups of *Hylephila* fairly well partition the Andes biogeographically (see Figs. 32, 33), evidently with little or no over-

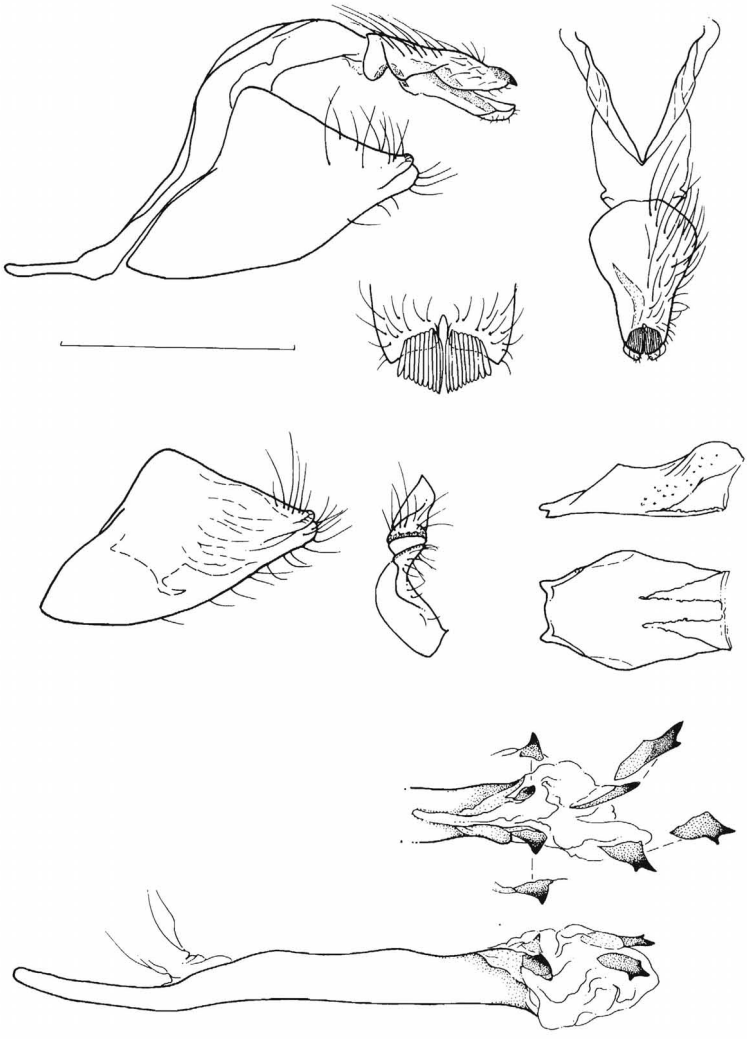

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FIG. 9. Male genitalia of *H. ignorans*. Uncus (lateral and dorsal aspects, dorsal of pectines enlarged), valvae (right inner, left outer, and caudal aspects), juxta (left lateral and ventral aspects), penis (vesica everted, left lateral aspect, and caudal one-half dorsal aspect). Data as Fig. 3**a.** Scale = 1.0 mm.

lap between them. Each group of high Andean *Hylephila* remains scarce in collections, however, represented by poor series and few localities so that a satisfactory knowledge of their relationships and distributions is presently not possible. Nevertheless, of the considerable literature that has been consulted during the course of this study, papers by Adams (1973), Cabrera and Willink (1980), Clapperton (1993), Descimon (1986), Heppner (1991), Irwin and Schlinger (1986), Lamas (1982), Peña (1966), and Shapiro (1991, 1992) have significantly contributed to our present understanding of the distribution of the genus in the high Andes.

THE *IGNORANS* GROUP (FIG. 32)

In the páramos of the Venezuelan Andes, in the disjunct Colombian Sierra de Santa Marta, and, we expect, in the páramos of the several Colombian Andean ranges as well, occurs the *ignorans* group, a group of smallish, dark skippers marked much like certain *Polites* of western North America. This group is not well understood at present, and our knowledge of *Hylephila* of the high Andes of Colombia and northern Ecuador is nil. The two species here recognized in this group do not seem to be very closely related. Males of one species have a dark, tripartite stigma (Fig. 2) and the usual two pairs of spurs on the hind tibiae; the other species does not. Males are not conspicuously lighter than females in wing color. The hindwings above have a broad, inwardly uncut dark margin, and below are without a well defined pale ray in spaces M1–M3 or with a ray only in the lower half of that space (M1–M2), and the veins are somewhat pale. The wings are rather rounded and stubby. The tegulae are black with very narrow pale edges in worn specimens where the dark, golden, hair-like scales are largely missing; but when fresh, the tegulae appear dark, orange-brown as does the rest of the body dorsally. The antrum in females is not, or scarcely sclerotized dorsally; and the gnathos of males is slightly sclerotized, massive, and slightly to somewhat divergent ventrad. The uncus is without horns.

North Andean affinities in birds are reported for high tepuis in the south Venezuelan-Guyanan Pantepui region (Mayr & Phelps 1967). Dr. Jürg DeMarmels (1995, *in litt.*) has suggested that northern Andean representatives of this genus could be present in the Pantepui at lower elevations than in the Andes. Bell (1932) reported on a very small number of hesperiids collected by G.H.H. Tate during two American Museum of Natural History expeditions in the Pantepui, and no *Hylephila* were collected. A recent preliminary report by Fratello (1996) on a trip to a Guyanan tepui indicated that no hesperiids were collected above about 1500 m, and no specimens of *Hylephila* were mentioned. *Hylephila* may well occur in open areas on the high tepuis, but we suspect

that such species would belong to the *phyleus* group rather than to any other species group.

THE *BOULLETI* GROUP (FIGS. 32, 33)

The *boulleti* group is characteristic of the oreal bogs and grassy flats of high central Peru and south throughout the altiplano of southern Peru, Bolivia, northern Argentina and northeastern Chile, and the pre-Andean ranges (the Sierras Pampeanas) bordering the Argentine Provinces of Catamarca and Tucumán. This is a group of nine or ten small to medium-sized, usually tawny skippers, with or without a male stigma. This structure, if present, may be tiny and obscure, large and obscure, or large and conspicuous. The hind tibiae usually have two pairs of spurs. The wing patterns are remarkably alike. It frequently is necessary to dissect the male genitalia to identify a specimen. On both surfaces of the hindwing, there is a well-defined pale ray in the cell and through spaces M1–M3. Bold black spots are characteristic below basally, discally, and at the margin, where they appear to be defined or cut by white or pale veins (like Fig. 31). The forewings of the male usually are more or less pointed, and the hindwings are apically produced and with or without a prominent tornus. The tegulae are black with a contrasting broad, pale yellow to white, edging. The dorsal part of the antrum in females is well sclerotized to unsclerotized; and in males, the gnathos is sclerotized, massive, and ventrally divergent to scarcely sclerotized, not massive, and not divergent ventrad. The uncus is without horns. Female genitalia in some species are very similar and identification is often difficult except through association with males.

This group is generally very poorly collected and at most localities more than two or three specimens are rarely taken. We have been able to assemble adequate series of only two of the species. Most of the rest are known from one or two specimens and we have seen no females of more than half of the species belonging to this group.

THE *VENUSTA* GROUP (FIGS. 32, 33)

From the Andes in northern Santa Cruz Province in Argentina and the Chilean Province of Coihaique northward through the western slopes of the Chilean Andes to the province of Parinacota occur the two allopatric Andean species of the *venusta* group. Another, probably very primitive, species from the coastal lowlands of central Peru seems to belong here as well. The species of this group are small to medium-sized, orange to tawny skippers lacking stigmata in males. The hind tibiae have two pairs of spurs. The females are no darker or are only slightly so in wing markings than are males. On the hindwing below, the two Andean

species have a well defined pale ray from the cell through spaces M1–M3, and one of the species has conspicuous pale veins. The coastal Peruvian species has, on the hindwings below, all of the cell and the basal half of space M1–M2 dusky, with all of the veins pale fulvous. The forewings of both sexes are broadly rounded in the Andean species and pointed in the coastal Peruvian species, which also has a slightly more prominent tornus on the hindwing. The tegulae are golden in fresh specimens. The entire antrum in females is more or less membranous and very broad caudad, and in males the gnathos is well sclerotized, massive, and ventrally divergent. The uncus in males lacks horns.

The three species in this group are not common in collections. As in the *boulleti* group, they rarely have been collected more than two or three at a time and only in a few widely separated localities. The species seem to be totally allopatric, and they do not look superficially very much alike.

THE *LINA* LINK

Plötz (1883) addressed many species of "*Hesperia*," among which were a number of *Hylephila*. Several were described as new, and two of these will be considered in this paper. *Hesperia lina* Plötz was described from Bogotá on page 209. This animal is not a *Hylephila*; but it has the pale fulvous of the hindwing below restricted by conspicuous marginal, discal, and basal black blotches cut by white or pale veins suggestive of some of the high Andean *Hylephila*. Draudt (1923:pl.181d) figured it reasonably well as *Polites lina* except that on the hindwing below the posterior arm of the pale fulvous macular band is more regular and intact on the specimens we have seen (n = 5) (Fig. 31). Dyar (1913) listed four specimens (of *Hylephila peruana* Draudt, which we have examined) as *Hylephila lima* (sic) (Plötz), and we have seen Chilean specimens of *Hylephila boulleti* (Mabille) identified as *Hylephila lima* (sic) (Plötz). Hayward (1947) listed *Polites lina* (Plötz) in his catalogue of Colombian hesperiids and called attention to Dyar's misspelling of the Plötz name. Evans (1955) gave it his generic name *Linka*, placing it next to *Polites* Scudder, with the comment "Near *Hylephila* but the antennae and genitalia differ." He cartooned the male genitalia so that about all that is revealed is that the valva is not shaped like that in *Hylephila*.

As there has been some confusion regarding the relationship of this species and *Hylephila*, we figure here the male genitalia of *Linka lina* (Plötz) for comparative purposes (Fig. 1). Note the slender penis with a pair of ventral, in line, rostella and no vesical cornuti; the smaller, more erect, ventrally less sclerotized juxta; the relatively erect vinculum and corresponding shorter basal margin of the valva; the membranous central area of the uncus dorsad; the coarsely pubescent, dorsocaudal uncal

tip instead of pectines; the membranous, minute hidden gnathos; and the eighth tergite near the caudal margin lacking greatly enlarged, posteriorly directed, tuberculate sockets bearing long, stiff, bristle-like scales. These are all features not shared with *Hylephila*.

THE *IGNORANS* GROUP

Superficial Key to the Species

Hind tibia with a single pair of spurs; male without stigma; small, forewing length 9.5–11.5 mm ..... *H. ignorans* (Plötz)

Hind tibia with two pairs of spurs; male with a prominent stigma; larger, forewing length 11.5–16.0 mm ..... *H. adriennae,* new species

Hylephila ignorans (Plötz) (Figs. 3a, 4, 9, 14, 21, 22, 31)

Hesperia ignorans Plötz, 1883. Stett. Entomol. Zeit. 44:207, (pl. 647).

Polites ignorans, Godman, 1907. Ann. Mag. Nat. Hist. ser. 7, 22 (116):144; Draudt, 1923: *In* Seitz, Gross-Schmett. Erd. 5:929, pl. 181e.

Hylephila ignorans, Evans, 1955: Cat. Amer. Hesp. part IV, pp. 315, pl. 75; Lewis, 1973: Butterflies of the world, p. 246, pl. 83, fig. 18.

Plötz (1883) listed the single specimen he had as being from "Vaterland ?" suggesting doubt about the locality. The color figure he made of the type, a female, was never published. That drawing, indicated as t.647 in the original description, was examined by Godman who stated (1907:144) that "there is a ♀ very like it, from Mérida, Venezuela, in the G. & S. coll." We take that statement to effectively fix the type locality to the vicinity of Mérida, Venezuela.

Description. *Male.* **Head.** Palpi shaggy, third segment scarcely or not protruding beyond hair-like, golden vestiture of front of second segment. Eyelash long, greater than two-thirds eye diameter. Antennae dorsally black, anteriorly golden on club, ventrally white; club about one-half length of shaft, nudum light brown; shaft about equal to dorsal width of head.

Body and tegulae. Dorsally black with dense, long, golden vestiture. Legs slender, hind tibiae with a single pair of spurs.

Wings. Stubby, rounded. Forewing length 9.0–10.5 mm (n = 10). Above stigma absent, yellow-fulvous broadly in cell and nearly to costal margin, fringes orange, basal half with mixed black scales. Below, forewing as above but costa dark to subapical spots with white overscaling at anterior edge, fringes terminally orange, then finely black, and basally white. Hindwing below brown with a discal, narrow, fulvous macular band in spaces Cu2–2A through Sc+R–Rs, which is bordered proximally and distally by black spots except proximal to space M1–M3. A subdiscal black spot in cell as well as a basal one, and a basal dark, subcostal streak below a basal, whitish costal streak. Overscaling golden with a vague lilac tint, whitish along veins.

Genitalia. Eighth tergite (Figs. 3a, 4) evenly tapered to caudal margin, not deeply emarginate laterally just before caudal margin; terminal bristle sockets minute, not conspicuously enlarged caudad, squarish in cross section. Valva (Fig. 9) in lateral view short, with length of basal margin less than one and one-half times depth of valva. Penis short, scarcely exceeding length of entire genitalic capsule (saccus, vinculum, tegumen, and uncus) and less than twice length of valva; titillators sclerotically strapped to penis, similar, subequal in size and shape; cornuti asymmetric, bidentate. Juxta with ventro-caudal clefts one-half length of juxta, and separated median floor nearly or quite reaching caudal margin of juxta. Uncus with caudal cleft distinctly exceeding the pectines cephalad in dorsal view.

Female. **Head and body.** Similar to male except antennae with golden on club extending down shaft.

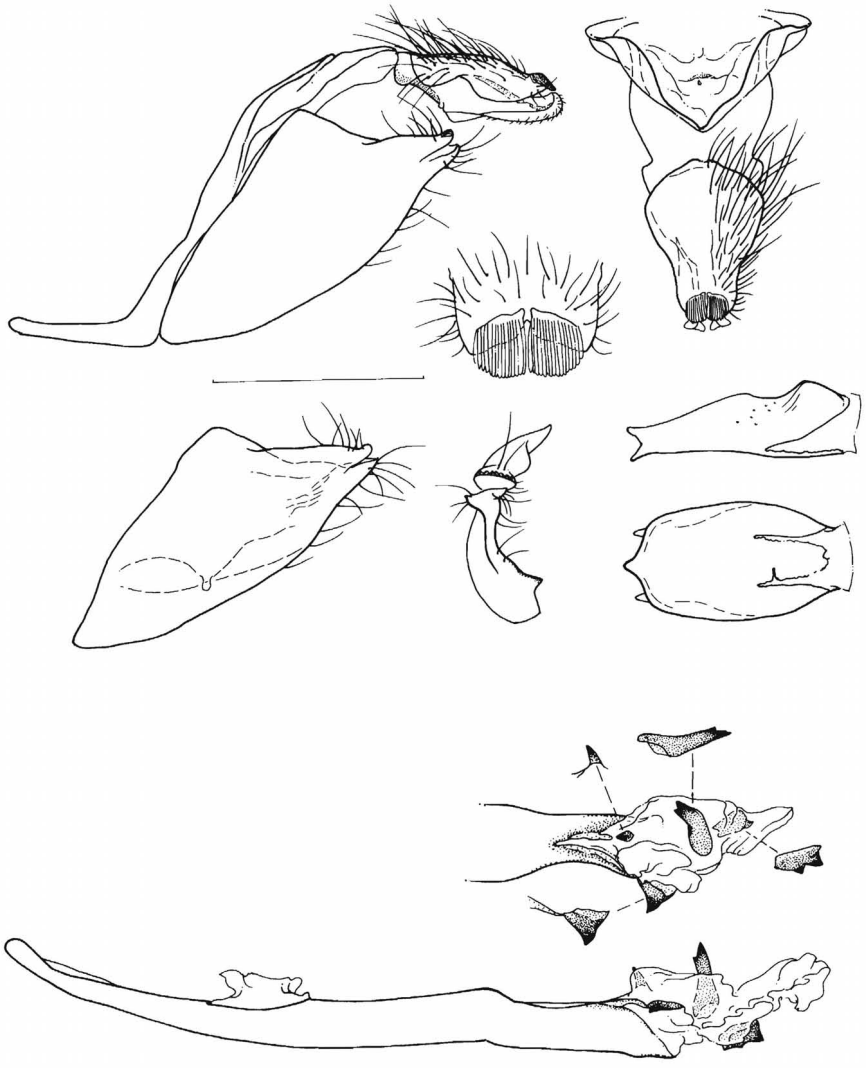

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FIG. 10. Male genitalia of *H. adriennae*, paratype. Uncus (lateral and dorsal aspects, dorsal of pectines enlarged), valvae (right inner, left outer, and caudal aspects), juxta (left lateral and ventral aspects), penis (vesica everted, left lateral aspect and caudal one-half dorsal aspect). Data as fig. 3**b.** Scale = 1.0 mm.

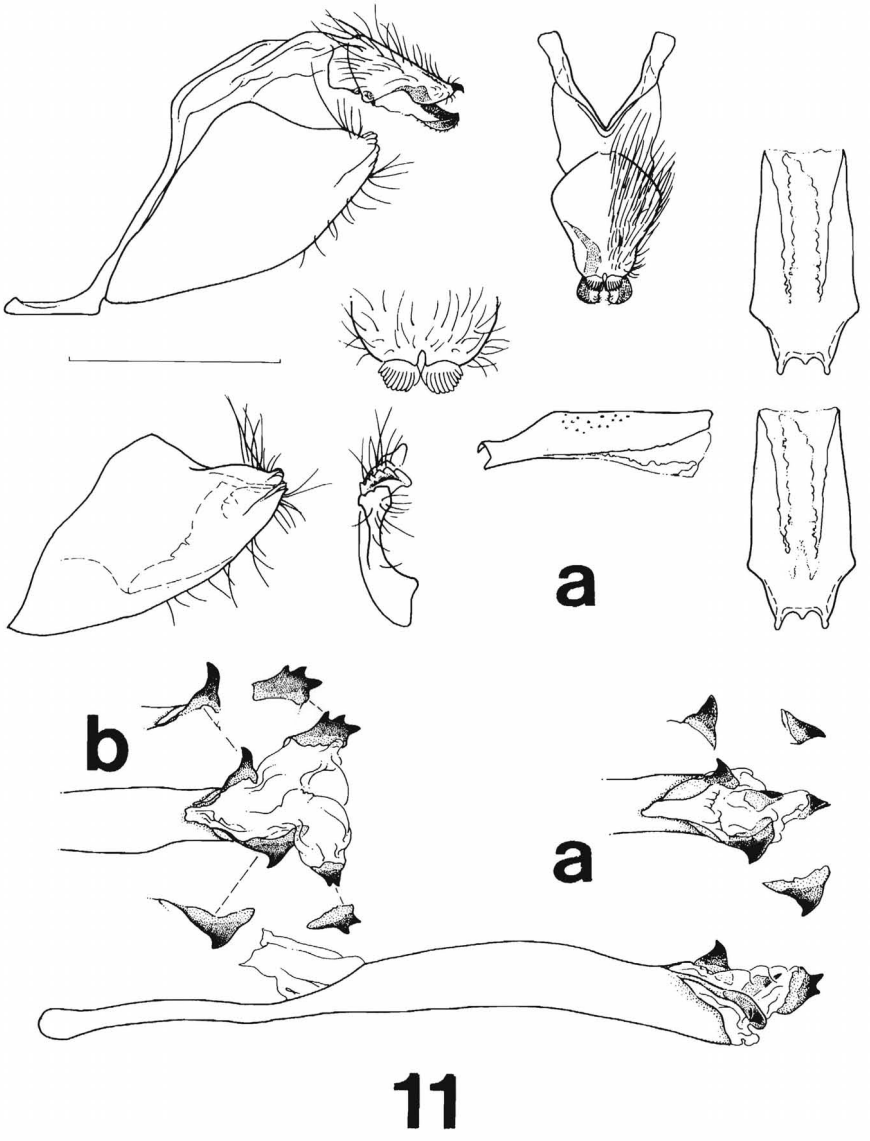


FIG. 11. Male genitalia of *H. lamasi*, holotype. **a.** Uncus lateral and dorsal aspects, dorsal of pectines enlarged) valvae (right inner, left outer, and caudal aspects), juxta (left lateral and two interpretations of ventral aspects), penis (vesica somewhat everted, left lateral and caudal one-half dorsal aspects). Paracas, sea level, IV-5-75, Ica, PERU, G. Lamas M. (genitalic dissection # ♂3740-JH) (MUSM). **b,** paratype. Penis (vesica everted, caudal one-half dorsal aspect). Salinas de Chilca, sea level, IV-14-74, Lima, PERU, G. Lamas, (genitalic dissection # ♂6267-CDM) (MUSM). Scale = 1.0 mm.

Wings. Forewing length 10.5–11.5 mm (n = 6), above with dark discal spots in spaces Cu2–2A and Cu1–Cu2 larger and usually with a dark dash in cell.

Genitalia (Fig. 14). Eighth sternite often nearly or quite conjoined anterolaterally with lamella postvaginalis which is medially connected, each half conspicuously produced cephalad by a ventrally folded flap forming a nipple-like pocket and more medially, by a sclerotized, bifurcate intrusion into the dorso-caudal portion of the otherwise membranous antrum. Ductus bursae sclerotized just caudad of the ductal constriction, the left-lateral pocket more or less conspicuous.

Distribution. We have seen only 16 males and 6 females (4 ♂, 2 ♀ dissected), all from above 3000 m in the páramos of the Cordillera de Mérida, Venezuela, most collected during the month of February but also some in April and June.

Discussion. This small species suggests a small *Polites* in wing pattern, especially on the underside. The only *Hylephila* with which it can be confused is the next species from which it is easily separated by its smaller size and the more yellowish fulvous upper side of the forewings (compare Figs. 21, 22 and Figs. 23, 24). The single pair of hind tibial spurs, the lack of a male stigma, and the apparent restricted distribution also distinguish this species from the next.

Hylephila adriennae MacNeill & Herrera, new species
(Figs. 2, 3b, 5, 10, 15, 23, 24)

Description. *Male.* **Head.** Palpi shaggy, third segment barely protruding anteriorly in dorsal view; in lateral and ventral views more or less distinctly protruding from mixed black and pale golden-fulvous, hair-like vestiture of front of second segment. Eyelash long, about two-thirds eye diameter. Antennae dorsally black, anteriorly golden on club and shaft, ventrally checkered to white; club less than one-half length of shaft, nudum brown; shaft length greater than dorsal width of head. Vestiture of golden hairs over black scales dorsally; tip of collar fringe, eye ring (briefly interrupted dorsally), and vertex medially behind antennae whitish or pale buffy.

Body dorsally black with golden hair-like vestiture, tegulae similar but with a thin edging of buffy scales. Ventrally shaggy and paler. Legs with hind tibiae bearing two pairs of spurs.

Wings. Stubby, rounded. Forewing length, holotype 12.5 mm, paratypes 11.5–13.5 mm (n = 39). Above, stigma present (Fig. 2), somewhat conspicuous, microandroconial mass gray, upper and lower brush patches weakly present, post-stigmal patch broad, dark brown, iridescent greenish in side illumination. Fulvous dark orange, restricted by broad, dark border to apical and subterminal spots, upper and lower cell streaks and often vaguely to costa above end cell, discal in spaces M3–Cu1, Cu1–Cu2, and wedge-shaped in lower half of Cu2–2A, and these three spots outwardly prolonged along the veins. Brown markings more or less heavily overscaled with fulvous except for a fine, darker marginal line. Fringes brown. Below, rich fulvous in distal two-thirds of cell, a costal streak in basal half, discal spots paler fulvous, in Cu2–2A, half as broad in Cu1–Cu2, and as a small spot in M3–Cu1, apical and subterminal spots white. Distinct black streak costally on basal one-third and black spots basal in cell and end cell as well defining basally and (except in Cu2–2A) marginally the apical, subterminal, and discal whitish or fulvous spots, but separated from marginal black line by a thin band of lilac overscaling which is broadened along veins apically and costally to base. Hindwings above dark brown, heavily overscaled with fulvous; five fulvous discal spots forming a macular band from space Cu1–Cu2 to Rs–M1, the spot in M2–M3 extended basad toward discal cell; margin with fine, dark line. Fringes with basal half brown, terminal half pale fulvous. Below brown with a thin, irregular, whitish macular band from space Cu1–Cu2 (or offset basad in upper half of Cu2–2A) to space Sc–Rs. Lilac overscaling over all but black spots, macular band, and vannal area; costa lilac, veins Cu2 to Sc whitish, basal black streaks in Sc–R1 and Cu2–2A, black spots basal and end cell, and wedge-shaped discal and submarginal black spots defining the macular band, distally bordered by a lilac overscaled band broadening vannally, and a thin black marginal line. Fringes basally white, medially black, and terminally pale fulvous.

Genitalia. Eighth tergite (Figs. 3b, 5) laterally conspicuously emarginate immediately

before caudal margin, terminal bristle sockets conspicuously enlarged caudad, rounded in cross section. Valvae (Fig. 10) in lateral view, slender, elongate, the length of the basal margin more than one and one-half times valva depth. Penis slender, greatly exceeding length of whole genitalic capsule (saccus, vinculum, tegumen, and uncus) and subequal to twice length of valva; titillators asymmetric, the right reduced, slender, without broad base of left and scarcely sclerotically strapped to penis; cornuti asymmetric, bidentate. Juxta with ventral caudal clefts less than one-half length of juxta, and separated midventral floor nearly or quite reaching caudal margin of juxta. Uncus with caudal cleft not exceeding the pectines cephalad in dorsal view.

Female. **Head.** Antennae dorsally black, anteriorly checkered black and buff, ventrally white, club about one-half length of shaft which is subequal to dorsal width of head.

Wings. Forewing length, allotype 14.5 mm, paratypes 12.5–16.0 (n = 13). Above and below as male but generally darker, elongate spot of hindwing macular band in space M2–M3 tends to be extended basally to end of cell where it is interrupted, then continued vaguely to base; macular band may have spots at each end.

Genitalia (Fig. 15). Eighth sternite not conjoined with lamella postvaginalis. Lamella postvaginalis medially united, each half shallowly produced cephalad forming an anterior bulge not nipple-like, medially produced ventrad into a double-folded flap just caudad of the membranous antrum. Ductus bursae sclerotized just caudad of ductal constriction, the left-lateral pocket conspicuously produced.

Types. Holotype ♂, COLOMBIA, Dept. Cesar. Headwaters of Río Cambirumeina, S. slope Cerro Icachui, 4000–4400 m, Sierra Nevada de Santa Marta, 10°45′N, 73°34′W, I-(18–22)-77. A.M. & A.R. Shapiro (genitalic dissection # ♂3668-JH), in CAS. Allotype ♀, COLOMBIA, Sierra Nevada de Santa Marta, E. above San Pedro de la Sierra, 2900–3900 m, III-9-75, M.J.Adams, in BMNH.

Paratypes. 37 ♂ and 14 ♀ (7 ♂, 6 ♀ dissected) as follows: 4 ♂,1 ♀, same data as holotype (genitalic dissections #s ♂3917-JH, ♂3918-JH, ♀3880-JH, ♂SEM #3-CDM); 1 ♂, same data as allotype; 2 ♂, same data but G. I. Bernard; 1 ♂, same locality but III-4-75, G. I. Bernard; 4 ♂, 1 ♀ same locality but III-5-75, M. J. Adams (genitalic dissection # ♀6191-CDM); 1 ♂, 3 ♀, same data but G. I. Bernard (genitalic dissections #s ♂6190-CDM, ♀6151-CDM); 1 ♂, same locality but III-7-75, G. I. Bernard; 2 ♂, 1 ♀, same locality but III-8-75, G. I. Bernard; 1 ♂, same data but M. J. Adams; 1 ♂, 1 ♀, same locality but III-10-75, G. I. Bernard (genitalic dissection # ♀3998-JH); 1 ♂, same data but M. J. Adams; 2 ♀, same locality but III-11-75, M. J. Adams (genitalic dissection # ♀6108-CDM); 2 ♂, 1 ♀, COLOMBIA, Sierra Nevada de Santa Marta, N. of San Sebastián, 2800–3400 m, II-15-75, M. J. Adams (genitalic dissection # ♂6150-CDM); 2 ♂, COLOMBIA, Sierra Nevada de Santa Marta, N. of Duriameína Valley, 3500 m, II-16-75, M. J. Adams; 2 ♂, same data but G. I. Bernard (genitalic dissection # ♂3997-JH); 3 ♂, 1 ♀, COLOMBIA, Sierra Nevada de Santa Marta, Mamancanaca Valley, 3600–4000 m, II-17-75, M. J. Adams (genitalic dissections #s ♂6216-CDM, ♀6217-CDM); 2 ♂, 1 ♀, same data but G. I. Bernard; 5 ♂, 1 ♀, COLOMBIA, Sierra Nevada de Santa Marta, Upper Cambirumeina Valley, 4000–4100 m, II-19-75, M. J. Adams (genitalic dissection # ♂6215-CDM), 2 ♂, 1 ♀, same data but G. I. Bernard. Paratypes will be placed in the following collections: BMNH, USNM, AMNH, CMNH, AME, CAS, UCD, MUSM, MIZA, MBUZ.

Etymology. We are pleased to name this pretty species for Adrienne R. Shapiro, wife and co-collector of the short series brought to our attention by Arthur M. Shapiro, who also alerted us to the long series of this insect in papers at the BMNH collected by Michael Adams and George Bernard.

Diagnosis and discussion. This dark species looks even more like a *Polites* than does *H. ignorans* owing to the irregular, distinct, pale macular band contrasting with the dark, lilac-tinted underside of the hindwings. The short, stubby wings add to the *Polites* likeness (Figs. 23, 24). This very distinctive-looking *Hylephila* is apparently endemic to high elevations in the isolated, non-Andean, Sierra Nevada de Santa Marta of extreme northern Colombia where it flies from mid-January through at least mid-March. Ova recovered from one female (# ♀6217-CDM) were surprisingly large for a species of *Hylephila*. Measurements averaged 0.97 mm × 0.68 mm (range 0.92 mm × 0.60 mm to 1.0 mm × 0.72 mm [n = 7]). The reticulation was scarcely discernible at 50× magnification, the surface ap-

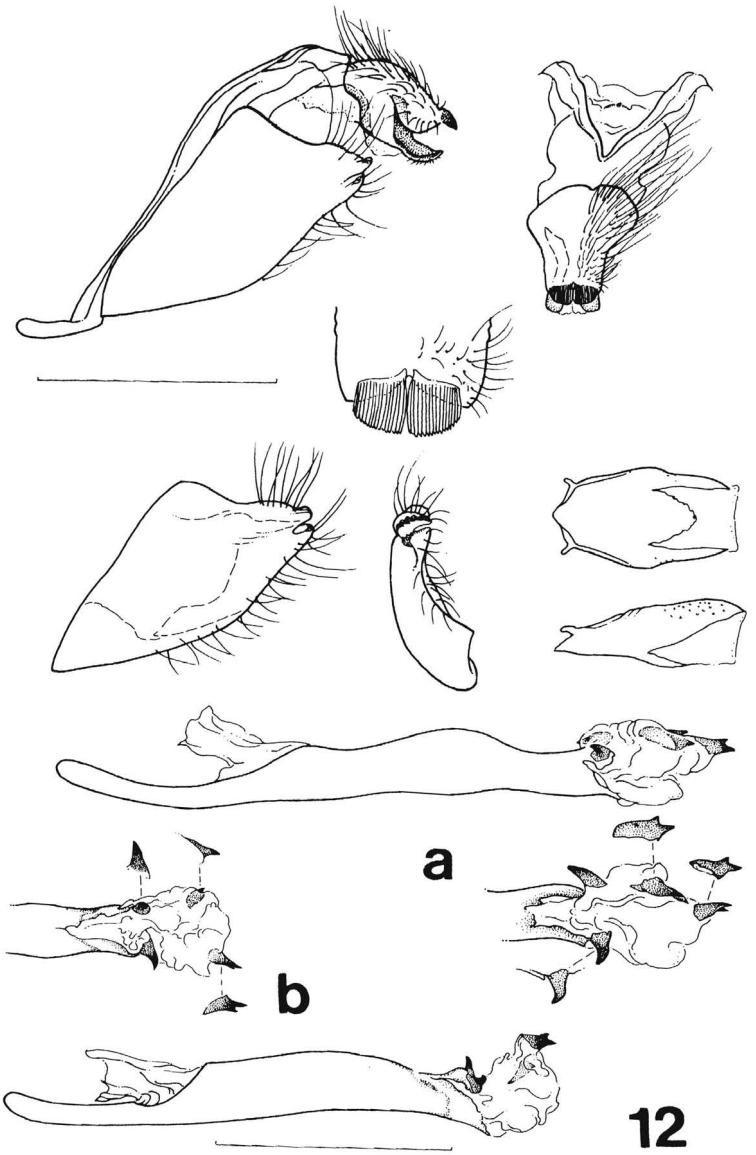


FIG. 12. Male genitalia of *H. kenhaywardi*. **a.** Uncus (lateral and dorsal aspects, dorsal of pectines enlarged), valvae (right inner, left outer and caudal aspects), juxta (left lateral and ventral aspects), penis (vesica everted, left lateral and caudal one-half dorsal aspects). Caballo Muerto, Atacama, CHILE, J. Herrera (genitalic dissection # ♂3707-JH) (CDM). **b.** Penis (vesica everted, left lateral and caudal one-half dorsal aspects). Caballo Muerto, Salar Maricunga, 4000 m, Atacama, CHILE, J. Herrera (genitalic dissection # ♂3910-JH) (CDM). Scale = 1.0 mm.

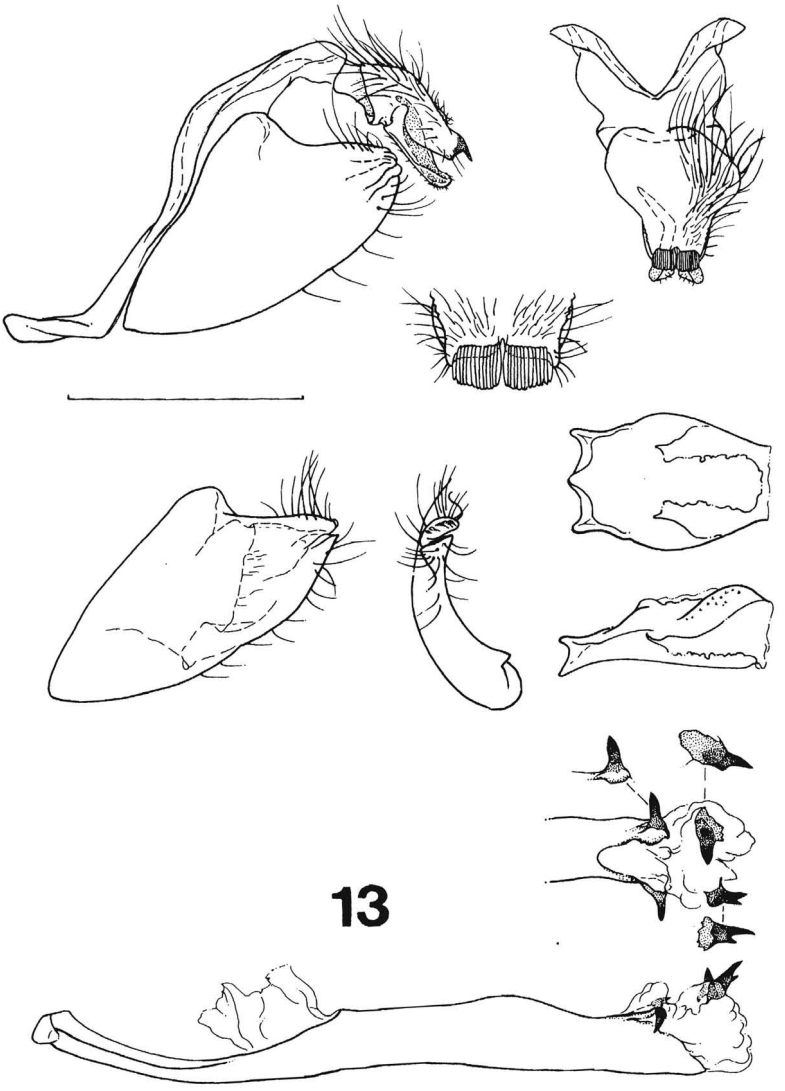


FIG. 13 Male genitalia of *H. venusta* showing uncus (lateral and dorsal aspects, dorsal pectines enlarged), valvae (right inner, left outer and caudal aspects), penis (vesica everted, left lateral, and caudal one-half dorsal aspects). La Parva, 2800 m, III-31-83, Santiago, CHILE, J. Herrera (genitalic dissection # ♂6152-CDM) (IEUM). Scale = 1.0 mm.

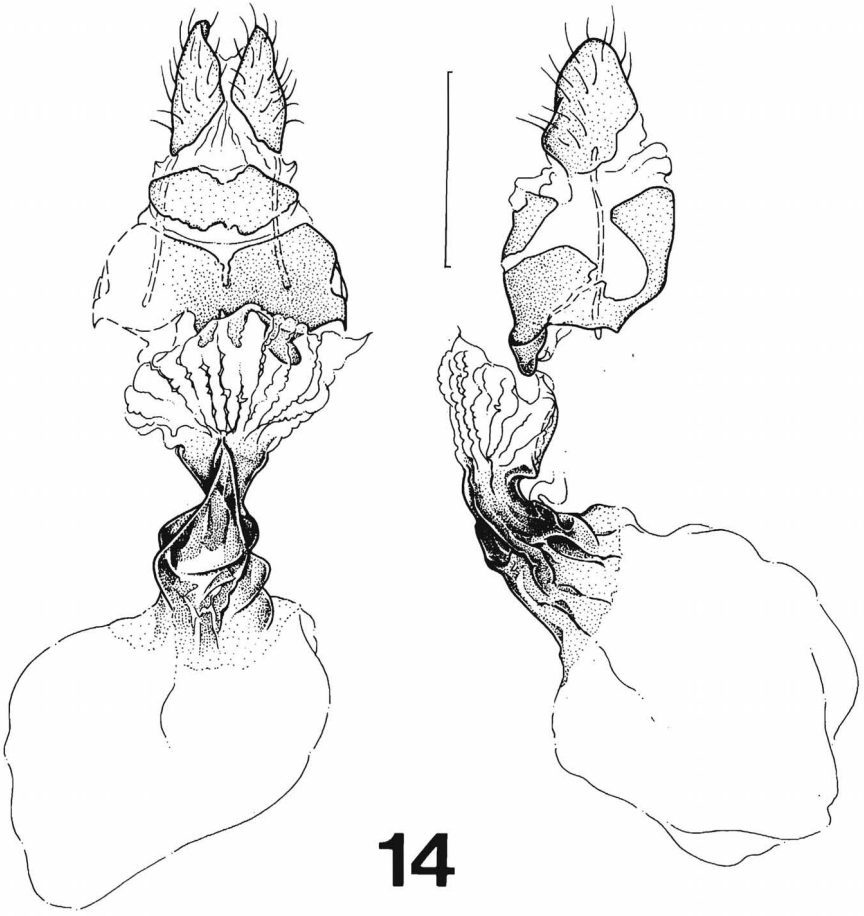


FIG. 14. Female genitalia of *H. ignorans* showing ventral and right lateral aspects. Mucubaji, 3350–3700 m, VI-3-75, Cordillera de Mérida, Mérida, VENEZUELA, M. J. Adams (genitalic dissection # ♀6001-CDM) (CDM). Scale = 1.0 mm.

pearing minutely granular. The ova were relatively few in number; only about a dozen were recoverable.

THE *VENUSTA* GROUP (FIGS. 32, 33)

Superficial Key to the Species

1- Hindwing below within space M1–M3 a pale fulvous ray from end cell to near margin and no dark ray from base to near margin in space Cu2–2A. Fringes broad, nearly or quite exceeding marginal width of space Cu1–Cu2 2

1- Hindwing below with at least basal half of space M1–M3 black, no fulvous ray from end cell to dark marginal border, and a dark ray from base nearly or quite to margin in space Cu2–2A. Fringes not as broad as marginal width of space Cu1–Cu2 ..... *H. lamasi*, new species

FIG. 15. Female genitalia of *H. adriennae* showing ventral and right lateral aspects, paratype. E. above San Pedro de la Sierra, 2900–3900 m, III-11-75, Sierra Nevada de Santa Marta, COLOMBIA, M. J. Adams (genitalic dissection # ♀6108-CDM) (UCD). Scale = 1.0 mm.

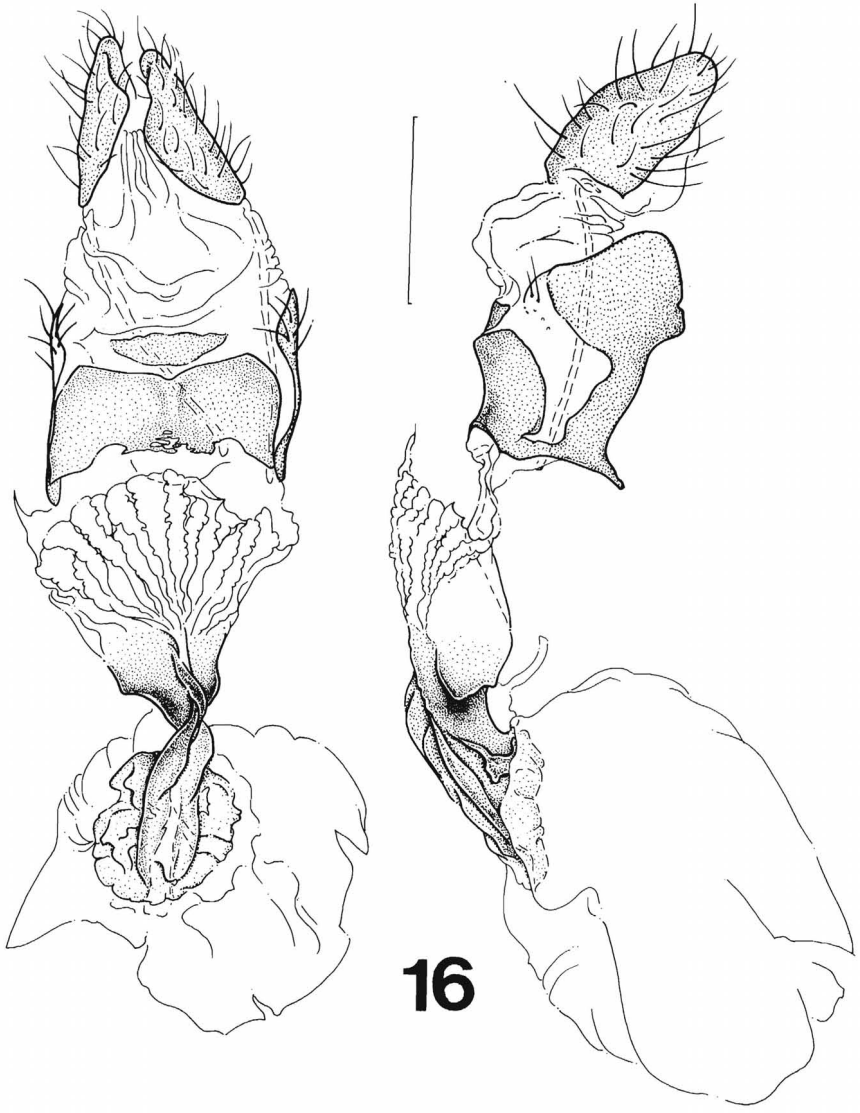


FIG. 16. Female genitalia of *H. lamasi* showing ventral and right lateral aspects, paratype. Same data as Fig. 6 (genitalic dissection #6269-CDM) (MUSM). Scale = 1.0 mm.

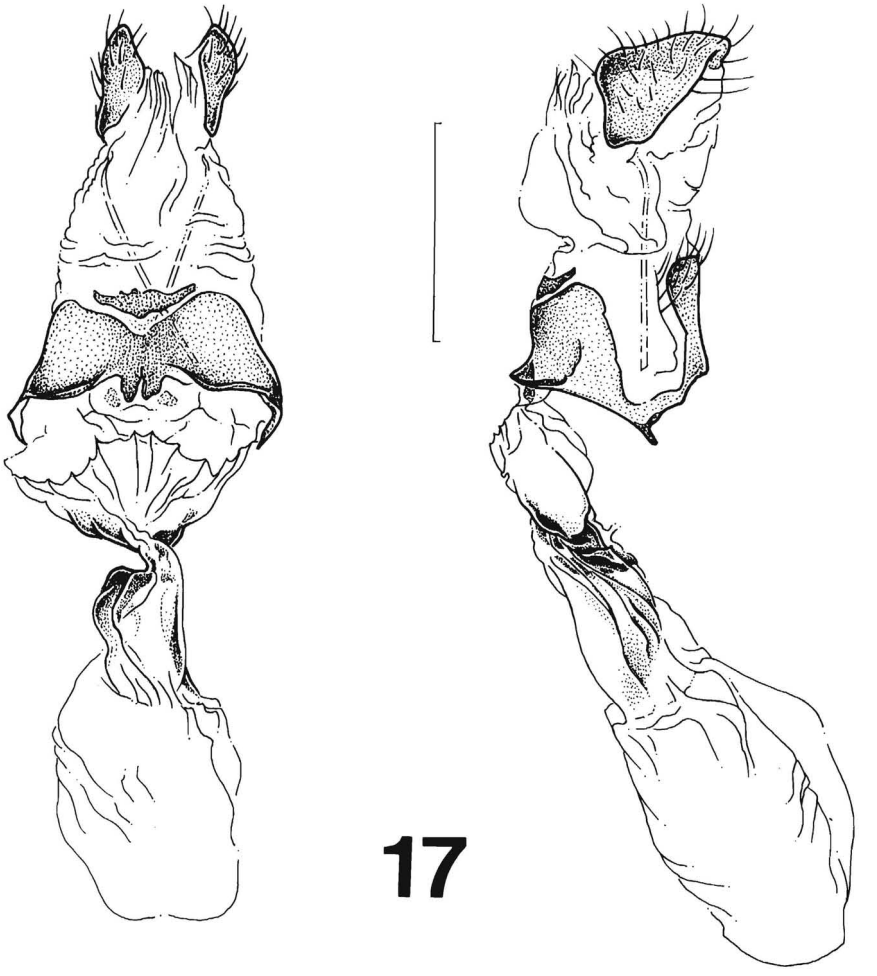


FIG. 17. Female genitalia of *H. kenhaywardi* showing ventral and right lateral aspects. Geisers del Tatio, 4590 m, I-7-72, Cord. Antofagasta, CHILE, J. Herrera (genitalic dissection # ♀3865-JH) (CDM). Scale = 1.0 mm.

2- Hindwing below with veins whitish, contrasting with macular band, pale ray in space M1–M3 full width of space from end cell to near margin . . . . *H. venusta* (Hayward)
2- Hindwing below with veins pale fulvous as in macular band, pale ray in space M1–M3 narrow from end cell to macular band then broad to near margin . . . . . *H. kenhaywardi,* new name

***Hylephila lamasi* MacNeill & Herrera, new species**

(Figs. 6, 11, 16, 25, 26, 32)

Description. *Male.* **Head.** Palpi not shaggy, third segment clearly protruding from whitish scales of front of second segment. Eyelash short, less than one-half eye diameter.

Antennae dorsally black, ventrally checkered black and buff, club about one-third length of shaft, nudum brown, shaft length subequal to dorsal width of head. Vestiture of long, golden hairs.

Body. Dorsal vestiture of long, golden hairs, tegulae similar, outwardly edged with buffy, golden scales. Ventrally pectus buff, remainder similar with hairs laterally golden.

Wings. Forewing pointed, length holotype 13.5 mm, paratypes 12.5–14.0 mm (n = 6). Above, fulvous extensive from base to deeply indented fuscous border (obscuring apical spots), except a dark dash from end cell nearly to border in space M1–M2 and the upper half of space M2–M3; a small brown discal spot mid-space Cu1–Cu2 almost centered over a dark brown, discal dash in upper half of space Cu2–2A where wedge-shaped border spot is elongate inwardly to partially lap under the discal brown dash, this space shaded dusky to base, more or less completing a dark discal ray from base to margin. Below as above but fuscous markings much reduced; no (or faint) discal brown spot in space Cu1–Cu2; basally except costad, fuscous projecting discally as two prongs, anteriorly under vein Cu2 and posteriorly under 2A. Hindwing above fulvous extensive from base in lower half of cell nearly to margin above Cu2 through wedge-shaped dark border spots; dusky ray below cell and Cu2, then a fulvous ray above 2A, and vannal area dusky fulvous above and below vein 3A. Fulvous extension anteriorly in submarginal spaces M1–M3, Rs–M1, and distally along vein Rs. Conspicuous fuscous basal half space M1–M3, space Rs–M1, and anterior to vein Rs. Below as above, veins fulvous, basal half space M1–M3 fuscous and fuscous ray from base to near margin in anterior half space Cu2–2A. Fringes above and below fulvous anteriorly, orange vannally.

Genitalia. Eighth tergite (Fig. 6) with terminal bristle sockets scarcely conspicuously enlarged caudad, squarish in cross section. Valva (Fig. 11) in lateral view, length of basal margin slightly more than one and one-half times valva depth. Penis slender, very long, more than twice length of valva; titillators sclerotically strapped to penis, similar, the right slightly to conspicuously (compare Figs. 11a and 11b) more slender than the left (and longer); cornuti asymmetric, one simple, unidentate (usually broadly bidentate to tridentate), the other narrowly bidentate. Juxta with ventral clefts difficult to see, apparently one-half or more length of juxta; separated mid-ventral floor scarcely sclerotized and evidently not nearly or quite reaching caudal margin of juxta. Uncus with caudal cleft greatly exceeding pectines cephalad in dorsal view; pectines minute, dorsally arched. Gnathos well sclerotized dorsally but ventrally only caudad, projecting caudad well beyond pectines in dorsal view, and diverging well ventrad from uncus.

Female. As male. Forewing pointed, length 13.5 mm–15.0 mm (n = 4). Markings as male but fuscous more extensive above and below.

Genitalia (Fig. 16). Eighth sternite a slender band, its width less than one-fourth its length. Lamella postvaginalis medially united. Antrum entirely membranous. Ductus bursae sclerotized just caudad of the ductal constriction (which is immediately ventrad of the ductus seminalis junction) as well as cephalad and ventral to the corpus bursae, left-lateral pocket scarcely produced.

Types. Holotype ♂, PERU, Ica, Paracas, sea level, 5-IV-75, G. Lamas M. (genitalia dissection # ♂3740-JH) in MUSM.

Paratypes. 5 ♂ and 4 ♀ as follows (5 ♂, 4 ♀ dissected): 2 ♂, same data as holotype (genitalic dissections #s ♂3739-JH, ♂6192-CDM); 3 ♂, 3 ♀, PERU, Lima, Salinas de Chilca, 14-IV-74, G. Lamas (genitalic dissections #s ♂6267-CDM, ♂6268-CDM, ♀3741-JH, ♀6193-CDM, ♀6269-CDM, ♂SEM #5-CDM); 1 ♀, PERU, Ancash, Gramadal, 10 m, 9-II-76, G. Lamas (genitalic dissection # ♀6266-CDM). Paratypes will be deposited in MUSM, USNM, and CAS.

Etymology. We are delighted to name this distinctive species for Gerardo Lamas, who collected all known specimens as well as a number of high Andean *Hylephila* in Peru, and who has contributed enormously to our knowledge of the Lepidoptera of Peru.

Diagnosis and discussion. This species is distinguished from all other *Hylephila* by the extensive fulvous above cutting deeply into the fuscous margins and interrupted on the forewings by a prominent, elongate, fuscous spot beyond the end of the cell and by the more or less conspicuous elongate, dark, spot in the upper half of space Cu2–2A connecting, ray-like, the base to the margin. The hindwing has these two markings as fuscous rays

more prominent from base to margin. On the underside these markings are repeated, particularly on the hindwing where the fulvous is extensive along the veins (Figs. 25, 26). The males lack a stigma, and the genitalia of both sexes differ from those of others in the genus as shown in Figs. 11 and 16.

This species is known only from three widely separated, maritime localities in south-central Peru, where it has been taken from February to April. Ova were recovered from one dissection (# ♀6266-CDM), and they were large for the genus. Measurements averaged 0.85 mm in diameter and 0.59 mm in height; range 0.83 mm × 0.56 mm to 0.86 mm × 0.63 mm (n = 7). The shape was evenly hemispherical without a basal flange; and the reticulation was minute, appearing smooth except under 50× magnification, when it became evident and seemed to be evenly expressed from near the base to the micropyle. The female carried relatively few eggs, and only nine were recoverable.

Hylephila kenhaywardi MacNeill, new name
(Figs. 7, 12, 17, 27, 28, 32, 33)

Hylephila bouletti, (sic) Ureta, 1938c (nec Mabille, 1906). Rev. Chile Hist. Nat. (Pura Apl.) 42:298.

Andinus venustus haywardi Ureta, 1956. Bol. Mus. Nac. Hist. Nat. 26:174, 175, pl. II, figs. 6a, 6b, 7; Ureta, 1963. Bol. Mus. Nac. Hist. Nat. 28:78; Camousseight, 1980. Mus. Nac. Hist. Nat., Publ. Ocas. no. 32:32.

Hylephila venusta haywardi, Peña & Ugarte, 1997. Las mariposas de Chile, the butterflies of Chile, p. 133, fig. (photo only).

Holotype. When Ureta (1956) described *A. venustus haywardi*, Evans (1955) had already placed *Andinus* Hayward as a junior synonym of *Hylephila* Billberg. *Hylephila venusta haywardi* thus became a junior secondary homonym of *Hylephila fulva* ssp. *haywardi* Bryk (1944) when it was described.

The male holotype of *A. venustus haywardi* Ureta is in the collection of MHNS (No. 790) (Camousseight 1980). One of us (C.D.M.) has examined this specimen and designated it the holotype of *Hylephila kenhaywardi* MacNeill, new name for *Andinus venustus haywardi* Ureta. It bears the following labels:

Red, black bordered, type set: "HOLOTIPO"
White, black-bordered, hand printed: "Río Toro/3400 mts/19-1-37"
White, unbordered: "♂"
White, unbordered but vertically divided by black line:
to left, type set: "CHILE/M.N./H.N."
to right, type set: "Tipo/No"
below, hand printed: "790"
Large, white, black-bordered, hand-printed: / "Andinus/venustus/haywardi/Ureta '56"
lower left, type set: "Det."
Red bordered, type set: "HOLOTYPE"
hand-printed: "*Hylephila kenhaywardi*/MacNeill '95"

Etymology. The name is a familiar, abbreviated combination of Kenneth Hayward, whom Ureta (1956) originally honored in naming this skipper.

Description. *Male.* **Head.** Palpi shaggy, third segment scarcely protruding from long, hair-like, buffy-white vestiture of second segment where black hairs are conspicuous laterally. Eyelash about one-half diameter of eye. Antennae dorsally black flecked with golden scales, ventrally buff-white; club nearly or quite one-half length of shaft, nudum one-half length of club; shaft length slightly greater than dorsal width of head.

Body. Dorsally and tegulae black under vestiture of dense, long, golden hairs, ventrally buff-white; legs golden buff.

Wings. Forewing stubby, rounded, average length 10.0 mm, range 9.0–11.0 mm (n = 42). Markings of both wings above with fulvous a cold tawny, fuscous marginal spots sagittate, partially obscured by tawny overscaling except for a fine, dark brown, marginal line. Forewing fringes orange to pale, grayish brown; hindwing mostly pale orange. Below, fuscous markings variable, light to dark but usually appearing vaguely defined owing to ex-

FIG. 18. Female genitalia of *H. venusta* showing ventral and right lateral aspects. Río Guenquel, III-4-69, ARGENTINA, J. Herrera (genitalic dissection # ♀3865-JH) (CDM). Scale = 1.0 mm.

tensive pale, tawny overscaling; costal area above forewing cell grayish. Hindwing with veins tawny, not contrasting with pale, tawny macular band, fulvous ray in space M1–M3 usually with that portion proximal to macular band irregularly reduced, not equal to full width of space M1–M3 from macular band to cell; fine, brown, marginal line on both wings. Fringes both wings basal half gray, distal half brown to tawny, that of the hindwing tornus usually all tawny.

Genitalia. Eighth tergite (Fig. 7) with terminal bristle sockets scarcely enlarged, squarish in cross section. Valva (Fig. 12) in lateral view, basal margin more than one and one-half times valva depth, dorsal margin more or less evenly tapered caudad, caudal half

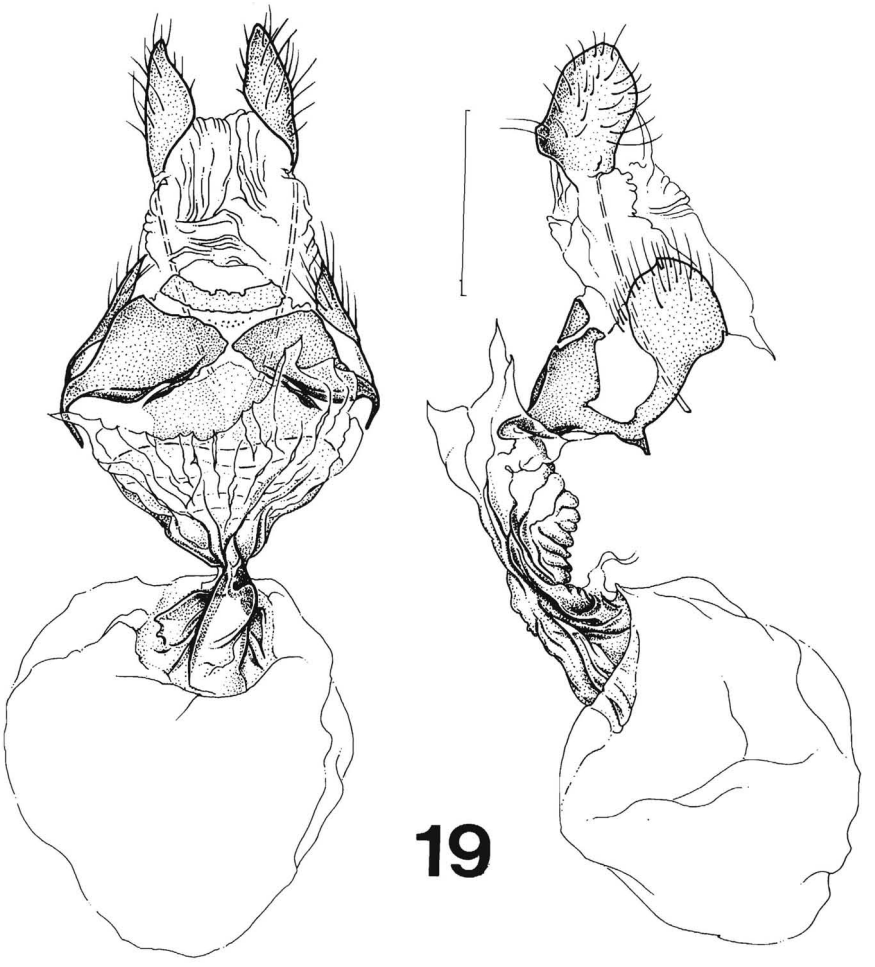


FIG. 19. Female genitalia *H. venusta* showing ventral and right lateral aspects, same data as Fig. 13 (genitalic dissection # ♀6153-CDM) (IEUM). Scale = 1.0 mm.

of ventral margin nearly straight to narrow "beak." Penis less than twice length of valva; titillators sclerotically strapped to penis, similar, slender, and evenly tapered from broad base to curved, thorn-like point; cornuti nearly similar, bidentate. Juxta with ventral clefts one-half or more length of juxta; separated midventral floor not nearly reaching caudal margin of juxta. Uncus in dorsal view with anterior half bulbous, laterally emarginate to the parallel-sided caudal half; caudal cleft scarcely to distinctly exceeding the pectines cephalad; pectines not minute, arched dorsad.

Female. Entirely as male except genitalia (only distinguishable by examination of abdominal tip), except subtly, and separable from the next species as follows:

Wings. Forewing length average 11.0 mm, range 10.0 mm–12.0 mm (n = 6). Hindwing apex only slightly produced, vein Rs not or scarcely longer than 2A of forewing.

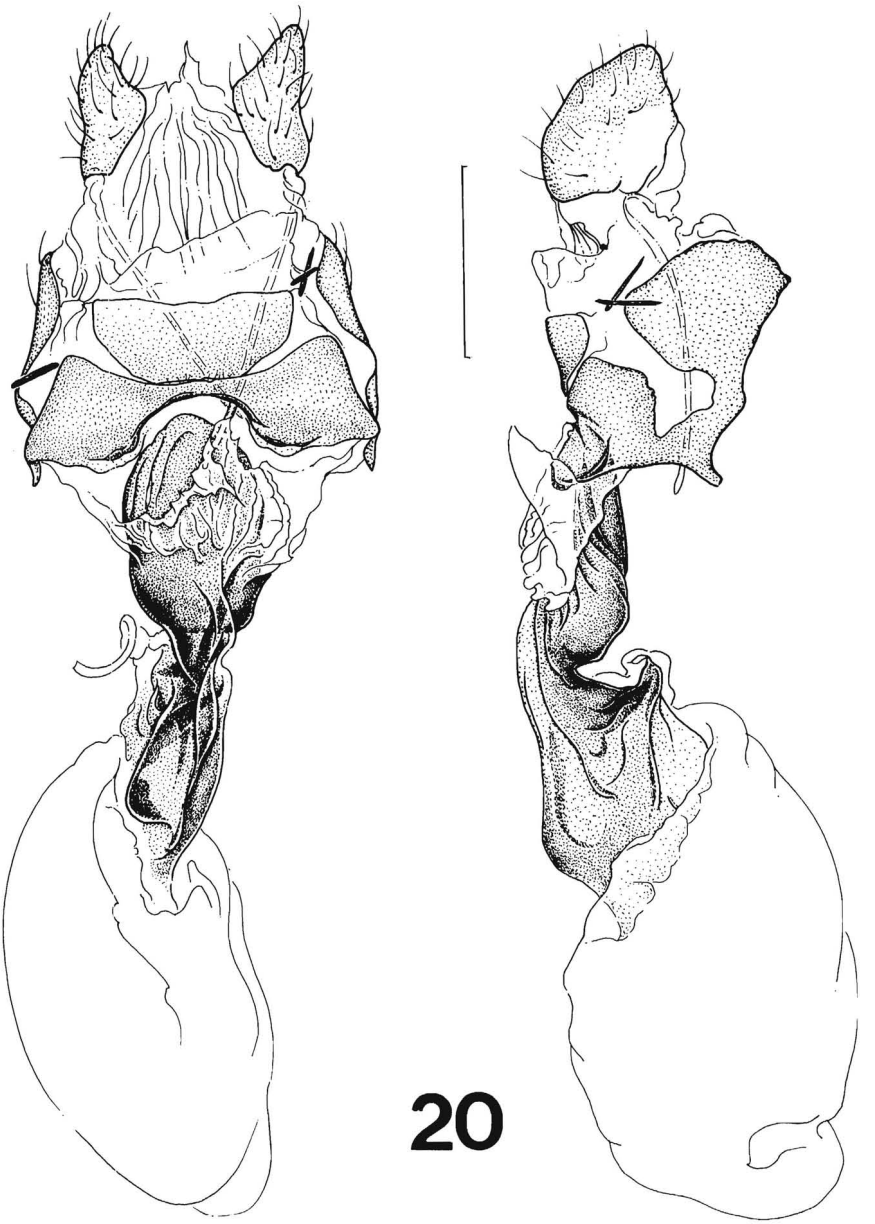
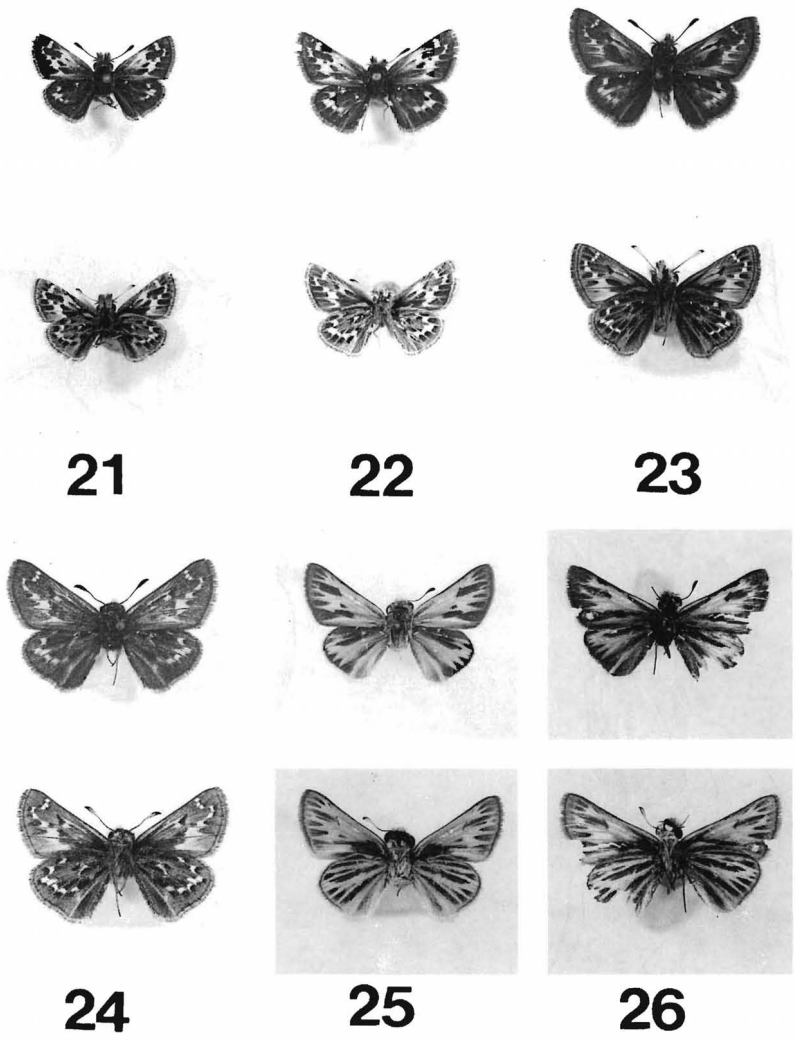
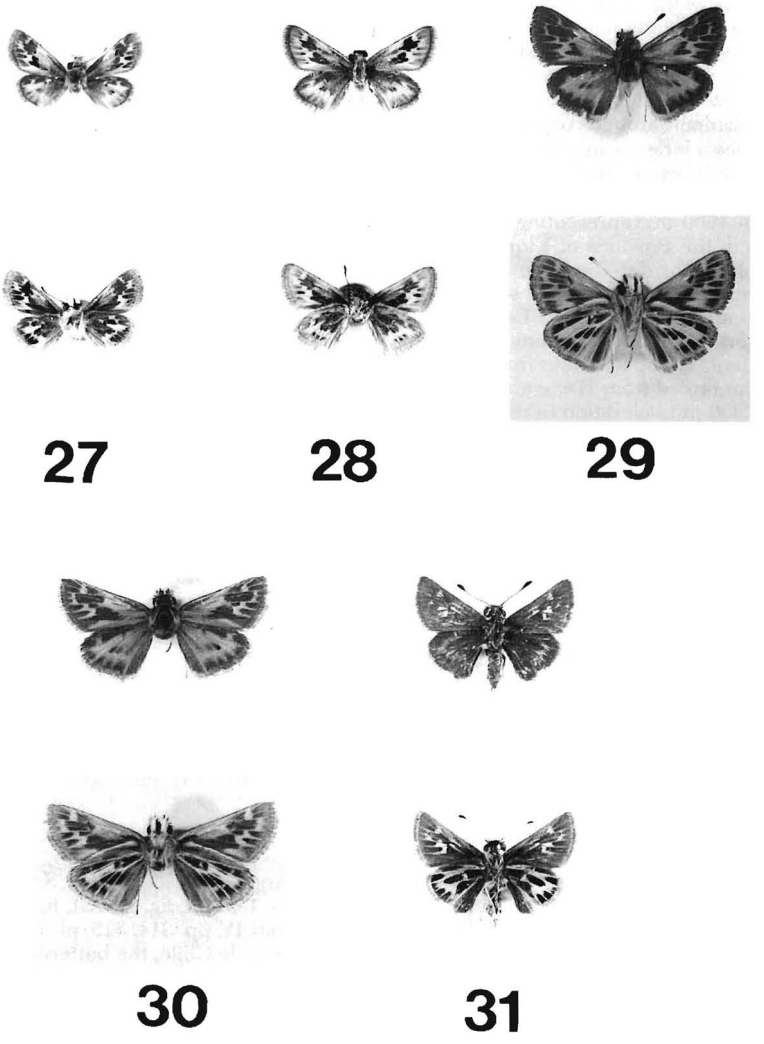


FIG. 20. Female genitalia of *H. ancora* (Plötz), not treated in this paper, but showing presumed brittle, dorsocaudal bristles of male lodged in caudopleural membrane of female. Rio Lavatudo, estr. Lages—S. Joaq, S. Joaquim, 1000 m, II-24-73, S.C., BRASIL, O. Mielke (genitalic dissection # ♀3746-JH) (UFPC). Scale = 1.0 mm



FIGS. 21–26. Adults of three species of *Hylephila* with males (odd numbers) and females (even numbers) in dorsal views (above) and ventral views (below) (all ×1). **21, 22,** *H. ignorans* male, Mucubaji Research Sta., II-6-7-78, Mérida, VENEZUELA, J. Heppner (genitalic dissection # X-1678-JMB) (USNM). Female, same data as Fig. 14. **23, 24,** *H. adriennae* male holotype, other data as Fig. 3**b** (genitalic dissection # ♂3668-JH) (CAS). Female paratype, other data same as Fig. 15 except III-5-75, G. E. Bernard (genitalic dissection # ♀6151-CDM) (CDM). **25, 26,** *H. lamasi* male holotype, data same as Fig. 11**a** (MUSM). Female paratype, other data same as Fig. 11**b** (genitalic dissection # ♀3741-JH) (MUSM).



FIGS. 27–31. Adults of two species of *Hylephila* and one species of *Linka* with males (odd numbers) and females (even numbers) in dorsal views (above) and ventral views (below) (all ×1). **27, 28,** *H. kenhaywardi* male, Baños El Toro, I-7-72, CHILE, J. Herrera (genitalic dissection # ♂3704-JH) (CDM). Female, Ojos de Hecar, Nov. 1965, Cord. Antofagasta, CHILE, L. Peña (genitalic dissection # ♀6206-CDM) (AME). **29, 30,** *H. venusta* male, Pradera del Sol, II-21-65, Chillán, CHILE, J. Herrera (genitalic dissection # ♂3915-JH) (CDM). Female, Termas Chillán, II-20-65, Ñuble, CHILE, J. Herrera (genitalic dissection # ♀3702-JH) (CDM). **31,** *Linka lina* male, Mts. at Bogotá, COLOMBIA, Carnegie Mus. acc. # 5537 (CMNH).

Genitalia (Fig. 17). Eighth sternite a slender band broadest medially and tapered laterad, its width about one-fourth its length. Lamella postvaginalis broadly united medially and not abruptly bent cephalad. Antrum membranous, dorsally not transversely plicate and slightly sclerotized caudad, immediately in contact with lamella postvaginalis, appearing as a small, median, rectangular, or at least parallel-sided, extension of the lamella, and sclerotized dorsally cephalad and laterally caudad of ductus seminalis, then anteriorly only dorsolaterally around conspicuous left-lateral pocket, and weakly right-laterally cephalad a distance a little greater than length of antrum.

Distribution. We have seen 51 ♂ and 6 ♀ (14 ♂, 6 ♀ dissected) from the high desert valleys and plateaus west of the crest of the Chilean Andes, most from elevations of 3000–4600 m, representing a few, widely separated, localities. The type locality is Río Toro in the Province of Elqui. We have examined additional specimens from Provincia Elqui (Baños del Toro, Río Seco, and Río La Laguna [near Paso Agua Negra]). From Provincia Copiapó we have seen material labelled Caballo Muerto, Salar Maricunga, and Hacienda Castilla. For El Loa Province we have seen material from Ojos de Hecar and Geisers del Tatio, and from the Province of Parinacota we have specimens from Murmuntani. The species flies from January to March.

The record from Hacienda Castilla is puzzling. The locality is far from the Andes. It is only 800 m in elevation in the Llanos Hornillos in western Copiapó Province, and represents a region quite different geographically, altitudinally, and ecologically from the (apparent) usual habitat of *H. kenhaywardi*. The record requires confirmation and, for now, must be considered doubtful.

Discussion. This is one of the smallest species of the genus. It is easily recognizable by reference to Ureta's (1956) figures (and by our Figs. 27, 28) of the adults. The pale fulvous with soft fuscous markings above and below, and the lack of contrasting white veins on the hindwing below, together with its small size, will separate this round-winged species from *H. venusta* and all other species of the genus.

Thirty-two ova were dissected from one female (# ♀6206-CDM) and were small. Eight were sufficiently mature to measure and were surprisingly variable. Average diameter was 0.62 mm by 0.50 mm height. They ranged fron 0.58 mm × 0.40 mm to 0.66 mm × 0.50 mm. The reticulation was minute but shallowly discernable at 50× magnification.

Hylephila venusta (Hayward)
(Figs. 8, 13, 18, 19, 29, 30, 33)

Pamphila sp., Ureta, 1935. Bol. Mus. Nac. 14:94.

Hylephila boulleti, Ureta, 1938a, (nec. Mabille, 1906). Bol. Mus. Nac. Hist. Nat. 16:115–116; Ureta, 1938b. loc. cit. p. 129.

Andinus venustus Hayward, 1940. Rev. Soc. Entomol. Argent. 10:285, 286, figs. 8, 9; Hayward, 1950. Genera et species anim. Argent. II, pp. 39, 40, Tabs. IV, fig. 15, XII, figs. 17, 18.

Hylephila venustus, Evans, 1955. Cat. Amer. Hesp. part IV, pp. 314, 315, pl. 75.

Hylephila venusta, Peña & Ugarte, 1997. Las mariposas de Chile, the butterflies of Chile, p. 133, figs. (not photo).

The holotype is from (the Andes east of) Chillán, Chile, and is in the collection of IML, Tucumán, Argentina.

Description. *Male*. **Head.** Palpi somewhat shaggy, third segment scarcely to slightly protruding from white, hair-like vestiture of front of second segment. Eyelash short, not

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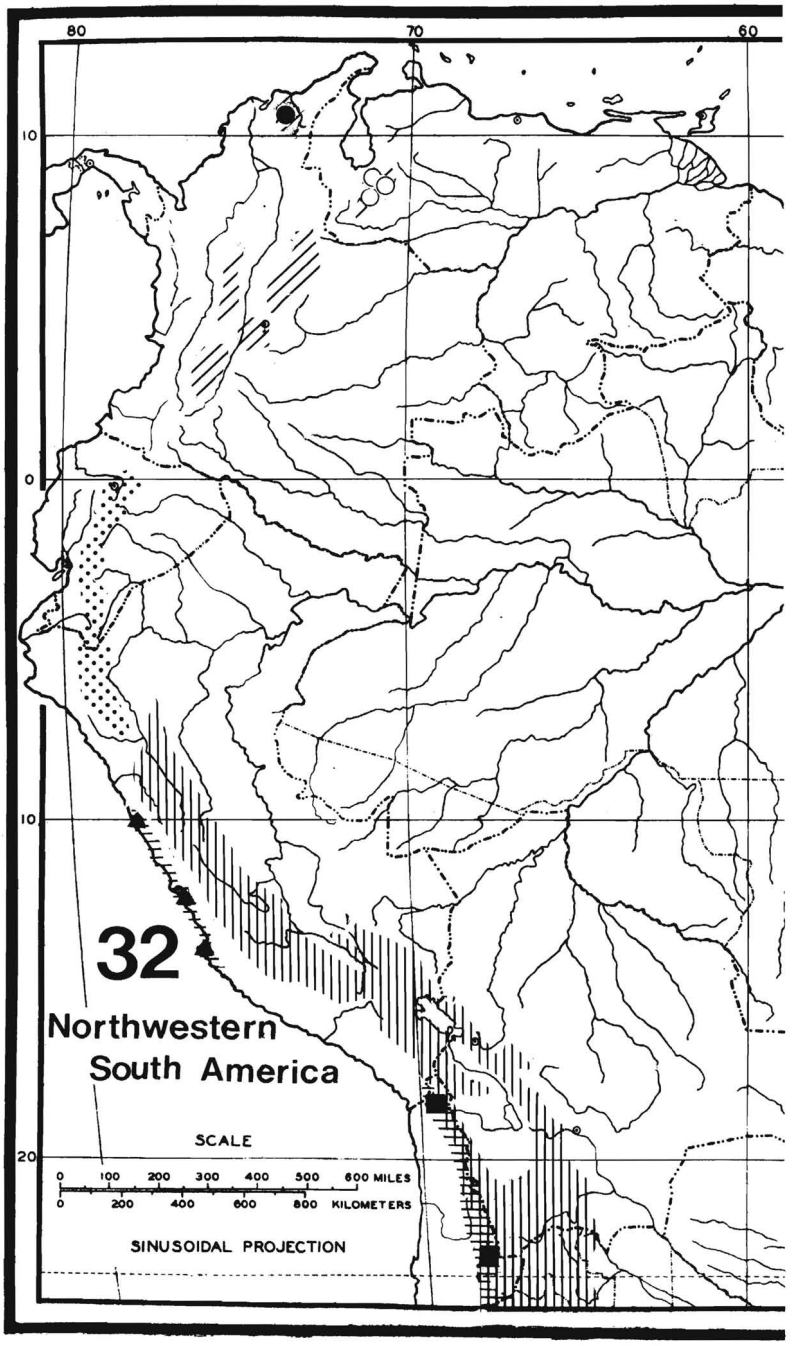
FIG. 32. Postulated distribution of high Andean *Hylephila* species groups: *ignorans* group, diagonal line overlay; *phyleus* group (in part), stipple overlay; *boulleti* group, vertical line overlay; *venusta* group (including coastal Peruvian species), horizontal line overlay. In *ignorans* grp., solid circle = *H. adriennae*, open circles = *H. ignorans*; in *venusta* grp., solid triangles = *H. lamasi*, solid squares = *H. kenhaywardi*.


80
70
60
10
0
10
20
32
Northwestern
South America
SCALE
0 100 200 300 400 500 600 MILES
0 200 400 600 800 KILOMETERS
SINUSOIDAL PROJECTION

or scarcely exceeding one-half eye diameter. Antennae dorsally black, anteriorly weakly checkered black and white on shaft, golden on and near club, ventrally white on shaft, buff to golden on club; club about one-third length of shaft, nudum slightly less than one-half length of club, pale brown; shaft length about equal to or slightly greater than dorsal width of head.

Body. Dorsally and tegulae clothed with fine, long, golden hairs; ventrally and legs shaggy with white to buff-white vestiture.

Wings. Forewings stubby, rounded, length 12.0–14.5 mm (n = 17). Above reddish fulvous with fuscous discal bar in spaces M1–M3, Cu2–2A, and centered over the latter, a smaller fuscous spot; border broad and deeply cut by fulvous extensions along veins. Fringes basally dark, terminally orange. Below as above but fuscous reduced, base of costal cell whitish, and narrowly on costa to apex and basal one-half of fringes gray. Hindwing above reddish fulvous as on forewing, fuscous border broad, usually much less deeply indented along veins than forewing, continuing broadly around costa to base, fringes basally brown, terminally orange but vannally entirely orange. Below fulvous paler than on forewing, space M1–M3 clear, pale fulvous from cell nearly to margin, veins usually white, separating discal, wedge-shaped black spots in spaces M3–Cu1, Cu1–Cu2, and Cu2–2A, and with marginal black spots more or less continuously from at least Cu1–Cu2 to Rs–M1, basal spot in cell scarcely or not separated from black dot end cell. Costal cell and space 2A–3A dusky from base to termen. Fringes from apex to vein 2A basal one-half whitish, terminally dusky.

Genitalia. Eighth tergite (Fig. 8) with terminal bristle sockets scarcely enlarged caudad, somewhat squarish in cross section. Valva (Fig. 13) in lateral view, basal margin slightly more than one and one-half times valva depth, broadly beaked owing to strongly emarginate dorsal margin and greatly and continuously curved ventral margin. Penis long, nearly or quite twice length of valva; titillators scleroticaly strapped to penis, similar, very slender, and nearly straight with parallel sides; cornuti asymmetric, one narrowly bidentate, the other weakly bidentate or tridentate with one tooth long and one much shorter. Juxta with ventral clefts about one-half length of juxta, separated midfloor nearly or quite reaching caudal margin of juxta. Uncus in dorsal view anterior half bulbous, laterally emarginate to parallel sided or tapered caudal half; caudal cleft not to somewhat exceeding pectines cephalad; pectines normal, not minute.

Female. Head and body very like male. Antennal club longer, nearly one-half length of shaft.

Wings. Forewing length 13.5–15.5 mm (n = 5). Markings slightly stronger. Hindwing apex more produced, vein Rs clearly longer than vein 2A of forewing, below veins whitish to pale fulvous.

Genitalia (Figs. 18, 19). Eighth sternite a slender band, its width one-fourth or less its length. Lamella postvaginalis nearly or just medially united, the anterior border medially **V**-shaped with the ends anterolaterally bent ventrad. Antrum membranous, dorsally usually transversely plicate and scarcely sclerotized except for a weakly sclerotized triangular caudal area fitting into the anterior **V** of lamella postvaginalis and posterolaterally abruptly sclerotized and flanged ventrad, more or less sclerotically connected ventrally to bend of lamella postvaginalis. Ductus bursae gradually sclerotized anteriorly just caudad of ductal constriction, then cephalad sclerotized mainly laterally, leaving mid-ventral and mid-dorsal areas membranous, expanded ventrocephalad a distance about equal to or less than length of antrum, left-lateral pocket scarcely produced.

Distribution. *Hylephila venusta* flies from January through March at high elevations where it ranges from the southern Andes at Río Guenquel in northeastern Santa Cruz Province, Argentina (opposite Puerto Ibáñez, Chile), north to La Parva in Santiago Province, Chile. The type locality is (east of) Chillán in Ñuble Province, Chile, and Hayward (1940) listed it from nearby Neuquén Province, Argentina. We have seen only 19 ♂ and 5 ♀ (15 ♂, 5 ♀ dissected) from the above localities as well as from Laguna de la Laja, Bio Bio Province and Volcan San José, Cordillera Province, all in Chile.

Discussion. The population samples we have seen are small, and some of the specimens are well worn, but they suggest perhaps three differing, widely separated, populations based upon differences in markings and slight differences in male and female geni-

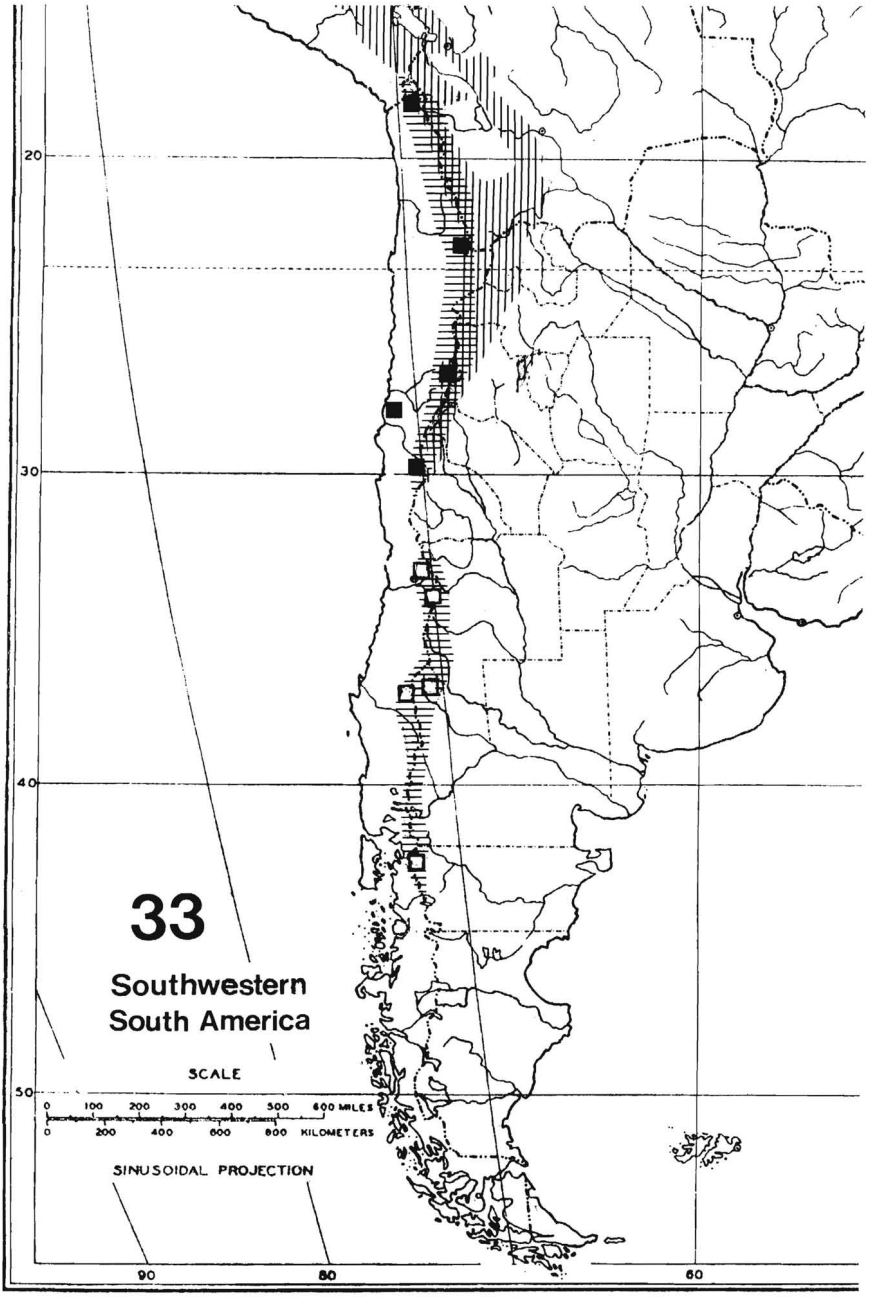


FIG. 33. Postulated distribution of high Andean *Hylephila* species groups: *boulleti* and *venusta* grps. overlay as in Fig. 32. In *venusta* grp., solid squares = *H. kenhaywardi*, open squares = *H. venusta*.

talia. These three occur in the Andes east of Santiago, Chile; in Chile and Argentina east of Chillán, Chile; and in Chile and Argentina southeast of Puerto Aisén, Chile.

The northernmost material examined, from east of Santiago (4 ♂, 3 ♀), is somewhat worn but appears paler than does that from the vicinity of the type locality. The veins of the underside of the hindwings are less whitened, especially on females, and the discal fuscous markings on the forewings are heavier. The male valva is broader and caudally more blunt, the uncus in dorsal view is more bulbous cephalad, and the lateral margins of the caudal half are more tapered, (i.e., not parallel) than in more southern material. In the female (Fig. 19) the lamella postvaginalis is vaguely or distinctly separated midventrally, but the antrum is distinctly transversely plicate, and the left-lateral pocket of the ductus bursae is small but evident.

Specimens from the vicinity of the type locality we have seen (13 ♂, 1 ♀) tend to have a deeper, more reddish fulvous and broader fuscous borders above, with less bold discal fuscous markings; the veins of the hindwings below are white even in the female. The male valva is more slender and caudally more pointed than in either more northern or more southern material; and the female has the two halves of the lamella postvaginalis conjoined midventrally, the antrum is transversely plicate dorsally, and the ductus bursae has the left-lateral pocket obscure.

In the southernmost specimens examined (2 ♂, 1 ♀) the fulvous is paler than that of the Chillán material, but the female is not as pale nor as boldly marked with fuscous as are the La Parva specimens. The males have white veins on the hindwings below, but the female does not. In the males the valva is broader and caudally more blunt than in males from Chillán, but not as blunt as in males from east of Santiago. The female (Fig. 18) has the two halves of the lamella postvaginalis narrowly joined, the antrum is not clearly transversely plicate, and the left-lateral pocket of the ductus bursae is not evident.

Ureta (1938a) reported this species (as *H. boulleti*) visiting flowers of white clover, *trifolium repens* (L.), and *Medicago sativa* (L.) (both Fabaceae).

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"*ARGYRESTHIA VISALIELLA* CHAMBERS 1875" (ARGYRESTHIIDAE), A *NOMEN NUDUM*

Additional key words: Lepidoptera, North America, taxonomy.

While checking the type localities of species names attributed to Vactor T. Chambers for an annotated checklist of Kentucky Lepidoptera, I encountered a name that stands in synonymy of *Argyresthia apicimaculella* Chambers 1874 (Argyresthiidae; type locality: "Kentucky"). The name is "*visaliella* Chambers 1875," as the two names are listed as entry #2438 in Hodges et al. (1983).

This same synonymy appears as #6456 in Dyar ("1903" [1904]) along with a page reference to Chambers' presumed original description; however the publication date is quoted erroneously by Dyar as "1874." In that 1875 paper we find not an original description of *visaliella* but a reference to it in the discussion of "*Argyresthia goedartella* Auct." in which Chambers states, after describing a specimen presumed to be that species, "It is a more handsome species than *A. andereggiella*, next after which as to beauty I would place *A. visaliella* Cham."

In searching for the original description of "*A. visaliella*" I found only one "*visaliella*"—that of Chambers 1873, p. 113, described in *Cyane* Chambers, but listed in Hodges et al. (1983) #307 as *Choropleca vesaliella* [sic] (Cham. 1873). The type locality of this name is Visalia, Kentucky, which is in Kenton County not far south of Chambers' home town of Covington. Chambers wrote "Several specimens captured in June resting on forest trees at Visalia, Kentucky." This constitutes a rare specific type locality published by Chambers.

Thus it appears that "*A. visaliella* Chambers" is a *nomen nudum*. Also the name *Choropleca visaliella* (Cham. 1873) is misspelled in Hodges et al. (1983) and was also misspelled in Forbes (1923).

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ERRATA

STUDIES IN THE GENUS *HYLEPHILA* BILLBERG, I. INTRODUCTION AND THE *IGNORANS* AND *VENUSTA* SPECIES GROUPS (HESPERIIDAE: HESPERIINAE)

In the above paper by C. D. MacNeill and J. Herrera G. (Journal of the Lepidopterists' Society 52(3):277–317) there were two typographical errors in the text:

pp. 283–287. The legends for Figures 4, 5, 6, 7, and 8 should read

". . . (descaled to show caudal array of tuberculate bristle-sockets at 70× with inset enlarged below), . ."

pp. 316, lines 7 and 8. The reference should read:

_____. 1940. Hesperioidea XI. Especies nuevos para nuestra fauna y anotaciones sobre otros. Rev. Soc. Entomol. Argent. 10:279–297, figs. 8, 9.