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FROM COSTA RICA

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ABSTRACT

A new genus (*Neochlodes*) and two new species (*Cyclosemia caerulea* Austin & DeVries, *Neochlodes maculosus* Austin & DeVries) of HesperIIDae are described from Costa Rica.

Key words. Central America, butterflies, genitalia, HesperIIDae, Neotropical, *Cyclosemia*, *Neochlodes*

INTRODUCTION

Although the butterflies of Costa Rica are among the best known in the Neotropics (DeVries 1983, 1987, 1997), our basic understanding of the skippers (HesperIIDae) still remains rudimentary. Among recently surveyed collections from that country, we encountered two undescribed species of this family, one belonging to an undescribed genus. These are described herein as a follow-up to a previous taxonomic paper (Steinhauser and Austin 1993).

SYSTEMATICS

Cyclosemia caerulea Austin & DeVries, new species

Figs. 1A,B & 2

Description. Male - forewing length = 16.2 mm (holotype), 16.0 mm (paratype); forewing apex rounded, termen of both wings convex; dorsal ground color brown, overscaled lightly with ochreous; forewing with darker brown as broad marginal band, curved postmedial band, and medial-basal band; large black oval macule at distal end of discal cell with pair of very pale blue pupils, posterior larger than anterior, macule distinctly outlined narrowly proximad and distad by paler brown overscaled with ochreous; hindwing with bands similar to those on forewing; marginal band narrower than on forewing, postmedial band irregular in course and connected with marginal band at apex and tornus, medial and basal dark brown bands straight; anal margin entirely dark brown; fringes dark brown.

Ventral surface ground color darker than on dorsum; forewing nearly uniformly colored, but distinctly gray-brown posterior to discal cell and CuA_2 , postmedial band and macule in discal cell vaguely indicated, costa sparsely overscaled with ochreous; hindwing largely bright blue, brown anterior to $Sc+R_1$ (costal cell lightly overscaled with blue and ochreous basad), in distal 1/4 of $Sc+R_1-Rs$, and on margin in $Rs-M_1$; dark brown discal areas of dorsum represented by darker blue, these bands lightly overscaled and more or less distinctly outlined with brown anteriorly in postmedial and medial bands.

Head brown, overscaled with ochreous; palpi brown mixed with ochreous scales on dorsum, pale ochreous on sides and venter; antennae dark brown, ochreous on venter distad and beneath club, nudum red-brown, 12 - 13 segments; thorax brown, overscaled

with ochreous on dorsum, gray on sides beneath wings, pectus pale brown, legs black with dense pale blue, white and black scaling proximad, ochreous distad, mid- and hind tibiae with one pair of terminal spurs, hind tibia with dense and mostly blackish tuft on back; dorsal abdomen dark brown with scattered ochreous scales at segments, ventral abdomen white with thin and indistinct black ventro-lateral lines.

Male genitalia - tegumen oval in dorsal view; uncus not divided, caudal end expanded and bulbous in dorsal view; gnathos not divided, narrow; saccus very short; valva with costa-ampulla triangular; ampulla with broad style directed dorso-caudad; harpe narrow, angled dorso-caudad, extending well beyond end of style, caudal end triangular with serrate dorsal edge; aedeagus much shorter than valva, sinuate (Fig. 2).

Female - unknown.

Types. Holotype male with the following labels: white, printed - / COSTA RICA: Heredia / Sarapiquí, La Selva / 1 Feb 1990 50 m / N. Greig 64 /; white with black margin, handprinted - / ♂ / *Cyclosemia* / *herennius* / (Stoll) / det. H. A. Freeman /; white, printed and handprinted - / Genitalic Vial / GTA - 10152 /; red, printed - / HOLOTYPE / *Cyclosemia caerulea* / Austin & DeVries /. Paratype male: same location as holotype, 1 Oct. 1987 (GTA #10022). The holotype will be deposited at the Milwaukee Public Museum. It was reared from a larva feeding on *Costus* sp. (Zingiberaceae).

Type locality. COSTA RICA: Heredia Province; Sarapiquí District, La Selva.

Etymology. The species is named after its bright blue ventral hindwing.

Distribution and phenology. *Cyclosemia caerulea* is known only from the types taken on the east slope of northern Costa Rica.

Diagnosis and discussion. Evans (1953) recognized one species of *Cyclosemia* with a tuft on the hind tibia, *Cyclosemia herennius* (Stoll, 1782) including three subspecies: *C. herennius herennius*, *Cyclosemia herennius elelea* (Hewitson, 1878), and *Cyclosemia herennius subcaerulea* Schaus, 1913. All three appear to be species level taxa and will be elaborated upon elsewhere. These taxa have forewing lengths of about 14-15 mm, although Evans (1953) reported these with wing lengths of 15-16 mm. At the type locality *Cyclosemia caerulea* flies with the similar *C. h. subcaerulea*, *C. h. herennius* and *C. h. elelea*, but *C. caerulea* is noticeably larger than those taxa. *Cyclosemia h. subcaerulea* has more produced and pointed forewing apices and the contrast between the ground color and dark bands is less distinct, especially on the hindwing. The ventral hindwing of *C. caerulea* is similar to that of *C. h. subcaerulea*, but there is almost no brown overscaling associated with the discal bands, but rather these are a darker blue.

Cyclosemia h. herennius and *C. h. elelea* have distinctly more stubby, rounded wings, and the hindwing is less elongate than either *C. caerulea* or *C. h. subcaerulea*. The overall aspect of *C. h. herennius* and *C. h. elelea* is that they are dull gray-brown in contrast with the brighter brown of *C. h. subcaerulea* and especially *C. caerulea*. There is even less contrast between ground color and the darker bands on *C. h. herennius* than *C. h. subcaerulea*. The ventral hindwing of *C. h. herennius* has the blue area nearly entire, and sparsely overscaled with brown, except the marginal and discal bands that are outlined and overscaled with prominent dark brown; that of *C. h. elelea* is similar, but without brown overscaling even though the bands are distinctly outlined. We note that the two males of *C. caerulea* have a pair of spurs on the hind tibiae while all subspecies of *C. herennius* have a single upper spur.

The male genitalia of *C. caerulea* are similar to *C. herennius* and its included subspecies, but differ in detail, especially in the valvae (Fig. 2). The ampulla/costa is most like that of *C. h. subcaerulea* being more broadly triangular than on *C. h. herennius* and *C. h. elelea*. The style orientation in *C. caerulea* is more dorsad than in *C. herennius*, diverging prominently from the orientation of the harpe (the style of *C. herennius* more or less parallels the harpe). The harpe of *C. caerulea* is narrower than in *C. herennius* with the caudal end triangular (of even breadth throughout *C. herennius*) and appears considerably longer than the style (only partially due to orientation differences).

Neochlodes Austin & DeVries, new genus

Figs. 1C, D & 3

Type species: *Neochlodes maculosus* Austin & DeVries, 2001 (see below)

Description. Male (Fig. 1C, D) - forewing length = 17.6 mm (holotype of *N. maculosus*); forewing apex produced and pointed, forewing termen convex, hindwing termen convex, weakly indented posteriorly just before very short tornal lobe; dorsum brown, both wings overscaled basad with ochreous-orange; forewing with stigma from just posterior of vein CuA_1 near its origin to vein CuA_2 and from CuA_2 to $3/4$ the distance to $2A$, gray proximad, erect black scales distad (Fig. 3A); pale yellow hyaline macules as follows: three subapical in straight line, anteriormost minute, posteriormost slightly larger than middle; M_3-CuA_1 , broad lunule separated distad by its width from macule in CuA_1-CuA_2 ; CuA_1-CuA_2 , very large, more or less trapazoidal, antero-proximal corner just beyond origin of CuA_1 ; band in discal cell macule irregular in shape, just distad of mid-cell, posterior edge elongated proximad along posterior discal cell vein, distal edge prominently indented; ill-defined, opaque yellow-orange macule in middle of posterior $1/2$ of CuA_2-2A ; fringes brown, paler than ground color; hindwing with prominent and round postmedial pale yellow, hyaline macules in about mid-cells $Sc+R_1-Rs$, $Rs-M_1$, M_3-CuA_1 , and CuA_1-CuA_2 ; fringe pale orange.

Ventral surface ground color brown duller than on dorsum; forewing with red-brown overscaling along basal $2/3$ of costa extending into discal cell proximad to hyaline macule; hyaline macules as on dorsum; opaque macule in CuA_2-2A larger than on dorsum, pale yellow; hindwing entirely overscaled with red brown except for hyaline macules.

Head brown, heavily scaled with ochreous-olive; palpi ochreous-olive; antennae black with yellow-orange at segments on venter, entirely yellow-orange on venter distad and beneath club, club long, relatively slender, nudum orange-brown, 14 segments (Fig. 3B); thorax including legs (middle and hind legs missing) brown, heavily scaled with ochreous-olive.

Male genitalia (Fig. 3C) - tegumen elongate, sloping; uncus long, divided, curving upward caudad, narrow in dorsal view; gnathos extending slightly caudad beyond end of uncus, divided, relatively broad in lateral view; saccus of moderate length, slender; valva broad, rectangular, ampulla slightly produced dorsad at caudal end into a rounded hump, harpe with broad and rounded dorsal lobe; aedeagus longer than harpe, somewhat flattened

dorso-ventrally, cornuti complex including two small and two large dentate flattened structures and one scouring pad-like cornutus (e.g., Burns 1994b).

Female - unknown.

Distribution. The genus is known from its single species (described below) from Costa Rica.

Etymology. *Neochlodes* is named after its resemblance to species of *Ochlodes*.

Diagnosis and discussion. The generic description here is based on the one included species, and thus may require elaboration if other species are added to it in the future. *Neochlodes* is most similar to *Ochlodes* Scudder, 1872, in the form of the stigma and in the overall shape of the wings, although in *Neochlodes* they are somewhat broader and without a lobe at the hindwing tornus. The antennal club is more slender and elongate than in *Ochlodes*. The male genitalia are similar to *Ochlodes*, but differ in detail (Fig. 3C) — tegumen and uncus of *Neochlodes* are more elongate and slender than in *Ochlodes*, and the saccus and valva are also more elongate. The aedeagus is more flattened in *Neochlodes*, and the cornuti also differ from *Ochlodes*. *Ochlodes* has prominent and sharply pointed titillators (absent on *Neochlodes*), fewer (2-3) small and distinctly shaped dentate cornuti, but a single scouring pad-like cornutus is present. This latter structure is also present as a pair in some *Anatrytone* Dyar, 1905 (Burns 1994b), but absent, usually absent, or reduced in size in *Atrytone* Scudder, 1872; *Wallengrenia* Berg, 1887; *Poanes* Scudder, 1872; *Paratrytone* Godman, [1900]; *Quasimellana* Burns, 1994; *Hesperia* Fabricius, 1793; *Atalopedes* Scudder, 1872; *Polites* Scudder, 1872; and *Hylephila* Billberg, 1820 (Burns 1985, 1987, 1989, 1992, 1994a, 1994b; MacNeill 1993; MacNeill and Herrera 1998).

Neochlodes maculosus Austin & DeVries, new species

Figs. 1C,D & 3

Description. The taxon is formally described in the preceding generic description.

Types. Holotype male with the following labels: white, handprinted - / COSTA RICA: Punt / below Cerro Echandi / clearing 2400 m / 4 June 1979 / P J DeVries / (reverse of label, handprinted - Dalla / octomaculata?) /; white, printed and handprinted - / Genitalic Vial / GTA - 9967 /; red, printed - / HOLOTYPE / *Neochlodes maculosus* / Austin & DeVries /. The holotype will be deposited in the Milwaukee Public Museum.

Type locality. COSTA RICA: Puntarenas Province; Cerro Echandi, 2400m.

Etymology. The species name refers to its prominent maculation.

Distribution. *Neochlodes maculosus* is known only from the holotype.

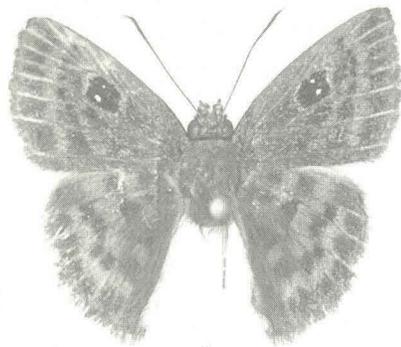
Diagnosis and discussion. Superficially *Neochlodes maculosus* does not superficially resemble any other Neotropical hesperiid although, as noted above, its genital morphology bears similarity to *Ochlodes*. The cornuti are complex and resemble those of taxa in Evans' (1955) "M" group, "*Hesperia*" sub-group in the Hesperinae.

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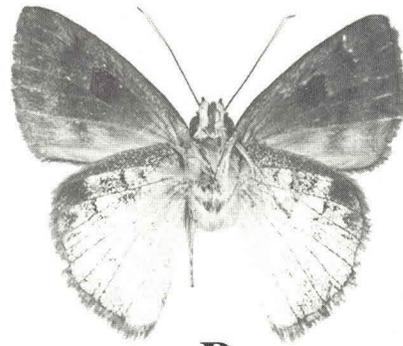
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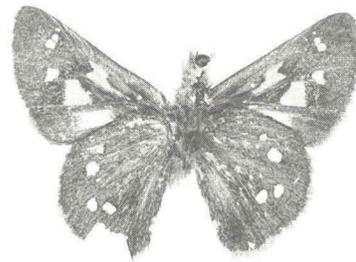
A



B



C



D

Fig. 1. (A) Holotype: *Cyclosemia caerulea* .—dorsal aspect; (B) Holotype *Cyclosemia caerulea* .— ventral aspect; (C) Holotype *Neochlodes maculosus* .—dorsal aspect; (D) Holotype *Neochlodes maculosus* .— ventral aspect.

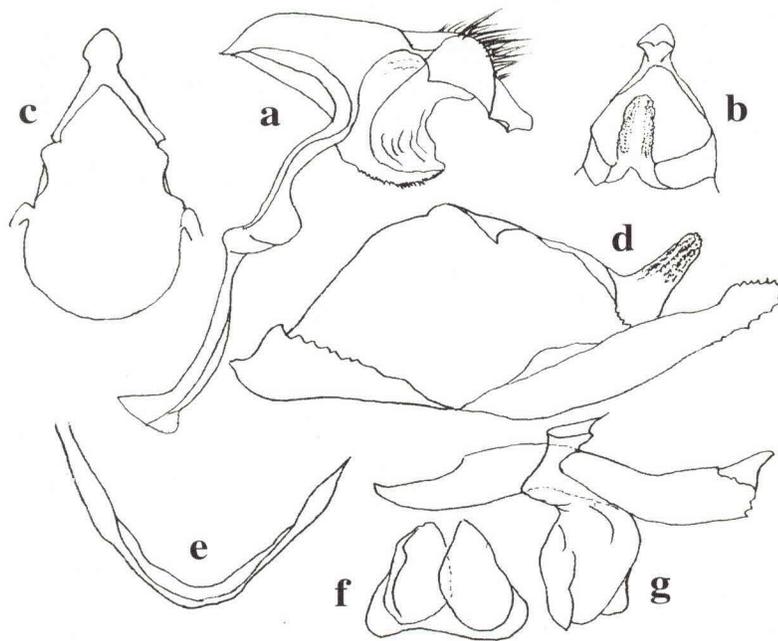


Fig. 2. Exploded view of holotype genitalia *Cyclosemia caerulea*. Genitalia vial GTA 10152: a) tegumen, uncus, gnathos and associated structures - lateral; b) same - ventral; c) same - dorsal; d) right valva - interior lateral; e) saccus - ventral; f) transtilla and juxta - ventral; g) aedeagus, transtilla and juxta - lateral. Note the orientation of the style and the shape of the posterior end of the valva.

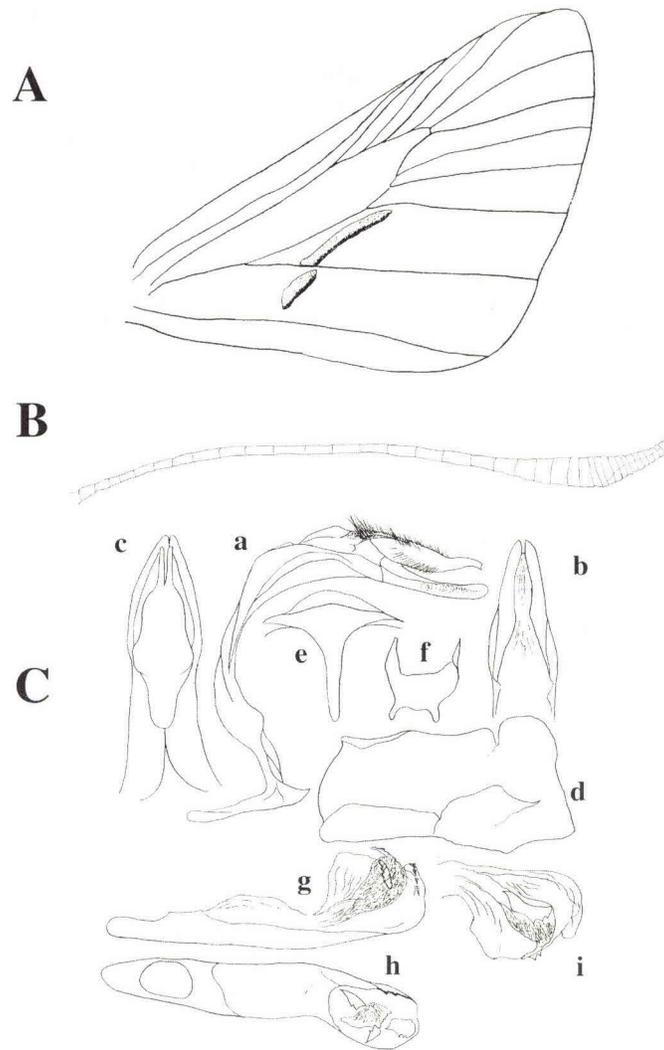


Fig. 3. (A) Forewing venation and position of androconial brand in holotype *Neochlodes maculosus*.; (B) Antenna of holotype *Neochlodes maculosus* showing scape, nudum and club; (C) Exploded view of holotype genitalia *Neochlodes maculosus*. Genitalia vial GTA 9967: a) tegumen, uncus, gnathos and associated structures - lateral; b) same - ventral; c) same - dorsal; d) right valva - interior lateral; e) saccus - ventral; f) transtilla and juxta - ventral; g) aedeagus and cornuti - right lateral; h) aedeagus and cornuti - dorsal; i) cornuti - left lateral. Note the structure of the cornuti.