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A NEW SPECIES OF *CYANOPHRYS* (LYCAENIDAE: THECLINAE) FROM JAMAICA

Thomas W. Turner[1]
12 Kingfishers Cove, Safety Harbor, FL 34695

and

Jacqueline Y. Miller
Allyn Museum of Entomology, Florida Museum of Natural History
3621 Bay Shore Road, Sarasota, FL 34234

[1]Research Associate, University of Florida, Division of Lepidoptera Research, Department of Zoology, Gainesville, Florida

INTRODUCTION

Thirteen species of Theclinae Butler are known from Jamaica. Twelve of these are discussed in Brown and Heineman (1972), who adopted the tentative generic classification of Clench (1963). These are *Strymon martialis* (Herrich-Schäffer), *S. acis* (Drury), *S. columella* (Fabricius), *S. limenia* (Hewitson), *S. bazochii* (Godart), the endemic *S. pan* (Drury), *Electrostrymon angelia* (Hewitson), *Nesiostrymon celida* (Lucas), *Chlorostrymon simaethis* (Drury), *C. maesites* (Herrich-Schäffer), and two endemic genera, each represented by a single species *Rekoa bourkei* (Kaye) and *Cyanophrys crethona* (Hewitson). *R. bourkei* has recently been reassigned to the genus *Rekoa* (=*Thereus* Hübner [1819]) after Robbins (1991).

Vyhmeister (1980) reported the collection of *Tmolus azia* (Hewitson) from Jamaica in 1978. Schwartz and Miller (1985) speculated that representatives of the unique Jamaica genera "*Thereus*" and *Cyanophrys* might be found in Hispaniola. Subsequently Johnson and Matusik (1988) described a new species of *Rekoa* from that country which they named *Thereus abeja*. *Cyanophrys* is still known only from Jamaica. *C. crethona* is a distinctive butterfly with metallic blue dorsal surface and a predominately green ventral surface. It is widely distributed throughout Jamaica but is nowhere common. In the field, the relatively large size distinguishes this species from *Chlorostrymon simaethis* and *C. maesites*, which also have green ventral surfaces but purplish dorsal surfaces. While in flight, *C. crethona* is more difficult to distinguish from *Rekoa bourkei*, which also has a metallic blue upper surface; the predominately gray ventral surface of *R. bourkei* becomes distinct only after the insect has settled into the perching position.

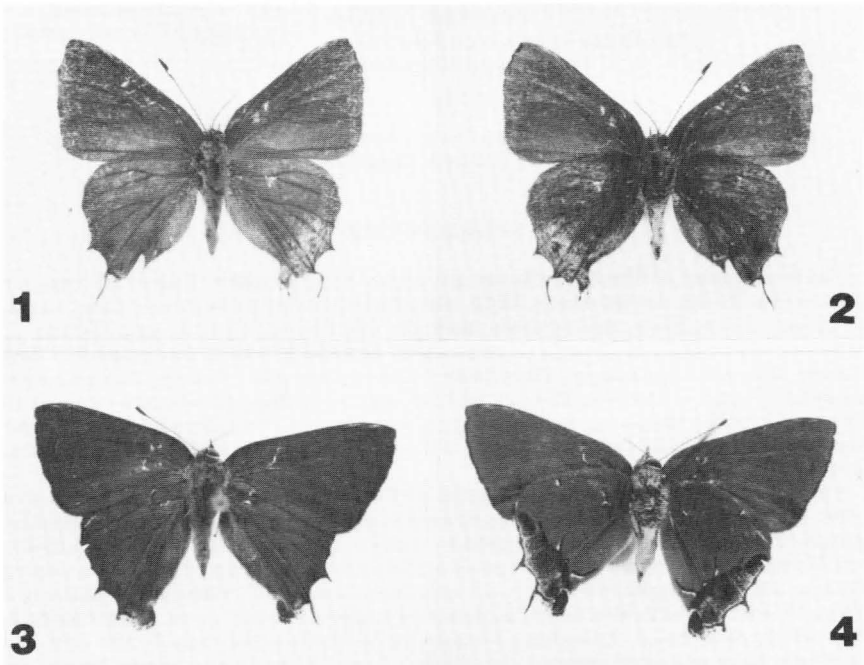
In 1979, a male hairstreak was collected on Dallas Mountain (St Andrew Parish) at an elevation of approximately 600 m while nectaring on *Cordia brownei* (Friesen) I. M. Johnston (Boraginacaeae). At the time of collection, it was believed to be *R. bourkei*, and the specimen was papered and not pinned until 1982 at which time it was recognized as a distinct taxon. Morphological examination indicates the hairstreak to be a new representative of the genus *Cyanophrys*, which we propose to call

***Cyanophrys hartii*, new species**

Figures 1-2, ♂ holotype; **5**, ♂ holotype ventral hindwing; **6-7**, ♂ genitalia

Male: Head, dark brown with eyes hairy; frons edged finely with a thin line of white scales around each ocellus, subtended by gray; palpi brown, with a few tan and white scales proximad with a black, elongate terminal segment; antennae blackish brown with end segments demarcated by white scales; club black, admixed with brown scales dorsally, brown ventrally, and comprised of 10 segments. Thorax dorsally: anterior clothed in long iridescent blue scales; posterior with long (3 mm) fine, hair-like iridescent blue scales, which extend over the first abdominal segment. Below, thorax and legs clothed in short, dark brown scales. Abdomen dorsally with short blue scales shading to gray posteriorly; ventrally with short, off-white scales.

Forewing upper surface with blue scales basally overlaid with purple scales except for the costal and outer margins, which are dark brown admixed with black scales; forewing apex somewhat quadrate with wing veins darkened, overlaid with dark brown. Stigma consists of specialized grey-black scales along the radius near end cell (especially



Figures 1-4 Jamaican *Cyanophrys*. 1-2, *Cyanophrys hartii*, new species, Holotype: 1, dorsal view, 2, ventral view. 3-4 *Cyanophrys crethona*, 3, dorsal view, 4 ventral view.

at the origins of R_2 and R_3). Hindwing color similar to forewing but the purplish scales absent along wing margins which appear dark gray-brown; two distinct tails present at terminus of Cu_1 and Cu_2 with that of Cu_1 reduced; tail of Cu_2 white tipped and approximately 3 mm in length; tornal lobe pronounced, reddish brown with tuft of marginal scales; elongated transparent and tan to gray setae evident in posterior half of cell toward anal margin and especially along anal fold.

Ventral surface (Fig. 2), ground color dark to medium gray-brown. Forewing brown along costa and across apex to tornus; remainder of wing and inner margin with finer, lighter gray-brown scales, suffused basally and especially in the cell with small iridescent blue-green scales. Hindwing uniformly warm dark brown, slightly darker at base; tornal lobe darker, delineated from anal fold by paler scales; faint indication of a proximal postmedian spotband with a buff ovoid spot in Sc + R_1-Rs (Fig. 5), a larger, lateral ovoid, white spot in Rs-M_1 with a smaller, faint white spot in M_1-M_2; a second postmedian spot band is demarcated proximally by a darker brown line, with faint small dark brown spots (one each) M_1-M_2 to M_3-Cu_1; in Cu_1-Cu_2, there is a proximal smaller white marking subtended by a diffuse brown spot with a large darker black spot near outer margin; a distinct black spot in Cu_2-2A has a white eyespot and is subtended by a white bar distally; the spot band is completed with a white bar along anal margin; lateral margin of wing dark brown with a thin white line which extends from mid M_1-M_2 to around tornal lobe. FWL = 11 mm (n=1).

Male Genitalia: The male genitalia (Figs. 6-7) are similar to those of *C. crethona*, with the falces robust; the labides are incompletely sclerotized near distal margin of tegumen. The setose, moderately sclerotized valvae are finely tapered posteriad and extend beyond the tegumen; ventral tegumen with lightly sclerotized acute processes lateroventrally; saccus elongate, two-thirds the length of the valvae; penis elongate, moderately sclerotized with manica setose; terminus aedeagus incomplete.

Etymology: This butterfly is named in memory of the late Reverend Philip Gordon Hart, the former Rector of the Kingston Parish Church from 1971 to 1981 and who, at the time of his death, was the Executive Director of the Institute of Jamaica. Rev. Hart contributed greatly to our knowledge of Jamaican butterflies with his speciality was the hairstreaks.

Types: Holotype M, 0.8 km northwest of Dallas Mountain, St. Andrew Parish, Jamaica, 600 m; 23 July 1979; Coll. T. Turner. Specimen was collected while taking nectar on *Cordia brownei* growing in a grazed area at 1200 h. No further specimens. Type deposited in the Allyn Museum of Entomology, Sarasota, Florida. In addition to the above locality label, the specimen bears a red holotype label : "Holotype/ *Cyanophrys hartii*/ T. W. Turner/ J. Y. Miller 27 October 1991." The type specimen bears a white label," Allyn Museum Photo No. 911105/1-4" and another white label, "genitalia vial/ M-7378/ Jacqueline Y. Miller."

DISCUSSION

Cyanophrys hartii is known only from the male holotype, but is a distinct species quite unlike any other Jamaican hairstreak in combination and distribution of color and the genitalia.

Although it is similar to *C. crethona* (Figs. 3-4), *C. hartii* differs in a number of characteristics. The small, diffuse stigmata, narrow black border, rounded forewing apex, twin tails, and reddish brown anal spot on the hindwing are similar to those of *C. crethona*. Dorsally, both bluish gray wings are overlaid with purple rather than the characteristic blue of *C. crethona*. The forewing apex is not as broadly blackened but the lateral apical margin is square-shape in both species. Ventrally, the faint green iridescence on part of the forewing and the faint traces of white markings on the hindwing are suggestive of *C. crethona*. In addition, *C. crethona* has some brown scales on the frons and thorax, but the scales around the eyes are rust brown edged in white as opposed to gray to grayish brown in *C. hartii*. *C. hartii* lacks the broadly blackened and acutely pointed forewing apex and well defined stigmata of male *Rekoa bourkei* and the dorsal and ventral wing

coloration and pattern differs markedly. The configuration of the forewing apex, the proportion of tail lengths on the hindwing and the shape of the antennae is more consistent with those of *C. crethona* than with *Chlorostrymon maesites* or *C. simaethis.*

The male genitalia of *Cyanophyrus hartii* (Figs. 6-7) differs significantly from *C. crethona* (Figs. 8-9), particularly in the sclerotization of the tegumen. The genital capsule of *C. crethona* is slightly larger overall with the penis 0.25x longer than that of *C. hartii.* The

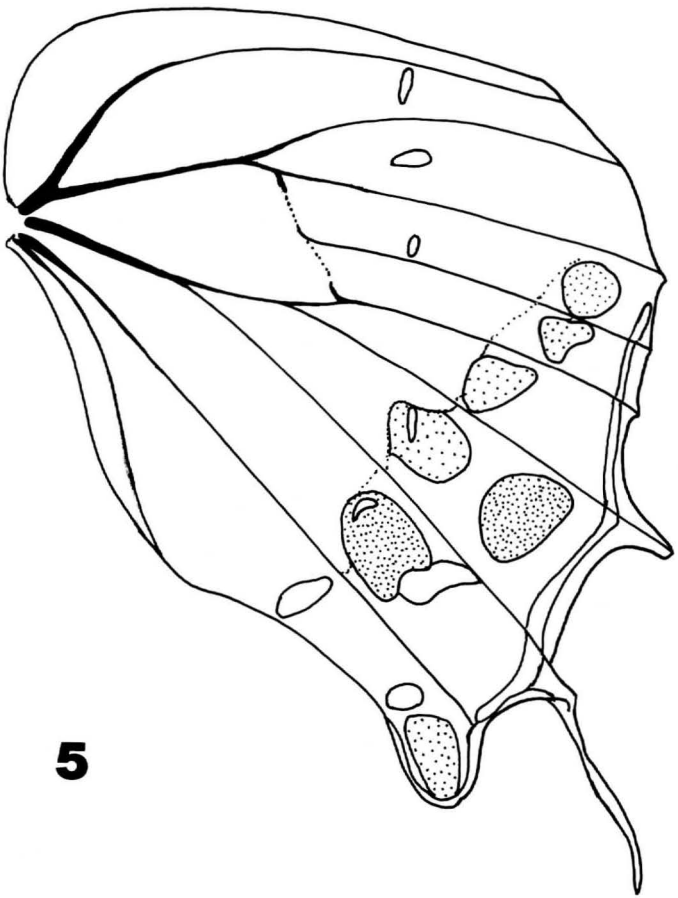


Figure 5, line drawing ventral hindwing of *Cyanophrys hartii,* new species. Note especially diffuse brown postmedian markings in Sc + R_1-Rs, Rs-M_1, and M_1-M_2 (stippled areas) with black markings darker.

length of the saccus is comparable in both species but relatively broader in *C. crethona*. The valvae of *C. hartii* are more lobate proximally, tapered throughout the length and extend beyond the length of the tegumen; in *C. crethona* the valvae are more quadrate proximally, tapering about mid-length and are somewhat foreshortened.

Although *Strymon pan* and *S. bazochii* exhibit the brown ventral color, and *S. martialis* has a well defined reddish brown tornal lobe on the upper hindwing, the color patterns, wing shape, and well defined male stigmata indicate that there is no close relationship between Jamaican *Strymon, Electrostrymon, Tmolus* and this newly described species.

Most *Cyanophrys* species are endemic to Central America, especially Mexico, with only the two species, *C. crethona* and *C. hartii* represented in Jamaica. *Rekoa* is a neotropical genus known only from Jamaica and Hispaniola in the West Indies. Given the geological history of Jamaica and the biogeography of West Indian butterflies as discussed in Miller and Miller (1989), the current affinities of the Jamaican with the Central American butterfly fauna is not unexpected, and most probably both *Cyanophrys* species on Jamaica arose *in situ* from a common ancestor. Furthermore, with the geological history, the discovery of *Cyanophrys* in southern Hispaniola would not be surprising. Life history, particularly the larval hostplant association, should define *C. hartii* and *C. crethona* further. However, since both species are infrequently encountered in the field, it may be some time before these studies are completed.

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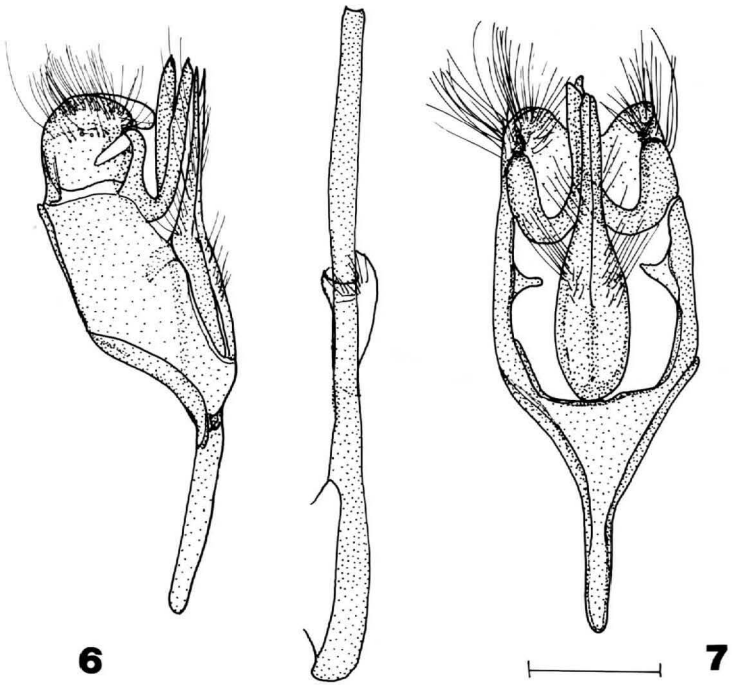
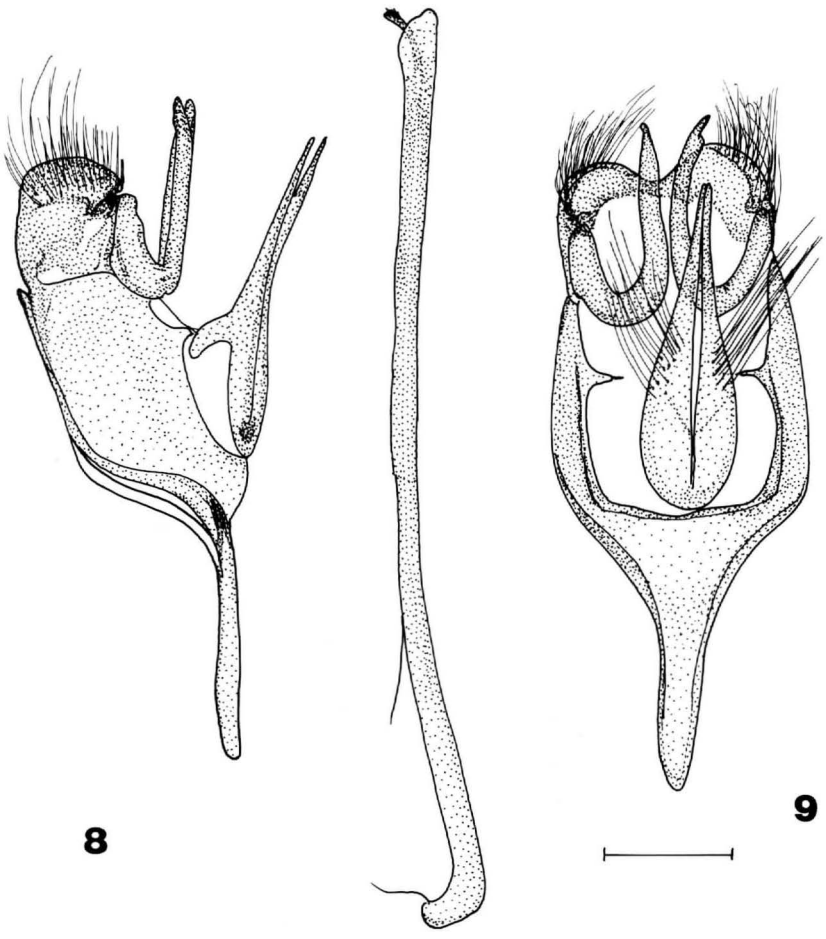


Figures 6-7, male genitalia of *Cyanophrys hartii*: lateral (6) and ventral (7) views. (Genitalia preparation M-7380, J. Y. Miller) (Scale = 0.5 mm).



Figures 8-9, male genitalia of *Cyanophrys crethona*: lateral (8) and ventral (9) views. (Genitalia preparation M-7380, J. Y. Miller) (Scale = 0.5 mm).

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