BULLETIN OF THE ALLYN MUSEUM

3621 Bayshore Rd.
Sarasota, Florida 34234

Published By
The Florida State Museum
University of Florida
Gainesville, Florida 32611

Number 110 3 September 1987

THE TAXONOMIC STATUS OF *PSEUDOCHRYSOPS* (LYCAENIDAE) ON PUERTO RICO

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Pseudochrysops bornoi was described by Comstock and Huntington (1943) from a suite of 12 specimens from Hispaniola (all from Haiti). They used the combination *Hemiargus bornoi* for the species, since the underside pattern resembles in many ways that of the blues of the genus *Hemiargus*. Nabokov (1945) erected the genus *Pseudochrysops* for this lycaenid; the name currently used is *Pseudochrysops bornoi*.

This butterfly, at the time of its description, was also known from a single specimen from extreme southwestern Puerto Rico (Ensenada); Comstock and Huntington mentioned this individual but did not designate it a paratype. Comstock (1944), while treating the Puerto Rican rhopaloceran fauna, noted once more that *P. bornoi* was then known from that single individual from Ensenada. Riley (1975:113-114) gave the distribution of *P. bornoi* as Haiti, where he considered the species rare and local; he considered the Puerto Rican specimen a possible vagrant.

The type-locality is Pont Beudet, Dépt. de l'Ouest, Haiti; the holotype and allotype and most of the paratypes are from Pont Beudet (which is at sea level in the xeric Plaine de Cul de Sac); one paratype is from Frères, another xeric locality at sea level. Still another paratype is from the unexpected locality of Pétionville. Although no elevation for Pétionville was given by Comstock and Huntington, this town lies on the northern versant of the Morne l'Hôpital, one of the Massif de la Selle northern front ranges, at an elevation of about 425 m.

Schwartz (MS) showed that *P. bornoi* is in fact much more widely distributed on Hispaniola than the three published records indicate. It is strictly an inhabitant of xeric areas (primarily lowland thorn scrub [*Acacia farnesiana* and *Prosopis julifora*]; Liogier, 1980) and occurs in four basic regions: 1) the Plaine de Cul de Sac (wherein the type-locality lies) and its Dominican affiliate, the Valle de Neiba; 2) the northwestern Valle de Cibao (where it appears to be uncommon); 3) the Llanos de Azua, an eastern continuation of the Valle de Neiba; and 4) the Peninsula de Barahona, the xeric peninsula south of the Massif de la Selle-Sierra de Baoruco.

Other than the original material, there are few Haitian specimens; one has been taken

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on the southern face of the Montagnes de Trou-d'Eau. This mountain massif borders the northern side of the Plaine de Cul de Sac; the arid conditions and vegetation of the latter reach modest elevations (427 m), thereby allowing *P. bornoi* to extend somewhat above its normally sea level distribution. There is also a specimen from the southern slopes of the Massif de la Selle in the República Dominicana at Mencía (396 m); the area is xeric-mesic transition.

Pseudochrysops bornoi certainly must have a broader distribution in Haiti than is now known. Arid conditions, basically confluent with the Plaine de Cul de Sac, occur along the eastern edge of the Golfe de la Gonâve (between Port-au-Prince and Gonaïves), and then inland to the region of Ennery. In addition, the Plaine du Nord in Haiti is more or less confluent with the Dominican Valle de Cibao, and *P. bornoi* is confidently expected in that area also.

All the above regions are in central and western Hispaniola. The distance between the easternmost Hispaniolan record (Sombrero, Prov. de Peravia) and western Puerto Rico is about 300 km, quite a long distance for a single small butterfly to have been wafted or to have flown. It seemed likely that there was an established population of *P. bornoi* in southwestern Puerto Rico, and that the single specimen recorded by Comstock and Huntington was a sample of that population, not a vagrant as Riley suggested. In fact, Ludtke (*in* Winter, 1981) considered the species "common" on Puerto Rico (no localities given). Southwestern Puerto Rico is, like Hispaniolan regions occupied by *P. bornoi*, xeric thorn scrub, certainly the "proper habitat" for this butterfly. Collecting in the vicinity of Ensenada and Guánica in 1986 proved that *P. bornoi* is not rare there; after one learned its habits and habitat on Hispaniola, it was a relatively simple matter to secure Puerto Rican specimens.

But the fact remained that the hiatus between known Hispaniolan localities and the eastern end of that island (215 km) was rather great. It was therefore reassuring when, in 1985, Gonzalez and Schwartz encountered a population of *P. bornoi* in thorn scrub very near the eastern end of Hispaniola (near Playa Bayahibe). Finding this population lessened the distance between the Hispaniolan and Puerto Rican populations. The disjunct nature of the Playa Bayhibe population, separated some 165 km from the nearest known population at Sombrero, suggested that it might have differentiated from the other, more western populations, which are (with the exception of those from the Valle de Cibao and the Peninsula de Barahona) basically continuous. At the same time, comparisons of all Hispaniolan specimens (52) with a series (15) from Puerto Rico were made. The Hispaniolan material varies very little *intra se*, but the Puerto Rican specimens differ from the Hispaniolan butterflies strikingly. Accordingly, in honor of Jose Escobio, who collected many of the type-series in Puerto Rico, I propose to name the Puerto Rican population,

Pseudochrysops bornoi escobioi, new subspecies
Fig. 1, UN, female holotype

Males. FW (forewing) length 10-11 mm (x = 10.5 mm; N = 6); UP (upperside) grayish brown with a faint lavender gloss, most obvious (purer) along the FW costal border, where, in fresh specimens, it forms a distinct band to the apex; a rather vague blackish ocellus in Cu_1-Cu_2; UN (underside) very pale tan to pale grayish tan; UNFW with the following brown markings: 1) a pair of bars across the cell, one basal, the other more peripheral at the end of the cell; 2) a slightly curved line from R_4 to M_3, composed of a series of three "dots", one in each space; 3) a very slightly bowed line from just above M_3 to 2A, this line anteriorly not attached to the line in R_4-M_3, but displaced or offset from it, and ending anteriorly about equidistant between it and the cell-end bar; 4) a submarginal paired series of semilunar markings from the apex to 2A, these in turn followed by a fine marginal dark line; fringes whitish; UNHW (hindwing) with: 1) three conspicuous black dots along the costal margin, the most basal the smallest, clearly outlined with whitish; 2) a dark gray to blackish dot in the base of the HW cell; 3) two more or less parallel "rows" of brown markings, one from M_1 across the cell-end and directed

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posteriorly toward the anal angle, the other postdiscal, meeting the first about one-third of distance along the anal margin, both "rows" much fragmented, but the postdiscal row forming an irregular basal edge to 4) a distinctly paler (almost white) band from the costal margin to the anal margin, bordered marginally by 5) a wide brown submarginal band, with a large black ocellus in Cu_1-Cu_2, this ocellus ringed with iridescent green scales; 6) a series of very obsolete ocelli, each with some iridescent green scales, in Rs to Cu_1 and in Cu_2-2A; 7) a filamentous tail at Cu_2; fringes whitish.

Females. FW length 10-12 (x = 10.9; N = 7); UP grayish brown as in males, but FW with a distinct clear violet area, based along the anal margin and arched anteriorly, its outer edge paralleling the outer margin, encompassing the cell and most (except for their extreme basal portions) of spaces M_3-Cu_1, Cu_1-Cu_2, Cu_2-2A, and between 2A and the anal margin; UPHW (hindwing) like that of males except for a less clearly (than the UPFW) delimited area of violet; UN like males, including the displaced UNFW brown bar and the distinct pale HW postdiscal band; the UNFW cell-end brown bar is more bold in females than in males.

HOLOTYPE. Female, from 3.1 mi. (5.0 km) W Caña Gorda, Puerto Rico, taken 26.iii.1986 by Jose Escobio; *ex coll.* A. Schwartz, now in the collection of the Allyn Museum of Entomology, University of Florida; original number 16843.

PARATYPES (all from the type-locality and all in the author's collection): 16799, 16808 (males), 16801, 16809, 16811, 16813 (females), 25.iii.1986, J. Escobio, A. Schwartz; 16845, 16851, 16855 (males), 16849, 16852-53 (females), 26.iii.1986, J. Escobio, A. Schwartz; 16887 (male), 16886 (female), 28.iii.1986, J. Escobio.

Comparisons. Pseudochrysops b. escobioi differs from the nominate subspecies in two very obvious, and several more subtle, ways. In Hispaniolan specimens, on the UNFW, the very slightly bowed line from above M_3 to 2A (see [3] above) abuts directly on the posterior end of the slightly curved line from R_4 to M_3 (see [2] above), thus forming a continuous postdiscal line from R_4 to 2A (Fig. 2). In *P. b. escobioi*, the posterior line is distinctly and boldly offset from the anterior, and anteriorly ends sharply between the postdiscal line fragment (R_4-M_3) and the cell-end bar. Of the series of 56 *P. b. bornoi*, none shows the *P. b. escobioi* condition, and in only 11 do the two lines not abut precisely end-to-end. Even among these 11 specimens (8 males, 3 females) the posterior line is only very slightly displaced toward the cell-end bar and is not so very sharply separated from the anterior line as it is in *P. b. escobioi*. Riley's (1975:Pl. 12, Fig. 16) illustration of a male topotype of *P. b. bornoi* is peculiar in that, in the configuration of the UNFW lines, it does not agree completely with any Hispaniolan specimen and even less with any Puerto Rican individuals. The Riley figure likewise does not clearly show the UNHW very pale (whitish) postdiscal band; this is a second feature of *P. b. escobioi* that differentiates it from *P. b. bornoi*. Even in fresh specimens of the latter, the white postdiscal UNHW band is not conspicuous as it is in *P. b. escobioi*. Comstock (1944:499) commented on the distinctness of this band in the Hispaniolan material before him; even though the white band is discernible in Hispaniolan specimens, it is much more so in Puerto Rican butterflies. In the latter, one is reminded of the clear white postdiscal band in *Hemiargus thomasi* Clench and *H. ammon* Lucas. The degree of differentiation of this white band in *P. b. escobioi* is about of the same magnitude.

Other more subtle differences differentiate the two subspecies. In *P. b. escobioi*, the black costal end cell dots on the UNHW are more distinct and vivid (perhaps due to the white outlining) than those of *P. b. bornoi*. Fresh female *P. b. escobioi* seem to have the UPFW violet more extensive but less bright than comparable female *P. b. bornoi*. In male *P. b. escobioi*, the UPFW costal margin is less boldly lavender than in comparable *P. b. bornoi*. But these characters are somewhat variable; certainly the UNFW line-bar arrangement is the most constant character to separate the two subspecies.

Pseudochrysops bornoi is slightly dimorphic in size, with females larger than males. In addition, *P. b. bornoi* is larger than *P. b. escobioi*. Males of the former have a mean FW length of 11.1 mm (10-13; N = 11) in contrast to 10.5 (10-11; N = 6) in male *P. b. escobioi*; female *P. b. bornoi* have a FW mean length of 11.7 (11-12; N = 11) in contrast to 10.9 (10-12; N = 7) in female *P. b. escobioi*. The differences are slight but real in these

small butterflies.

Although I have not made male genitalic preparations of the two taxa, the degree of differentiation between them suggests strongly that they differ at the subspecific level.

Remarks. The type-series of *P. b. escobioi* was taken during the late afternoon (1330-1630 h) on three days. The area is xeric thorn scrub, and the butterflies (which were not excessively common) were feeding on *Prosopis juliflora* (Fabaceae) with *Leptotes cassius theonus* Lucas; the blossoms were from 1.5 to 2.5 m above the ground. The two species were about equally common. The temperature on the three days varied from 30 °C to 36 °C; the weather was bright and clear. The only other lycaenid we took at the type-locality was *Strymon acis mars* Fabricius; this hairstreak was much less common than the two blues and was not taken feeding on the same flowers as the latter.

Specimens of Pseudochrysops b. bornoi *examined: Haiti: l'Ouest*: 5 km SE Source Matelas, s.l., 1 ♂, 3 ♀♀; 3 km S Terre Rouge, 427 m, 1 ♂; *Republica Dominicana: Pedernales*: Cabo Rojo, s.l., 2 ♂♂, 3 ♀♀; 2 km NE Cabo Rojo, s.l., 4 ♂♂, 5 ♀♀; 5 km NE Cabo Rojo, 1 ♂; Mencía, 397 m, 1 ♀; *Barahona*: 8 km ESE Canoa, 4 ♂♂; 12 km ESE Canoa, *ca.* s.l., 1 ♀; *Independencia*: 4 km NW Tierra Nueva, s.l., 5 ♂♂; La Furnia, ♂; 4 km E El Limón, s.l., 14 ♂♂, 6 ♀♀; *Peravia*: Sombrero, 1 ♂; *La Altagracia*: 2.5 km SE Playa Bayahibe, 4 ♂♂, 3 ♀♀; *Monte Cristi*: 4 km NW Villa Vásquez, 61 m, 1 ♂.

ACKNOWLEDGMENTS

I am in the debt of Jose Escobio, who collected most of the type-series of the butterfly which bears his name. On Hispaniola I have had the pleasant fellowship of the following, all of whom have made the collecting of these butterflies there both pleasant and profitable: Brian I. Crother, Fernando L. Gonzalez, Robert W. Henderson, and Joel W. Raburn. To all of the above I tender my gratitude and thanks. The photographs are the work of Jacqueline Y. Miller, and I am once more in her debt for her kindness.

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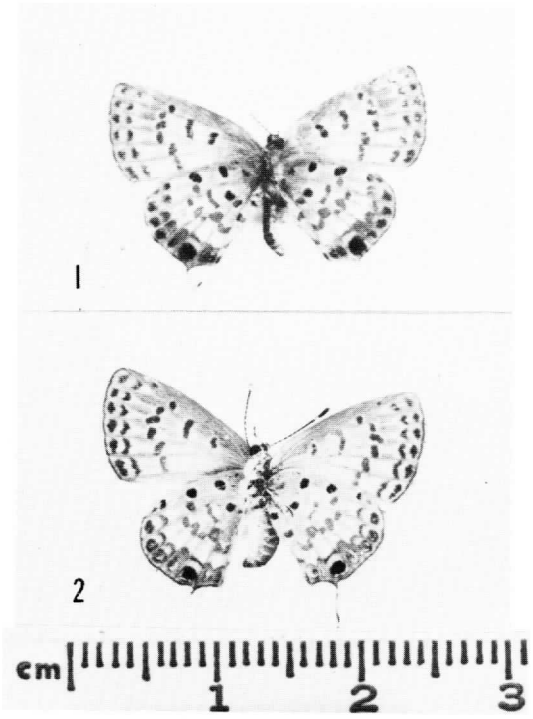

Figure 1. *Pseudochrysops b. escoboi,* new subspecies; UN, holotype female.

Figure 2. *Pseudochrysops b. bornoi*; UN, female, AS 11439 (now in Allyn Museum of Entomology), from Rep. Dom.: Prov. Pedernales: Cabo Rojo, s.l.

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