

D. J. HARVEY, Department of Entomology NHB Stop 127, Smithsonian Institution, Washington, D.C. 20560.

J. LONGINO, Allyn Museum of Entomology, 3621 Bay Shore Road, Sarasota, Florida 33580.

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APPIAS PUNCTIFERA D'ALMEIDA (PIERIDAE) IN  
THE DOMINICAN REPUBLIC AND PUERTO RICO

**Additional key words:** island biogeography, seasonal dimorphism, Greater Antilles, Virgin Islands, *Appias drusilla*.

*Appias punctifera* is perhaps the least known and most elusive of endemic Antillean pierids. It much resembles the familiar "Florida White" (*A. drusilla* Cramer) and most obviously differs in possessing a black spot at the distal end of the forewing (FW) cell in both sexes, more prominently in the female. It is rare in collections, and N. D. Riley (1975, A field guide to the butterflies of the West Indies, Collins, London, 224 pp.) mentioned that he had not seen a specimen.

The taxon *punctifera* was first proposed by R. F. D'Almeida (1939, Bol. Biologico, São Paulo, 4(NS):50–66) as a subspecies of *Appias drusilla*, reducing to synonymy *Tachyris molpadia* Dewitz, *Tachyris margarita* Dewitz, and *Appias drusilla* f. *molpadia* Röber. *Appias punctifera* was raised to specific status by W. P. Comstock (1943, Amer. Mus. Novitates No. 1238, 1–6). D'Almeida based his description on four "all white" females collected in Puerto Rico, the type locality. Both sexes were available to Comstock who illustrated substantial differences between male genitalia of *A. drusilla* and *A. punctifera*, notably in the shape of the valvae and aedeagus. He recorded from Puerto Rico one female (Barros [sic], June), three females and one male (Coamo Springs, April) and one female (Lajas, June). The known range of *A. punctifera* was extended eastwards (Comstock 1944, Ann. N.Y. Acad. Sci. 12 Pt. 4: Lepidoptera, 527–528) to include the American Virgin Islands, by five males and one female (St. John, March) and one female (St. Thomas, June). More recently, one of us (SJR) found *A. punctifera* to be rare but occurring consistently in the Guánica xeric forest region of SW Puerto Rico, where it flies with the common *A. drusilla*, from which it is indistinguishable on the wing. Additional records (SJR) comprise one male (Toro Negro, October 1974), another male (Coamo, November 1974), and three males and two females (Ponce, Rt. 139, km 9.0, January 1987).

*A. punctifera* was first recorded from Hispaniola in a list of the butterflies of the Dominican Republic published by O. Cucurullo (1959, Lista de Mariposas (Rhopalocera) de Santo Domingo, published by the author, Santo Domingo, 1–13) without locality or collecting data. Subsequently, it was mentioned by L. Marion (1975, Helios 3:42–49) but, again, with no details. A. Schwartz (1983, Haitian butterflies, Editora R. Taller, Santo Domingo, Dominican Republic, 69 pp.) does not list this species from western Hispaniola. Here we report field observations on a population of *A. punctifera* in eastern Dominican Republic, with comparative comments on this species in western Puerto Rico.

Puerto Rican specimens are housed in the Department of Biology, University of Puerto Rico, Mayagüez; all specimens collected by us from the Dominican Republic are deposited in the Hope Entomological Collections, the University Museum, Oxford, England; the

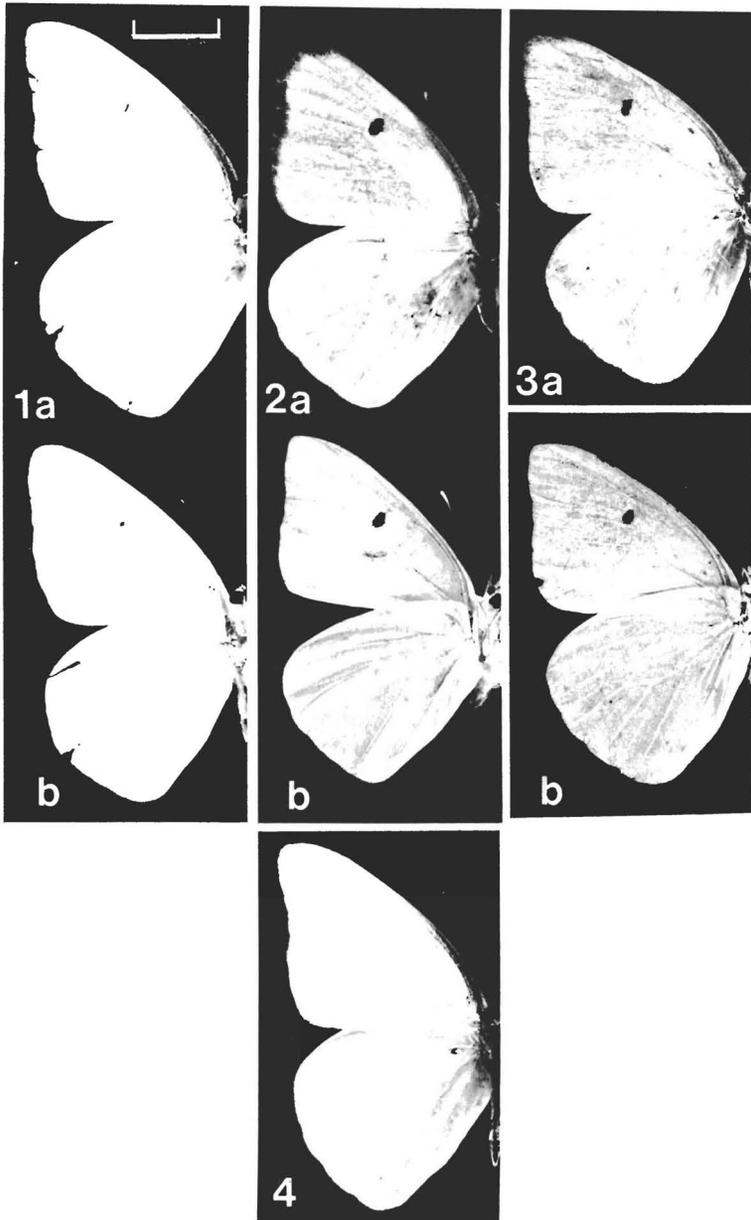


FIG. 1. *Appias punctifera* male from Boca de Yuma, Dominican Republic: a, upperside; b, underside. Scale line = 1 cm.

FIG. 2. *Appias punctifera* female from Boca de Yuma, Dominican Republic: a, upperside; b, underside.

FIG. 3. *Appias punctifera* female from Ponce, Puerto Rico: a, upperside; b, underside.

FIG. 4. *Appias drusilla boydi* male from Boca de Yuma, Dominican Republic: upperside.

male collected by L. D. and J. Y. Miller is in the Allyn Museum of Entomology, Sarasota, Florida.

Between 4–10 January 1987, two of us (DSS, EWC) visited the Dominican Republic and worked primarily near Boca de Yuma Dominican Republic (Altigracia Province). The limestone surface of the plateau in this region is substantially under cultivation or pasture, but with residual areas of xeric forest much resembling that of the Guánica region of SW Puerto Rico. We found *A. drusilla boydi* Comstock in, and apparently confined to, the forest patches, while in the cleared areas, *A. punctifera* was found. After a chance capture of a worn male of *A. punctifera*, we particularly sought this species and its relative *A. drusilla* and collected four further males and two females of the former, all in fairly fresh condition. An additional male was collected by L. D. Miller and J. Y. Miller, who revisited the site shortly after. All *Appias* collected in the fields and cleared areas proved to be *punctifera*: most seen were flying out of reach (above 5 m) around *Ficus*, *lignumvitae* (*Guaiacum*), and other isolated trees, occasionally making excursions to nearby ground scrub (where most specimens were collected), nectaring on *Eupatorium*, *Lantana*, and other plants. We saw perhaps five specimens for each one collected, and frequency of sightings did not appear to vary from early morning to late afternoon through each day of observation. We cannot be certain that *A. punctifera* does not fly with *A. drusilla* in the forest scrub, but all *Appias* collected there were of the latter species.

Riley (*op. cit.*) did not illustrate *A. punctifera*, and male and female specimens from Boca de Yuma are illustrated here (Figs. 1–2) with a male of *A. drusilla boydi* from the same region (Fig. 4). Our specimens conform closely to Comstock's (1943 & 1944 *op. cit.*) descriptions, notably in the cell spot size and the conspicuous bright lemon-yellow suffusion that occupies the basal third of the FW cell on the underside, and half or more of the cell area in the female. The "glistening" or silky appearance of the underside ground color in both sexes is striking. However, our material diverges slightly from Comstock's accounts in that we note the female upperside ground color as pale cream on the forewing and deeper cream-yellow on the hindwing (rather than "white" and "distinctly cream") and, in fresh males, the upperside ground color is not "white" but very pale eggshell green-blue, a tint that soon fades in dried specimens.

The original four males described by D'Almeida were "white" (with only a limited black suffusion at the FW apex, as illustrated by H. Dewitz (1877, Entomol. Z. Stettin. 38:233–245) while Comstock (1944 *op. cit.*) described this sex as "white, with or without a fuscous border," but did not mention any seasonal distribution of the two forms in his very small sample. The two female specimens in our Boca de Yuma sample both show broad fuscous-black borders (Fig. 2), but sampling of the population over an extended period is required to establish whether this dimorphism reflects seasonality, as has been proposed (e.g., Riley *op. cit.*) for comparable variation in female markings in *A. drusilla poeyi* Butler (Bahamas, Cuba and Cayman Is.) and *A. drusilla boydi* (Hispaniola, Puerto Rico, the Virgin Is., and the northern Lesser Antilles), in which the more heavily marked females have been associated with the wet season. Both females collected near Ponce (Puerto Rico) at the time of our visit to the Dominican Republic represented the "white" morph (Dewitz *op. cit.*) and one of these is illustrated in Fig. 3. In these specimens, the fuscous FW border above is very reduced in width, to only ca. 1 mm at the apex. In addition, the FW end-cell spot above is slightly narrower than in the more heavily marked morph, although in each instance this spot occupies about two thirds of the distal end of the cell. A male collected near Ponce is indistinguishable from specimens taken at the same time in the Dominican Republic.

Unless future work in Hispaniola points to the contrary, it seems that the center of the range of *A. punctifera* is Puerto Rico. Although present in W Puerto Rico and E Hispaniola, it has not been noted in the remarkably rich butterfly fauna of Mona Island, almost equidistant from the two documented localities on either side of the Mona Passage. On this small island (23 mi<sup>2</sup>/62 km<sup>2</sup>), largely covered with xeric forest, its congener *A. drusilla boydi* is present in a very restricted area (Smith, D. S. et al. 1988, Bull. Allyn Museum, No. 121, 1–35).

The larval food plant(s) and immature stages of *A. punctifera* are unknown. It is hoped

that this note will stimulate further documentation of the range, significance of female dimorphism, and developmental biology of this species. Awareness of its possible presence is important: except for the serendipitous recognition of a minute cell-end spot on a worn male *Appias* we might well have overlooked a substantial population of *punctifera*.

DAVID SPENCER SMITH, Hope Entomological Collections and Department of Zoology, Oxford University, Oxford OX1 3PW, England.

ERIC W. CLASSEY, Oxleaze Farm, Nr. Uffington, Oxon., SN7 7DR, England.

STUART J. RAMOS, Department of Biology, University of Puerto Rico, Mayagüez, Puerto Rico 00708, U.S.A.

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