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POPULATIONS OF *PAPILIO ANDRAEMON BONHOTEI* SHARPE
AND *PAPILIO ARISTODEMUS PONCEANUS* SCHAUS
(PAPILIONIDAE) IN BISCAYNE NATIONAL
MONUMENT, FLORIDA

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A survey of the Lepidoptera found on the islands of Biscayne National Monument, Florida, in April and May 1972, revealed sizeable breeding populations of two rare papilionid butterflies. These are the Bahaman Swallowtail (*Papilio andraemon bonhotei* Sharpe) and Schaus' Swallowtail (*Papilio aristodemus ponceanus* Schaus). The former species has been recorded only a few times in Florida (Holland, 1902; Clarke, 1940; Kimball, 1965) and until now has been considered only a stray or accidental visitor to United States shores following hurricanes. The scarceness of the latter species in southern Florida has also been previously documented by many authorities including Bates (1934), Grimshawe (1940), Henderson (1945a, 1945b, 1946), Klots (1951) and Rutkowski (1971). The majority of records for Schaus' swallowtail are from Key Largo and Lower Matecumbe Key (Kimball, 1965) which suggests that these islands house the remaining remnant population of this species found in the

United States. However, this proves not to be the case since the species is now found to be prevalent on several remote keys to the north and east of Key Largo.

From 20–24 April 1972, and again from 27–30 May 1972, I surveyed the major islands of Biscayne National Monument. Swallowtails were quite abundant, and in a single day I often encountered as many as 100 *P. aristodemus ponceanus* and a like number of *P. andraemon bonhotei* on these islands. In April large numbers of adult Schaus' and Bahaman swallowtails had recently emerged, as indicated by their perfect condition and unworn scales. Adults were flying in substantial numbers in both the dense hammocks and along the narrow trails which cut through the jungle-like vegetation of the islands. A limited number of reference specimens of each species was collected and preserved.

In late May, nearly all specimens of both species were badly tattered or worn, and many flew rather weakly compared to the previous month. This suggested that the peak emergence had occurred in April or early May, and that most of the adults were nearing senescence. Approximately half of the swallowtails observed and collected in April were *P. andraemon bonhotei*, but in May they comprised only about one-third of the total number encountered.

On two occasions female *P. andraemon bonhotei* were observed in late April laying eggs on the leaves on Key lime (*Citrus aurantifolia*) and sour orange (*Citrus aurantium*) trees. Citrus trees are scattered sparingly throughout the jungle-like forests which cover these keys. Also, one *P. aristodemus ponceanus* was seen laying eggs on the leaves of torchwood or sea amyris (*Amyris elemifera*), which is an abundant understory shrub or small tree on most of the islands surveyed. This agrees with the Grimshawe (1940) and Rutkowski (1971) reports that torchwood is the foodplant for *P. aristodemus ponceanus*. Also, two late instar larvae of this species were located on torchwood in late May 1972.

The relative abundance of these papilionids on the Biscayne Bay Keys suggests that they have a high potential for survival on a long term basis. The two greatest threats to their populations would seem to be: 1) habitat destruction by man or hurricane, and 2) overcollecting by dealers and lepidopterists. Since their prime habitat is now fully under the control and protection of the National Park Service, there seems little chance of *total* habitat destruction due to man. There is always the possibility of overcollecting, but since a federal collecting permit is required to legally take anything from a national park or monument, it should be relatively easy for the Park Service to police Lepidoptera poaching once they are made aware of the presence of these rare species within their jurisdiction.

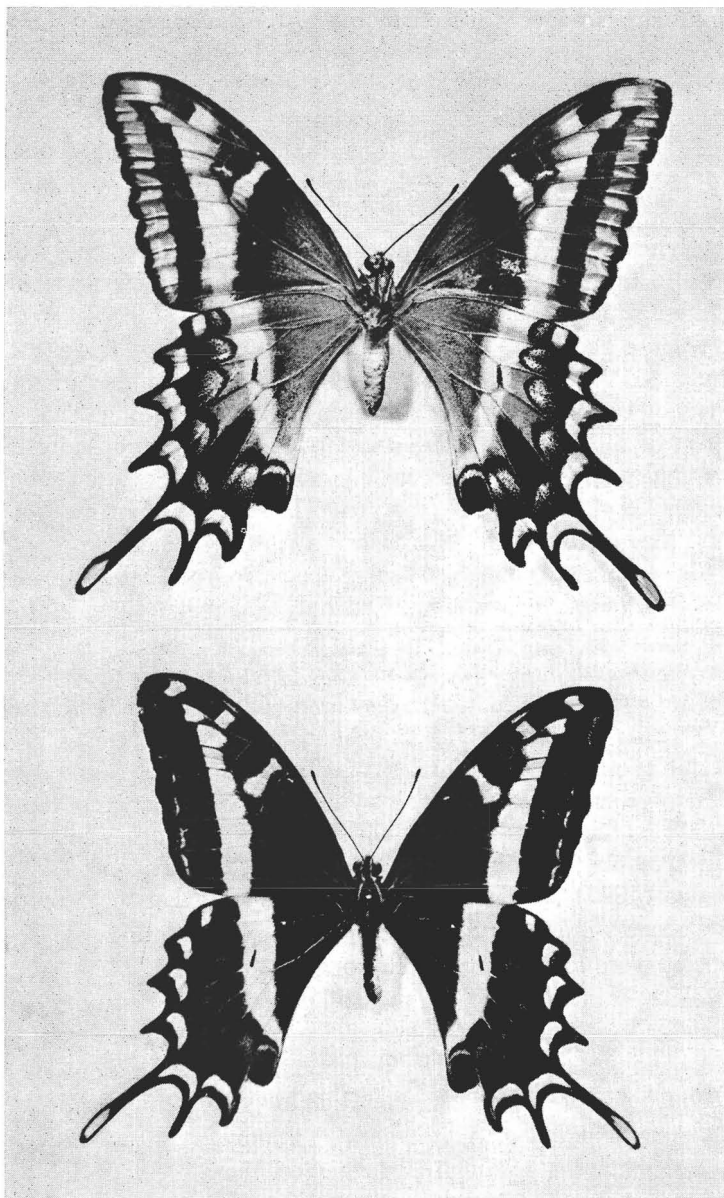


Fig. 1. Two *Papilio andraemon bonhotei* Sharpe taken in Biscayne National Monument, Dade Co., Florida, April 1972. Underside (above); upperside (below).

One obvious factor which operates to protect these populations and until now prevented their detection, is the relative isolation of these islands which are located between seven and eight miles from the adjacent Florida mainland. The fact that they can be reached only by boat reduces the probability that collecting pressure will be great. This pressure will probably increase however, once the National Park Service institutes its announced plan of establishing a regular ferry to some of the islands for the benefit of tourists.

Evidence of the ability of these papilionids to colonize adjacent keys or the mainland was noted during the survey. On several occasions while traveling by boat between islands in the chain, both Schaus' and Bahaman swallowtails were seen flying across the open water. On two occasions we collected the butterflies with hand nets after pursuing them by boat for one-fourth mile or more across Biscayne Bay. On one occasion a *P. aristodemus ponceanus* eluded our pursuit and flew safely from the south end of one key and entered the jungle on the northeast side of an adjacent key in a route that covered over one-half mile. It therefore seems certain that movement of these rare species by island-hopping along the chain of Florida Keys occurs routinely. However, since both the Schaus' and Bahaman swallowtails have been recorded somewhat sparingly from Key Largo, Lower Matecumbe Key, and the mainland of the southern Florida, these areas could presently be considered rather marginal when compared to the populations located in Biscayne Bay National Monument. The foodplants for these species are readily available throughout the middle and lower Florida Keys as well as on the mainland; therefore, the explanation for their scarcity there is probably related to overzealous collecting activities by man in past years.

Other species of Lepidoptera which were collected on keys of the Biscayne National Monument during the April–May 1972 survey included the following: *Battus polydamas* (Linnaeus), *Papilio cresphontes* Cramer, *Phoebis agarithe* Boisduval, *Appias drusilla* Cramer, *Phyciodes tharos* (Drury), *Cynthia virginienensis* (Drury), *Junonia evarete zonalis* (Felder & Felder), *Metamorphia stelenes* (Linnaeus), *Eunica tatila* (Herrich-Schäffer), *Hemiargus ammon* (Lucas), *Heliconius charitonius* Linnaeus, *Dryas julia* (Fabricius), *Agraulis vanillae* Linnaeus, *Phocides pigmalion* (Cramer), *Polygonus leo* (Gmelin), and *Urbanus proteus* (Linnaeus).

ACKNOWLEDGMENTS

I would like to thank my graduate students, Richard McGuire and Ronald Pscion, as well as members of the University of Terrestrial Ecology class, for assistance in surveying the Lepidoptera of the Biscayne Bay

islands. I also wish to express gratitude to the personnel of the National Park Service and the Dade County Parks Department for cooperation and assistance during this survey.

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ON *GLENOIDES TEXANARIA* (GEOMETRIDAE) WITH DESIGNATION OF THE LECTOTYPE

As Mr. André Blanchard is describing new species of *Glenoides* McDunnough from Texas, it became necessary to definitely establish the identity of *texanaria* (Hulst), the heretofore sole included species of this genus.

Hulst described *Tephrosia texanaria* from a series of eight males and six females, according to the original description. The Hulst collection contained one male; this specimen is hereby designated as the lectotype. It is in the collection of the American Museum of Natural History, and its genitalia are mounted on slide FHR No. 16712.

The species is widely distributed across the southeastern United States. Specimens are before me from eastern Texas, Louisiana, Mississippi, Arkansas, Missouri, Kentucky, and South Carolina. It may occur in Florida, but more study is necessary to determine the status of specimens from that state.

There appears to be some variation in the size of the adults of *texanaria*, being apparently correlated with the time of flight. Moths captured in late fall and early spring months are larger and appear somewhat darker than those taken from May through September.

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