

MIGRATION OF BUTTERFLIES ALONG THE GULF COAST OF
NORTHERN FLORIDA

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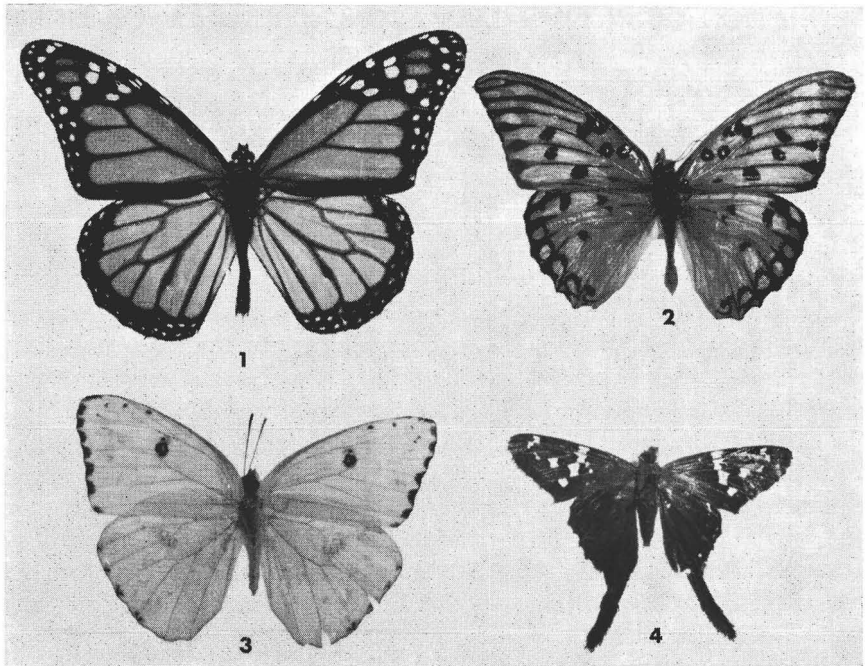
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For the past five years (1970-75) we have been making an intensive study of the Gulf Coast migrations of the monarch butterfly (*Danaus plexippus plexippus* [L.]) with special reference to the main migration route along the coast of northern Florida. Most of our observations and alar tagging have been conducted in the vicinity of Apalachee Bay at St. Marks Lighthouse, Wakulla Beach, Shell Point, and Live Oak Point. Although the migrants pass through this area during the latter part of October, the peak period of abundance has been consistently between October 20-25. Prior to October 20 and after October 25, relatively few migrants were recorded, although stragglers continued to pass through the area as late as mid-January. On one or two days during this brief period, a peak movement occurs involving countless thousands of individuals. The results of this study, as they pertain specifically to the monarch butterfly, will be presented at a later date.

In the present paper we report that along with the monarchs were three other species of migrating Lepidoptera, namely, *Agraulis vanillae* (L.), *Urbanus proteus* (L.) and *Phoebis sennae eubule* (L.). Each of these species occurred in great numbers during the migrating period, and, during the free-flight period (non-feeding) they all moved in a definite westerly direction, following the coastline.

The cloudless Sulphur, *Phoebis sennae eubule*, a well documented migratory species (Williams, 1930, 1958), was observed migrating northward from the open ocean toward land at Live Oak Point. On reaching land, these migrants altered direction abruptly and followed a west direction. This band of migrants, extending 200' across, flew in an endless procession within a few centimeters of the water and, on land, close to the vegetation; only an occasional specimen moved toward the flowering goldenrod to feed. An average of 480 migrants per minute passed the observation point.

The gulf fritillary, *Agraulis vanillae*, has been reported as a migrant by many authors, as listed by Williams (1930, 1958). As this species moved along the coast, they fed upon the nectar of *Baccharis halimifolia* and *Solidago puberula*. An average of 32 specimens was recorded feeding upon the nectar of each of five *B. halimifolia* bushes, a plant that grows



Figs. 1-4. Gulf Coast migrants. 1, *Danaus p. plexippus*; 2, *Agraulis vanillae*; 3, *Phoebis sennae eubule*; 4, *Urbanus proteus*. Many specimens collected were travel-worn, indicating long flights.

extensively along the sand dune area of the coast and flowers at the time of the peak migration. On being disturbed, these migrants continued westward, following the coastline. The reports of flight directions, as given by Williams and others for this species, are rather confusing since, depending upon the geographic location of the observation, flights might be recorded in every compass direction. This is due, in part, to the southerly flight of migrants, aberrant flights due to topographical influences, motion toward flowering plants, and the presence of non-migrating nomadic breeding populations. We believe that the movement of these migrants is southerly, as mentioned by Harris (1972), but, like the monarch butterfly, has a westward direction on reaching the coastal area.

The long-tailed skipper, *Urbanus proteus*, has been reported by Scudder (1889) as occurring in numbers, but with no record of flight directions. Williams (1958) records sight observations of a migration to the north in the spring and to the south in the autumn in Florida, but the actual locality in Florida where the observations were made is not given.

Although general migration patterns for a given geographic area can be indicated by careful observations for a given geographic area, it is necessary to have accurately recorded observations for many localities to establish a definite flight path. The most definitive method is that of following a marked individual of a moving population by means of individual designations, as shown on the cover of *Insektenmigrationem* (Annual Report for 1974). In this manner release-recapture lines can be accurately plotted over long distances. For small species, such as *Urbanus proteus*, one must rely on observations, such as contained in the present paper, and reports from other, preferably widely distributed, localities.

LITERATURE CITED

- HARRIS, L. H. 1972. Butterflies of Georgia. Univ. of Oklahoma Press. 326 p.
INSEKTENMIGRATIONEM. 1974. Germany (53 Bonn, Adenauerallee 150-164).
SCUDDER, S. H. 1889. Butterflies of eastern U.S.A. and Canada with special reference to the New England States. Cambridge, U.S.
WILLIAMS, C. B. 1930. The migration of butterflies. Oliver & Boyd, Edinburgh. 473 p.
———. 1958. Insect migration. Collins, London. 235 p.

OCCURRENCE OF *LEPTOTES CASSIUS THEONUS* (LYCAENIDAE) IN GEORGIA

On 29-30 September 1974, I collected 20 males and 6 females of *Leptotes cassius theonus* (Lucas) on Skidaway Island, Chatham Co., Georgia. This species was not mentioned by Harris (1972, Butterflies of Georgia. University of Oklahoma Press) and has apparently not heretofore been recorded from Georgia. All the specimens were taken from what appeared to be a well-established colony situated along a short stretch of dirt road just northwest of Priest Landing on the Wilmington River side of the island. Although it was quite abundant in this particular locality, *L. c. theonus* was nearly overlooked because of its superficial resemblance to *Hemiargus ceraunus antibubastus* Hübner, which was equally abundant. It appears likely that careful exploration of Georgia's coastal islands will reveal the existence of additional *L. c. theonus* colonies.

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