BIOLOGICAL STUDIES OF THE FLORIDA DUSKY WING SKIPPER, AND A PRELIMINARY SURVEY OF OTHER INSECTS ON BARBADOS CHERRY

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The Florida dusky wing skipper, *Ephyriades brunnea floridensis* B. and C., was reported feeding on barbados cherry (*Malpighia glabra* L.) by the junior author in 1951. Available literature has not revealed references to the habits or biology of this butterfly, so a study of this insect has been conducted during the summer of 1954.

This insect, described as a distinct subspecies in 1948, is a representative of the subfamily Pyrginae, family Hesperiidae. The adult (Fig. 1) is well illustrated and briefly described by Klots, but no reference to the larval forms (Fig. 2) has been located.

The larvae have been found feeding within webbed leaves in the barbados cherry plantings at the University of Miami Experimental Farm, where they have caused noticeable injury each season. Infestations have not been abundant enough to cause extensive defoliation of the host plants, but many of the individual plants have shown a ragged appearance from the leaf injury. A single caterpillar ties the edges of two or more leaves together by a rhythmic moving of the head, with a silken thread exuding from spinnerets. The larvae feed within this protected area, without destroying it completely but frequently leave it for other feeding localities, with accompanying leaf-tying.

The full grown larvae in natural resting position are from 25 to 30 mm. long. The body is basically green in color from the contained food, with a distinct brown- to black-colored head capsule. There are eight distinct orange-colored spots on the head capsule, and three distinct white longitudinal stripes along each side of the body. The uppermost or dorsal stripe of each side lie close together on the dorsal surface of the body, and coalesce in the last abdominal segment. Between these dorsal stripes, irregular translucent spots are observed.

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1 Student, and Associate Professor and Research Entomologist, respectively.
Life history studies were attempted by collecting immature stages of this insect from field plantings, and rearing them in the laboratory. Individual larvae were maintained in covered glass or plastic dishes with host plant foliage, and also on small potted plants within cheese-cloth cages. In the dishes, food material was replaced at two-day intervals.

Eggs are deposited singly on the surfaces of leaves, stems and fruit of the barbados cherry. The complete egg stage was not observed, since eggs were not obtained from butterflies in captivity. One viable egg collected in the field hatched after five days.

Figure 1.—Adult of Florida Dusky Wing Skipper.

Four larval instars were recognized. The first instar has an almost transparent body until it begins feeding the day after hatching. Then the normal green color of the older larva develops. One first instar larva molted after 18 days, but two other representatives of this instar continued active for 22 and 27 days respectively. One second instar larva required 27 days to reach ecdysis, while another specimen of the 2nd instar continued active for 36 days without a molt. Three third instar
larvae completed their development in 23, 29, and 34 days respectively.

Nine individuals in the fourth instar developed to pupation. Eight of these 9 larvae pupated in from 15 to 23 days, with an average period of 19.4 days. One larva required 38 days in this instar before pupation.

![Image](image-url)

Figure 2.—Larva of Florida Dusky Wing Skipper.

The duration of the pupal stage was observed on nine individual butterflies. Four of these required 7 days, two of them 8 days, one 6 days, one 5 days, and one individual was in the pupal stage 12 days. A pupal period of slightly over one week is thus indicated. The adult butterfly emerges by forcing a neat split in the anterior portion of the pupal case. Differentiation between the male and female individuals could not be made except by examination of the genitalia. In the field, adults were observed feeding on blossoms of barbados cherry and Spanish noodle (Bidens leschenath L.). In captivity they were maintained alive slightly over one week, feeding on a sugar-water solution.

Larvae of this skipper were not found on any plant except barbados cherry. They were found in various plantings of this
host in the Miami area, but thorough search on other representatives of this plant family, as well as on other plants, failed to reveal their presence.

Brief studies on migration of the larvae indicate some considerable movement during their development. Fifteen specimens of 3rd instar larvae were marked on the head capsule, using nail polish applied with a dissecting needle in recorded patterns of dashes and dots. These marked larvae were then released on the host plants at widely separated locations in the University planting. After one week, 13 of these 15 larvae were recovered. One had travelled a distance of 10 feet, three bushes away from the point of release. Three larvae had migrated to adjoining bushes in the row, and the other 9 larvae were recovered on the same plant where they were released.

Two species of parasitic Hymenoptera attack these caterpillars. The ichneumonid wasp *Trogomorpha trogiformis* (Cress.) was reported from this skipper by Butcher in 1951, as the first host record for any species of this parasitic genus. Additional specimens of this ichneumonid were reared from *Ephgriades b. floridensis* in September, 1953. Another first host record for a parasite was obtained during the course of the present studies, when a male and a female chalcid wasp emerged from two chrysalids of the skipper. These specimens have been identified by Dr. B. D. Burks of the U. S. National Museum as *Brachypymeria stossonea* (Crawford), with the notation that they are the first reared specimens of the species and thus the first specimens from a known host. The chalcid consumes the entire contents of the chrysalid, and the chalcid pupa is formed within the empty skipper chrysalid. One of these chalcids emerged from the pupa of a skipper which had been collected in the field in the third larval instar and maintained in the laboratory in a glass cage thereafter. This caterpillar molted four days after it was collected, required 18 days in the 4th instar, and was in the pupal stage for 6 days before the parasite emerged. Hence, a minimum life cycle of approximately one month is indicated for this species of chalcid.

**Other Insects on Barbados Cherry**

During the course of these investigations, all other insects observed feeding on the barbados cherry were collected and recorded. Representatives of four other insect orders and one
plant-feeding arachnid were found and tentatively identified as follows 2:

**Order Orthoptera:**

Family Locustidae—*Dickromorpha viridis* Scud. feeding on leaves.
Family Blattidae—two undetermined species feeding on fruit.
Family Tettigoniidae—*Amblycorypha uhleri* (Stal) and *Cnosephalis fasciatus* DeG. feeding on leaves.

**Order Hemiptera:**

Family Coreidae—*Leptoglossus phyllopus* (Linn.), *Acanthocephala femorata* (Fab.) and *Euthochthia galeator* (Fab.) feeding on leaves.
Family Cydnidae—*Pangaes bilineatus* (Say) feeding on leaves.
Family Pentatomidae *Euochistus urvus* Van Dusen feeding on leaves.

**Order Homoptera:**

Family Aleyrodidae—an undetermined whitefly found on young leaves.
Family Cercopidae—adults and nymphs of *Monephora bicincta* (Say) found on many twigs and branches.
Family Cieadellidae—two undetermined species of leafhoppers feeding on leaves.
Family Cieadidae—one specimen of *Diceroprocta viridifascia* Walker apparently feeding on twigs.
Family Coccidae—five species of scale insects were recorded from twigs and leaves. They are *Coccus hesperidum* (Linn.), *C. viridis* (Green), *Saissetus* sp., *Pulvinaria urbicola* Ckll., and *Icerya purchasi* Mask.
Family Fulgoridae—an undetermined species feeding on leaves.

**Order Coleoptera:**

Family Chrysomelidae—*Diabrotica balteata* Lec. feeding on leaves.
Family Curculionidae—*Pachneus opalis* Oliv. feeding on leaves.

**Arachnida, Order Acarina:**

Family Tuckereillidae—the distinctive mite *Tuckereilla pavoniformis* (Ewing) found on bark of twigs.

REFERENCES


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