

# Butterflies of Hutcheson Memorial Forest, and their ecological organization

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Leck, Charles F. (Rutgers University, New Brunswick, N.J.). Butterflies of Hutcheson Memorial Forest, and their ecological organization. William L. Hutcheson Memorial Forest Bulletin 3:1-2, 1973. A report of nineteen species of butterflies recorded at Hutcheson Memorial Forest, with comments on their biology (habitats, seasonal activity, and larval food plants).

With continued studies of the flora and fauna of the Hutcheson Memorial Forest, new taxa are being surveyed. This short report presents a preliminary account of the common butterflies (Lepidoptera: Rhopalocera) observed at the forest in 1970 and 1971. In both years, I maintained dated notes of the species seen or collected on each visit. Records are included from both the mature oak forest and surrounding fields of various ages.

## Species list

### Satyridae

- a. *Euptychia cymela* (Little Wood Satyr)
- b. *Cercyonis pegala* (Common Wood Nymph)

### Danaidae

- c. *Danaus plexippus* (Monarch)

### Nymphalidae

- d. *Speyeria cybele* (Great Spangled Fritillary)
- e. *Phyciodes tharos* (Pearl Crescent)
- f. *Nymphalis antiopa* (Mourning Cloak)
- g. *Vanessa cardui* (Painted Lady)
- h. *Limenitis archippus* (Viceroy)

### Lycaenidae

- i. *Lycaena phlaeas* (American Copper)
- j. *Everes comyntas* (Tailed Blue)
- k. *Lycaenopsis argiolus* (Spring Azure)

### Pieridae

- l. *Colias eurytheme* (Orange Sulphur)
- m. *Colias philodice* (Yellow Sulphur)
- n. *Pieris rapae* (Cabbage Butterfly)

### Papilionidae

- o. *Papilio polyxenes* (Black Swallowtail)
- p. *Papilio troilus* (Spicebush Swallowtail)

### Hesperiidae

- q. *Pyrgus communis* (Checkered Skipper)
- r. *Erynnis sp.* (Dusky Wing)
- s. *Atrytone logan* (Yellow Skipper)

The nineteen butterflies recorded at the Forest include common and widespread species, and represent approximately 15% of the total number reported for the State of New Jersey. As the study was not exhaustive, it is anticipated that additional species will be recorded in the future, particularly within the Hesperidae, which are small, evasive, and short-lived.

## Successional habitats of adults

Butterflies of lawns, new fields, and open areas:

*Phyciodes*, *Colias eurytheme*, *C. philodice*, *Pieris*, and *Atrytone*.

Butterflies of old fields:

*Danaus*, *Speyeria*, *Limenitis*, *Lycaena*, *Everes*, *Lycaenopsis*, *Papilio polyxenes*, and *Pyrgus*.

Butterflies of thickets and forest:

*Euptychia*, *Cercyonis*, *Nymphalis*, *Vanessa*, *Papilio troilus*, and *Erynnis*.

The flight activity of each species was characteristically associated with one of three broad sets of seral stages, indicated above. It was clear that the earlier successional habitats (through old fields) contained most of the species, and that few were limited to the mature

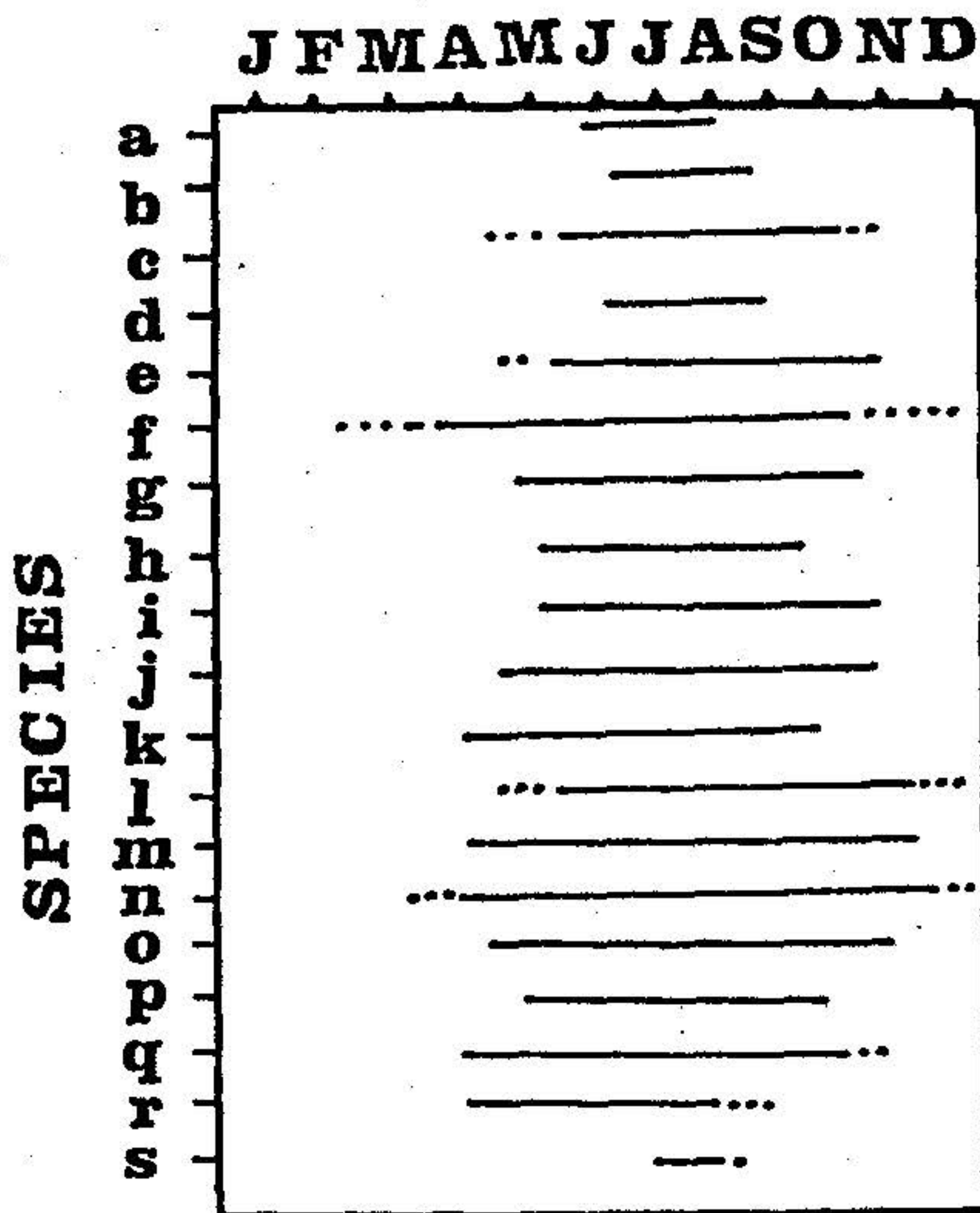


Figure 1. Seasonal Patterns of Activity. The butterfly species (a — s) are as presented in the Species List of the text. Solid lines indicate regular periods of activity; broken lines or dots indicate irregular activity or individual records.

forest. Other authors have similarly described this association of butterflies with open areas, but there appear to be no studies of lepidoptera in a detailed series of successional habitats. The Forest and its surrounding fields offer an excellent opportunity for research on this topic.

#### Seasonal patterns of adult activity

Adult butterflies may be observed at the forest in almost any month of the year except January, with the greatest activity between mid-May and early September. Most butterflies exhibit a broad season of activity (Fig. 1), with much overlap between species. However, interspecific temporal segregations have been shown with certain ephemeral Hesperiid butterflies in the Northeast, and these dissociations are believed to be adaptations for reducing food competition among adults (Clench, 1967). This adaptive strategy is clearly not available to the other families of butterflies which are typically multi-brooded (see below) and therefore have long seasons of flight. This difference suggests that the competition of larvae (with other insects) may be more important than adult interactions for most temperate butterflies.

#### Food plants of larvae (and broods per season)

Grasses: *Euptychia* (1), *Cercyonis* (1), and *Atrytone* (1).  
Clovers: *Everes* (4), *Colias eurytheme* (4), and *C. philodice* (4).

Willows: *Nymphalis* (2), and *Limenitis* (3).

Others: *Danaus* (2) — milkweeds, *Speyeria* (1) — violets, *Phyciodes* (3) — asters, *Vanessa* (3) — thistles, *Lycaena* (4) — sheep sorrel, *Lycaenopsis* (4) — dogwood, *Pieris* (3) — mustard, *Papilio polyxenes* (3) — Queen Anne's lace, *P. troilus* (3) — sassafras and spicebush, *Pyrgus* (2) — mallows, and *Erynnis* (2) — oaks.

As indicated above (from Klots, 1951, and Shapiro, 1970), these butterflies are highly specialized in their diets during the larval stages and most food plants are of the early successional stages. Species distributions and abundances are quite sensitive to the food plant availabilities. Hence, vegetational changes at the Forest, whether short- or long-termed, will produce direct changes in the butterfly populations. In fact, such insects are good indicators of the "conditions" of food plants in a complex environment.

#### Literature Cited

- Clench, H.K. 1967. Temporal dissociation and population regulation in certain Hesperiid butterflies. *Ecology*, 48: 1000-1006.  
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