

# THE LEPIDOPTERA OF CEDAR BOG, CHAMPAIGN COUNTY, OHIO I. AN ANNOTATED CHECK LIST OF THE RHOPALOCERA<sup>1</sup>

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## ABSTRACT

Forty-eight species of Rhopalocera (skippers and butterflies) have been confirmed by specimen records from Cedar Bog, a relict boreal bog in Champaign County, Ohio. For six of the listed species—*Poanes m. massasoit* (Scudder, 1863); *Lephelisca muticum* (McAlpine, 1937); *Satyrium caryaevorus* (McDunnough, 1942); *Satyrium a. acadica* (Edwards, 1862); *Nymphalis m. milberti* (Godart, 1819); *Boloria selene myrina* (Cramer, 1777)—the Cedar Bog record represents a noteworthy Ohio distribution locality.

## INTRODUCTION

Cedar Bog State Memorial, owned by the State of Ohio and administered by The Ohio Historical Society, is a 200-acre tract located in Champaign County, Ohio, Urbana Township (sections 31 and 32 of R 11, T 5). The Memorial contains a relict boreal bog, distinguished by the common presence of boreal plants, and unique in Ohio because of its plant and animal associations. The arbor vitae (*Thuja occidentalis*), often called the white cedar, gives the Bog its name. Also present are some wet prairie plants and a few southeast coastal-plains plants (Frederick, 1967).

Frederick (1967) describes five plant associations at Cedar Bog: the marl meadow, the bog meadow, the arbor vitae, the swamp forest, and the hardwood associations. Each association is distinguished by its plants and is influenced by water level, origin, and other factors, as well as by the plants themselves.

During the past four decades, Lepidoptera, along with other insects, have been collected at Cedar Bog by several entomologists. Notable collections have been made by John S. Thomas (former staff member of The Ohio Historical Society) and Edward S. Thomas (Curator Emeritus of The Ohio Historical Society). From 1969 through 1972, the author also has made collections of Lepidoptera from the Bog. Although several state and local lists of Ohio Lepidoptera have been published during the past century, none has included records of specimens taken at Cedar Bog.

## METHODS AND INITIAL DISCUSSION

Where the information is available, the distribution at the Bog of the Lepidoptera listed in this paper is described, including reference to one or more of the five plant associations described by Frederick (1967). In some instances the specific collection locality given is Woodburn Road, a township road that bisects the Bog from east to west and that is separated from the Bog by less than six feet of berm on either side. Also, an open field to the west of the West Branch of Cedar Run is indicated as the Bog locality for some species.

The temporal distribution for each recorded species at Cedar Bog is suggested by the dates of capture given with the specimen information. The quantity of data available did not seem to justify construction of graphs; indeed, with many species the paucity of dates justifies little more than a surmise concerning the total flight period at the Bog.

The format used for reporting available information concerning each of the species listed is as follows: name; Bog locality; species range in Ohio and in eastern

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United States (whenever Cedar Bog represents a record near a limit of range); food plants and their distribution at the Bog (whenever this information seems to help identify the habitat of the species); and complete listing of all of the specimens (and their collection data) which provided the foundation for this paper. The data for each of the specimens have been arranged as follows: date of collection (number of specimens in lot) (collector) (museum or collection in which specimen is presently located). For ease of reporting, the collectors' names have been abbreviated as follows:

CWA — Carl W. Albrecht	DKP — David K. Parshall
SLA — Stuart L. Alcott	FS — F. Seaman
JWA — James W. Amrine	PS — Peg Smith
JWE — Joseph W. Enke	EST — Edward S. Thomas
DJK — D.J. & J.N. Knull	JST — John S. Thomas
BN — Bill Novotny	CLW — C.L. Ward

The names of museums and collections have been abbreviated as follows:

OSMH — The Ohio Historical Society, Natural History Division
OSUM — The Ohio State University Museum of Zoology
OSUC — The Ohio State University Department of Entomology
DKPC — David K. Parshall, Columbus, Ohio
JWAC — James W. Amrine, Columbus, Ohio
CWAC — The author

All specimens cited are imagines; with the exception of those in the collection of Parshall, all have been examined by the author.

The systematic arrangement of the taxa in this list, as well as the nomenclature used, follows that of dos Passos (1964; 1969; 1970). Common names are according to Klots (1951).

Forty-eight species of Rhopalocera have been confirmed from Cedar Bog. This represents approximately one-third of the 145 species for which the author has Ohio records. It may be assumed that this list is incomplete for several reasons: (1) Of the 145 species of Rhopalocera known from Ohio, 43 (33%) are Hesperiiidae; only 10 (21%) of the Rhopalocera known from Cedar Bog are Hesperiiidae. Also, 4 of the 10 Hesperiiidae from Cedar Bog have been confirmed by only one record each. The need for further collecting of this family at the Bog is thereby indicated. (2) Collections have yet to be made in all of the major habitats at Cedar Bog throughout the period March through October (covering the flight periods for all known Ohio Rhopalocera). Considerations for the preservation and protection of Cedar Bog fauna, because of the fragility and unique qualities of this area, have prevented collectors from rampant collecting in the past. Further careful collecting, however, should help significantly to increase our understanding of the Bog fauna without causing permanent damage to populations. (3) Several butterflies and skippers found commonly throughout most of Ohio (e.g., *Battus p. philenor*, *Papilio polyxenes asterius*, and *Graphium marcellus*) have not been recorded from the Bog.

Six of the species found at Cedar Bog are rare or uncommon elsewhere in Ohio: *Poanes m. massosoi* (Scudder, 1863); *Lephelisca muticum* (McAlpine, 1937); *Satyrium caryaevorus* (McDunnough, 1942); *Satyrium a. acadica* (Edwards, 1862); *Nymphalis m. milberti* (Godart, 1819); *Boloria selene myrina* (Cramer, 1777). *Lephelisca muticum* is near the southeastern limit of its range at Cedar Bog; the other five are northern species and are near their southern limits.

#### LIST OF SPECIES

##### Hesperiiidae—*skippers*

*Euphyes vestris metacomet* (Harris, 1862). Dun skipper.

Food plants: grasses, and *Carex* sp. (Tietz, 1972); *Carex* sp. represented by 20 species at

Bog, common in bog and marl meadows and open areas of swamp forest, rare in arbor vitae (Frederick, 1967). Specimen: VII-28-1937 (1)(JST)(OSMH).

*Poanes m. massasoit* (Scudder, 1863). Mulberry wing.

General distribution: occurs widely in bogs or tussocky boggy marshes in northeastern U.S., but extremely local, ranging from Massachusetts and New Hampshire south to Maryland, and west through Ontario, Illinois, Minnesota, and Wisconsin to Iowa (Klots, 1951); except for one literature record for Hamilton County (Wyss, 1930), all Ohio records are from northwestern corner of state; Cedar Bog is probably near southern limit of range. Food plants: grasses (Tietz, 1972) and probably sedges (Klots, 1951). Specimen: VII-20-1939 (1)(JST)(OSUM).

*Poanes zabulon* (Boisduval & LeConte, 1834). Zabulon skipper.

Specimens: V-20-1934 (1)(JST)(OSUM), IX-4-1932 (2)(JST)(OSUM).

*Atrytone d. delaware* (Edwards, 1863). Delaware skipper.

Food plants: *Erianthus alopecuroides* (Linn.) (Tietz, 1972), *E. divaricatus* (Klots, 1951), and other grasses (op. cit.); neither of above *Erianthus* recorded from Cedar Bog (Frederick, 1967). Specimens: VII-20-1932 (2)(EST & JST)(OSUM), VII-23-1959 (2)(EST)(OSUM), VII-27-1935 (3)(JST)(OSUM), VII-28-1937 (1)(JST)(OSUM), VII-30-1937 (1)(JST)(OSUM).

*Polites coras* (Cramer, 1775). Peck's skipper.

Specimens: IX-4-1932 (2)(JST)(OSUM).

*Thymelicus lineola* (Ochsenheimer, 1808). European skipper.

Bog distribution: Woodburn Road. Specimens: VI-7-1970 (3)(CWA)(CWAC), VII-1-1972 (5)(CWA)(CWAC), VII-8-1971 (1)(CWA & SLA)(CWAC).

*Ancyloxypha numitor* (Fabricius, 1793). Least skipper.

Bog distribution: open grassy ditches along Woodburn Road. Specimens: VII-20-1939 (1)(JST)(OSUM), VII-30-1937 (5)(CLW)(OSUM), VII-30-1937 (1)(JST)(OSUM).

*Pholisora catullus* (Fabricius, 1793). Common sooty wing.

Bog distribution: open grassy ditches along Woodburn Road. Specimens: V-20-1934 (1)(JST)(OSUM), VII-1-1972 (1)(CWA)(CWAC), VII-8-1971 (2)(CWA & SLA)(CWAC), VII-28-1937 (2)(JST)(OSUM), VIII-16-1971 (2)(CWA)(CWAC).

*Thorybes pylades* (Scudder, 1870). Northern cloudy wing.

Bog distribution: Woodburn Road. Specimen: VII-8-1971 (1)(CWA & SLA)(CWAC).

*Epargyreus clarus* (Cramer, 1775). Silver spotted skipper.

Bog distribution: Woodburn Road next to bog meadow and next to swamp forest. Specimens: V-18-1972 (1)(PS & BN)(OSMH), V-23-1972 (1)(PS & BN)(OSMH), V-25-1972 (1)(PS & BN)(OSMH), VI-7-1970 (1)(CWA)(CWAC), VIII-16-1971 (1)(CWA)(CWAC).

#### Papilionidae—swallowtails

*Papilio c. cresphontes* Cramer, 1777. Giant swallowtail.

Bog distribution: Woodburn Road next to swamp forest, hardwood, and bog meadow associations; also within swamp forest. Specimens: V-24-1972 (1)(PS & BN)(OSMH), VIII-10-1972 (1)(DKP)(DKPC), VIII-16-1971 (2)(CWA)(CWAC & OSMH).

*Papilio g. glaucus* Linnaeus, 1764. Tiger swallowtail.

Bog distribution: Woodburn Road next to swamp forest, hardwood, and bog meadow associations. Specimen: VIII-16-1971 (1)(CWA)(CWAC).

*Papilio t. troilus* Linnaeus, 1758. Spicebush swallowtail.

Bog distribution: Woodburn Road next to swamp forest and hardwood associations. Specimens: V-24-1972 (1)(PS & BN)(OSMH), VII-8-1971 (1)(CWA & SLA)(CWAC), VIII-16-1971 (1)(CWA)(CWAC), IX-28-1969 (1)(CWA)(CWAC).

#### Pieridae—whites and sulphurs

*Pieris rapae* (Linnaeus, 1758). Cabbage butterfly.

Bog distribution: Woodburn Road next to open field, bog meadow, swamp forest, and hardwood associations; also in bog meadow. Specimens: V-6-1933 (1)(JST)(OSUM), V-8-1939 (1)(JST)(OSUM), V-18-1972 (1)(PS & BN)(OSMH), V-22-1972 (1)(PS & BN)

(OSMH), VI-7-1970 (2)(CWA)(CWAC), VII-20-1939 (4)(JST)(OSUM), VII-21-1949 (1)(JST)(OSUM), IX-6-1933 (1)(EST)(OSUM), IX-28-1969 (3)(CWA)(CWAC).

*Colias eurytheme* Boisduval, 1852. Alfalfa butterfly, orange sulphur.

Bog distribution: Woodburn Road next to bog meadow and open field; also in open field.

Specimens: VIII-9-1933 (1)(EST)(OSUM), VIII-21-1972 (1)(CWA)(CWAC), IX-28-1969 (4)(CWA)(CWAC).

*Colias p. philodice* Godart, 1819. Common or clouded sulphur.

Bog distribution: Woodburn Road next to bog meadow and open field; also in open field.

Specimens: VI-7-1970 (2)(CWA)(CWAC), VII-8-1971 (3)(CWA & SLA)(CWAC), VII-10-1958 (1)(JWA)(JWAC), VIII-16-1971 (2)(CWA)(CWAC), IX-28-1969 (2)(CWA)(CWAC).

*Eurema lisa* Boisduval & LeConte, 1829. Little sulphur.

Specimen: VII-30-1937 (1)(JST)(OSUM).

*Anthocharis midea* Hübner 1809. Falcate orange tip.

Bog distribution: swamp forest (J. S. Thomas, 1973). Specimen: V-8-1939 (1)(JST)(OSUM).

#### Riodinidae—*metalmarks*

*Lephelisca muticum* (McAlpine, 1937). Swamp metalmark.

Bog distribution: bog meadow and Woodburn Road next to bog meadow. General distribution: only other Ohio record is Seneca County in northern Ohio (Porter, 1965); Klots (1951) lists range to include Pennsylvania, Ohio, Michigan, Illinois, Missouri, Minnesota, and Wisconsin, placing the Cedar Bog record near the southeastern limit of range. Food plant: *Cirsium muticum* Michx. (Tietz, 1972, and Klots, 1951), which is common in bog meadow and at margin of arbor vitae stands at Cedar Bog (Frederick, 1967). Specimens: VI-28-1959 (4)(EST)(OSUM), VII-8-1971 (1)(CWA & SLA)(CWAC), VII-10-1958 (1)(JWA)(OSUM), VII-20-1939 (12)(JST)(OSUM), VII-21-1949 (1)(JST)(OSUM), VII-28-1939 (2)(JST)(OSUM), VII-30-1937 (1)(CLW)(OSUM), VII-30-1937 (9)(JST)(OSUM), VIII-10-1972 (2)(DKP)(DKPC).

#### Lycaenidae—*gossamer-winged butterflies*

*Harkenclenus t. titus* (Fabricius, 1793). Coral hairstreak.

Bog distribution: Woodburn Road. Specimen: VII-8-1971 (1)(CWA & SLA)(CWAC).

*Satyrrium liparops strigosa* (Harris, 1862). Striped hairstreak.

Bog distribution: Woodburn Road. Specimen: VII-8-1971 (1)(CWA & SLA)(CWAC).

*Satyrrium calanus falacer* (Godart, 1824). Banded hairstreak.

Bog distribution: Woodburn Road. Specimen: VII-8-1971 (1)(CWA & SLA)(CWAC).

*Satyrrium caryaevorus* (McDunnough, 1942). Hickory hairstreak.

Bog distribution: Woodburn Road. General distribution: northern species known from Ontario, Quebec, New York, and Minnesota (Klots, 1951); in Indiana, uncommon in June and July in Kosciusko and Wabash Counties (Shull & Badger, 1972) in northeastern corner of state; in Ohio, Cedar Bog is the southernmost limit of distribution with records otherwise limited to northwestern corner of the state (from Defiance, Lucas, Paulding, and Williams Counties according to Price, 1970); Cedar Bog seems to be beyond the southern limit of the normal range. Specimen: VII-8-1971 (1)(CWA & SLA)(CWAC).

*Satyrrium a. acadica* (Edwards, 1862). Acadian hairstreak.

General distribution: northern species with distribution in central and southern Canada, south in eastern U.S. to New York, Pennsylvania, Michigan, Illinois, Iowa, and Kansas (Klots, 1951); in Indiana limited to some northern counties (Shull & Badger, 1972); in Ohio, Cedar Bog and one locality in adjacent Clark County are only records south of northern two tiers of counties, and probably lie near southern limit of range. Food plant: *Salix discolor* Muhl. (Tietz, 1972), common in shrub zone on margins of marl meadow (Frederick, 1967). Specimens: VI-28-1959 (1)(EST)(OSUM), VII-10-1958 (2)(JWA)(JWAC), VII-30-1939 (1)(JST)(OSUM).

*Callophrys h. henrici* (Grote & Robinson, 1867). Henry's elfin.

Specimen: IV-30-1939 (1)(EST)(OSUM).

*Lycæna thoe* Guérin-Méneville, 1831. Bronze copper.

Bog distribution: Woodburn Road. Specimens: VI-7-1970 (1)(SLA)(CWAC), VI-16-1972 (1)(DKP)(DKPC).

*Everes c. comyntas* (Godart, 1824). Eastern tailed blue.

Bog distribution: Woodburn Road. Specimens: VII-20-1939 (1)(JST)(OSUM), VII-20-1932 (1)(JST)(OSUM), VII-28-1937 (2)(JST)(OSUM), VII-30-1937 (1)(JST)(OSUM), VIII-21-1972 (1)(CWA)(CWAC).

*Celastrina argiolus pseudargiolus* (Boisduval & LeConte, 1833). Spring azure.

Bog distribution: Woodburn Road next to bog meadow and swamp forest. Specimens: V-8-1939 (3)(JST)(OSUM), VI-7-1970 (4)(CWA)(OSMH), VI-7-1970 (3)(SLA & CWA)(CWAC), VI-16-1972 (4)(DKP)(DKPC), VII-8-1971 (2)(CWA & SLA)(CWAC), VII-27-1937 (1)(JST)(OSUM), VIII-16-1971 (2)(CWA)(CWAC).

#### Libytheidae—snout butterflies

*Libytheana b. bachmanii* (Kirtland, 1851). Snout butterfly.

Bog distribution: Woodburn Road next to hardwood association, on arbor vitae next to marl meadow, and in open field. Food plant: *Celtis occidentalis* Linn. (Klots, 1951, and Tietz, 1972), common throughout all swamp forest at Cedar Bog (Frederick, 1967). Specimens: VII-27-1972 (1)(CWA)(CWAC), VII-28-1937 (3)(JWE)(OSUM), VII-30-1937 (2)(JST)(OSUM), VIII-9-1933 (2)(FS)(OSUM), VIII-10-1972 (2)(DKP)(DKPC).

#### Nymphalidae—brush-footed butterflies

*Asterocampa c. celtis* (Boisduval & LeConte, 1833). Hackberry butterfly.

Bog distribution: Woodburn Road. Food plant: *Celtis occidentalis* Linn. (Tietz, 1972), common throughout all swamp forest at Cedar Bog (Frederick, 1967). Specimens: VI-16-1972 (2)(DKP)(DKPC), VII-1-1972 (1)(CWA)(CWAC), VIII-16-1971 (1)(CWA)(CWAC).

*Asterocampa c. clyton* (Boisduval & LeConte, 1833). Tawny emperor.

Bog distribution: open area in swamp forest and Woodburn Road next to swamp forest. Food plant: same as *A. c. celtis* above. Specimens: VII-8-1971 (2)(CWA & SLA)(CWAC), VIII-10-1972 (1)(DKP)(DKPC).

*Limenitis a. astyanax* (Fabricius, 1775). Red-spotted purple.

Bog distribution: Woodburn Road next to hardwood association. Specimens: VIII-16-1971 (2)(CWA)(CWAC).

*Limenitis a. archippus* (Cramer, 1776). Viceroy, mimic.

Bog distribution: open field and Woodburn Road next to hardwood association. Specimens: VI-7-1970 (1)(CWA & SLA)(CWAC), VIII-16-1971 (1)(CWA)(CWAC).

*Vanessa atalanta* (Linnaeus, 1758). Red admiral.

Bog distribution: bog meadow, Woodburn Road next to bog meadow and swamp forest, and within swamp forest. Specimens: V-17-1972 (8)(PS & BN)(OSMH), V-18-1972 (1)(PS & BN)(OSMH), V-25-1972 (1)(PS & BN)(OSMH), VI-7-1970 (3)(CWA)(CWAC), VII-1-1972 (2)(CWA)(CWAC), VII-8-1971 (4)(CWA & SLA)(CWAC), VIII-10-1972 (1)(DKP)(DKPC), IX-28-1969 (1)(CWA)(CWAC).

*Junonia c. coenia* (Hübner, 1822). Buckeye.

Specimen: IX-4-1932 (2)(JST)(OSUM).

*Nymphalis m. milberti* (Godart, 1819). Milbert's tortoise shell.

Bog distribution: very common along Woodburn Road next to bog meadow and swamp forest. General distribution: essentially a northern and woodland species, ranging from Newfoundland, central and southern Canada southward to West Virginia, chiefly in the mountains (Klots, 1951); occurs infrequently throughout Ohio, occasionally common locally; Cedar Bog has the largest colony known in Ohio and is probably near the southern limit of distribution. Food plants: of the plants listed by Tietz (1972), *Urtica procera*

- Muhl. is abundant in both swamp forest and arbor vitae associations, *Urtica dioica* Linn is found throughout open swamp forest, and *Salix* spp. are found in shrub zone on margins of marl meadow and on banks of Cedar Run (Frederick, 1967). Specimens: III-25-1948 (1)(EST)(OSUM), VI-7-1970 (2)(SLA & CWA)(CWAC), VI-16-1972 (8)(DKP)(DKPC), IX-28-1969 (4)(CWA)(CWAC), IX-28-1969 (3)(CWA)(OSMH).
- Nymphalis antiopa* (Linnaeus, 1758). Mourning cloak.  
Bog distribution: Woodburn Road by open field. Specimen: VII-1-1972 (1)(CWA)(CWAC).
- Polygonia interrogationis* (Fabricius, 1798). Question mark.  
Bog distribution: common along Woodburn Road throughout bog area. Specimens: VI-7-1970 (2)(SLA)(CWAC), VI-16-1972 (2)(DKP)(DKPC), VII-8-1971 (5)(CWA & SLA)(CWAC), VIII-10-1972 (1)(DKP)(DKPC), VIII-16-1971 (1)(CWA)(CWAC), VIII-21-1972 (1)(CWA)(CWAC), IX-10-? (1)(DJK)(OSUC).
- Polygonia comma* (Harris, 1842). Hop merchant, comma.  
Bog distribution: common along Woodburn Road throughout bog area, also in open areas in swamp forest. Specimens: VI-16-1972 (3)(DKP)(DKPC), VII-1-1972 (3)(CWA)(CWAC), VII-27-1972 (1)(CWA)(CWAC), VIII-10-1972 (1)(DKP)(DKPC), VIII-16-1971 (2)(CWA)(CWAC), IX-28-1969 (3)(CWA)(CWAC), IX-28-1969 (3)(CWA)(OSMH).
- Chlosyne n. nycteis* Doubleday, 1847. Silvery checkerspot.  
Bog distribution: common along Woodburn Road in open areas. Specimens: VI-7-1970 (3)(SLA & CWA)(CWAC), VI-16-1972 (4)(DKP)(DKPC), VI-21-1958 (1)(EST)(OSUM), VII-10-1958 (1)(JWA)(JWAC), VIII-9-1933 (4)(FS)(OSUM), VIII-10-1972 (2)(DKP)(DKPC), VIII-16-1971 (4)(CWA)(CWAC), VIII-21-1972 (2)(CWA)(CWAC).
- Phyciodes t. tharos* (Drury, 1773). Pearl crescent.  
Bog distribution: common in bog meadow and along Woodburn Road in open areas. Specimens: V-8-1939 (1)(JST)(OSUM), V-17-1972 (3)(PS & BN)(OSMH), V-18-1972 (6)(PS & BN)(OSMH), V-19-1972 (2)(DKP)(DKPC), V-22-1972 (1)(PS & BN)(OSMH), V-23-1972 (3)(PS & BN)(OSMH), V-25-1972 (1)(PS & BN)(OSMH), VII-8-1971 (1)(CWA & SLA)(CWAC), VII-20-1939 (10)(JST)(OSUM), VII-20-1932 (1)(JST)(OSUM), VII-28-1937 (2)(JST)(OSUM), VIII-9-1933 (1)(FS)(OSUM), IX-4-1932 (1)(JST)(OSUM).
- Boloria selene myrina* (Cramer, 1777). Silver-bordered fritillary.  
Bog distribution: wet open areas near hardwood association, and along Woodburn Road west of the West Branch of Cedar Run, where hardwood association borders upon open fields. General distribution: northern species with range including Canada from Labrador west to Alberta and south to Maryland and North Carolina (in mountains) and southern Illinois (Klots, 1951); uncommon throughout Ohio, with most records from northern counties; records of the past 20 years indicate that Cedar Bog contains the southernmost colony remaining in the state; common in Indiana in far northern counties, absent in remainder of state (Shull & Badger, 1972); Cedar Bog probably lies near the southern limit of range in the Ohio area. Food plants: *Viola* sp. (Klots, 1951, and Tietz, 1972) represented at the Bog by 12 species found in arbor vitae, swamp forest, and hardwood associations (Frederick, 1967). Specimens: V-20-1934 (1)(JST)(OSUM), VI-7-1970 (2)(SLA)(CWAC), VII-20-1932 (4)(JST)(OSUM), VII-28-1937 (3)(JST)(OSUM), VII-30-1937 (1)(CLW)(OSUM), VII-30-1937 (2)(JST)(OSUM), IX-4-1932 (7)(JST)(OSUM), IX-6-1933 (2)(EST)(OSUM).
- Boloria toddi ammiralis* (Hemming, 1933). Meadow fritillary.  
Bog distribution: Woodburn Road. Food plants: same as for *B. selene myrina*, see comments above. Specimens: V-6-1933 (1)(JST)(OSUM), VI-7-1970 (1)(SLA & CWA)(CWAC), VII-20-1932 (4)(JST)(OSUM).
- Speyeria c. cybele* (Fabricius, 1775). Great spangled fritillary.  
Bog distribution: open fields next to hardwood association and along Woodburn Road. Food plants: *Viola* sp. (Klots, 1951, and Tietz, 1972), see comments concerning Bog distribution under *Boloria selene myrina* above. Specimens: VI-16-1972 (3)(DKP)(DKPC), VII-1-1972 (1)(CWA)(CWAC).

## Danaiidae—monarchs

*Danaus p. plexippus* (Linnaeus, 1758). Monarch, milkweed butterfly.

Bog distribution: open fields where food plant (*Asclepias* sp.) grows. Specimens: none collected; observed only.

## Satyridae—satyrs, wood nymphs

*Lethe eurydice* (Johansson, 1763). Eyed brown.

Bog distribution: bog meadow, Specimens: VI-7-1970 (1)(SLA)(CWAC), VI-21-1958 (1)(?) (OSUM), VI-24-1959 (4)(JWA)(JWAC), VI-26-1959 (1)(EST)(OSUM), VIII-6-1931 (2)(JST)(OSUM).

*Euptychia c. cymela* (Cramer, 1777). Little wood satyr.

Bog distribution: Woodburn Road next to swamp forest and hardwood associations. Specimens: VI-7-1970 (5)(SLA)(CWAC).

*Cercyonis pegala* (Fabricius, 1775). Wood nymph, grayling.

Bog distribution: open fields and Woodburn Road next to hardwood association. Specimens: VII-8-1971 (1)(CWA & SLA)(CWAC), VII-27-1972 (4)(CWA)(CWAC), VIII-16-1971 (4)(CWA)(CWAC), VIII-21-1972 (1)(CWA)(CWAC).

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