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The Lepidoptera of Fowler Woods State Nature Preserve, Richland County, Ohio.

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THE LEPIDOPTERA OF FOWLER WOODS STATE NATURE PRESERVE, RICHLAND COUNTY, OHIO.

Roy W. Rings and Eric H. Metzler

ABSTRACT

A survey of the Lepidoptera occurring at Fowler Woods State Nature Preserve in Richland County, Ohio was conducted from 1986 to 1988. Sampling was done by ultraviolet light traps, mercury vapor light and ultraviolet light and collecting sheet, bait traps, sugaring and netting. A total of 419 species and forms was identified and tabulated. It was estimated that the actual number of species at this site is 655. Representative specimens have been deposited in the Insect Reference Collection at the Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, Ohio.

This is the fourth in a series of papers which document the species, forms, and present status of Lepidoptera in Ohio's recreational areas and nature preserves. We have previously reported on the Lepidoptera of the Wilderness Center in Stark County, Atwood Lake Park in Carroll and Tuscarawas counties, and the Mohican State Forest-Park complex in Ashland County (Rings et al. 1987, Rings and Metzler 1988, and Rings and Metzler 1989).

This paper reports the results of a three-year survey of Lepidoptera conducted at the Fowler Woods State Nature Preserve in Richland County, Ohio. Publication of this information establishes a data base upon which to build a more comprehensive body of knowledge of the non-game wildlife in this area.

DESCRIPTION OF THE STUDY SITE

Fowler Woods State Nature Preserve is situated in Butler Township in northeast Richland County (Figure 1). This 133.40 acre mature forest is owned and managed by the Division of Natural Areas and Preserves, Ohio Department of Natural Resources.

The woods is primarily a beech-maple community, grading into swamp forests in the low lying areas. Several low areas are covered by water most of the year and are occupied by buttonbush swamp. The remainder is swamp forest with mature beech-maple woods on adjacent higher ground. Ash (Fraxinus sp.), American linden (Tilia americana), shagbark hickory (Carya ovata) and wild cherry (Prunus serotina) trees also occur in the woods. In the northeast section there are a number of volunteer apple (Malus malus) seedlings. There is a rich display of spring wildflowers in the...
Figure 1. Location of Fowler Woods State Nature Preserve in Ohio.

forest. Significant plants include royal fern (Osmunda regalis), swamp saxifrage (Saxafagra virginiana), dwarf ginseng (Panax trifolium), golden saxifrage (Chrysosplenium americanum), common marsh marigold (Caltha palustris) and skunk cabbage (Symplocarpus foetidus).

Most of the soil in the Preserve is Cardington, with a small area of Bennington soil at the western end (Redmond et al. 1975). These light-colored, nearly level to moderately sloping soils have formed in moderately calcareous, clay loam till. They are moderately productive, medium to strongly acid, moderate in moisture-supplying capacity, fertility and organic matter. Cardington soils are moderately well-drained, gently to moderately sloping and need erosion control. Bennington soils are nearly level to gently sloping, somewhat poorly drained, and need drainage. These soils are mostly used for general farm crops and pasture. The preserve is surrounded by farms devoted to general farming and cash grain crops. The crops
grown are corn, soybeans, wheat and oats. The grain crops are fed to cattle and hogs.

MATERIALS AND METHODS

Collecting was done when maximum daily temperatures exceeded 16.9° C. In 1986 a total of 15 collecting trips were made to the study site from 25 February to 30 September. Two field trips were made in November, 1987, while 13 trips were made in 1988 between 8 March and 30 September.

During daylight hours butterflies and skippers were netted with standard, insect-collection nets. Some nymphalids were captured in bait traps. Also during this period of time foliage was searched for lepidopterous larvae. Since most moths are nocturnal and are attracted to baits and lights most collecting activities were conducted at night. The following techniques were employed in moth collections:

Black light and sheet—A single 15 watt ultraviolet light, powered by a portable battery, was hung on a white sheet, usually deep in the forest. Desirable moths were selected from the sheet and placed in killing jars.

Black light traps—Two black light traps were operated using a 15 watt ultraviolet light powered by DC batteries (Ellisco General Purpose “Black light” Trap manufactured by Elisco Inc., Philadelphia, PA). These traps were operated in open areas along the edge of the woodland. However, the traps were placed deep in the woodland on nights when the moon was full, or nearly full. Moths which were attracted to the light collided into a baffle and were then funneled down into a collecting chamber where they were killed by vapors from an insect strip (dichlorvos) and a container of chloroform. All moths collected were placed in plastic boxes and taken to the laboratory at the OARDC where they were identified, sexed and recorded. Desirable specimens were spread, labeled and incorporated into the Insect Reference Collection at the OARDC, Wooster, Ohio.

Bait traps—Two bait traps were employed in this study. They were 35 × 20 × 20 cm with 2.5 × 2.5 cm wooden frames covered with 16 mesh aluminum screening. A fermented, liquid bait mixture (described under “sugaring”) was placed in a plastic container in the bottom of the trap. An inverted, screen funnel was built into the trap just above the bait. After feeding on the bait, moths flew upward through the funnel and into the enclosed trap. The traps were hung in trees in deep woods at a height of about 150 cm to avoid damage by raccoons and skunks.

Mercury vapor light and sheet—A 160 watt mercury vapor self-ballasted lamp, powered by a 600 watt Honda generator was also used to attract moths at night. The lamp was mounted on a steel tripod with legs measuring 330 cm so that the lamp was about 300 cm above the ground and thus attracted moths from a considerable distance. A supplementary 15 watt DC black light was mounted 25 cm from a white sheet, 225 by 285 cm, upon which the moths could alight. This setup was used in open areas to attract sphingids and saturniids. Desirable specimens were then be selected from the sheet and placed in killing jars. Specimens thus collected were taken to the OARDC laboratory for processing.

Sugaring—A bait to attract moths was painted on trees as an additional collecting technique. The bait consisted of a mixture of macerated peaches, grapes, plums, plus sugar and yeast which was allowed to ferment. Just before use a small amount of rum was added to give the bait a more aromatic odor. The bait was designed to simulate one of the natural foods of moths—fermenting tree sap. Trees along the boardwalk nature trail were painted with the bait mixture. The baited areas were examined with a flashlight every 30 to 60 minutes and desirable specimens were collected in killing jars.
Species and forms are listed (Table 1) according to the most recent regional checklist of macrolepidoptera (Hodges et al. 1983). The numbers preceding each species are the Hodges checklist designations. When more than one collection date is listed, the first is the earliest record of collection, and the second is the latest, within a calendar year. Following the date of collection is the method of collection abbreviated as follows: BL, ultraviolet light and sheet; BLT, black light trap; BT, screened bait trap baited with fermenting sugar bait; S, sugaring; L, larval collection; MVL, mercury vapor light and sheet; N, netted; and O, observed but not collected.

A total of 419 species of Lepidoptera, representing 23 families, was collected and identified in the course of this study. Eight of these were butterflies, one a skipper and 410 were moths (Table 1). None of the species collected is known to be "endangered", "threatened", or "of special concern". This terminology follows that of the Department of Natural Resources, Division of Wildlife: "endangered" = in danger of being extirpated; "threatened" = likely to become endangered if no action is taken; "special concern" = rare, peripheral, or status unknown.

Although several species were collected which have been recorded as serious defoliators of hardwood forests, our collections indicate that populations were not sufficiently high to cause concern. Some of these were the spring cankerworm, elm spanworm, hemlock looper, forest tent caterpillar, eastern tent caterpillar, catalpa sphinx, yellow-necked caterpillar, walnut caterpillar, saddled prominent, fall webworm, and the white-marked tussock moth.

We made a special effort to sample the population of moths in the genus Catocala. These underwing moths are favorites of both amateur and professional moth collectors. Most of the species have drab, brownish-gray fore wings but brilliantly colored, banded hind wings of pink, red, and orange. During this study 19 species of underwing moths were taken. The species collected in order of decreasing numbers were: Catocala ceroigama, C. ciera, C. ilia, C. ultronla, C. retecta, C. obscura, C. gynnea, C. amatrix, C. neogama, C. residua, and one each of: C. habilis, C. serena, C. palaeogama, C. blandula, C. insolabilis, C. nebulosa, C. subnata, C. parta, and C. mira.

A total of 4,569 specimens were taken by all methods from 1986 through 1988. The percentage taken by each technique was: black light trap—39.5; mercury vapor light—25.8; black light and sheet—9.5; sugaring—23.3 and bait trap and pupal collections—1.9.

A comparison of the number of Lepidoptera collected each month from 25 February to 30 September in 1986, November in 1987 and from 8 March to 30 September in 1988 indicates that more specimens were collected in April than any other month. The following percentage of the total number of specimens (4,569) collected for all of the years were: February—.02; March—5.0; April—25.1; May—12.1; June—18.5; July—4.1; August—17.0; September—14.8; October 0.04; and November 3.4. In most years, collecting can be started with the first few warm days in February and continue until the end of October, or even into November.

To estimate the complete lepidopterous fauna of Fowler Woods, which would include species that should occur but were not collected during the study, a hypothetical list of common species that should occur was prepared from collections made in other counties in northeastern Ohio (Carroll, Holmes, Knox, Ashland, Tuscarawas and Wayne). By comparing species on the actual list with those on the hypothetical list, it is estimated that about 70.0% of the moths that should occur in the area were collected. For butterflies and skippers, approximately 23.7% of the estimated fauna were taken. These differences reflect the interests, competence and capabilities of the authors. By projecting the percentage of moths and butterflies that should occur with the actual numbers collected it can be estimated that the total number of species at this site would be approximately 633 (38 species of butterflies and skippers and 595 species of moths).
Rings et al. (1987) reported 511 species of Lepidoptera in an annotated checklist of Lepidoptera occurring at the Wilderness Center in Stark County. That study was conducted over a nine year period. In 1988, 428 species and forms were reported from Atwood Lake in Carroll and Tuscarawas counties (Rings and Metzler 1988). Our three year study of the lepidopterous fauna of Mohican State Forest yielded 437 species (Rings and Metzler 1989). From these reports and from the present study it may be concluded that from 400 to 500 species commonly occur in a given favorable locality in Ohio and that probably 600 to 700 species may be taken in a locality characterized by a high host plant diversity, particularly if collections are made at frequent intervals over a period of five or more years.

ACKNOWLEDGMENT

We are indebted to Dr. Charles V. Covell, Jr., University of Louisville for the determination of geometrids.

Table 1. — Species of Lepidoptera collected at Fowler Woods State Nature Preserve, Richland County, Ohio 1986 to 1988. Number preceding common name is from checklist by Hodges (1983). Abbreviations are: BL, black light and sheet; BLT, black light trap; BT, bait trap; L, larval collection; MVL, mercury vapor light and sheet; N, netted; PH, pheromone trap; S, sugaring.

<table>
<thead>
<tr>
<th>FAMILY HEPIALIDAE</th>
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<tr>
<td>Stenopis argenteomaculatus (Harr.)</td>
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<th>FAMILY OECOPHORIDAE</th>
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<tr>
<td>Antaeotricha schlaegeri (Zell.)</td>
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<td>Antaeotricha leucillana (Zell.)</td>
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<td>Attevapunctella (Cram.)</td>
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<td>Synanthedon acerni (Clem.)</td>
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<th>FAMILY TORTRICIDAE</th>
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<tr>
<td>Argyrotaenia velutinana (Wlk.)</td>
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<td>Choristoneura fractivittana (Clem.)</td>
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<tr>
<td>Choristoneura rosaceana (Harr.)</td>
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<td>Syndemis afflictana (Wlk.)</td>
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<td>Clepsis melalleuca (Wlk.)</td>
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<th>FAMILY NYMPHALIDAE</th>
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<td>Nymphalis antiopa (L.)</td>
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<td>Vanessa atalanta (L.)</td>
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<td>Speyeria cybele (F.)</td>
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<td>Phyciodes tharos (Drury)</td>
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<th>FAMILY SATYRIDAE</th>
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<tr>
<td>Megisto cymela (Cram.)</td>
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FAMILY LIMACODIDAE


4654 Tortricidea flexuosa (Grt.) 15 Jul 1988 MVL 1.


4667 Apoda y-inversum (Pack.) 26 Jun 1986 BLT 1.


4700 Sabine stimulea (Clem.) 15 Jul 1988 MVL 1.

FAMILY PYRALIDAE


4953 Phlyctaenia coronata (Hufn.) 6 Jun 1988 MVL 1.

5159 Desmia juneralis (Hbn.) 27 May 1988 MVL 2.

5226 Papita magniferalis (Wlk.) 27 May 1988 BLT 1, MVL 7.

5228 Polygrammodes flavidalis (Gn.) 1 Aug 1988 BLT 1.


FAMILY THYATIRIDAE

6237 Pseudothyatira cymatophoroides (Gn.) 9 Jul–16 Aug 1986 BL 2, S 3; 6 Jun 1988 S 3.

FAMILY DREPANIDAE

6255 Oreta rosea (Wlk.) 26 Jun–16 Aug 1986 BL 5.

6255 Oreta rosea f. irrorata (Pack.) 16 Aug 1986 BL 1.

FAMILY GEOMETRIDAE

6273 Itame pustularia (Gn.) 15 Jul 1988 MVL 1, S 1.


6335 Semiothisa aequiferaria (Wlk.) 27 May 1988 MVL 1.

6340 Semiothisa minorata (Pack.) 27 May 1988 MVL 1; 1 Aug 1988 BLT 2.

6342 Semiothisa bispignata (Wlk.) 1 Aug 1988 BLT 1.

6386 Semiothisa ocellinata (Gn.) 1 Aug–10 Sep 1988 BLT 2.

6449 Glena cribrataria (Gn.) 3 Apr 1986 BL 1.

6584 Anacamptodes humaria (Gn.) 25 Apr 1986 BLT 1.

6588 Iridopsis larvaria (Gn.) 14 May 1986 BL 1, BLT 1; 27 May 1988 BLT 4, MVL 7.

6590 Anavitrella pampinaria (Gn.) 27 May 1988 BLT 10.

6594 Celeria sublunaria (Gn.) 17 Apr 1988 BL 2.

6598 Protobojumaria porcellaria (Gn.) 3 Apr 1986 BL 1.

6599 Epimecis hortaria (F.) 25 Apr–26 Jun 1986 BL 2, BLT 2; 1 May–1 Aug 1988 BL 6, MVL 3.

6620 Melanolophia canadaria (Gn.) 25 Apr–14 May 1986 BL 3, BLT 2; 1 May–1 Aug 1988 BL 1, BLT 1, MVL 3.


6640a Biston betularia f. cognataria (Gn.) 14 May 1986 BL 1; 27 May 1988 MVL 1.


6655 Hypagyrtis esther (Barnes) 14 May–8 Jun 1986 BL 3.

6658 Phigalia titea (Cram.) 14 May 1986 BL 1; 4 Apr 1988 BL 10, BLT 1.

6660 Phigalia strigataria (Minot) 4 Apr 1988 BL 2, BLT 1.

6662 Paleacrita vernata (Peck) 13 May 1986 BL 2; 24 Mar 1988 BL 4, BLT 3.

6667 Lomographa vestulata (Gn.) 14 May 1986 BL 1; 27 May 1988 BL 1, MVL 1.

6668 Lomographa glomeraria (Grt.) 25 Apr 1986 BL 2, BLT 3; 17 Apr–1 May 1988 BLT 2, MVL 5.
Euchlaena serrata (Drury) 8–26 Jun 1986 BL 3, BLT 5.
Euchlaena obtusaria (Hbn.) 6 Jun 1988 BLT 6, MVL 3.
Euchlaena johnsoniorum (Fitch) 22 Aug 1988 BL 1; 27 May–6 Jun 1988 MVL 2.
Euchlaena amoena (Gn.) 27 May 1988 BLT 1.
Xanthotype sospetra (Drury) 8 Jun–22 Aug 1986 BL 2, BLT 2; 1 Aug 1988 BLT 1.
Pero honestaria (Wlk.) 9–14 May 1986 BL 12, BLT 1; 27 May 1988 BLT 1.
Pero hubneraria (Gn.) 25 Apr 1986 BL 1; 27 May 1988 BLT 1.
Ennomos magnaria (Gn.) 1 Aug–30 Sep 1986 BL 7.
Ennomos subsignaria (Hbn.) 8 Jun 1986 BL 3.
Xanthotype sospetra (Drury) 8 Jun–22 Aug 1986 BL 2, BLT 2; 1 Aug 1988 BLT 1.
Pero honestaria (Wlk.) 9–14 May 1986 BL 12, BLT 1; 27 May 1988 BLT 1.
Pero hubneraria (Gn.) 25 Apr 1986 BL 1; 27 May 1988 BLT 1.
Ennomos magnaria (Gn.) 1 Aug–30 Sep 1986 BL 7.
Ennomos subsignaria (Hbn.) 8 Jun 1986 BL 3.
Xanthotype sospetra (Drury) 8 Jun–22 Aug 1986 BL 2, BLT 2; 1 Aug 1988 BLT 1.
Pero honestaria (Wlk.) 9–14 May 1986 BL 12, BLT 1; 27 May 1988 BLT 1.
Pero hubneraria (Gn.) 25 Apr 1986 BL 1; 27 May 1988 BLT 1.
FAMILY APATELODIDAE

7663 *Apatelodes torrefacta* (J. E. Smith) 26 Jun 1986 BL 1.

7665 *Olceclostera angelica* (Grü.) 9 Jul 1986 BLT 1.

FAMILY LASIIOCAMPIDAE


7678 *Phyllodesma americana* (Harr.) 25 Apr 1986 BL 1; 1 May 1988 BL 1, MVL 2.


FAMILY SATURNIIDAE


7757 *Antheraea polyphemus* (Cram.) 8–9 Jul 1986 BL 10, BLT 8, MVL 1.


FAMILY SPHINGIDAE


7778 *Manduca jasminearum* (Guer.) 15 Jul–1 Aug 1988 BL 1, BLT 1.

7784 *Ceratomia amyntor* (Geyer) 26 Jun–1 Aug 1986 BL 6.


FAMILY NOTODONTIDAE


7896 *Clostera inclusa* (Hbn.) 27 May 1988 BL 6, MVL 1.

7902 *Datana ministra* (Drury) 8 Jun–9 Jul 1986 BL 4.


7915 *Nadata gibbosa* (J. E. Smith) 14 May–26 Jun 1986 BL 2, BLT 2; 27 May–1 Aug 1988 BLT 12.


7920 *Peridea angulosa* (J. E. Smith) 8–26 Jun 1986 BL 3; 15 Sep 1988 MVL 1.


7924 *Odontosia elegans* (Strk.) 4–8 Aug 1985 BL 3; 4 Aug 1988 BL 1, BLT 1.


7937 *Furcula cinerea* (Wlk.) 26 Jun 1986 BL 1.

7952 *Symmerista canicosta* Franc. 6 Jun 1988 MVL 1.

7953 *Symmerista leucitys* Franc. 8 Jun 1986 BL 4, BLT 2.


7958 *Dasylophia thyatiroides* (Wlk.) 8 Jun–16 Aug 1986 BL 1, BLT 1; 27 May 1988 MVL 2.
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7975 Macrurocampa marthesia (Cram.) 9 Jul-1 Aug 1986 BL 2.
7994 Heterocampa guttivitta (Wlk.) 8 Jun 1986 BL 1.
7995 Heterocampa biundata Wlk. 8 Jun 1986 BL 2.
7999 Lochmaeus bilineata (Pack.) 14 May-22 Aug 1986 BL 4, BLT 2; 1 Aug 1988 BLT 1.
8006 Schizura badia (Pack.) 9 Jul 1986 BL 1.
8011 Schizura leptinoides (Grt.) 8 Jun 1986 BLT 1.
8017 Oligocentria lignicolor (Wlk.) 15 Jul 1988 BL 1.

FAMILY ARCTIIDAE

8090 Hypoprepia cucosa Hbn. 9 Jun 1 Aug 1986 BL 2, BLT 1; 1 Aug 1988 BLT 3.
8129 Pyrrharctia isabella (O. E. Smith) 8 Jun-1 Aug 1986 BL 5.
8131 Estigmene acerea (Drury) 22 Aug 1986 BL 1.
8133 Spilosoma latipennis Stretch 9 Jul 1986 BLT 1.
8135 Spilosoma congrua Wlk. 25 Apr 1986 BL 1.
8140 Hyphantria cunea (Drury) 6 Jun 1988 BLT 1.
8156 Phragmatobia fuliginosa (L.) 14 May-26 Sep 1986 BL 4, BLT 1.
8157 Phragmatobia lineata Newman & Donahue 26 Sep 1986 BL 1.
8169 Apantesis phalerata (Harr.) 14 May-16 Aug 1986 BL 14, BLT 1; 27 May 1988 BLT 3.
8171 Apantesis nais (Drury) 16-22 Aug 1986 BL 2.
8198 Grammia arge (Drury) 15 Sep 1988 MVL 1.
8203 Halyisota tessellaris (J. E. Smith) 26 Jun 1986 BL 2, BLT 5; 1 Aug 1988 BLT 12.
8214 Lophocampa maculata Harr. 26 Jun 1986 BL 1.
8230 Cynia tenera Hbn. 8-26 Jun 1986 BL 2, BLT 10.
8262 Ctenucha virginica (Esper) 8-26 Jun 1986 BL 13, BLT 1.
8267 Cisseps julvicollis (Hbn.) 22 Aug-19 Sep 1986 BL 2, BLT 2; 30 Sep 1988 BLT 2.

FAMILY LYMANTRIIDAE

8314 Orgyia dejinita Pack. 18 Sep 1986 BL 3.
8316 Orgyia leucostigma (J. E. Smith) 18 Sep 1986 BL 3; 30 Sep 1988 BLT 2.

FAMILY NOCTUIDAE

8322 Idia americalis (Gn.) 14 May-18 Sep 1986 BL 3, S 6; 6 Jun-30 Sep 1988 BLT 2, S 3.
8326 Idia rotundalis (Wlk.) 1 Aug 1988 S 1.
8334 Idia lubricalis (Gey.) 8 Jun-1 Aug 1986 BL 1, BLT 1, S 14; 15 Jul-31 Aug 1988 S 30.
8338 Phalaenophana pyramusalis (Wlk.) 27 May-6 Jun 1988 BL 3, MVL 18, S 2.
8340 Zanclognatha lituralsis (Hbn.) 14 May 1986 S 1.
8345 Zanclognatha laevigata (Grt.) 26 Jun-1 Aug 1986 BL 1, S 1; 1 Aug 1988 BL 1, BLT 1, S 1.
8348 Zanclognatha pedipilialis (Gn.) 27 May-6 Jun 1988 BL 1, S 7.
8353 Zanclognatha ochreipennis (Grt.) 9 Jul 1986 BL 1; 6 Jun 1988 S 4.
8355 Chytolita morbidaialis (Gn.) 8 Jun 1986 BL 2, S 1; 6 Jun 1988 MVL 2, S 3.
8362 Phalaenostola metonalis (Wlk.) 26 Jun 1986 S 1.
8364 Phalaenostola larentioides Grt. 9 Jul 1986 BL 1.
8379 Renia factossilis (Wlk.) 1 Aug 1988 S 1.
8381 Renia discoloralis Gn. 1 Aug 1988 BLT 3.
8387 Renia sobrialis (Wlk.) 1 Aug 1988 S 1.
8393 Lascoria ambiguilis Wlk. 27 May 1988 MVL 1.
8397 Palthis angulalis (Hbn.) 14 May 1986 BL 1; 27 May-31 Aug 1988 MVL 6, S 2.
8398 Palthis asopialis (Gn.) 27 May-31 Aug 1988 MVL 2.
8404  *Rivula propinqualis* Gn. 8 Jun 1986 BLT 1.
8412  *Melanomma auricinctaria* Gt. 27 May 1988 MVL 1. Rare.
8427  *Dyspyralis puncticosta* (Sm.) 1 Aug 1988 S 8.
8441  *Bomolocha manalis* (Wlk.) 8 Jun-1 Aug 1986 BL 4; 27 May-15 Sep 1988 BLT 1, MVL 1, S 1.
8442  *Bomolocha baltimoralis* (Gn.) 14 May-9 Jul 1986 BL 4.
8446  *Bomolocha deceptalis* (Wlk.) 8 lun 1986 BL 1.
8447  *Bomolocha madefactalis* (Gn.) 15 Jul 1988 BL 1.
8456  *Plathypena scabra* (F.) 13 Mar-18 Sep 1986 BL 4, BLT 1, S 2; 15-16 Nov 1987 BT 1, S 12; 24 Mar-30 Sep 1988 BL 1, BLT 7, S 3.
8490  *Pangrapta decoralis* Hbn. 27 May 1988 BL 2.
8499  *Metalectra discalis* (Grt.) 8 Jun 1986 S 1.
8500  *Metalectra quadrisignata* (Wlk.) 8 Jun 1986 S 1.
8514  *Scoleccampa liburna* (Gey.) 26 Jun-9 Jul 1986 BL 2, S 1; 15 Jul 1988 S 1.
8545  *Anomis erosa* Hbn. 30 Sep 1986 BL 1.
8555  *Scoliopteryx libatrix* (L.) 3 Apr-30 Sep 1986 BLT 1, S 2; 30 Sep 1988 S 1.
8587  *Panopoda rujimargo* (Hbn.) 26 Jun-9 Jul 1986 BL 2, S 1.
8588  *Panopoda carneicosta* (Gn.) 26 lun 1986 BL 1.
8591  *Phoberia atomaris* Hbn. 3 Apr 1986 BL 1.
8592  *Cissusa spadix* (Cram.) 17 Apr 1988 BL 2.
8689  *Zale lunata* (Drury) 9 Jul-30 Sep 1986 BL 2, S 13; 16 Nov 1987 S 5; 1 May-1 Aug 1988 BL 1, S 1.
8703  *Zale duplicata* (Bethune) 27 May 1988 MVL 1.
8716  *Zale unilineata* (Grt.) 14 May 1986 BLT 1.
8717  *Zale horrida* Hbn. 8 Jun 1986 BL 1; 27 May-1 Aug 1988 BL 1, S 1.
8739  *Caenurgina eretrica* (Cram.) 26 Jun 1986 BLT 1; 30 Sep 1988 BL 1.
8745  *Mocis texana* (Morr.) 30 Sep 1986 BL 1.
8778  *Catocala habilis* Gt. 18 Sep 1986 BL 1.
8779  *Catocala serena* Edw. 16 Aug 1986 BL 1.
8784  *Catocala obscura* Stkr. 1 Aug-18 Sep 1986 BL 4, S 2.
8785  *Catocala residua* Gt. 1-16 Aug 1986 S 2.
8788  *Catocala retecta* Gt. 16 Aug-30 Sep 1986 BL 1, S 4; 31 Aug-30 Sep 2.
8791  *Catocala insolabilis* Gn. 15 Jul 1988 S 1.
8795  *Catocala palaeogama* Gn. 22 Aug 1986 BL 1.
8796  *Catocala neogama* (J. E. Smith) 16 Aug 1986 BL 1, S 8; 15 Jul 1988 BL 1, S 3.
8798  *Catocala cerogama* Gn. 1 Aug-30 Sep 1986 BL 3, S 40; 1 Aug-15 Sep 1988 BL 1, BLT 3, S 18.
8806  *Catocala portae* Gn. 1 Aug 1988 S 1.
8834  *Catocala amatrix* (Hbn.) 18 Sep 1986 BL 1; 31 Aug 1988 S 2.
8863  *Catocala mira* Gt. 15 Jul 1988 BL 1.
8864  *Catocala granea* (Cram.) 1 Aug-26 Sep 1986 BL 3, S 2; 1 Aug 1988 S 1.
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Oligia mactata (Gn.) 30 Sep 1986 BL 1; 30 Sep 1988 S 6.
Meropleon diversicolor (Morr.) 18 Sep 1986 BL 2.
Amphipoea interoceanaica (Sm.) 26 Jun–9 Jul 1986 BL 3, BLT 1, S 1.
Amphipoea americana (Seyler) 26 Jun–9 Jul 1986 BL 10, BL 5, S 1.
Papaiptema cataphracta (Grt.) 30 Sep 1986 BL 3; 30 Sep 1988 BLT 2.
Papaiptema arctivorens (Grt.) 30 Sep 1986 BL 3, BLT 1; 30 Sep 1988 BLT 27.
Papaiptema americana (Speyer) 26 Jun–9 Jul 1986 BL 10, BLT 5, S 1.
Papaiptema nebris (Gn.) 18–30 Sep 1986 BL 4, BLT 1; 30 Sep 1988 BLT 2.
Papaiptema nitida (Stkr.) 30 Sep 1986 BL 1.
Papaiptema rigidia (Grt.) 15–30 Sep 1988 BLT 5, S 2.
Papaiptema cerasusata (Grt.) 30 Sep 1986 S 1; 30 Sep 1988 BLT 13.
Papaiptema limpida (Gn.) 30 Sep 1986 BLT 1; 18 Sep 1988 MVL 1.
Papaiptema unimoda (Sm.) 18 Sep 1986 BL 1; 30 Sep 1988 BLT 3.
Philosphora iris Gn. 26 Jun 1986 BL 1.
Diptryrgia rozmansi Berio 8 Jun 1986 BL 1.
Hyppa xyloioioides (Gn.) 9–14 May 1986 BL 2, BLT 4, S 3.
Magusa orbicula (Wilk.) 30 Sep 1986 BL 1. This is a tropical species which strays northward to Ohio, Wisconsin and Maine.
Crambodes talidiformis Gn. 26 Jun 1986 BLT 1.
Balsa malana (Fitch) 8 Jun 1986 BLT 1.
Balsa tristrigella (Wlk.) 9 May 1986 BL 1; 27 May–6 Jun 1988 MVL 5, S 1.
Balsa labecula (Grt.) 14 May 1986 BL 1.
Spodoptera frugiperda (J. E. Smith) 18–30 Sep 1986 BL 3, S 1; 30 Sep 1988 BLT 2.
Spodoptera ornithogalli (Gn.) 30 Sep 1986 BL 1.
Elaphria grata Hbn. 27 May 1988 BL 1.
Perigea xanthoides Gn. 16 Aug 1986 BL 1; 6 Jun–1 Aug 1988 BLT 1, MVL 1.
Platysenta videns (Gn.) 25 Apr–1 Aug 1986 BL 1, BLT 16; Jun–30 Sep 1988 BLT 1, S 1.
Platysenta vecors (Gn.) 14 May–16 Aug 1986 BL 1, BLT 1, S 1.
Ogdoonta cinerea (Gn.) 14 May–8 Jun 1986 BL 2; 6 Jun–30 Sep 1988 BLT 3, MVL 2.
Striodes obtusa (H.-S.) 9 Jul 1986 BL 1; 1 Aug 1988 BLT 1.
Lithophone innominata (Sm.) 25 Mar–3 Apr 1986 BLT 1, S 3; 24 Mar–1 May 1988 BL 3, BLT 3, S 20.
Lithophone disposita Morr. 25 Mar 1986 S 1. Rare. This is the fourth specimen ever collected in Ohio.
Lithophane antennata (Wlk.) 25 Mar–25 Apr 1986 BL 1, BLT 1, BT 4, S 3; 16 Nov 1987 S 10; 24 Mar–1 May 1988 BLT 1, BT 1, MVL 2, S 6.

Lithophane latincinerea Grt. 25 Mar 1986 S 1; 16 Nov 1987 BT 1, S 10.

Lithophane grotei Riley 16 Nov 1987 BLT 1, S 15.

Lithophane unimoda (Lint.) 25 Mar–25 Apr 1986 BL 1, BLT 2, BT 4, S 3; 16 Nov 1987 S 3; 24 Mar–1 May 1988 BLT 1, BT 1, MVL 2, S 6.


Eupsilia sidus (On.) 13 Mar–25 Apr 1986 BLT 1, BT 2, S 7; 16 Nov 1987 S 2; 4–17 Apr 1988 BLT 1.

Eupsilia tristigmata (Ort.) 25 Mar–3 Apr 1986 BL 1, S 2; 4–17 Apr 1988 BLT 1, BT 1.


Eupsilia devia (Grt.) 3–25 Apr 1986 BL 1, BT 1, S 7; 24 Mar 1988 BL 1, S 4.

Metaxaglaea inulta (Grt.) 30 Sep 1986 BL 1; 30 Sep 1988 S 1.

Epipigaea decliva (Ort.) 30 Sep 1986 S 6; 16 Nov 1987 10.

Eucirroediapampina (Ort.) 30 Sep 1986 S 1; 15 Sep 1988 BL 1.

Suna bicoloragro (Gn.) 30 Sep 1986 S 2; 15–16 Nov 1987 BLT 1, BT 9, S 21.


Cucullia florea Gn. 1 Aug 1988 BL 1.

Cucullia asteriodes Gn. 3 6 Jun–15 Sep 1988 MVL 2.

Polia detracta (Wlk.) 6–8 Jun 1986 BL 2, BLT 1, S 2.

Polia latex (Gn.) 26 Jun 1986 BL 1.


Lacinipolia meditata (Grt.) 16 Aug–18 Sep 1986 BL 2, BLT 1.

Lacinipolia lastralis (Grt.) 1 Aug 1986 BL 1.


Lacinipolia lorea (Gn.) 8 Jun 1986 BL 1.

Aletia oxygala (Grt.) 8 Jun 1986 BL 2.


Leucania phragmatidicola Gn. 30 Sep 1988 BLT 1.

Leucania linda Franc. 13 Sep 1983 MVL 1.


Leucania psseudargyria Gn. 26 Jun 1986 BL 2.

Orthosia rubescens (Wlk.) 3–25 Apr 1986 BL 1, BLT 24, S 8; 4–17 Apr 1988 BL 8, BLT 5, MVL 5, S 7.

Orthosia alurina (Sm.) 3 Apr 1986 S 1; 17 Apr 1988 BL 1.


Croccigrapha normani (Grt.) 25 Apr 1986 BL 2; 17 Apr 1988 BLT 2, MVL 4.


Morrisonia evicta (Grt.) 17 Apr–1 May 1988 BLT 1, MVL 1.

Morrisonia confusa (Hbn.) 14 May–8 Jun 1986 BL 7.

Nephelodes mininus Gn. 18 Sep 1986 BL 8, S 2; 31 Aug–30 Sep 1988 BLT 18, MVL 2.


Morrisonia evicta (Grt.) 17 Apr–1 May 1988 BLT 1, MVL 1.

Morrisonia confusa (Hbn.) 14 May–8 Jun 1986 BL 7.

Nephelodes mininus Gn. 18 Sep 1986 BL 8, S 2; 31 Aug–30 Sep 1988 BLT 18, MVL 2.


Orthodes crenulata (Butler) 8 Jun–1 Aug 1986 BL 2; 27 May–30 Sep 1988 BLT 4.


Tricholita signata (Wlk.) 1 Aug 1988 S 1.

Agrotis gladiaria Morr. 18 Sep 1986 BL 2.

Agrotis venerabilis Wlk. 30 Sep 1988 BLT 4.

Agrotis stigmosa Morr. 27 May 1988 BL 1.

Agrotis ipsilon (Hufn.) 18–30 Sep 1986 BL 2, BLT 1; 16 Nov 1987 BLT 1, BT 3, S 2; 17 Apr–30 Sep 1988 BL 1, BLT 4, MVL 4, S 12. Abundant. Three generations.

Feltia spp. 15-30 Sep 1988 BLT 34.

Feltia tricosa (Lint.) 16-22 Aug 1986 BL 4, BLT 7; 30 Sep 1988 BLT 1.

Feltia herilis (Ort.) 1 Aug–30 Sep 1986 BL 15, BLT 42.

Ochropeta plecta (L.) 14 May–1 Aug 1986 BL 6, BLT 2; 27 May–6 Jun 1988 BLT 4, MVL 1.

Anicia infecta (Ochs.) 30 Sep 1986 S 1.


Xestia darsa Franc.

Schnia rivulosa (Gn.) 22 Aug 1986 BL 1, BLT 1.

LITERATURE CITED


