Atlas of Adirondack Caterpillars

With a Host List, Rearing Notes and a Selected Bibliography of Works Depicting Caterpillars

Timothy L. McCabe
Biological Survey
New York State Museum Bulletin No. 470
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and a Selected Bibliography
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Timothy L. McCabe
Biological Survey
The New York State Museum

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THE UNIVERSITY OF THE STATE OF NEW YORK

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ACKNOWLEDGMENTS

I wish to thank the following individuals who helped rear larvae or assisted in collecting them: S. Teale, E. & A. Blakemore, B. Mateunas, C. Kuhn-Teale, T. Wright, J. Van Maltitz, M. Zariello, and C. Sheviak.

Field facilities and permission to collect were provided by Mr. Brian Farrell of Indian Lake, New York.

The late S. J. Smith (New York State Museum) verified plant determinations in 1977; in 1980, I was assisted by botanists C. Sheviak, R. Mitchell, and K. Dean (New York State Museum). E. Gossin (New York State Museum) helped locate articles on the biology of Lepidoptera. Linnea M. Johnson produced the line drawings. C. Supkis (New York State Museum) made internegatives and black-and-white prints of color slides. J. G. Franclemont (Cornell University) was frequently consulted in regard to the selected bibliography. D. Schweitzer graciously reviewed the manuscript and provided many helpful comments. The managing editor at the New York State Biological Survey for this publication was J. K. Barnes.
ABSTRACT

Photographs of caterpillars, and line drawings of head capsules and mandibles, are presented for 178 species of Macrolepidoptera found in the Adirondack Mountains of New York State. Host records are given for 250 species, as well as many plant species rejected by first instar larvae. Notes on flight period, diapause, and adult emergence are also given. Finally, a selected, worldwide bibliography of works that depict immature stages of Lepidoptera is provided.

Key words: New York State, host records, larvae, Adirondack Mountains, insects, entomology
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INTRODUCTION

This bulletin is the result of two seasons (1977, 1980) of collecting and rearing Lepidoptera in the Adirondack Mountains of New York State. Lepidoptera were reared in order to obtain a reference collection of last instar larvae. This publication makes possible the preliminary identification of many living or preserved caterpillars, without reference to scattered technical literature. It also documents the range of larval food plant acceptability. Finally, a compilation of the world's literature in which caterpillars are depicted is provided as a useful starting point for similar studies. North temperate faunas have many genera and species in common, and knowledge of food plant preferences of close relatives from other regions allows predictions to be made concerning local species.

Historically, descriptions of caterpillars consisted of notes on color pattern, arrangement of prolegs, and food plants. Hübner, in his "Geschichte" (1793-1831), was the first to make extensive use of illustrations to depict Lepidoptera larvae. Eventually, attempts were made to classify larvae based on setal patterns, arrangement of crochets, location of glands, and other characters (Dyar, 1894; Fracker, 1915; Forbes, 1910). Presently, the hypopharyngeal complex, mandibles, antennae, integument, spinneret, and other useful characters are employed by lepidopterists. However, the fact remains that many of our most common species have never been illustrated or described.

Few papers devoted to lepidopteran host records have appeared, although some mention of such data is made in various monographs and generic revisions. Members of The Lepidopterists' Society have made a plea for papers on host records (Dominick, 1972). Recent lists of hosts for North American caterpillars include those of McFarland (1975) and Ferguson (1975). Apparently, many professional and amateur lepidopterists who make host associations choose not to publish their observations because they do not represent the first time a host for a given species has been reported. However, these data are important because they may confirm previous records or point out inter-population variability in food plant preferences.

Previously, a worldwide bibliography of larval descriptions and food plant lists did not exist. An important beginning for rearing Lepidoptera is a review of available literature for the region under study. In the case of the Adirondacks, the works of Forbes (1948, 1954, 1960), Ferguson (1975), and Tietz (1972) are important. A selected bibliography, in which many important articles and books that feature larvae of Lepidoptera are cited, is appended to this bulletin. Short papers with single larval descriptions are not included, unless they are generic synopses or the only examples known for a particular group. Most generic revisions include larval host records, and these are not listed. Some articles or books that do not illustrate larvae are cited because they provide many host references or characters for identification of Lepidoptera larvae. Short papers on North American Lepidoptera can be located in the host index compiled by Tietz (1972), but the reader is also referred to the bibliography in Stehr (1987).

Rearing Caterpillars

Innovative methods are often needed for a successful lepidopteran rearing program. Obtaining eggs can often be difficult, because some species have specific oviposition requirements. When a female is held for oviposition, providing suitable substrates is often imperative. *Leucania* requires a hollow grass stem or tightly folded leaf blade. *Phoberia* oviposits under peeling, dead bark. *Apaneia* requires flower heads of grasses. Unfortunately, my initial attempts with this genus resulted in mixed cultures because the field-collected grass heads were already oviposited upon by several *Apaneia* species present in the field. Most lepidopteran species oviposit freely, however. Folded paper provides the required crevices for many other species. Often a female has to be fresh to produce eggs in captivity. Providing cuttings after depriving a female of the host plant for a day sometimes induces oviposition. I found that a light turned on and off repeatedly at 15 minute intervals would elicit oviposition in many diurnal species, particularly if the light source was close enough to cause a slight (10°F) temperature rise within the holding chamber.

Eggs may require special handling to maintain viability. I found that eggs should be removed periodically from the oviposition chambers that are undergoing light-dark cycles because they are apparently killed by repeated temperature and humidity changes. These
changes particularly affect first instar larvae nearly ready to hatch. When first laid, some eggs take on great quantities of water and must be kept moist. On the other hand, a significant number of species have eggs that contain fully developed larvae that would readily succumb to added humidity caused by a seemingly harmless factor, such as the addition of fresh leaves to the oviposition chamber. However, species with overwintering eggs or eggs that are laid early in the spring are tolerant of excess humidity, and I have kept *Eupsilia* eggs completely immersed in water at 34°F for two months without affecting their viability. When eggs of certain species do not hatch, misting them with water often elicits eclosion.

Larvae can be collected in the field by various techniques. Commonly employed methods, such as sweeping or beating with a net, can be more productive at night, when most climbing cutworms are feeding. General, low-plant feeders will accumulate under a sheet or canvas staked flat to the ground. A cloth wrapped around a tree trunk provides daytime resting places for many climbing cutworms.

Selection of potential food plants is often confounded by the fact that many lepidopteran species have only a single known host, yet the host distribution is too limited to account for the broader range of the insect. A species may be utilizing a closely related host or even an unrelated plant that possesses the necessary phagostimulants. Frequently, a secondary plant substance, such as a coumarin, is the determining factor in host selection (Berenbaum, 1983), so what appears to be a drastic host shift is, in fact, a subtle change for the insect. Knowledge of the host for one species in a genus might allow an investigator to surmise which plants another species will find acceptable. Monophagous and oligophagous species present the most challenge in locating hosts. Some large genera, like *Oncocnemis*, have many monophagous species that feed on diverse, unrelated plants.

Certain plant species apparently have little natural resistance to browsing by larvae. These include *Taraxacum*, *Prunus*, *Achillea*, *Rhus*, *Apoecytum*, and *Sambucus*. Woody perennials become less suitable as the season progresses, an occurrence linked to a buildup of tannins (Feeny, 1970, 1976). I was able to successfully rear *Trichordestra tacomae* (Stkr.) on *Prunus* from a brood collected early in the season, but failed using the same individual plant with progeny from a female flying slightly later in the season.

Newly hatched larvae were provided with locally available plants that had been recorded as hosts or were related to a known host. Ultimately, they were reared on the plants they appeared to favor most. If no host was known for a species, a selection of the most common plants in the vicinity was provided. Often, rejected plants had been recorded as preferred hosts by other investigators from different localities. This could be a facet of inter-population variability and not necessarily an error in identification or record keeping. Rejected plants are reported in this bulletin in order to point out species that are truly monophagous or oligophagous and to demonstrate where phylogenetically closely related plants prove unacceptable. This is primarily noted in the case of first instar larvae, which are notoriously more selective than mature larvae. Oviposition in the wild was noted in several cases, and eggs have been found on unacceptable hosts on many occasions (Straatman, 1962). Mature larvae become general feeders in many species. A plant on which females oviposit and all larval instars develop well in captivity, and on which larvae are found in the field, can be considered a definitive host, at least for one locality.

Data on lepidopteran life histories were obtained from cultures started with field-collected females that were held for oviposition and from field-collected larvae. In 1977, all cultures were reared in darkness in closed metal tins. In 1980, all cultures were reared in ambient light inside clear plastic trays. In general, larvae that feed primarily at night (most noctuids) develop faster in rearing containers kept in darkness, and larvae that feed during the day (*Furcula* spp., many saturniids and butterflies) do better in clear containers subjected to ambient, though not direct, sunlight. Cultures were exposed to ambient temperatures. Larvae were reared on or collected from leaves (not stems or roots), unless otherwise specified. New growth was used when available. Fresh leaves were provided every two days.

**The Host List and Rearing Notes**

Individual code numbers (e.g. 77-13) were assigned to all rearings and are used to correlate identified females with their eggs, preserved larvae, pupae, adults, and
photographs that resulted from the rearings. The first part of each number indicates the year the rearing was conducted, and the last part indicates its place in the sequence of rearings that year. Code numbers were not always assigned at the same stage in the development of a brood. Frequently, they were assigned to females that failed to oviposit, thus accounting for gaps in the numbering sequence. A number might not have been assigned until it was established that the larvae would feed, thus accounting for numbers that appear to be out of sequence. On the specimen labels and photographs, my initials (as "tlm") appear before the code number (e.g. tlm 77-13). "Ex ovo" as used here means "reared from eggs obtained from a female". Voucher specimens are deposited in the insect collection of the New York State Museum.

Because the flora of New York State is well known, and I had the frequent assistance of botanical colleagues at the New York State Museum, voucher specimens of only taxonomically difficult plant groups are deposited in the Museum's herbarium.

The ink drawings were composed using a Wild microscope with an ocular grid and 10x ocular. Available objective powers were 25x and 50x, accounting for the differences in scale. When a mandible appears out of scale with the head, the higher magnification was used when drawing the former. In other publications, head setae are often illustrated as if they were combed down flat on the face, an approach that has the advantage of depicting relative lengths. This was not done in the illustrations presented here, which should be used only to determine presence or absence of setae and their points of origin.

Lepidopteran nomenclature in this bulletin is based almost entirely on the recent Check List of the Lepidoptera of America North of Mexico (Hodges et al., 1983), and numbers from that work precede each name given here. Photographs and drawings are also labeled with the appropriate number from the Check List. Species are arranged phylogenetically, following the Check List.

The only dates regularly given in the following list are those for oviposition, eclosion, collection, and larval maturation. Emergence dates are rarely given because artificial overwintering conditions yielded adults at unnatural times, although sudden spring emergence could indicate whether or not a species was diapausing as a pharate adult within a pupa. Many species were reared solely for the purpose of having examples of their mature larvae, and no attempt was made to obtain adults.

Authors of plant names are given in the host plant index. Plant names follow the recent A Checklist of New York State Plants (Mitchell, N.Y. State Mus. Bull. 458, 1986).

All Adirondack field work reported here was conducted in a limited number of localities:

Beaver Meadow, 10 km east of Indian Lake, Hamilton County, New York, elev. 555 m, 43°45'30'' N, 74°10'1'' W.

South Inlet, Raquette Lake, Hamilton County, New York, elev. 520 m, 43°48'16'' N, 74°36'30'' W.

Browns Tract Bog, Hamilton County, New York, elev. 530 m, 43°48'00'' N, 74°42'17'' W.

Lake Tear of the Clouds, Essex County, New York, elev. 1310 m, 44°06'25'' N, 73°56'05'' W.

Ferd's Bog, Hamilton County, New York, elev. 536 m, 43°47'11'' N, 74°46'27'' W.

Most records are from the Beaver Meadow site, and this locality is to be assumed when no other is given.

All photographs were reproduced from color slides. The plus and minus symbols (+, -) preceding catalog numbers in the following list indicate whether or not the larva has been depicted with a photograph (first symbol) or line drawings of the head capsule and mandible (second symbol). For species that were reared, but not photographed or drawn, the symbols "—" appear before the catalog numbers. All larvae depicted in the photographs and drawings represent final instars, and the relevant date and locality data can be found in the following list.
HOST RECORDS AND REARING NOTES

Hesperiidae


Papilionidae

- 4176 Papilio glaucus L. Mature larva collected on Prunus virginiana, August 22 (77-81). Second instar larva collected on Alnus incana, July 2. Larva rests on mat of silk in single, partially folded leaf (77-82). Larva green, with yellow, black, and blue eyespot and yellow and black collar.

Nymphalidae

- 4420 Polygonia interrogationis (F.). Two mature larvae found on Urtica dioica (80-141a & b). Adult emerged from one resulting pupa, August 22. Larva reddish brown, first and last segments with black, branched setae.

- 4421 Polygonia comma (Harr.). Fourth instar larva collected on Ulmus americana, June 6 (80-81); mature larva obtained by June 13, adult emerged June 28. Larva black, with white lateral line and setae.

- 4433 Aglais milberti (Goet.). Mature larva collected on Urtica dioica, August 1 (77-83b). Larva black, with white spots; spiracular line yellow, wavy, broken.

- 4434 Vanessa virginiensis (Drury). Mature larva collected on Anaphalis margaritacea, September 7 (77-10). Larva black, with white lateral spots, white intersegmental transverse bands, and red subspiracular spots.

- 4437 Vanessa atalanta (L.). Mature larva found on Urtica dioica, pupated August 2 (80-143). Larva black, with yellow sides.


- 4522 Basilarchia arthemis (Drury). Mature larva collected on Salix bebbiana (79-80). Larva greenish brown, with a silvery saddle.

Satyridae


Danaidae


Thyatiridae

- 6235 Habrosyne scripta (Gosse). Oviposited July 5, eclosed July 13, ex ovo on Rubus idaeus, larvae mature by August 7 (77-153). Third instar larva collected on Rubus idaeus, August 2 (77-152). Larva yellowish brown, with dark-brown chevrons.

- 6237 Pseudothyatira cymatophoroides (Gn.). Oviposited June 6, eclosed June 13, ex ovo on Rubus idaeus. Larva fed within several folded leaves. Mature by July 10 (77-54). Larva dark brown, with silvery-white patches.


Drepanidae

- 6251 Drepana arcuata Wlk. Laid eggs in rows of three. Did not oviposit on the Alnus incana and Betula sp. provided, but on walls of rearing container. First instars accepted Betula papyrifera and Alnus incana. Ex ovo on Alnus incana. Late instar larvae rapidly knock heads against substrate when disturbed, producing clicking sounds. Eggs laid May 10, eclosed May 18, mature larvae by June 3. Larvae make a loose cocoon among leaves (77-13). Mature larva collected on September 11 on Betula alleghenensis (80-191). Larva purplish green above, green below.

- 6252 Drepana bilineata (Pack.). Eggs laid May 26, yellow when first laid, changing to bright red, eclosed June 4, mature by June 28, ex ovo on Betula papyrifera (77-32). First generation adults cross-mated and larvae of this second brood mature by August 20 (77-32a). Larva cryptically marked with light and dark browns.

- 6255 Oreta rosea (Wlk.). Oviposited July 16, ex ovo on Viburnum cassinoides, mature by August 17 (80-133). Larva grayish brown, with reddish-brown sides on thorax and dark brown to black inverted saddle on middle.
Geometridae

Archiearinae

-- 6256 Archiearis infans (Moesch.). Mature larva collected on Betula papyrifera, June 2. Adult obtained on June 8, 1978 (larvae refrigerated until June 1) (77-91a). Larva green, with white stripes (distinctive for a geometrid possessing the full complement of prolegs).

Ennominae

++ -6321 Epelis truneataria (Wlk.). Female collected on Ferdi's Bog, May 20, oviposited May 21, ex ovo on Vaccinium myrtilloides, mature by June 22 (80-50). Larva green, with diffuse, pink, dorsal line.

-- 6568 Iridopsis larvaria (Gn.). Mature larva collected on Malus pumila, adult emerged June 9 (77-76). Larva green, with red dorsal band.

++ -6639 Eufidonia discospilata (Wlk.). Female collected at South Inlet, May 30, ova eclosed June 5, first instar larvae accepted Vaccinium myrtilloides and Betula papyrifera, mature by July 3 (80-74). Larva dark green, with pink subspiracular stripe. [Photograph, accidentally transposed, follows 6237].

-- 6743 Xanthotype sospeta (Drury). Mature larva collected on Populus tremuloides at night, May 28 (80-60a). Another larva collected on Prunus virginiana (80-60b); a third collected on Rubus idaeus (80-60c). Two more collected on Viburnum cassinoides, May 30 (80-60d,e). Larva light green, slightly darker above.

-- 6796 Campaea perlata (Gn.). Oviposited June 18, ex ovo on Salix bebbiana. Fourth instars appeared to be diapausing and refrigerated on August 20, none survived the winter (77-131a). Mature larva collected on Alnus incana, July 28 (77-132). Larva mottled brown; head pale, spotted with black.

-- 6908 Nepytia semiclusaria (Wlk.). Mature larva collected on Abies balsamea. Moth eclosed September 6 (77-171). Larva green, with white subdorsal and yellow spiracular lines.

++ -6953 Tetraclis crocallata Gn. Female oviposited May 23, eclosed June 1, ex ovo on Sambucus canadensis (77-51). Larvae dichromatic, with gray dorsum and purplish sides or uniform brown, with slight gray saddle on fourth and fifth abdominal segments. [Photographs presented for both forms].


Geometrinae

-7048 Nemoria mimosaria (Gn.). Oviposited May 26. Both Abies balsamea and Betula papyrifera acceptable hosts, ex ovo on the Betula, mature by June 28 (77-121). Larva light brown, cryptically marked with darker browns.

-7159 Scopula limboundata (Haw.). Mature larva collected at South Inlet on Aronia melanocarpa, July 2 (81-113). Larva green, with pinkish-red segmental pattern down dorsum.

Larentiinae

-7292 Hydria prunivorata (Ferguson). Gregarious larvae removed from an elongate web on Prunus serotina, September 13 (77-172). Larva black above, yellowish green below, with fine pale lines.


+7329 Anticlea vasiliata Gn. Oviposited May 23 (32 eggs), ex ovo on Rubus idaeus, mature by June 14 (77-107). Larva green, intersegmental areas yellow and anal segment with reddish tint. [Head capsules of two separate individuals, one showing evidence of head pattern, are illustrated).

-7474 Eupithecia miserulata Grt. Mature larva collected on Salix bebbiana in July. Adult emerged August 7 (77-70c).


Lasiocampidae


-7687 Phyllodesma americana (Harr.). Oviposited June 1, ex ovo on Prunus virginiana, mature by June 25 (79-12). Larva bluish gray, with faint, striate, orange markings.

+7698 Malacosoma disstria Hbn. Mature larva collected on Prunus virginiana, June 6 (80-214). Larva blue, with broken orange subdorsal and spiracular lines and with white "keyhole" pattern down dorsum.


Saturniidae


-7757 Antheraea polyphemus (Cram.). Penultimate instar larva collected on Salix bebbiana, July 31 (77-135). Larva grass-green, with red spiracles and narrow yellow transverse bands.

Sphingidae

+7786 Ceratomia amyntor (Geyer). Ova eclosed July 28, ex ovo on Ulmus americana, mature by September 1 (80-136). Larvae dichromatic, with a green and a pinkish-brown color phase.

+7809 Sphinx kalmiae J.E. Smith. Oviposited June 6, eclosed June 13, ex ovo on Fraxinus americana (77-94). Larva green, with black and yellow obliques and a blue horn.

-7817 Lapara bombycoides Wlk. Oviposited June 29, ex ovo on Pinus strobus. Larvae did not withstand crowding, reared individually (77-35). Larva green and white striped.


-7822 Smerinthus cerisyi Kby. Mature larva collected on Salix bebbiana, September 5 (77-38). Larva green, with yellow obliques.


-7828 Pachysphinx modesta (Harr.). Oviposited June 15, ex ovo on Populus tremuloides, mature by July 27 (77-116). Larva green, with pale obliques and red spiracles.

+7853 Hemaris thysbe (F.). Ex ovo on Viburnum cassinoides, mature by August 1 (80-139). Another larva collected on Viburnum cassinoides on August 10, it pupated August 13 (80-170). Larva blue green above; spiracles marked with red.

+7866 Darapsa pholus (Cramer). Female collected at South Inlet. Ova eclosed July 1, ex ovo on Viburnum cassinoides, mature by August 12 (80-111). Mature larva collected on Viburnum cassinoides, August 20 (80-175). Larva green, with red spiracles and bluish-white sides.

Notodontidae

+7895 Clostera albosigma Fitch. Oviposited May 28, eclosed June 6, ex ovo on Populus tremuloides. Larvae produced large amounts of webbing, mature by June 22 (77-6). Larva light yellow, with a fine dorsal stripe and a broad, gray-brown lateral stripe.

+7896 Clostera inclusa (Hbn.). Mature larva collected on Salix bebbiana, September 6, with unusual yellow head, diseased and failed to pupate (77-176). Larva purplish gray with yellow setal bases.


+7915 Nadata gibbosa (J.E. Smith). Oviposited May 28, eclosed June 8, ex ovo on Fagus grandifolia. First instar larvae rejected Acer rubrum, Prunus serotina, Salix petiolaris, Alnus incana, and Betula papyrifera; they fed sparingly on Amelanchier arborea. Mature by June 28 (77-80). Larva blue green, dotted with white and with a yellow lateral stripe; mandibles orange.

+7919 Peridea basitriens (Wlk.). Ova eclosed August 5, ex ovo on Acer saccharum, mature by September 1 (80-156). Larva green, with spiracular line pink, fading to yellow.


+7924 Odontosia elegans (Stkr.). Ova eclosed August 19, ex ovo on Populus tremuloides. Later instars attacked each other. Larvae mature by September 7 (80-180). Another brood reared ex ovo on Populus tremuloides, mature by July 28 (77-70a). Larva silvery gray, with slight purplish cast.

+7926 Notodonta scitipennis Wlk. Fourth instar larva found molting, September 10, fed on Populus tremuloides (77-157). Larva violet gray, with orange markings on anal hump.

+7929 Nerice bidentata Wlk. Mature larva collected on Ulmus americana, October 5 (77-175). Larva blue green, with tubercles tipped with yellow; broken reddish subspiracular line.

+7930 Ellida caniplaga (Wlk.). Oviposited May 20, ex ovo on Tilia americana (80-48). Larva reddish purple, with white and yellow dorsal rectangles.


+7934 Gluphisia lintneri (Grt.). Oviposited May 29, ex ovo on Populus tremuloides, mature by June 23 (77-105, 77-106). Larva blue green above and green below, with yellow spiracular line.

-7936 Furcula borealis (Guer.-Meneville). Ova eclosed July 3. First instar larvae accepted Prunus virginiana, but eventually died (80-101). First instar larva with black body; stemapods with two yellow bands.
Furcula cinerea (Wlk.). Ova eclosed July 3 (80-100) and July 14 (80-120). First instar larvae fed on Salix bebbiana and Populus tremuloides. Another female produced ova, eclosed July 13, ex ovo on Salix bebbiana, mature by August 20 (80-121). First instar larva with two dorsal yellow rectangles on abdomen and two yellow bands on stemapods. Mature larva yellow green, with purplish-brown dorsal markings; saddle mottled with yellow.

Furcula occidentalis (Lint.). Oviposited May 27, eclosed June 4, ex ovo on Salix petiolaris. First instar larvae rejected Salix bebbiana and Prunus virginiana. Larvae matured, but failed to pupate; Furcula grow poorly reared in darkness, as were these, but grow well cultured in clear containers (77-124). A mature larva collected on Salix bebbiana on September 4 (77-125). Larva yellow green, with brown saddle, edged below with yellow (77-124, first photo presented, plus the drawing). Field-collected larva (77-125, second photo presented in plates) very blue green.

Furcula scolopendrina (Bdv.). Ova eclosed July 23. First instar larvae rejected Prunus virginiana, but accepted Populus tremuloides, mature by September 1 (77-171). Larva similar to F. modesta, but with ochre spots in saddle.

Furcula modesta (Hudson). Ova eclosed July 23. First instar larvae rejected Prunus virginiana, but accepted Populus tremuloides, mature by September 1 (77-171). Larva similar to F. modesta, but with yellow-green spots in saddle.

Furcula occidentalis (Lint.). Oviposited May 27, eclosed June 4, ex ovo on Salix petiolaris. First instar larvae rejected Salix bebbiana and Prunus virginiana. Larvae matured, but failed to pupate; Furcula grow poorly reared in darkness, as were these, but grow well cultured in clear containers (77-124). A mature larva collected on Salix bebbiana on September 4 (77-125). Larva yellow green, with brown saddle, edged below with yellow (77-124, first photo presented, plus the drawing). Field-collected larva (77-125, second photo presented in plates) very blue green.

Furcula scolopendrina (Bdv.). Ova eclosed July 23. First instar larvae rejected Prunus virginiana, but accepted Populus tremuloides, mature by September 1 (77-171). Larva similar to F. modesta, but with ochre spots in saddle.

Furcula occidentalis (Lint.). Oviposited May 27, eclosed June 4, ex ovo on Salix petiolaris. First instar larvae rejected Salix bebbiana and Prunus virginiana. Larvae matured, but failed to pupate; Furcula grow poorly reared in darkness, as were these, but grow well cultured in clear containers (77-124). A mature larva collected on Salix bebbiana on September 4 (77-125). Larva yellow green, with brown saddle, edged below with yellow (77-124, first photo presented, plus the drawing). Field-collected larva (77-125, second photo presented in plates) very blue green.

Furcula scolopendrina (Bdv.). Ova eclosed July 23. First instar larvae rejected Prunus virginiana, but accepted Populus tremuloides, mature by September 1 (77-171). Larva similar to F. modesta, but with ochre spots in saddle.

Furcula modesta (Hudson). Ova eclosed July 23. First instar larvae rejected Prunus virginiana, but accepted Populus tremuloides, mature by September 1 (77-171). Larva similar to F. modesta, but with yellow-green spots in saddle.

Symmerista leucitys Franc. Oviposited August 6, eclosed August 16, only three large eggs obtained. Reared on lichen, Hypogimnium sp. After several weeks, reached second instar, but eventually died (77-5). Later, found (McCabe, 1981) this species feeding on a free-living algae, Protococcus viridis. Larva green, mottled with brown.

Phragmatobia lineata Newman & Donahue. Ova obtained from female collected in the daytime, on Browns Tract Pond bog, May 27, 1982. First instar lar-
vae rejected Salix rigida, Phleum pratense, and Populus tremuloides; accepted Apocynum androsaemifolium, Spiraea latifolia, and Asclepias syriaca. Ex ovo on Spiraea, mature by July 22. Less than 10% pupated; remainder overwintered (82-37). Despite intensive collecting efforts, no adults were collected at light. Larva with black front, remainder with reddish-brown hairs.


+−8162 Platarctia parthenos (Harr.). Oviposited July 16, eclosed July 24. First instar larvae accepted Taraxacum officinale, Vaccinium myrtilloides, and Apocynum androsaemifolium. Diapaused as early instar larvae (80-132).

++8166 Arcia caja (L.). Mature larva collected on Eupatorium maculatum, June 15; fed on Plantago major in captivity (77-36). A field-collected female oviposited August 5, eclosed August 14; first instar larvae fed on Populus tremuloides, Taraxacum officinale and Pteridium aquinum (reared on this) but refused Plantago. Second and third instars overwintered (77-36a). Larva black, with white hairs above and reddish hairs below.

−8203 Halysidota tessellaris (J.E. Smith). Penultimate instar larva collected on Rubus idaeus, September 13, molted September 19 (80-190). Larva with dense yellowish hair and black and white hair-pencils.

++8214 Lophocampa maculata Harr. Mature larva collected on Alnus incana, August 7 (77-113). Larva black, with longest hairs white, and with midsection yellow.

−−8230 Cycnia tenera Hbn. Mature larva collected on Apocynum androsaemifolium, September 7 (77-161). Larva with soft, grayish-white hairs.

Lymantriidae


−8304 Dasychira plagiata (Wlk.). Oviposited June 24, eclosed July 8, ex ovo on Pinus strobus. Second instars did not feed, diapaused (77-134a). Two additional broods, ova eclosed July 18, first instar larvae accepted Abies balsamea and Pinus strobus, but also diapaused as early instar larvae (80-126, 80-127).

++8308 Orgyia antiqua (L.). Mature larva collected on Salix bebbiana, September 7, pupated September 10; adult female emerged September 21. Female used to attract wild male; mated, and resulting ova refrigerated until June 7, 1978. Larvae eclosed June 23, 1978; reared on Betula alleghanensis (77-11). Last instar larvae sexually dichromatic: first and second pencil tufts yellow in male, brown in female. Penultimate female larva identical to ultimate instar male larvae, but undergo additional molt. Field-collected, overwintering eggs found May 26, eclosed May 29, ex ovo on Alnus incana (80-55). A caterpillar collected on Spiraea latifolia pupated; resulting female mated with a field-collected male; resulting eggs overwintered; larvae fed on Corylus americana (80-299). Larva similar to O. leucostigma, with three pairs of subdorsal red dots posterior to hair tufts.

++8316 Orgyia leucostigma (J.E. Smith). Mature larva collected on Populus tremuloides, July 28 (80-144), yielded a female, mated with a wild male, resulting ova overwintered, eclosed May 27, 1981; larvae reared on Corylus americana (80-144a). Another mature larva collected on Myrica gale, August 1 (80-144b). Third mature larva collected on Alnus incana, August 3 (80-144c). Larva with red head, yellow abdominal and subventral stripes, with two red middorsal dots posterior to hair tufts.

Noctuidae

Herminiinae

++8349 Polypogon protumnusalis (Wlk.). Oviposited July 19; first instar larvae fed on Monotropa uniflora, later instars fed on dead Corylus leaves; first instar larvae rejected living and dead Thuja leaves, dead Pinus needles, dead wood, and lichens; mature by September 29 (77-138). Larva red brown, with yellow supra-spiracular and black spiracular lines.

++8351 Polypogon cruralis (Gn.). Four eggs laid on June 29, ex ovo on dead leaves of Thuja, Abies, and Corylus cornutus, mature by September 10 (77-52). Larva light brown, with faint orange intersegmental bands at rear.
Catocalinae

- **8536 Catocala canadensis** (Bethune). Mature larva collected on *Thalictrum pubescens*, early June; adult emerged June 28 (77-39). Six mature larvae collected on *Thalictrum pubescens*, June 6 (79-8a-f). Larva white with broken, black, lateral band; yellow spiracular spots; and light green venter.


- **8697 Zale minerea** (Gn.). Oviposited May 9, eclosed May 17, ex ovo on *Salix petiolaris*. First instar larvae rejected *Prunus serotina*, *Betula papyrifera*, *Pinus strobus*, and *Abies balsamea*; fed sparingly on *Salix bebbiana*; mature by July 6 (77-70). Second female oviposited May 25; larvae eclosed June 1, ex ovo on *Salix bebbiana*, mature by July 7 (77-70). Larva brown, irregularly marked with lighter brown.

- **8698 Zale phaeocapna** Franc. Pale green eggs laid May 21, eclosed May 29, ex ovo on *Corylus cornuta*; larvae mature by July 1. First instar larvae rejected *Acer rubra*, *Pinus strobus*, *Abies balsamea*, *Larix laricina*, *Alnus incana*, *Betula papyrifera*, *Salix rigida*, and *Prunus virginiana*. Resulting pupae refrigerated until March 30, adults emerged April 1, 1981 (80-64) (see McCabe, 1987). Larva blue-green, with fine, yellow striations.

- **8703 Zale duplicata** (Bethune). Oviposited May 11, eclosed May 18, ex ovo on *Pinus strobus*. First instar larvae preferred new growth, mature by June 10 (77-70). A second female produced ova which eclosed June 16. First instar larvae offered *Betula papyrifera*, *Larix laricina*, *Abies balsamea* and *Pinus strobus*; fed on only the latter (80-90). Larva mottled brown.

- **8727 Parallela bistriaris** Hbn. Third instar larva collected on *Acer rubra*, August 19, pupated in a rolled leaf (77-178). Larva gray, with fine, black striations.

- **8776 Catocala coelebs** Grt. Female collected at South Inlet, October 9, 1980; eggs overwintered; larvae reared on *Comptonia peregrina* (known host, *Myrica gale*, not available in new location). Mature by July 1, 1981 (80-206). Larva dark, with fine, white striations.


- **8858 Catocala crataegi** Saund. Mature larva beat from *Crataegus* sp., June 8, near Pleasant Valley, New York (82-66). Larva gray.

Plusiinae

- **8881 Abrostola urentis** Gn. Laid (125 eggs), July 1, ex ovo on *Urtica dioica*, larvae mature by July 28 (77-164). Larva light green, mottled with darker green chevrons and with white subspiracular line.

- **8896 Diachrysia aeroides** (Grt.). Oviposited July 21, eclosed July 26. First instar larvae rejected *Spiraea latifolia*, fed on *Aster umbellatum* and *Solidago* sp. (80-131). Mature larva collected on *Solidago* sp., September 17, failed to pupate (77-186). Larva green, with white lateral line and some fine white lateral striations.

- **8897 Diachrysia balluca** Gey. Mature larva collected on *Rubus idaeus*, June 2; snapped its head violently from side to side when a tachinid fly attempted to oviposit (79-7). Larva green, with yellow spiracular line outlined above with darker green.

- **8904 Chrysanympha formosa** (Grt.). Oviposited July 21, eclosed July 28; first instar larvae accepted *Vaccinium myrtillus*. Diapaused as second instar larva (80-138). Larva very similar to *Eosphoropteryx thyatyroides*.

- **8905 Eosphoropteryx thyatyroides** (Gn.). Two mature larvae collected on *Thalictrum pubescens*, June 20, pupated June 22 (80-91). Larva green, with bluish-violet and dark-green dorsal obliques.

- **8908 Autographa precatiunis** (Gn.). Ex ovo on *Plantago major* and *Taraxacum officinale*; larvae mature by September 20 (77-135b). Larva green, with white spiracular stripe edged dorsally by black.

- **8911 Autographa bimaculata** (Stephens). Oviposited August 8, eclosed August 14, ex ovo on *Taraxacum officinale* and *Plantago major*, mature by September 5 (77-33). Another female produced ova, eclosed August 13. First instar larvae fed on *Urtica dioica* and *Taraxacum officinale*, ex ovo on *Urtica dioica*, mature by September 23 (80-166). Larva grass-green, with thin, white spiracular line.

Autographa ampla (Wlk.). Oviposited July 12, eclosed July 17; first instar larvae accepted Alnus incana, Betula papyrifera, Salix bebbiana and Prunus virginiana; ex ovo on Prunus virginiana; third instar larvae diapaused, refrigerated August 10, but died (77-7a). Another female oviposited July 13; first instar larva accepted Salix rigida and Myrica gale; ex ovo on the Salix (80-119). A third female oviposited on July 16; first instar larvae also accepted Salix rigida and Myrica gale (80-127). Larva green, with narrow, yellow spiracular line and two white, subdorsal lines; setal bases yellow.

Anagaphä falcifera (Kby.). Ex ovo on Taraxacum officinale, mature by September 18 (77-7b). Larva green, with white spiracular line; spiracles white, ringed with black.

Syngrapha epigaea (Grt.). Ova eclosed September 8; first instar larvae fed on Vaccinium myrtillus. Overwintered as early instar larvae (80-192). Larva green, with white spiracular stripe.

Syngrapha alias (Ottol.). Oviposited July 21, eclosed July 26. First instar larvae fed on Picea glauca and Abies balsamea; rejected Vaccinium myrtillus; ex ovo on the latter. Most larvae diapaused and failed to overwinter, but one penultimate instar larva obtained in the autumn (80-134). Penultimate instar larva green, with white subdorsal, superspiracular and subspiracular stripes; setal bases black; head orange.


Syngrapha rectangula (W. Kby.). Oviposited August 5, eclosed August 12, ex ovo on Abies balsamea. Second instar larvae diapaused (77-144a). A mature larva collected on June 13 on Abies balsamea (80-80). Larva green, prominently striped with white as in S. alias; head orange.

Syngrapha microgamma (Hbn.). Oviposited June 26, eclosed July 2, ex ovo on Vaccinium myrtillus. Larvae rejected Plantago, Trifolium repens.

Spiraea latifolia, Taraxacum officinale, Achillea millefolium, Glyceria maxima, and Vicia cracca, but accepted Fragaria virginiana. Diapausing second and third instars obtained by October 15, all died during the winter (77-89a). A penultimate and an ultimate instar larva collected at South Inlet on blossoms of Chaenadaphne calyculata, produced a weak cocoon. Adult emerged May 31 (80-40). Larva pinkish brown above, with broad yellow spiracular stripe.

Leuconycta dipteroides (Gn.). Mature larva collected on Rumex patientia, September 8, pupated September 10; adult emerged April 14, 1981 (80-211).

Pantheinae

++9177 Panthea acronyctoides (Wlk.). Ex ovo on Abies balsamea, mature by August 10 (77-2a). Larva white, mottled brown to black, with broken, yellow, sub-spiracular lines.

--9183 Panthea pallescens McD. Oviposited July 4, eclosed July 15, ex ovo on Pinus strobus, mature by August 30 (77-79). Larva brown, mottled with white; white dorsal and subspiracular lines.

--9184 Colocasia flavicornis (Sm.). Ex ovo on Betula papyrifera; first instar larvae accepted Alnus incana and Acer rubrum, mature by July 1, adults emerged July 20 to August 10 (77-73, 77-33a). Larval integument dark, anal hair tuft black. Anterior body hairs sometimes rufous.

--9185 Colocasia propinquilinea (Grt.). Oviposited June 5, eclosed June 13, ex ovo on Betula papyrifera, mature by July 28 (77-137). Larval integument black to orange, setae white with hair tufts black and orange, anal tuft orange. Anterior body hairs sometimes rufous.

++9189 Charadra deridens (Gn.) (80-75): Oviposited June 7, ex ovo on Betula papyrifera (80-75). Another brood ex ovo on Betula papyrifera, mature by July 28 (77-60a). Larval color variable; integument black or white, but both color phases with white hairs; head black, with yellow front.

++9193 Raphia frater Grt. Oviposited June 27, eclosed July 7, ex ovo on Populus tremuloides, mature by August 1 (77-78). Five eggs obtained from a second female on May 29, eclosed June 5, ex ovo on Populus tremuloides (77-1). Larva green, with three yellow, transverse bands.

Acronictinae

++9200 Acronicta americana (Harr.). Second instar larva collected on Acer rubrum (77-7). Penultimate instar larva collected on Acer rubrum, mature by September 1 (80-167). Larva with bright yellow body hair, black head.

++9203 Acronicta dactylina Grt. Ova laid in late May, ex ovo on Alnus incana. One female produced 360 eggs (77-59). A mature larvae collected on Salix bebbiana, September 4 (77-57). Several larvae collected on Alnus incana (77-56a-g). Larva with rust-colored body hairs and black hair tufts.


++9226 Acronicta superans Gn. Captive females did not oviposit; a fertile egg dissected from female, May 30, eclosed June 5, ex ovo on Prunus nigra, also fed sparingly on Betula papyrifera. Mature by June 30 (77-158). Larva green, with broad, dark, dorsal band edged with white (see cover for photograph).


--9235 Acronicta spinigera Gn. Oviposited June 29, eclosed June 5, ex ovo on Ulmus americana. First instar larvae also fed sparingly on Malus pumila, but rejected Populus tremuloides. Mature by July 28 (77-156) (see McCabe, 1980). Larva silvery gray; head with orange transverse bar.

--9236 Acronicta morula G. & R. Ex ovo on Ulmus americana, mature by August 1 (77-120a). Larva marked with brown and black; apex of head brick red.


++9257 Acronicta impleta Wlk. Oviposited June 4, ex ovo on Ulmus americana, mature by July 23 (79-24). Larva black; hairs light brown; subspiracular stripe red.

++9259 Acronicta noctivaga Grt. Oviposited May 28, eclosed June 4, ex ovo on Spiraea latifolia. First instar larvae also accepted Populus tremuloides and Salix bebbiana, rejected Abies balsamea (77-122). A second female oviposited May 27, eclosed June 3, ex ovo on
Populus tremuloides; first instar larvae rejected Plantago major, Rubus idaeus, Daucus sp., and Taraxacum officinale (77-123). A third female oviposited May 25; first instar larvae accepted Quercus rubra and Vaccinium myrtilloides. second instar larvae fed on Spiraea latifolia; reared to maturity by July 3 on Spiraea (80-52). A fourth female oviposited June 19, eclosed June 27; first instar larvae accepted Apocynum androsaemifolium, Populus tremuloides, and Vaccinium myrtilloides (80-112). Larvae black, with red lateral stripe and stiff bristles.

---9260 Acronicta auricoma (F.). Two mature larvae collected on sucker of Populus tremuloides, July 31 (77-122a). Larvae bright orange, with stiff bristles.

++9261 Acronicta impressa Wlk. Mature larva collected on Myrica gale at South Inlet (77-185). Larva white and orange, with soft hair.


++9281 Agriopodes fallax (H.-S.). Ex ovo on Viburnum cassinoides, mature by July 28 (77-71). Caterpillars with a pungent odor, reminiscent of decaying Viburnum leaves in late autumn. Larva green, with reddish blemishes.

++9286 Harrisimemna trisignata (Wlk.). Ova eclosed June 30, ex ovo on Spiraea latifolia, mature by August 1 (80-99). Larva mostly black, with white saddle (bird-dropping mimic).

Amphipyraeinae

---9360 Apamea impula (Gn.). Laid 36 ova on Glyceria maxima seed capsules, August 10; first instar larvae ate seeds, then dropped to ground and fed on grass blades; third instars diapaused, but failed to survive the winter (80-173). (Many other Apamea species utilized the same seed capsules as oviposition sites, and it was difficult to find seed capsules without ova in the field. Apamea adults fed on the blossoms of grasses as well.)

---9367 Apamea dubitans (Wlk.). Mature larva found wandering on ground, June 8, rejected Fragaria, Achillea and Prunus; fed only on grasses, reared on Glyceria canadensis; prepupa by June 14; adult emerged July 21 (80-86).

---9382 Apamea devastator (Brace). Female oviposited in Glyceria canadensis seed-heads, ova eclosed August 6; first instar larvae fed within the seed; second instar larvae dropped to ground and fed on grass blades. Diapaused as second and third instars, but failed to survive the winter (80-169).

++9149 Oligia mactata (Gn.). Oviposited September 18, 1980; ova overwintered, eclosed May 12, 1981; first instar larvae fed on Betula populifolia and Cornus sericea; ex ovo on the former (80-212). Larva yellow brown, with faint, black-edged lateral line.

---9520 Achatodes zeae (Harr.). Mature larvae removed from stalk of Sambucus canadensis, mid-June; adult emerged June 28 (77-169). Larva white, with black head, shield, and tubercles.

++9523 Bellura gortynoides Wlk. Several batches of eggs laid, each one covered with hairs from apex of female’s abdomen. First instar larvae mined leaves of Nuphar luteum; later instars bored in stems; matured by July 20 (77-62). Several third instar larvae collected at South Inlet, July 23 (77-63). Mature larva collected from submerged stems of Nuphar luteum at South Inlet (80-177). Larva dark brown, with orange head, shiny.


++9546 Phlogophora iris Gn. Oviposited June 10, eclosed June 19, ex ovo on Vaccinium myrtilloides; first instar larvae rejected Plantago major, Alnus incana, and Vicia cracca, accepted Taraxacum officinale; matured by August 20; mature larvae diapaused (77-92). Larva light brown, with darker chevrons and a series of small, pale "key hole" patterns down dorsum.

---9547 Phlogophora periculosa Gn. Ova eclosed August 22, ex ovo on Spiraea latifolia (80-183). Two mature larvae collected on Spiraea latifolia at night (80-58); another collected on Alnus incana, and a fourth on Viburnum cassinoides (80-58a&b). Larvae spin weak cocoons on the ground.

---9556 Chytonix palliatricula (Gn.). Mature larva collected on smut-infested, senescent Aster blossom; fed on the smut, Ustilaginales (77-181). Larva dark-brown, with white, metathoracic, subdorsal spot; head with prominent, black, transverse bands.
--- +9578 Hyppa xylinoides (Gn.). Oviposited August 13, ex ovo on Vaccinium myrtilloides, mature by September 24 (77-167). A second female laid eggs that closed July 12, ex ovo on Vaccinium myrtilloides (80-118). Larva dark brown, with bluish wash on sides [figures of mandible and head is of brood 77-167].

--- +9578.1 Hyppa xylinoides, segregate 1. Oviposited July 9, eclosed July 15, ex ovo on Vaccinium myrtilloides, mature by August 21. These represent the "middle brood" of uncertain status (77-8). Larva dark brown, with bluish wash on sides.

--- +9582 Nedra ramosula (Gn.). Oviposited August 7, eclosed August 14, ex ovo on Hypericum perforatum; first instar larvae also accepted Hypericum mutilum, H. canadense, H. virginicum, rejected Viola selkirkii; mature by September 6 (77-143). A fourth instar larva collected on Hypericum perforatum, September 7 (77-144). Larva purplish brown, with broad, pale yellow, subspiracular stripe.

--- +9631 Callopistria mollissima (Gn.). Oviposited July 6 on undermargins of bracken fern leaf, eclosed July 13, ex ovo on Pteridium aquilinum. All instars fed on lower surface of leaf; first three instars failed to chew through both epidermal layers of leaf (77-117). Penultimate instar larva collected on Thelypteris novaboreacensis, July 28 (77-118). Larva brown, with conspicuous white chevrons.

--- +9633 Callopistria cordata (Ljungh). Oviposited June 21, ex ovo on Pteridium aquilinum; larva fed on ventral side of leaf, mature by July 20 (77-119). Larva green, rarely reddish, with white oblique red spots.

--- +9639 Amphipyra tragopoginis (Cl.). Mature larva collected in daylight on Apocynum androsaemifolium, June 28 (80-97). Larva green, with subdorsal and spiracular lines white.

**Cuculliinae**

--- +9873 Xylena nupera (Lint.). Oviposited May 6, eclosed May 14, ex ovo on Prunus virginiana; young and mature larvae refused Alnus incana; all larvae (> 200) of brown phase (80-31). Mature, green-phase larva collected on Spiraea latifolia, July 3 (80-113). Larva dichromatic, green or brown; brown phase with black dorsal band; spiracles red.

--- +9874 Xylena curvimacula (Morr.). Third instar larva collected at night on Spiraea latifolia, June 28, mature larva pupated in August, yielded adult September 23 (77-53). Larva light brown; spiracular line pale; dorsal chevrons slightly darker brown.

--- +9878 Lithomoia solidaginis (Hbn.). Penultimate instar larva collected on Salix bebbiana, Lake Durant (Hamilton County), May 27, molted June 8 (82-54). Three penultimate instar larvae collected on Spiraea latifolia, June 1, molted June 6, pupated, June 15 (80-88a,b,c). Larva dark brown, with whitish subspiracular stripe.


--- +9887 Lithophane betunei (G. & R.). Oviposited May 21, eclosed May 25; first instars accepted Amelanchier arboreum and Betula papyrifera, ex ovo on Amelanchier arboreum, mature by June 21 (77-30). Larva gray brown above, with fine, orange, dorsal and subdorsal lines and a pale yellow spiracular stripe.

--- +9891 Lithophane amanda (Sm.). Oviposited May 6, eclosed May 18, ex ovo on Salix bebbiana, mature by June 10 (80-34). Larva blue green, with white dorsal and spiracular lines.

--- +9902 Lithophane baileyi Grt. Oviposited April 14, ova refrigerated for 19 days, eclosed May 7, Eclosion normal except that fresh eggs died. Ex ovo on Prunus virginiana, mature by May 30 (77-25). Another brood of first instar larvae offered Alnus incana died (80-36). Larva green, with fine, white, dorsal and subdorsal lines.


--- +9917 Lithophane fagina Morr. Oviposited May 6, eclosed May 15; first instar larvae were offered Amelanchier arborea, Rubus odoratus, Alnus incana, Prunus virginiana, Larix laricina, Abies balsamea, Salix bebbiana, Spiraea latifolia, Betula papyrifera, Sambucus canadensis, and Populus tremuloides; fed sparingly on all, but grew best on the Betula; grew slowly to third instar, then died (80-32).


--- +9928 Lithophane thaxteri Grt. Mature larva col-
lected at South Inlet on Chamaedaphne calyculata, June 20. Moth emerged in autumn, but failed to expand wings (80-220). Larva bluish green, with white dorsal and subdorsal lines and yellow spiracular lines.

- 9930 Pyrefera citrombra, Franc. Oviposited April 13; about 70% of 300 eggs refrigerated 19 days eclosed; larvae rejected Alnus incana, Betula alleghaniensis and Ribes sp.; first instars accepted Salix humilis and Salix petiolaris but all died (77-39). Known hosts (Hamamelis and Corylus) rare or absent in study area.

- 9935 Eupsilia tristigmata, (Grt.). Laid 190 eggs April 14, eggs refrigerated for 19 days, eclosed May 8, ex ovo on Amelanchier arborea. First instar larvae also fed on Prunus serotina, but preferred Amelanchier blossoms. Mature by June 4 (77-162). Larva dark brown, with white subspiracular line and violet prothoracic venter and cervical stripe, black spiracular line, and black dorsal chevrons. Parental female an unusual, brown-spotted form; a single adult emerged the following spring — also brown-spotted. Broods 77-43 through 77-46 from blue-green females and brood 77-47 from a dark-green female. All larvae ex ovo on Abies and no differences observed among the larvae. Broods 80-68 to 80-69, 80-82 to 80-85, ex ovo on Abies balsamea. Larva green, with white dorsal, subdorsal, spiracular, and ventral lines; spiracular line edged red above; subdorsal line crenulate (indistinguishable from F. jocosa).

- 10021 Copivaleria grotei, (Morr.). Oviposited May 21, eclosed June 10, ex ovo on Fraxinus americana; larva matured by July 10 (80-46). Larva light green, with whitish lines.

- 10057 Apharetra dentata, Grote. Oviposited September 19, ova refrigerated October 15, returned to room temperature June 14, 1978, eclosed June 22, 1978. First instar larvae rejected Thapsus, Taraxacum, Veronica, Eupatorium, Achillea, Phleum, Chrysanthemum, Plantago, Fraxinus, Penstemon, Vaccinium, Asclepias, Solanum, Thuja, Populus, Rubus, Betula, Hypericum, Viburnum, Acer, Quercus, Pteridium, Solidago, Populus, Abies, and others; accepted Spiraeas latifolia (see McGuffin, 1958a; McCabe, 1985). Third and fourth instar larvae defoliated numerous patches of Spiraeas latifolia (79-20). Another female oviposited August 22, some eggs eclosed September 6 and larvae died; other eggs eclosed the following May 17, ex ovo on Spiraea latifolia (80-184). Larva light brown, with silvery gray striae and double brown dorsal line.

+10197 Cucullia florea, Gn. Oviposited June 19, eclosed June 25; first instars accepted Heiracium aurantiacum blossoms, rejected Trifolium repens, Vicia cracca. Spiraea latifolia, Chrysanthemum, and Glyceria maxima. Ex ovo on Heiracium until the blossoming period ended; larvae cannibalistic and the surviving larva was accidentally killed in fourth stadium (77-74). A penultimate instar collected on Aster umbellatus. August 23 (77-75). A mature larva collected on Aster umbellatus. September 6 (77-22). Four mature larvae collected on Aster umbellatus from August 18-30 (77-155). Larva green, with yellow dorsal and whitish subspiracular stripes.

Hadeninae

+ -10275 Polia nimbosa (Gn.). Oviposited July 13, ex ovo on Salix petiolaris, Alnus incana, and Betula papyrifera. Third and fourth instar larvae diapaused (77-121a).

+ -10276 Polia imbrifera (Gn.). Ex ovo on Betula papyrifera. Second and third instar larvae diapaused (77-91b).

+ -10280 Polia purpurissata (Grt.). Oviposited August 17, ex ovo on Vaccinium myrtilloides, third and fourth instar larvae diapaused (77-140a). Larva brown, with faint dorsal and subdorsal lines.


+ -10291 Morrisonia latex (Gn.). Oviposited June 6, 200 eggs laid, eclosed June 12, ex ovo on Alnus incana. Larvae mature by July 19 (77-98). Larva yellow brown, lighter below, mottled with darker browns; spiracular line fine, black.

+ -10929 Melanchra adjuncta (Gn.). Mature larva collected on Thalictrum pubescens, August 21 (77-3). Larva green, with darker green chevrons.

+ -10924 Melanchra pulverulenta (Sm.). Oviposited June 27, eclosed July 3, ex ovo on Larix laricina, matured by August 4. Some adults emerged in October, other individuals overwintered as pupae and eclosed the following spring (77-140). Larva yellow, with dark brown dorsal and spiracular lines.

+ -10925 Melanchra assimilis (Morr.). Oviposited June 29; first instars accepted Solidago sp., Betula papyrifera, Alnus incana, Salix bebbiana, and Pteridium aquilinum. First instars rejected Vaccinium myrtilloides. Ex ovo on the Pteridium aquilinum, matured by August 4 (77-14). Fourth and sixth instar larvae collected September 4 on Aster umbellatus (77-16a,b). Many larvae collected on Aster umbellatus, Rubus idaeus, Pteridium aquilinum, and Verbasum thapsus, September 7 (77-15a-p). Mature larva collected on Myrica gale, September 1 (77-21). Several fifth and sixth instar larvae swept from Chamaedaphne calyculata and Ledum groenlandicum at Browns Tract Ponds, but fed sparingly on these in captivity, readily accepted Myrica gale and Larix laricina (77-18). Mature larva collected on Salix bebbiana, parasitized, tachinid eggs glued to thorax (77-17). Larva collected on Salix rigida, September 9 (77-19). Late instar larva swept from Myrica gale at South Inlet, August 25 (77-20). Larvae dichromatic, either green or brown, both with yellow, subdorsal and subspiracular stripes.

+ -10298 Lacmanobia radix (Wlk.). Oviposited May 25, eclosed May 31, 250 eggs laid in two batches, ex ovo on Betula papyrifera. First instar larvae also accepted Salix petiolaris and Alnus incana, matured by June 30 (77-142). Larva grayish brown, with black dorsal wedges.


+ -10301 Spiramater lutra (Gn.). Oviposited June 4, eclosed June 10, ex ovo on Alnus incana. First instars also offered Salix rigida, but grew poorly on it (77-110). Mature larva collected on Salix bebbiana, on September 7 (77-109). Mature larva collected on Aster umbellatus, September 7 (77-109a). Third instar larva collected on Vaccinium myrtilloides, August 28 (77-111). Larva green to yellow green; chevrons barely traceable to well-marked with brown.

+ -10303 Trichordestra tacoma (Stkr.). Oviposited May 27, 70 eggs laid, eclosed June 2. First instar larvae accepted Sambucus canadensis, Vaccinium myrtilloides, Prunus virginiana, Spiraea latifolia, Betula papyrifera, Apocynum androsaemifolium, and Rubus idaeus, fed on various flowering heads of grasses, but not those of Carex; rejected Viola selkirkii, Abies balsamea, and Carex sp. Mature by July 28 (see McCabe & Godfrey, 1982) (77-159). Larvae dichromatic, the green phase being unmarked, the red phase having a yellow subspiracular stripe and a finely striated, reddish upper body.

+ -10304 Trichordestra legitima (Grt.). Penultimate instar larva collected on Aster umbellatus, September 7 (77-100). Mature larva collected on Salix bebbiana, September 12; moth emerged July 16, 1978 (77-99). Mature larva collected on blossoms of Achillea millefolium, August 22 (77-101). Larva with orange-brown head, purplish-brown body, yellow subdorsal and subspiracular stripes, and black spiracular stripe.

+ -10406 Lacinipolia olivacea (Morr.). Oviposited August 4, eclosed August 12, ex ovo on Achillea millefo-

16
lum. First instar larvae also accepted Plantago major and Trifolium repens, but rejected Fragaria canadensis. Mature by September 20 (77-129). Larvae ate pupae left in rearing container. Larva gray brown.

++10436 Aletia oxygala (Grt.). Oviposited August 7. Eggs collected from Carex stem upon which female was observed ovipositing. Ex ovo on Glyceria maxima. Fourth instars diapaused (77-130a). Larva light brown, striped in various shades of brown.

−10438 Pseudoaletia unipuncta (Haw.). Oviposited May 20, ex ovo on Glyceria maxima, mature by June 22 (80-49). Larva brownish gray, with brown and black dorsal lines and a violet-gray ventral stripe.

++10446.1 Leucania lapidaria (Grt.). Female observed ovipositing in folded blade of grass just after sunset on July 31. Ex ovo on Glyceria canadensis, mature by October 2 (80-148). Larva striped in browns.


++10487 Orthosia rubescens (Wlk.). Oviposited May 14, eclosed May 20, ex ovo on Alnus incana. Also accepted Rubus idaeus, but first instar larvae rejected Abies balsamea. Spiraea latifolia and Betula papyrifera. Mature by June 15 (77-150). Larva yellowish white subventrally, with black lateral stripe.

++10490 Orthosia revicta (Morr.). Oviposited May 8, eclosed May 14, ex ovo on Spiraea latifolia, first instar larvae rejected Betula papyrifera, mature by June 5 (77-147). Four ova collected on Spiraea latifolia, eclosed June 3, ex ovo on Spiraeae: resulting pupae refrigerated until March 30; adults emerged March 31 (80-87). Penultimate instar larvae collected on Spiraea, June 1 (80-88). Larva light brown, with broad white spiracular stripe.

−10495 Orthosia hibisci (Gn.). Oviposited May 15, eclosed May 22. Larvae grew slowly to third instar on Alnus incana, then given Populus tremuloides; matured June 12 (77-80).

++10513 Egira dolosa (Grt.). Oviposited May 9, eclosed May 16, ex ovo on Populus tremuloides. All stages produced webbing. Mature by June 10 (77-67). Fifth instar larva collected, August 2, on P. tremuloides (77-66). Larva grayish-white, with black dorsal patches.

++10518 Achatia distincta Hbn. Oviposited May 27, eclosed June 3, ex ovo on Alnus incana. First instar larvae also accepted Betula papyrifera. Larvae mature by June 20 (77-64). Larva grass green (including head) with four narrow white stripes on sides.

++10521 Morrisonia confusa Hbn. Oviposited May 25, eclosed May 31; first instars accepted Salix petiolaris and Betula papyrifera; rejected Vaccinium myrtillus; ex ovo on the Betula; matured by July 10 (77-49). Penultimate instar larva collected on Betula papyrifera, August 3; pupated but yielded no adult; female pupa dissected and the genitalia compared to confirm identification (77-48). Mature larva collected on Myrica gale on Ford’s Bog, July 28 (80-145b). Two mature larvae collected on Betula papyrifera (80-145). Larva knits two leaves together loosely. Larva with dark-brown head, a gray-green body, two narrow white stripes, and a series of lateral, purplish, segmental blotches.

++10532 Homorthodes furfurata (Grt.). Reared ex ovo on Achillea millefolium, matured by September 2 (77-79a). Larva, glassy dark brown to black.

++10578 Pseudorthodes vecors (Gn.). Oviposited June 29, ex ovo on Achillea millefolium, matured by August 21 (77-182). Larva brown, with weakly developed chevrons at rear.

++10587 Orthodes cynica Gn. Fourth instar larva collected on developing blossoms of Solidago sp. (77-56). A brood oviposited June 18, eclosed June 26, ex ovo on Taraxacum officinale, Plantago major, and Cirsiun sp., matured August 25. First instars rejected Achilles millefolium, Solidago sp., Vaccinium myrtillus; and Spiraea latifolia. Later instar larvae fed on Solidago and Achilles (77-55). Larva brown, with slight purplish cast.

Noctuinae


++10663 Agrotis ipsilon (Hufn.). Mature larva found wandering on ground. June 12 (77-183). Glassy-brown, with setal bases prominent dark brown. [Photograph out of sequence. after 10999]

−10903 Euagrotis illapsa (Wlk.). Oviposited August
22, eclosed August 30-September 6. First instar larvae rejected *Taraxacum officinale*, *Spiraea latifolia*, accepted *Phleum pratense*. Later instar larvae fed on *Taraxacum* and *Vicia cracca*. Most overwintered as early instar larvae (80-185). Larva light brown, with broken, black, subdorsal line (slightly swollen at center of segments), whitish and brown lateral stripes, and black spiracular dots.

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- **10919 Diarsia jucunda** (Wlk.). Mature larva found on ground among *Alnus* on May 16. Fed on *Taraxacum officinale* and pupated (80-12). Larva brown above, darker brown below, and fine, black lateral line. With slightly darker brown dorsal and sublateral lines.

- **10926 Spaelotis clandestina** (Harr.). Mature larva found on ground, pupated, June 23 (80-94).

- **10929 Eurois occulta** (L.). Oviposited July 12, eclosed July 17, ex ovo on *Spiraea latifolia*. Third instars refrigerated October 15, but died overwinter (77-128a).

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- **10930 Eurois astricta** Morr. Four mature larvae collected on *Spiraea latifolia* at night; most parasitized by tachinids (80-57). Mature larva collected on *Prunus serotina*, June 7, with tachinid egg (80-76). Larva with traces of orange on top of head, dark grayish-purple body and dorsal chevrons edged with yellow ventrally.

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- **10942 Xestia adela** Franc. Tw. first instar larvae collected on *Monotropa uniflora* flower heads. Third instar given *Rubus idaeus* and *Plantago major*, and larva matured; adult moth emerged November 21 (77-41). One brood reared on *Taraxacum officinale* and larvae mature by July 10 (77-41a). Larva brown, lighter below, with distinct, subspiracular demarcation between upper and lower body colors; a distinct black chevron on eighth abdominal segment.

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- **10943 Xestia normanianus** (Grt.). Ova eclosed August 12, ex ovo on *Rubus idaeus* (80-165). A second brood fed on *Rubus idaeus* and *Spiraea latifolia*, but rejected *Vaccinium myrtilloides* (80-154).

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- **10944 Xestia smithii** (Snell.). Oviposited August 8, eclosed August 17. First instar larvae accepted *Rubus idaeus*, *Fragaria virginiana*, and *Sambucus canadensis*, ex ovo on the *Rubus*. Diapausing 4th – 5th instars obtained by October 15 (77-154a). Larva with unmarked gray-brown body and orange-brown head.

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- **10947 Xestia oblata** (Morr.). Oviposited July 21, ex ovo on *Spiraea latifolia*, and *Salix bebbiana*. Third instar larvae diapaused by August 22. First instars rejected *Vaccinium myrtilloides* (77-123a).

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- **10950 Xestia bicarnea** (Gn.). Oviposited August 6, eclosed August 12, ex ovo on *Glyceria maxima*. First instar larvae also fed on *Glyceria canadensis*, rejected *Vaccinium myrtilloides*, *Achillea millefolia*, *Betula papyrifera*, *Rubus idaeus*, *Urtica dioica*, *Apoecynum androsaemifolium*, and *Sambucus canadensis* (77-31). Larva brown, with black spiracles, tan spiracular line, and weak dorsal pattern of dark brown diamonds.

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- **10951 Xestia tenuicula** (Morr.). Oviposited September 11, ex ovo on *Glyceria maxima*, mature by October 18. Two adult females emerged November 15 (80-193). Larva similar to *X. bicarnea*, but with slightly less prominent spiracular line and no dorsal pattern.

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- **10968 Xestia badicollis** (Grt.). Ova eclosed August 15. First instar larvae fed on *Abies balsamea*, rejected *Aster umbellatus*, *Vaccinium myrtilloides*, *Viburnum cassinoides*, *Betula papyrifera*, *Acer rubra*, *Pteridium aquilinum*, *Populus tremuloides* and *Rubus idaeus* (80-171). Another female oviposited August 4, eclosed August 15; first instar larvae accepted *Pinus strobus*, rejected *Vaccinium myrtilloides*, *Abies balsamea* and *Larix laricina*; stopped feeding in second stadium and diapaused (77-24).

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- **10970 Xestia youngii** (Sm.). Oviposited August 26, eclosed September 1; first instar larvae initially accepted *Vaccinium myrtilloides*, but all died by September 10 (77-166). Another brood did the same (apparently first or second instar larvae diapaused) (77-168). Third instar larvae swept daytime from *Chamaedaphne calyculata* (80-66). Several third instar larvae collected on *Myrica gale* at night, May 29, matured on *Vaccinium myrtilloides*. Above records from South Inlet. Larva with orange-brown head, and flesh-colored body, black subdorsal chevrons becoming more conspicuous posteriorly.

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- **10988 Eugraphe subrosea** (Steph.). Third instar larvae swept from *Chamaedaphne calyculata*, South Inlet (79-86a). Two mature larvae collected at South Inlet on *Myrica gale* (79-86b). One larva parasitized by an ichneumonid wasp. Larva with a thin yellow subdorsal line, followed by an orange lateral line, a dark brown spiracular line, a cream subspiracular line, and a black subventral line.

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- **10992 Paradiarsia littoralis** (Pack.). Oviposited July 6, eclosed July 13; first instars accepted *Prunus virginiana*, *P. serotina*, *Alnus incana*, *Sambucus canadensis*, *Pteridium aquilinum*, *Betula papyri-
fera. Achillea millefolium; rejected Fragaria canadensis, Solidago sp., Abies balsamea, Thuja occidentalis, Rubus idaeus, Vaccinium myrtilloides, Salix bebbiana and Spiraea latifolia; third instars diapaused (77-107a,b).

- 10993 Hemipachnobia monochromatea Morrison. Oviposited July 12, eclosed July 19; first instars accepted young leaves of Vaccinium myrtilloides; second instars diapaused (77-119a).

+ 10994 Cerastis tenebrifera (Wlk.). Oviposited May 19, approximately 40 eggs, ex ovo on Taraxacum officinale. First instar larvae also accepted Rubus idaeus, Salix petiolaris, Prunus virginiana, Betula papyrifera; rejected Plantago major. Matured by June 12 (77-160). Another female oviposited May 22, eclosed May 28, ex ovo on Vaccinium myrtilloides (80-44). Larva brown, with slight violet tinge, black chevrons, and reddish-brown subspiracular stripe.

- 10997 Metalepsis fishii (Grt.). Oviposited May 16, ex ovo on Vaccinium myrtilloides, feeding first on the blossoms. First instars rejected Alnus incana, Betula papyrifera, Taraxacum officinale, Abies balsamea, Salix petiolaris, and Prunus virginiana. Larvae matured by June 23 (77-72).


- 10999 Eutetagrotis attentus (Grt.). Oviposited July 8, eclosed July 16. First instars accepted Fragaria canadensis, Betula papyrifera, and Sambucus canadensis; rejected Vicia cracca, Pinus strobus, Vaccinium myrtilloides, Pteridium aquilinum, and Abies balsamea; ex ovo on Betula. Penultimate instar larvae diapaused; refrigerated on August 27; only one survived the winter. Four days after warming it molted, then fed on Betula alleghanensis (77-23). Larva dark brown above, lighter brown below spiracular line.

- 11001 Anaplectoides pressus (Grt.). Oviposited July 5, ex ovo on Sambucus canadensis. First instars also accepted Salix petiolaris, Larix laricina, Vicia cracca, Betula papyrifera, and Alnus incana; rejected Abies balsamea, Pinus strobus, and Tsuga canadensis. Matured September 20. Many fourth instars diapaused (77-136). Another female produced ova that eclosed July 12 (80-117). Head and body brown, marked with black.

- 11004 Protolampa rufipectus (Morr.). Mature larva collected on Spiraea latifolia at night, May 28 (80-59).

- 11008 Eutetagrotis perattentus (Grt.). Oviposited July 8. Third and fourth instars diapaused by August 22, but none survived the winter. First instars fed on Rubus idaeus, Pteridium aquilinum, Fragaria canadensis, Abies balsamea, Vaccinium myrtilloides, Salix bebbiana, and Betula papyrifera; ex ovo on Betula; first instar larvae rejected Spiraea latifolia (77-131b).

+ 11009 Cryptocala acadiensis (Bethune). A female oviposited on Hypericum perforatum blossoms, July 17. First instars accepted Hypericum perforatum blossoms, Sagittaria latifolia blossoms, and Sambucus canadensis, Prunus virginiana, Achillea millefolium, and Spiraea latifolia leaves; rejected Rubus idaeus, Vaccinium myrtilloides, Pteridium aquilinum, and Amelanchier arborea. Ex ovo on the leaves of Apocynum androsaemifolium, matured by September 12 (77-2) (see McCabe, 1979). Another brood reared ex ovo on Rumex patientia, mature by October 1 (80-157). Larva light brown, with white dorsal and subdorsal lines.

Heliothinae

+ 11062 Eutricopis nexilis Morr. Female moths observed at blossoms of Antennaria neglecta, May 27; mature larvae collected from blossoms, June 11. Infested blossoms prematurely bloomed, larvae ate seeds (80-53). Larva brownish white, with weak, brown, dorsal and lateral lines.

+ 11064 Pyrrhia exprimens (Wlk.). Oviposited June 28, eclosed June 2. Moth oviposited on Aquilegia blossoms. First instar larvae accepted Aquilegia vulgaris blossoms, Fragaria virginiana, Pontederia blossoms, and Apocynum androsaemifolium leaves and blossoms. Ex ovo on Aquilegia (80-104). Larva extremely polychromatic, ranging from green to black and white, with various intermediate phases having yellow or orange markings.

- 11164 Schinia florida (Gn.). Mature larva on seed capsules of Oenothera biennis, August 26 (80-216). Larva glassy green, with slight rose coloring near head.
Papilio glaucus

Vanessa atalanta

Polygonia interrogationis

Basilarchia arthemis

Polygonia comma

Enodia anthedon
Caripeta angustiorata

Tetracis crocallata

Nepytia semiclusaria

Tetracis cachexiata

Tetracis crocallata

Rheumaptera hastata
Anticlea vasiliata

Phyllodesma americana

Cladara limitaria

Malacosoma disstria

Tolype laricis

Dryocampa rubicunda
Ceratomia amyntor

Smerinthus jamaicensis

Sphinx kalmiae

Paonias myops

Sphinx gordius

Hemaris thysbe
Furcula occidentalis

Symmerista leucitys

Furcula occidentalis

Dasylophia thyatiroides

Furcula modesta

Heterocampa guttivitta
Heterocampa biundata

Schizura leptinoides

Schizura badia

Eilema bicolor

Schizura unicornis

Phragmatobia lineata
8158
Phragmatobia assimilans

8293
Dasychira dorsipennata

8166
Arctia caja

8308
Orgyia antiqua

8214
Lophocampa maculata

8316
Orgyia leucostigma
Polypogon protumnusalis

Polypogon cruralis

Calyptra canadensis

Scoliopteryx libatrix

Zale lunata

Zale minerea
8905
Sphoropteryx thyatroides

8908
Autographa prectionis

8911
Autographa bimaculata

8923
Autographa ampla

8927
Syngrapha epigaea

8942
Syngrapha rectangula
8946
Syngrapha microgamma

8970
Baileya ophthalmica

8950
Plusia putnami

9022
Exyra rolandiana

8952
Plusia contexta

9177
Panthea acronyctoides
Acronicta oblinita

Harrisimemna trisignata

Agriopodes fallax

Oligia mactata

Bellura gortynoides

Euplexia benesimilis
9546
Phlogophora iris

9633
Callopistria cordata

9578
Hyppa xylinoides

9639
Amphipyra tragopoginis

9582
Nedra ramosula

9873
Xylena nupera
Lithomoia solidaginis

Eupsilia morrisoni

Litholomia napaea

Mniotype ducta

Lithophane amanda

Feralia jocosa
Feralia comstocki

Cucullia florea

Apharetra dentata

Cucullia convexipennis

Oncocnemis piffardi

Melanchra adjuncta
Aletia oxygala
Leucania lapidaria
Leucania commoides
Orthosia rubescens
Orthosia revicta
Egira dolosa
10518  
*Achatia distincta*

10521  
*Morrisonia confusa*

10532  
*Homorthodes furfurata*

10578  
*Pseudorthodes vecors*

10587  
*Orthodes cynica*

10930  
*Eurois astricta*
Xestia smithii

Eugraphe subrosea

Xestia tenuicula

Cerastis tenebrifera

Anomogyna youngii

Aplectoides condita
4434
Vanessa virginiensis

6235
Habrosyne scripta
6237
Pseudothyatira cymatophoroides

6251
Drepana arcuata
6822
Metarranthis duaria

6836
Anagoga occiduaria
6867
Caripeta angustiorata

6863
Caripeta divisata
6964
Tetracis cachexiata

6966
Eutrapela clemataria
Anticlea vasiliata
7673
Tolype laricis

7698
Malacosoma disstria
7701
Malacosoma americanum

7809
Sphinx kalmiae
7810
Sphinx gordius

7817
Lapara bombycoides
7828
Pachysphinx modesta

7895
Clostera albosigma
7915
Nadata gibbosa

7922
Pheosia rimosa
7924
Odontosia elegans

7929
Nerice bidentata
7930
Ellida caniplaga

7931
Gluphisia septentrionis
7934
Gluphisia lintneri

7940
Furcula scolopendrina
7939
Furcula occidentalis

7953
Symmerista leucitys
7995
Heterocampa biundata

8007
Schizura unicornis
8166
Arctia caja

8203
Halysidota tessellaris
8214
Lophocampa maculata

8294
Dasychira vagans
8308
Orgyia antiqua

8349
Polypogon protumnusalis
8351
Polypogon cruralis

8555
Scoliopteryx libatrix
8911
Autographa bimaculata

8923
Autographa ampla
8952
Plusia contexta

9022
Exyra rolandiana
9065
Leuconycta diphteroides

9177
Panthea acronyctoides
Panthea pallescens

Colocasia flavicornis
9185
Colocasia propinquilinea

9189
Charadra deridens
9193
Raphia frater

9203
Acronicta dactylina
9212
*Acronicta grisea*

9236
*Acronicta morula*
9241
Acronicta fragilis

9249
Acronicta increta
9259
Acronicta noctivaga

9261
Acronicta impressa
9272
Acronicta oblinita

9281
Agriopodes fallax
9545
Euplexia benesimilis

9546
Phlogophora iris
9578.1
Hyppa xylinoides, segregate

9578
Hyppa xylinoides
9582
Nedra ramosula

9631
Callopistria mollissima
9633
Callopistria cordata

9902
Lithophane baileyi
9922
Lithophane pexata

10005
Feralia jocosa
10008
Feralia comstocki

10197
Cucullia florea
10202
Cucullia convexipennis

10292
Melanchra adjuncta
10298
Lacanobia radix

10301
Spiramater lutra
10436
Aletia oxygala

10487
Orthosia rubescens
10490
Orthosia revicta

10513
Egira dolosa
10518
Achatia distincta

10521
Morrisonia confusa
10944
Xestia smithii

10950
Xestia bicarnea
GLOSSARY
(Numbers refer to examples in photographs)

brood: eggs from a single female.
chevron: wedge-shaped marking on subdorsum (10930).
collar: dorsal, transverse band on an anterior segment (4176).
collected on: found feeding on [plant] in nature.
eclose: to hatch from ova.
ex ovo: used here to mean larvae reared from eggs obtained
from a captured female unless eggs were collected in nature.
horn: posterodorsal, spine-like appendage (7786)
line: fine longitudinal marking (7953)
mature larva: last larval instar (preceding pupation)
penultimate-instar larva: the larval instar preceding maturity

pharate: condition in which fully developed moth diapauses
within pupal shell.
prepupa: non-feeding mature larva which usually loses color
and bulk.
oblique: diagonal, lateral line (7810).
saddle: broad "V" patch on middle of body (4522).
stripe: broad, longitudinal line (8942).
transverse band: broad line going from side to side over dor-
sum of body.
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