

Moth Species New to Michigan

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MOTH SPECIES NEW TO MICHIGAN¹John H. Newman and Mogens C. Nielsen²**ABSTRACT**

This is a compilation of moth species previously unrecorded from Michigan. Moore's (1955) publication has been critically examined necessitating some specific changes. All questionable material has been determined by present day specialists in their particular fields. The McDunnough (1938) checklist is followed in the arrangement of the new data together with most of the recent changes in nomenclature as presented by Forbes (1948, 1954, 1960), Hardwick (1970), Hodges (1971), and Covell (1970, 1971). With the advent of more sophisticated collecting equipment and the easier access to Michigan's Upper Peninsula a total of 154 species has been added. Many institutional and private collections have been examined including the large collection at Michigan State University which was not considered in the Moore publication.

INTRODUCTION

During the seventeen year period since the publication in 1955 of Moore's *Annotated list of the Moths of Michigan exclusive of Tineoidea*, there has been an increase in the number of collectors of Michigan Lepidoptera, especially among 4-H youth, students and dedicated amateur Lepidopterists. The use of ultraviolet lights (blacklight) has added a considerable number of new state moth records, which in earlier years using the typical coleman lantern and sheet method would have been unlikely. The senior author, employed with the Department of Entomology at Michigan State University, has been active in the state-wide "blacklight" insect pest survey during the past eight years. All UV trap samples, from widely scattered Michigan counties, have been examined for new records, and for additional data on heretofore scarce species.

Expeditions to Isle Royale National Park by Ronald Hodges, Edward Voss and Ronald Willson were made during this period with each trip producing many new boreal records, besides adding additional examples to those species previously known by a single specimen. Resident Lepidopterists Julian P. Donahue (now residing in California), Richard Holzman and Virgil Warczynski have made many productive forays into northern counties for moths. The authors have journeyed numerous times to the eastern portion of the Upper Peninsula and to scattered counties in the Lower Peninsula with the object of searching for certain "missing" species and filling in distributional gaps. Consequently, these many collecting activities has resulted in a total of 154 moth species new to the Michigan faunal list. It is appropriate to record information on these species so that other collectors may benefit and, perhaps, be challenged to add additional data. As might be expected countless new county records have been accumulated during the seventeen year period. Space does not permit the presentation of such data at the present time. Complete distributions of species within the State of Michigan will be summarized in a new checklist to appear sometime in the near future.

Moore's annotated list of Michigan moths as it now stands contains some errors of determination, nomenclature and a few omissions. No attempt is made here to correct Moore's work, as such, except in those instances where certain new species have been elevated from previous synonymy, or were obviously omitted in his original compilation. The primary purpose is to supplement Moore's list by adding new state records that have accumulated since the completion of his manuscript. It is hoped that many zoogeographers, taxonomists, and other Lepidopterists will benefit by the publication of this new data. We also hope that it will stimulate greater interest in collecting and studying Michigan moths, which offer so many challenges to those with scientific curiosity. The authors expect to treat corrections to Moore's list in the preparation of a new Michigan checklist.

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SOURCE OF NEW RECORDS

The material represented in the following list of new Michigan moths has been critically examined by the authors, including those species where the final determination was made by a specialist. Credit is given to each specialist who made the determinations. In addition to reviewing various 4-H collections and miscellaneous UV survey samples, the following institutional and private collections were examined for new records:

Institutional collections:

Maryglade College, P.I.M.E. Entomological Museum, Memphis, Michigan; Rev. Carlo Brivio, Curator.
Michigan State University, East Lansing; Dr. Roland L. Fischer, Curator.
Michigan Technological University, Houghton; Dr. Kenneth J. Kraft, Curator.
Northern Michigan University, Marquette; Dr. Gordon D. Gill, Curator.
University of Michigan, Ann Arbor; Dr. Thomas E. Moore, Curator.

Private collections:

Glenn Y. Belyea, East Lansing; Richard C. Fleming, Olivet; Richard W. Holzman, Royal Oak; Wilbur S. McAlpine, Union Lake; Eric H. Metzler, Lansing; Russell A. Rahn, Watertown, Wisconsin; Edward G. Voss, Ann Arbor; Virgil Warczynski, Bay City; Bruce V. Wilson, Owosso.

It is interesting to note that Moore did not include records contained in the large lepidoptera collection at Michigan State University. This institution now contains the largest moth collection representative of the state's fauna.

The publications of Forbes (1948, 1954, 1960) and Ferguson (1955) were extremely useful in identifying much of the material. The latter publication served as a guide to the authors in investigating many of the state's northern counties for previously unrecorded species, especially the sphagnum-heath bogs of the Upper Peninsula.

ARRANGEMENT OF NEW RECORDS

In general, McDunnough's (1938) checklist is followed and the checklist numbers are indicated for each species. Some of the recent changes in nomenclature as presented by Forbes, Hardwick (1970) and Hodges (1971) are incorporated to update the taxonomy and assist others in properly identifying these species. Species are arranged by family. Following each name is a list of all known county locations, with the earliest and latest date of capture (when known), grouped by three regions of the state (Fig. 1). The location of specimens of rare or scarce species is given with the name of the collection. Also, when known the initials of the collector are listed in parentheses after the county locations. The following collectors are cited: Edward Anderson (EA), Glenn Belyea (GB), Irving J. Cantrall (IJC), Dale Cosper (DC), Julian P. Donahue (JPD), Robert R. Dreisbach (RRD), Larry Elmleaf (LE), David Eppelheimer (DE), Roland L. Fischer (RLF), Richard Fleming (RF), Dorothy Frosh (DF), Robert W. Hawes (RWH), Ronald Hodges (RH), Richard W. Holzman (RWHo), Melvin Gomulinski (MG), Peter Martinat (PM), Janice Matthews (JM), Wilbur S. McAlpine (WSM), Lyle McDonald (LM), Donald McMaster (DM), Eric Metzler (EM), Philip E. Moody (PEM), Sherman Moore (SM), W. W. Newcomb (WWN), John H. Newman (JHN), Mogens C. Nielsen (MCN), Russell Rahn (RR), Lewis Ruesink (LR), Rudolph Scheibner (RS), Frederick Stehr (FS), Walter C. Stinson (WCS), William Taft, Jr. (WT), Eugene Thompson (ET), Edward Voss (EV), Virgil Warczynski (VW), Ronald Willson (RW), Bruce Wilson (BW), Louis Wilson (LW).

ACKNOWLEDGMENTS

The authors express their thanks and appreciation to all those collectors who so kindly sent us specimens and data, and allowed us access to their collections; and to the curators of the previously mentioned institutional museums for their splendid cooperation while examining their collections. A special debt of gratitude is owed to the following

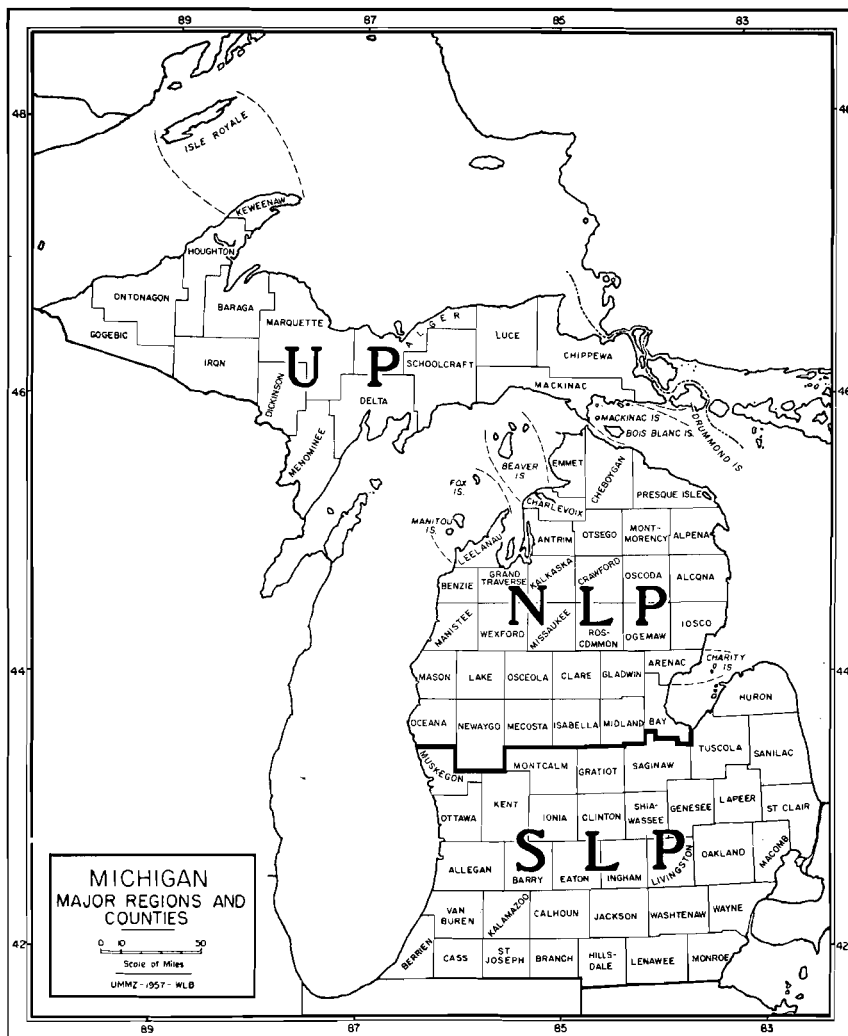


Fig. 1. Michigan showing the three major physiographic and ecological divisions of the state: Upper Peninsula (UP), Northern Lower Peninsula (NLP), and Southern Lower Peninsula (SLP).

specialists who graciously examined and determined many of the questionable specimens, and who have in many ways inspired the authors to initiate this paper: Dr. A. E. Brower, retired, Augusta, Maine, formerly Chief of the Maine Forestry Department's Entomology Laboratory; Dr. Charles V. Covell, Jr., Department of Biology, University of Louisville, Louisville, Kentucky; Julian P. Donahue, Assistant Curator of Entomology, Los Angeles County Museum of Natural History, Los Angeles, California; Dr. Thomas D. Eichlin, National Museum of Natural History, Smithsonian Institution, Washington, D.C.; Dr. John G. Franclemont, Department of Entomology, Cornell University, Ithaca, New York; Dr. Douglas C. Ferguson, Systematic Entomology Laboratory, U.S. Department of Agriculture, c/o U.S. National Museum, Washington, D.C.; Dr. David F. Hardwick, Canada Department of Agriculture, Ottawa, Canada; Dr. Frederick H. Rindge, Curator of Lepidoptera, The American Museum of Natural History, New York City; Charles C. E. Riotte, Research Associate, Department of Entomology, Royal Ontario Museum, Toronto, Canada; Dr. E. L. Todd, Department of Entomology, Smithsonian Institute, Washington, D.C.

We are especially grateful to Dr. Ferguson for critically reviewing the manuscript, for making significant corrections in the nomenclature and for helpful suggestions.

SPHINGIDAE

- 711 *Paratreia plebeja* (Fabricius). SLP: Clinton, 23 June (DM). One specimen taken near Laingsburg, deposited in MSU Collection.
 775 *Eumorpha vitis* (Linnaeus). SLP: Sanilac, no date (RWH). One specimen taken in Applegate, deposited in MSU Collection.

SATURNIIDAE

- 831 *Hemileuca lucina* Henry Edwards. UP: Schoolcraft, 15 August. One specimen from the Seney Wildlife Refuge (Voss, 1969). Two other specimens, without dates, from Schoolcraft County in the UM Collection.
 853 *Sphingicampa bisecta* (Lintner). SLP: Lenawee, 11 July-15 August (MCN). Several males collected at UV along Bean Creek near Morenci. Specimens deposited in the MSU and Nielsen Collections.

ARCTIIDAE

- 985 *Halisidota harrisii* Walsh. SLP: Berrien, Ingham, Kalamazoo, Lenawee, 2-14 July (RLF, MCN). Specimens determined by J. P. Donahue. Nielsen collected larvae on sycamores along Bean Creek near Morenci, Lenawee County. Larvae and adults deposited in MSU Collection.
 992 *Cygnia inopinatus* (Henry Edwards). NLP: Oceana, 18 July (EM). SLP: Allegan, Barry, Berrien, Kalamazoo, Oakland, St. Joseph, 22 May-21 August (JPD, GB, EM, MCN, RR). Nielsen has collected larvae feeding on butterfly-weed, *Asclepias tuberosa*. Larva deposited in MSU Collection.
 1011 *Pygarctia spraguei* (Grote). NLP: Newaygo, 22 June-14 July (JPD). SLP: Allegan, Barry, Berrien, Branch, Kalamazoo, Montcalm, 22 May-17 August (JPD, RLF, RH, MCN).
 1019.1 *Holomelina lamae* (Freeman). UP: Schoolcraft, 7 July-16 August (JHN, MCN). Common in large acid bog north of Manistique, flying in the daytime. NLP: Cheboygan, 15 July (EV). One female taken in Mud Lake Bog (Voss, 1969).
 1029.1 *Phragmatobia lineata* Newman & Donahue. NLP: Newaygo, Otsego (x-larva), 16-26 July. SLP: Allegan, Barry, Berrien, Branch, Calhoun, Cass, Clinton, Eaton, Gratiot, Ingham, Ionia, Jackson, Kalamazoo, Kent, Lapeer, Lenawee, Livingston, Monroe, Oakland, St. Clair, St. Joseph, Shiawassee, Van Buren, Wayne, 2 May-2 October. Type locality is Galien, Berrien County. Apparently three broods, late May (scarce), late June-July (common), mid-August-early October (Donahue & Newman, 1966).

- 1052 *Apantesis figurata* (Drury). SLP: Allegan, Berrien, St. Joseph, 23 May-8 September (EG, LM, MCN, RR).
- 1062 *Parasemia plantaginis scudleri* (Packard). UP: Iron, 23 June (VW). Several fresh specimens collected in roadside sedges. Specimens deposited in the Nielsen, Warczynski and MSU Collections.
- 1072 *Spilosoma prima* Slosson. UP: Chippewa, Schoolcraft, 21 May-17 June (MCN, JHN, VW). NLP: Cheboygan, Oceana, Otsego, 18 May-24 June (EM, MCN, EV).

NOCTUIDAE

- 1147 *Acronicta rubricoma* Guenée. SLP: Berrien, Lenawee, 19-30 July (JHN, MCN). One specimen at UV along Bean Creek, Lenawee County, and one from Sodus Experiment Station, Berrien County, determined by A. E. Brower and D. Ferguson.
- 1162 *Acronicta falcata* (Grote). SLP: Lenawee, Washtenaw, 25 May-13 August (MCN, VW). One specimen taken at UV along Bean Creek, determined by A. E. Brower.
- 1163 *Acronicta parallela* (Grote). NLP: Oceana, 27 July-3 August (EM). Small series collected in T.15N., R.16W., Section 31 at UV. Specimens deposited in the Metzler and Newman collections.
- 1168 *Acronicta funeralis* Grote & Robinson. UP: Isle Royale, 18 July (RH). NLP: Arenac, Cheboygan, Ogemaw, Otsego, Roscommon, 21 May-20 July (DF, MCN, EV, VW).
- 1174 *Acronicta laetifica* Smith. UP: Mackinac, 13 June (MCN). NLP: Otsego, 29 May (MCN). One specimen collected at UV near Cedarville, determined by J. G. Franclemont. Another specimen taken at UV in T.29N., R.2W., Section 18. Deposited in the Nielsen Collection.
- 1180 *Acronicta spinigera* Guenée. UP: Ontonagon, 29 June (MCN). NLP: Benzie, 12 July (EM). One specimen at UV in T.51N., R.40W., Section 14, determined by D. Ferguson. Another specimen at UV in T.25N., R.15W., Section 15. Specimens deposited in the MSU and Nielsen collections.
- 1188 *Acronicta modica* Walker. NLP: Roscommon, 30 June (MCN). SLP: Allegan, Clinton, 23 May-28 June (MCN). Several specimens collected at UV, determined by D. Ferguson.
- 1190 *Acronicta clarescens* Guenée. NLP: Charlevoix (Beaver Island), 16 June-2 August (SM). SLP: Kalamazoo, Oakland, 24 June-26 July (EM, RIF). Long series from the Gull Lake Biological Station deposited in the MSU Collection.
- 1194 *Acronicta increta* Morrison. SLP: Oakland, 11 June-13 July (JHN). Specimens deposited in the Newman Collection, determined by A. E. Brower.
- 1219 *Merolonche dolli* Barnes & McDunnough. NLP: Arenac, Newaygo, Oceana, Roscommon, 13 April-8 May (DE, EM, VW). Several specimens collected in oak-pine forest.
- 1237 *Euxoa niveilinea* (Grote). NLP: Benzie, Mason, Oceana, Osceola, 9-17 September (EM, JHN, WCS). SLP: Clinton, Montcalm, 11-18 September (JHN, MCN). Specimens determined by David Hardwick.
- 1251.1 *Euxoa manitobana* McDunnough. NLP: Clare, Oceana, Otsego, Roscommon, 14 July-5 August (EM, MCN, WT, VW). Specimens determined by David Hardwick, confused with *E. perolivalis* Smith.
- 1271 *Euxoa aurulenta* (Smith). SLP: Berrien, Ottawa, 26 May-12 July (JPD, MCN). Long series taken at UV in Grand Mère Dunes, determined by David Hardwick. Previous record in Moore from Chippewa County is in error.
- 1272.1 *Euxoa personata* (Morrison). UP: Menominee, 29 August (JHN). NLP: Cheboygan, Emmet, Otsego, 2-6 September (MCN). Forbes (1954) refers to Michigan specimens. Specimens deposited in the MSU Collection.
- 1296 *Euxoa velleripennis* (Grote). NLP: Oceana, Otsego, August-4 September (EM, MCN). SLP: Clinton, Ingham, Jackson, Kent, Lenawee, Livingston, 20 August-28 September (JHN, MCN, VW).

- 1329 *Euxoa quebecensis* (Smith). NLP: Oceana, 11 June (EM). Four specimens collected at UV in T.15N., R.19W., Section 1, determined by David Hardwick. Deposited in the Metzler and MSU Collections.
- 1341.1 *Euxoa knoxvillea* McDunnough. SLP: Lenawee, Livingston, Monroe, Montcalm, Oakland, 27 June-18 September (EA, EM, JHN, MCN). Specimens determined by David Hardwick, deposited in the Metzler, Newman and Nielsen Collections.
- 1346 *Euxoa pleuritica* (Grote). UP: Dickinson, Mackinac, 20 July-2 August (SM). NLP: Benzie, Charlevoix (Beaver Island), Clare, Crawford, Emmet, Leelanau (Fox Island), Oceana, Oscoda, Otsego, Roscommon, 14 July-16 August (EM, SM, JHN, MCN). SLP: Berrien, Huron, Lenawee, Montcalm, 20 July-29 August (SM, MCN). Specimens determined by D. Ferguson and David Hardwick.
- 1366.1 *Euxoa sinelinea* Hardwick. UP: Chippewa, Keweenaw, Marquette, Schoolcraft, 18 July-3 August (MCN). NLP: Cheboygan, Crawford, Oceana, Ogemaw, Otsego, Roscommon, 5-24 July (DF, EM, MCN, EV). Specimens determined by David Hardwick deposited in the MSU and Nielsen Collections.
- 1383 *Euxoa brocha* (Morrison). SLP: Lenawee, 17 July (LR). One specimen collected at UV near Tipton, determined by David Hardwick.
- 1387 *Euxoa auxiliaris* (Grote). UP: Chippewa, 27 July. SLP: Kalamazoo, Ottawa, 25 May & 6 July. One adult recorded from Saulte Ste. Marie (Hardwick, 1970). Other records refer to larval specimens determined by D. M. Weisman (USDA) and deposited in the MSU Collection.
- 1389 *Euxoa drewseni* (Staudinger). UP: Chippewa (Drummond Island), Mackinaw, 25 June-24 August (SM). NLP: Charlevoix (Beaver Island), Newaygo, Oceana, Roscommon, 9 June-26 July (DE, EM, SM, MCN, VW). SLP: Montcalm, 6 July (JHN). Specimens determined by David Hardwick.
- 1410 *Eucloptocnemis fimbriaris* (Guenée). NLP: Newaygo, Oceana, 31 August-September (DE, EM). SLP: Livingston, 10-14 September (JHN).
- 1450 *Agrotis subterranea* (Fabricius). NLP: Newaygo, 10 August (DE). SLP: Lenawee, 18 July (JHN). One specimen taken at UV in Fremont; another at bait along Bean Creek near Morenci. Deposited in the Newman Collection.
- 1459 *Copablepharon longipennis* Grote. SLP: Berrien, 30 August (JHN). One specimen at UV in T.5S., R.19W., Section 29; deposited in the Newman Collection. Determined by David Hardwick.
- 1481 *Anicla infecta* (Ochsenheimer). SLP: Lenawee, 26 August (MCN). One immaculate male at UV along Bean Creek near Morenci; deposited in the Nielsen Collection.
- 1483 *Euagrotis illapsa* (Walker). SLP: Barry, Clinton, Eaton, Ingham, Lenawee, St. Joseph, 16 August-4 September (MCN). Specimens determined by J. G. Franclemont.
- 1483.1 *Euagrotis forbesi* Franclemont. NLP: Otsego, Roscommon, 2, 3 July (MCN). Specimens determined by J. G. Franclemont; deposited in MSU and Nielsen Collections.
- 1493 *Metalepsis fishi* (Grote). UP: Chippewa, Schoolcraft, 25-29 May (JPD, JHN, MCN). NLP: Cheboygan, Ogemaw, Otsego, Roscommon, 15 April-29 May (DF, MCN, VW). Specimens collected at bait and UV; deposited in the MSU, Newman and Nielsen Collections.
- 1501 *Chersotis juncta* (Grote). UP: Marquette, 31 July-2 August (MCN). Two fresh males collected at UV in open jack pine in the Yellow Dog Plain; deposited in the Nielsen Collection.
- 1510.1 *Diarsia pseudorosaria freemani* Hardwick. UP: Isle Royale, Schoolcraft, 8-26 July (RH, JHN). Specimens determined by David Hardwick; deposited in the MSU and Newman Collections.
- 1517 *Amathes oblata* (Morrison). UP: Isle Royale, Schoolcraft, 8-29 July (JPD, RH, JHN, MCN). Specimens collected at bait and UV near large acid bog in T.42N., R.16W., Section 13; deposited in the MSU and Nielsen Collections.

- 1527 *Amathes opacifrons* (Grote) UP: Chippewa, Schoolcraft, 18-20 August (MCN). NLP: Antrim, Oceana, Otsego, Roscommon, 6 August-10 September (EM, JHN, MCN, VW). SLP: Clinton, Livingston, St. Joseph, 8 September (MCN).
- 1555 *Anomogyna perquiritata* (Morrison). UP: Isle Royale, 24-27 July (RH). One specimen deposited in the MSU Collection.
- 1558 *Anomogyna imperita* (Hübner). UP: Isle Royale, 24-29 July (RH). Determined by A. E. Brower. One specimen deposited in the MSU Collection.
- 1561.1 *Anomogyma badicollis* (Grote). UP: Schoolcraft, 5-25 July (MCN). NLP: Otsego, 24 July-2 August (MCN). Specimens determined by J. G. Franclemont; deposited in the Nielsen Collection.
- 1562 *Anomogyma janualis* (Grote). NLP: Cheboygan, Mecosta, Otsego, 21 August-3 September (MCN). Specimens determined by J. G. Franclemont; deposited in the Nielsen Collection.
- 1562.1 *Anomogyma youngii* (Smith). NLP: Otsego, 12 August-2 September (JHN, MCN). Specimens determined by J. G. Franclemont; deposited in the Nielsen Collection.
- 1594 *Abagrotis barnesi* (Benjamin). SLP: Livingston, Oakland, 29 June-8 July (JHN). Long series deposited in MSU Collection.
- 1679 *Polia radix* (Walker). UP: Keweenaw, 23 July (MCN). NLP: Grand Traverse, Otsego, 31 May-16 July (EM, MCN). One specimen taken at UV in Fort Wilkins State Park, another collected at bait in Otsego County, determined by J. G. Franclemont. Specimens deposited in the Metzler and Nielsen Collections.
- 1684 *Polia tacoma* (Strecker). UP: Isle Royale, Mackinac, Schoolcraft, 27 May-3 July (RH, JHN, MCN, VW). NLP: Montmorency, 31 May (WSM). Several specimens collected at UV near large acid bog in T.42N., R.16W., Section 13.
- 1685 *Polia rugosa* (Morrison). UP: Schoolcraft, 15 June-26 July (MCN). NLP: Cheboygan, 14 July (EV). Three males collected at lights adjacent to large acid bog in T.42N., R.16W., Section 13; one taken at Douglas Lake Biological Station.
- 1694 *Polia pulverulenta* (Smith). UP: Chippewa, Schoolcraft, 15 June-20 July (JHN, MCN). Most of the specimens were collected near the large acid bog in T.42N., R.16W., Section 13 at bait and UV.
- 1697 *Polia cristifera* (Walker). UP: Gogebic, Schoolcraft, 19-22 June (MCN, VW). One immaculate male taken at UV near the large acid bog in T.42N., R.16W., Section 13; specimens deposited in the Nielsen and Warczynski Collections.
- 1734 *Lacinipolia imbuna* (Smith). UP: Isle Royale, 23 July (RH). One specimen determined by A. E. Brower; deposited in the MSU Collection.
- 1789 *Anarta cordigera* Thunberg. UP: Chippewa, Schoolcraft, 20 May-12 June (JHN, MCN, VW). NLP: Otsego, 20, 21 May (MCN). Numerous in acid bogs feeding by day on leatherleaf, blueberry and bog rosemary blossoms.
- 1841 *Protorthodes curtica* (Smith). NLP: Oceana, 10-20 September (EM). Determined by D. Hardwick, deposited in the Newman Collection.
- 1917 *Xylomyges alternans* (Walker). SLP: Allegan, Ottawa, 18-22 May (GB, JPD, JHN, MCN). Several males collected at UV in the Allegan State Forest.
- 1941 *Orthosia alurina* Smith. SLP: Clinton, Ingham, 12-21 April (GB, MCN). Specimens collected at UV in the Dansville and Rose Lake State Game Areas, deposited in the Belyea and Nielsen Collections.
- 1974 *Leucania ursula* (Forbes). SLP: Lenawee, 31 August (MCN). Specimens collected at UV along Bean Creek near Morenci, deposited in the Nielsen Collection.
- 1975 *Leucania inermis* (Forbes). NLP: Otsego, 21-24 July (MCN). Specimens deposited in the MSU and Nielsen Collections.
- 2024 *Brachionycha borealis* (Smith). NLP: Arenac, Otsego, Roscommon, 13 April-5 May (GB, MCN, VW). Several immaculate males at UV in oak-pine forests.
- 2116 *Oncocnemis piffardi* (Walker). UP: Iron, 24 August. NLP: Benzie, Cheboygan, 22 August-22 September (MCN, VW). Three immaculate specimens at UV along the marsh edge of Elliot Creek, near U.S. Highway 23, in Cheboygan County. Specimens deposited in the Nielsen and Warczynski Collections.

- 2153a *Homohadena infixa dinalda* Smith. UP: Baraga, Marquette, 16 July-2 August (MCN, RW). NLP: Roscommon, 26 July (VW). Specimens deposited in the MSU, Nielsen and Warczynski Collections.
- 2155 *Adita chionanthi* (J. E. Smith). NLP: Benzie, 25 August-2 September. SLP: Berrien, Lenawee, 18 August-18 September (LR, MCN).
- 2157.1 *Apharetra purpurea* McDunnough. UP: Luce, Schoolcraft, 15, 16 July (MCN). NLP: Otsego, 2-11 August (MCN). Common at bait in oak-pine forests. Specimens determined by A. E. Brower and J. G. Franclemont.
- 2185 *Feralia major* Smith. NLP: Arenac, Oceana, Ogemaw, Otsego, Roscommon, 13 April-15 May (DF, EM, MCN, VW). Several males at UV in oak-pine forests.
- 2209 *Cleoceris discinigra* (Walker). NLP: Osceola, Otsego, 3-7 September (MCN, WCS). Specimens deposited in the Newman and Nielsen Collections.
- 2262 *Xylena thoracica* (Putnam-Cramer). UP: Schoolcraft, 30 May (MCN). NLP: Benzie, Ogemaw, Otsego, Roscommon, 13 April-8 October (DF, MCN, VW). Specimens collected at bait and UV in spring and fall.
- 2273 *Mniotype versuta* (Smith). UP: Gogebic, 13 July (T. Eiber). One specimen collected in T.44N., R.39W., Section 32 at light; determined by E. L. Todd. Deposited in the MSU Collection.
- 2276 *Mniotype miniota* (Smith). UP: Gogebic, 22 June (VW). One specimen deposited in the Newman Collection.
- 2283 *Fishia enthea* Grote. NLP: Bay, Oceana, Otsego, Roscommon, 11 September-3 October (EM, MCN, VW). Several males collected at UV in open aspen areas.
- 2289.1 *Chaetaglea cerata* Franclemont. NLP: Otsego, 2-11 October (MCN). SLP: Ingham, 6 October (MCN). Specimens determined by J. G. Franclemont, deposited in the MSU and Nielsen Collections.
- 2300 *Pyreferra citromba* Franclemont. SLP: Clinton, Macomb, 24 January-17 October (GB, JHN). Specimens collected at bait and UV in spring and fall.
- 2304.1 *Eupsilia vinulenta* (Grote). NLP: Osceola, 4-15 October (WCS). SLP: Clinton, Eaton, Ingham, Shiawassee, Gratiot, Ingham, Jackson, Montcalm, 5-24 June (JHN, WT). Specimens collected at bait and UV in spring and fall.
- 2355 *Apamea inordinata* (Morrison). UP: Chippewa, 19, 20 June. NLP: Benzie, Manistee, Oceana, Otsego, Roscommon, 19-27 June (EM, MCN, VW). SLP: Clinton, Genesee, Gratiot, Ingham, Jackson, Montcalm, 5-24 June (JHN, WT).
- 2361 *Apamea commoda* (Walker). NLP: Roscommon, 2-6 July (MCN, VW). Two immaculate specimens taken at UV in oak-pine forest opening; deposited in the Nielsen and Warczynski Collections.
- 2363 *Apamea mixta* (Grote). NLP: Otsego, 30, 31 July (MCN). Three immaculate males collected at bait in oak-pine forest, deposited in the Nielsen Collection.
- 2368.1 *Agroperina cogitata* (Smith). UP: Isle Royale, 13-24 July (RH). Two specimens deposited in the MSU Collection.
- 2379 *Crymodes burgessi* (Morrison). NLP: Newaygo, Oceana, 26 August-17 September (EM, JHN).
- 2428 *Eremobina hilli* (Grote). UP: Schoolcraft, 4, 5 August (MCN). NLP: Otsego, 13 August-3 September (MCN).
- 2473 *Hydroecia immanis* Guenée. SLP: Berrien, Lenawee, 24 August-18 September (MCN, ET). Three specimens have been collected at UV near Galien and Morenci. Deposited in the Newman and Nielsen Collections.
- 2479 *Papaipema appassionata* (Harvey). UP: Chippewa, 25 August (MCN). NLP: Alpena, Cheboygan, Montmorency, 25 August-4 September (MCN). Specimens reared from larvae found in pitcher-plants growing in bogs in proximity to Lake Huron shoreline.
- 2482 *Papaipema speciosissima* (Grote & Robinson). SLP: Ingham, Livingston, 1 September-3 October (IJC, JHN). Most of the specimens collected to date have come from the E. S. George. Reserve near Pinckney.
- 2489 *Papaipema nepheleptena* Dyar. NLP: Oceana, 20 September. SLP: Berrien, Clinton, Lenawee, Livingston, Oakland, 8 September-6 October (IJC, JPD, JHN). All specimens have been collected at UV traps.

- 2501 *Papaipema harrisi* (Grote). SLP: Clinton, Hillsdale, Jackson, Lenawee, Shiawassee, 6 August-3 September (MCN). Nielsen has reared adults from larvae boring into stems of *Angelica atropurpurea* from each county.
- 2508 *Papaipema lysimachiae* Bird. SLP: Berrien, 6-7 September (MCN). Specimens reared from larvae boring in *Lysimachia* sp. growing in small marsh in Grand Mere Dunes; deposited in the Nielsen Collection.
- 2532 *Parapamea buffaloensis* Grote. SLP: Ingham, Jackson, 31 August-7 October. Specimens deposited in the Newman and MSU Collections.
- 2544 *Iodopepla u-album* (Guenée). SLP: Berrien, St. Joseph, 20 May-8 September (GB, EM, MCN). Three specimens have been collected at UV in the Three Rivers State Game Area. One specimen taken at Grand Mere Dunes. Deposited in the Belyea, Metzler and Nielsen Collections.
- 2611 *Condica cupentia* (Cramer). SLP: Berrien, Lenawee, 22 September-16 October (LR, ET). Specimens deposited in the Newman and MSU Collections.
- 2656 *Platyperigea extima* (Walker). UP: Mackinac, 30 August (MCN). NLP: Otsego, 4 August (MCN). SLP: Ingham, 10 July (MCN).
- 2685.1 *Enargia infumata* (Grote). UP: Isle Royale, Schoolcraft, 20 July-9 September (PEM, MCN). NLP: Otsego, 7 August-3 September (MCN). SLP: Macomb, 24 August (JHN). Specimens determined by J. G. Franclemont and D. Ferguson.
- 2692 *Elydna gulnare* (Strecker). SLP: Berrien, 26 June-19 August (ET). Specimens collected at UV in Galien, deposited in the MSU and Newman Collections.
- 2715.1 *Pyrrhia exprimens* (Walker). UP: Gogebic, Iron, 22, 23 June (VW). NLP: Cheboygan, Crawford, Oscoda, Roscommon, 2 June-5 July (PEM, JHN). SLP: Gratiot, 22 July.
- 2810 *Basilodes pepita* Guenée. SLP: Lenawee, 28 July-12 August (MCN, VW). Nielsen has collected larvae feeding on *Verbesina alternifolia* flower heads at night along Bean Creek near Morenci.
- 2871 *Eutricopsis nexilis* (Morrison). NLP: Iosco, Otsego, 16-20 May (MCN). Adults collected during the day feeding on flowers of *Antennaria* sp.; larvae found feeding on flower heads of *Antennaria* during June. Specimens deposited in the Nielsen collection.
- 2933.1 *Heliothis subflexa* (Guenée). NLP: Bay, Benzie, Oceana, 12 June-6 October (EM). SLP: Wayne, 23 August (JHN). Specimens determined by Hardwick.
- 2938 *Schinia lucens* (Morrison). NLP: Newaygo, 13 June (DE). One specimen collected in the daytime near Fremont, deposited in the Newman Collection.
- 3006 *Schinia thoreauii* (Grote & Robinson). SLP: Berrien, Lenawee, Monroe, 29 July-22 August (EA, MCN, ET). All specimens collected at UV.
- 3023 *Schinia mortua* (Grote). NLP: Wexford, 22 August (RS). One fresh specimen collected during the daytime near Cadillac. Deposited in the MSU Collection.
- 3028 *Schinia brevis* (Grote). HLP: Manistee, 31 August (JM). SLP: Berrien, 8 September (ET). One specimen collected at UV at Bear Lake and Galien, deposited in the Newman and MSU Collections.
- 3113 *Thioptera nigrofimbria* (Guenée). NLP: Benzie, 26 September. One specimen collected in a UV trap at Frankfort. Specimen deposited in the Newman Collection.
- 3122 *Lithacodia concinnimacula* (Guenée). UP: Delta, Isle Royale, Schoolcraft, 8 June 18 July (RRD, RH). Specimens deposited in MSU Collection.
- 3147 *Spragueia onagrus* (Guenée). SLP: Berrien, 2 July-6 September (ET). Several specimens taken in UV trap at Galien.
- 3148 *Spragueia leo* (Guenée). SLP: Berrien, 2 July-6 September (ET). Several specimens taken in UV trap at Galien.
- 3230 *Paectes abrostoloides* (Guenée). NLP: Oceana, 27 June (EM). SLP: Clinton, Lenawee, 8-19 June (MCN, LR). One specimen at UV from the Rose Lake Wildlife Experiment Station. Specimens deposited in the Metzler, Newman and Nielsen Collections.

- 3246 *Syngrapha microgamma* (Huebner). UP: Chippewa, Schoolcraft, 5-22 June (JHN, MCN, VW). Most specimens collected at leatherleaf and bog laurel flowers in sphagnum-heath bogs during the day.
- 3246.1 *Syngrapha montana* (Packard). UP: Mackinac, Schoolcraft, 11 June-10 July (JHN, VW). Collected with *microgamma*. Determined by D. Ferguson, deposited in the Newman Collection.
- 3287 *Autographa pseudogamma* (Grote). UP: Iron, Keweenaw, 3-24 July (LE, MCN). Two specimens collected at UV near Beechwood (determined by Thomas Eichlin), and two specimens taken at fireweed flowers near Copper Harbor. Deposited in the MSU and Nielsen Collections.
- 3291 *Autographa flagellum* (Walker). UP: Alger, Menominee, 2 July. NLP: Newaygo, 18-23 July. Several specimens collected in UV traps.
- 3306 *Abrostola ovalis* Guenée. SLP: Barry, Livingston, Montcalm, 1-15 June (MCN, JHN). Two immaculate specimens collected at UV in the Yankee Springs Recreation Area and two from the E. S. George Reserve. Deposited in the Newman and Nielsen Collections.
- 3324 *Catocala angusi* Grote. SLP: Lenawee, 4 September (MCN). One fresh female at bait in oak-hickory woodlot near Morenci, determined by A. E. Brower. Deposited in the Nielsen Collection.
- 3335 *Catocala lacrymosa* Guenée. SLP: Clinton, Ingham (Cook, 1890), Washtenaw, 9 July-25 August. Two specimens deposited in the MSU Collection, determined by A. E. Brower.
- 3379 *Catocala illecta* Walker. SLP: Lenawee, 11-20 July (JHN, MCN). Several specimens collected at bait and UV along Bean Creek near Morenci.
- 3385 *Catocala sordida* Grote. UP: Luce, Marquette, Schoolcraft, 30 July-6 August (MCN). NLP: Clare, Oceana, Otsego, 1-22 August (EM, MCN). Many of Moore's records listed under *gracilis* Edwards included this species.
- 3406 *Catocala clintoni* Grote. SLP: Ingham (Cook, 1890). Material no longer extant in the MSU Collection. The species has been collected in Wisconsin by Sieker (personal communication).
- 3432 *Caenurgia chloropha* (Hübner). SLP: Lenawee, 24 September (LR). One specimen collected at UV near Tipton; deposited in the Newman Collection.
- 3435 *Mocis texana* (Morrison). SLP: Berrien, Livingston, 16 June-22 September (DC, JHN, ET). Specimens collected at UV in Grand Mere Dunes, Galien and near South Lyon.
- 3489.1 *Zale submediana* Strand. UP: Schoolcraft, 31 May-3 June (MCN). NLP: Otsego, 17-31 May (MCN). Specimens collected at bait, determined by J. G. Franclemont.
- 3493.1 *Zale metatoides* McDunnough. NLP: Arenac, 3 June (VW). One specimen deposited in the Nielsen Collection, determined by D. Ferguson.
- 3527 *Bendis detrahens* (Walker). SLP: Berrien, 1 June (ET). One specimen collected in UV trap at Galien, deposited in MSU Collection.
- 3535 *Panopoda carneicosta* Guenée. SLP: Clinton, Lenawee, Livingston, Oakland, 8 June-18 July (RLF, JHN, MCN, LR). Moore included this species with his records of *rufimargo*.
- 3549 *Melipotis indomita* (Walker). SLP: Kalamazoo, Lenawee, 9 July (RLF, JPD). One worn specimen collected at UV near Morenci in 1970; another worn specimen taken at UV at the Gull Lake MSU Biological station in 1957. Deposited in the MSU Collection.
- 3639 *Phyprosopus callitrichoides* Grote. SLP: Berrien, 12-16 June (DC, LM). Two specimens collected at UV at Sawyer and Grand Mere Dunes. Deposited in the Nielsen Collection.
- 3663 *Tathorhynchus angustiorata* Grote. SLP: Lenawee, 12 August (LR). One specimen collected in UV trap in Tipton. Deposited in the MSU Collection.
- 3677 *Phytometra coccineifascia* Grote. SLP: Allegan, 24 July-1 August (EM). Two specimens deposited in the Metzler and MSU Collections.

Hyphenodes palustris Ferguson. UP: Schoolcraft, 21 June (MCN). NLP: Otsego, 19 July (MCN). Specimens determined by E. L. Todd; deposited in the MSU and Nielsen Collections.

NOTODONTIDAE

- 3859.1 *Symmerista leucitys* Franclemont. UP: Chippewa, Schoolcraft, 7 June-5 August (RRD, MCN). NLP: Benzie, Charlevoix (Beaver and High Islands), Roscommon, 23 June-9 August (RRD, MCN, VW). SLP: Berrien, Ingham, Kalamazoo, Oakland, Washtenaw, 6 June-4 August (RLF, LM, WS). Specimens determined by J. P. Donahue, deposited in MSU Collection.
- 3859.2 *Symmerista canicosta* Franclemont. SLP: Allegan, Hillsdale, Ingham, Kalamazoo. 1 May-24 July (RLF, WS). Specimens determined by J. P. Donahue, deposited in MSU Collection.
- 3880 *Dasylophia anguina* (J. E. Smith). UP: Gogebic, 22 June (VW). SLP: Berrien, Kalamazoo, Lenawee, 13 June-18 August (RLF, MCN, ET). Specimens collected at UV at Galien, Gull Lake MSU Biological Station and near Morenci.
- 3899 *Heterocampa subrotata* Harvey. NLP: Bay (VW). SLP: Berrien, Lenawee, 28 May-30 July (MCN, LR). Most specimens have been collected at UV along Bean Creek near Morenci.
- 3940.1 *Gluphisia avimacula* Hudson. UP: Chippewa, Mackinac, 16-18 May (MCN). NLP: Crawford, Emmet, Oceana, Oscoda, Otsego, 10 May-1 June (EM, JHN, MCN). SLP: Livingston, Oakland, 1-5 May (EM, JHN). Specimens of the form *lossoni* Packard have been taken in the northern counties.

LASIOCAMPIDAE

- 3994 *Malacosoma californica pluviale* Dyar. UP: Alger, Chippewa, Isle Royale (Stehr & Cook, 1968), Luce, Mackinac, Schoolcraft, 2 July-12 August (SM, WSM, WVN, FS). NLP: Charlevoix (High Island), 16 July (SM). Larval nests found on dwarf birch, *Betula pumila*, in sphagnum-heath bogs (MCN).
- 3998 *Heteropacha rileyana* Harvey. SLP: Lenawee, 29 May-21 August (MCN). Nielsen has beaten larvae from small honey locusts along Bean Creek near Morenci.

GEOMETRIDAE

- 4025 *Leucobrephephos brephoides* (Walker). NLP: Charlevoix, Otsego, 13-17 April (JPD, JHN, BW). First collected near Opal Lake in Otsego County flying with *Brephephos infans* (Donahue & Newman, 1967). Specimens deposited in the MSU and Wilson Collections.
- 4046 *Nemoria bistriaria rubromarginaria* (Packard). SLP: Kalamazoo, 18 July-9 August (RLF). Specimens collected at UV at the Gull Lake MSU Biological Station, determined by D. Ferguson. Deposited in the MSU Collection.
- 4367 *Eupithecia mutata* Pearsall. UP: Chippewa, 6 July (RS). One specimen collected at Emerson Camp, deposited in the MSU Collection.
- 4398 *Eustroma semiatrata* (Hulst). UP: Schoolcraft, 26 July (JHN, MCN). NLP: Cheboygan, Newaygo, Ogemaw, Otsego, Roscommon, 11-26 July (DF, EM, MCN, EV, VW). SLP: Montcalm, 8 July (JPD).
- 4412 *Plemyria georgii* Hulst. UP: Delta, Houghton, Roscommon, Schoolcraft, 6 August-8 September (RRD, JHN, VW). Specimens deposited in the Newman and Nielsen Collections.
- 4416 *Dysstroma citrata* (Linnaeus). UP: Isle Royale, Mackinac, 29 July-9 September (RH, PM, MCN). NLP: Osceola, Otsego, 26 August-4 October (MCN, WCS). Osceola County specimen determined by D. Ferguson.
- 4434 *Stamnodes gibbicostata* (Walker). NLP: Mason, 18 September (EM). SLP: Lenawee, 5-8 September (JHN). Specimens deposited in the MSU Collection.
- 4509 *Xanthorhoe lacustrata* (Guenée). UP: Iron, 20 June. SLP: Calhoun, Clinton, Ingham, Kalamazoo, Livingston, Oakland, St. Clair, Shiawasee, Wayne, 8 April-31

- July (RLF, WCS). Moore's records of this species refer to *X. intermediata*, which is identical to his records of *Euphyia intermediata*, according to J. P. Donahue (personal communication).
- 4657.1 *Mellilla snowaria* (Packard). SLP: Lenawee, Kalamazoo, Washtenaw, 3 July-5 August (RLF, JHN, MCN). Several specimens collected at UV along Bean Creek, near Morenci.
- 4687 *Semiothisa sexmaculata* (Packard). SLP: Clinton, Shiawassee, 29 May-August (RLF, LW). Specimens from the Rose Lake Wildlife Station were reared on tamarack by Louis Wilson; determined by D. Ferguson. Specimens deposited in the MSU Collection.
- 4688 *Semiothisa denticulata* (Grote). NLP: Newaygo, 9-11 July (JHN). Several specimens collected during the daytime in large prairie in T.12N., R.12W., Section 2, deposited in the Newman Collection.
- 4804 *Eufidonia discospilata* (Walker). UP: Schoolcraft, 28 May-12 June (RLF, RS). NLP: Kalkaska, 22 May (RLF); SLP: Livingston, 5 June (WCS). Specimens deposited in the MSU Collection, determined by D. Ferguson.
- 4805.1 *Orthofidonia flavivenata* (Hulst). NLP: Otsego, 26 May (MCN). One fresh specimen at UV in T.29N., R.2W., Section 18, deposited in the Nielsen Collection.
- 4812 *Tornos scolopacinarius* Guenée. SLP: Kalamazoo, Livingston, 2 May-19 July (RLF, JHN). Several specimens collected at lights at the Gull Lake MSU Biological Station and near South Lyon.
- 5012 *Epirrhanthis substriataria* (Hulst). UP: Chippewa, May (JPD). NLP: Charlevoix, Ogemaw, Otsego, Roscommon, 15 April-15 May (GB, DF, MCN, VW). Several specimens collected at UV in oak-pine forests.

EPIPLEMIDAE

- 5225 *Callendapteryx dryopterata* Grote. SLP: Clinton, Livingston, 19 June-20 August (RWHo, MCN). Three specimens collected at UV; deposited in the MSU and Nielsen Collections.

LACOSOMIDAE

- 5227 *Lacosoma chiridota* Grote. SLP: Kalamazoo, Livingston, Oakland, Washtenaw, 10 June-6 July (RLF, JHN).
- 5229 *Cicinnus melsheimeri* (Harris). SLP: Clinton, Ingham, Kalamazoo, Livingston, Oakland, 10 June-14 July (GB, RLF, PEM, JHN, WCS).

LITERATURE CITED

- Cook, A. J. 1890. Report of the Zoologist. 29th Ann. Rept. of the Sec., State Bd. of Agric. Lansing: pp. 128-9.
- Donahue, Julian P. and John H. Newman. 1966. The genus *Phragmatobia* in North America, with the description of a new species (Lepidoptera: Arctiidae). Mich. Entomol. 1:35-74.
- Donahue, Julian P. and John H. Newman. 1967. A song sparrow preying on adult *Brephos infans* and *Leucobrephos brephoides* (Lepidoptera: Geometridae) in Michigan. Mich. Entomol. 1:245-247.
- Ferguson, Douglas C. 1955. The Lepidoptera of Nova Scotia, Part 1, Macrolepidoptera. Bull. No. 2 Nova Scotia Mus. Sci. 375 pp.
- Forbes, William T. M. 1948. Lepidoptera of New York and neighboring States, Part II, Memoir 274, Cornell Univ. Agric. Exp. Sta. 263 pp.
- Forbes, William T. M. 1954. Lepidoptera of New York and neighboring States, Part III, Memoir 329, Cornell Univ. Agric. Exp. Sta. 433 pp.
- Forbes, William T. M. 1960. Lepidoptera of New York and neighboring States, Part IV, Memoir 371, Cornell Univ. Agric. Exp. Sta. 188 pp.

- Hardwick, David F. 1970. The genus *Euxoa* (Lepidoptera: Noctuidae) in North America, Part 1, Subgenera *Orosagrotis*, *Longivesica*, *Chorizagrotis*, *Pleonectopoda*, and *Crassivesica*. *Memoirs of Entomol. Soc. of Canada*. 67:177 pp.
- Hodges, Ronald W. 1971. Sphingoidea, in R. B. Dominick *et al*, *The moths of American North of Mexico*, Fascicle 21:158 pp. illus.
- McDunnough, J. 1938. Check list of the Lepidoptera of Canada and the United States of America, Part 1, Macrolepidoptera. *Memoirs So. Calif. Acad. Sci.* Vol. 1:275 pp.
- Moore, Sherman. 1955. An annotated list of the moths of Michigan exclusive of Tineoidea (Lepidoptera). *Misc. Publ. Mus. Zool., Univ. Mich.* No. 88:87 pp.
- Stehr, Frederick W. and Edwin F. Cook. 1968. A revision of the genus *Malacosoma* Hubner in North America (Lepidoptera: Lasiocampidae); Systematics, Biology, Immatures, and Parasites. *USNM Bull.* 276:321 pp. illus.
- Voss, Edward G. 1969. Moths of the Douglas Lake Region (Emmet and Cheboygan Counties), Michigan: 1. Sphingidae-Ctenuchidae (Lepidoptera). *Mich. Entomol.* 2:48-54.