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Grand Portage, Minnesota



Initial Inventory of the Moths of the Grand Portage National Monument,
Cook County, Minnesota



INITIAL INVENTORY OF THE MOTHS OF THE GRAND PORTAGE NATIONAL MONUMENT, COOK COUNTY, MINNESOTA

Submitted by
David B. MacLean, Ph.D.

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INTRODUCTION

The objective of this study was to begin to inventory the Lepidoptera of the Grand Portage National Monument, Cook County located in extreme northeastern Minnesota. The Monument includes the reconstructed Stockade and Great Hall on the shores of Lake Superior, adjacent Mount Rose (276m) and the Grand Portage trail that extends 13.6 km (8.2 miles) from the stockade to the former site of Fort Charlotte on the Pigeon River. Much of the Monument consists of mixed conifer-deciduous forest and a beaver modified wetland dominated by grasses, sedges and willows (Walton, 1999). The forest, which is on the Boreal Forest - Northern Hardwoods ecotone, consists primarily of an aspen-birch-fir-spruce association. Also present are well-drained upland stands of white cedar and white and red pine. Red maple, black ash and other species adapted to wet soils occur in poorly drained areas (Walton, 1999).

The order Lepidoptera includes over 150,000 described species worldwide (Romoser and Stoffolano, 1994) 11,233 of which occur in North America (Hodges, 1983). Currently this large assemblage of species is assigned to five suborders, 75 families and 23 superfamilies (Hodges, 1983 and Arnett, 1993). The recent increase in the number of Lepidoptera superfamilies is largely due to the principle of monophyly applied to modern classifications (cladograms) (Scoble, 1995). In spite of the application of cladistics to the study of lepidopteran systematics, no single higher classification of the order has been universally adopted (Arnett, 1993). The largest North American superfamilies (number of species in parentheses) are Bombycoidea: Lasiocampidae (35) and Saturniidae (68); Gelechioidea: Cosmopterigidae (180), Gelechiidae (630) and Oecophoridae (225); Geometroidea: Geometridae (1414); Noctuoidea: Arctiidae (264), Noctuidae (2925) and Notodontidae (136); Pyraloidea: Pyralidae (1374); Sphingoidea: Sphingidae (124) and Tortricoidea: Tortricidae (1164).

METHODS

During the summer of 2000, blacklight traps were used to inventory the adult Trichoptera (caddisflies) of the Grand Portage National Monument. A total of 17 collections were made at Grand Portage Creek, Poplar Creek and Snow Creek. The location and description of these sites is given in MacLean and MacLean, 2000. In addition to caddisflies, adult moths were removed and preserved by freezing. In 2001 additional light trap collections were made at Mount Rose, the Boneyard and Ojibway Village areas of the Monument. Moth specimens in the following families were pinned, spread and identified to species whenever possible: Tortricidae (tortricid moths), Pyralidae (pyralid moths), Thyatridae (thyatrid moths), Geometridae (geometer moths), Lasiocampidae (tent caterpillar moths), Saturniidae (giant silkworm moths), and Sphingidae (sphinx moths), Arctiidae (tiger moths), Notodontidae (prominents) and Noctuidae (noctuids). In difficult cases, specimens were sent to Mr. Les Ferge of Middleton, Wisconsin, for final determination.

RESULTS AND DISCUSSION

This preliminary report records 82 named species in 10 families of Lepidoptera from the Grand Portage National Monument (Table 1 and Table 2). The relatively few number of species recorded was likely due to the lack of spring and fall collections. Therefore species of moths that fly during April and May and from mid September through November were not included in this initial survey. It is difficult to say if any of the species in this report represent new state records, as no list of Minnesota moths has been compiled (Bob Dana, Minnesota DNR, Ralph Holzenthal and Susan Weller, Department of Entomology, University of Minnesota, pers. comm.). As most species are wide ranging and occur throughout much of eastern North America, it is unlikely that any have not been previously reported from Minnesota.

As expected, the greatest numbers of species were members of the Noctuidae (32) and Geometridae (23) (Table 1). The number collected, known larval host plants, distribution, and relative abundance of each species (when known) is presented in Table 3. Many species are generalists that feed on a wide range of plant hosts including alders, birches, maples, poplars and willows. Most are widely distributed across the East from Nova Scotia or New England south to the Carolinas and west to Manitoba and the Dakotas (Table 3). *Semiothisa pinistrobata*, *Caripeta divisata* and *Lambdema fiscellaria* are locally common northward to Minnesota and Canada and feed on pines and other plants of northern forests. Several species such as the peppered moth, *Biston betularia* (L.), *Scoliopteryx libatrix* (L.) and *Graphiphora augur* F. are Holarctic. *Ostrinia nubilias* (Hbn.), the European corn borer, and *Hydraecia micacea* (Esper) were introduced from Europe during the last century, *Peridroma saucia* (Hbn.), the variegated cutworm and *Hyphantria cunea*, the fall web worm are distributed worldwide. The number of specimens reported for each species (Table 3) from these collections may not be an accurate population estimate. Because few collections were made at Snow Creek, only two species were reported from this site.

Malacosoma distria, the forest tent caterpillar (FTC) is a serious forest defoliator of aspen and birch in northern Minnesota and basswood and oaks in central and southern Minnesota (Minnesota DNR, 1999), was the most abundant species. Widespread outbreaks of the forest tent caterpillar (FTC) have occurred at intervals of 10 to 20 years. A cool winter and a warm spring often precede outbreaks. Populations collapse is due to starvation, late spring frosts and natural control agents such as *Sarcophaga aldrichi*, a tachinid fly that parasitizes FTC pupae (Minnesota DNR, 1999). Repeated defoliation kills only one percent of aspen trees. Defoliation however weakens trees making them more susceptible to borers and fungi. Even so, the long-term impact on forest structure due to FTC defoliation is much less than defoliation by the spruce budworm, *Choristoneura fumiferana* (Clemens).

Most species were represented by five or fewer specimens. The only other forest pests reported in this inventory were *Pandemis limitata* (Rob.), the three-lined leaf roller, a pest of apple and *Ennomus magnaria* (Gn.) which was represented by only a single specimen. Other common species were *Dysstroma hersiliata* (Gn.), (Geometridae), *Smerinthus cerisyi* Kby. (Sphingidae) and *Clostera albosigma* Fitch (Notodontidae). Pests of cultivated crops such as *Ostrinia nubilias* (Hbn.), the European corn borer, *Peridroma saucia* the variegated cutworm and *Feltia herilis* (Grt.) were represented by only a single specimen each. Only one specimen of *Hyles lineata* (F.), the white-lined sphinx, was collected, however many specimens were observed during late summer, 2001. Northern populations of this common species, which ranges widely throughout eastern North America, are sporadic (Covell, 1984; Hodges, 1971).

Lepidoptera are of great environmental and ecological importance. A highly beneficial but often overlooked activity of adult Lepidoptera is pollination. Hymenoptera, Diptera and Coleoptera exceed Lepidoptera in importance as pollinators of commercial crops, however, many species of Noctuidae, Geometridae and Sphingidae are no doubt important pollinators of plants in nature (Scoble, 1995). The role of Lepidoptera as pollinators in temperate and boreal ecosystems is largely unknown.

Because of the large number of species that feed on living plants, the impact of Lepidoptera on plant primary production is considerable (Scoble, 1995). Hundreds of species of Lepidoptera attack and damage forest trees (Johnson and Lyon 1991), but relatively few result in serious and long lasting damage. However, when Lepidoptera populations escape natural controls such as parasitoids, diseases and weather, their impact on forest vegetation is often dramatic. Population outbreaks of spruce budworm and the gypsy moth *Lymantria dispar* (L.) have had major impacts on North American forests. Small populations of the gypsy moth have been reported from Minnesota including 33 specimens from Cook County in 1999, and 22 in 2000 (Diane Booth, University of Minnesota Extension Service, pers. comm.). Even though these numbers are small, the gypsy moth is a potential threat to northeastern Minnesota forests. The gypsy moth assessment model, developed by Thomas Eiber (Forestry, Minnesota DNR) (<http://www.mnplan.state.mn.us/eppl7/whatsnew/gypsy.htm>), is based on (1) cover type, (2) cover density, (3) soil type and (4) environmental stress (moisture shortfall). The model predicts mostly low to moderate gypsy moth impact with small local areas of severe impact for Cook County including the Grand Portage National Monument. As females are flightless, the major means of dispersal is by egg masses transported by cars

and recreational vehicles. As Cook County is a major destination for many tourists from the Twin Cities and other areas where the gypsy moth is established, it is not surprising that the gypsy moth is now established along the north shore of Minnesota.

In addition to their role as consumers of plant primary production, Lepidoptera larvae and adults are important food items for invertebrate predators and parasitoids and vertebrate predators such as birds, bats and small mammals (Scoble, 1995). Studies of invertebrates and vertebrates have demonstrated that species richness is an important indicator of environmental quality. Macrolepidoptera have been studied in structurally complex tropical forests as indicators of environmental degradation and ways to categorize smaller habitat units (Scoble, 1995 and references therein). Except for butterflies, the role of Lepidoptera as indicators of environmental quality in structurally less complex temperate and boreal forests is largely unknown.

In conclusion, this report is only the initial attempt to compile a list of the moths of the Grand Portage National Monument. The potential number of species of moths that inhabit the GPNM and northeastern Minnesota is no doubt very large. Seven hundred and eight species of Noctuidae have been recorded from Ohio (Rings et al., 1992). Four hundred and fifty species of Geometridae, 400 species of Pyralidae, and 1520 species of Noctuidae have been recorded from Canada (Munroe, 1978). In a study of the Lepidoptera of the Apostles Islands National Lakeshore, between 100 - 300 species were collected per site between June and September (Les Ferge, pers. comm.). Therefore, future collections should be made in order to better inventory the moth fauna of the Grand Portage National Monument.

ACKNOWLEDGEMENTS

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Table 1. Number of species of Lepidoptera identified from light trap collections made in 2000 and 2001 at the Grand Portage National Monument, Cook County, Minnesota.

Family	No. of species
Tortricidae	1
Pyrilidae	4
Thyatridae	2
Geometridae	23
Lasiocampidae	2
Saturniidae	2
Sphingidae	6
Notodontidae	3
Arctiidae	7
Noctuidae	32
Total	82

Table 2. Species of Lepidoptera identified from light trap collections made in 2000 and 2001 at the Grand Portage National Monument, Cook County, Minnesota.

Family	Genus	Species (HN ¹)	Site	Date
TORTRICIDAE (tortricid moths)				
	<i>Pandemis</i>	<i>limitata</i> (Rob.) (3594)	GPCK ²	08/02/
PYRALIDAE (pyralid moths)				
	<i>Sparganothis</i>	<i>pettitana</i> (Rob.) (3725)	GPCK	08/02/
	<i>Crocidophora</i>	<i>serratissimalis</i> Zeller (4944)	GPCK	08/02/
	<i>Ostrinia</i>	<i>nubilalis</i> (Hbn.) (4949)	BNYD ³	08/26/
	<i>Nomophila</i>	<i>nearctica</i> Mun. (5156)	OV ⁴	09/12/
THYATRIDAE (Thyatrid moths)				
	<i>Habrosyne</i>	<i>scripta</i> (Gosse) (6235)	GPCK	06/29/ 07/12/
			POPCK ⁵	07/12/
	<i>Pseudothyatria</i>	<i>cymatophoroides</i> (Gn.) (6237)	GPCK	06/29/
GEOMETRIDAE (Inchworm or geometer moths)				
	<i>Semiothisa</i>	<i>pinistrobata</i> Fgn. (6347)	GPCK	08/02/
	<i>Biston</i>	<i>betularia</i> (L.) (6640)	GPCK	07/12/
			POPCK	07/12/
	<i>Hypagyrtis</i>	<i>subatomaria</i> (Wood) (6654)	GPCK	08/02/
	<i>Euchlaena</i>	<i>effecta</i> (Wlk.) (6728)	POPCK	07/12/
	<i>E.</i>	<i>tigrinaria</i> (Gn.) (6737)	GPCK	07/12/
	<i>Xanthotype</i>	<i>sospeta</i> (Dru.) (6743)	GPCK	07/12/
			POPCK	07/12/
	<i>Ennomus</i>	<i>magnaria</i> (Gn.) (6797)	SNCK ⁶	08/16/
	<i>Metanema</i>	<i>inatomaria</i> Gn. (6819)	GPCK	06/29/
	<i>Metarranthis</i>	<i>duaria</i> (Gn.) (6822)	POPCK	06/29/
	<i>M.</i>	<i>hypochararia</i> (H.-S.) (6826)	GPCK	06/29/
	<i>Caripeta</i>	<i>divisata</i> Wlk. (6863)	POPCK	07/12/
	<i>Lambdema</i>	<i>fiscellaria</i> (Gn.) (6888)	GPCK	09/13/
	<i>Tetracis</i>	<i>crocallata</i> Gn. (6963)	POPCK	06/09/
	<i>T.</i>	<i>cachexiata</i> Gn. (6964)	POPC	06/29/
	<i>Campaea</i>	<i>perlata</i> (Gn.) (6796)	GPCK	08/02/
			POPCK	09/13/
	<i>Eutrapela</i>	<i>clemataria</i> (J.E.Sm.) (6966)	GPCK	06/29/ 08/29/
			POPCK	06/09/
	<i>Dysstroma</i>	<i>hersiliata</i> (Gn.) (7189)	GPCK	07/12/
			POPCK	06/09/

¹ Hodges number, Hodges, et al. 1983

² Grand Portage Creek, 2000

³ Boneyard, 2001

⁴ Ojibway Village, 2001

⁵ Poplar Creek, 2000

⁶ Snow Creek, 2000

Table 2. Species of Lepidoptera identified (continued).

Family	Genus	Species (HN ¹)	Site	Date
				07/12/
GEOMETRIDAE (continued)				
	<i>Eulithis</i>	<i>explanata</i> (Wlk.) (7206)	POPCK	08/02/
	<i>Hydriomena</i>	<i>renunciata</i> (Wlk.) (7236)	POPCK	05/24/
	<i>H.</i>	<i>furcata</i> (Thunb.) (7257)	GPCK	08/02/
	<i>Xanthorhoe</i>	<i>lacustrata</i> (Gn.) (7390)	POPCK	08/02/
	<i>Epirrhoe</i>	<i>alternata</i> (Muller) (7394)	POPCK	05/24/
				06/09/
			BNYD	08/26/
	<i>Lobophora</i>	<i>nivigerata</i> Wlk. (7640)	GPCK	06/29/
			POPCK	06/29/
				07/12/
LASIOCAMPIDAE (Tent caterpillar and lappet moths)				
	<i>Phyllodesma</i>	<i>americana</i> (Harr.) (7687)	GPCK	06/29/
	<i>Malacosoma</i>	<i>distria</i> Hbn. (7698)	GPCK	07/12/
				08/02/
			POPCK	07/12/
				08/02/
SATURNIIDAE (Giant silkworm moths)				
	<i>Antheraea</i>	<i>polyphemus</i> (Cram.) (7757)	GPCK	06/29/
	<i>Actias</i>	<i>luna</i> (L.) (7758)	GPCK	06/29/
SPHINGIDAE (Sphinx moths)				
	<i>Ceratomia</i>	<i>undulosa</i> (Wlk.) (7787)	GPCK	06/29/
				07/12/
			POPCK	06/29/
	<i>Smerinthus</i>	<i>jamaicensis</i> (Dru.) (7821)	GPCK	06/29/
				07/12/
	<i>S.</i>	<i>cerisyi</i> Kby. (7822)	GPCK	06/29/
				07/12/
	<i>Paonias</i>	<i>excaecatus</i> (J.E.Sm.) (7824)	POPCK	07/12/
			GPCK	06/29/
	<i>Pachysphinx</i>	<i>modesta</i> (Harr.) (7828)	GPCK	07/12/
				06/29/
	<i>Hyles</i>	<i>lineata</i> (F.) (7894)	BNYD	07/12/
				08/26/
NOTODONTIDAE (Prominents)				
	<i>Clostera</i>	<i>albosigma</i> Fitch (7895)	GPCK	06/15/
				06/29/
	<i>Nadata</i>	<i>gibbosa</i> (J.E.Sm.) (7915)	GPCK	06/29/
	<i>Gluphesia</i>	<i>septentrionis</i> Wlk. (7931)	GPCK	07/12/
			POPCK	06/09/
				07/12/
			POPCK	06/29/
ARCTIIDAE (Tiger, lichen and wasp moths)				
	<i>Eilema</i>	<i>bicolor</i> (Grt.) (8043)	GPCK	08/02/
	<i>Hyphantria</i>	<i>cunea</i> (Drury) (8140)	POPCK	06/09/
	<i>Spilosoma</i>	<i>virginica</i> (F.) (8137)	POPCK	06/09/
	<i>Platarctia</i>	<i>parthenos</i> (Harr.) (8162)	GPCK	07/12/
	<i>Apatensis</i>	<i>figurata</i> (Dru.) (8188)	GPCK	06/29/
	<i>Grammia</i>	<i>parthenice</i> (Kby.) (8196)	BNYD	08/26/

Table 2. Species of Lepidoptera identified (continued).

Family	Genus	Species (HN ¹)	Site	Date
ARCTIIDAE (continued)				
	<i>Ctenucha</i>	virginica (Esper.) (8262)	GPCK POPCK	07/12/ 06/29/ 07/12/
NOCTUIDAE (Owlet or noctuid moths)				
	<i>Bombolocha</i>	<i>edictalis</i> (Wlk.) (8452)	POPCK	08/02/
	<i>Calyptera</i>	<i>canadensis</i> (Bethune) (8536)	GPCK POPCK	08/02/ 08/02/
	<i>Scoliopteryx</i>	<i>libatrix</i> (L.) (8555)	POPCK	06/29/
	<i>Zale</i>	<i>minerea</i> (Gn.) (8697)	POPCK	06/09/
	<i>Plusia</i>	<i>putnami</i> Grt. (8950)	POPCK	06/29/
	<i>Lithacodia</i>	<i>albidula</i> (Gn.) (9048)	POPCK	07/12/
	<i>Acrionicta</i>	<i>americana</i> (Harr.) (9200)	GPCK	07/12/
	<i>A.</i>	<i>superans</i> Gn. (9226)	POPCK	06/09/
	<i>Xylomoia</i>	<i>chagnoni</i> B. & McD. (9433)	POPCK	07/12/
	<i>Celaena</i>	<i>reniformis</i> (Grt.) (9453)	POPCK	08/02/
	<i>Papaipema</i>	<i>arctivorens</i> Hamp. (9471)	POPCK	09/13/
	<i>P.</i>	<i>unimoda</i> (Sm.) (9509)	GPCK	09/13/
	<i>Hydraecia</i>	<i>micacea</i> (Esp.) (9514)	BNYD POPCK	08/26/ 09/13/
	<i>Bellura</i>	<i>obliqua</i> (Wlk.) (9525)	GPCK POPCK	06/29/ 06/29/
	<i>Euplexia</i>	<i>benesimilis</i> McD. (9545)	GPCK	06/29/
	<i>Phylogophora</i>	<i>iris</i> Gn. (9546)	GPCK POPCK	06/09/ 06/09/
	<i>Homoglaea</i>	<i>hircina</i> (Morr.) (9881)	POPCK	07/12/
	<i>Sutyna</i>	<i>privata</i> (Wlk.) (9989)	MTRS ⁷	09/12/
	<i>Pachypolia</i>	<i>atricornis</i> (Grt.) (9992)	GPCK	09/13/
	<i>P.</i>	<i>imbrifera</i> (Gn.) (10276)	GPCK	08/02/
	<i>Polia</i>	<i>detracta</i> (Wlk.) (10288)	GPCK POPCK	06/29/ 07/12/
	<i>Lacinipolia</i>	<i>lorea</i> (Gn.) (10405)	POPCK	07/12/
	<i>Morrisonia</i>	<i>latex</i> (Gn.) (10521)	GPCK POPCK	06/29/ 06/09/ 06/29/
	<i>Orthodes</i>	<i>goodelli</i> (Grt.) (10589)	POPCK	06/29/
	<i>Feltia</i>	<i>herilis</i> (Grt.) (10676)	BNYD	08/26/
	<i>Graphiphora</i>	<i>augur</i> (haruspica) F. (10928)	POPCK	08/02/
	<i>Peridroma</i>	<i>saucia</i> (Hbn.) (10915)	POPCK	07/12/
	<i>Xestia</i>	<i>smithii</i> (Snell.) (10944)	SNCK BNYD	08/16/ 08/26/
	<i>Eueretagrotis</i>	<i>sigmoides</i> (Gn.) (11007)	POPCK	07/12/
	<i>E.</i>	<i>perattenta</i> (Grt.) (11008)	POPCK	07/12/
	<i>Cryptocala</i>	<i>acadiensis</i> (Bethune) (11012)	POPCK	08/02/
	<i>Abagrotis</i>	<i>brunneipennis</i> (Grote) (11044)	MTRS	09/13/

⁷ Mount Rose, 2001

Table 3. Numbers collected, host plants, distribution and relative abundance of Lepidoptera species from light trap collections made in 2000 at the Grand Portage National Monument, Cook County, MN. Except where noted all data are from Covell 1984.

Family	Species	No.	Host plants	Distribution	Abundance
TORTRICIDAE	<i>Pandemis limitata</i> (three-lined leafroller moth)	1	many trees including alders, apples (pest), aspens, birches and maples	ME to GA, west to KS and TX)	common
PYRALIDAE	<i>Sparganothis pettitana</i>	1	trees including birches and maples	eastern North America, common eastward ¹	
	<i>Crocidophora serratissimalis</i>	1	reared from cut-grass	southern QC to MA, MD, TX and WI	
	<i>Ostrinia nubilalis</i> (European corn borer)	1	a pest of corn, also feeds on asters, beans, dahlias, potato and other plants	introduced in 1908 or 1909, throughout eastern North America	common
	<i>Nomophila nearctica</i>	1	grasses, sweet clover and <i>Polygonum</i> spp.	common throughout eastern North America.	
THYATRIDAE	<i>Habrosyne scripta</i> (lettered habrosune)	5	birches, blackberry and other <i>Rubus</i> spp.	NF(LAB) west to MB, south to AR and MS	rare to uncommon
	<i>Pseudothyatria cymatophoroides</i> (tufted thyatrid)	1	many trees and shrubs including alder, birches, maples oaks, poplars and willows	NF west to MB south to AR and MS	
GEOMETRIDAE	<i>Semiothisa pinistrobata</i> (white pine angle)	2	white pine	NS to NC west to ON, where white pine grows	common
	<i>Biston betularia</i> (peppered moth)	3	many trees and shrubs including alders, birches, larch and	Holarctic, NS west to SD and MO	common

Table 3. Number collected, host plants and distribution of Lepidoptera (continued).

Family	Species	No.	Host plants	Distribution	Abundance
			willows		
GEOMETRIDAE	Continued				
	<i>Hypagyrtis subatomaria</i>	2	many trees and shrubs including alders, birches, maples, poplars and willows	across southern CAN south to FL and MS ⁸	
	<i>Euchlaena effecta</i>	1	n.a. ⁹		
	<i>E. tigrinaria</i> (mottled Euchlaena)	1	oaks, quaking aspen and white birch	ME to VA west to MB and TX	common
	<i>Xanthotyp sospeta</i> (crocus geometer)	4	basswood, dogwoods, elms, hickories, red maple, <i>Polygonum</i> spp., <i>Ribes</i> spp., strawberry	NS to FL west across CAN, south to TN, MO and NE	common
	<i>Ennomus magnaria</i> (maple spanworm)	1	deciduous trees and shrubs including alders, ashes, basswood, elms, hickories, maples, oaks and poplars	NF to FL, west across CAN and the Midwest	common to abundant, a forest pest
	<i>Metanema inatomaria</i> (pale Metanema)	1	aspens, birch, poplars and pine	NF to MS west across CAN south to MO	locally common to rare
	<i>Metarranthis duaria</i> (ruddy Metarranthis)	2	alder, aspen, basswood, blueberries, choke cherry, linden, wild cherry and willows	NF To SC, west across CAN south to MO and MS	locally common to rare
	<i>M. hypochraria</i> (common Metarranthis)	2	apple, blueberry, choke cherry, wild cherry	ME to KY west to MN	common
	<i>Caripeta divisata</i> (gray spruce looper)	1	hemlock, balsam fir, spruces and white pine	NF west across CAN south to MN	locally common
	<i>Lambdema fiscellaria</i> (hemlock looper moth)	1	firs, hemlocks, spruces and oaks	NF (LAB) to SC west across CAN, south to TX	common
	<i>Tetracis crocallata</i> (yellow slant-line)	1	alder, chestnut, sumac and willows	NS to SC, west to MB and TX	common northward
	<i>T. cachexiata</i> (white slant line)	2	ash, birch, cherry, elms, maples, oaks, pines, sheep laurel, sweetfern, willows and others	NS to FL, west to MB and AR	common

⁸ McGuffin, 1977

⁹ not available

Table 3. Number collected, host plants and distribution of Lepidoptera (continued).

Family	Species	No.	Host plants	Distribution	Abundance
GEOMETRIDAE Continued					
	<i>Campaea perlata</i> (pale beauty)	3	numerous trees including alders, birch, poplars and willows	NF (LAB) south to NC, west across CAN south to MO	common
	<i>Eutrapela clemataria</i> (curved tooth geometer)	4	many trees including ash, aspen, basswood, birches, elms, fir, maples, poplars and willows	across eastern North America	common
	<i>Dysstroma hersiliata</i> (orange-barred carpet)	11	currant	NF (LAB) to PA, west across CAN, south to MN	common
	<i>Eulithis explanata</i> (white eulithis)	2	blueberries	NF (LAB) to NC, west across CAN, south to MN	locally common
	<i>Hydriomena renunciata</i> (renounced hydriomena)	1	alder	NF (LAB) and QC to KY, west across CAN, south to IL and MO	common northwards
	<i>H. furcata</i>	1	willow, hazel, heather, bilberry,	Across southern Canada and northern US	
	<i>Xanthorhoe lacustrata</i> (toothed brown carpet)	1	Birches, <i>Rubus</i> sp., hawthorns, willows	across eastern North America	common
	<i>Epirrhoe alternata</i> (white-banded toothed carpet)	2	bedstraws	NF (LAB) to WV, west across CAN, south to MN	locally common northward
	<i>Lobophora nivigerata</i> (powdered bigwing)	3	trembling aspen, speckled alder, white birch, willow	NF to NC west across CAN	common northward
LASIOCAMPIDAE					
	<i>Phyllodesma americana</i> (lappet moth)	1	alders, birches, oaks, poplars, Rosaceae and willows	NS south to GA west across CAN south to TX	rare to locally common
	<i>Malacosoma distria</i> (forest tent caterpillar moth)	20+	forest pest of many trees and shrubs especially aspens and maples	eastern North America	locally common to abundant, periodic population outbreaks
SATURNIIDAE					
	<i>Actias luna</i> (luna moth)	1	many trees and shrubs including aspen, birch, maple and willow	eastern North America	common
	<i>Antheraea polyphemus</i> (polyphemus moth)	1	many trees and shrubs including birch	throughout eastern North America	common

Table 3. Number collected, host plants and distribution of Lepidoptera (continued).

Family	Species	No.	Host plants	Distribution	Abundance
SPHINGIDAE					
	<i>Ceratomia undulosa</i> (waved sphinx)	2	ashes, fringe tree, hawthorn, lilac, oaks and privet	eastern North America	common
	<i>Smerinthus jamaicensis</i> (twin-spotted sphinx)	4	apple, ash, birch, elm, plum and willow	eastern North America	common
	<i>S. cerisyi</i> (one-eyed sphinx)	18	pear, plum, poplar and willow	NF To GA, west to MB and AR	uncommon
	<i>Paonias excaecatus</i> (blinded sphinx)	6	basswood, birch, elm, oaks, poplars and <i>Prunus</i> spp.	eastern North America	common
	<i>Pachysphinx modesta</i> (big poplar sphinx)	6	poplars and willows	eastern North America	may be locally common
	<i>Hyles lineata</i> (white lined sphinx)	1	many larval host plants including portulaca, fuchsia, four o'clock, willowweed and apple	throughout eastern North America	common, sporadic northward
NOTODONIDAE					
	<i>Clostera albosigma</i> (sigmoid prominent)	19	poplars and willows	eastern North America	common
	<i>Nadata gibbosa</i> (white- dotted prominent)	4	birches, cherries, maples, and other trees	eastern North America	common
	<i>Gluphesia septentrionis</i> (common gluphesia)	6	poplars	eastern North America	common
ARCTIIDAE					
	<i>Eilema bicolor</i> (bicolored moth)	1	conifers and lichens on conifers	NF (LAB) to NY west across CAN	common
	<i>Hyphantria cunea</i> (fall web worn moth)	1	a pest of forest trees, feeds on more than 100 species of trees	across eastern North America	common to abundant
	<i>S. virginica</i> (Virginian tiger moth)	2	many plants including birches, maples, willows, <i>Prunus</i> and <i>Ribes</i> spp.	eastern North America	common
	<i>Platarctia parthenos</i> (St. Lawrence tiger moth)	1	alder, birch, willows and others	NF(LAB) to NC, west across CAN, south to MI	locally common northwards

Table 3. Number collected, host plants and distribution of Lepidoptera (continued).

Family	Species	No.	Host plants	Distribution	Abundance
ARCTIIDAE Continued					
	<i>Apatensis figurata</i> (figured tiger moth)	1	alfalfa, plantain and other herbaceous plants	NS south to GA, west to MN, KS And TX	uncommon to common
	<i>Grammia parthenice</i>	1	dandelion, ironweed, thistles, and other plants	throughout eastern North America	common
	<i>Ctenucha virginica</i> (Virginia ctenucha)	4	grasses, irises and sedges	NF (LAB) to PA, west to MB and KS	common
NOCTUIDAE					
	<i>Bombolocha edictalis</i> (large bombolocha)	1	larval hosts unrecorded	ME to VA west to MB	locally common
	<i>Calyptera canadensis</i> (Canadian owlet)	2	tall meadow-rue	NS to NC, west to MB and TX	uncommon
	<i>Scoliopteryx libatrix</i> (the herald)	1	poplars and willows	Holarctic	locally common
	<i>Zale minerea</i> (colorful zale)	1	beech, birches, maples, poplars and other trees	eastern North America	common
	<i>Plusia putnami</i> (Putnam's looper)	1	grasses and sedges	NF (LAB) to VA, west to MN	common in grassy habitats
	<i>Lithacodia albidula</i>	4	n.a. ²		
	<i>Acrionicta americana</i> (American dagger moth)	1	many trees including alders, ashes, birches, maples, poplars and willows	eastern North America	common
	<i>A. superans</i> (splendid dagger moth)	1	apple, birch, cherry, and others	NF To KY, west to MB and MI	common northward
	<i>Xylomoia chagnoni</i> ¹⁰	1	larva bores in shoots of reed canary grass, northeast	US, west to SK and CO	
	<i>Celaena reniformis</i> ¹¹	1	larva bores in iris and other marsh plants	northeast US and Canada west to BC and CA	
	<i>Papaipema arctivorens</i> (burdock borer moth)	2	larva burrows into rhizomes of thistle, burdock, teasel, and other plants	ME and QC to FL, west to MN and LA	

¹⁰ Forbes, 1954

¹¹ Rings et al., 1992

Table 3. Number collected, host plants and distribution of Lepidoptera (continued).

Family	Species	No.	Host plants	Distribution	Abundance
NOCTUIDAE Continued					
	<i>P. unimoda</i>	5	larvae bore into species of meadow rue and black-eyed Susan	QC to NY, west to MB	common
	<i>Hydraecia micacea</i> (rosy rustic)	1	larvae bore into stems of corn, potato, tomato and other plants	introduced from Europe, ranges from NS to MA, west to ON	
	<i>Bellura obliqua</i> (cattail borer moth)	5	larvae bore into American lotus, arrowheads, bur-reed, cattails and pickerel-weed	NS to FL west to MN and TX	locally common
	<i>Euplexia benesimilis</i> (American angle shades)	1	numerous plants including alders, asters, ferns, sunflowers, trilliums and willows	NF to NC, west through southern CAN, south to AR	common
	<i>Phylogophora iris</i> (olive angle shades)	2	herbaceous plants	NF to PA, west to MB, MN and IL	common northward
	<i>Homoglaea hircina</i> (goat sallow)	1	aspens and poplars	NS to PA West to MB and WI	
	<i>Sutyna privata</i>	1	Blackberry	uncommon to rare throughout eastern North America	
	<i>Pachypolia atricornis</i>	1	host unknown	northern US	uncommon to rare
	<i>Polia nimbose</i> (stormy arches)	1	alders, huckleberries and <i>Ribes</i> spp.	NF to NC, west to MB and MN	locally common
	<i>P. imbrifera</i> (cloudy arches)	4	alders, birches, cherries and willows	NF to NC west to ND	common northward
	<i>Polia detracta</i> (disparaged arches)	1	many plants including blueberries, clover, hickories and oaks	throughout the eastern US and Canada west to AK and KS	common
	<i>Lacinipolia lorea</i> (bridled arches)	1	numerous herbaceous plants and trees	NF to VA, west across southern CAN, south to MO	common northward
	<i>Morrisonia latex</i> (fluid arches)	2	beeches, maples and other trees	NS to NC, west to MB and AR	common
	<i>Orthodes goodelli</i> ¹²	1	host unknown	widely distributed across North America	common

¹² Forbes, 1954

Table 3. Number collected, host plants and distribution of Lepidoptera (continued).

Family	Species	No.	Host plants	Distribution	Abundance
NOCTUIDAE Continued					
	<i>Feltia herilis</i> (master's dart)	1	a pest of apples, beans, clover, corn, grasses, tobacco and other plants	throughout eastern North America	common
	<i>Graphiphora augur</i>	2	numerous plants including willow, ocean-spray, salmon-berry, indian-plum, strawberry and nettle	Holarctic spp. recently known as <i>G. haruspica</i> , the North American range of <i>G. augur</i> includes boreal CAN and the US south to OH, MD WI, NM, AZ and northern CA	common
	<i>Peridroma saucia</i> (variegated cutworm)	1	a serious pest of over 100 plants including alders, vegetables, and fruit trees	worldwide, throughout eastern North America	common
	<i>Xestia smithii</i> (Smith's dart)	2	numerous plants including alders and white birch	NF to MD, west to MB and MN	locally common northward
	<i>Eueretagrotis sigmoides</i> (sigmoid dart)	1	Unknown	northeast US and Canada south to NC, west to MB and MN	locally common
	<i>Eueretagrotis perattenta</i> (two spot dart)	4	blueberries and fire cherry	NF (LAB) to PA, west to MB	common northward
	<i>Cryptocala acadensis</i> (catocaline dart)	1	Spreading dogbane	NF (LAB) to MA, west to ON and WI	locally common
	<i>Abagrotis brunneipennis</i> ¹³	1	Blueberry	widely distributed across the northeast US and Canada, also reported from NC, WA and UT	common

¹³ Lafontaine, 1998

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