



Fundy Model Forest

~Partners in Sustainability~

Report Title: Developing a Reference Collection in Support of Maritime Studies of Lepidoptera Biodiversity

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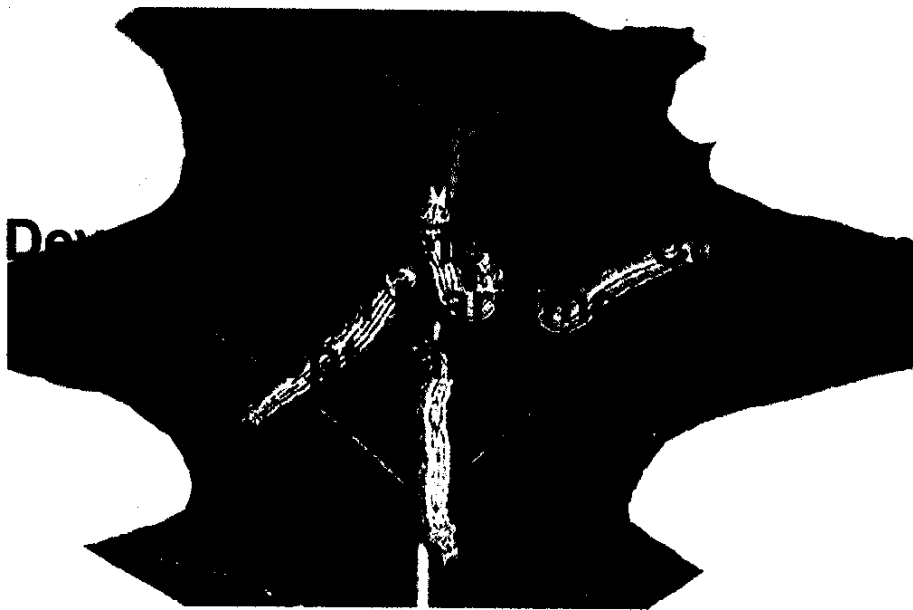
***The Fundy Model Forest...
...Partners in Sustainability***

“The Fundy Model Forest (FMF) is a partnership of 38 organizations that are promoting sustainable forest management practices in the Acadian Forest region.”

Atlantic Society of Fish and Wildlife Biologists
Canadian Institute of Forestry
Canadian Forest Service
City of Moncton
Conservation Council of New Brunswick
Fisheries and Oceans Canada
Indian and Northern Affairs Canada
Eel Ground First Nation
Elgin Eco Association
Elmhurst Outdoors
Environment Canada
Fawcett Lumber Company
Fundy Environmental Action Group
Fundy National Park
Greater Fundy Ecosystem Research Group
INFOR, Inc.
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KC Irving Chair for Sustainable Development
Maritime College of Forest Technology
NB Department of the Environment and Local Government
NB Department of Natural Resources
NB Federation of Naturalists
New Brunswick Federation of Woodlot Owners
NB Premier's Round Table on the Environment & Economy
New Brunswick School District 2
New Brunswick School District 6
Nova Forest Alliance
Petitcodiac Sportsman's Club
Red Bank First Nation
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Sussex and District Chamber of Commerce
Sussex Fish and Game Association
Town of Sussex
Université de Moncton
University of NB, Fredericton - Faculty of Forestry
University of NB - Saint John Campus
Village of Petitcodiac
Washademoak Environmentalists



Lepidopteran Biodiversity
1995-1996
by: Georgette Smith



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**Developing a Reference Collection in Support of Maritime Studies of Lepidopteran
Biodiversity.
Year-end Report: 1995-1996.**

by
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Canadian Forest Service
Fredericton, New Brunswick

During the late winter and early spring of 1995, in anticipation of funding, the existing Lepidoptera reference material in the Maritime Forest Insect Collection (MFIC) was evaluated for its potential for incorporation into an authoritative voucher collection. The perusal of data from pinned adult specimens revealed approximately 30% of the Lepidoptera in the MFIC could be verified through cross-referencing with records for rearings, sampling information, and authoritative determinations (60+ years of multi-source data) to serve as authoritative voucher specimens.

The delay in Fundy Model Forest funding and the consequent delay in procuring supplies and technical assistance resulted in slightly less than anticipated numbers for the next phase of the project. Species and gender determinations, data compilation, pinning, labelling, organizing, genitalic dissections and verifications, initiated in July 1995, have resulted in the following:

- 1,072 specimens representing 225 species (381 males, 112 females, and 579 as yet undetermined)
- 336 dissections (261 male and 75 female).

Approximately 70% of the species represented are those absolutely requiring microscopic diagnostics for accurate identification. Ideally, each species should be represented by both genders, but the majority of specimens originate from light trap material with the anticipated abundance of males in trap catches. Further detail is available in the Appendix of this report.

Any of the reference material cited above is available for study and the majority (90%) is available for loan. Of the remainder, <5% represents single specimens of rare species or those confirmed as first records for the Atlantic Maritime ecozone of the Maritime Provinces.

Currently underway is the assignment of the corresponding UTM (Universal Transverse Mercator) grid number to each location label for subsequent geo-referencing of specimens and the design of a unique identifier for tracking loaned material.

Background:

Efforts to inventory and compile a checklist of any insect taxon must be supported by reliable reference specimens. With an order as large and as morphologically diverse as the Lepidoptera, this is critical. The moth component alone, the focus of this report, is represented in the Atlantic provinces by an estimated 800 species of Macrolepidoptera and 200+ species of Microlepidoptera. The primary source of research material is light trap captures from two national parks in the Atlantic region, Fundy National Park in southern New Brunswick and Kejimikujik National Park in southwestern Nova Scotia (see Figures 1 & 2). Also incorporated are reared specimens, complete with the often - elusive host data, from sites in the Fundy Model Forest outside the Park boundaries, and reference specimens from traditional light traps of the Forest Insect and Disease Survey (F.I.D.S.), representing 30 years of data.

Species determination relying only on external morphology, notably wing maculation and antennal structure, can be compromised by one or more of the following:

1. diagnostic features are not intact, as a result of:
 - battered light trap material or
 - rearings emerging with aborted features or
 - specimens damaged through transport and handling.
2. identical gross morphology is displayed by two or more species within a genus (see Figures 3, 4 & 5),
3. polymorphism is exhibited by a species.

As internal morphology is rarely compromised, a feature such as genitalia (Fig. 6) is considerably more reliable for diagnostics and can "fingerprint" both genders of any species. The process can also allay the occasional confusion associated with sexual dimorphism exhibited by some species.

This approach to authenticating Lepidopteran reference material is being actively considered as a pilot project for the curation of reference collections at other establishments.

The list of reference specimens in the Lepidoptera Authoritative Collection at the Canadian Forest Service, Fredericton, N.B. is included in the Appendix. The table includes the Hodges number, scientific name with genus, species and authority, number of moths examined to date, their gender as determined to date, the results of genitalic dissections and the type of verifications which validate these determinations.

The Hodges numbers used in the Appendix are from: Hodges, R.W. *et al.* 1983. Check List of the Lepidoptera of America North of Mexico published by E.W. Classey and The Wedge Entomological Research Foundation, London.

Figures



Fig. 1 An unsorted light trap catch from
Kejimikujik National Park, N.S.

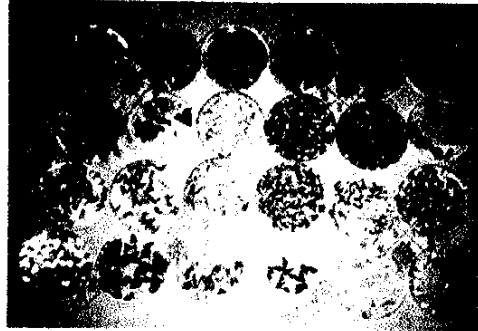


Fig. 2 An initial sorting of light trap material
from Fundy National Park, N.B.

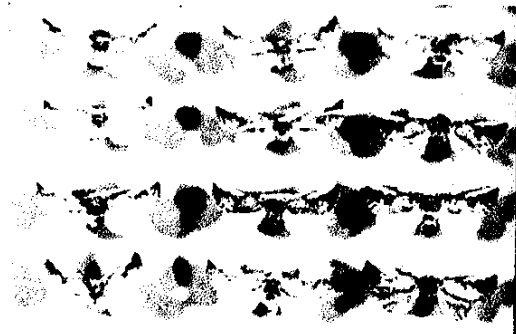


Fig. 3 Three species of *Symmerista* from
Fundy and Kejimikujik National Parks

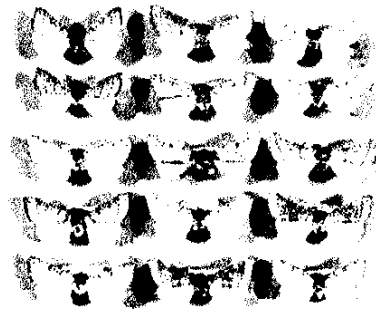


Fig. 4 Three species of *Datana* from various
locations in the Maritimes



Fig. 5 *Datana drexelii* Hy. Edw. (top) and
Datana sp., probably *ministra* (bottom)

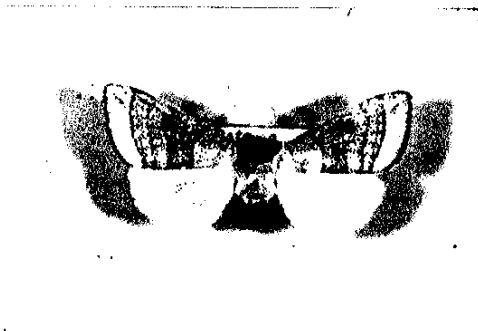


Fig. 6 Male of *Datana drexelii* Hy. Edw. (left) and (right) its
genital dissection (X6)

Appendix

Reference Specimens in the Lepidoptera Authoritative Collection Canadian Forest Service, Fredericton, N.B.

HODGES #	SPECIES	# MOTHS	GENDER			DISSECTIONS genitalia		VERIFICATION(S) *
			M	F	?	M	F	
9200	<i>Acronicta americana</i> (Harr.)	14			14			A
9203	<i>Acronicta dactylina</i> Grt.	13			13			A, B
9241	<i>Acronicta fragilis</i> (Gn.)	18			18			A
9221	<i>Acronicta funeralis</i> G. & R.	6			6			A
9228	<i>Acronicta furcifera</i> Gn.	22	3		19	3		A
9212	<i>Acronicta grisea</i> Wlk.	17			17			A
9229	<i>Acronicta hasta</i> Gn.	8			8			A
9257	<i>Acronicta impleta</i> Wlk.	6			6			A
9261	<i>Acronicta impressa</i> Wlk.	3			3			A
9207	<i>Acronicta innotata</i> Gn.	17			17			A, B
9237	<i>Acronicta interrupta</i> Gn.	3	1		2	1		A
9274	<i>Acronicta lanceolaria</i> Grt.	1			1			A
9206a	<i>Acronicta leporina vulpina</i> (Grt.)	10		3	7			A, B
9266	<i>Acronicta lithospila</i> Grt.	2			2			A
9238	<i>Acronicta lobeliae</i> Gn.	2			2			A
9264	<i>Acronicta longa</i> Gn.	2			2			A
9259	<i>Acronicta noctivaga</i> Grt.	2			2			A
9272	<i>Acronicta oblinata</i> (J.E. Smith)	1			1			A
9251	<i>Acronicta retardata</i> (Wlk.)	4			4			A
9226	<i>Acronicta superans</i> Gn.	8			8			A
9211	<i>Acronicta tritona</i> (Hbn.)	4			4			A
6570	<i>Aethalura intertexta</i> (Wlk.)	13			13			A
9281	<i>Agriopodes fallax</i> (H.-S.)	1			1			A
9365	<i>Agroperina lateritia</i> (Hufn.)	1			1			A
10436	<i>Aletia oxygala</i> (Grt.)	5	2	1	2	2	1	A
10436a	<i>Aletia oxygala luteopallens</i> (Sm.)	5	4	1		4	1	A
9457	<i>Amphipoea americana</i> (Speyer)	2			2			A
9454	<i>Amphipoea velata</i> (Wlk.)	2			2			A, B
9638	<i>Amphipyra pyramidoides</i> Gn.	4						A
9639	<i>Amphipyra tragopoginis</i> (Cl.)	1			1			A
8924	<i>Anagrapha falcifera</i> (Kby.)	1			1			A
11000	<i>Anaplectoides prasina</i> (D. & S.)	1			1			A
11001	<i>Anaplectoides pressus</i> (Grt.)	12			12			A
9962	<i>Anathix puta</i> (G. & R.)	4			4			A, B
9961	<i>Anathix ralla</i> (G. & R.)	2			2			awaiting final confirmation
7329	<i>Anticlea vasiliata</i> Gn.	6			6			A
9348	<i>Apamea amputatrix</i> (Fitch)	1			1			A
9364	<i>Apamea finitima</i> Gn.	3			3			A
8196	<i>Apantesis parthenice</i> (W. Kirby)	3			3			A
8197	<i>Apantesis virgo</i> (L.)	10			10			A
8175	<i>Apantesis virguncula</i> (W. Kirby)	1			1			A
10999	<i>Aplectoides condita</i> (Gn.)	11			11			A
8923	<i>Autographa ampla</i> (Wlk.)	2			2			A
8911	<i>Autographa bimaculata</i> (Steph.)	3			3			A
8912	<i>Autographa mappa</i> (G. & R.)	12			12			A
8908	<i>Autographa preactionis</i> (Gn.)	1			1			A
6885	<i>Besma quercivoraria</i> (Gn.)	2	1	1				A
6640a	<i>Biston betularia cognataria</i> (Gn.)	2	2			2		A
9633	<i>Callopietria cordata</i> (Ljungh)	1			1			A
6864	<i>Caripeta pinilata</i> (Pack.)	1			1			A
8867	<i>Catocala blandula</i> Hulst	4			4			A

* Confirmation of species by the following method(s):
 A - recognized national or international specialist(s)
 B - rearing(s) and validated associated record(s)

**Reference Specimens in the Lepidoptera Authoritative Collection
Canadian Forest Service, Fredericton, N.B.**

HODGES #	SPECIES	# MOTHS	GENDER			DISSECTIONS genitalia		VERIFICATION(S) *
			M	F	?	M	F	
8817	<i>Catocala briseis</i> Edw.	2			2			A
8776	<i>Catocala coelebs</i> Grt.	1			1			A
8833	<i>Catocala concumbens</i> Wlk.	11			11			A
8858	<i>Catocala crataegi</i> Saund.	1			1			A
8803	<i>Catocala relict</i> a Wlk.	2			2			A
8857	<i>Catocala ultronia</i> (Hbn.)	4			4			A
7787	<i>Ceratomia undulosa</i> Wlk.	2			2			A
7071	<i>Chlorochlamys chloroleucaria</i> (Gn.)	6	6			6		A
7625	<i>Chloroclystis rectangulata</i> (L.)	2			2			A
8904	<i>Chrysanymp</i> ha formosa (Grt.)	1			1			A
8267	<i>Cisseps fulvicollis</i> (Hbn.)	3			2			A
7639	<i>Cladara atroliturata</i> (Wlk.)	3			3			A
7637	<i>Cladara limitaria</i> (Wlk.)	3			3			A
7895	<i>Clostera albosigma</i> Fitch	1				1		A
7901	<i>Clostera apicalis</i> (Wlk.)	5				5		A
9184	<i>Colocasia flavicornis</i> (Sm.)	5			5			A
9815	<i>Cosmia calami</i> (Harv.)	1			1			A
7886	<i>Darapsa pholus</i> (Cram.)	1			1			A
7958	<i>Dasytophia thyatiroides</i> (Wlk.)	1			1			A
7904	<i>Datana drexelii</i> Hy. Edw.	1	1			1		genus under revision
7905	<i>Datana major</i> G. & R.	2	2			2		genus under revision
7902	<i>Datana ministra</i> (Drury)	1	1			1		genus under revision
8896	<i>Diachrysia aeroides</i> (Grt.)	11			11			A
8897	<i>Diachrysia balluca</i> Gey.	2			2			A
6251	<i>Drepana arcuata</i> Wlk.	2	1	1				A
6252	<i>Drepana bilineata</i> (Pack.)	3	2	1				A, B
7213a	<i>Ecliptopera silaceata albolineata</i> (Pack.)	4	2	2		2	2	A
9549	<i>Enargia decolor</i> (Wlk.)	5	5					A
9550	<i>Enargia infumata</i> (Grt.)	9	9					A
6797	<i>Ennomos magnaria</i> Gn.	2	1	1				A
9947	<i>Epiglaea apiata</i> (Grt.)	1			1			A
9396	<i>Eremobina claudens</i> (Wlk.)	1			1			A
9398	<i>Eremobina jocasta</i> (Sm.)	1			1			A
6729	<i>Euchlaena johnsonaria</i> (Fitch)	1			1			A
6637	<i>Eufidonia convergaria</i> (Wlk.)	1	1			1		A
6639	<i>Eufidonia discospilata</i> (Wlk.)	2	2			2		A
6638	<i>Eufidonia notataria</i> (Wlk.)	3	1	2		1	2	A, B
6272	<i>Eumacaria latiferrugata</i> (Wlk.)	2	2			2		A
7605	<i>Eupithecia ravocostaliata</i> Pack.	1			1			A
9545	<i>Euplexia benesimilis</i> McD.	2			2			A
9936	<i>Eupsilia morrisoni</i> (Grt.)	1			1			A
9933	<i>Eupsilia vinulenta</i> (Grt.)	1			1			A
10929	<i>Eurois occulta</i> (L.)	1			1			A
10431	<i>Faronta diffusa</i> (Wlk.)	6	3	3		3	3	A
10008	<i>Feralia comstocki</i> (Grt.)	10			10			A
10005	<i>Feralia jocosa</i> (Gn.)	5			5			A
7941	<i>Furcula modesta</i> (Hudson)	2	1	1				A
7939	<i>Furcula occidentalis</i> (Lint.)	3	3					A
7933	<i>Gluphisia avimacula</i> Hudson	9	8	1				A
7934	<i>Gluphisia lintneri</i> (Grt.)	1	1					A
7931	<i>Gluphisia septentrionis</i> Wlk.	5	5					A

* Confirmation of species by the following method(s):

A - recognized national or international specialist(s)

B - rearing(s) and validated associated record(s)

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Canadian Forest Service, Fredericton, N.B.**

HODGES #	SPECIES	# MOTHS	GENDER			DISSECTIONS genitalia		VERIFICATION(S) *
			M	F	?	M	F	
6815	<i>Guenaria similaria</i> (Wlk.)	2	2			2		A
9286	<i>Harrisimemna trisignata</i> (Wlk.)	1			1			A
11068	<i>Helicoverpa zea</i> (Boddie)	4			4			A
7995	<i>Heterocampa biundata</i> Wlk.	5	3	2				A
7994	<i>Heterocampa guttivitta</i> (Wlk.)	1	1			1		A
7983	<i>Heterocampa obliqua</i> Pack.	9	9					A
7990a	<i>Heterocampa umbrata pulverea</i> G. & R.	2	2					A
7084	<i>Hethemia pistasciaria</i> (Gn.)	3	2		1	2		A
7235	<i>Hydriomena divisaria</i> (Wlk.)	14	8	6		8	6	A
7229	<i>Hydriomena perfracta</i> Swett	6	4	1	1	4	1	A
7236	<i>Hydriomena renuciata</i> (Wlk.)	17	12	3	2	12	3	A
6656	<i>Hypagyrtis piniata</i> (Pack.)	6	4	2		4	2	A
7917	<i>Hyperaeschra georgica</i> (H.-S.)	2	2					A
8140	<i>Hyphantria cunea</i> (Drury)	6			6			A
8323	<i>Idia aemula</i> Hbn.	3			3			A
8322	<i>Idia americalis</i> (Gn.)	2			2			A
8328	<i>Idia julia</i> (B. & McD.)	1			1			A
8334	<i>Idia lubricalis</i> (Gey.)	2			2			A
8326	<i>Idia rotundalis</i> (Wlk.)	1			1			A
9555	<i>Ipimorpha pleonectusa</i> Grt.	2			2			A, B
6287	<i>Itame anataria</i> (Swett)	2	1	1		1	1	A
6304	<i>Itame bitactata</i> (Wlk.)	1	1			1		A
6292	<i>Itame exauspicata</i> (Wlk.)	3		3			3	A
6286	<i>Itame brunneata</i> (Thunb.)	3	2	1		2	1	A
6273	<i>Itame pustularia</i> (Gn.)	2			2			A
6303	<i>Itame subcessaria</i> (Wlk.)	2	1	1		1	1	A
10298	<i>Lacanobia radix</i> (Wlk.)	2			2			A
10303	<i>Lacanobia foveola</i> (Stkr.)	1			1			A
6894a	<i>Lambdina ferdinaria athasaria</i> (Wlk.)	2	1	1				A
6888	<i>Lambdina fiscellaria fiscellaria</i> (Gn.)	2	1	1				A, B
7827	<i>Laothoe juglandis</i> (J.E. Smith)	1			1			A
7817	<i>Lapara bombycoides</i> Wlk.	2			2			A
10447	<i>Leucania commoides</i> Gn.	13	5		8	5		A
10459	<i>Leucania inermis</i> (Fbs.)	1		1			1	A
10449	<i>Leucania insueta</i> Gn.	5	2		3	2		A
10445	<i>Leucania linda</i> Franc.	1	1			1		A
10440	<i>Leucania linita</i> Gn.	2		2			2	A
10446	<i>Leucania multilinea</i> Wlk.	11	5	1	5	5	1	A
10462	<i>Leucania pseudargyria</i> Gn.	1	1			1		A
9902	<i>Lithophane baileyi</i> Grt.	10	4	6				A
9917	<i>Lithophane fagina</i> Morr.	10	4		6	4		A
9913	<i>Lithophane georgii</i> Grt.	8	6	2		6	2	A
9888	<i>Lithophane innominata</i> (Sm.)	18	1	2	15	1	2	A
9889	<i>Lithophane petulca</i> Grt.	12	10		2	10		A
9922	<i>Lithophane pexata</i> Grt.	23	2		21	2		A
9909	<i>Lithophane tepida</i> Grt.	1	1			1		A
9928	<i>Lithophane thaxteri</i> Grt.	2			2			A
7998	<i>Lochmaeus manteo</i> Doubleday	9	2			2	7	A
7975	<i>Macrurlocampa marthesia</i> (Cram.)	5				5		A
7701	<i>Malacosoma americanum</i> (F.)	2	1	1				A
7698	<i>Malacosoma disstria</i> Hbn.	2	1	1				A

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HODGES #	SPECIES	# MOTHS	GENDER			DISSECTIONS genitalia		VERIFICATION(S) *
			M	F	?	M	F	
6620	<i>Melanolophia canadaria</i> (Gn.)	16		1		15	1	A
6621	<i>Melanolophia signataria</i> (Wlk.)	25	7	3	15	7	3	A
7085	<i>Mesothea incertata</i> (Wlk.)	2	1		1		1	A
6822	<i>Metarranthis duaria</i> (Gn.)	1			1			A
6763	<i>Nacophora quernaria</i> (J.E. Smith)	2	2			2		A
7915	<i>Nadata gibbosa</i> (J.E. Smith)	2	2					A
7048	<i>Nemoria mimosaria</i> (Gn.)	1	1			1		A
7047	<i>Nemoria rubrifrontaria</i> (Pack.)	1	1			1		A
10524	<i>Nephelodes minians</i> Gn.	2		1	1			A
8322+	<i>Noctua pronuba</i> (L.)	2			2			A
9420	<i>Oligia illocata</i> (Wlk.)	1			1			A, B
9419	<i>Oligia mactata</i> (Gn.)	2			2			A
8017	<i>Oligocentria lignicolor</i> (Wlk.)	7	6		1			A
8012	<i>Oligocentria semirufescens</i> (Wlk.)	2	2			2		A
6255	<i>Oreta rosea</i> (Wlk.)	1			1			A
10487	<i>Orthosia rubescens</i> (Wlk.)	8	1		7			A
7828	<i>Pachysphinx modesta</i> (Harr.)	2	1		1			A
7824	<i>Paonias excaecatus</i> (J. E. Smith)	1			1			A
7825	<i>Paonias myops</i> (J. E. Smith)	2			2			A
7921	<i>Peridea ferruginea</i> (Pack.)	1			1			A
6753	<i>Pero honestaria</i> (Wlk.)	4	3	1		3	1	A
6755	<i>Pero morrisonaria</i> (Hy. Edw.)	6	5	1		5	1	A
8158	<i>Phragmatobia assimilans</i> Wlk.	3			3			A
8156a	<i>Phragmatobia fuliginosa rubricosa</i> (Harr.)	2			2			A
6844	<i>Plagodis alcoolaria</i> (Gn.)	3	1	1	1			A
6842	<i>Plagodis phlogosaria</i> (Gn.)	4	4					A
6840	<i>Plagodis serinaria</i> H.-S.	2	2					A
8162	<i>Platarctia parthenos</i> (Harr.)	1			1			A
8950	<i>Plusia putnami</i> Grt.	4			4			A
6838	<i>Probole amicaria</i> (H.-S.)	4	1	3		1	3	A
6270	<i>Protitame virginalis</i> (Hulst)	2	1	1		1	1	A
10438	<i>Pseudaletia unipuncta</i> (Haw.)	5			5			A
8899	<i>Pseudeva purpurigera</i> (Wlk.)	4			4			A
7293	<i>Rheumaptera hastata</i> (L.)	4	3	1				A
7294	<i>Rheumaptera subhastata</i> (Nolcken)	1			1			A
8009	<i>Schizura apicalis</i> G. & R.	1	1					A
8006	<i>Schizura badia</i> (Pack.)	2	2					A
8010	<i>Schizura concinna</i> (J.E. Smith)	2	2					A
8005	<i>Schizura ipomoeae</i> Doubleday	6	5	1				A
8011	<i>Schizura leptinoides</i> (Grt.)	20	17	3				A
8007	<i>Schizura unicornis</i> (J.E. Smith)	4	2	2				A
8555	<i>Scoliopteryx libatrix</i> (L.)	1			1			A
6817	<i>Selenia alcipheararia</i> Wlk.	17	6	1	10			A
6818	<i>Selenia kentaria</i> (G. & R.)	4	3		1			A
6326	<i>Semiothisa aemulataria</i> (Wlk.)	1	1		1			A
6344a	<i>Semiothisa signaria dispuncta</i> (Hbn.)	5	1	4		1	4	A, B
6330	<i>Semiothisa ulsterata</i> (Pears.)	4	1		3	1		A
7822	<i>Smerinthus cerisyi</i> Kby.	2			2			A
7821	<i>Smerinthus jamaicensis</i> (Drury)	4			4			A
7810	<i>Sphinx gordius</i> Cram.	3			3			A
7809	<i>Sphinx kalmiae</i> J.E. Smith	2			2			A

* Confirmation of species by the following method(s):

A - recognized national or international specialist(s)

B - rearing(s) and validated associated record(s)

**Reference Specimens in the Lepidoptera Authoritative Collection
Canadian Forest Service, Fredericton, N.B.**

HODGES #	SPECIES	# MOTHS	GENDER			DISSECTIONS genitalia		VERIFICATION(S) *
			M	F	?	M	F	
7811	<i>Sphinx luscitiosa</i> Clem.	1			1			A
8134	<i>Spilosoma congrua</i> Wlk.	6			6			A
8137	<i>Spilosoma virginica</i> (F.)	11			11			A
9957	<i>Sunira bicolorago</i> (Gn.)	5	2	3				A
7952	<i>Symmerista canicosta</i> Franc.	27	27			27		awaiting female ID
7953	<i>Symmerista leucitys</i> Franc.	19	19			19		A
7058a	<i>Synchlora aerata albolineata</i> Pack.	4	2	2		2	2	A
8940	<i>Syngrapha abstrusa</i> Eichlin	11	11			11		A
8939	<i>Syngrapha alias</i> (Ottol.)	11	11			11		A
8927	<i>Syngrapha epigaea</i> (Grt.)	5			5			A
8926	<i>Syngrapha octoscripta</i> (Grt.)	9	4	5		4	5	A
8942	<i>Syngrapha rectangula</i> (W. Kby.)	12	4	8		4	8	A
8929	<i>Syngrapha viridisigma</i> (Grt.)	1			1			A
6807	<i>Tacparia detersata</i> (Gn.)	12	1		11	1		A
6963	<i>Tetracis crocallata</i> Gn.	2	2			2		A
7218	<i>Thera contractata</i> (Pack.)	1		1			1	A
7217	<i>Thera juniperata</i> (L.)	5	1	3	1	1	3	A
7219	<i>Thera otisi</i> (Dyar)	2	1	1		1	1	A
8033+	<i>Tyria jacobaeae</i> (L.)	2			2			A
10947	<i>Xestia oblata</i> (Morr.)	2			2			A
9876	<i>Xylena cinerita</i> (Grt.)	3	2		1	2		A
9874	<i>Xylena curvimacula</i> (Morr.)	1			1			A
9875	<i>Xylena thoracica</i> (Putnam-Cramer)	1			1			A
8694	<i>Zale aeruginosa</i> (Gn.)	4	2		2	2		A
8717	<i>Zale horrida</i> Hbn.	3	2	1		2	1	A
8689	<i>Zale lunata</i> (Drury)	1	1			1		A
8713	<i>Zale lunifera</i> (Hbn.)	1	1					A
8697	<i>Zale minerea</i> (Gn.)	23	4	1	18	4	1	A
8695	<i>Zale undularis</i> (Drury)	2	1	1		1	1	A
8716	<i>Zale unilineata</i> (Grt.)	4	4			4		A

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