

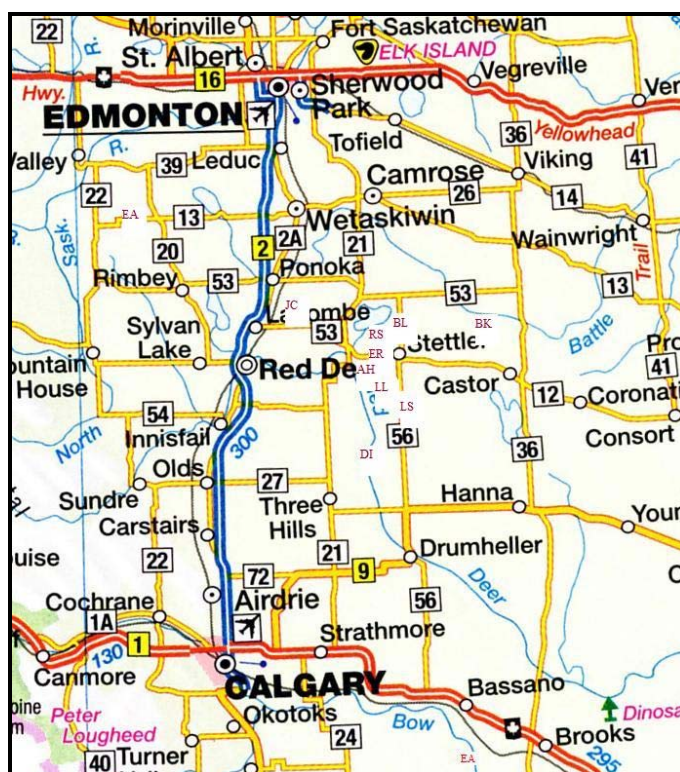
MOTH INVENTORIES OF ELEVEN MAJOR STUDY AREAS IN SOUTH-CENTRAL ALBERTA: ANALYSIS

Charles Durham Bird

Box 22, Erskine, AB, T0C 1G0; cdbird@explornet.com

31 March 2008

Inventory research, starting in 1999 and continuing through 2007, has been carried out on the moths of eleven major study areas in south-central Alberta. With the exception of a semi-urban site in Erskine, all sites were in areas where the vegetation had been relatively undisturbed. Realizing that about 95% of the Aspen Parkland has been disturbed by agriculture or other activities, and some of the remainder will soon be disturbed, the purpose of the research was to document the native moth biodiversity while there was still time to do so. It is strongly recommended that government and other agencies like the Alberta Conservation Association, Ducks Unlimited and Nature Conservancy Canada continue to protect the undisturbed areas (Parks, Conservation Areas, Natural Areas, etc.) under their care and also that more areas be selected for preservation.



The eleven study areas are marked in red on the above map. The areas are: AH – the former Allan Hall Acreage, 3 km S of Nevis; BK – Big Knife Provincial Park, N of Halkirk; BL – Buffalo Lake Conservation Area, N of Stettler; DI – Dry Island Buffalo Jump Provincial Park, E of Huxley; EA – East Arrowwood Coulee, NE of Arrowwood; EP the Bird quarter on East Poplar Creek, NW of Winfield; ER – Bird residence, 5 Maple Close, Erskine; LL – the former Lloyd Lohr farm, SE of Erskine; LS – Lowden Springs Conservation Area, S of Stettler; and RS – Rochon Sands Provincial Park, N of Erskine. One area (ER) is in a semi-urban setting in Erskine, one (EP) is in mixed woods NW of Rimbey, and one (EA) is in the Prairies south of Bassano; all of the remainder are in Aspen Parkland. It wasn't until now that enough sampling had been done to warrant the present analysis. It is hoped that more research will be carried out in 2008.

HABITATS

In simple terms, the Aspen Parkland is a mosaic of aspen groves surrounded by areas of grassland. However, there is much diversity when one looks in detail at the habitats found in each area and each habitat has its own characteristic plant species. Due to topography, soil type, soil moisture and exposure few sites have exactly similar habitats. The following table illustrates the various habitats present in the study areas.

HABITATS IN STUDY AREAS

1999-2007, South-central
Alberta

Habitats	AH	BK	BL	DI	JC	EA	EP	ER	LL	LS	RS
Acer negundo								x			
Artemisia spp.		x	x	x		x				x	
Badlands				x							
Chokecherry/saskatoon	x	x	x	x	x	x	x	x			x
Creek/river		x		x		x	x				
Elaeagnus commutata	x	x	x	x						x	
Garden/lawn								x			
Marsh	x		x								
Mesic prairie/grassland	x	x	x	x	x	x				x	
Mixed woods		x		x	x		x				
Old fields			x				x			x	
Picea glauca				x	x		x	x			
Pinus contorta					x		x				
Populus balsamifera woods						x	x				
Populus tremuloides woods	x	x	x	x	x		x	x	x		x
Riverine forest				x		x	x				
Salix spp.		x	x		x		x		x		x
Short grass prairie				x		x					
Steep N-facing slope				x							
Steep S-facing slope				x							
Steep W-facing slope						x					
Symphoricarpos occidentalis	x	x	x	x	x	x	x			x	
Totals (22)	6	9	9	14	8	9	11	5	2	5	3

Moths with one or a small number of food plants (oligophagy) tend to be found in fewer areas than those that have a wider range of foodplants (polyphagy). Areas with many habitats tend to have many species/greater biodiversity, similarly areas with few habitats tend to have few species/lesser biodiversity.

SIMILARITY OF THE STUDY AREAS

The study areas have been compared on the basis of simple Percentage Similarity as seen in the following table.

PERCENTAGE SIMILARITY* OF MAJOR STUDY AREAS

	<i>AH</i>	<i>BK</i>	<i>BL</i>	<i>DI</i>	<i>EA</i>	<i>EP</i>	<i>ER</i>	<i>JC</i>	<i>LL</i>	<i>LS</i>	<i>RS</i>
<i>AH</i>		54.39%	62.26%	49.62%	40.15%	40.30%	56.17%	34.62%	38.35%	41.94%	53.23%
<i>BK</i>	54.39%		55.61%	47.74%	36.47%	44.97%	53.19%	38.21%	35.05%	36.74%	53.45%
<i>BL</i>	62.26%	55.61%		49.17%	38.33%	46.11%	59.29%	35.51%	37.32%	39.18%	55.25%
<i>DI</i>	49.62%	47.74%	49.17%		38.70%	37.41%	48.69%	31.56%	28.43%	33.33%	43.15%
<i>EA</i>	40.15%	36.47%	38.33%	38.70%		27.37%	36.80%	27.33%	27.87%	36.56%	40.46%
<i>EP</i>	40.30%	44.97%	46.11%	37.41%	27.37%		50.40%	36.46%	31.07%	23.31%	44.88%
<i>ER</i>	56.17%	53.19%	59.29%	48.69%	36.80%	50.40%		36.55%	36.08%	33.73%	58.52%
<i>JC</i>	34.62%	38.21%	35.51%	31.56%	27.33%	36.46%	36.55%		36.93%	24.71%	39.29%
<i>LL</i>	38.35%	35.05%	37.32%	28.43%	27.87%	31.07%	36.08%	36.93%		28.425	39.66%
<i>LS</i>	41.94%	36.74%	39.18%	33.33%	36.56%	23.31%	33.73%	24.71%	28.42%		32.62%
<i>RS</i>	53.23%	53.45%	55.25%	43.15%	40.46%	44.88%	58.52%	39.29%	39.66%	32.62%	

* number of species common to both sites/total species in site 1 + total species in site 2

The study areas have also been compared on the basis of the Simpson Coefficient. This coefficient reduces the differences in size between the two samples and is widely used in biotic comparisons.

SIMPSON COEFFICIENT* OF MAJOR STUDY AREAS

	<i>AH</i>	<i>BK</i>	<i>BL</i>	<i>DI</i>	<i>EA</i>	<i>EP</i>	<i>ER</i>	<i>JC</i>	<i>LL</i>	<i>LS</i>	<i>RS</i>
<i>AH</i>		75.94	84.43	76.65	64.81	70.05	79.48	59.87	72.98	74.91	70.05
<i>BK</i>	75.94		70.02	67.31	66.98	66.54	67.70	71.57	77.02	75.64	75.06
<i>BL</i>	84.43	70.02		67.62	70.99	67.81	73.52	69.23	81.85	81.55	77.83
<i>DI</i>	76.65	67.31	67.62		75.62	53.27	67.24	65.55	70.16	76.01	69.05
<i>EA</i>	64.81	66.98	70.99	75.62		61.42	68.83	42.14	47.98	57.20	71.30
<i>EP</i>	70.05	66.54	67.81	53.27	61.42		72.00	79.26	81.05	60.89	74.83
<i>ER</i>	79.48	67.70	73.52	67.24	68.83	72.00		70.90	79.44	72.69	80.12
<i>JC</i>	59.87	71.57	69.23	65.55	42.14	79.26	70.90		52.24	39.48	66.89
<i>LL</i>	72.98	77.02	81.85	70.16	47.98	81.05	79.44	52.24		44.35	75.00
<i>LS</i>	74.91	75.65	81.55	76.01	57.20	60.89	72.69	39.48	44.35		67.34
<i>RS</i>	70.05	75.06	77.83	69.05	71.30	74.83	80.12	66.89	75.00	67.34	

*C/N1 x 100, where C = number of taxa common to both and N1 = total number of taxa in the smaller sample.

SPECIES ENCOUNTERED

The following table shows the species encountered in each area.

SPECIES ENCOUNTERED IN THE AREAS**MONA**

#	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
5	Eriocrania semipurpurella						x	x				
6	Acanthopteroctetes bimaculata			x								
19	Sthenopis purpurascens	x	x	x	x		x	x				
23	Gazoryctra hyperboreus						x					
29	Gazoryctra novigannus	x	x	x	x		x	x	x	x	x	x
184	Lampronia aenescens	x					x					
185	Lampronia sublustris		x				x					
186	Lampronia humilis						x?					
334	Amydria effrentella	x	x	x	x						x	
399	Tinea irrepta	x	x	x	x	x	x	x	x		x	x
412	Niditinea orleansella						x					x
420	Monopis rusticella					x	x					
421	Monopis spilotella	x	x	x	x	x	x	x		x	x	x
471	Lyonetia saliciella						x					
587	Caloptilia alnivorella			x	x		x	x	x			
589	Caloptilia anthobaphes				x		x	x				x
594.1	Caloptilia betulivora		x		x		x	x				
595	sp. nr. Caloptilia bimaculatella		x		x							
639	Caloptilia stigmatella			x	x		x	x	x			
640	Caloptilia strictella						x					
645	sp. nr. Caloptilia syringella									x		
645	Caloptilia syringella						x					
647	Micrurapteryx salicifoliella						x					
669	Parornix conspicuella		x	x	x		x	x	x			x
692	Acrocercops astericola		x	x	x		x					
798	Phyllonorycter apparella?		x	x			x					
855	Agonopterix gelidella						x					
876	Agonopterix rosaciliella		x				x	x	x			
878	Agonopterix canadensis			x		x	x	x			x	
889	Agonopterix argillacea		x	x	x		x	x	x			x
908	Depressariodes ciniflonella	x	x	x	x		x	x	x	x		x
910	Martyrhilda fulva	x		x	x	x			x		x	
911	Bibarrambra allenella						x					
912	Semioscopis packardella	x	x	x	x		x	x	x			x
913	Semioscopis merricella		x						x			
914	Semioscopis inornata	x	x	x			x	x	x	x		x
915	Semioscopis megamicrella		x	x	x		x	x	x	x		x
916	Semioscopis aureolla	x	x	x	x		x	x	x	x		x

MONA

#	Name
918	Depressaria atrostrigella
922	Depressaria pastinacella
926	Depressaria alienella
944	Nites betulella
987	Ethmia monticola
1055	Brymblia quadrimaculella
1056	Denisia haydenella
1058	Polix coloradella
1077	Perittia cygnodiella
1088.01	Elachista virgatula
1113	Elachista maritimella
1138.1	Glyphidocera hurlberti
1156	Hypatopa titanella
1271	Coleophora pruniella
1283	Coleophora cretaticostella
1313	Coleophora rosaevorella
1316	Coleophora rosacella
1321	Coleophora mcdunnoughiella
1352	Coleophora sparsipulvella
1367	Coleophora brunneipennis
1385	Coleophora maritella
1387	Coleophora mayrella
1388	Coleophora trifolii
1399	Batrachedra praeangustata
1423	Mompha albalpella
n.n.	Mompha raschkiella
1457	Mompha tricristatella
1458	Mompha unifasciella
1461	Blastodacna curvilineella
1515	Limnaecia phragmitella
1615	Walshia miscecolorella
1655	Scythris eboracensis
1662	Asymmetrura impositella
1665	Scythris mixaula
1734	Aristotelia devexella
1738	Aristotelia fungivorella
1761	Aristotelia roseosuffusella
1762	Aristotelia rubidella
1771	Evippe prunifoliella
1792	Coleotechnites atrupictella

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
		x	x	x					x	
	x			x			x			x
x		x	x		x	x				x
					x					
				x						
					x					
		x	x			x				
										x
			x							
					x					
x	x	x	x	x	x	x		x	x	x
	x		x		x					x
x					x	x	x			x
x	x	x								
			x							
x	x	x		x		x				
				x						
		x				x				x
										x
					x					
x	x	x	x	x	x	x	x		x	x
		x	x		x	x				
		x			x					
		x								
x		x	x	x						
					x	x		x	x	
			x		x					
			x							
				x?						
			x		x	x	x			

MONA

#	Name
1796	Coleotechnites blastovora
1826	Coleotechnites picaella
1865	Neotelphusa praefixa
1875	Xanolechia aethiops
1880	Xenolechia velatella
1898	Lita sexpunctella
1902	Lita variabilis
1946	Gelechia lynceela
1985	Gnorimoschema gallaeasterella
1986	Gnorimoschema gallaesolidaginis
	Gnorimoschema septentrionella
2008	Gnorimoschema vastificum
2040	Caryocolum cassella
2069.11	Chionodes sattleri
2071.1	Chionodes landryi
2090	Chionodes lugubrella
2093	Chionodes mediofuscella
2099	Chionodes obscurusella
2111	Chionodes psilopterus
2117	Chionodes terminimaculella
2123	Chionodes viduella
2127	Filatima abactella
nr 2193	Aroga near paraplutella
2235	Anacamptis fragariella
2243	Anacamptis niveopulvella
2267	Helcystogramma fernaldella
2291	Dichomeris bilobella
2300	Dichomeris levisella
2302	Dichomeris setosella
2303	Dichomeris simplicella
2308	Dichomeris purpureofusca
2313	Alucita montana
2313	Alucita adriendenisi
2318	Bondia comonana
2319	Bondia crescentella
n.n.	Wockia asperipunctella
2334	Ochromolopis ramapoella
2360	Rhizognothis interrupta
2363	Plutella porectella
2365	Plutella (Greya) vanella

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
	X	X	X	X	X	X	X	X		X
			X		X	X				
					X					
					X					
	X	X	X	X	X	X	X		X	X
							X			
	X	X	X			X			X	
X	X	X	X	X	X	X	X	X		X
X	X	X			X			X		
	X	X								X
X	X								X	
	X	X	X				X			
X	X		X							
X	X	X	X	X	X	X	X		X	X
X	X	X	X		X	X	X			X
		X	X							
X	X	X	X	X	X	X	X	X	X	X
			X							
			X				X			
			X	X	X	X				
				X	X			X		
				X	X			X		
	X		X	X		X				X
X	X	X	X	X		X		X	X	X
	X						X			
				X						
			X	X	X	X				
					X					
X	X	X	X	X	X					X
					X					
X	X					X				
					X					

MONA

#	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
2366	Plutella xylostella	x	x	x	x	x	x	x	x		x	x
2371	Ypsolopha canariella	x	x	x	x	x	x	x	x	x	x	x
2376	Ypsolopha dentiferella	x	x	x	x	x	x	x	x	x	x	x
2380	Ypsolopha falciferella		x	x	x		x	x	x			x
2392	Ypsolopha senex							x				
2413	Swammerdamia caesiella	x					x					
2426	Euhyponomeutoides gracilariella						x		x			
2449	Argyresthia conjugella	x			x	x	x	x				x
2467	Argyresthia oreasella			x	x		x	x		x		
2474	Argyresthia pygmaeella		x				x					
2509	Schreckensteinia festaliella						x					
2513	Pennisetia marginata							x				
2555	Synanthedon fatifera						x					
2581	Synanthedon polygoni				x							
nr 2629	Prochoreutis sp. nr myllerana						x					
2635	Caloreas occidentella						x					
2651	Choreutis diana						x		x			
2675	Acosus centerensis						x				x	
2676	Acosus populi		x			x	x					x
2693	Prionoxystus robiniae						x					
2706	Bactra furfurana			x							x	
2707	Bactra verutana	x		x				x			x	x
2743a	Endothenia nubilana		x	x	x	x	x	x	x	x	x	x
2745	Endothenia albolineana				x		x	x				x
2753	Apotomis capreana	x	x	x	x		x					
2755	Apotomis funerea						x	x	x			
2765	Apotomis deceptana		x	x		x	x	x	x	x	x	
2766	Apotomis dextrana	x	x	x	x	x	x	x	x	x	x	x
2769	Pseudosciaphila duplex	x	x	x	x			x	x			x
2770	Orthotaenia undulana	x	x	x	x	x	x	x	x	x	x	x
2788	Olethreutes inornatana				x							
2794	Olethreutes quadrifidus				x				x		x	x
2821	Olethreutes appendicea	x	x		x		x	x				
2835	Olethreutes galaxana	x		x	x			x				
2839	Olethreutes puncticostana		x				x		x			
2848	Olethreutes bipartitana	x		x			x	x				
2860	Hedya separatana		x			x	x	x				
2861	Hedya ochroleucana	x	x	x	x		x	x	x	x	x	x
2900	Petrova burkeana		x		x		x	x				
2905	Barbara mappana						x					

MONA

#	Name
2911	Phaneta awemeana
2913	Phaneta umbrastriana
2916	Phaneta formosana
2926	Phaneta verna
2929	Phaneta ochroterminana
2933	Phaneta marmontana
2937	Phaneta parmatana
2940	Phaneta convergana
2947	Phaneta influana
2949	Phaneta lapidana
2952	Phaneta elongana
2956	Phaneta tarandana
2965	Phaneta fertoriana
2969	Phaneta indagatricana
2972	Phaneta dorsiatomana
2973	Phaneta striatana
2977	Phaneta modicellana
2980	Phaneta pallidicostana
2983	Phaneta salmicolorana
2984	Phaneta artemisiana
2985	Phaneta infimbriana
2986	Phaneta octopunctana
3005	Phaneta offectalis
	Eucosma n. sp. 1 Wright
3014	Eucosma ridingsana
3031	Eucosma serpentana
3032	Eucosma ophonana
3035	Eucosma morrisoni
3037	Eucosma agricolana
nr 3039	Eucosma nr barbara
3042	Eucosma vagana
3049	Eucosma serapicana
3104	Eucosma mediostriata
3116	Eucosma dorsisignatana
3116a	Eucosma similiana
3119	Eucosma juncteciliana
3133	Eucosma consobrinana
3142	Eucosma cataclystana
3149	Pelochrista argenteana
3151a	Pelochrista scintillana

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x	x				x					
x		x								
					x	x				x
	x	x			x					
	x									x
x	x	x			x				x	x
x		x	x		x				x	
	x	x								
			x			x				
x					x					x
				x	x					
	x	x	x	x					x	x
x	x	x	x	x	x	x	x		x	
x	x		x				x		x	
x		x	x						x	
			x			x				
x										
x										
x	x	x	x	x		x	x	x		
		x	x							
	x	x	x	x		x			x	x
									x	
				x				x		
			x							
			x	x						
			x							
x		x	x	x		x			x	
	x		x	x						
	x		x	x						
			x						x	

MONA

#	Name
3156	<i>Pelochrista occipitana</i>
3161	<i>Pelochrista fuscosparsa</i>
3185	<i>Epiblema benignatum</i>
3205	<i>Epiblema resumptana</i>
3209	<i>Notocelia purpurissitana</i>
3211	<i>Notocelia culminana</i>
nr 3218	<i>Sonia n. sp.</i>
3223	<i>Gypsonoma fasciolana</i>
3227	<i>Gypsonoma substitutionis</i>
3228	<i>Gypsonoma salicolana</i>
3229	<i>Gypsonoma adjuncta</i>
3230	<i>Proteoteras aesculana</i>
3232	<i>Proteoteras willingana</i>
3240	<i>Zeiraphera canadensis</i>
3242	<i>Zeiraphera fortunana</i>
3248	<i>Pseudexentera oregonana</i>
3269	<i>Griselda radicana</i>
3276	<i>Rhopobota naevana</i>
3283	<i>Epinotia solandriana</i>
3288	<i>Epinotia castaneana</i>
3296	<i>Epinotia albicapitana</i>
3302	<i>Epinotia rectiplicana</i>
3306	<i>Epinotia nisella</i>
3307	<i>Epinotia criddleana</i>
3310	<i>Epinotia transmissana</i>
3324	<i>Epinotia columbia sensu R.L. Brown</i>
3342	<i>Epinotia lomonana</i>
3344	<i>Epinotia mediopladata</i>
3345	<i>Epinotia cruciana</i>
3351	<i>Epinotia lindana</i>
3354	<i>Ancylis nubeculana</i>
3355	<i>Ancylis subaequana</i>
3358	<i>Ancylis discigerana</i>
3366	<i>Ancylis laciniana</i>
3374	<i>Ancylis comptana</i>
3379	<i>Ancylis diminutana</i>
3382	<i>Ancylis unguicella</i>
3384	<i>Ancylis mediofasciana</i>
3386	<i>Ancylis tineana</i>
3391	<i>Hystriophora stygiana</i>

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
			x							
			x?	x?						
			x						x	
									x	
		x	x			x				
x	x	x	x	x	x	x	x	x	x	
				x						
x	x	x	x		x	x	x	x		x
					x		x			
			x		x	x				x
			x			x				
						x				
					x	x				
x	x	x	x	x	x	x	x	x		x
			x		x	x				
		x	x		x					
x	x	x	x		x	x		x	x	x
			x							x
					x	x				
x	x	x	x	x	x	x	x	x		x
x	x			x	x					
			x							
x	x	x	x	x		x				x
					x					
					x					
x	x	x	x		x	x		x		x
			x							
	x		x			x				
x	x	x	x		x		x			x
			x		x					
x	x	x	x	x						
			x		x					
x	x	x	x	x						

MONA

#	Name
3396	Hystrichophora ochreicostana
3399	Hystrichophora vestaliana
3404	Dichrorampha simulana
3406	Dichrorampha bittana
3412	Dichrorampha sedatana
3428	Grapholita packardi
3437	Grapholita lunatana
3455	Cydia strobilella
3460	Cydia ingrata
3463	Cydia populana
3465	Cydia flexiloqua
3466	Cydia youngana
3467	Cydia nigricana
3476	Cydia prosperana
3480	Cydia lautiuscula
3502	Croesia albicomana
3504	Croesia curvalana
3506	Acleris macdunnoughi
3508	Acleris caliginosana
3514	Acleris cervinana
3518	Acleris braunana
3520	Acleris obligatoria
3521	Acleris semiannula
3522	Acleris implexana
3525	Acleris forbesana
3529	Acleris oxycoccana
3531	Acleris hastiana
3533	Acleris celiana
3534	Acleris walkerana
3536	Acleris robinsoniana
3537	Acleris maximana
3540	Acleris logiana
3548	Acleris variana
3549	Acleris maccana
3552	Acleris scabrana
3553	Acleris bowmanana
3556	Acleris nigrolinea
3557	Acleris maximana
3559	Acleris emargana
3561	Acleris hudsoniana complex

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
			x							
			x							
			x							
			x							
			x							
					x	x				
					x	x	x			
			x		x					
			x		x		x			x
x			x			x				x
x		x	x	x	x	x		x		x
	x					x		x		
			x		x			x		
					x					
						x				x
x	x	x	x	x	x	x		x	x	x
	x									
		x			x			x		
					x	x				
		x			x					x
						x?				
x	x	x	x		x	x	x			
		x	x		x	x				
										x?
					x					x
	x		x		x	x	x		x	
	x	x			x	x	x			
	x?				x?					
		x			x	x				x
x	x	x			x	x	x			x
					x	x	x			
		x	x		x	x				x
	x	x			x	x	x	x		

MONA

#	Name
3760	Platphalonidia felix
<i>n.n.</i>	Platphalonidia poss. albertae
3764	Cochylis nana
3769	Thyralia bunteana
<i>n.n.</i>	Phtheochroa near vulneratana
3787	Phtheochroa vitellinana
3792	Phtheochroa fulviplicana
3794	Phtheochroa aureoalbida
3796	Phtheochroa waracana
3834	Platphalonidia prob lavana
3844	Aethes promptana
3858	Cochylis nr voxcana
3910	Thorybes pylades
3945	Erynnis icelus
3961	Erynnis persius
3966	Pyrgus communis
3982	Carterocephalus palaemon
4007	Oarisma garita
4012	Thymelicus lineola
4018	Hesperia uncas
4041	Polites themistocles
4043	Polites mystic
4059	Poanes hobomok
4078	Euphyes vestris
4165a	Papilio machaon dodi
4176a	Papilio glaucus canadensis
4194	Pontia occidentalis
4195d	Pieris oleracea
4197	Pieris rapae
4200	Euchloe ausonides
4209	Colias philodice
4211e	Colias christina
4275	Harkenclenus titus
4324	Incisalia polia
4362b	Everes amyntula
4363	Celastrina ladon
4372a	Glaucopsyche lygdamus couperi
4375	Lycaeides melissa
4376	Plebejus saepiolus
4379	Icaricia shasta

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
		x		x		x				x
						x?				
	x									
					x?					
x	x	x			x	x?				
x	x	x	x	x	x	x?				
	x?		x?							
x	x	x		x	x	x	x			x
	x								x	x
	x?									
						x?				x?
			x		x			x		
	x	x			x		x			
					x		x			
			x	x						
					x		x			
			x							
			x		x			x		
			x		x			x		
								x		
								x		
		x								
	x		x		x	x	x			
	x		x	x			x			
			x	x	x	x		x		
		x	x			x				
			x							
	x		x		x		x	x		
	x				x	x	x			
	x		x		x		x			
		x	x	x						
		x	x	x						
			x							

MONA

#	Name
4380	Icaricia acmon
4384d	Plebejus rusticus rusticus
4422	Polygonia satyrus
4423	Polygonia faunus
4427	Polygonia gracilis
4429	Polygonia progne
4430	Nymphalis j-album
4432	Nymphalis antiopa
4433	Aglais milberti
4435	Vanessa cardui
4437	Vanessa atalanta
4447	Euptoieta claudia
4450c	Speyeria cybele pseudocarpenteri
4451	Speyeria aphrodite
4457	Speyeria callippe
4459b	Speyeria atlantis hollandi
4459r	Speyeria electa beani
4459s	Speyeria electa lais
4464	Boloria selene
4465b	Boloria bellona
4475	Boloria chariclea
4481	Phyciodes tharos
4481i	Phyciodes cocyta
4482	Phyciodes batesii
4493	Chlosyne acastus
4522	Basilarchia arthemis
4583b	Coenonympha inornata benjamini
4587	Cercyonis pegala
4596	Erebia discoidalis
4599	Erebia episodea
4605	Oeneis macounii
4608	Oeneis alberta
4614	Danaus plexippus
4652	Tortricidia testacea
4703	Gesneria centuriella
4716	Scoparia biplagiialis
4727	Eudonia albertalis
4748	Munroessa icciusalis
4755	Synclita oblitalis
4759	Paraponyx maculalis

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
			x							
			x						x	
	x				x					
	x						x			
			x							
					x			x		
					x					
	x			x	x		x			
			x		x		x	x		
	x	x	x		x					
			x							
			x							
	x		x		x		x			
			x					x		
	x				x		x		x	
			x							
			x							
			x							
	x								x	
x			x						x	
x	x	x	x	x	x	x	x	x	x	x
					x					
					x					
x	x				x	x				x
		x			x					

MONA

#

Name

4773	Petrophila kearfottalis
4826	Mimoschinia rufofascialis
4897	Evergestis pallidata
4922	Cornifrons actualis
4935	Saucrobotys fumoferalis
4950	Fumibotys fumalis
4951	Perispasta caeculalis
4953	Phlyctaenia coronata
4957	Mutuuraia mysippusalis
4958	Anania funebris
4987	Sitochroa chortalis
4995	Loxostege lepidalis
5004	Loxostege sticticalis
5017	Loxostege cereralis
5032	Pyrausta nicalis
5034	Pyrausta signatalis
5056	Pyrausta generosa
5058	Pyrausta orphisalis
5065	Pyrausta scurralis
5068	Pyrausta unifascialis
5074	Pyrausta fodinalis
5075	Pyrausta socialis
5079	Udea rubigalis
5099	Udea itysalis
5128	Choristostigma plumbosignalis
5135	Mecyna submedialis
5137	Mecyna mustelinalis
5156	Nomophila nearctica
5255	Diastictis ventralis
5276	Herpetogramma abdominalis
5299	Acentria ephemerella
5316	Donacaula melinella
5319	Donacaula longirostrella
5339	Crambus pascuellus
5343a	Crambus perlellus innotatellus
5344	Crambus unistriatellus
5345a	Crambus whitmerellus browni
5347	Crambus awemellus
5352	Crambus trichusalis
5354	Crambus ainsliellus

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x		x	x			x	x		x	x
			x	x						
x	x				x	x				
x				x						x
					x					
x	x	x		x						x
x	x	x	x	x	x	x	x			x
					x	x	x			x
		x	x	x	x					x
					x			x		
x	x	x	x			x		x	x	x
	x									
x	x	x	x	x	x	x	x		x	x
x		x	x	x			x		x	
			x		x					
		x								
	x	x	x		x				x	
x		x	x			x	x	x	x	x
	x		x	x				x	x	x
			x							
	x									x
x	x		x				x		x	x
x	x	x		x	x	x			x	
	x	x							x	
x				x	x					
x	x	x	x	x	x	x	x	x	x	x
		x			x	x				
x		x	x		x	x			x	
					x					
	x		x							
x	x	x	x	x	x	x	x		x	x

MONA

#	Name
5365	Crambus girardellus
5379	Neodactria luteolella
5391	Chrysoteuchia topiaria
5394	Platytes vobisne
5395	Agriphila biarmica
5399	Agriphila ruricolella
5403	Agriphila vulgivagella
5404	Agriphila attenuata
5408	Catoptria latiradiella
5413	Pediasia trisecta
5415	Pediasia ericella
5416	Pediasia abnaki
5417	Pediasia dorsipunctella
5439b	Thaumatopsis pexella coloradella
5441a	Thaumatopsis fernaldella nortella
5453	Tehama bonifatella
5455	Euchromius californicalis
5474	Acigona comptulatis
5510	Pyralis farinalis
5518	Aglossa cuprina
n.n.	Aglossa n. sp.
5529	Herculia thymetusalis
5585	Toripalpus trabalis
5606	Tetralopha asperatella
5655	Acrobasis tricolorella
5718	Myelopsis subtetricella
5719	Myelopsis minutularia
5721	Apomyeloidis bistratella
5751	Pima prob. fulvirugella
5759	Ambesa laetella
5764	Catastia actualis
5783	Ortholepis pasadamia
5787	Meroptera pravella
5792	Nephoterix fernaldella
5799	Nephoterix basilaris
5812	Telethusia ovalis
5824	Pyla aequivoca
5827	Pyla aenigmatica
5829	Pyla fusca (Haw.)
5831	Pyla hanhamella

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x		x			x					
x	x	x	x			x	x		x	x
x	x	x	x	x	x	x	x	x	x	x
			x							
					x					
x	x	x	x	x	x	x	x	x	x	x
	x	x	x	x	x				x	x
	x			x	x				x	
			x		x					
x	x	x	x	x	x	x	x	x	x	x
x	x	x			x				x	
					x		x			
			x							
x	x	x	x	x	x	x	x	x	x	x
	x		x							
			x							
					x			x		
x	x	x	x	x	x	x	x			x
			x	x					x	
x	x	x	x			x	x			x
x		x	x		x	x				
	x		x	x	x	x	x			x
		x								
x	x	x	x			x	x			
	x		x	x	x	x	x			x
			x							

MONA

#

Name

5841	Dioryctria abietivorella
5843	Dioryctria reniculelloides
5844	Dioryctria pseudotsugella
5870	Sarata caudelella
5886	Lipographis fenestrella
5918	Hulstia undulatella
5936	Homoeosoma stipiticellum
5946	Phycitoides mucidellum
5968	Zophodia grossulariella
5971	Melitara dentata
5999	Eulogia ochrifrontella
6007c	Vitula seratilineella
6014	Caudellia nigrella
6038	Anerastia lotella
6053	Peoria approximella
6092	Geina tenuidactyla
6094	Capperia ningoris
6102	Dejongia lobidactyla
6107	Gillmeria pallidactyla
6109	Platyptilia carduidactyla
6118	Platyptilia pica
6130	Paraplatyptilia albiciliata
6149	Stenoptilia coloradensis
6166	Oidaematophorus mathewianus
6170	Oidaematophorus phaceliae
6171	Oidaematophorus grisescens
6185	Hellinsia brucei
6203	Hellinsia homodactylus
6205	Hellinsia pectodactylus
6213	Hellinsia lactodactylus
6232	Hellinsia arion
6234	Emmelina monodactyla
6235	Habrosyne scripta
6237	Pseudothyatira cymatophoroides
6240	Euthyatira pudens
6248	Ceranemota albertae
6251	Drepana arcuata
6252	Drepana bilineata
6253	Eudeilinea herminiata
6255	Oreta rosea

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
					x	x				
	x		x	x	x	x				
	x									
		x	x							
	x		x						x	
x		x	x	x		x			x	x
			x							
x	x		x	x	x	x			x	x
x	x	x	x	x	x	x	x	x	x	x
x			x							
x			x		x	x		x		x
x	x		x	x	x	x				
					x					
	x	x	x			x	x	x		x
	x		x	x						
	x									
					x					
x	x	x	x		x	x			x	
					x					
		x		x	x					
x	x	x	x	x		x	x		x	x
	x				x		x			
	x		x	x	x		x			
					x	x				x
x	x		x		x					x

MONA

#

Name

6740 Xanthotype urticaria
 6743 Xanthotype sospeta
 6753 Pero honestaria
 6755 Pero morrisonaria
 6796 Campaea perlata
 6797 Ennomos magnaria
 6798 Ennomos subsignaria
 6799 Spodolepis substriaria
 6817 Selenia alciphearia
 6818 Selenia kentaria
 6819 Metanema inatomaria
 6820 Metanema determinata
 6822 Metarranthis duaria
 6836 Anagoga occiduaria
 6837 Probole alienaria
 6838 Probole amicara
 6842 Plagodis phlogosaria
 6844 Plagodis alcoolaria
 6860 Neoterpes trianguliferata
 6863 Caripeta divisata
 6885 Besma quercivoraria
 6888 Lambdina fiscellaria
 6906 Nepytia canosaria
 6912 Sicya macularia
 6926 Plataea trilinearia
 6954 Synaxis jubararia
 6963 Tetracis crocallata
 6964 Tetracis cachexiata
 6982 Prochoerodes transversata
 7009 Nematocampa resistaria
 7018 Nemoria unitaria
 7048 Nemoria mimosaria
 7058 Synchlora aerata
 7065 Chaetoscelis bistriaria
 7085 Mesothea incertata
 7125 Idaeia rotundopennata
 7139 Cyclophora pendulinaria
 7159 Scopula limboundata
 7162 Scopula ancellata
 7164 Scopula junctaria

	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x			x	x		x	x				
		x	x	x	x	x	x	x	x	x	x
					x						
x	x	x	x	x	x	x	x	x		x	x
x	x	x	x			x	x	x	x		
x	x	x	x	x	x	x	x		x		x
					x						
								x			
x	x	x				x	x	x	x		x
		x	x			x	x	x	x		x
x	x	x	x			x	x	x			x
x	x	x	x	x	x	x	x	x	x		x
x	x	x	x	x	x	x	x		x		x
x	x	x	x	x	x	x	x				x
x	x	x	x			x	x	x	x		x
						x		x			
					x						
x	x	x	x	x	x	x	x	x	x	x	x
						x	x	x	x		
x	x	x	x				x			x	x
						x					
x	x		x			x		x	x		x
x	x		x				x	x	x		x
x		x	x	x	x	x		x			x

MONA

#	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
7166	Scopula frigidaria	x		x	x	x	x	x	x		x	x
7169	Scopula inductata	x	x	x	x	x	x	x			x	x
7172	Scopula sentinaria				x	x						
7180	Leptostales ferruminaria		x		x							
7182	Dysstroma citrata	x	x	x	x	x	x	x	x	x		x
7187	Dysstroma truncata		x	x			x					
7189	Dysstroma hersiliata	x		x	x		x	x				x
7194	Dysstroma brunneata				x		x	x				
7199	Eulithis propulsata	x		x	x	x	x	x				
7201	Eulithis testata		x	x			x	x	x	x	x	x
7205	Eulithis flavibrunneata	x		x			x	x	x	x		
7206	Eulithis explanata		x				x					
7207	Eulithis xyliana	x	x	x	x	x	x					x
7210	Eustroma semiatrata						x					
7213	Ecliptopera silacea						x	x				x
7216	Plemyria georgii			x			x	x				
7217	Thera juniperata							x				
7219	Thera otisi				x							
7229	Hydriomena perfracta			x			x	x				x
7235	Hydriomena divisaria		x				x					
7254	Hydriomena ruberata	x	x	x	x		x	x		x	x	
7257	Hydriomena furcata	x	x	x	x		x	x	x		x	
7285	Triphosa haesitata	x					x	x				
7291	Hydria undulata	x	x				x	x				
7293	Rheumaptera hastata						x					
7307	Mesoleuca ruficillata				x		x					
7313	Spargania luctuata						x	x	x			x
7316	Perizoma basaliata			x	x		x		x			
7328	Perizoma custodiata		x		x							
7329	Anticlea vasiliata	x	x	x			x	x	x	x		x
7330	Anticlea multiferata						x					
7349	Stamnodes topazata						x		x			
7368	Xanthorhoe labradorensis		x			x	x					
7370	Xanthorhoe abrasaria		x		x		x		x			
7371	Xanthorhoe iduata						x					
7384	Xanthorhoe munitata		x	x			x	x				
7388	Xanthorhoe ferrugata			x			x	x				x
7390	Xanthorhoe lacustrata			x			x		x			
n.n.	Xanthorhoe decoloraria			x			x					
7394	Epirrhoe alternata	x	x	x	x	x	x	x				x

MONA #	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
7395	Epirrhoe plebeculata						x	x		x		
7396	Epirrhoe sperryi						x		x		x	
7399a	Euphyia intermediata	x	x	x	x		x	x	x			x
7408	Zenopheps alpinata	x	x	x	x	x	x	x	x	x		x
7414	Orthonama obstipata		x	x				x				
7415	Orthonama evansi						x					
7423	Hydrelia albifera			x				x				
7425	Venusia cambrica						x					
7429	Venusia pearsalli		x				x		x			
7430	Trichodezia albiovittata						x					
7433	Epirrita autumnata			x			x					
7437	Operophtera bruceata						x	x		x		x
7440	Eubaphe mendica	x			x		x	x		x		x
7445	Horisme intestinata	x	x	x	x	x	x	x	x			x
7446	Horisme incana			x	x	x						
7449	Eupithecia palpata						x					
7459	Eupithecia columbiata		x				x	x	x			x
7476	Eupithecia misturata					x	x					
7483	Eupithecia regina	x			x					x	x	
7487	Eupithecia subfuscata	x	x	x	x	x	x	x				x
7488	Eupithecia tripunctaria						x		x			
7489	Eupithecia lariciata						x		x			
7494	Eupithecia sheppardata							x				
7520c	Eupithecia satyrata dodata			x			x	x	x			
7522	Eupithecia nimbicolor						x	x				
7524	Eupithecia cimicifugata								x			x
7527	Eupithecia ammonata	x										
7528	Eupithecia assimilata		x				x	x		x		
7539	Eupithecia multistrigata				x							
7543	Eupithecia annulata						x					
7548	Eupithecia lachrymosa				x			x				
7551a	Eupithecia interruptofasciata				x							
7564	Eupithecia stellata			x								x
7574	Eupithecia albicapitata		x									
7575	Eupithecia mutata				x							
7594	Eupithecia anticaria	x		x				x		x	x	
7605	Eupithecia ravocostaliata	x	x	x	x		x	x	x	x		x
7637	Cladara limitaria						x		x			
7639	Cladara atroliturata		x				x		x			
7640	Lobophora nivigerata	x	x	x	x		x	x	x			x

MONA

#	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
7643	Lobophora magnoliotidata			X				X				
7650	Callizia amorata		X				X	X		X		X
7687	Phyllodesma americana	X	X	X	X	X	X	X	X	X		X
7698	Malacosoma disstria	X	X	X	X		X	X		X	X	X
7702	Malacosoma californicum	X	X	X	X	X		X			X	X
7757	Antheraea polyphemus	X	X	X		X	X	X	X	X	X	X
7769	Hyalophora gloveri	X	X	X				X			X	
7787	Ceratomia undulosa							X				
7803	Sphinx vashti	X	X	X	X	X		X			X	X
7810	Sphinx poecila						X					
7811	Sphinx luscitiosa		X					X				
7812	Sphinx drupiferarum		X		X							
7821	Smerinthus jamaicensis	X	X	X	X	X	X	X	X	X	X	X
7822	Smerinthus cerisyi	X	X	X	X	X	X	X	X	X	X	X
7824	Paonias excaecatus	X	X	X	X			X	X			X
7825	Paonias myops	X	X	X	X	X		X				X
7828	Pachysphinx modesta	X	X	X				X		X	X	X
7855	Hemaris diffinis								X			
7893	Hyles gallii	X	X	X	X	X	X	X			X	
7894	Hyles lineata			X								
7895	Clostera albosigma	X	X	X	X		X	X	X	X	X	X
7898	Clostera strigosa	X	X	X	X							X
7900	Clostera brucei	X		X	X		X	X				X
7901	Clostera apicalis	X	X	X	X	X	X	X			X	
7915	Nadata gibbosa	X	X	X	X		X	X	X	X		X
7922	Pheosia rimosa	X	X	X	X	X	X	X	X	X		X
7924	Odontosia elegans	X	X	X	X		X	X	X			X
7926	Notodonta scitipennis	X	X		X		X	X			X	X
7928	Notodonta simplaria	X	X	X	X	X	X	X		X	X	X
7931	Gluphisia septentrionis	X	X	X	X	X	X	X	X	X	X	X
7934	Gluphisia lintneri	X		X	X			X		X		X
7939	Furcula occidentalis	X	X		X			X			X	X
7940	Furcula scolopendrina	X	X	X			X	X	X	X		X
7941	Furcula modesta	X		X	X		X	X				X
8005	Schizura ipomeae		X									
8007	Schizura unicornis	X	X	X	X	X	X	X	X	X		X
8011	Schizura leptinoides		X				X					X
8012	Oligocentria semirufescens		X				X	X				X
8037	Gnophaela vermiculata						X		X			
8043	Eilema bicolor	X	X	X	X		X			X		

MONA

#	Name
8051	Crambidia casta
8089	Hypoprepia miniata
8098	Clemensia albata
8111	Haploa lecontei
8123	Holomelina ferruginosa
8127	Parasemia plantaginis
8129	Pyrrharctia isabella
8131	Estigmene acraea
8134	Hyphantria congrua
8136	Spilosoma dubia
8137	Spilosoma virginica
8144	Hypercompe permaculata
8158	Phragmatobia assimilans
8162	Platarctia parthenos
8166	Arctia caja
8175	Grammia virguncula
8186	Grammia williamsii
8196	Grammia parthenice
8197	Grammia virgo
8214	Lophocampa maculata
8262	Ctenucha virginica
8267	Cisseps fulvicollis
8294	Dasychira vagans
8304	Dasychira plagiata
8308	Orgyia antiqua
8322	Idia americalis
8323	Idia aemula
8323.1	Idia sp. nr. aemula
8334	Idia lubricalis
8338	Phalaenophana pyramusalis
8354	Zanclognatha lotalba
8356	Chytolita petrealis
8359	Macrochilo bivittata
8362	Phalaenostola metonalis
8365	Phalaenostola hanhami
8370	Bleptina caradrinalis
8397	Palthis angulalis
8404	Rivula propinquialis
8413	Mycterophora inexplicata
8421	Hypenodes fractilinea

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x	x	x	x	x					x	x
x	x	x	x				x		x	
x	x	x	x		x		x	x		x
		x			x					x
x	x	x	x		x	x	x	x	x	x
					x			x		
x	x	x	x			x			x	
x	x	x	x	x				x	x	
x	x	x	x				x	x		x
					x		x			
	x		x	x	x		x		x	x
			x	x						
x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x		x
x		x			x	x				
x	x	x			x				x	x
x	x	x	x		x	x	x	x	x	x
x	x	x	x	x	x	x	x	x		x
x	x	x	x		x	x			x	x
	x					x				
					x					
x		x	x		x	x		x		x
	x	x	x		x	x	x	x		x
x		x				x				x
x	x	x	x		x		x	x	x	
			x			x				
	x	x	x	x						
x	x	x	x		x	x	x			x
x	x	x			x	x		x		x
x		x						x		
	x		x		x					x

MONA**# Name**

8446 Hypena deceptalis
 8450 Bomolocha atomaria
 8452 Bomolocha edictalis
 8455 Lomanaltes eductalis
 8461 Hypena humuli
 8462 Hypena californica
 8555 Scoliopteryx libatrix
 8632 Drasteria hudsonica
 8635 Drasteria perplexa
 8636 Drasteria adumbrata
 8697 Zale minerea
 8731 Euclidea cuspeida
 8738 Caenurgina crassiuscula
 8739 Caenurgina erechtea
 8803 Catocala relictia
 8805 Catocala unijuga
 8812 Catocala hermia
 8817 Catocala briseis
 8821 Catocala semirelictia
 8822 Catocala meskei
 8867 Catocala blandula
 8881 Abrostola urentis
 8887 Trichoplusia ni
 8896 Diachrysis aeroides
 8899 Pseudeva purpurigera
 8901 Polychrysis esmeralda
 8905 Eosphropteryx thyatyroides
 8909 Autographa rubida
 8910 Autographa sansoni
 8911 Autographa bimaculata
 8912 Autographa mappa
 8913 Autographa pseudogamma
 8914 Autographa californica
 8916 Autographa flagellum
 8923 Autographa ampla
 8924 Anagrapha falcifera
 8926 Syngrapha octoscripta
 8939 Syngrapha alias
 8950 Plusia putnami
 8953 Plusia venusta

	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
						x					
							x				
		x	x			x	x				x
						x					
		x		x	x	x	x				x
							x				
		x		x		x	x			x	
			x	x	x						
				x							
	x	x	x	x	x	x	x				x
	x	x		x		x		x			
	x	x	x	x	x	x	x	x	x	x	
	x		x	x	x					x	
	x	x	x	x	x	x	x	x			x
	x		x	x	x	x	x	x	x		x
				x	x						
	x	x	x	x	x	x	x				
	x	x	x	x	x	x	x				
			x	x	x	x	x				
						x					
						x					
	x	x	x			x	x				
	x	x	x	x	x	x	x			x	x
			x								
	x	x	x		x	x				x	x
	x	x	x	x	x	x	x			x	x
		x		x			x				
						x					
	x	x	x		x	x	x			x	x
	x	x	x			x	x			x	

MONA

#	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
9374	Apamea niveivenosa	x	x	x	x			x			x	x
9382	Apamea devastator	x	x	x	x	x	x	x		x	x	x
9383	Apamea longula				x							
9391	Luperina passer	x	x			x	x	x			x	x
9396	Eremobina claudens	x		x	x		x	x				x
9412.1	Oligia subjuncta	x		x			x	x	x		x	x
9417	Oligia egens	x		x	x	x		x			x	x
9419	Oligia mactata	x	x	x	x		x	x	x	x		x
9420	Oligia illocata	x	x	x	x		x	x	x	x		x
9431	Parastichtis suspecta	x	x	x			x	x			x	x
9434	Spartiniphaga includens	x	x	x	x		x	x			x	x
9437	Chortodes inquinata	x		x			x	x				x
9439	Chortodes basistriga	x					x	x				
9440	Chortodes rufostrigata	x	x	x	x	x		x			x	x
9443	Chortodes defecta			x			x	x				
9450	Archanara subflava	x	x	x		x	x	x		x	x	x
9453	Celaena reniformis		x	x		x	x	x		x	x	x
9456	Amphipoea interoceanica			x								
9457	Amphipoea americana	x	x	x	x	x	x	x	x	x		x
9472	Papaipema harrisii		x	x		x	x					x
9515	Hydraecia perobliqua	x	x	x		x		x				x
9525	Bellura obliqua	x	x	x	x			x			x	x
9543	Aseptis characta				x							
9545	Euplexia benesimilis			x			x					
9547	Phlogophora periculosa						x	x				
9549	Enargia decolor	x	x	x	x	x	x	x	x			x
9550	Enargia infumata	x	x	x	x		x	x	x	x	x	x
9555	Ipimorpha pleonectusa	x	x	x	x		x	x	x	x		x
9556	Chytonix palliatricula				x							x
9564	Andropolia contacta		x	x	x							
9579	Hyppa contrasta			x			x		x	x		x
9626	Trachea delicata							x				
9647	Proxenus miranda	x	x	x	x	x	x	x	x	x	x	x
9649	Proxenus mendosa	x	x		x	x			x			x
9654	Platyperigea meralis				x	x						
9656	Platyperigea montana	x	x	x	x	x	x	x	x	x	x	x
9681.1	Elaphria alapallida				x							x
9832	Escaria homogena										x	
9873	Xylena nupera				x	x	x	x				x
9874	Xylena curvimacula	x	x	x	x		x	x	x	x		x

MONA

#

Name

9875 Xylena thoracica
 9876 Xylena cineritia
 9878 Lithomoia germana
 9881 Homoglaea hircina
 9884 Litholomia napaea
 9888 Lithophane innominata
 9889 Lithophane petulca
 9891 Lithophane amanda
 9909 Lithophane tepida
 9913 Lithophane georgii
 9915 Lithophane grotei
 9917 Lithophane fagina
 9922 Lithophane pexata
 9933 Eupsilia vinulenta
 9935 Eupsilia tristigmata
 9939 Eupsilia devia
 9952 Eucirroedia pampina
 9957 Sunira bicolorago
 9960 Sunira verberata
 9962 Anathix puta
 9963 Anathix aggressa
 9965 Xanthia tatago
 9967 Hillia iris
 9970 Fishia discors
 9976 Platypolia anceps
 9980 Xylotype acadia
 9987 Mniotype ducta
 9988 Mniotype tenera
 9990 Sutyna profunda
 9993 Brachylomia populi
 9998 Brachylomia algens
 9999 Brachylomia discinigra
 10008 Feralia comstocki
 10011 Brachylomia borealis
 10028 Pleromelloida conserta
 10035 Noctua pronuba
 10055 Apharetra dentata
 10059 Homohadena badistriga
 10062 Homohadena stabilis
 10065 Homohadena infixa

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x	x	x			x	x				x
x	x	x		x	x	x	x	x		x
	x	x	x		x	x				x
x	x	x			x	x	x		x	x
x	x	x	x		x	x	x	x	x	x
	x	x			x	x				x
					x					
					x	x				x
			x		x		x			
			x						x	
	x									
				x	x		x			
					x					
	x					x				
	x	x		x	x	x			x	x
					x					
x	x	x	x	x	x	x	x			x
	x	x			x	x				
	x	x			x	x				x
x	x	x	x		x	x	x	x		x
		x								
x	x	x	x		x	x			x	x
		x	x							
					x		x			
	x									
x	x		x				x	x	x	x
		x	x							
			x	x						
			x							
	x		x		x					
x	x	x	x			x			x	
x	x	x	x		x	x		x		x

MONA

#	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
10067	Adita chionanthi	x		x		x		x	x			x
10099	Oncocnemis saundersiana			x								
10108	Oncocnemis viriditincta			x								
10124	Oncocnemis cibalis	x		x	x							x
10130.1	Oncocnemis pallidior				x							
10135	Oncocnemis riparia				x							
10140	Oncocnemis poliochroa		x	x								x
10143	Oncocnemis mackiei	x	x	x	x	x		x				
10190	Cucullia speyeri					x						
10194	Cucullia intermedia	x		x	x	x	x	x			x	x
10198	Cucullia postera		x									
10223	Discestra trifolii	x	x	x				x			x	x
10224	Discestra mutata		x	x		x		x				x
10228c	Discestra oregonica montanica				x	x						
10232	Discestra farnhami	x	x	x	x	x		x		x	x	x
10233	Discestra crotchi				x	x					x	
10238	Scotogramma submarina				x	x						
10265	Sideridis rosea	x	x	x	x	x		x			x	x
10271	Mamestra configurata	x		x	x	x	x	x			x	
10272	Mamestra curialis	x										
10273	Polia discalis				x	x		x			x	
10275	Polia nimbosa	x	x	x	x		x	x	x	x		x
10276	Polia imbrifera	x	x	x	x		x	x	x	x	x	x
10280	Polia purpurissata	x	x	x	x	x	x	x	x	x	x	
10281	Polia nugatis				x							
10288	Polia detracta	x	x	x	x	x	x		x	x	x	x
10289	Polia goodelli		x	x	x	x		x				
10290	Orthodes obscura	x	x	x	x	x						
10292	Melanchra adjuncta			x			x			x		x
10293	Melanchra picta					x						
10295	Melanchra assimilis	x	x	x				x		x		
10296	Lacanobia nevadae						x					
10297	Lacanobia atlantica	x	x	x		x	x	x	x	x	x	x
10298	Lacanobia radix		x	x	x	x	x	x	x		x	x
10299	Lacanobia subjuncta	x			x	x		x				
10300	Spirameter grandis				x	x						
10301	Spiramater lutra			x			x			x		x
10303	Trichordestra tacoma					x						
10305	Trichordestra dodii	x	x		x						x	x
10307	Trichordestra lilacina		x		x						x	

MONA

#

Name

10308 Trichordestra liquida
 10310 Papestra quadrata
 10312 Papestra cristifera
 10322 Hadena circumvadis
 10324 Hada sutrina
 10368 Lacinipolia meditata
 10370 Lacinipolia lustralis
 10372 Lacinipolia anguina
 10381 Lacinipolia naevia
 10394 Lacinipolia vicina
 10397 Lacinipolia renigera
 10405 Lacinipolia lorea
 10406 Lacinipolia olivacea
 10428 Dargida procincta
 10431 Faronta diffusa
 10436 Aletia oxygala
 10438 Pseudaletia unipuncta
 10442 Leucania anteoclara
 10446 Leucania multilinea
 10447 Leucania commoides
 10449 Leucania insueta
 10471 Stretchia plusiaeformis
 10490 Orthosia revicta
 10493 Orthosia segregata
 10495 Orthosia hibisci
 10501 Crocigrapha normani
 10513 Egira dolosa
 10523 Tholera americana
 10524 Nephelodes minians
 10530 Anhimella contrahens
 10532 Homorthodes furfurata
 10547 Protorthodes utahensis
 10563 Protorthodes oviduca
 10641 Agrotis vetusta
 10645 Agrotis orthogonia
 10650 Agrotis robustior
 10651 Agrotis venerabilis
 10652 Agrotis vancouverensis
 10658 Agrotis stigmosa
 10659 Agrotis volubilis

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
x	x	x	x			x		x	x	
			x				x			
	x?		x							
x		x	x							
x					x					
x	x	x			x	x		x	x	
x	x	x	x	x		x	x	x		x
x	x		x	x	x	x	x			x
			x							
x		x	x		x	x			x	x
x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x
x			x			x				x
x	x	x	x	x		x		x	x	x
x	x	x	x	x	x	x	x	x	x	x
x						x				
x	x	x	x	x	x	x		x	x	x
x	x	x	x	x	x	x		x	x	
x	x	x		x		x		x	x	x
x	x	x	x	x	x	x	x	x		x
				x						
x	x	x	x	x	x	x	x	x	x	x
			x							
x	x	x	x	x	x	x	x		x	x
	x									x
x	x		x			x				
			x							
x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x			x	x
	x									x
						x				

MONA

#	Name
10660	Agrotis obliqua
10663	Agrotis ipsilon
10670	Feltia jaculifera
10676	Feltia herilis
10698.2	Trichosilia mollis
10701.1	Euxoa adumbrata
10701.2	Euxoa auxiliaris
10702	Euxoa divergens
10705	Euxoa messoria
10715	Euxoa scandens
10723	Euxoa tristicula
10728	Euxoa pestula
10738	Euxoa mimallonis
10749	Euxoa intrita
10755	Euxoa declarata
10756	Euxoa campestris
10769	Euxoa nevada
10777	Euxoa aequalis
10780	Euxoa comosa
10794	Euxoa setonia
10798	Euxoa basalis
10801	Euxoa ochrogaster
10804	Euxoa plagigera
10805	Euxoa tessellata
10807	Euxoa albipennis
10813	Euxoa medialis
10817	Euxoa obeliscoides
10826	Euxoa idahoensis group
10826.1	Euxoa castanea
10830	Euxoa quadridentata
10833	Euxoa olivalis
10836	Euxoa dargo
10838	Euxoa detersa
10845	Euxoa difformis
10852	Euxoa auripennis
10854	Euxoa servita
10861	Euxoa ridingsiana
10861.1	Euxoa maimes
10864	Euxoa flavicollis
10891	Ochropleura implecta

AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
			X	X		X				X
				X		X				
X	X	X	X	X	X	X		X	X	X
X	X	X		X	X	X	X	X	X	X
			X		X					
		X				X				X
X	X	X	X	X		X			X	
X	X	X	X	X	X	X	X		X	X
X	X	X	X			X		X		X
		X				X				
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X		X	X		X		X
			X							
X		X	X			X				
	X		X							
X	X	X	X	X		X			X	X
X	X	X	X	X	X	X	X	X	X	X
			X				X			
X	X		X	X		X				
X	X	X	X			X				X
			X	X						
X		X	X		X	X				
			X							
			X							
X	X	X	X		X	X	X		X	X
		X			X					X
X									X	
X	X	X	X		X	X				

MONA #	Name	AH	BK	BL	DI	EA	EP	ER	JC	LL	LS	RS
11047	Parabagrotis exertistigma					x						
11051	Ufeus satyricus	x			x		x	x				x
11064	Pyrrhia exprimens						x					
11072	Heliothis phloxiphagus										x	
11077	Heliothis ononis			x								
11164	Schinia florida	x		x								
11175	Schinia meadi		x								x	
11192	Schinia cumatilis			x	x	x						
	TOTALS (1086 overall)	424	517	525	597	324	646	525	299	248	271	433
	Study days/nights (TOTAL 650)	42	25	40	41	14	167	189	17	40	29	46

SPECIES RICHNESS

Species richness is defined as the number of species within a region. Based on the totals in the above table the area with the greatest species richness is EP, followed in descending order by DI, BL, ER, BK, RS, AH, EA, JC and LS. There is, of course, a more or less direct correlation between species richness and the number of habitats present in a given area, i.e. the greater the species richness, the greater the number of habitats. It follows that the greater the number of habitats therefore the greater the number of food plants, hence the greater the potential for an area to be suitable for a larger number of moth species.

STUDY DAYS/NIGHTS

The number of study days/nights involved in each study area is shown in the last line of the above table. One would logically expect that the greater number of species will have been found in the areas with the greatest number of study nights and vice versa the least number of species will have been found in the areas with the least number of study day/nights. This has generally been found to be the case. It is clear, however, that more study of EA and JC would be beneficial and it is hoped that this will be done in 2008. In doing so, it will be important to be in the areas at times of the year when previous work may have been under-sampled.

COMMON OR WIDESPREAD SPECIES

Species can be common or widespread for many reasons, but mainly because they are polyphagous or are able to utilize a wide range of food plants.

Of the 1086 moth species encountered in this study, 40, or 3.68%, were found in all of the 11 areas - *Filatima abactella*, *Ypsolopha canariella*, *Y. dentiferella*, *Apotomis dextrana*, *Orthotaenia undulana*, *Choristoneura rosaceana*, *Clepsis persicana*, *C. clemensiana*, *Scoparia biplagiata*, *Crambus perlellus innotatellus*, *Chrysoteuchia topiaria*, *Agriphila ruricolella*, *Pediasia dorsipunctella*, *Zophodia grossulariella*, *Cabera erythemaria*, *Euchlaena tigrinaria*, *Smerinthus jamaicensis*, *S. cerisyi*,

Phragmatobia assimilans, *Grammia virgo*, *Lithacodia albidula*, *Raphia frater*, *Apamea commoda*, *A. inficita*, *Proxenus miranda*, *Platyperigea montana*, *Lacinipolia renigera*, *L. lorea*, *Aletia oxygala*, *Orthosia segregata*, *Egira dolosa*, *Protorthodes oviduca*, *Agrotis venerabilis*, *Euxoa tristicula*, *E. ochrogaster*, *Spaelotis clandestina*, *Xestia smithii*, *Agnorisma bugrai*, *Paradiarsia littoralis* and *Protolampra rufipectus*.

Of the 1086 moth species encountered in this study, 63, or 5.8%, have been found in 10 out of the 11 areas - *Gazoryctra novigannus*, *Tinea irrepta*, *Monopis spilotella*, *Glyphidocera hurlberti*, *Coleophora trifolii*, *Gelechia lynceola*, *Chionodes mediofuscella*, *C. psilopterus*, *Plutella xylostella*, *Endothenia nubilana*, *Hedya ochroleucana*, *Notocelia culminana*, *Pseudexentera oregonana*, *Epinotia nisella*, *Croesia albicomana*, *Pandemis canadana*, *Choristoneura conflictana*, *Crambus ainsliellus*, *Macaria occiduaria*, *M. loricaria*, *Lycia ursaria*, *Cabera variolaria*, *Euchlaena johnsonaria*, *Xanthotype sospeta*, *Pero morrisonaria*, *Metanema determinata*, *Metarranthis duaria*, *Sicya macularia*, *Dysstroma citrata*, *Zenophleps alpinata*, *Phyllodesma americana*, *Antheraea polyphemus*, *Clostera albosigma*, *Pheosia rimosa*, *Notodonta simplaria*, *Schizura unicornis*, *Holomelina ferruginosa*, *Platarctia parthenos*, *Grammia parthenice*, *Lophocampa maculata*, *Dasychira vagans*, *Idia americalis*, *Caenurgina crassiuscula*, *Apamea sordens*, *A. scoparia*, *A. devastator*, *Amphipoea americana*, *Energia infumata*, *Litholomia napaea*, *Brachylochia populi*, *Polia imbrifera*, *P. purpurissata*, *P. detracta*, *Lacanobia atlantica*, *Leucania commoides*, *Orthosia revicta*, *Nephelodes minians*, *Feltia jaculifera*, *F. herilis*, *Euxoa divergens*, *Eurois occulta*, *E. astricta* and *Xestia c-nigrum*.

SPECIES ENCOUNTERED IN ONLY ONE AREA

Species can be seldom encountered for many reasons, including their food plants being infrequent, their habitats being scarce, past climatic conditions, predators, etc. Some of these species may even be rare or endangered.

Of the 1086 species encountered in the present study, 229, or 21.07%, have been found in only one area - *Acanthopteroctetes bimaculata*, *Gazoryctra hyperboreus*, *Lampronia humilis*, *Lyonetia saliciella*, *Caloptilia strictella*, *Micrurapteryx salicifoliella*, *Agonopterix gelidella*, *Bibarrambula allenella*, *Nites betulella*, *Ethmia monticola*, *Brymbia quadrimaculella*, *Denisia haydenella*, *Perittia cygnodiella*, *Elachista virgatula*, *Elachista maritimella*, *Coleophora rosaevorella*, *Coleophora mcdunnoughiella*, *Coleophora maritella*, *Coleophora mayrella*, *Mompha raschkiella*, *Scythris eboracensis*, *Asymmetrura impositella*, *Scythris mixaulla*, *Aristotelia rubidella*, *Evippe prunifoliella*, *Neotelphusa praefixa*, *Xanolechia aethiops*, *Lita sexpunctella*, *Chionodes lugubrella*, *Aroga near paraplutella*, *Bondia comonana*, *Wockia asperipunctella*, *Rhizognothis interrupta*, *Plutella (Greya) vanella*, *Ypsolopha senex*, *Schreckensteinia festaliella*, *Pennisetia marginata*, *Synanthedon fatifera*, *Synanthedon polygoni*, *Prochoreutis sp. nr myllerana*, *Caloreas occidentella*, *Prionoxystus robiniae*, *Barbara mappana*, *Phaneta salmicolorana*, *P. artemisiana*, *Eucosma nr barbara*, *E. serapicana*, *E. mediotriata*, *E. similiana*, *Pelochrista occipitana*, *Epiblema resumptana*, *Sonia n. sp.*, *Proteoteras willingana*, *Epinotia columbia sensu R.L. Brown*, *E. medioplagata*, *E. cruciana*, *Ancylis nubeculana*, *Hystrichophora ochreicostana*, *H. vestaliana*, *Dichrorampha simulana*, *D. bittana*, *D. sedatana*, *Cydia prosperana*, *Croesia curvalana*, *Acleris braunana*, *A. semiannula*, *A. implexana*, *A. celiana*, *A. maximana*, *Decodes mcdunnoughi*, *Archips striana*, *A. alberta*, *Lozotaenia hesperia*, *Adoxophyes negundana*, *Xenotemna pallorana*, *Sparganothis violaceana*, *Aethes prob sexdentata*, *A. prob heleniana*, *A. prob monera*, *Platphalonidia poss. albertae*, *Cochylis nana*, *Thyralia bunteana*, *Aethes promptana*, *Eudonia albertalis*, *Munroessa icciusalis*, *Saucrobotys fumoferalis*, *Loxostege lepidalis*, *Pyrausta orphisalis*, *P. scurralis*, *Diastictis ventralis*, *Crambus awemellus*, *Platytes vobisne*, *Agriphila biarmica*, *Tehama bonifatella*, *Aglossa cuprina*, *Catastia actualis*, *Pyla aequivoca*, *P. hanhamella*, *Dioryctria pseudotsugella*, *Homoeosoma stipiticellum*, *Caudellia nigrella*, *Geina tenuidactyla*, *Paraplatyptilia albiciliata*, *Stenoptilia coloradensis*, *Oidaematophorus phaceliae*, *O.*

grisescens, *Hellinsia lactodactylus*, *Emmelina monodactyla*, *Archiearis infans*, *Macaria brunneata*, *Semiothisa ulsterata*, *M. unipunctaria perplexa*, *Digrammia decorata*, *Orthofidonia exornata*, *Ematurga amitaria*, *Eufidonia discospilata*, *Pero honestaria*, *Ennomos subsignaria*, *Spodolepis substriaria*, *Neoterpes trianguliferata*, *Besma quercivoraria*, *Lambdina fiscellaria*, *Nepytia canosaria*, *Plataea trilinearia*, *Tetracis cachexiata*, *Nemoria mimosaria*, *Chaetoscelis bistrariaria*, *Scopula ancellata*, *Eustroma semiatrata*, *Thera juniperata*, *T. otisi*, *Rheumaptera hastata*, *Anticlea multiferata*, *Xanthorhoe iduata*, *Orthonama evansi*, *Trichodezia albovittata*, *Eupithecia palpata*, *E. sheppardata*, *E. ammonata*, *E. multistrigata*, *E. annulata*, *E. interruptofasciata*, *E. albicapitata*, *E. mutata*, *Ceratomia undulosa*, *Sphinx poecila*, *Hemaris diffinis*, *Hyles lineata*, *Schizura ipomeae*, *Dasychira plagiata*, *Idia lubricalis*, *Phalaenophana pyramusalis*, *Hypena deceptalis*, *Bomolocha atomaria*, *Lomanaltes eductalis*, *Hypena californica*, *Drasteria perplexa*, *D. adumbrata*, *Catocala meskei*, *Trichoplusia ni*, *Polychrisia esmeralda*, *Eosphoropteryx thyatyroides*, *Autographa sansoni*, *A. mappa*, *A. flagellum*, *Syngrapha alias*, *Leuconycta lepidula*, *Conochares arizonae*, *Acronicta radcliffei*, *A. quadrata*, *A. sperata*, *Apamea longula*, *Amphipoea interoceanica*, *Aseptis characta*, *Trachea delicata*, *Escaria homogena*, *Lithophane petulca*, *L. grotei*, *L. pexata*, *Eupsilia devia*, *Anathix aggressa*, *Fishia discors*, *Xylotype acadia*, *Mniotype tenera*, *Brachylomia borealis*, *Apharetra dentata*, *Oncocnemis saundersiana*, *O. viriditincta*, *O. pallidior*, *O. riparia*, *Cucullia speyeri*, *C. postera*, *Mamestra curialis*, *Polia nugatis*, *Melanchnra picta*, *Lacanobia nevadae*, *Trichordestra tacoma*, *Lacinipolia naevia*, *Pseudaletia unipuncta*, *Leucania anteoclara*, *Crocigrapha normani*, *Tholera americana*, *Homorthodes furfurata*, *Protorthodes utahensis*, *Agrotis robustior*, *A. volubilis*, *Euxoa pestula*, *E. nevada*, *E. castanea*, *E. olivalis*, *E. dargo*, *E. difformis*, *E. auripennis*, *E. servita*, *Protopygia querula*, *Euagrotis exuberans*, *Diarsia dislocata*, *Xestia oblata*, *Coenophila opaciformis*, *Aplectoides condita*, *Abagrotis trigona*, *A. alternata*, *A. orbis*, *A. nanalis*, *A. reedi*, *A. cupida*, *Pyrrhia exprimens*, *Heliopsis phloxiphagus* and *H. ononis*.

SPECIES FOUND ONLY IN AREAS EP AND ER

Area reports have not yet been prepared for EP and ER, but as the species encountered in each of these areas have been mentioned above and the areas have been compared to the other areas, it has been felt important to mention below the species that have been found only in these two areas.

EP - the Bird quarter on East Poplar Creek, 8 km NW of Winfield

Moth species found only at EP (80) - *Gazoryctra hyperboreus*, *Lampronia humilis*, *Lyonetia saliciella*, *Caloptilia strictella*, *Micrurapteryx salicifoliella*, *Agonopterix gelidella*, *Bibarrambla allenella*, *Nites betulella*, *Brymbia quadrimaculella*, *Denisia haydenella*, *Elachista maritimella*, *Coleophora mayrella*, *Mompha raschkiella*, *Asymmetrura impositella*, *Neotelphusa praefixa*, *Xanolechia aethiops*, *Wockia asperipunctella*, *Rhizognothis interrupta*, *Plutella (Greya) vanella*, *Schreckensteinia festaliella*, *Synanthedon fatifera*, *Prochoreutis sp. nr myllerana*, *Caloreas occidentella*, *Prionoxystus robiniae*, *Barbara mappana*, *Epinotia medioplugata*, *Epinotia cruciana*, *Cydia prosperana*, *Acleris braunana*, *Acleris celiana*, *Decodes mcdunnoughi*, *Archips striana*, *Archips alberta*, *Lozotaenia hesperia*, *Aethes prob sexdentata*, *Thyralia bunteana*, *Eudonia albertalis*, *Munroessa icciusalis*, *Saucrobotys fumoferalis*, *Crambus awemellus*, *Agriphila biarmica*, *Tehama bonifatella*, *Caudellia nigrella*, *Geina tenuidactyla*, *Stenoptilia coloradensis*, *Oidaematophorus phaceliae*, *Archiearis infans*, *Macaria brunneata*, *Semiothisa ulsterata*, *Macaria unipunctaria perplexa*, *Orthofidonia exornata*, *Eufidonia discospilata*, *Besma quercivoraria*, *Lambdina fiscellaria*, *Eustroma semiatrata*, *Rheumaptera hastata*, *Anticlea multiferata*, *Xanthorhoe iduata*, *Orthonama evansi*, *Trichodezia albovittata*, *Eupithecia palpata*, *Eupithecia annulata*, *Sphinx poecila*, *Phalaenophana pyramusalis*, *Hypena deceptalis*, *Lomanaltes eductalis*, *Polychrisia*

esmeralda, *Eosphropteryx thyatyroides*, *Autographa sansoni*, *Autographa mappa*, *Syngrapha alias*, *Acronicta sperata*, *Lithophane petulca*, *Lithophane pexata*, *Eupsilia devia*, *Xylotype acadia*, *Lacanobia nevadae*, *Diarsia dislocata*, *Aplectoides condita* and *Pyrrhia exprimens*.

The moths of EP were most similar (50.40%) to those of the Bird residence in Erskine, and least similar (23.31%) to those of the Lowden Springs Conservation Area.

ER – the Bird residence, 5 Maple Close, Erskine

Moth species found only at ER (17) - *Ypsolopha senex*, *Pennisetia marginata*, *Proteoteras willingana*, *Acleris semiannula*, *Acleris implexana*, *Adoxophyes negundana*, *Platphalonidia poss. albertae*, *Nepytia canosaria*, *Thera juniperata*, *Eupithecia sheppardata*, *Ceratonia undulosa*, *Bomolocha atomaria*, *Hypena californica*, *Trachea delicata*, *Pseudaletia unipuncta*, *Agrotis volubilis* and *Euxoa difformis*.

The moths of ER were most similar (59.29%) to those of the Buffalo Lake Conservation Area, and least similar (33.73%) to those of the Lowden Springs Conservation Area.

TAXONOMIC WORK STILL NEEDED

While the above list of 1086 species may seem large, it should not give the impression that we know all there is to know about the moths that occur in the geographical area involved in the present research. On the contrary, much taxonomic work remains to be done, especially in the microlepidoptera. New species remain to be described and monographic work is needed to straighten out certain species complexes. Barcoding is currently being done on members of some of the problem areas and this may help (<http://www.barcodinglife.com/views/login.php>). A major problem is that there simply are not enough taxonomists to do the work, also that there is not enough government funding to hire taxonomists and to curate the museums that house the insect collections where voucher and study specimens are kept. Groups where taxonomic work is needed, and those working on them, include the following.

Incurvariidae – *Lampronia*, *Cauchas* (Dr. Donald Davis)

Lyonetiidae – *Lyonetia* (Dr. Donald Davis)

Gelechiidae – many genera including *Aroga* (no one is currently studying these)

Coleophoridae – *Coleophora* (Dr. Jean-François Landry)

Tortricidae – *Acleris* (Dr. P. T. Dang), *Sonia* (Dr. Don Wright), *Pelochrista* (Dr. Don Wright), *Eucosma* (Dr. Don Wright), *Olethreutes* (no one is currently working on this genus)

Cochylidae – several genera (Drs. Eric Metzler and John Brown)

Crambidae – *Pediasia* (no one is currently working on the species of this group)

Pterophoridae – several genera (Doug Macaulay)