

**Survey of the Lepidoptera Fauna from the Holmes  
Crossing Sandhills Ecological Reserve, the Fort  
Assiniboine Sandhills Wildland Park, and Nearby Areas**  
**(Research & Collection Permit #RC05WC002)**

**Prepared for:**  
**Alberta Natural Heritage Information Centre**  
**Parks and Protected Areas Division**  
**Alberta Community Development**

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**December 2006**



Figure 1. Author chasing an elusive butterfly in a sedge fen at Holmes Crossing Sandhills Ecological Reserve. (Photo by Stacy Macaulay).



Figure 2. *Enargia decolor* moths feeding at beer bait at the staging area in Holmes Crossing Sandhills Ecological Reserve.

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## INTRODUCTION

The Holmes Crossing Sandhills Ecological Reserve (ER) is 8 km southwest and the Fort Assiniboine Sandhills Wildland Provincial Park (WPP) is 9 km east of Fort Assiniboine; both are located within the Central Mixedwood Subregion (Government of Alberta 2005). Holmes Crossing Sandhills ER occupies 1982 hectares and Fort Assiniboine WPP occupies 7903 ha. The latter area was the focus of a Lepidoptera survey in 2005.

Both areas contain a number of vegetated transverse sand dunes dominated by stands of jack pine. Other habitats include aspen forest, dry meadows, fens, marshes, bogs and a series of riparian balsam poplar and alder forests. The purpose of this survey was to provide an annotated summary of the Lepidoptera species that occur in these areas, including notes on such parameters as relative abundance, distribution patterns, range extensions and any other relevant biological or behavioral information. This information contributes towards an increased understanding of the Lepidoptera fauna found in this region and in Alberta.



Figure 3. Open meadow surrounded by jack pine forest at site 12.

## METHODS

The Lepidoptera survey was conducted within Holmes Crossing Sandhills ER between April and September 2004 although Lepidoptera collecting has occurred in this area since 1990. Specimen data from these previous excursions is also included in this report.

Specimens were collected via hand netting during daylight hours and at dusk. At night, specimens were collected at a sheet illuminated by a 175-Watt mercury vapor light powered by a portable generator, and in two 25-Watt 12V DC battery-powered ultraviolet light traps. Attempts were made to sample as many habitats as possible. The following main habitat types were sampled: larch fen (LF), black spruce bog (SB), riparian forest composed of balsam poplar, alder and willow (RF), aspen forest (AF), jack pine forest (PF), sandy slopes that are basically open sand with forbs and grasses (SS) and sedge meadows with patches of willow (SM). Coordinates for all the collection sites are listed in Table 1.

**Table 1: Habitats and locations of collection sites in or near Holmes Crossing Sandhills ER and Fort Assiniboine Sandhills WPP** (see Appendix 3 & 4 for locality maps).

Site #	Habitat	Location	Coordinates (decimal degrees)	
			°N	°W
	Holmes Crossing Sandhills ER & the Fort Assiniboine Sandhills WPP			
1	LF	larch fen	54.26587	-114.85259
2	SS	grassy meadow on south-facing sandy slope	54.27260	-114.82485
3	RF	riparian forest, balsam poplar & jack pine	54.27263	-114.82369
4	PF	jack pine forest overlooking sandy slope	54.27510	-114.82475
5	SS	grassy meadow on south-facing sandy slope	54.27621	-114.82785
6	PF	jack pine forest at the base of sandy slope	54.27624	-114.82649
7	SM	sedge meadow	54.28101	-114.85430
8	SM	sedge meadow	54.28282	-114.85277
9	PF	jack pine overlooking sandy slope	54.29307	-114.87082
10	PF	open jack pine forest near staging area	54.29403	-114.86665
11	PF	open jack pine forest	54.29409	-114.86433
12	PF	open jack pine forest	54.29861	-114.83606
13	SM	sedge meadow with willows	54.29983	-114.85384
14	PF	open jack pine forest	54.30000	-114.80000
15	PF & AF	open jack pine forest with aspen	54.30085	-114.83335
16	LF, PF	open jack pine forest beside fen	54.30104	-114.82843
17	LF & SB	larch fen with intermixed black spruce	54.30107	-114.82727
18	PF & SB	open jack pine forest beside spruce bog	54.30253	-114.79694
19	PF	open jack pine forest	54.30303	-114.81249
20	RF	steep slope with aspen overlooking creek	54.30744	-114.78161
21	AF	aspen forest with birch & jack pine	54.35497	-114.64607

Collected specimens were identified using Covell (1984), Handfield (1999), Heinrich (1923, 1926), Rockburne and Lafontaine (1976), McGuffin (1977), Lafontaine and Poole (1991), Lafontaine (1998), and Schmidt (2000). In addition, several pertinent taxonomic publications were used, including the reference collections possessed by the Canadian Forest Service at the Northern Forestry Centre, and the Strickland Museum at the University of Alberta. Members of the Alberta Lepidopterists' Guild were also consulted. The MONA numbers shown for each species in Appendix 1 and 2 are taken from Hodges *et al.* (1983). Many of the voucher specimens from this survey have been deposited at the Northern Forestry Centre and the Strickland Museum.



Figure 4. Wolf willow in meadow surrounded by aspen and jack pine forest at site 15.

## RESULTS

A total of 863 Lepidoptera specimens, belonging to 33 families and 444 species, were collected in or near Holmes Crossing Sandhills ER and Fort Assiniboine Sandhills WPP. Of the 444 species, 49 were butterflies, 320 were macro-moths and 75 were micro-moths (Appendix 1). An additional 14 species are expected to occur here but were not collected (Appendix 2). Out of the entire list there were 15 rare and 19 uncommon species. Appendix 3 and 4 illustrates the location of collection sites.

## DISCUSSION

### Taxa of Particular Interest

The following is an annotated list of some of the significant species' records for Holmes Crossing Sandhills ER and Fort Assiniboine Sandhills WPP that are of particular note or interest. For each species discussed, brief comments are included about their relative abundance, collection location, range extensions, and any other relevant biological or behavioral information.

#### A. Butterflies:

Range and biological information is from Bird *et al.* (1995) and Layberry *et al.* (1998). Nomenclature follows that of Layberry *et al.* (1998).

#### Hesperiidae

*Poanes hobomok* – A rare species that is currently ranked S2 by the Alberta Natural Heritage Information Centre (ANHIC). There are 16 other documented records in Alberta, many of which are from Edmonton and Elk Point. There is a single record from Waskatenau. Last summer, in 2006, I netted one specimen at site 14 near Holmes Crossing ER. This is the most western record for this species in Alberta and Canada and is 200 km west of the closest documented population.

#### Lycaenidae

*Lycaeides idas scudderii* – An uncommon species often collected in jack pine or lodgepole pine forests. Three specimens were collected near Holmes Crossing ER, at sites 3 and 14. The first two specimens were collected in June of 1992 and the other in June 2006. This species was not collected in Fort Assiniboine Sandhills WPP.

#### B. Macro-moths:

Range and biological information is from Bowman (1951), McGugan (1958), Prentice (1962, 1963), and Tuskes *et al.* (1996), except as noted.



Figure 5. Larch fen near pond at site 17.

### Geometridae

*Macaria andersoni* - This uncommon species is found in the foothills and boreal forests of Alberta. It has been collected in Calgary, High River, Nordegg, and Sundre as well as in La Butte Creek, Fidler/Greywillow, Birch Mountains, and Caribou Mountains WPPs. Three specimens were collected in Holmes Crossing ER, one in a willow-dominated fen and the other in a larch-dominated fen.

*Aspitates taylorae* - An uncommon species that occurs locally in open peat bogs of northern Alberta. This species was added recently to the provincial fauna and there are only a few known localities: Caribou Mountains WPP, Zama City, Birch Mountains WPP, and Calling Lake (Schmidt 2003, Schmidt *et al.* 2004). A single specimen was netted in a larch fen (site 17) near Holmes Crossing ER.

### Sphingidae

*Hemaris gracilis* – This is one of the rarest sphinx species in Alberta and seems to be extremely localized. There are only two other known localities in the province: (a) at the Embarras Airstrip near Richardson River Dunes WPP, and (b) 11 km south of Empress. A single specimen was collected near Holmes Crossing ER at site 14 in open jack pine forest. I visited this spot again in June 2006 but did not observe the species.

### Notodontidae

*Gluphisia avimacula* - This is another rather rare species that is at the edge of its western range. The three other known localities are: Sir Winston Churchill Provincial Park, Barrhead, and Lac La Biche (20-30 km E Touchwood Lake Road). Three specimens were collected in Holmes Crossing ER (at site 11) and a single specimen from the staging area at Fort Assiniboine Sandhills WPP (at site 21). All specimens were collected in UV traps.

### Arctiidae

*Dodia* species near *albertae* – One specimen was collected at the base of a stabilized dune amongst a stand of pine and alder located adjacent to Holmes Crossing ER (at site 6). This location had numerous patches of blueberry that may be a host for this species. *Dodia* sp. nr. *albertae* was also collected in Alberta from the Caribou Mountains (three specimens) and from Harlan, Saskatchewan that is near Lloydminster (one specimen). The species has yet to be described.



Figure 6. Photo of *Dodia* species near *albertae* taken the morning after its capture in a UV trap.

*Grammia speciosa* - This uncommon localized species is rarely collected in Alberta. It usually occurs in peatland habitats (bogs, fens) of the boreal forest. Five specimens were collected in Holmes Crossing ER, all from peatlands (i.e., larch fen, black spruce bog).

### Noctuidae

*Syngrapha microgamma* – Another uncommon species collected from spruce bogs where its host, Labrador tea, grows. Two specimens were collected in a larch fen at Holmes Crossing ER – one was netted in July and the other was captured in a UV trap in June. The five other Alberta localities are Rocky Mountain House (27 km NW at Chambers Creek Recreation Area), Olds, Nordegg, Red Deer and Fidler-Greywillow Wildland Park.

*Baileya ophthalmica* – This uncommon moth is found throughout the province where birch, its host, is found. One specimen was collected in a UV trap at Holmes Crossing ER in jack pine forest. The five other localities are Winfield, Big Knife Provincial Park, Edmonton, Wagner Fen Natural Area, and the Ministik Hills.



Figure 7. Black spruce bog near site 17.

*Feralia major* – Two specimens were collected in a jack pine forest at Holmes Crossing ER on a warm April night by an MV sheet trap at site 9. This rare species is known from only two other localities in Alberta – Redwater and Gainford. Specimens at these two locations were also collected in pine forests.

*Brachionycha borealis* – Another rare Alberta species, though more populations are being discovered every year. Six specimens were collected – three from Fort Assiniboine Sandhills WPP and the other three from Holmes Crossing ER using an MV sheet trap. These are the two most western populations in Canada. This species is known from five other localities in Alberta: Big Knife Provincial Park, McKenzie Crossing (13 km W of Big Valley), Edmonton, Red Deer, and Devon.

*Trichordestra rugosa* – A rare species known only from one other locality in Alberta – the Wagner Fen Natural Area west of Edmonton. The six specimens from Holmes Crossing ER were collected with UV traps in a larch fen.

*Trichordestra tacoma* – This is uncommon species known only from a few other localities in Alberta: Peace River, Crowsnest Pass (Island Lake), Edmonton, Tolman Bridge, Calgary and Pocahontas. In this survey, four specimens were collected in Holmes Crossing ER near sandy south-facing slopes.



Figure 8. Shrub area at base of dune surrounded by jack pine forest where *Dodia* species near *albertae* was collected (site 6).

*Lasionycta taigata* - This boreal species is rarely collected in Alberta. In Holmes Crossing ER, many specimens were collected from a larch fen. This species occurs in peatland habitats throughout the boreal region and is known only from two other localities – Calling Lake and Birch Mountains Wildland Park.

*Euxoa sinelinea* - This boreal species is rarely collected in Alberta. In Holmes Crossing ER, four specimens were collected on a south-facing open meadow of a vegetated sand dune. A fifth specimen was collected in a larch fen not far from a similar dune habitat. This species seems to be a sand dune species since other Alberta collection localities were in jack pine/sand dune habitats – near Redwater and on the sandy shores of Fidler Point in Fidler-Greywillow Wildland Park.

*Hemipachnobia monochromatea* - A rare Alberta species known only from one other location in the province – Wagner Fen Natural Area. This species feeds on sundew and is collected in fens that contain its host plant: sundew. Five specimens were collected from a larch fen in Holmes Crossing ER.



Figure 9. Kinnikinnick in flower on May 28<sup>th</sup> at Holmes Crossing Sandhills ER.

*Xestia atrata* - This boreal species is rarely collected in Alberta. In Holmes Crossing ER, this species was collected only once over a period of ten years. The single specimen was collected in a UV trap in a spruce bog. The species occurs in peatland habitats throughout the boreal region and is known only from five other localities: Nordegg, Red Deer, Bearberry, Zama City, and Birch Mountains Wildland Park.

*Abagrotis brunneipennis* - Three specimens were collected in sandy jack pine forests in Holmes Crossing ER. It is a rare species found in only two other Alberta localities: (a) jack pine stands on sand dunes near Redwater, and (b) 130 km N of Fort MacKay along the winter road.

*Schinia florida* - A rare species in Alberta. The two specimens collected in Holmes Crossing ER were hand-collected at dusk from the flower heads of their host – evening primrose. There are five other known Alberta localities for this species: Nevis, Buffalo Lake Conservation Area, Edmonton, Rosebud, and Redwater.

### C. Micro-moths:

Range and biological information is from Bowman (1951) and Prentice (1965), except as noted.

#### **Hepialidae**

*Korscheltellus gracilis* – A rather uncommon species across Alberta, usually collected in spruce bogs. Five specimens were collected at sites 15 and 18 in a UV trap set in black spruce bogs near Holmes Crossing ER. There are three other documented localities for this species in Alberta: Zama, Edmonton and Pigeon Lake.

## **Yponomeutidae**

*Swammerdamia caesiella* – A transboreal and holarctic species that is uncommon in Alberta. Two specimens were collected in a larch fen near site 17 just outside of Holmes Crossing ER. Previously, this species was documented as only existing in Edmonton so the two records from near site 17 extend its range westward about 200 km.

## **Tortricidae**

*Ancylis mediofasciana* – An uncommon species found in jack pine forests. Previously, this species was known from four other localities in Alberta: J. J. Collett Natural Area, Red Deer, Edmonton, and Big Knife Provincial Park. One specimen was netted near site 14 in open jack pine forest.

*Sparganothis reticulatana* - An uncommon boreal species. One specimen was collected near Holmes Crossing ER in a dry jack pine forest near site 14. There are documented records of this species from Lethbridge, Dry Island Buffalo Jump Provincial Park, Buffalo Lake Conservation Area, Big Knife Provincial Park, Lowden Springs Natural Area, and Edmonton. The record from Holmes Crossing ER extends the species' known range about 200 km to the northwest.

## **Crambidae**

*Parapoynx maculalis* – An uncommon and localized species. It feeds on water plants and perhaps because of the difficulties associated with collecting in its preferred habitat, it is rarely collected. One specimen was collected in a dry jack pine forest near site 14 just outside of Holmes Crossing ER. Previous documented localities are from Edmonton and in the Buffalo Lake Conservation Area. The record from the Holmes Crossing ER area extends the known range of this species about 200 km northwest.

*Crambus ainslieellus* - This species is rare in Alberta. Two specimens were collected in the Holmes Crossing ER area – one from site 10 and one from site 21. These records are 500 km west of the closest other population, near Lloydminster. The species is thought to feed on grasses. Both specimens from the Holmes Crossing ER area were collected in open jack pine forest where grasses occur.

*Catoptria trichostoma* - This uncommon species occurs in coniferous forests in the subarctic and boreal regions of Canada. Four specimens were collected at sites 14, 17 and 18 near Holmes Crossing ER. Specimens were collected in MV and UV traps placed in or near a black spruce bog. There are three other known Alberta localities for this species: Birch Mountains, Nordegg and Banff.

*Pediasia truncatella* - This species is rare in Alberta. It is a localized species found only in bogs where its host plant, *Sphagnum*, grows. Two specimens were collected in a larch fen at site 17 near Holmes Crossing ER. This species is known from six other localities in Alberta: Banff, Olds, Nordegg, Wagner Natural Area, Calgary and Red Deer.

## **Pterophoridae**

*Geina tenuidactyla* – Prior to this survey, this uncommon species was known only from Peace River WPP and near Winfield. During this survey, a single specimen was collected at Holmes Crossing ER. Two other specimens were collected in 2006 from Peace River WPP in a patch of dogbane, where large numbers of this species were observed nectaring at dogbane flowers.

## **SUMMARY AND CONCLUSIONS**

A total of 444 Lepidoptera species were found during the surveys at Holmes Crossing Sandhills Ecological Reserve and Fort Assiniboine Sandhills Wildland Park. This number represents 49 butterfly, 320 macro-moth and 75 micro-moth species. These records include one species that possibly represents a new species for science (*Dodia* sp. nr. *albertae*). Most species in the area were common and have wide distributions across Canada but the survey did find 15 rare and 19 uncommon species.

## **ACKNOWLEDGEMENTS**

This report would not have been possible without the assistance of members of the Alberta Lepidopterists' Guild, particularly Charles Bird, Chris Schmidt, Gary Anweiler, Greg Pohl, Jean-François Landry, Jason Dombroskie, and Wayne Nordstrom. Ksenija Vujnovic and Wayne Nordstrom helped acquire permits for the area. Wendy Proudfoot created the maps used in the report. Thanks to Chris Schmidt and Gary Anweiler who helped with many of the identifications and confirmations of the macromoths. Greg Pohl identified and supplied biological information for some of the microlepidoptera and Charles Bird identified the Crambidae. Jean-François Landry and Jason Dombroskie supplied some biological and range information on the rare and uncommon microlepidoptera. I would also like to thank my wife, Sherri Macaulay, and my parents Allan and Karen for their support and for accompanying me on those late nights. Thanks to Felix Sperling, staff and volunteers who were responsible for the development of the virtual website associated with the E.H. Strickland Entomological Museum at the University of Alberta. That website was used extensively in the development of this report.

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Appendix 1. List of species collected in Holmes Crossing Sandhills Ecological Reserve and Fort Assiniboine Sandhills Wildland Provincial Park. (\*Scarcity rankings: C = common, U = uncommon, R = rare).

Scarcity*	MONA#	Family	Species	Museum
C	19.00	Hepialidae	<i>Sthenopis purpurascens</i> (Pack.)	
C	29.00	Hepialidae	<i>Gazorycta noviganna</i> (B.; Benj.)	
U	31.00	Hepialidae	<i>Korscheltellus gracilis</i> (Grt.)	
C	399.00	Tineidae	<i>Tinea irrepta</i> Braun	Specimen at CFS
C	415.00	Tineidae	<i>Monopis laevigella</i> (D. & S.)	Specimen at CFS
C	421.00	Tineidae	<i>Monopis spilotella</i> Tengström	Specimen at CFS
C	639.00	Gracillariidae	<i>Caloptilia stigmatella</i> (F.)	
C	889.00	Oecophoridae	<i>Agonopterix argillacea</i> (Wlsm.)	
A	908.00	Oecophoridae	<i>Depressariodes ciniflonella</i> (Lienig & Zell.)	
C	911.00	Oecophoridae	<i>Bibarrambla allenella</i> (Wlsm.)	
C	1058.00	Oecophoridae	<i>Polix coloradella</i> (Wlsm.)	
C	1387.00	Coleophoridae	<i>Coleophora mayrella</i> (Hbn.)	
C	1388.00	Coleophoridae	<i>Coleophora trifolii</i> (Curt.)	
??	1397.90	Coleophoridae	<i>Coleophora</i> sp.	
??	1833.90	Gelechiidae	<i>Coleotechnites</i> sp.	
R	1875.00	Gelechiidae	<i>Xenolechia aethiops</i> (Humph. & Westwood)	
C	2069.11	Gelechiidae	<i>Chionodes sattleri</i> Hodges	
C	2365.00	Plutellidae	<i>Plutella vanella</i> Wlsm.	
C	2371.00	Ypsolophidae	<i>Ypsolopa canariella</i> (Wlsm.)	
C	2380.00	Ypsolophidae	<i>Ypsolopa falciferella</i> (Wlsm.)	
U	2413.00	Yponomeutidae	<i>Swammerdamia caesiella</i> (Hbn.)	
C	2427.00	Yponomeutidae	<i>Zelleria haimbachii</i> Bsk.	
C	2474.00	Yponomeutidae	<i>Argyresthia pygmaeella</i> (Hbn.)	
C	2484.90	Yponomeutidae	<i>Argyresthia</i> sp.	
C	2651.00	Choreutidae	<i>Choreutis diana</i> Hübner	
C	2675.00	Cossidae	<i>Acossus centerensis</i> (Lint.)	
C	2839.00	Tortricidae	<i>Olethreutes metallicana</i> (Hübner)	
C	2956.00	Tortricidae	<i>Phaneta tarandana</i> (Möschler)	
C	2956.00	Tortricidae	<i>Phaneta</i> sp. nr. <i>tarandana</i> (Möschler)	
C	3116.00	Tortricidae	<i>Eucosma dorsisignatana</i> (Clemens)	
C	3382.00	Tortricidae	<i>Ancylis unguicella</i> (Linnaeus)	
U	3384.00	Tortricidae	<i>Ancylis mediofasciana</i> (Clemens)	
C	3486.00	Tortricidae	<i>Cydia toreuta</i> (Grote)	
C	3531.00	Tortricidae	<i>Acleris hastiana</i> (Linnaeus)	
C	3533.00	Tortricidae	<i>Acleris celiana</i> (Robinson)	
C	3548.00	Tortricidae	<i>Acleris variana</i> (Fernald)	Specimen at CFS
C	3565.00	Tortricidae	<i>Eulia ministrana</i> (L.)	
C	3568.00	Tortricidae	<i>Eana argentana</i> (Clerck)	
C	3594.00	Tortricidae	<i>Pandemis limitata</i> (Robinson)	Specimen at CFS
C	3625.00	Tortricidae	<i>Argyrotaenia mariana</i> (Fernald)	
A	3637.00	Tortricidae	<i>Choristoneura conflictana</i> (Wlk.)	
C	3648.00	Tortricidae	<i>Archips argyrospila</i> (Walker)	Specimen at CFS
C	3684.00	Tortricidae	<i>Clepsis clemensiana</i> (Fernald)	
U	3720.00	Tortricidae	<i>Sparganothis reticulatana</i> (Clemens)	
C	3740.00	Tortricidae	<i>Platynota idaeusalis</i> (Walker)	
C	3910.00	Hesperiidae	<i>Thorybes pylades</i> <i>pylades</i> (Scudder)	
A	3945.00	Hesperiidae	<i>Erynnis icelus</i> (Scudder)	
C	3982.00	Hesperiidae	<i>Carterocephalus palaemon</i> <i>mandan</i> (Edw.)	
C	4012.00	Hesperiidae	<i>Thymelicus lineola</i> (Ochs.)	
R	4041.00	Hesperiidae	<i>Polites themistocles</i> (Latreille)	
R	4059.00	Hesperiidae	<i>Poanes hobomok</i> <i>hobomok</i> (Harr.)	

<b>Scarcity*</b>	<b>MONA#</b>	<b>Family</b>	<b>Species</b>	<b>Museum</b>
C	4105.00	Hesperiidae	Amblyscirtes vialis (W. H. Edw.)	
A	4176.10	Papilionidae	Papilio canadensis canadensis Roth.	
C	4195.30	Pieridae	Pieris oleracea oleracea Harr.	
A	4200.00	Pieridae	Euchloe ausonides ausonides (Lucas)	
C	4209.00	Pieridae	Colias philodice philodice God.	
A	4220.00	Pieridae	Colias interior Scudder	
C	4222.00	Pieridae	Colias gigantea gigantea Stkr.	
C	4261.00	Lycaenidae	Lycaena dorcas florus (Edw.)	
C	4262.00	Lycaenidae	Lycaena heliooides (Bdv.)	
C	4280.10	Lycaenidae	Satyrium titus immaculosus (Comstock)	
A	4322.00	Lycaenidae	Callophrys augustinus augustinus (Westwood)	
A	4324.00	Lycaenidae	Callophrys polia obscura (Ferris)	
A	4328.00	Lycaenidae	Callophrys niphon clarki (Freeman)	
C	4362.00	Lycaenidae	Everes amyntula albrighti Clench	
A	4363.00	Lycaenidae	Celastrina landon lucia (Kby.)	
C	4372.00	Lycaenidae	Glauopsyche lygadamus couperi Grote	
U	4374.00	Lycaenidae	Lycaeides idas scudderii (Edw.)	
C	4376.00	Lycaenidae	Plebejus saepiolus amica (Edw.)	
C	4384.00	Lycaenidae	Agriades glandon rusticus (Edw.)	
C	4423.00	Nymphalidae	Polygonia faunus hylas (Edw.)	
C	4429.00	Nymphalidae	Polygonia progne (Cram.)	
C	4432.00	Nymphalidae	Nymphalis antiopa antiopa (L.)	
C	4433.00	Nymphalidae	Aglais milberti milberti (Godt.)	
U	4447.00	Nymphalidae	Euptoieta claudia (Cram.)	
C	4451.00	Nymphalidae	Speyeria aphrodite manitoba (F. & R. Chermock)	
C	4459.00	Nymphalidae	Speyeria atlantis hollandi (Chemock)	
C	4459.10	Nymphalidae	Speyeria hesperis lais (W. H. Edw.)	
C	4463.00	Nymphalidae	Boloria eunomia dawsoni (B. & McD.)	
C	4464.00	Nymphalidae	Boloria selene atrocostalis (Huard)	
C	4465.00	Nymphalidae	Boloria bellona jenistorum (Fabricius)	
C	4466.00	Nymphalidae	Boloria frigga saga (Staud.)	
A	4471.00	Nymphalidae	Boloria freija freija (Thunb.)	
A	4475.00	Nymphalidae	Boloria chariclea grandis (B. & McD.)	
C	4481.10	Nymphalidae	Phyciodes cocyta (Cram.)	
C	4482.00	Nymphalidae	Phyciodes batesii lakota Scott.	
C	4522.00	Nymphalidae	Limenitis arthemis rubrofasciata (Drury)	
C	4583.00	Nymphalidae	Coenonympha tullia benjamini McD.	
C	4587.00	Nymphalidae	Cercyonis pegala ino Hall	
C	4593.10	Nymphalidae	Erebia mancinus Dbldy.	
C	4596.00	Nymphalidae	Erebia discoidalis discoidalis (W. Kirby)	
C	4599.00	Nymphalidae	Erebia epipsodea freemani P. Ehrlich	
C	4605.00	Nymphalidae	Oeneis macounii (W.H. Edw.)	
C	4611.00	Nymphalidae	Oeneis jutta ridingiana F. & R.	
C	4716.00	Crambidae	Scoparia biplagialis Walker	Specimen at CFS
U	4759.00	Crambidae	Parapoxyn maculalis (Clemens)	
C	4935.00	Crambidae	Saucrobotys fumoferalis (Hulst)	
C	4951.00	Crambidae	Perispasta caeculalis Zeller	
C	4953.00	Crambidae	Phlyctaenia coronata (Hufnagel)	
U	4956.00	Crambidae	Nealgedonia extricalis (Gn.)	
C	4957.00	Crambidae	Mutuuria mysippusalis (Wlk.)	
C	5016.00	Crambidae	Loxostege commixtalis (Wlk.)	
C	5060.11	Crambidae	Pyrausta borealis Packard	
C	5099.00	Crambidae	Udea itysalis (Walker)	Specimen at CFS
C	5128.00	Crambidae	Choristostigma plumbosignalis (Fernald)	Specimen at CFS
C	5137.00	Crambidae	Mecyna mustelinalis (Pack.)	
C	5142.00	Crambidae	Diacme elealis (Wlk.)	

Scarcity*	MONA#	Family	Species	Museum
C	5299.31	Crambidae	<i>Algedonia ephemerella</i> (D. & S.)	Specimen at CFS
A	5343.00	Crambidae	<i>Crambus perlellus</i> (Scopoli)	
C	5347.00	Crambidae	<i>Crambus awemellus</i> McD.	
R	5354.00	Crambidae	<i>Crambus ainsliellus</i> Klots	
A	5391.00	Crambidae	<i>Chrysoteuchia topiaria</i> (Zell.)	
C	5399.00	Crambidae	<i>Agriphila ruricolella</i> (Zeller)	
U	5406.00	Crambidae	<i>Catoptria trichostoma</i> (Christoph)	
C	5408.00	Crambidae	<i>Catoptria latiradiella</i> (Wlk.)	
R	5411.00	Crambidae	<i>Pediasia truncatella</i> (Zetterstedt)	
C	5416.00	Crambidae	<i>Pediasia abnaki</i> (Klots)	
C	5417.00	Crambidae	<i>Pediasia dorsipunctella</i> (Kearfott)	
C	5605.00	Pyralidae	<i>Pococera aplastella</i> (Hulst)	
C	5718.00	Pyralidae	<i>Myelopsis subtetricella</i> (Ragonot)	
U	6092.00	Pterophoridae	<i>Geina tenuidactyla</i> (Fitch)	
C	6118.00	Pterophoridae	<i>Amblyptilia pica</i> (Walsingham)	
C	6170.00	Pterophoridae	<i>Oidaematophorus phaceliae</i> McDunnough	
C	6192.00	Pterophoridae	<i>Hellinsia brucei</i> (Fernald)	
C	6235.00	Thyatiridae	<i>Habrosyne scripta</i> (Gosse)	
C	6237.00	Thyatiridae	<i>Pseudothyatira cymatophoroides</i> (Gn.)	
C	6248.00	Thyatiridae	<i>Ceranemota albertae</i> Clarke	
C	6251.00	Drepanidae	<i>Drepana arcuata</i> Wlk.	
C	6252.00	Drepanidae	<i>Drepana bilineata</i> (Pack.)	
C	6256.00	Geometridae	<i>Archiearis infans</i> (Moesch.)	
U	6280.00	Geometridae	<i>Macaria andersoni</i> (Swett.)	
C	6283.00	Geometridae	<i>Macaria sulphurea</i> (Pack.)	
C	6286.00	Geometridae	<i>Macaria brunneata</i> (Thunb.)	
C	6287.00	Geometridae	<i>Macaria anataria</i> (Swett)	
C	6290.00	Geometridae	<i>Macaria loricaria</i> (Evers.)	
C	6292.00	Geometridae	<i>Macaria exauspicata</i> (Wlk.)	
C	6326.00	Geometridae	<i>Macaria aemulataria</i> (Wlk.)	
C	6330.00	Geometridae	<i>Macaria ulsterata</i> (Pears.)	
C	6341.00	Geometridae	<i>Macaria bicolorata</i> (Fab.)	
C	6343.00	Geometridae	<i>Macaria sexmaculata</i> (Pack.)	
C	6344.00	Geometridae	<i>Macaria signaria</i> (Hbn.)	
C	6351.00	Geometridae	<i>Macaria oweni</i> (Swett)	
C	6394.00	Geometridae	<i>Digrammia rippertaria</i> (Duponchel)	
C	6588.00	Geometridae	<i>Iridopsis larvaria</i> (Gn.)	
C	6597.00	Geometridae	<i>Ectropis crepuscularia</i> ([D.; S.])	
C	6598.00	Geometridae	<i>Protoboarmia porcelaria</i> (Gn.)	
C	6637.00	Geometridae	<i>Eufidonia convergaria</i> (Wlk.)	
C	6639.00	Geometridae	<i>Eufidonia discospilata</i> (Wlk.)	
C	6640.00	Geometridae	<i>Biston betularia</i> (L.)	
C	6651.00	Geometridae	<i>Lycia ursaria</i> (Wlk.)	
C	6665.00	Geometridae	<i>Erannis tiliaria</i> (Harr.)	
C	6666.00	Geometridae	<i>Lomographa semiclarata</i> (Wlk.)	
C	6677.00	Geometridae	<i>Cabera erythema</i> Gn.	
C	6678.00	Geometridae	<i>Cabera variolaria</i> Gn.	
U	6719.00	Geometridae	<i>Aspitates taylorae</i> (Butler)	
C	6726.00	Geometridae	<i>Euchlaena obtusaria</i> (Hbn.)	
C	6731.00	Geometridae	<i>Euchlaena madusaria</i> (Wlk.)	
C	6734.00	Geometridae	<i>Euchlaena marginaria</i> (Minot.)	
C	6737.00	Geometridae	<i>Euchlaena tigrinaria</i> (Gn.)	
C	6740.00	Geometridae	<i>Xanthotype urticaria</i> Swett	
C	6743.00	Geometridae	<i>Xanthotype sospeta</i> (Drury)	
C	6755.00	Geometridae	<i>Pero Morrisonaria</i> (Hy. Edw.)	
C	6796.00	Geometridae	<i>Campaea perlata</i> (Gn.)	
C	6798.00	Geometridae	<i>Ennomos magnaria</i> Gn.	

Scarcity*	MONA#	Family	Species	Museum
C	6799.00	Geometridae	<i>Spodolepis substriataria</i> (Hulst.)	
C	6818.00	Geometridae	<i>Selenia alciphearia</i> Wlk.	
C	6819.00	Geometridae	<i>Metanema inatomaria</i> Gn.	
C	6820.00	Geometridae	<i>Metanema determinata</i> Wlk.	
C	6822.00	Geometridae	<i>Metanema duaria</i> (Gn.)	
C	6837.00	Geometridae	<i>Probola alienaria</i> H. - S.	
C	6842.00	Geometridae	<i>Plagodis phlogosaria</i> (Gn.)	
C	6863.00	Geometridae	<i>Caripeta divisata</i> Wlk.	
C	6867.00	Geometridae	<i>Caripeta angustiorata</i> Wlk.	
C	6885.00	Geometridae	<i>Besma quercivoraria</i> (Gn.)	
C	6888.00	Geometridae	<i>Lambdina fiscellaria</i> (Gn.)	
C	6898.00	Geometridae	<i>Cingilia catenaria</i> (Drury)	
C	6912.00	Geometridae	<i>Sicya macularia</i> (Harr.)	
C	6954.00	Geometridae	<i>Synaxis jubaria</i> (Hulst.)	
C	6963.00	Geometridae	<i>Tetracis crocallata</i> Gn.	
C	6982.00	Geometridae	<i>Prochoerodes transversata</i> (Drury)	
C	7009.00	Geometridae	<i>Nematocampa limbata</i> (Haw.)	
C	7009.00	Geometridae	<i>Nematocampa resistaria</i> (H. - S.)	
C	7058.00	Geometridae	<i>Synchlora aerata</i> (F.)	
C	7085.00	Geometridae	<i>Mesothea incerata</i> (Wlk.)	
C	7139.00	Geometridae	<i>Cyclophora pendulinaria</i> (Gn.)	
C	7159.00	Geometridae	<i>Scopula limboundata</i> (Haw.)	
C	7162.00	Geometridae	<i>Scopula ancillata</i> (Hulst)	
C	7166.00	Geometridae	<i>Scopula frigidaria</i> (Mosch.)	
C	7182.00	Geometridae	<i>Dysstroma truncata</i> (Hufn.)	
C	7185.00	Geometridae	<i>Dysstroma suspectata</i> (Mosch.)	
C	7188.00	Geometridae	<i>Dysstroma walkerata</i> (Pears.)	
C	7199.00	Geometridae	<i>Eulithis propulsata</i> (Wlk.)	
C	7201.00	Geometridae	<i>Eulithis testata</i> (L.)	
C	7205.00	Geometridae	<i>Eulithis flavibrunneata</i> (McD.)	
C	7206.00	Geometridae	<i>Eulithis explanata</i> (Wlk.)	
C	7207.00	Geometridae	<i>Eulithis xylinea</i> (Hulst.)	
C	7210.00	Geometridae	<i>Eustroma semiatrata</i> (Hulst)	
C	7213.00	Geometridae	<i>Ecliptopera silacea</i> ([D.; S.])	
C	7216.00	Geometridae	<i>Plemyria georgii</i> Hulst	
C	7236.00	Geometridae	<i>Hydriomena renuciata</i> (Wlk.)	
C	7237.00	Geometridae	<i>Hydriomena transfigurata</i> Swett.	
C	7254.00	Geometridae	<i>Hydriomena ruberata</i> (Frey.)	
C	7257.00	Geometridae	<i>Hydriomena furcata</i> (Thun.)	
C	7264.00	Geometridae	<i>Hydriomena morosata</i> B. & McD.	
C	7291.00	Geometridae	<i>Hydria undulata</i> (L.)	
C	7293.00	Geometridae	<i>Rheumaptera hasta</i> (L.)	
C	7308.00	Geometridae	<i>Mesoleuca gratulata</i> (Wlk.)	
C	7313.00	Geometridae	<i>Spargania luctuata</i> ([D.; S.])	
C	7329.00	Geometridae	<i>Anticlea vasiliana</i> Gn.	
C	7330.00	Geometridae	<i>Anticlea multiferata</i> (Wlk.)	
C	7370.00	Geometridae	<i>Xanthorhoe abrasaria</i> (H. - S.)	
C	7371.00	Geometridae	<i>Xanthorhoe iduata</i> (Gn.)	
C	7384.00	Geometridae	<i>Xanthorhoe munitata</i> (Hbn.)	
C	7390.00	Geometridae	<i>Xanthorhoe lacustrata</i> (Gn.)	
C	7395.00	Geometridae	<i>Epirrhoe plebeculata</i> (Gn.)	
C	7399.00	Geometridae	<i>Euphyia unangulata</i> (Haw.)	
C	7406.00	Geometridae	<i>Zenophleps lignicolorata</i> (Pack.)	
C	7423.00	Geometridae	<i>Hydrelia albifera</i> (Wlk.)	
C	7425.00	Geometridae	<i>Venusia cambrica</i> Curt.	
C	7437.00	Geometridae	<i>Operophtera bruceata</i> (Hulst.)	
C	7445.00	Geometridae	<i>Horsime intestinata</i> (Gn.)	

Scarcity*	MONA#	Family	Species	Museum
C	7533.00	Geometridae	Eupithecia ravocastaliata Pack.	
C	7543.00	Geometridae	Eupithecia annulata (Hulst.)	
C	7554.10	Geometridae	Eupithecia assimilata Dbly.	
C	7639.00	Geometridae	Cladara atroliturata (Wlk.)	
C	7640.00	Geometridae	Lobophora nivigerata (Wlk.)	
C	7650.00	Uraniidae	Callizzia amorata Pack.	
C	7687.00	Lasiocampidae	Phyllodesma americanum (Harr.)	
A	7698.00	Lasiocampidae	Malacosoma disstria Hbn.	
C	7757.00	Saturniidae	Antheraea polyphemus (Cram.)	
C	7769.00	Saturniidae	Hyalophora columbia gloveri (Stkr.)	
C	7810.10	Sphingidae	Sphinx poecila Steph.	
C	7821.00	Sphingidae	Smerinthus jamaicensis (Drury)	
C	7822.00	Sphingidae	Smerinthus cerisyi Kby.	
C	7824.00	Sphingidae	Paonias exaecatus (J.E. Sm.)	
C	7828.00	Sphingidae	Pachysphinx modesta (Harr.)	
R	7854.00	Sphingidae	Hemaris gracilis (G; R.)	
C	7855.00	Sphingidae	Hemaris diffinis (Bdv.)	
C	7895.00	Notodontidae	Closteria albosigma Fitch	
C	7900.00	Notodontidae	Closteria brucei (Hy. Edw.)	
C	7901.00	Notodontidae	Closteria apicalis (Wlk.)	
C	7915.00	Notodontidae	Nadata gibbosa (J.E. Sm.)	
C	7922.00	Notodontidae	Pheosia rimosa Pack.	
C	7924.00	Notodontidae	Odontosia elegans (Stkr.)	
C	7926.00	Notodontidae	Notodonta scitipennis Wlk.	
C	7931.00	Notodontidae	Glaphisia septentrionis Wlk.	
R	7933.00	Notodontidae	Glaphisia avimacula Hudson	
C	7934.00	Notodontidae	Glaphisia lintneri (Grt.)	
C	7941.00	Notodontidae	Furcula modesta (Hudson)	
C	8007.00	Notodontidae	Schizura unicornis (J.E. Sm.)	
C	8011.00	Notodontidae	Schizura leptinoides (Grt.)	
C	8037.00	Arctiidae	Gnophaelia vermiculata (Grt.)	
C	8043.00	Arctiidae	Eilema bicolor (Grote)	
C	8051.00	Arctiidae	Crambidia casta (Pack.)	
C	8089.00	Arctiidae	Hypoprepia miniata (Kby.)	
C	8098.00	Arctiidae	Clemensia albata Pack.	
C	8111.00	Arctiidae	Haploa lecontei (G.-M.)	
C	8125.00	Arctiidae	Holomelina ferruginosa (Wlk.)	
R	8128.00	Arctiidae	Dodia sp. nr. albertae	
C	8131.00	Arctiidae	Spilosoma congrua Wlk.	
C	8137.00	Arctiidae	Spilosoma virginica (F.)	
C	8158.00	Arctiidae	Phragmatobia assimilans Wlk.	
C	8162.00	Arctiidae	Platarctia parthenos (Harr.)	
U	8175.00	Arctiidae	Grammia speciosa (Mosch.)	
A	8186.00	Arctiidae	Grammia williamsii (Dodge)	
C	8196.00	Arctiidae	Grammia parthenice (W. Kirby)	
C	8197.00	Arctiidae	Grammia virgo (L.)	
C	8214.00	Arctiidae	Lophocampa maculata Harr.	
C	8267.00	Arctiidae	Cisseps fulvicollis (Hbn.)	
C	8306.00	Lymantriidae	Dasychia grisefacta (Dyar.)	
C	8323.00	Noctuidae	Idia aemula (Gn.)	
C	8323.10	Noctuidae	Idia sp. nr. aemula	
C	8353.00	Noctuidae	Zanclognatha bryanti (Barnes)	
C	8354.00	Noctuidae	Zanclognatha latalba (Sm.)	
C	8356.00	Noctuidae	Chytolita petrealis Grt.	
C	8359.00	Noctuidae	Macrochilo bivittata (Grt.)	
C	8413.00	Noctuidae	Mycterophora inexplicata (Wlk.)	
C	8450.00	Noctuidae	Bomolocha atomaria Sm.	

<b>Scarcity*</b>	<b>MONA#</b>	<b>Family</b>	<b>Species</b>	<b>Museum</b>
C	8452.00	Noctuidae	Bomolocha edictalis (Wlk.)	
C	8461.00	Noctuidae	Hypena humuli Harr.	
C	8555.00	Noctuidae	Scoliopteryx libatrix (L.)	
C	8703.00	Noctuidae	Zale duplicata (Bethune)	
C	8738.00	Noctuidae	Caenurgina crassiuscula (Haw.)	
C	8803.00	Erebidae	Catocala relicta Wlk.	
C	8805.00	Erebidae	Catocala unijuga Wlk.	
C	8807.00	Erebidae	Catocala briseis Edw.	
C	8821.00	Erebidae	Catocala semirelicta Grt.	
C	8865.00	Erebidae	Catocala blandula Hulst.	
C	8899.00	Noctuidae	Pseudeva purpurigera (Wlk.)	
C	8904.00	Noctuidae	Chrysanymphe formosa (Grt.)	
C	8914.00	Noctuidae	Autographa californica (Speyer)	
C	8919.00	Noctuidae	Autographa mappa (G.; R.)	
C	8923.00	Noctuidae	Autographa ampla (Wlk.)	
C	8929.00	Noctuidae	Syngrapha viridisigma (Grt.)	
C	8939.00	Noctuidae	Syngrapha alias (Ottol.)	
U	8946.00	Noctuidae	Syngrapha microgamma (Hbn.)	
U	8970.00	Nolidae	Baileya ophthalmica (Gn.)	
C	8975.00	Nolidae	Nycteola frigidana (Wlk.)	
C	8977.00	Nolidae	Nycteola cinereana S. & D.	
C	9046.00	Noctuidae	Deltote bellicula Hbn.	
C	9048.00	Noctuidae	Lithacodia albidula (Gn.)	
C	9177.00	Noctuidae	Panthea acronyctoides (Wlk.)	
C	9183.00	Noctuidae	Panthea pallescens McD.	
C	9203.00	Noctuidae	Acronicta dactylina Grt.	
C	9206.00	Noctuidae	Acronicta vulpina (Grt.)	
C	9212.00	Noctuidae	Acronicta grisea Wlk.	
C	9226.00	Noctuidae	Acronicta superans Gn.	
C	9229.00	Noctuidae	Acronicta hasta Gn.	
C	9241.00	Noctuidae	Acronicta fragilis (Gn.)	
C	9257.00	Noctuidae	Acronicta impleta Wlk.	
C	9261.00	Noctuidae	Acronicta impressa Wlk.	
C	9272.00	Noctuidae	Acronicta oblinita (J.E. Sm.)	
C	9286.00	Noctuidae	Harrisimemna trisignata (Wlk.)	
C	9359.00	Noctuidae	Apamea commoda (Wlk.)	
C	9369.00	Noctuidae	Apamea infcta (Wlk.)	
C	9381.00	Noctuidae	Resapamea passer (Gn.)	
C	9382.00	Noctuidae	Apamea devestator (Brace)	
C	9394.00	Noctuidae	Apamea contradicta (Sm.)	
C	9396.00	Noctuidae	Eremobina claudens (Wlk.)	
C	9419.00	Noctuidae	Oligia mactata (Gn.)	
C	9420.00	Noctuidae	Oligia illocata (Wlk.)	
C	9431.00	Noctuidae	Parastichtis suspecta (Hbn.)	
C	9437.00	Noctuidae	Chortodes inquinata (Gn.)	
C	9453.00	Noctuidae	Celaena reniformis (Grt.)	
C	9457.00	Noctuidae	Amphipoea americana (Speyer)	
C	9547.00	Noctuidae	Phlogophora periculosa Gn.	
C	9549.00	Noctuidae	Enargia decolor (Wlk.)	
C	9550.00	Noctuidae	Enargia infumata (Grt.)	
C	9555.00	Noctuidae	Ipmorpha pleonectusa Grt.	
C	9556.00	Noctuidae	Chytonix palliatricula (Gn.)	
C	9564.00	Noctuidae	Andropolia contacta (Wlk.)	
C	9578.10	Noctuidae	Hyppa contrasta McD.	
C	9647.00	Noctuidae	Proxenus miranda (Grt.)	
C	9656.00	Noctuidae	Caradrina montana (Grt.)	
C	9873.00	Noctuidae	Xylena nupera (Lint.)	

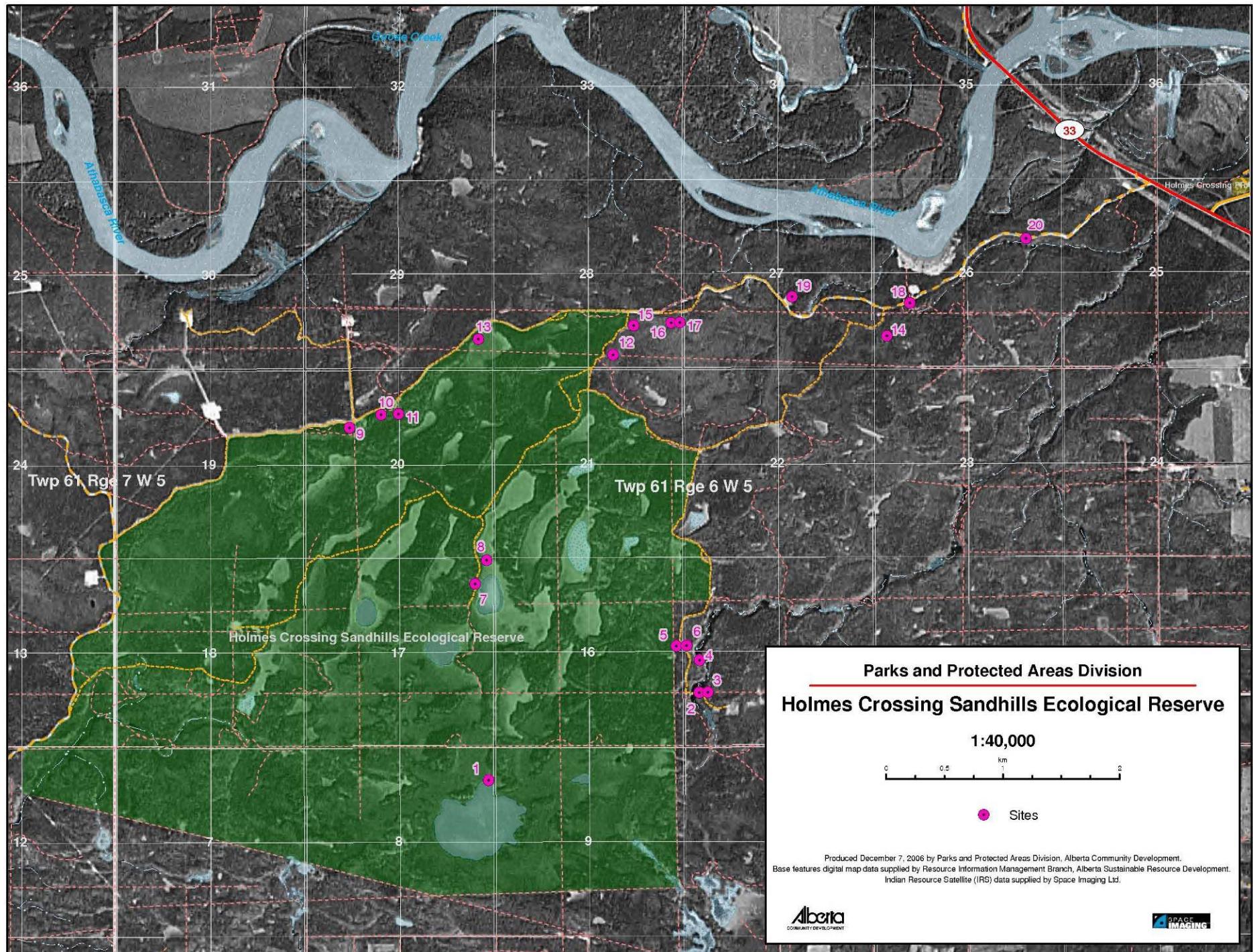
Scarcity*	MONA#	Family	Species	Museum
C	9874.00	Noctuidae	<i>Xylena curvimacula</i> (Morr.)	
C	9875.00	Noctuidae	<i>Xylena thoracica</i> (Putnam-Cramer)	
C	9881.00	Noctuidae	<i>Homoglaea hircina</i> Morr.	
C	9884.00	Noctuidae	<i>Litholomia napea</i> (Morr.)	
C	9888.00	Noctuidae	<i>Lithophane innomoinata</i> (Sm.)	
C	9889.00	Noctuidae	<i>Lithophane petulca</i> Grt.	
C	9891.00	Noctuidae	<i>Lithophane amanda</i> (Sm.)	
C	9909.00	Noctuidae	<i>Lithophane tepida</i> Grt.	
C	9913.00	Noctuidae	<i>Lithophane georgii</i> Grt.	
C	9917.00	Noctuidae	<i>Lithophane fagina</i> Morr.	
C	9922.00	Noctuidae	<i>Lithophane pexata</i> Grt.	
C	9928.00	Noctuidae	<i>Lithophane thaxteri</i> Grt.	
C	9935.00	Noctuidae	<i>Eupsilia tristigmata</i> (Grt.)	
C	9952.00	Noctuidae	<i>Eucirroedia pampina</i> (Gn.)	
C	9960.00	Noctuidae	<i>Sunira verberata</i> (Sm.)	
C	9965.00	Noctuidae	<i>Xanthia tatago</i> Laf. & Mikkola	
C	9967.00	Noctuidae	<i>Hillia iris</i> (Zett.)	
C	9976.00	Noctuidae	<i>Platypolia anceps</i> (Steph.)	
C	9980.00	Noctuidae	<i>Xylotype arcadia</i> B. & Benj.	
C	9988.00	Noctuidae	<i>Mniotype tenera</i> (Sm.)	
C	9998.00	Noctuidae	<i>Brachylomia algens</i> (Grt.)	
C	9999.00	Noctuidae	<i>Brachylomia discinigra</i> (Wlk.)	
C	10005.00	Noctuidae	<i>Feralia jocosa</i> (Gn.)	
R	10007.00	Noctuidae	<i>Feralia major</i> Sm.	
C	10008.00	Noctuidae	<i>Feralia comstocki</i> (Grt.)	
R	10011.00	Noctuidae	<i>Brachionycha borealis</i> (Sm.)	
C	10055.00	Noctuidae	<i>Apharetra dentata</i> (Grt.)	
C	10059.00	Noctuidae	<i>Homohadena badistriga</i> (Gn.)	
C	10065.00	Noctuidae	<i>Homohadena infixa</i> (Wlk.)	
C	10223.00	Noctuidae	<i>Discestra trifolii</i> (Hufn.)	
C	10268.00	Noctuidae	<i>Sideridis maryx</i> (Gn.)	
C	10272.00	Noctuidae	<i>Mamestrra curialis</i> (Sm.)	
C	10275.00	Noctuidae	<i>Polia nimbosa</i> (Gn.)	
C	10276.00	Noctuidae	<i>Polia imbrifera</i> (Gn.)	
C	10277.00	Noctuidae	<i>Polia rogenhoferi</i> (Mosch.)	
C	10289.00	Noctuidae	<i>Orthodes goodelli</i> (Grt.)	
C	10290.00	Noctuidae	<i>Polia obscura</i> (Sm.)	
C	10292.00	Noctuidae	<i>Melanchra adjuncta</i> (Bdv.)	
C	10294.00	Noctuidae	<i>Melanchra pulvivalenta</i> (Sm.)	
C	10298.00	Noctuidae	<i>Lacanobia radix</i> (Wlk.)	
C	10301.00	Noctuidae	<i>Spiramater lutra</i> (Gn.)	
R	10302.00	Noctuidae	<i>Trichordestra rugosa</i> Morr.	
U	10303.00	Noctuidae	<i>Trichordestra tacoma</i> (Stkr.)	
C	10308.00	Noctuidae	<i>Trichordestra liquida</i> (Grt.)	
C	10316.00	Noctuidae	<i>Lasionycta secedens</i> (Wlk.)	
C	10332.00	Noctuidae	<i>Coranarta luteola</i> Grt.; Rob.	
U	10362.10	Noctuidae	<i>Lasionycta taigata</i> Lafontaine	
C	10372.00	Noctuidae	<i>Lacinipolia anguina</i> (Grt.)	
C	10394.00	Noctuidae	<i>Lacinipolia vicina</i> (Grt.)	
C	10397.00	Noctuidae	<i>Lacinipolia renigera</i> (Steph.)	
C	10405.00	Noctuidae	<i>Lacinipolia lorea</i> (Gn.)	
C	10406.00	Noctuidae	<i>Lacinipolia olivacea</i> (Morr.)	
C	10436.00	Noctuidae	<i>Mythimna oxygala</i> (Grt.)	
C	10446.00	Noctuidae	<i>Leucania multilinea</i> Wlk.	
C	10449.00	Noctuidae	<i>Leucania insueta</i> Gn.	
C	10490.00	Noctuidae	<i>Orthosia revicta</i> (Morr.)	
C	10493.00	Noctuidae	<i>Orthosia segregata</i> (Sm.)	

Scarcity*	MONA#	Family	Species	Museum
C	10495.00	Noctuidae	<i>Orthosia hibisci</i> (Gn.)	
C	10524.00	Noctuidae	<i>Nephelodes minians</i> Gn.	
C	10563.00	Noctuidae	<i>Protorthodes oviduca</i> (Gn.)	
C	10641.00	Noctuidae	<i>Agrotis vetusta</i> Wlk.	
C	10651.00	Noctuidae	<i>Agrotis venerabilis</i> Wlk.	
C	10660.00	Noctuidae	<i>Agrotis obliqua</i> (Sm.)	
C	10670.00	Noctuidae	<i>Feltia jaculifera</i> (Gn.)	
C	10698.20	Noctuidae	<i>Feltia mollis</i> (Wlk.)	
C	10702.00	Noctuidae	<i>Euxoa divergens</i> (Wlk.)	
U	10703.00	Noctuidae	<i>Euxoa sinelinea</i> Hdwk.	
C	10714.00	Noctuidae	<i>Euxoa quebecensis</i> (Sm.)	
C	10738.00	Noctuidae	<i>Euxoa mimallonis</i> (Grt.)	
C	10749.00	Noctuidae	<i>Euxoa intrita</i> (Morr.)	
C	10755.00	Noctuidae	<i>Euxoa declarata</i> (Wlk.)	
C	10756.00	Noctuidae	<i>Euxoa campestris</i> (Grt.)	
C	10807.00	Noctuidae	<i>Euxoa albipennis</i> (Gn.)	
C	10817.00	Noctuidae	<i>Euxoa obeliscoides</i> (Gn.)	
C	10826.10	Noctuidae	<i>Euxoa castanea</i> Laf.	
C	10838.00	Noctuidae	<i>Euxoa detersa</i> (Wlk.)	
C	10854.00	Noctuidae	<i>Euxoa servita</i> (Sm.)	
C	10861.00	Noctuidae	<i>Euxoa ridingsiana</i> (Grt.)	
C	10865.00	Noctuidae	<i>Euxoa perpolita</i> (Morr.)	
C	10891.00	Noctuidae	<i>Ochropleura implecta</i> Laf.	
C	10917.00	Noctuidae	<i>Diarsia rubifera</i> (Grt.)	
C	10921.00	Noctuidae	<i>Diarsia rosaria</i> (Grt.)	
C	10924.00	Noctuidae	<i>Actebia fennica</i> (Tauscher)	
C	10926.00	Noctuidae	<i>Spaelotis clandestina</i> (Harr.)	
C	10929.00	Noctuidae	<i>Eurois occulta</i> (L.)	
C	10930.00	Noctuidae	<i>Eurois astricta</i> Morr.	
C	10942.00	Noctuidae	<i>Xestia c-nigrum</i> (L.)	
C	10944.00	Noctuidae	<i>Xestia smithii</i> (Snellen)	
C	10947.00	Noctuidae	<i>Xestia oblata</i> (Morr.)	
C	10951.00	Noctuidae	<i>Pseudohermonassa tenuicula</i> (Morr.)	
C	10954.00	Noctuidae	<i>Agnorisma bugrai</i> (Kocak)	
R	10957.00	Noctuidae	<i>Xestia atrata</i> (Morr.)	
C	10959.00	Noctuidae	<i>Xestia mixta</i> (Wlk.)	
C	10962.00	Noctuidae	<i>Xestia perquiritata</i> (Morr.)	
C	10964.00	Noctuidae	<i>Xestia homogena</i> (McD.)	
C	10965.00	Noctuidae	<i>Xestia imperita</i> (Hbn.)	
C	10968.10	Noctuidae	<i>Xestia praevia</i> Laf.	
C	10988.00	Noctuidae	<i>Coenophila opacifrons</i> (Grt.)	
C	10992.00	Noctuidae	<i>Paradiarsia littoralis</i> (Pack.)	
R	10993.00	Noctuidae	<i>Hemipachnobia monochromatea</i> (Morr.)	
C	10996.00	Noctuidae	<i>Cerastis salicarum</i> (Wlk.)	
C	10999.00	Noctuidae	<i>Aplectoides condita</i> (Gn.)	
C	11000.00	Noctuidae	<i>Anaplectoides prasina</i> ([D.; S.])	
C	11004.00	Noctuidae	<i>Protolampra rufipectus</i> (Morr.)	
U	11010.00	Noctuidae	<i>Lycophotia phyllophora</i> (Grt.)	
C	11041.00	Noctuidae	<i>Abagrotis placida</i> (Grt.)	
R	11044.00	Noctuidae	<i>Abagrotis brunneipennis</i> (Grt.)	
C	11051.00	Noctuidae	<i>Ufeus satyricus</i> Grt.	
R	11164.00	Noctuidae	<i>Schinia florida</i> (Gn.)	

Appendix 2. Species expected for the area in or near Holmes Crossing Sandhills Ecological Reserve and Fort Assiniboine Sandhills Wildland Provincial Park.

<b>Expected Species (no specimens yet collected)</b>			
Scarcity	MONA#	Family	Species
C	3961.00	Hesperiidae	<i>Erynnis persius fredricki</i> Free.
C	4020.20	Hesperiidae	<i>Hesperia comma manitoba</i> (Scudder)
C	4036.00	Hesperiidae	<i>Polites peckius</i> (Kby.)
C	4048.00	Hesperiidae	<i>Polites mystic mystic</i> (Edw.)
C	4194.00	Pieridae	<i>Pontia occidentalis occidentalis</i> (Reak.)
C	4197.00	Pieridae	<i>Pieris rapae</i> (L.)
C	4383.00	Lycaenidae	<i>Albulina optilete yukona</i> (Holland)
C	4422.00	Nymphalidae	<i>Polygonia satyrus</i> (Edw.)
C	4430.00	Nymphalidae	<i>Nymphalis vau-album</i> (Esper)
C	4435.00	Nymphalidae	<i>Vanessa cardui</i> (L.)
C	4437.00	Nymphalidae	<i>Vanessa atalanta rubria</i> (Fruhstorfer)
C	4523.00	Nymphalidae	<i>Limenitis archippus archippus</i> (Cram.)
C	7853.00	Sphingidae	<i>Hemaris thysbe</i> (F.)
C	7893.00	Sphingidae	<i>Hyles galli</i> (Rott.)

Appendix 3. Collection sites in or near Holmes Crossing Sandhills Ecological Reserve.



Appendix 4. Collection site in Fort Assiniboine Sandhills Wildland Provincial Park.

