# Moths and Butterflies (Lepidoptera) of the Boreal Mixedwood Forest near Lac La Biche, Alberta, Including New Provincial Records

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Lepidoptera were collected, primarily via UV light trap, for three seasons in the boreal mixedwood forest near Lac La Biche, Alberta. A total of 11 111 specimens were collected, representing 41 families and 438 species. A species list with flight times is presented. The total Lepidoptera community was estimated to be 546 ±23.34 species. Abundance and species richness peaked in late July. Thirty-five species constitute new records for Alberta, while one species, *Acanthopteroctetes bimaculata*, is a new record for Canada, and the first record of the family Acanthopteroctetidae in Canada.

Key Words: Moths, butterflies, Lepidoptera, Lac La Biche, Alberta, flight times, *Acanthopteroctetes bimaculata,* new to Canada.

Alberta is blessed with an abundance and variety of forested lands. A large portion of the province is covered by the boreal mixedwood (Figure 1) dominated by Trembling Aspen (*Populus tremuloides*), Balsam Poplar (*P. balsamifera*), and White Spruce (*Picea glauca*) and containing lesser amounts of White Birch (*Betula papyrifera*), Balsam Fir (*Abies balsamea*), and other species (Beckingham and Archibald 1996). Over the last 15 years Trembling Aspen has increased greatly in value as a commercial tree species and there has been a large increase in forestry activity centered on this resource. A large portion of Alberta's aspen mixedwood forest is now scheduled for harvesting over the next 30-40 years (Pratt and Urquhart 1994). It is a major concern that our knowledge of these forests is relatively poor and there is little empirical basis for predicting the impacts of harvesting and other development on non-timber values such as biodiversity.

In an effort to obtain baseline data for assessing impacts of forestry practices on biodiversity, and to determine whether old aspen stands in mixedwood forests contain unique species, a multi-agency team of scientists studied the structure and composition of biotic assemblages in aspen-dominated forests of various ages in the vicinity of Lac La Biche, Alberta, between 1993 and 1995. This work is among the most comprehensive biotic inventories in aspen forests in the province. Lists of plants, birds, amphibians, and mammals have been published by Stelfox (1995) and those of ground-dwelling beetles and dead wood-inhabiting beetles by Spence et al. (1997) and Hammond (1997), respectively. As part of that study, butterflies and moths were also sampled. This represents the first concerted effort to inventory Lepidoptera, especially moths, in aspen forests in western Canada. Lepidoptera constitute a major component of boreal forest biodiversity (Danks and Foottit 1989), and are important herbivores and pollinators (Scoble 1992). The abundance of new provincial records among micromoths (defined here as the primitive and monotrysian groups, and the lower ditrysian superfamilies up to and including the Pyraloidea and Thyridoidea sensu Kristensen 1999) indicates how poorly sampled these groups have been. The attached checklist and flight times provide baseline information for comparison to other studies and to aid in future research.

## Materials and Methods

The study area (Figure 1) is located in Lakeland Provincial Park near Touchwood Lake, east of Lac La Biche (54°51'N, 111°27'W) in the Central Mixedwood subregion of the Boreal Forest Natural Region (Beckingham and Archibald 1996). Lepidoptera were sampled in two stands: a 65-year-old ("mature") stand of 269 Ha, containing 83% cover of Trembling Aspen, 15% Balsam Poplar, 2% willow (*Salix* spp.), and 1% White Birch, and a stand over 130 years old ("old") of 148 Ha, containing 54% cover of Trembling Aspen, 32% White Birch, 11% Balsam Poplar, and 3% willow. An inventory of vascular plants found around these study sites is included in the lists published by Stelfox (1995). Both stands were of fire origin, and were largely undisturbed by humans. The mature stand is considered to be of rotation age and the old stand is much

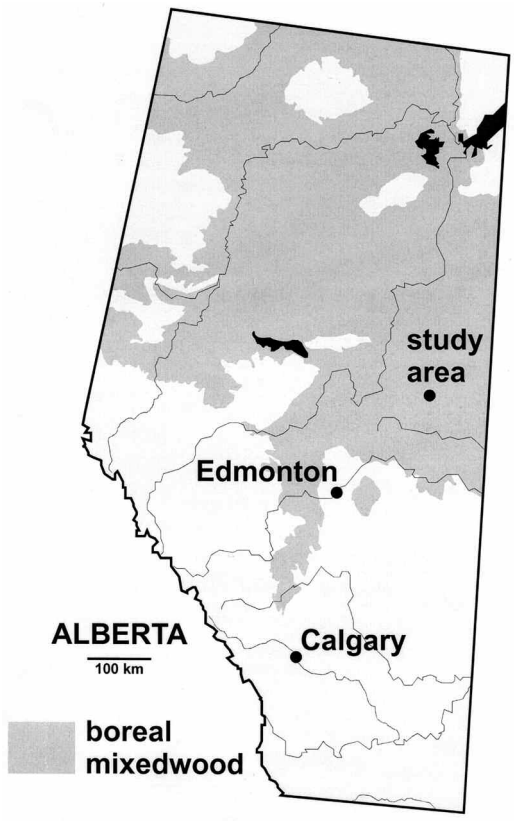


FIGURE 1. Extent of the boreal mixed wood ecoregion in Alberta and location of the study area.

older than the planned stand rotation age (60-70 years) for Alberta aspen forests. A comparison between these two stands, based on the light trap catches of Lepidoptera described here, has been done elsewhere (Pohl et al. 2004).

Two 30 watt UV traps were run in each stand, from dusk to dawn for one night approximately every two weeks, from 16 June to 16 September in 1993, 3 May to 5 October in 1994, and 28 May to 28 August in 1995. Traps were hung at approximately 1.6 m from the ground, and activated from dusk until dawn. These samples were augmented by periodic hand collecting at portable UV lights, and a small amount of net collecting of day-flying species. Specimens were identified using a wide array of taxonomic publications, and by comparing to specimens in the Canadian Forest Service's Northern Forestry Centre Research Collection (NFRC) in Edmonton, Alberta, and the Canadian National Collection (CNC) in Ottawa, Ontario. Voucher specimens have been deposited at the NFRC and CNC.

To obtain an estimate of the total size of the Lepidoptera community in the study area, a Chao-1 estimate of diversity (Chao and Lee 1992) was calculated as described by Colwell and Coddington (1994).

TABLE 1. Abundance and diversity of three groups of Lepidoptera collected near Touchwood Lake, Alberta. Butterflies include the superfamilies Hesperioidea and Papilionoidea; macro-moths include the superfamilies Lasiocampoidea, Bombycoidea, Drepanoidea, Geometroidea, and Noctuoidea; micro-moths comprise all other superfamilies.

| Group | Number of Specimens (Proportion) | | Number of Species (Proportion) | |
|---|---|---|---|---|
| micro-moths | 3897 | (0.350) | 201 | (0.470) |
| macro-moths | 7163 | (0.643) | 229 | (0.523) |
| butterflies | 51 | (0.005) | 8 | (0.018) |
| total | 11 111 | | 438 | |

## Results

A total of 11 111 specimens were collected, representing 41 families and 438 species (Table 1). A list of all species collected appears in Table 2. Some species, particularly micro-moths, are identified here merely as morphospecies, reflecting the lack of knowledge of the group, and the difficulty in making species identifications. Examples of some of the micro-moth species collected appear in Figure 2; some of the macro-moths are illustrated in Figures 3 and 4. The Chao-1 calculation estimated the total size of the Lepidoptera community in the study area to be 546 ± 23.34.

The 1994 data is examined in detail here, since it was the most extensively sampled year and there were no trap failures. In 1994, both abundance (Figure 5) and species richness (Figure 6) peaked dramatically in late July. A major flush of Noctuidae occurred in late July, with the highest species richness occurring throughout July and into early August. There were modest peaks of noctuid species that overwinter as adults, in early May and mid-September. The Geometridae and other macro-moths peaked slightly earlier than the Noctuidae, exhibiting maximum abundance in early July, and the greatest richness from mid-June to late July. The abundance of micro-moths peaked in late July, although most of this dramatic peak was a single species, *Scoparia biplagialis*, with 846 specimens. The greatest micro-moth richness occurred throughout July. More modest peaks in micro-moth abundance and richness occurred in mid-June and mid-September.

## Discussion

This study likely did not collect all the species present in the study area; the Chao-1 estimator suggests that approximately 110 species were missed. Many of these are undoubtedly species that are not easily sampled via light traps. For example, the amount of effort spent collecting butterflies and day-flying moths was minimal and many of these taxa were likely missed.

TABLE 2. List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| Acanthopteroctetidae | *Acanthopteroctetes bimaculata* | Davis | 4 | early June |
| Hepialidae | *Korscheltellus gracilis* | (Grote) | | mid July |
| Nepticulidae | *Stigmella* species[1] | | 1 | late July |
| Adelidae | *Adela purpurea* | Walker | | mid May |
| Prodoxidae | *Greya politella* | (Walsingham) | 2 | late May |
| Tineidae | *Nemapogon acapnopennella* | (Clemens) | 4 | late June – mid July |
| | *Nemapogon* species near *acapnopennella* | (Clemens) | 2 | mid July |
| | *Nemapogon roburella* | (Dietz) | 2 | late June |
| | *Homosetia fasciella* | (Chambers) | 4 | mid July |
| | *Niditinea orleansella* | (Chambers) | 4 | mid July – early August |
| | *Monopis spilotella* | Tengström | | mid July – early August |
| | *Monopis laevigella* | (Denis & Schiffermüller) | 2 | late June – late July |
| Bucculatricidae | *Bucculatrix canadensisella* | Chambers | | mid July |
| | *Bucculatrix* species[1] | | 1 | late July |
| | *Bucculatrix* species[2] | | 1 | early June |
| Gracillariidae | *Caloptilia alnivorella* | (Chambers) | | mid May – mid September |
| | *Caloptilia anthobaphes* | (Meyrick) | 4 | mid June – mid July |
| | *Caloptilia betulivora* | McDunnough | 4 | mid May – mid September |
| | *Caloptilia canadensisella* | (McDunnough) | 4 | late June |
| | *Caloptilia coroniella* | (Clemens) | 4 | early June |
| | *Caloptilia stigmatella* | (Fabricius) | 4 | mid May – mid September |
| | *Parectopa pennsylvaniella* | (Engel) | 2 | late June – early July |
| | *Parornix conspicuella* | (Dietz) | 2 | early June – late July |
| | *Acrocercops astericola* | (Frey & Boll) | 2 | late June |
| | "*Acrocercops*" new species[1] | | 3 | late August |
| | *Protolithocolletis lathyri* | Braun | 4 | early June – late August |
| | *Phyllonorycter martiella* | (Braun) | 4 | late July |
| | *Phyllonorycter* species[1] | | 1 | mid June – mid July |
| Yponomeutidae | *Swammerdamia caesiella* | (Hübner) | | mid June – late June |
| | *Euhyponomeutoides gracilariella* | (Busck) | | mid May – early June |
| | *Argyresthia abies* | Freeman | 4 | late June |
| | *Argyresthia conjugella* | Zeller | | mid June – late June |
| | *Argyresthia goedartella* | (Linnaeus) | | mid July – late July |
| | *Argyresthia oreasella* | Clemens | | mid July – late August |
| | *Argyresthia pygmaeella* | (Hübner) | | late June – late July |
| | *Argyresthia* species[1] | | 1 | mid June – late June |
| | *Argyresthia* species[2] | | 1 | mid June – mid July |
| | *Argyresthia* species[3] | | 1 | late June – late July |

TABLE 2. *(continued)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

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|---|---|---|---|---|
| Ypsolophidae | *Ypsolopha canariella* | (Walsingham) | | mid July – early August |
| | *Ypsolopha dentiferella* | (Walsingham) | 4 | late August |
| Plutellidae | *Rhigognostis interrupta* | (Walsingham) | | late May |
| | *Plutella xylostella* | (Linnaeus) | | late July |
| Lyonetiidae | *Lyonetia prunifoliella* | Hübner | | mid July |
| Elachistidae | *Agonopterix gelidella* | (Busck) | | early August |
| | *Depressariodes ciniflonella* | (Leinig & Zeller) | | mid May – early August |
| | *Bibarrambla allenella* | (Walsingham) | | early June – late June |
| | *Semioscopis inornata* | Walsingham | | mid May |
| | *Nites betulella* | (Busck) | | early August – late August |
| | *Elachista adempta* | Braun | 2 | mid July – early August |
| | *Elachista albicapitella* | Engel | 2 | late July |
| | *Elachista* species[1] | | 1 | late May |
| | *Blastodacna curvilineella* | (Chambers) | 4 | early June |
| Oecophoridae | *Polix coloradella* | (Walsingham) | | late July |
| Batrachedridae | *Batrachedra praeangusta* | (Haworth) | | mid July – late July |
| Coleophoridae | *Coleophora pruniella* | Clemens | | mid June – late July |
| | *Coleophora persimplexella* | McDunnough | 4 | mid June – late June |
| | *Coleophora corylifoliella* | Clemens | 4 | late July |
| | *Coleophora alnifoliae* | Barasch | 4 | mid June – late July |
| | *Coleophora comptoniella* | (McDunnough) | 4 | late June – mid July |
| | *Coleophora rosaevorella* | McDunnough | 4 | late June – mid July |
| | *Coleophora mcdunnoughiella* | Oudejans | 4 | mid June – late June |
| | *Coleophora duplicis* | Braun | 4 | late July – early August |
| | *Coleophora dextrella* | Braun | 4 | mid July – late July |
| | *Coleophora glaucicolella* | Wood | 4 | late June – late July |
| | *Coleophora mayrella* | (Hübner) | | mid July |
| | *Coleophora* new species[1] | | 3 | late July |
| | *Coleophora* new species[2] | | 3 | mid May – late July |
| | *Coleophora* new species[3] | | 3 | late July |
| | *Mompha albapalpella* | (Chambers) | 2 | late July |
| | *Mompha terminella* | (Westwood) | 4 | mid June – mid July |
| | *Mompha* species[1] | | 1 | mid June – late June |
| | *Mompha* species[2] | | 1 | late June |
| | *Mompha* species[3] | | 1 | mid June – late June |
| | *Hypatopa titanella* | McDunnough | 2 | mid July – late July |
| | *Asaphocrita* species[1] | | 1 | mid June – late June |

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|---|---|---|---|---|
| Cosmopterigidae | *Limnaecia phragmitella* | Stainton | 4 | early August |
| Gelechiidae | *Coleotechnites atrupictella* | (Dietz) | 2 | early August |
| | *Coleotechnites blastivora* | (McLeod) | 4 | mid May – early June |
| | *Coleotechnites florae* | (Freeman) | | early May |
| | *Coleotechnites piceaella* | (Kearfott) | | mid July |
| | *Sinoe* new species[1] | | 3 | mid May – late July |
| | *Neotelphusa praefixa* | (Braun) | | mid July – early August |
| | *Xenolechia aethiops* | (Humphreys & Westwood) | | early May – mid June |
| | "*Stenolechia*" species[1] | | 1 | late July |
| | *Teleiodes proximella* | Hübner | 2 | early June – late June |
| | *Bryotropha* species[1] | | 1 | late June – late July |
| | *Gelechia dyarella* | Busck | 4 | early August – mid September |
| | *Gelechia lynceella* | Zeller | 4 | mid July – late July |
| | *Gnorimoschema septentrionella* | Fyles | 4 | late August |
| | *Gnorimoschema* species near *vastificum* | Braun | 2 | late July |
| | *Chionodes continuella* | (Zeller) | | mid July |
| | *Chionodes sattleri* | Hodges | | early August |
| | *Chionodes lugubrella* | (Fabricius) | | mid June – early August |
| | *Chionodes mediofuscella* | (Clemens) | | late May – mid July |
| | *Chionodes occlusus* | (Braun) | | late June – late July |
| | *Chionodes psilopterus* | (Barnes & Busck) | | late June – early August |
| | *Chionodes terminimaculella* | (Kearfott) | | mid May – early August |
| | *Filatima abactella* | (Clarke) | 2 | late May – late June |
| | *Syncopacma* species[1] | | 1 | late July |
| | *Anacampsis conclusella* | (Walker) | 4 | late June – late July |
| | *Helcystogramma fernaldella* | (Busck) | | mid June |
| | *Dichomeris levisella* | (Fyles) | | late July – early August |
| Cossidae | *Acossus centerensis* | (Lintner) | | late June – early August |
| | *Acossus populi* | (Walker) | | late June – late July |
| | *Prionoxystus robiniae* | (Peck) | | mid July |
| Tortricidae – Tortricinae | *Acleris albicomana* | (Clemens) | | late July |
| | *Acleris obligatoria* | Park & Razowski | | mid May – late May |
| | *Acleris forbesana* | (McDunnough) | | mid June |
| | *Acleris schalleriana* | (Linnaeus) | | late August – mid September |
| | *Acleris celiana* | (Robinson) | | early June |
| | *Acleris britannia* | Kearfott | | early August – mid September |
| | *Acleris logiana* | (Clerck) | | early June |
| | *Acleris variana* | (Fernald) | | late July – early August |

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|---|---|---|---|---|
| | *Acleris nigrolinea* | (Robinson) | | late August – early June |
| | *Acleris emargana* | (Fabricius) | | mid September |
| | *Cochylis nana* | (Haworth) | | late June |
| | *Aethes promptana* | (Robinson) | 4 | late July – early August |
| | *Eulia ministrana* | (Linnaeus) | | mid June |
| | *Sparganothis xanthoides* | (Walker) | | early August |
| | *Sparganothis reticulatana* | (Clemens) | | early August |
| | *Sparganothis* species[1] | | 1 | late July |
| | *Platynota idaeusalis* | (Walker) | | mid July – late August |
| | *Pandemis canadana* | Kearfott | | mid July – early August |
| | *Choristoneura rosaceana* | (Harris) | | late July – early August |
| | *Choristoneura albaniana* | (Walker) | | late May |
| | *Choristoneura conflictana* | (Walker) | | late June – mid July |
| | *Choristoneura fumiferana* | (Clemens) | | mid July |
| | *Archips argyrospila* | (Walker) | | mid July – late July |
| | *Syndemis afflictana* | (Walker) | | late May |
| | *Clepsis persicana* | (Fitch) | | late June – early August |
| | *Clepsis clemensiana* | (Fernald) | | late July |
| | *Clepsis melaleucana* | (Walker) | | mid June – late July |
| | *Clepsis virescana* | (Clemens) | | mid June – late August |
| Tortricidae – Olethreutinae | *Taniva albolineana* | (Kearfott) | | mid July |
| | *Apotomis capreana* | (Hübner) | | early July – early August |
| | *Apotomis deceptana* | (Kearfott) | | early August |
| | *Apotomis infida* | (Heinrich) | | late June – mid July |
| | *Apotomis removana* | (Kearfott) | | late July – early August |
| | *Pseudosciaphila duplex* | (Walsingham) | | mid July |
| | *Olethreutes glaciana* | (Möschler) | | mid June – early August |
| | *Olethreutes metallicana* | (Hübner) | | mid June – late June |
| | *Ancylis subaequana* | (Zeller) | | late May – late June |
| | *Ancylis* species near *laciniana* | (Zeller) | 2 | mid June – late June |
| | *Ancylis* species near *fuscociliana* | (Clemens) | 2 | late June – mid July |
| | *Ancylis comptana* | (Frölich) | | late June |
| | *Ancylis diminutana* | (Haworth) | | late June – mid July |
| | *Retinia burkeana* | (Kearfott) | | mid July |
| | *Phaneta* species near *awemeana* | (Kearfott) | 2 | mid June |
| | *Phaneta parmatana* | (Clemens) | | late July |
| | *Phaneta convergana* | (McDunnough) | 2 | late May |
| | *Notocelia culminana* | (Walsingham) | | late July – early August |
| | *Gypsonoma fasciolana* | (Clemens) | | mid June – late July |

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|---|---|---|---|---|
| | *Gypsonoma substitutionis* | Heinrich | | mid June – late July |
| | *Gypsonoma salicicolana* | (Clemens) | 2 | late July |
| | *Gypsonoma adjuncta* | Heinrich | | mid June – late June |
| | *Zeiraphera canadensis* | Mutuura & Freeman | | late July |
| | *Zeiraphera fortunana* | (Kearfott) | 2 | mid September |
| | *Zeiraphera unfortunana* | Powell | | late July |
| | *Pseudexentera oregona* | (Walsingham) | | early May – mid May |
| | *Griselda radicana* | Heinrich | | mid September |
| | *Epinotia trigonella* | (Linnaeus) | | mid July – late August |
| | *Epinotia solandriana* | (Linnaeus) | | late July – mid September |
| | *Epinotia castaneana* | (Walsingham) | | mid July – early August |
| | *Epinotia rectiplicana* | (Walsingham) | | late May – late July |
| | *Epinotia nisella* | (Clerck) | | late May – mid September |
| | *Epinotia criddleana* | (Kearfott) | | mid September |
| | *Epinotia transmissana* | (Walker) | | late June – mid July |
| | *Epinotia momonana* | (Kearfott) | 2 | late July – late August |
| | *Epinotia lindana* | (Fernald) | | late August – mid September |
| | *Grapholita lunatana* | Walsingham | | early May – late May |
| | *Cydia populana* | (Busck) | | late May – late July |
| | *Cydia flexiloqua* | (Heinrich) | | mid July |
| Choreutidae | *Caloreas occidentella* | (Dyar) | | mid June |
| | *Choreutis diana* | (Hübner) | | late July |
| Urodidae | *Wockia asperipunctella* | (Bruand) | 4 | early June – late June |
| Alucitidae | *Alucita* lalannei | Landry & Landry | | mid May |
| Pterophoridae | *Hellinsia homodactylus* | (Walker) | | mid July |
| | *Amblyptilia pica* | (Walsingham) | | early May |
| Carposinidae | *Bondia crescentella* | (Walsingham) | | early May |
| Pyralidae | *Dolichomia thymetusalis* | (Walker) | | mid July |
| | *Acrobasis* sp. prob. *betulella* | Hulst | 2 | late July |
| | *Myelopsis subtetricella* | (Ragonot) | | late May – early August |
| | *Dioryctria reniculelloides* | Mutuura & Munroe | | late June – early August |
| | *Zophodia grossulariella* | (Hübner) | | early May – early June |
| | *Eulogia ochrifrontella* | (Zeller) | | late June – early August |
| Crambidae | *Scoparia biplagialis* | Walker | | mid July – late August |
| | *Eudonia albertalis* | (Dyar) | | mid July – early August |
| | *Crambus perlellus* | (Scopoli) | | late July – late August |
| | *Crambus leachellus* | (Zincken) | 4 | early August |
| | *Agriphila ruricolella* | (Zeller) | | late July |
| | *Agriphila vulgivagella* | (Clemens) | | late July |

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|---|---|---|---|---|
| | *Pediasia dorsipunctella* | (Kearfott) | | mid July – late July |
| | *Synclita obliteralis* | (Walker) | | mid June – early August |
| | *Parapoynx maculalis* | (Clemens) | 4 | mid June |
| | *Evergestis pallidata* | (Hufnagel) | | late July |
| | *Perispasta caeculalis* | Zeller | | late June |
| | *Phlyctaenia coronata* | (Hufnagel) | | mid June – mid July |
| | *Pyrausta nicalis* | (Grote) | | early June |
| | *Pyrausta borealis* | Packard | | late May – early July |
| | *Udea itysalis* | (Walker) | | late June – early August |
| | *Choristostigma plumbosignale* | (Fernald) | | mid July – early August |
| Hesperiidae | *Carterocephalus palaemon* | (Pallas) | | late June |
| Papilionidae | *Papilio canadensis* | Rothschild & Jordan | | late May – late July |
| Pieridae | *Pieris oleracea* | Harris | | late June |
| Lycaenidae | *Everes amyntula* | (Boisduval) | | late June |
| Nymphalidae | *Polygonia satyrus* | (Edwards) | | early May – mid May |
| | *Nymphalis antiopa* | (Linnaeus) | | early October – late June |
| | *Aglais milberti* | (Godart) | | late June – late August |
| | *Basilarchia arthemis* | (Drury) | | late June – early August |
| Drepanidae | *Habrosyne scripta* | (Gosse) | | mid June – mid July |
| | *Pseudothyatira cymatophoroides* | (Guenée) | | mid July |
| | *Euthyatira pudens* | (Guenée) | | mid May – early June |
| | *Drepana arcuata* | Walker | | late May – early August |
| | *Drepana bilineata* | (Packard) | | late May – mid July |
| | *Oreta rosea* | (Walker) | | late June – mid July |
| Geometridae – Ennominae | *Protitame virginalis* | (Hulst) | | mid June – mid July |
| | *Macaria brunneata* | (Thunberg) | | mid July – late July |
| | *Macaria loricaria* | (Eversman) | | mid July – early August |
| | *Macaria bitactata* | (Walker) | | late June – early August |
| | *Macaria ulsterata* | (Pearsall) | | mid May – mid July |
| | *Macaria signaria* | (Hübner) | | early June – mid July |
| | *Digrammia rippertaria* | (Duponchel) | | late June |
| | *Orthofidonia exornata* | (Walker) | | mid May – early June |
| | *Aethalura intertexta* | (Walker) | | mid May |
| | *Iridopsis larvaria* | (Guenée) | | late May – mid July |
| | *Ectropis crepuscularia* | (Denis & Schiffermüller) | | mid May – early June |
| | *Protoboarmia porcelaria* | (Guenée) | | late June – early August |
| | *Biston betularia* | (Linnaeus) | | mid June – mid July |
| | *Lycia ursaria* | (Walker) | | early May |

TABLE 2. *(continued)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| | *Erannis tiliaria* | (Harris) | | mid September – early October |
| | *Cabera erythemaria* | Guenée | | mid June – early August |
| | *Cabera variolaria* | Guenée | | mid June – mid July |
| | *Euchlaena obtusaria* | (Hübner) | | mid July |
| | *Euchlaena marginaria* | (Minot) | | late May |
| | *Euchlaena tigrinaria* | (Guenée) | | late June – early August |
| | *Xanthotype sospeta* | (Drury) | | mid July – early August |
| | *Pero honestaria* | (Walker) | | mid June – early July |
| | *Campaea perlata* | (Guenée) | | mid July – late August |
| | *Ennomos magnaria* | Guenée | | early August – mid September |
| | *Selenia alciphearia* | Walker | | mid May – early June |
| | *Metanema inatomaria* | Guenée | | late May – early August |
| | *Metanema determinata* | Walker | | early June – late June |
| | *Plagodis pulveraria* | (Linnaeus) | | late May |
| | *Plagodis phlogosaria* | (Guenée) | | mid May – late June |
| | *Plagodis alcoolaria* | (Guenée) | | late May – late June |
| | *Caripeta divisata* | Walker | | mid June – late July |
| | *Besma quercivoraria* | (Guenée) | | late May – mid July |
| | *Lambdina fiscellaria* | (Guenée) | | late August – mid September |
| | *Sicya macularia* | (Harris) | | mid July – early August |
| | *Nematocampa resistaria* | (Herrich-Schäffer) | | late July – early August |
| Geometridae – Sterrhinae | *Idaea rotundopennata* | (Packard) | | late June |
| | *Cyclophora pendulinaria* | (Guenée) | | late May – late July |
| | *Scopula limboundata* | (Haworth) | | mid July – early August |
| | *Scopula ancellata* | (Hulst) | | mid July |
| | *Scopula junctaria* | (Walker) | | late June – late July |
| | *Scopula frigidaria* | (Möschler) | | mid June – early August |
| Geometridae – Larentiinae | *Dysstroma citrata* | (Linnaeus) | | early August – mid September |
| | *Dysstroma truncata* | (Hufnagel) | | mid July |
| | *Dysstroma walkerata* | (Pearsall) | | late June – late August |
| | *Dysstroma hersiliata* | (Guenée) | | late May – early August |
| | *Dysstroma formosa* | (Hulst) | | mid June – early August |
| | *Eulithis propulsata* | (Walker) | | mid July – early August |
| | *Eulithis explanata* | (Walker) | | mid July – late August |
| | *Eulithis xylina* | (Hulst) | | mid July – early August |
| | *Ecliptopera silaceata* | (Denis & Schiffermüller) | | early June – mid July |
| | *Plemyria georgii* | Hulst | | early August |
| | *Hydriomena perfracta* | Swett | | late May – late July |

TABLE 2. *(continued)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| | *Hydriomena renunciata* | (Walker) | | late May – late July |
| | *Hydriomena ruberata* | (Freyer) | | late May – late July |
| | *Hydriomena furcata* | (Thunberg) | | late July – late August |
| | *Triphosa haesitata* | (Guenée) | | mid September – early October |
| | *Mesoleuca ruficillata* | (Guenée) | | early May – mid July |
| | *Spargania luctuata* | (Denis & Schiffermüller) | | mid June – mid July |
| | *Perizoma basaliata* | (Walker) | | early July – late July |
| | *Anticlea vasiliata* | Guenée | | mid May – early June |
| | *Anticlea multiferata* | (Walker) | | late May |
| | *Xanthorhoe abrasaria* | (Herrich-Schäffer) | | late June – early August |
| | *Xanthorhoe iduata* | (Guenée) | | late July |
| | *Xanthorhoe fossaria* | Taylor | | early June – early August |
| | *Xanthorhoe decoloraria* | (Esper) | | mid July – early August |
| | *Xanthorhoe ferrugata* | (Clerk) | | late May – mid July |
| | *Xanthorhoe lacustrata* | (Guenée) | | mid May – early August |
| | *Epirrhoe alternata* | (Müller) | | mid June – late July |
| | *Euphyia intermediata* | (Guenée) | | mid May – late July |
| | *Zenophleps alpinata* | Cassino | | mid July – late August |
| | *Hydrelia albifera* | (Walker) | | late June |
| | *Venusia cambrica* | Curtis | | late May – late August |
| | *Venusia pearsalli* | (Dyar) | | mid May – mid July |
| | *Trichodezia albovittata* | (Guenée) | | late May – mid July |
| | *Epirrita autumnata* | (Borkhausen) | | mid September |
| | *Operophtera bruceata* | (Hulst) | | early October |
| | *Eubaphe mendica* | (Walker) | | late June – early August |
| | *Eupithecia columbiata* | (Dyar) | | late May |
| | *Eupithecia subfuscata* | (Haworth) | | late May – late June |
| | *Eupithecia satyrata* | (Hübner) | | late May – late July |
| | *Eupithecia assimilata* | Doubleday | | late May – early August |
| | *Eupithecia perfusca* | (Hulst) | | early June – mid July |
| | *Eupithecia stellata* | (Hulst) | | mid June – late August |
| | *Eupithecia anticaria* | Walker | | mid June – late June |
| | *Eupithecia ravocostaliata* | Packard | | mid May – early June |
| | *Acasis viridata* | (Packard) | | mid May |
| | *Cladara limitaria* | (Walker) | | mid May – early June |
| | *Cladara atroliturata* | (Walker) | | early May – mid June |
| | *Lobophora nivigerata* | Walker | | late June |
| Uraniidae | *Callizzia amorata* | Packard | | mid June – early August |
| Lasiocampidae | *Phyllodesma americana* | (Harris) | | mid May – early July |

TABLE 2. *(continued)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| | *Malacosoma disstria* | Hübner | | mid July – early August |
| Sphingidae | *Smerinthus cerisyi* | Kirby | | mid May – early August |
| | *Hyles gallii* | (Rottemburg) | | late June |
| Notodontidae | *Clostera albosigma* | Fitch | | late May – late July |
| | *Clostera strigosa* | (Grote) | | late May – late June |
| | *Clostera apicalis* | (Walker) | | late May – late June |
| | *Nadata gibbosa* | (J.E. Smith) | | mid June |
| | *Pheosia rimosa* | Packard | | mid May – mid July |
| | *Notodonta simplaria* | Graef | | late May – early June |
| | *Gluphisia septentrionis* | Walker | | late May – early August |
| | *Gluphisia avimacula* | Hudson | | mid May – late May |
| | *Gluphisia lintneri* | (Grote) | | early May |
| | *Furcula occidentalis* | (Lintner) | | late May – late June |
| | *Furcula scolopendrina* | (Boisduval) | | late May – late June |
| | *Furcula modesta* | (Hudson) | | late June |
| | *Schizura unicornis* | (J.E. Smith) | | early July |
| | *Schizura leptinoides* | (Grote) | | late June – early August |
| Arctiidae | *Eilema bicolor* | (Grote) | | mid July – early August |
| | *Clemensia albata* | Packard | | mid July – early August |
| | *Haploa lecontei* | (Guérin-Méneville) | | mid July – early August |
| | *Phragmatobia assimilans* | Walker | | late May – late June |
| | *Platarctia parthenos* | (Harris) | | mid June – mid July |
| | *Lophocampa maculata* | Harris | | mid June – late June |
| Lymantriidae | *Dasychira vagans* | (Barnes & McDunnough) | | mid July – late July |
| | *Dasychira plagiata* | (Walker) | | mid July – late July |
| Noctuidae – Sarrothripinae | *Nycteola frigidana* | (Walker) | | mid May – late August |
| Noctuidae – Herminiinae | *Idia americalis* | (Guenée) | | late June – early August |
| | *Idia aemula* | Hübner | | mid July – early August |
| | *Idia* new species near *aemula* | Hübner | 3 | mid July – early August |
| | *Phalaenophana pyramusalis* | (Walker) | | late May – mid July |
| | *Zanclognatha lutalba* | (J.B. Smith) | | mid July – early August |
| | *Chytolita petrealis* | Grote | | late May – early August |
| | *Phalaenostola hanhami* | (J.B. Smith) | 4 | late July |
| | *Bleptina caradrinalis* | Guenée | | mid July |
| | *Palthis angulalis* | (Hübner) | | late June – mid July |
| Noctuidae – Strepsimaninae | *Hypenodes fractilinea* | (J.B. Smith) | | mid July – early August |
| Noctuidae – Rivulinae | *Rivula propinqualis* | Guenée | | mid July – late July |

TABLE 2. *(continued)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| Noctuidae – Hypeninae | *Hypena atomaria* | Smith | | mid July |
| | *Hypena edictalis* | (Walker) | | mid July – late August |
| | *Hypena humuli* | Harris | | mid May |
| Noctuidae – Catocalinae | *Caenurgina crassiuscula* | (Haworth) | | late May |
| | *Catocala relicta* | Walker | | early August – mid September |
| | *Catocala unijuga* | Walker | | late July – early October |
| | *Catocala briseis* | Edwards | | early August – mid September |
| | *Catocala semirelicta* | Grote | | early August – late August |
| Noctuidae – Plusiinae | *Abrostola urentis* | Guenée | | late June – mid July |
| | *Diachrysia aereoides* | (Grote) | | late July |
| | *Polychrysia esmerelda* | (Oberthür) | | early August |
| | *Chrysanympha formosa* | (Grote) | | late July |
| | *Eosphoropteryx thyatyroides* | (Guenée) | | late July |
| | *Autographa rubida* | Ottolengui | | mid June – late June |
| | *Autographa bimaculata* | (Stephens) | | late July – late August |
| | *Autographa mappa* | (Grote & Robinson) | | late June – mid July |
| | *Autographa ampla* | (Walker) | | late June – late July |
| | *Syngrapha octoscripta* | (Grote) | | late July |
| | *Syngrapha viridisigma* | (Grote) | | late July – late August |
| | *Syngrapha alias* | (Ottolengui) | | mid July – late July |
| | *Syngrapha rectangula* | (Kirby) | | mid July |
| | *Plusia putnami* | Guenée | | late June – early August |
| Noctuidae – Eustrotiinae | *Lithacodia albidula* | (Guenée) | | mid June – late July |
| Noctuidae – Acronictinae | *Raphia frater* | Grote | | late May – late July |
| | *Acronicta vulpina* | Guenée | | early June – late June |
| | *Acronicta innotata* | Guenée | | mid June – early August |
| | *Acronicta grisea* | Walker | | late May – mid July |
| | *Acronicta fragilis* | (Guenée) | | late May – early August |
| | *Acronicta impleta* | Walker | | early June – late June |
| | *Acronicta impressa* | Walker | | late May – mid June |
| | *Harrisimemna trisignata* | (Walker) | | mid June |
| Noctuidae – Cuculliinae | *Homohadena badistriga* | (Grote) | | mid July – late August |
| | *Homohadena infixa* | (Walker) | | late July – late August |
| Noctuidae – Hadeninae | *Apamea commoda* | (Walker) | | early May – late July |
| | *Apamea cogitata* | (Smith) | | late July – early August |
| | *Oligia mactata* | (Guenée) | | late August – mid September |
| | *Oligia illocata* | (Walker) | | late August – mid September |
| | *Parastichtis suspecta* | (Hübner) | | mid July – late August |
| | *Amphipoea americana* | (Speyer) | | late August |

TABLE 2. *(continued)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| | *Euplexia benesimilis* | McDunnough | | early June – late June |
| | *Phlogophora periculosa* | Guenée | | mid July – early August |
| | *Enargia decolor* | (Walker) | | late July – mid September |
| | *Enargia infumata* | (Grote) | | mid July – mid September |
| | *Ipimorpha pleonectusa* | Grote | | early August – late August |
| | *Chytonix palliatricula* | (Guenée) | | late May – mid July |
| | *Andropolia contacta* | (Walker) | | late August |
| | *Hyppa contrasta* | McDunnough | | mid June – mid July |
| | *Elaphria alapallida* | (Pragne & Sullivan) | | late May – late June |
| | *Xylena curvimacula* | (Morrison) | | mid September – mid May |
| | *Lithomoia germana* | (Morrison) | | late August – mid September |
| | *Homoglaea hircina* | Morrison | | early October |
| | *Litholomia napaea* | (Morrison) | | mid September – early June |
| | *Lithophane innominata* | (Smith) | | early June |
| | *Lithophane petulca* | Grote | | early June |
| | *Anathix puta* | (Grote & Robinson) | | early August – mid September |
| | *Xanthia tatago* | Lafontaine & Mikkola | | mid September |
| | *Hillia iris* | (Zetterstedt) | | late August |
| | *Platypolia anceps* | (Stephens) | | mid September |
| | *Xylotype arcadia* | Barnes & Benjamin | | late August – mid September |
| | *Brachylomia algens* | (Grote) | | early August – late August |
| | *Brachylomia discinigra* | (Walker) | | early August – late August |
| | *Polia nimbosa* | (Guenée) | | mid June – early August |
| | *Polia imbrifera* | (Guenée) | | mid July – late July |
| | *Melanchra adjuncta* | (Guenée) | | mid June |
| | *Lacanobia radix* | (Walker) | | late May |
| | *Lasionycta poca* | (Barnes & Benjamin) | | late June – late July |
| | *Lacinipolia renigera* | (Stephens) | | mid July |
| | *Lacinipolia lorea* | (Guenée) | | late June – early August |
| | *Mythimna oxygala* | (Grote) | | mid July – late July |
| | *Leucania insueta* | Guenée | | late June |
| | *Orthosia revicta* | (Morrison) | | mid May – early June |
| | *Orthosia segregata* | (Smith) | | mid May |
| | *Orthosia hibisci* | (Guenée) | | early May – early June |
| | *Egira dolosa* | (Grote) | | mid May – early June |
| | *Protorthodes oviduca* | (Guenée) | | early June |
| Noctuidae – Noctuinae | *Diarsia rubifera* | (Grote) | | mid July – late August |
| | *Diarsia dislocata* | (Smith) | | mid July – early August |
| | *Diarsia rosaria* | (Grote) | | mid July – late July |

TABLE 2. *(concluded)* List of Lepidoptera species collected near Touchwood Lake, Alberta. Higher classification follows that of Kristensen (1999). Species sequence within higher taxa follows the Hodges et al. (1983) checklist. Flight period is based on collections made over the three-year study.

| Family | Genus species | Author | Notes | Flight Period |
|---|---|---|---|---|
| | *Graphiphora augur* | (Fabricius) | | early May – late August |
| | *Eurois occulta* | (Linnaeus) | | mid July – late August |
| | *Eurois astricta* | (Morrison) | | mid July – early August |
| | *Megasema c-nigrum* | (Linnaeus) | | mid July |
| | *Xestia normaniana* | (Grote) | | late July |
| | *Xestia smithii* | (Snellen) | | late July – late August |
| | *Pachnobia mixta* | (Walker) | | late July |
| | *Pachnobia imperita* | (Hübner) | | early August |
| | *Pseudohermonassa tenuicula* | (Morrison) | | late July |
| | *Coenophila opacifrons* | (Grote) | | early August |
| | *Metalepsis salicarum* | (Walker) | | mid May |
| | *Aplectoides condita* | (Guenée) | | late May – late July |
| | *Anaplectoides prasina* | (Denis & Schiffermüller) | | mid July – early August |
| | *Anaplectoides pressus* | (Grote) | | early May – early August |
| | *Protolampra rufipectus* | (Morrison) | | late July – late August |
| | *Eueretagrotis perattenta* | (Grote) | | late June – early August |
| | *Cryptocala acadiensis* | (Bethune) | | mid July – late July |

notes:
[1] state of taxonomic knowledge is insufficient to make a species determination
[2] species determination uncertain
[3] undescribed species
[4] new record for Alberta

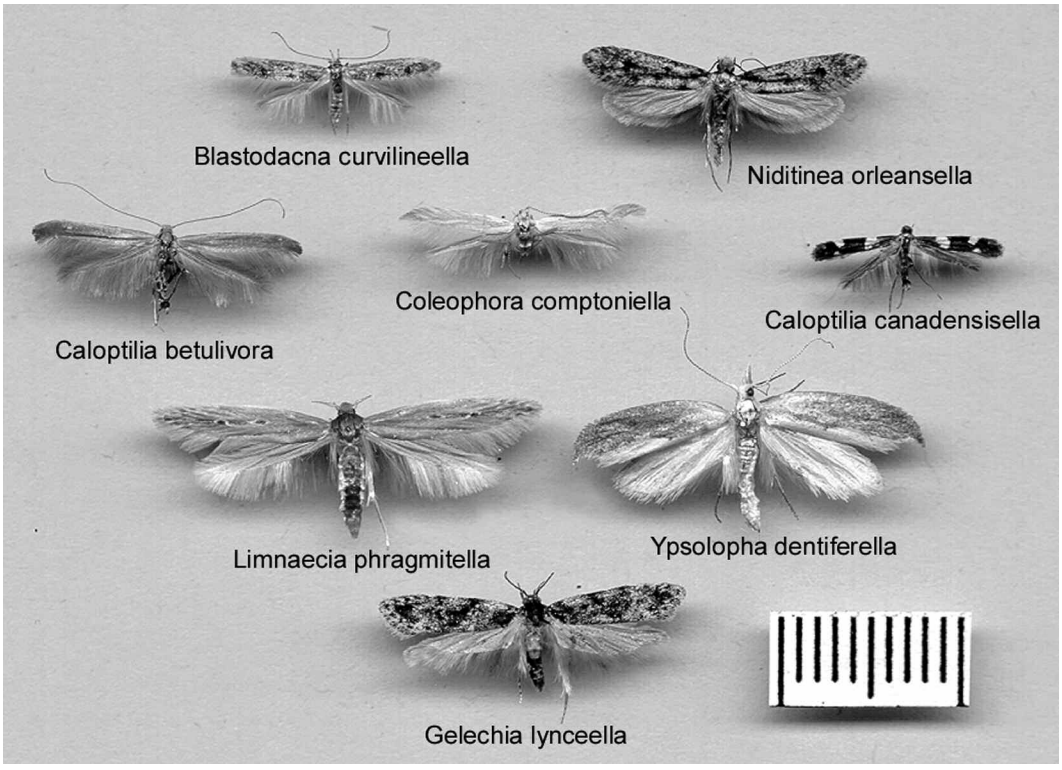


FIGURE 2. Microlepidoptera collected near Touchwood Lake, Alberta. All are new Alberta records. (ruler = 1cm).

The study site lies within the ranges of 67 butterfly species (Bird et al. 1995); many of these certainly occur in the mixedwood habitat but were not collected there. Some nocturnal moths, including some species of Gelechiidae and Oecophoridae (Hodges 1974; Miller 2000), are not attracted to UV light so they would be undersampled as well. If other moth species occur in the area but were not collected, they are probably quite rare, or may be extremely localized in particular microhabitats, which were not adequately sampled in this study.

Macro-moths comprised a greater proportion of individuals than of species, whereas the micro-moths were particularly species-rich, comprising a greater proportion of species than of individuals. These proportions (Table 1) were similar to those previously reported for the province of Alberta. In his list of Lepidoptera of Alberta, Bowman (1951) reported 40.8% micro-moths (779 species), 50.9% macro-moths (973 species), and 8.3% butterflies (159 species). In the most recent list of Lepidoptera of North America, Poole (1996) listed 49.3% micro-moths (5743 species), 43.9% macro-moths (5114 species), and 6.9% butterflies (801 species). The proportionally higher representation of micro-moth species in the current study compared to Bowman's 1951 list reflects the recent increase in knowledge of the group, including the description of many new species.

A total of 35 positively identified species are new records for the province, and one (*Acanthopteroctetes bimaculata*) is a new record for Canada (Table 2). Micro-moths (Figure 2) make up 34 of these new records; a further five micro-moth species and one macro-moth species represent undescribed species. Details for some of these new records and new species appear below.

*Acanthopteroctetes bimaculata* Davis (Acanthopteroctetidae):
This primitive moth is known previously from California and Oregon (Davis 1978). The current record represents the first report of this moth, and of the family Acanthopteroctetidae, occurring in Canada. Nothing is known of its biology.

*Caloptilia anthobaphes* (Meyrick) (Gracillariidae):
Previously reported from northern Ontario (Forbes 1923). Nothing is known of its biology.

*Caloptilia betulivora* McDunnough (Gracillariidae) (Figure 2):
Previously reported first only from Nova Scotia (McDunnough 1946) and since been reported from Quebec (Handfield et al. 1997). It likely occurs across the boreal zone in Canada. Larvae feed in the folded leaves of birch.

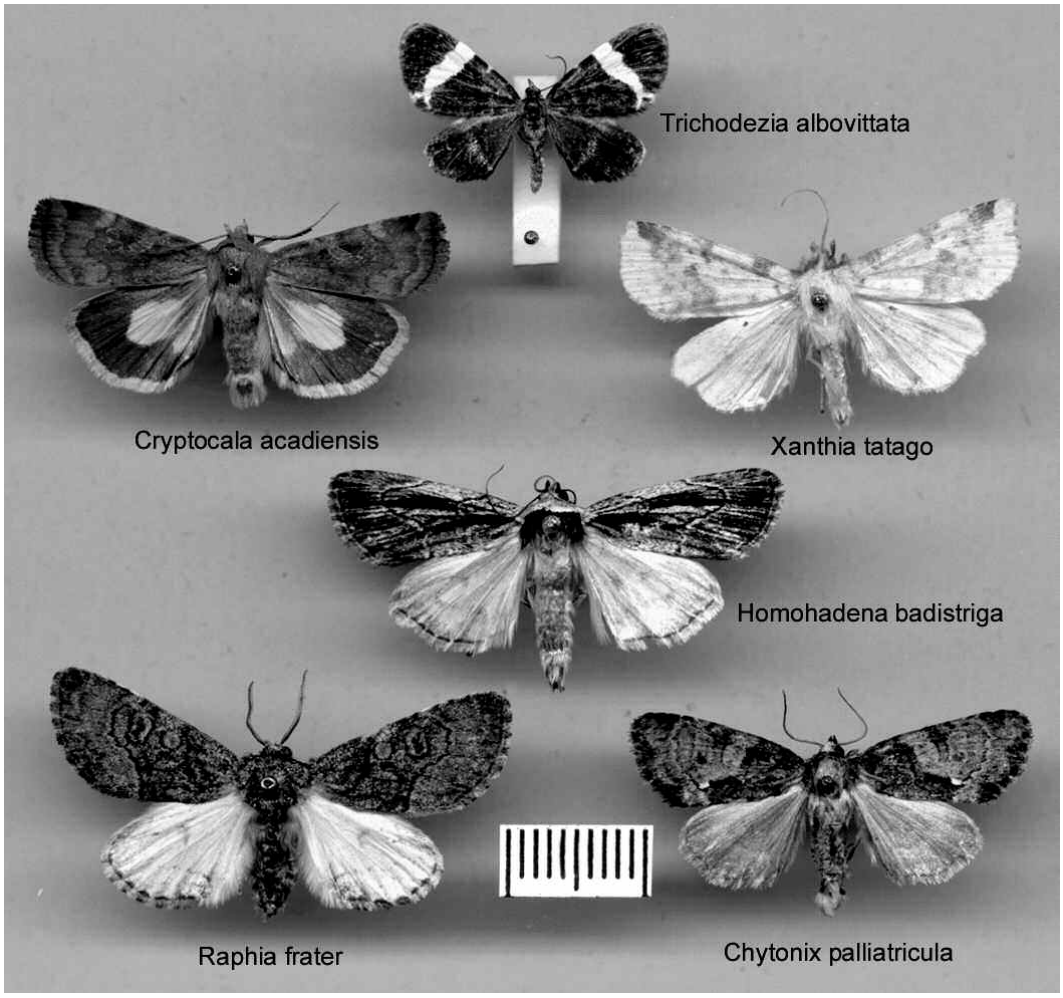


FIGURE 3. An assortment of macrolepidoptera collected from mature aspen forest near Touchwood Lake, Alberta (ruler = 1 cm).

*Caloptilia canadensisella* (McDunnough) (Gracillariidae) (Figure 2):

Originally described from Nova Scotia (McDunnough 1956). It has since been reported in Quebec (Handfield et al. 1997; Landry and Landry 1992), and is probably widely distributed but uncollected across the boreal forest. The larvae make large blotch mines on the leaves of Bunchberry (*Cornus canadensis*).

*Caloptilia coroniella* (Clemens) (Gracillariidae):

Previously known only from the midwestern U.S.A. (Forbes 1923). Larvae feed on birch.

*Caloptilia stigmatella* (Fabricius) (Gracillariidae):

Not reported from western Canada, but GRP [Greg R. Pohl] has collected it quite commonly in Alberta and Saskatchewan. Larvae feed on willow (Forbes 1923).

*Argyresthia abies* Freeman (Yponomeutidae):

Reported in eastern Canada only as far west as northern Ontario (Freeman 1972) but is probably widely distributed across western North America in the boreal forest. It is a twig borer on Balsam Fir (*Abies balsamea*).

*Coleophora corylifoliella* Clemens (Coleophoridae):

Previously reported only in eastern North America (Forbes 1923). Larvae there feed on *Corylus americana*; in the west they probably feed on Beaked Hazelnut (*Corylus cornuta*).

*Coleophora duplicis* Braun (Coleophoridae):

Previously known from eastern Canada and the midwestern United States (Forbes 1923; Handfield et al. 1997). It feeds on the seeds of Aster (*Aster* spp.) and Goldenrod (*Solidago* spp.).

*Limnaecia phragmitella* Stainton (Cosmopterigidae) (Figure 2):

A holarctic species. The closest it has been reported to Alberta is Wyoming (Hodges 1978). However, collection records (CNC, NFRC) indicate that the species is transamerican. Recent collections made by GRP indicate that it is common in western Canada, at sites where its host plant, Com-

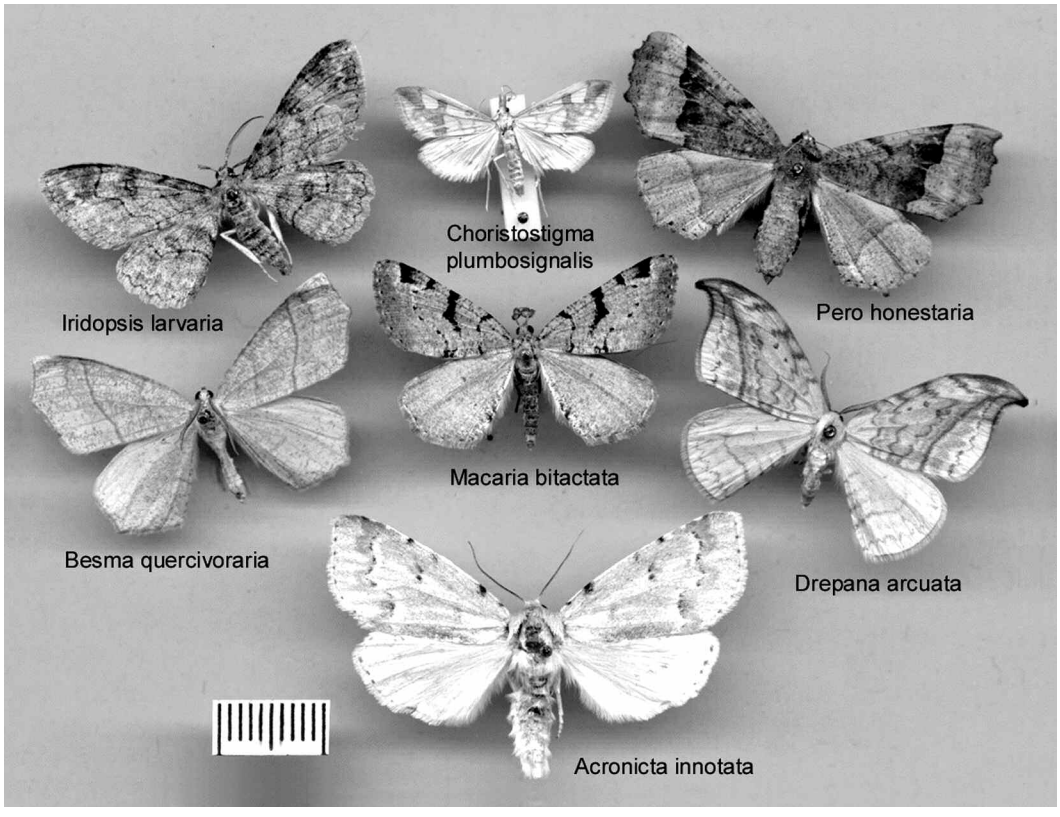


FIGURE 4. An assortment of macrolepidoptera collected from old growth aspen forest near Touchwood Lake, Alberta (ruler = 1 cm).

mon Cattail (*Typha latifolia*), is available. Larvae feed on the flowers and seeds.

*Coleotechnites blastivora* (McLeod) (Gelechiidae):

Reported only from the type locality of Gaspe, Quebec (McLeod 1962). It probably occurs across the boreal zone. Larvae are needle webbers of White Spruce, occasionally mining within the needles.

*Gnorimoschema septentrionella* Fyles (Gelechiidae):

Miller (2000) reports this species only in eastern North America, as far west as Minnesota. It is a stem-gall maker on asters (*Aster* spp.).

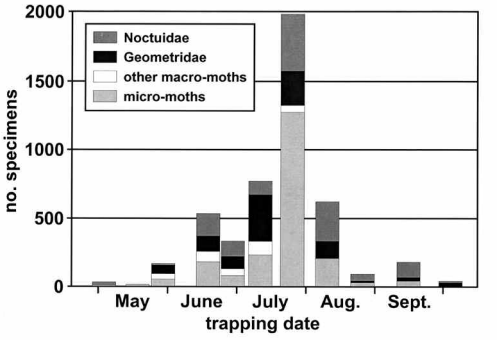


FIGURE 5. Abundance of major Lepidoptera groups collected in UV traps through the 1994 trapping season.

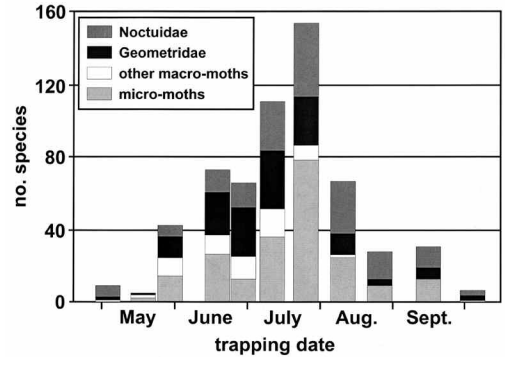


FIGURE 6. Species richness of major Lepidoptera groups collected in UV traps through the 1994 trapping season.

*Aethes promptana* (Robinson) (Tortricidae – Tortricinae):

The Touchwood Lake record represents the first record of this species from western Canada. It was previously known from eastern North America as far west as Wisconsin (Sabourin et al. 2002). A prevoius record from Washington (Razowski 1997) was based on a misidentification. Nothing is known of it's feeding habits.

*Wockia asperipunctella* (Bruand) (Urodidae):

As noted by Landry (1998), this Touchwood Lake record represents the first report of this species, and the family Urodidae, in Alberta. This family is a recently recognised addition to the North American fauna (Heppner 1997). Larvae feed on Trembling Aspen; adults tend to fly during the day or early evening.

*Alucita lalannei* Landry & Landry (Alucitidae):

Until recently, this species had been combined with two other species in the genus, and referred to collectively as *Alucita hexadactyla* (Linnaeus) (Bowman 1951; Hodges et al. 1983; Poole 1996). However, the true *A. hexadactyla* is restricted to the Old World. In their description and treatment of *A. lalannei*, Landry and Landry (2004) designate a specimen from the current study as a paratype. This species is known from Ontario, Manitoba, and Alberta. Adults overwinter, and can be collected from May to September. The larval host plant is unknown, but Landry and Landry (2004) report *Lonicera* spp. and *Symphoricarpos* spp. as likely candidates.

*Parapoynx maculalis* (Clemens) (Crambidae):

Previously known from eastern North America, only as far west as Lake of the Woods, Ontario (Munroe 1972). However, recent collecting by GRP indicates that it is widespread but extremely localised in Alberta and Saskatchewan. Its larvae are aquatic, and are reported by Munroe (1972) to feed on several species of water lilies (*Nuphar, Nymphaea, Brasenia* spp.). It likely feeds on other plants as well, since it has been collected recently in southern Alberta, outside the distribution of the aforementioned plants (C. D. Bird, personal communication).

*Idia* new species near *aemula* Hübner (Noctuidae – Herminiinae):

Usually mixed in with *Idia aemula* Hübner in collections. It was reported in eastern North America by Rings et al. (1992), and misidentified as *Epizeuxis concisa* Walker by Forbes (1954). It remains undescribed and has not been reported previously from Alberta, although it is common across the boreal region. It has been reported to feed on the needles of a variety of conifers (Rings et al. 1992).

*Phalaenostola hanhami* (J. B. Smith) (Noctuidae – Herminiinae):

Reported from eastern Saskatchewan as far west as Regina (Hooper 1988). Nothing is known of its feeding habits.

The only similar published study of boreal forest Lepidoptera that the authors are aware of is that of Morneau (2002), which sampled primarily macro-moths near Peace River in northwestern Alberta. In that study, 293 species were collected over three seasons, including 278 species of macro-moths. Although most macro-moth species were common to both studies, 43 species were unique to the present study, and 115 species were unique to the Morneau study. The presence of so many unique species suggests some habitat specialization within the boreal mixedwood region. Several of the species unique to the Morneau study, most notably some Arctiidae species, represent an incursion of cordilleran species into that area.

Several Lepidoptera inventories of provincial parks in the boreal mixedwood forest of northeastern Alberta have been carried out (Schmidt and Pohl 2001*; Macaulay and Pohl 2002*, 2003*). Although these studies collected from 138 to 295 species, they were each based on brief sampling periods, so they missed significant proportions of the fauna. Catches from the current study shared approximately 50 to 60% of the species collected in those studies.

In general, the moth fauna of the boreal forest appears to be less diverse than that found in other forests. Summerville and Crist (2002) collected 512 species of moths in deciduous forests in Ohio. Thomas et al. (1998) collected 624 species of macro-moths in Fundy National Park, New Brunswick, which lies in the Acadian Forest Region, as described by Rowe (1972). Both of these forest types are more diverse botanically than the boreal forest, and have more moderate climatic conditions (Rowe 1972).

Inventories of this nature are a necessary prerequisite to understand impacts of forestry practices and climate change on biodiversity. However, there is a paucity of similar studies, largely due to the lack of required taxonomic expertise. This argues strongly for increased support of systematics research in Canada, as biodiversity issues continue to increase in importance.

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