

LEPIDOPTERA OF EAST ARROWWOOD COULEE, ALBERTA, 1997-2006

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East Arrowwood Coulee looking north, August 17, 1997

THE AREA

East Arrowwood Coulee occurs on the west side of the farm of Arthur and Dixie Bird, NE of the village of Arrowwood. The coulee runs north and joins the Bow River. The coordinates for the location are 50.75, 113.13. The elevation at the top of the coulee is 920 m and in the coulee bottom it is about 860 m. The west-facing coulee slope is fairly steep and is vegetated by short-growing grasses including *Bouteloua gracilis* and numerous forbs such as *Opuntia fragilis*. The coulee bottom has an open riverine forest with *Populus balsamifera* and shrubs including willows, thorny buffalo-berry and saskatoon.

A number of sightings were made on July 24, 1997. The area was sampled with ultraviolet light traps on the nights of August 3, 2000; June 2, 2001; June 27, 2003; and April 11 and June 26 in 2004. In 2005, the area was studied on May 8 and on July 2 and

30. Collections were made on June 17 and July 29, in 2006. The present report contains the results of work done in 2006 and in the previous years (Bird 2004, 2005, 2006).



East Arrowwood Coulee looking south, June 26, 2004



Art Bird beside moth trap in coulee bottom, 9 May 2005

BACKGROUND

The writer, now retired and living in Erskine, Alberta, has had a long-time interest in the natural flora and fauna of the province. In the spring of 2000, he commenced an examination of the moths of south-central Alberta, the purpose of which was to document the species present in various natural areas. He is a member of the Alberta Lepidopterist's Guild, the purpose of which is to encourage the study of Alberta's moths and butterflies.

There is still much to be learned about the distribution and status of lepidopteran (moth and butterfly) species in south-central Alberta. Baseline studies provide information that helps characterize those species associated with various ecoregions, in the present case Prairie; determine status designations (abundant, common, rare, endangered) of various species; and allow the examination of many other parameters, including phenology, dry vs. wet years, and outbreaks of various species such as forest tent caterpillars.

SPECIMEN DISPOSITION

All specimens collected by the writer presently reside in his collection but they will eventually be donated to the University of Alberta Strickland Museum, the Northern Forest Research Centre in Edmonton, and, possibly, the Canadian National Collection in Ottawa.

THE FOLLOWING CHECKLIST

The order and terminology, is that of R.W. Hodges (1983) except where recent changes in taxonomy have occurred. While most of the larger (macromoths) are relatively well known, the same cannot be said for many of the smaller (micromoths) ones. Identifications, especially of the latter, can be difficult or are at present impossible, until such time as revisionary studies are made. Also, genitalic dissection and examination is necessary for positive identification in some groups. For these reasons, some of the determinations found herein should be regarded as tentative. The scientific names of the species are followed by the day-month-year of the collection and the number of individuals mounted; an "SR" indicates a sight record. Common names are mentioned in those cases where such names exist.

Kenneth Bowman's (1951) list of the Lepidoptera of Alberta presents all species known at that time and gives the distribution of each according to 21 Areas. East Arrowwood Coulee is in Bowman's Area 6 which also includes Calgary. Most of Bowman's records are from his Area 10, which includes Edmonton, so many of the species found in the following list are additions to his Area 6.

TINEIDAE – Clothes Moths and others

399. *Tinea irrepta* Braun – 27A-VI-2003 3, 27B-VI-2003 1 and 30A-VII-2005 1.

421. *Monopis spilotella* Tengström – 27B-VI-2003 1, 26-VI-2004 1, 30A-VII-2005 1 and 30B-VII-2005 1.

BUCULATRICIDAE – Bucculatricid Moths

Bucculatrix sp. – 17A-VI-2006 1.

OECOPHORIDAE – Oecophorid Moths

878. *Agonopterix canadensis* (Bsk.) – 8B-V-2005 1.

910. *Martyrhilda fulva* (Wlsm.) – 27A-VI-2003 1, 17A-VI-2006 2, 27B-VII-2006 3 and 17C-VII-2006 1.

922. *Depressaria pastinacella* (Dup.) – 29C-VII-2006 1.

987. *Ethmia monticola* (Wlsm.) – 27B-VI-2003 1.

ELACHISTIDAE – Elachistid Moths

Elachista sp. – 27-VI-2003 1 and 26-VI-2004 1.

SYMMOCIDAE – Symmocid Moths

1138.31. *Glyphidocera hurlberti* Adamski – 26-VI-2004, 2B-VII-2005 1, 30A-VII-2005 1 and 30B-VII-2005 2. This species was described by Adamski in 2000.

COLEOPHORIDAE – Casebearer Moths

1254-1389. *Coleophora* spp. – 27B-VI-2003 3, 26-VI-2004 1, 30A-VII-2005 2 and 30B-VII-2005 2, 29A-VII-2006 1 and 29B-VII-2006 1. The specimens are currently with Dr. J.-F. Landry who is doing a North American monograph of the group. Some of the specimens may be of species that remain to be described.

1316. *Coleophora rosacella* Clem. – 26-VI-2004 1.

1321. *Coleophora mcdunnoughiella* Oudejans – 27A-VI-2003 1.

1388. *Coleophora trifolii* (Curt.) (Large Clover Case-bearer) – 2-VI-2001 1 and 29C-VII-2006 1.

MOMPHIDAE – Momphid Moths

Mompha/Elachista. – 7-VI-2003 1.

COSMOPTERYGIDAE – Cosmopterygid Moths

1515. *Lymnaecia phragmitella* Staint. – 3-VIII-2000 1 and 29C-VII-2006 1.

1615. *Walshia miscecolorella* (Cham.) – 27A-VI-2003 1, 27B-VI-2003 3, 30A-VI-2005 2 and 29B-VII-2006 1.

SCYTHRIDIDAE- Scythridid Moths

Species indet. – 17A-VI-2006 1.

GELECHIIDAE – Gelechiid Moths

1681-2311. Indet sp. – 2-VI-2001 1, 8A-V-2005 1, 8B-VI-2005 1, 30A-VII-2005 6, 30B-VII-2005 3, 17A-VI-2006 1, 29A-VII-2006 2 and 29B-VII-2006 1. Little is known about many of the species in this family and it may be many years before some of these specimens are determined or described.

1734. *Aristotelia devexella* Braun – 30B-VII-2005 1, 17B-VI-2006 3 and 29A-VII-2006 1.

Aristotelia type B – 30A-VII-2005 1.

1771. *Evippe prunifoliella* Cham. – 2-VI-2001 1? Identified by Dr. Jean-François Landry.

1796. *Coleotechnites blastovora* (McLeod) – 27A-VI-2003 1.

1880. *Xenolechia velatella* (Bsk.) – 8A-V-2005 6 and 8B-V-2006 4.

1946. *Gelechia lynceella* Zell. – 23A-VI-2003 1 and 2B-VII-2005 1.

2093. *Chionodes mediofuscella* (Clem.) – 8A-V-2005 1, 8B-V-2005 1 and 30A-VII-2005 2.

2099. *Chionodes obscuruscella* (Cham.) – 30B-VII-2005 1.

2111. *Chionodes psilopterus* (B. & Bsk.) – 30A-VII-2005 1 and 17C-VI-2006 1.

2127. *Filatima abactella* (Clarke) – 27B-VI-2003 1 and 8B-V-2005 2.

2291. *Dichomeris levisella* Fyles – 17B-VI-2006 1.

CARPOSINIDAE – Carposinid Moths

2318. *Bondia comonana* (Kft.) – 26-VI-2004 1.

2319. *Bonia crescentella* (Wlsm.) – 17C-VI-2006 1.

EPERMENIIDAE – Epermeniid Moths

2334. *Ochromolopis ramapoella* (Kft.) – 17A-VI-2006 1, 17B-VI-2006 1 and 17C-VI-2006 1.

PLUTELLIDAE – Plutellid Moths

2366. *Plutella xylostella* (L.) (Diamondback Moth) – 3-VIII-2000 1, 27A-VI-2003 2, 8A-V-2005 2, 8B-V-2005 3, 30A-VII-2005 2, 30B-VII-2005 2 and 29C-VII-2006 1.

2371. *Ypsolopha canariella* (Wlsm.) – 30B-VII-2005 1.

2376. *Ypsolopha dentiferella* (Wlsm.) – 30B-VII-2005 1 and 29C-VII-2006 1.

ARGYRESTHIIDAE – Argyresthiid Moths

2449. *Argyresthia conjugella* Zell. – 27B-VI-2003 1.

COSSIDAE – Carpenterworm Moths

2676. *Acosus populi* (Wlk.) (Aspen Carpenterworm) – 30VIII-2000 1, 27B-VI-2003 1, 30B-VII-2005 2, 17C-VI-2006 1 and 29C-VII-2006 1.

TORTRICIDAE – Tortricid Moths

- 2743a. *Endothenia nubilana* (Clem.) – 3-VIII-2000 1.
 2765. *Apotomis deceptana* (Kft.) (Deceptive Apotomis Moth) – 29C-VII-2006 1.
 2766. *Apotomis dextrana* McD. (Green Aspen Leafroller Moth) – 30B-VII-2005 3.
 2770. *Orthotaenia undulana* (D. & S.) (Dusky Leafroller Moth) – 27B-VI-2003 2, 26-VI-2004 5, 2B-VII-2005 1 and 17A-VI-2006 1.
 2774/2859. *Olethreutes* spp. – 27A-VI-2003 1 and 27B-VI-2003 2, 17A-VI-2006 2 and 17C-VI-2006 1.
 2860. *Hedya separatana* (Kft.) (Pink-washed Leafroller Moth) – 27A-VI-2003 1?
Phaneta sp. – 29 B-VII-2006 1.
 2952. *Phaneta elongana* (Wlsm.) – 17B-VI-2006 1 and 29C-VII-2006 1.
 2965. *Phaneta fertoriana* (Heinr.) – 2-VI-2001 1.
 2969. *Phaneta indagatricana* (Heinr.) – 27A-VI-2003 1, 30A-VII-2005 1, 30A-VII-2005 6, 30B-VII-2005 2, 29A-VII-2006 5 and 29C-VII-2006 1.
 2980. *Phaneta pallidicostana* (Wlsm.) – 17C-VI-2006 1.
 2985. *Phaneta infimbriana* (Dyar) – 30A-VII-2005 1, 29B-VII-2006 1 and 29C-VII-2006 1.
 3014. *Eucosma ridingsana* (Rob.) (Riding's Eucosma Moth) – 30A-VII-2005 14.
 3031. *Eucosma serpentana* (Wlsm.) – 27A-VI-2003 4, 27B-VI-2003 2, 26-VI-2004 2, 30A-VII-2005 6, 30B-VII-2005 4, 29A-VII-2006 5, 29B-VII-2006 3 and 29C-VII-2006 2.
 3032. *Eucosma ophionana* McD. – 30A-VII-2005 1.
 3037. *Eucosma agricolana* (Wlsm.) – 27A-VI-2003 4, 27B-VI-2003 3, 26-VI-2004 1, 30A-VII-2005 1, 30V-VII-2005 1 and 17B-VI-2006 1.
 3042. *Eucosma vagana* McD. – 26-VI-2004 1 and 30A-VII-2005 2.
 3133. *Eucosma consobrinana* Heinr. – 27A-VI-2003 1.
 3142. *Eucosma cataclystana* (Wlk.) – 27B-VI-2003 1.
 3149. *Pelochrista argenteana* (Wlsm.) – 27A-VI-2003 3, 27B-VI-2003 8 and 26-VI-2004 2, 30A-VII-2005 1, 30B-VII-2005 1 and 29A-VII-2006 1.
 3211. *Notocelia culminana* (Wlsm.) – 30B-VII-2005 5 and 29C-VII-2006 2.
 3218/3222. *Sonia* n. sp. – 27-VI-2003 1. This is an undescribed species according to Dr. Don Wright.
 3248. *Pseudexentera oregonana* (Wlsm.) (Early Aspen Leaf Roller Moth) – 11-IV-2004 2 (30 SR).
 3302. *Epinotia rectiplicana* (Wlsm.) – 29C-VII-2006 1.
 3391. *Hystrichophora stygiana* (Dyar) – 30A-VII-2005 1.
 3394. *Hystrichophora asphodelana* (Kft.) – 26-VI-2004 2.
 3465. *Cydia flexiloqua* (Heinr.) – 30B-VII-2005 2 and 29C-VII-2006 1.
 3502. *Croesia albicomana* (Clem.) – 30B-VII-2005 1.

3514. *Acleris cervinana* (Fern.) – 8B-V-2005 1.
 3568. *Eana argentana* (Cl.) – 27B-VI-2003 1, 2A-VII-2005 1 and 17A-VI-2006 1.
 3595. *Pandemis canadana* Kft. (Green Aspen Leaf-tier Moth) – 30B-VII-2005 11 and 29C-VII-2006 1.
 3625. *Argyrotaenia mariana* Fern. (Gray-banded Leafroller Moth) – 8B-V-2005 1.
 3635. *Choristoneura rosaceana* (Harr.) (Oblique-banded Leafroller Moth) – 3-VIII-2000 2 and 30B-VII-2005 1.
 3637. *Choristoneura conflictana* (Wlk.) (Large Aspen Tortrix) – 27B-VI-2003 1.
 3661. *Archips cerasivorana* (Fitch) (Ugly Nest Caterpillar Moth) – 29B-VII-2006 1.
 3675. *Aphelia alleniana* (Fern.) – 27A-VI-2003 1, 27B-VI-2003 1, 26-VI-2004 1, 2B-VII-2005 1 and 17C-VI-2006 1.
 3682. *Clepsia persicana* (Fitch) (White-angle Tortrix Moth) – 27B-VI-2003 1 and 2B-VII-2005 1 and 29B-VII-2006 1.
 3684. *Clepsia clemensiana* (Fern.) (Clemen's Clepsia Moth) – 30B-VII-2005 2.
 3688. *Ptycholoma peritana* (Clem.) (Garden Tortrix Moth) – 26-VI-2004 1.
 3680. *Ptycholoma virescana* (Clem.) – 29C-VII-2006 1.
 3706. *Sparganothis xanthoides* (Wlk.) (Mosaic Sparganothis Moth) – 29C-VII-2006 1.
 3712. *Sparganothis vocaridorsana* Kft. – 17C-VI-2006 1.
 3720. *Sparganothis reticulatana* (Clem.) (Reticulated Fruitworm Moth) – 29C-VII-2006 1.

COCHYLIDAE – Cochylid Moths

The members of this family are presently being revised by Dr. Eric Metzler and Dr. John Brown. The following specimens are presently with them.

3760. *Platphalonidia felix* (Wlsm.) – 26-VI-2004 1.
 3792. *Phtheochroa fulvuplicana* (Wlsm.) – 3-VIII-2000 1, 27B-VI-2003 2, 30-VII-2005 3 and 17B-VI-2006 1.
 3796. *Phtheochroa waracana* Kft. – 27B-VI-2003 1 and 30-VII-2005 1.

HESPERIIDAE – Skippers

3966. *Pyrgus communis* (Grt.) (Common Checkered Skipper) – 2-VI-2001 1.
 4018. *Hesperia uncas* Edw. (Uncas Skipper) – 24-VII-1997 SR and 2-VI-2001 1.

PIERIDAE – Whites and Sulfurs

4194. *Pontia occidentalis* (Reak.) (Western Checkered White) – 2-VI-2001 1.
 4197. *Pieris rapae* (L.) (Cabbage White) – 24-VII-1997 SR.
 4209. *Colias philodice* Godt. (Clouded Sulphur) – 24-VII-1997 SR

LYCAENIDAE – Blues and Coppers

4375. *Lycaeides melissa* (Edw.) (Melissa Blue) – 2-VI-2001 1.

NYMPHALIDAE – Fritillaries

4432. *Nymphalis antiopa* (L.) (Mourning Cloak) – 11-IV-2004 3 SR.
 4482. *Phyciodes batesii* (Reak.) (Tawny Crescent) – 2-VI-2001 1.

SATYRIDAE – Browns and Alpines

- 4583b. *Coenonympha inornata benjamini* McD. (Common Ringlet) – 24-VII-1997 SR.
 4587. *Cercyonis pegala* (F.) (Meadow Brown) – 24-VII-1997 SR.

PYRALIDAE – Pyralid or Snout Moths

4716. *Scoparia biplagiata* (Wlk.) (Double-striped Scoparia Moth) – 30B-VII-2005 1.
 4826. *Mimoschinia rufofascialis* (Steph.) – 27A-VI-2003 6 and 27B-VI-2003 2.
 4922. *Cornifrons actualis* B. & McD. – 27A-VI-2003 1 and 27B-VI-2003 1.
 4950. *Fumibotys fumalis* (Gn.) (Mint Root Borer Moth) – 27B-VI-2003 3.
 4951. *Perispasta caeculialis* Zell. (Titian Peale's Pyralid Moth) – 27B-VI-2003 1.
 4957. *Mutuuraia mysippusalis* (Wlk.) – 27B-VI-2003 1.
 5004. *Loxostege sticticalis* (L.) (Beet Webworm) – 26-VI-2004 1 and 30A-VII-2005 2.
 5017. *Loxostege cereralis* (Zell.) (Alfalfa Webworm Moth) – 30A-VII-2005 1.
 5032. *Pyrausta nicalis* (Grt.) – 29C-BII-2006 1.
 5135. *Mecyna submedialis* (Grt.) (Orange-toned Mecyna Moth) – 27B-VI-2003 1, 30A-VII-2005 4 and 29C-VII-2006 1.
 5137. *Mecyna mustelinalis* (Pack.) – 26-VI-2004 1.
 5156. *Nomophila nearctica* Mun. (Lucerne Moth or Celery Stalkworm) – 3-VIII-2000 1 and 29B-VII-2006 1.
 5316. *Donacaula melinella* (Clem.) (Delightful Donacaula Moth) – 29B-VII-2006 1.
 5339. *Crambus pascuellus* (L.) (Grass-veneer Moth) – 27B-VI-2003 1.
 5343a. *Crambus perlellus innotatellus* Wlk. – 30B-VII-2005 1, 29A-VII-2006 2, 29B-VII-2006 1 and 29C-VII-2006 1.
 5391. *Chrysoteuchia topiaria* (Zell.) (Cranberry Girdler or Topiary Grass-veneer Moth) – 27A-VI-2003 3, 27B-VI-2003 2 and 26-VI-2004 2.
 5397. *Agriphila plumbifimbriella* (Dyar) – 30A-VII-2005 1 and 30B-VII-2005 2, 29A-VII-2006 2, 29B-VII-2006 1 and 29C-VII-2006 1. The forewings lack the AM and PM lines usually associated with *A. ruricolella*. Some specimens have the ST lines usually associated with *A. plumbifimbriella*, though this line, if present, is faint. Most fresh specimens have a distinct yellowish-orange shade in the terminal area in which the seven black dots are found. *Agriphila ruricolella* lacks this feature. *Agriphila ruricolella* is basically an eastern species while *A. plumbifimbriella* is western. There are no known genitalic differences between the two species. Thus, taking everything into account, this material fits *plumbifimbriella* better than *ruricolella*.
 Pediasia A – 30B-VII-2005 1.
 5413. *Pediasia trisecta* (Wlk.) (Sod Webworm Moth) – 29A-VII-2006 1, 29B-VII-2006 1 and 29C-VIII-2006 1.
 5417. *Pediasia dorsipunctella* (Kft.) – 30A-VII-2005 1, 30B-VII-2005 2 and 29B-VII-2006 1.
 5510. *Pyralis farinalis* L. (Meal Moth) – 26-VI-2004 1. Found in a house.

5585. *Jocara trabalis* (Grt.) (Jocara Moth) – 30A-VII-2005 1.
 5719. *Myelopsis minutularia* (Hulst) (*M. coniellea* (Rag.)) – 29C-VII-2006 1.
 5746/5751. *Pima boisduvaliella* (Gn.) or *P. fulvirugella* (Rag.) – 26-VI-2004 1.
 5787. *Meroptera pravella* (Grt.) (Lesser Aspen Webworm Moth) – 17C-VI-2006 1.
 5792. *Nephoterix* (*Sciota*) *fernaldella* (Rag.) – 27A-VI-2003 1. This could be a new species of *Sciota* according to Dr. H. Neunzig. He advised the collecting of additional specimens, especially of females.
 5843. *Dioryctria reniculeloides* Muttura & Mun. (Spruce Coneworm Moth) – 30A-VII-2005 1.
 5918. *Hulstia undulatella* (Clem.) (Sugarbeet Crown Borer Moth) – 3-VIII-2003 1.
 5968. *Zophodia grossulariella* (Hbn.) (*Z. convolutella*) (Gooseberry Fruitworm Moth) – 8A-V-2005 1.
 6007. *Vitula seratilineella* Rag. – 29C-VII-2006 1.
 6053. *Peoria approximella* (Wlk.) (Carmine Snout Moth) – 30A-VII-2005 3.

PTEROPHORIDAE – Plume Moths

- 5092-6234. Species indet. – 26-VI-2004 1 and 29-VII-2006 1. These specimens are being studied by Doug Macaulay.
 6107. *Gillmeria pallidactyla* (Haw.) – 17-VI-2006 1.
 6185. *Oidaematophorus brucei* (Fern.) – 26-VI-2004 1.

DREPANIDAE – Hooktips

6252. *Drepana bilineata* (Pack.) (Two-lined Hooktip) – 30B-VII-2005 1.

GEOMETRIDAE – Inchworm or Geometrid Moths

6272. *Eumacaria latiferrugata* (Wlk.) (Brown-bordered Geometer) – 27B-VI-2003 1.
 6279. *Macaria* (*Itame*) *occiduaria* (Pack.) (Western Sulphur) – 26-VI-2004 2, 30A-VII-2005 1, 30B-VII-2005 4 and 29B-VII-2006 1.
 6304. *Macaria* (*Itame*) *bitactata* (Wlk.) – 3-VIII-2000 1 and 30B-VII-2005 4.
 6373. *Digrammia* (*Semiothisa*) *denticulata* Grt. (Striped Granite) – 27B-VI-2003 2, 30A-VII-2005 1 and 30B-VII-2005 1.
 6380. *Digrammia* (*Semiothisa*) *californiaria* (Pack.) – 27A-VI-2003 1.
 6396. *Digrammia* (*Semiothisa*) *neptaria* (Gn.) – 2-VI-2001 2, 27B-VI-2003 2 and 29C-VII-2006 1.
 6431. *Hesperumia sulphuraria* Pack. – 30B-VII-2005 1.
 6597. *Ectropis crepuscularia* (D. & S.) – 8B-V-2005 1.
 6677. *Cabera erythemaria* Gn. (Yellow-dusted Cream Moth) – 27B-VI-2003 1 and 29C-VII-2006 1.
 6678. *Cabera variolaria* Gn. (Pink-striped Willow Spanworm) – 27B-VI-2003 1 and 2B-VII-2005 1.
 6715. *Aspitates aberratus* (Hy. Edw.) – 27B-VI-2003 2, 26-VI-2004 1, 17A-VI-2006 1, 17B-VI-2006 1 and 17C-VI-2006 1.

6729. *Euchlaena johnsonaria* (Fitch) (Johnson's *Euchlaena*) – 27A-VI-2003 1, 27B-VI-2003 1.
6734. *Euchlaena marginaria* (Minot) (Ochre *Euchlaena*) – 27B-VI-2003 1.
6737. *Euchlaena tigrinaria* (Gn.) (Mottled *Euchlaena* or Variable Thorn) – 27B-VI-2003 1.
6743. *Xanthotype sospeta* (Drury) – 2B-VII-2005 1.
6753. *Pero honestaria* (Wlk.) (Honest *Pero*) – 27B-VI-2003 1.
6755. *Pero morrisonaria* (Hy. Edw.) (Lesser Umber or Morrison's *Pero*) – 27B-VI-2003 1.
6796. *Campaea perlata* (Gn.) (Pale Beauty) – 27B-VI-2003 2.
6798. *Ennomos subsignaria* (Hbn.) – 27B-VI-2003 2.
- 6817/6818. *Selenia alciphearia* or *kentaria* – 8A-V-2005 1.
6822. *Metarranthis duaria* (Gn.) – 8B-V-2005 8.
6836. *Anagoga occiduaris* (Wlk.) (American Barred Umber) – 2-VI-2001 1.
6837. *Probole alienaria* H.-S. – 27B-VI-1002 2, 8B-V-2005 1 and 17C-VI-2006 1.
6838. *Probole amicaria* (H.-S.) (Friendly *Probole*) – 27B-VI-2003 1 and 26-VI-2004 1.
6860. *Neoterpes trianguliferata* (Pack.) – 27B-VI-2003 1.
6912. *Sicya macularia* (Harr.) (Pink-bordered Yellow) – 29B-VII-2006 1 and 29C-VII-2006 1.
7164. *Scopula junctaria* (Wlk.) (Simple Wave) – 27B-VI-2003 1 and 2B-VII-2005 1.
7169. *Scopula inductata* Gn. (Soft-lined Wave) – 17A-VI-2006 1, 29A-VII-2006 1 and 29B-VII-2006 1.
7172. *Scopula sentinaria* (Gey.) – 2-VI-2001 1.
7199. *Eulithis propulsata* (Wlk.) (Barred Yellow or Currant *Eulithis*) – 2B-VII-2005 1.
7207. *Eulithis xyliana* (Hulst) (The Phoenix) – 30A-VII-2005 1 and 29C-VII-2006 1.
7329. *Anticlea vasilata* Gn. (Variable Carpet) – 8A-V-2005 1.
7369. *Xanthorhoe packardata* McD. – 26-VI-2004 1.
7394. *Epirrhoe alternata* (Müller) (White-banded Toothed Carpet) – 17B-VI-2006 1.
7445. *Horisme intestinata* (Gn.) (Brown Bark Carpet) – 27B-VI-2003 1 and 26-VI-2004 2.
7446. *Horisme incana* Swett – 17C-VI-2006 1.
7476. *Eupithecia misturata* (Hulst) (Insignificant Pug) – 8-V-2005 1.
7487. *Eupithecia subfuscata* (Haw.) (Grey Pug) – 27-VI-2003 1.

LASIOCAMPIDAE – Tent Caterpillar or Lappet Moths

7687. *Phyllodesma americana* (Harr.) (Lappet Moth) – 8B-V-2005 1.
7702. *Malacosoma californicum* (Pack.) (Western Tent Caterpillar) – 29A-VII-2006 1 and 29C-VII-2006 1.

SATURNIDAE – Giant Silkworm Moths

7757. *Antheraea polyphemus* (Cram.) (Polyphemus Moth) – 2-VI-2001 1.

SPHINGIDAE – Sphinx Moths

7803. *Sphinx vashti* Stkr. (Vashti or Snowberry Sphinx) – 2-VI-2001 1, 27A-VI-2003 1, 27B-VI-2003 1 and 26-VI-2004 1.
7821. *Sphinx jamaicensis* (Drury) (Twin Spotted Sphinx) – 2-VI-2001 1, 27B-VI-2003 1, 26-VI-2004 1, 2B-VII-2005 1 and 17C-VI-2006 1.
7822. *Smerinthus cerisyi* Kby. (One-eyed Sphinx) – 2-VI-2001 1 and 27B-VI-2003 1.
7825. *Paonias myops* (J. E. Smith) (Small-eyed Sphinx) – 27A-VI-2003 1, 27B-VI-2003 1 and 26-VI-2004 1.
7893. *Hyles gallii* (Rottemburg) (Galium Sphinx or Bedstraw Hawkmoth) – 27A-VI-2003 1 and 2A-VII-2005 1.

NOTODONTIDAE – Prominent Moths

7901. *Clostera apicalis* (Wlk.) (Common Chocolate-tip or Red-marked Tentmaker) – 27B-VI-2003 1.
7922. *Pheosia rimosa* Pack. (Black-rimmed Prominent) – 8B-V-2005 1.
7928. *Notodonta simplaria* Graef (Simple Prominent) – 17C-VI-2006 1.
7931. *Gluphisia septentrionis* Wlk. (Small Pebble or Common Gluphisia) – 27A-VI-2003 1.
8007. *Schizura unicornis* (J. E. Smith) (Variegated Prominent or Unicorn Caterpillar Moth) – 27B-VI-2003 1.

ARCTIIDAE – Tiger Moths and others

8051. *Crambidia casta* (Pack.) (Pearly-winged Lichen Moth) – 28A-VIII-2005 2 and 29A-VII-2006 1.
8137. *Spilosoma virginica* (F.) (Virginian Tiger Moth, Red-marked Tentmaker or Yellow Woollybear) – 27B-VI-2003 1 and 29B-VII-2006 1.
8144. *Hypercompe permaculata* (Pack.) (Many-spotted Tiger Moth) – 3-VIII-2000 1, 2-VI-2001 1, 2A-VII-2005 1 and 30A-VII-2005 1.
8186. *Grammia williamsii* (Dodge) (William's Tiger Moth) – 27A-VI-2003 1, 27B-VI-2003 2, 26-VI-2004 1 and 17B-VI-2006 1.
8197. *Grammia virgo* (L.) (Virgin Tiger Moth) – 26-VI-2004 1.
8214. *Lophocampa maculata* (Harr.) (Spotted Tiger Moth) – 26-VI-2004 1 and 17A-VI-2006 1.

LYMANTRIIDAE – Tussock Moths

8294. *Dasychira vagans* (B. & McD.) (Variable Tussock Moth) – 26-VI-2004 1, 30A-VII-2005 1 and 30A-VII-2006 1.

NOCTUIDAE – Owlet or Noctuid Moths

8322. *Idia americalis* (Gn.) (American Snout Moth) – 27B-VI-2003 2 and 29B-VII-2006 1.
8348. *Zanclognatha pedipilalis* (Gn.) (Grayish Zanclognatha) – 27B-VI-2003 1.

8370. *Bleptina caradrinalis* Gn. (Bent-winged Owlet or Variable Snout Moth) – 27-VI-2003 1.
8461. *Hypena humuli* Harr. (Hop Vine Snout Moth) – 8A-V-2005 2 and 8B-V-2005 1.
8632. *Drasteria hudsonica* (G. & R.) (Northern Arches) – 8A-V-2005 2 and 8B-V-2005 1.
8738. *Caenurgina crassiuscula* (Haw.) (Clover Looper Moth) – 2-VIII-2000 1 and 29B-VII-2006 1.
8739. *Caenurgina erechtea* (Cram.) (Forage Looper Moth) – 30A-VII-2005 1, 30B-VII-2005 1, 29A-VII-2006 2 and 29C-VII-2006 1.
8821. *Catocala semirelictata* Grt. (Semirelict Underwing) – 29B-VII-2006 1 and 29C-VII-2006 1.
8914. *Autographa californica* (Speyer) (Alfalfa Looper) – 3-VIII-2000 2 and 17A-VI-2006 1.
8923. *Autographa ampla* (Wlk.) (Broken-banded Y or Large Looper Moth) – 27A-VI-2003 1.
8924. *Anagrapha falcifera* (Kby) (Celery Looper) – 27B-VI-2003 1.
8950. *Plusia putnami* Grt. (Putnam's Looper Moth) – 17B-VI-2006 1.
8990. *Nola cilicoides* (Grt.) (Blurry-patched Nola) – 30A-VII-2005 1 and 30B-VII-2005 1.
9048. *Lithacodia albidula* (Gn.) (Common Midget) – 29B-VII-2006 1.
9053. *Pseudostrotia carneola* (Gn.) (Pink-barred Lithacodia) – 27B-VI-2003 1.
9101. *Tarachidia tortricina* (Zell.) (Olive-shaded Bird-dropping Moth) – 27A-VI-2003 1.
9111. *Theresea flavicosta* (Sm.) (*Theresea angustipennis*) (Narrow-winged Midget or Olive-shaded Bird Dropping Moth) – 2-VI-2001 2, 27A-VI-2003 1, 27B-VI-2003 1, 26-VI-2004 1 and 30A-VII-2005 3.
9193. *Raphia frater* Grt. (The Brother) – 27B-VI-2003 1.
9195. *Raphia coloradensis* Put.-Cr. – 2-VI-2001 1 and 27B-VI-2003 1.
9228. *Acronicta furcifera* Gn. (The Forked Dagger Moth) – 8A-V-2005 1.
9258. *Acronicta sperata* Grt. (Sperata Dagger Moth) – 8B-V-2005 1.
9348. *Apamea amputatrix* (Fitch) (Northern Quaker or Dusky Sallow) – 2B-VII-2005 1 and 29B-VII-2006 1.
9351. *Apamea alia* (Gn.) (Dewy Quaker) – 17B-VI-2006 3 and 17C-VII-2006 2.
9353. *Apamea inordinata* (Morr.) (Montana Quaker) – 27A-VI-2003 1.
9359. *Apamea commoda* (Wlk.) (Southern Quaker) – 27A-VI-2003 1, 26-VI-2004 2, 17A-VI-2006 1 and 17B-VI-2006 2.
9364. *Apamea finitima* Gn. (Bordered Apamea) – 27B-VI-2003 1, 26-VI-2004 1 and 17B-VI-2006 1.
9365. *Apamea scoparia* Mikkola, Mustelin & Laf. (*Agroperina lateritia*) (Red-Winged Quaker) – 27A-VI-2003 2, 27B-VI-2003 1, 26-VI-2004 2 and 17C-VI-2006 1.
- 9367a. *Apamea cogitata* (Sm.) (Ruby Quaker) – 30B-VIII-2005 1.
9369. *Apamea inficita* (Wlk.) – 30A-VII-2005 1, 30B-VIII-2005 1, 29A-VII-2006 1, 29B-VII-2006 1 and 29C-VII-2006 1.
9382. *Apamea devastator* (Brace) (Glassy Cutworm Moth or Destructive Quaker) – 3-VIII-2000 2, 30A-VII-2005 3 and 30B-VII-2005 1, 17C-VI-2006 1, 29A-VII-2006 1 and 29B-VI-2006 1.
9391. *Luperina passer* (Gn.) (Dock Rustic) – 30B-VII-2005 1.
9417. *Oligia egens* (Wlk.) (Neomogen's Quaker) – 30B-VII-2005 1 and 29C-VII-2006 1.

9440. *Chortodes rufostrigata* (Pack.) (Brown-streaked Rustic) – 27B-VI-2003 1 and 30A-VII-2005 1.
9453. *Celaena reniformis* (Grt.) (Kidney-spotted Rustic) – 3-VIII-2000 1.
9457. *Amphipoea americana* (Speyer) (American Ear Moth) – 29C-VII-2006 1.
9515. *Hydraecia perobliqua* Hamp. (Oblique Rustic) – 30B-VII-2005 1.
9647. *Proxenus miranda* (Grt.) (Glistening Rustic) – 2-VI-2001 4 and 26-VI-2004 2.
9649. *Proxenus mendosa* McD. – 30A-VII-2005 1.
9654. *Platyperigea meralis* (Morr.) – 30B-VII-2005 1.
9656. *Platyperigea montana* (Bremer) (Civil Rustic) – 3-VIII-2000 2, 2-VI-2001 1, 27A-VI-2003 1, 26-VI-2004 1 and 30B-VII-2005 1.
9873. *Xylena nupera* (Lint.) (American Swordgrass Moth) – 8A-V-2005 2 and 8B-V-2005 2.
9876. *Xylena cineritia* (Grt.) (Western Swordgrass Moth) – 8A-V-2005 3 and 8B-V-2005 1.
9917. *Lithophane fagina* Morr. (Beech Pinion) – 8A-V-2005 1.
- Mniotype* sp. – 17C-VI-2006 1.
10035. *Noctua pronuba* (B. & McD.) (Large Yellow Underwing) – 29A-VII-2006 1.
10067. *Adita chionanthi* (J.E. Smith) (Fringed Tree Sallow) – 30B-VII-2005 1.
10194. *Cucullia intermedia* Speyer (Goldenrod Cutworm Moth) – 27A-VI-2003 1.
10224. *Discestra mutata* (Dod) (The Changeling) – 27A-VI-2003 1.
- 10228c. *Discestra oregonica montanica* McD. – 2-VI-2001 1.
10232. *Discestra farnhami* (Grt.) (Farnham's Discestra) – 2-VI-2001 1.
10233. *Discestra crotchi* (Grt.) – 8B-V-2005 2.
10238. *Scotogramma submarina* (Grt.) – 27A-VI-2003 1.
10265. *Sideridis rosea* (Harv.) (Rosy Penman or The Rosywing) – 2-VI-2001 1.
10271. *Mamestra configurata* (Wlk.) (Bertha Armyworm) – 26-VI-2004 1, 17A-VI-2006 1, 17B-VI-2006 1 and 17C-VI-2006 2.
10273. *Polia discalis* (Grt.) (Large Gray Polia) – 2B-VII-2005 2 and 17C-VI-2006 2.
10280. *Polia purpurissata* (Grt.) (Purple Arches) – 30B-VII-2005 1, 29B-VII-2006 1 and 29C-VII-2006 1.
10288. *Polia detracta* (Wlk.) (Dingy or Disparaged Arches) – 2-VI-2001 1, 27B-VI-2003 1 and 26-VI-2004 1.
10289. *Polia goodelli* (Grt.) (Goodell's Arches) – 27B-VI-2003 1.
10297. *Lacanobia atlantica* (Grt.) (Atlantic Arches) – 2-VI-2001 1.
10298. *Lacanobia radix* (Wlk.) (Garden Arches) – 2-VI-2001 1 and 27A-VI-2003 1.
10300. *Spirameter grandis* (Gn.) (Pale-banded Arches) – 2-VI-2001 1, 27B-VI-2003 2 and 26-VI-2004 1.
10370. *Lacinipolia lustralis* (Grt.) (Lustrous Arches) – 2-VI-2001 1, 27B-VI-2003 1 and 26-VI-2004 2.
10372. *Lacinipolia anguina* (Grt.) (Snaky Arches) – 2-VI-2001 2.
10397. *Lacinipolia renigera* (Steph.) (Kidney-spotted Arched or Bristly Cutworm) – 2B-VII-2005 1, 30A-VII-2005 1, 29B-VII-2006 1 and 29C-VII-2006 1.
10405. *Lacinipolia lorea* (Gn.) (Bridled Arches) – 27B-VI-2003 1 and 17B-VI-2006 1.
10431. *Faronta diffusa* (Wlk.) (Cloudy Wainscot or Wheat-head Armyworm Moth) – 27A-VI-2003 2.
10436. *Aletia oxygala* (Grt.) (Lesser Wainscot) – 27B-VI-2003 1, 2A-VII-2005 1, 2B-VII-2005 1, 30A-VII-2005 1, 17B-VI-2006 1 and 29A-VII-2006 1.

10446. *Leucania multilinea* Wlk. (Many-lined Wainscot) – 29B-VII-2006 1.
10447. *Leucania commoides* Gn. (Comma Wainscot) – 3-VIII-2000 2, 17B-VI-2006 1, 29A-VII-2006 1 and 29C-VII-2006 1.
10449. *Leucania insueta* Gn. (Heterodox Wainscot) – 2-VI-2001 1, 26-VI-2004 1, 17A-VI-2006 1, 17C-VI-2006 1.
10471. *Stretchia plusiaeformis* Hy. Edw. (Gray Spectacles) – 8A-V-2005 1 and 8B-V-2005 2.
10490. *Orthosia revicta* (Morr.) (Subdued Quaker) – 8A-V-2005 1 and 8B-V-2005 3.
10493. *Orthosia segregata* Sm. (Segregate Penman) – 8A-V-2005 2 and 8B-V-2005 2.
10493. *Orthosia segregata* f. *negussa* Sm. – 8A-V-2005 5 and 8B-V-2005 1.
10495. *Orthosia hibisci* (Gn.) (Variable Penman or Speckled Green Fruitworm Moth) – 8B-V-2005 1.
10501. *Crocigrapha normani* (Grt.) (Norman's Quaker) – 8A-V-2005 1 and 8B-V-2005 12.
10513. *Egira dolosa* (Grt.) (Grieving Woodling or Greater Black Letter Dart) – 27A-VI-2003 1.
10524. *Nephelodes minians* Gn. (Shaded Umber, Brown Cutworm Moth or Bronzed Cutworm Moth) – 29B-VII-2006 1.
10563. *Protorthodes oviduca* (Gn.) (Ruddy Quaker) – 2-VI-2001 2, 27A-VI-2003 1, 8A-V-2005 2 and 17C-V-2006 1.
10652. *Agrotis vancouverensis* Grt. (Vancouver Dart) – 2-VI-2001 5, 27A-VI-2003 2, 27B-VI-2003 1, 26-VI-2004 2, 2A-VII-2005 1, 2B-VII-2005 1, 17A-VI-2006 1 and 17C-VI-2006 1.
10663. *Agrotis ipsilon* (Hufn.) (Ipsilon Dart)- 27A-VI-2003 1.
10670. *Feltia jaculifera* (Gn.) (Dingy Cutworm Moth) – 3-VIII-2000 2 and 30A-VII-2005 3.
10676. *Feltia herilis* (Grt.) (Master's Dart) – 30B-VII-2005 2, 29B-VII-2006 2 and 29C-VII-2006 2.
- 10701.2. *Euxoa auxiliaris* (Grt.) (Auxiliary Dart) – 27A-VI-2003 3 and 27B-VI-2003 2.
10702. *Euxoa divergens* (Wlk.) (Divergent Dart) – 2-VI-2001 4, 27A-VI-2003 2, 27B-VI-2003 1, 26-VI-2004 1, 2A-VII-2005 1 and 2B-VII-2005 1.
10723. *Euxoa tristicula* (Morr.) (Early Cutworm or Three-marked Dart) – 27B-VI-2003 1, 2B-VII-2005 1, 30A-VII-2005 2 and 30B-VII-2005 1.
10728. *Euxoa pestula* Sm. – 27A-VI-2003 1 and 27B-VI-2003 1.
10755. *Euxoa declarata* (Wlk.) (Clear Dart) – 3-VIII-2000 1.
10801. *Euxoa ochrogaster* (Gn.) (Red-backed Cutworm Moth) – 3-VIII-2000 2 and 30A-VII-2005 1.
10805. *Euxoa tessellata* (Harr.) (Tessellate Dart) – 30A-VII-2005 1.
10813. *Euxoa medialis* (Sm.) (Median-banded Dart) – 10-X-2004 1.
10910. *Anicla tepperi* (Sm.) (*Euagrotis tepperi*) (Black-girdled Dart) – 27A-VI-2003 3, 27B-VI-2003 1, 26-VI-2004 2 and 17B-VI-2006 1.
10917. *Diarsia rubifera* (Grt.) (Rubifera Dart) – 27B-VI-2003 1.
10923. *Actebia balanitis* (Grt.) (Bracketed Dart or Acorn Dart) – 27A-VI-2003 3, 27B-VI-2003 1 and 2B-VII-2005 1.
10926. *Spaelotis clandestina* (Harr.) (Clandestine Dart) – 27A-VI-2003 1, 27B-VI-2003 2, 26-VI-2004 1, 2B-VII-2005 1 and 30B-VII-2005 1.
- 10927.1. *Spaelotis bicava* Laf. – 2-VI-2001 1 and 2B-VII-2005 1.

10928. *Graphiphora augur* (Grt.) (Soothsayer Dart) – 30B-VII-2005 1.
 10929. *Eurois occulta* (L.) (Great Gray Dart) – 27B-VI-2003 117B-VI-2006 1 and 29C-VII-2006 1.
 10942. *Xestia c-nigrum* (L.) (Black-letter Dart) – 27B-VI-2003 1.
 10944. *Xestia smithii* (Snellen) (Smith's Dart or Spotted Clay Dart) – 3-VIII-2000 2 and 2B-VII-2005 2, 30B-VII-2005 1, 29A-VII-2006 1, 29B-VII-2006 1 and 29C-VII-2006 1.
 10951. *Pseudohermomassa tenuicula* (Morr.) (*Xestia tenuicula*) (Hair-pin Dart) – 30B-VII-2005 2.
 10992. *Paradiarsia littoralis* (Pack.) (Labrador Dart) – 2-VI-2001 1, 27A-VI-2003 1, 27B-VI-2003 1, 26-VI-2004 2, 2A-VII-2005 1, 2B-VII-2005 1, 17B-VI-2006 1 and 17C-VI-2006 1.
 11004. *Protolampra rufipectus* (Morr.) (Red-breasted Dart) – 3-VIII-2000 1 and 30B-VII-2005 1, 29B-VII-2006 1 and 29C-VII-2006 2.
 11012. *Cryptocala acadensis* (Bethune) (Catocaline Dart) – 30B-VII-2005 1 and 29C-VII-2006 1.
 11029. *Abagrotis alternata* (Grt.) – 30B-VII-2005 1 and 29C-VII-2006 1.
 11041. *Abagrotis placida* (Grt.) group (Placida Dart) – 30A-VII-2005 1.
 11192. *Schinia cumatilis* (Grt.) (Silver-banded Gem) – 30A-VII-2005 7.

SUMMARY

The list in the report for 2003 contained 144 species, Bird (2005) brought the total up to 165, Bird (2006) raised it to 239, while 283 species are listed in the present one. It has been especially encouraging to encounter southern species, such as *Ethmia monticola*, *Pelochrista argenteana*, *P. occipitana*, *Mimoschinia rufofascialis*, *Hystrichophora asphodelana*, *Neoterpes trianguliferata*, *Ennomos subsignaria* and *Raphia coloradensis*. In addition, it is possible that collected specimens of *Sciota* and *Sonia* appear to be of undescribed species. Further study is definitely recommended. It should bring the overall total to at least 400 species.

Peak numbers of moths occur during June, July and August. As most species fly for only a few days at a particular time of the year, the present list, which involved only eight nights of study, must be regarded as only a start at a proper inventory.

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LITERATURE CITED

- Adamski, David. 2000. A new species of Glyphidocera from south-central Colorado (Lepidoptera: Gelechioidea: Glyphidoceridae). *Fabreries* 25(4): 69-78.
- Bird, C.D. 2004. Lepidoptera of East Arrowwood Coulee, Alberta, a first report. Report prepared for Alberta Parks and Protected Areas. 9 pp.
- Bird, C.D. 2005. Lepidoptera of East Arrowwood Coulee, Alberta, 1997-2004. Report prepared for Alberta Parks and Protected Areas. 11 pp.
- Bird, C.D. 2006. Lepidoptera of East Arrowwood Coulee, Alberta, 1997-2005. Report prepared for Alberta Parks and Protected Area. 14 pp.
- Bowman, Kenneth 1951. An annotated list of the Lepidoptera of Alberta. *Can. J. Zoology* 29: 121-165.
- Hodges, R. W. (ed.). 1983. Check List of the Lepidoptera of America North of Mexico. E.W. Classey Ltd. & The Wedge Entomological Research Foundation.

USEFUL ONLINE INFORMATION SOURCES ON MOTHS

Information on many of our Alberta moths can be found at the Entomology Collection Search site of the E.H. Strickland Entomological Museum of the Department of Biological Sciences at the University of Alberta: <http://www.entomology.ualberta.ca/>.

Illustrations of Alberta macromoths can be found at a site put together by D. Lafontaine and J. Troubridge called "The Moths of Canada": http://www.cbif.gc.ca/spp_pages/misc_moths/phps/mothindex_e.php.

Illustrations on many of the western American macromoths can also be found on a site put together by The Moth Photographers Group: <http://www.origins.tv/MothPhotographersGroup/WestPlates.htm>.

D. Lynn Scott has a web site with natural photos of over 400 species of moths that she has found in Ottawa, Ontario (<http://acleris.com/dls/mothindex.html>). As many of the species also occur in Alberta, these images can be quite helpful

USEFUL BOOKS ON MOTHS

- Covell, Charles V., Jr. 1984. A Field guide to Moths; Eastern North America. Houghton, Mifflin Co., Boston, New York.
- Handfield, Louis. 1999. Le Guide des Papillons du Quebec. Vol. 1. Broquet, Boucherville, QC.
- Ives, W.G.H. & H.R. Wong. 1988. Tree and Shrub Insects of the Prairie Provinces. Can. Forestry Serv., Northern For. Centre, Inf. Rept. NOR-X-292.

APPENDIX

Collection dates, sites and other details
East Arrowwood Coulee, 3 km NE of Arrowwood

- 24 July 1997 – diurnal, W-facing coulee slope, 50.750, 113.130, 860 m.
2 June 2001 – 2 UV traps and some diurnals, W-facing coulee slope, 50.75, 113.13, abt 900 m,
27A June 2003 – UV, upper edge of W-facing coulee slope, 50.75037, 113.12813, 915 m.
27B June 2003 – UV, Populus balsamifera woods along creek, 50.75128, 113.13015, 862 m.
11 April 2004 – diurnal, W-facing coulee slope and coulee bottom, 50.75, 113.13, 860-900.
26D June 2004 – diurnal and porch light, 50.75, 113.13, 860-915 m.
26U June 2004 – UV, W-facing coulee slope, 50.750, 113.128, 915 m.
26L June 2004 – UV, Populus balsamifera woods along creek, 50.751, 113.130, 862 m.
8A May 2005 – UV, W-facing coulee slope beside seeping spring, 50.757, 113.129, 887 m.
8B May 2005 – UV, wooded coulee bottom, 50.759, 113.130, 870 m.
2A July 2005 – UV, W-facing coulee slope beside seeping spring, 50.757, 113.129, 887 m.
2B July 2005 – UV, wooded coulee bottom, 50.759, 113.130, 870 m.
30A July 2005 – UV, W-facing coulee slope, 50.750, 113.128, 900 m.
30B July 2005 – UV, Populus balsamifera woods along creek, 50.751, 113.130, 860 m.
17A June 2006 – UV, W-facing coulee slope, 50.757, 113.129, 889 m.
17B June 2006 – UV, W-facing coulee slope, 50.757, 113.128, 898 m.
17C June 2006 – UV, W-facing coulee slope above Populus balsamifera, 50.758, 113.127, 899 m.
29A July 2006 – UV, W-facing coulee slope, 50.74912, 113.12818, 905 m.
29B July 2006 – UV, coulee bottom near Solidago and Shepherdia argentea, 50.74814, 113.12946, 887 m.
29C July 2006 – coulee bottom with Populus balsamifera, 50.75147, 113.13020, 886 m.