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NEW RECORDS OF MICROLEPIDOPTERA IN ALBERTA, CANADA

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ABSTRACT. Fifty-seven species of microlepidoptera are reported as new for the Province of Alberta, based primarily on specimens in the Northern Forestry Research Collection of the Canadian Forest Service, the University of Alberta Strickland Museum, the Canadian National Collection of Insects, Arachnids, and Nematodes, and the personal collections of the first two authors. These new records are in the families Eriocraniidae, Prodoxidae, Tineidae, Psychidae, Gracillariidae, Ypsolophidae, Plutellidae, Acrolepiidae, Glyphipterigidae, Elachistidae, Glyphidoceridae, Coleophoridae, Gelechiidae, Xyloryctidae, Sesiidae, Tortricidae, Schreckensteiniidae, Epermeniidae, Pyralidae, and Crambidae. These records represent the first published report of the families Eriocraniidae and Glyphidoceridae in Alberta, of Acrolepiidae in western Canada, and of Schreckensteiniidae in Canada. *Tetragma gei*, *Tegeticula corruptrix* (Prodoxidae), *Scythris mixaula* (Xyloryctidae), *Nemapogon acapnopennella* (Tineidae), *Plutella vanella* (Plutellidae), *Acrolepiopsis liliivora* (Acrolepiidae), *Glyphipterix montisella* (Glyphipterigidae), *Glyphidocera hurlberti* (Glyphidoceridae), *Synanthedon culiciformis* (Sesiidae), *Epinotia albicapitana* (Tortricidae), *Schreckensteinia festaliella* (Schreckensteiniidae), and *Epermenia lomatii* (Epermeniidae) are reported for the first time in Canada. As well, further Alberta records of the rarely collected species *Blastodacna curvilineella* (Elachistidae) and *Wockia asperipunctella* (Urodidae) are given.

Additional key words: distribution, faunistics.

Alberta is a large province (> 660,000 square km^2) in western Canada, comprising primarily boreal forest in the northern half, and aspen parkland and prairie in the southern half, with the Rocky Mountains and foothills along the western border. Its lepidopteran fauna contains elements from all of these ecoregions, as well as some exotic introductions. Most of the province was covered by ice in the last glaciation; consequently its fauna contains many post-glacial immigrants and few endemic species. Nevertheless, it has a large and diverse lepidopteran fauna, estimated to contain approximately 3000 species, almost evenly divided between the macrolepidoptera (sensu Kristensen 1999; the superfamilies Mimalonioidea, Lasiocampoidea, Bombycoidea, Hesperioidea, Papilionoidea, Drepanoidea, Geometroidea, and Noctuoidea) and the microlepidoptera (primitive groups up to and including the Pyraloidea and Thyridoidea).

The first checklist of Alberta Lepidoptera was published by Frederic Hova Wolley-Dod between 1901 and 1906 as a series of articles in The Canadian Entomologist (Wolley-Dod 1901a, b, 1904, 1905a-f, 1906a-c). It listed 613 species of macrolepidoptera, and a few of the larger microlepidoptera in the families Hepialidae, Cossidae, and Sesiidae. In 1951, Edmonton Lepidoptera collector Kenneth Bowman published a comprehensive list of Alberta Lepidoptera, including 657 microlepidoptera and 1168 macrolepidoptera species and varieties. Since

that time, many taxonomic revisions have been published detailing new records for the province. In recent years, the authors have collected microlepidoptera extensively in Alberta and have examined specimens in local public collections. The current paper reports 57 new Alberta records resulting from this work, and additional localities for two species previously reported in single locations in the province.

MATERIALS AND METHODS

This list is based on our examination of material housed in the Northern Forestry Centre Research Collection (NFRC), Edmonton; the Strickland Museum of the University of Alberta (UASM), Edmonton; the Canadian National Collection of Insects, Arachnids, and Nematodes (CNC), Ottawa, Ontario; the Agriculture and Agri-Food Canada Research Lab collection (AGRL), Lethbridge; the Olds College Insect Collection (OLDS), Olds; and the personal collections of the first two authors (POHL, BIRD) and of Douglas Macaulay (DAM) of Barrhead, Alberta. Identities have been confirmed via comparison with cited publications and reference collections, and consultation with appropriate taxonomic experts, as noted below. For the more difficult species, the genitalia were dissected and examined. When available, published revisions were used to make identifications; for groups which have not been revised in the past 100 years; identifications were made via comparison to authoritatively identified specimens at the CNC. Voucher specimens of all species are deposited at NFRC, except as noted. Unless otherwise noted, all BIRD specimens were collected by C.D. Bird, and all POHL specimens were collected by G.R. Pohl.

Abbreviations used are as follows: N, north; S, south; E, east; W, west; FIDS, Canadian Forest Service, Forest Insect and Disease Survey; FW, forewing; HW, hindwing; LT, light trap; MV, mercury vapour; UV, ultraviolet; WS, wingspan.

Species are presented in taxonomic order based on the higher phylogeny presented in Kristensen (1999), and species-level arrangements in the taxonomic revisions cited below.

For each species treated we provide a brief synopsis of information under the following headings: ID: diagnostic characters allowing identification of the species in the context of other species known from western Canada; AB REC: Alberta specimens examined by the authors; DIST: general distribution of the species, as represented in the literature; BIO: a summary of known biological information including host records; COM: any other comments.

SPECIES ACCOUNTS

ERIOCRANIIDAE

Eriocrania semipurpurella (Stephens, 1834)

ID: A small (12 to 14 mm WS) moth with dark brown FW. The FW has a purplish metallic lustre, and a small triangular white mark on the caudal margin, immediately basad of the tornus. Davis (1978) provides a full description and illustrations. Although it is very similar to other species in the family, it is the only species known to occur in western North America.

AB REC: Edmonton, 20 May 1948, K. Bowman [UASM]. Edmonton, CFS Northern Forestry Centre compound, 53.49138ºN 113.54390ºW, 28 April 1998, G.R. Pohl [NFRC]. 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 21 April 2000, diurnal [POHL]; 11 April 2001, diurnal [POHL]; 19 April 2001, diurnal [POHL]; 16 May 2002, at dusk, A.J.P. Deneka [POHL]. 8 km NW of Winfield, 53.01ºN 114.50ºW, 900 m, 5 May 2001, UV LT [BIRD]; 12 May 2001, MV light [BIRD]; 12 May 2003, UV LT [BIRD].

DIST: Previously known to occur in eastern North America as far W as Black Sturgeon Lake, Ontario (subspecies *semipurpurella* (Stephens)), and in western North America (subspecies *pacifica* Davis) in Alaska, British Columbia (Vancouver Island), and Washington (Davis 1978). It is widely distributed in southern and central Alberta in boreal and mixedwood areas.

BIO: This species is an inhabitant of moist aspen forests. Adults can be quite numerous on warm sunny days in early spring. Larvae are leaf blotch miners. Subspecies *semipurpurella* feeds on *Betula* (Betulaceae); in British Columbia, *pacifica* may feed on *Holodiscus discolor* (Pursh) Maxim. (Betulaceae) (Davis 1978).

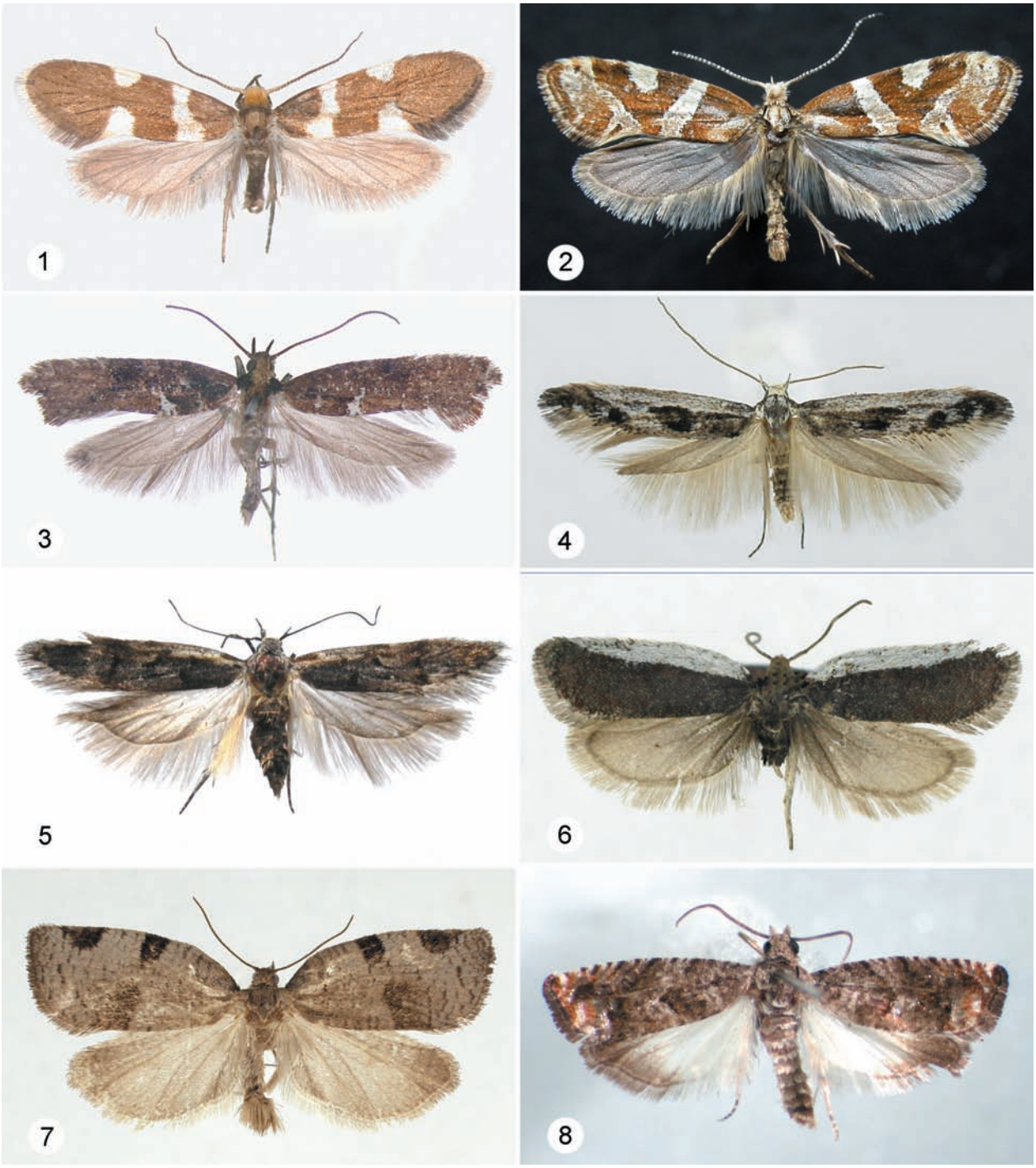
COM: All Alberta specimens examined by the authors conform to the *pacifica* subspecies. This is the first report of the family Eriocraniidae in Alberta.

PRODOXIDAE

Lampronia russatella (Clemens, 1860)

ID: A small (13 to 15 mm WS) moth with a distinctive pattern of white or pale yellow marks on the FW (Fig. 1), comprising a complete basal band, median costal and dorsal patches, and a distal patch on the costal margin which may be absent in some specimens. The background color of the FW is bronzy brown with a metallic lustre. Dietz (1905) provides a brief treatment of the species, in the genus *Incurvaria* in the family Tineidae.

AB REC: 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 20 June 2000, at dusk [POHL]; 13 July 2000 [POHL]. 3 km W of Touchwood



Figs. 1-8. Microlepidoptera new to Alberta. **1**, *Lampronia russatella*, 13.5 mm WS, 3 km W of Touchwood Lake, 22 June 1994 J.-F. Landry; **2**, *Plutella vanella*, 17.0 mm WS, 8 km NW of Winfield, 17 July 2003 C.D. Bird; **3**, *Acrolepiopsis liliivora*, 14.5 mm WS, 8 km SE of Sherwood Park, 21 April 2001 G.R. Pohl; **4**, *Blastodacna curvilineella*, 16.3 mm WS, Rochon Sands Provincial Park, 1 May 2004 C.D. Bird; **5**, *Xenolechia velatella*, 14.1 mm WS, Rochon Sands Provincial Park, 3 May 2001 C.D. Bird; **6**, *Acleris paracinderella*, 16.8 mm WS, Kananaskis, Elbow Ranger Station, reared, emerged 29 August 1951; **7**, *Lozotaenia hesperia*, 23.2 mm WS, 20 km NE of Zama City, 7 July 1997 G.R. Pohl; **8**, *Gretchena semialba*, 12.6 mm WS, Wandering River.

Lake, E of Lac La Biche, 22 June 1994, daytime sweeping mosses and sphagnum in boggy swamp, J.-F. Landry [CNC].

DIST: Previously known only from eastern North America, from Montreal, Quebec, and Ithaca, New York (Dietz 1905).

BIO: Unknown.

COM: The genus *Lampronia* is in need of revision. The status of this and other species may need to be revised in light of a full examination of genitalic structures.

***Lampronia capitella* (Clerck, 1759)**

ID: A small (13 to 15 mm WS) moth with a distinctive pattern of white marks on the FW, comprising an incomplete basal band, median costal and dorsal patches, and a distal patch on the wingtip. The background color of the FW is bronzy brown with a metallic lustre. This species has not been treated in the North American literature. Medvedev (1978) provides genitalia illustrations, and Parenti (2000: Plate 33) provides an excellent color photograph.

AB REC: Barrhead, 2 June 1997, D. Macaulay [DAM]. Long Lake, boreal forest at lakeshore, 17 June 1999, UV light [POHL].

DIST: A Holarctic species, reported in North America only from Quebec (Handfield 2002). There are specimens in the CNC from Ontario, Quebec, and British Columbia.

BIO: In Europe this species feeds on shoots and buds of *Ribes* (Grossulariaceae) (Medvedev 1978). Heath & Pelham-Clinton (1976) provide an account of its life history in Great Britain.

COM: Known in Europe as the Currant Shoot Borer. See note on the genus *Lampronia* under *L. russatella* above.

***Tetragma gei* Davis & Pellmyr, 1992**

ID: A small to medium-sized (11 to 17 mm WS) light grey moth, with a few scattered darker scales on the FW. Females are larger than the males, and have an extremely long abdomen ending in a sharp ovipositor. Davis et al. (1992) provides a description and illustrations.

AB REC: Porcupine Hills, Skyline Road, 49.93597°N 113.97926°W, montane pine/fir meadow, 3 July 2002, diurnal, D.W. Langor & G.R. Pohl [NFRC] (2 specimens); [CNC] (2 specimens).

DIST: This is the first record of this species in Canada. It was previously known from the northwestern United Sates, in eastern Washington, Idaho, Wyoming, and South Dakota, although it was expected to have a broader distribution (Davis et al. 1992).

BIO: This species occurs in high elevation forb-rich meadows, where it can be locally abundant. Larvae are known to feed on *Geum triflorum* Pursh (Rosaceae) (Davis et al. 1992).

***Tegeticula corruptrix* Pellmyr, 1999**

ID: A relatively large (22 to 35 mm WS), stout-bodied moth with immaculate white FW and brownish grey HW. Pellmyr (1999) provides a description and illustrations, including mouthpart and genital characters for separation from other species of *Tegeticula*.

AB REC: Lost River Valley, 1 km N of the Montana border, 49.01046°N 110.44424°W, 28 June 2001, shortgrass prairie, hand collected from *Yucca glauca* flowers, Pohl, Macaulay & Machney [NFRC] (2 specimens). Onefour, 9 July 1950, A. Hewitt [AGRL]. Onefour, 9 July 1950, K. Bowman [UASM].

DIST: Although its occurrence in Alberta in sympatry with *T. yuccasella* (Riley) has been noted in a unpublished reports (Perry 2001; COSEWIC 2002), this is the first published record of *T. corruptrix* in Canada. It was previously reported from the western USA, from California to Texas, north to southern Montana. The Onefour area represents the northern limit of *Yucca glauca* Nutt. (Liliaceae) and of *Tegeticula* species in Canada.

BIO: The genus *Tegeticula* has a well-known mutualistic relationship with *Yucca* plants (Pellmyr et al. 1996). Moth larvae are dependent on the plant for food, and the plant is dependent on the moths for pollination. *Tegeticula corruptrix* is a recently recognized species that 'cheats' by ovipositing in the developing seeds without pollinating the flowers (Pellmyr 1999). Larvae are known to feed on a number of *Yucca* species (Pellmyr 1999). *Yucca glauca* is the only *Yucca* species occurring in Canada; it is restricted to several hundred plants at two sites near Onefour.

TINEIDAE

***Nemapogon acapnopennella* (Clemens, 1863)**

ID: A small (14 mm WS) dark brown and pearly white mottled moth (Fig. 17). The wing pattern is rather nondescript, but is subtly different from other species of the genus known to occur in northwestern North America. Dietz (1905) provides a re-description. Genitalia illustrations of this species have not been published.

AB REC: Edmonton (edge of Fulton Ravine), 53.545°N 113.439°W, 21 July 2001, sesiid pheromone trap, G.G. Anweiler [NFRC] (5 specimens). Touchwood Lake, 30 km E of Lac La Biche, Rge. 10 Twp. 67 Sec. 32 W 4th Mer., 29 June 1994, UV trap M2-2, G.R. Pohl et al. [NFRC]; Rge. 10 Twp. 68 Sec. 3 W 4th Mer., 14 July 1995, UV trap O4-5/6, D.W. Langor et al. [NFRC] (2

specimens).

DIST: This is the first record of this species in Canada. It was previously known only in eastern USA, in Pennsylvania, Maryland, Washington DC, and Louisiana (Dietz 1905). Specimens in the NFRC from Saskatchewan have recently been identified as this species.

BIO: Unknown. Larvae of other members of the genus feed on bracket fungi (Lawrence & Powell 1969). Adults are rarely collected at lights.

COM: It is interesting that several adults were collected in a sesiid trap; they were males, and were observed in the trap performing complex behavior consistent with courtship. The pheromones of this species are not known, but may contain components chemically similar to those in the sesiid bait. The identity of the specimens listed above was confirmed by D. R. Davis (National Museum of Natural History, Smithsonian Institution, Washington DC, USA). Another, possibly undescribed species of *Nemapogon*, externally similar to *N. acapnopennella* but with different genitalia, has been collected in sympatry with *N. acapnopennella* at the Touchwood Lake site reported above (Pohl et al. 2004). It may prove to be conspecific with an undescribed species similar to *N. acapnopennella* reported from Quebec (Handfield 1997).

Psychidae

***Taleporia walshella* (Clemens, 1862)**

ID: A small (12 to 15 mm WS) nondescript moth. Males have an indistinct FW pattern of chestnut brown marks over a light brown background; females are wingless and rarely collected. Davis (1964) provides a detailed description and illustrations. The larvae and females look very similar to those of *Dahlica triquetrella* (see below); the larvae of these species are indistinguishable, and the females are separable only via microscopical examination of abdominal spines, as described by Sauter (1956).

AB REC: Cypress Hills, Elkwater Lake, 17 June 1996, at light [POHL]. 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 17 June 1997, UV trap, G.R. Pohl et al. [NFRC] (5 specimens); 27 May 1998, UV trap, H.E.J. Hammond et al. [NFRC] (4 specimens).

DIST: This is the first record of the species in northwestern North America. It was previously reported from eastern North America as far N as Sault Sainte Marie, Ontario (Prentice 1965), and as far W as Illinois (Davis 1964).

BIO: Larvae construct and live in elongate triangular cases made of sand grains and debris, from which they feed on lichens (Davis 1964). They have been reared from several tree species in eastern Canada (Prentice 1965); presumably feeding on lichens on the boles.

COM: This species was originally placed in the genus *Solenobia*, which is now considered a junior synonym of *Taleoporia* (Karsholt & Razowski 1996).

***Dahlica triquetrella* (Hübner, [1813])**

ID: The adult female is a minute (3 to 5 mm length) wingless moth which remains associated with the larval case. Males have not been found in North America. Larvae are the most often encountered life stage; they can be found in distinctive three-sided cases approximately 8 mm long, moving about on house walls. Leech & Sugden (1967) provide a description and illustrations of the larva, larval case, and adult female; Medvedev (1978: Fig. 105) provides male illustrations. The larvae and females look very similar to those of *Talporia walshella* (see above); the larvae of these species are indistinguishable, and the females are separable only via microscopical examination of abdominal spines, as described by Sauter (1956).

AB REC: vicinity of Blackfalds, June 2000, J. Broatch [NFRC] (6 specimens). 8 km E-SE of Sherwood Park, October 1998, exterior house walls [POHL] (3 specimens); May 1999, reared [POHL] (2 specimens). 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, May 2000, exterior house walls [POHL].

DIST: This species has been introduced to North America from Europe. It was established in Vernon, British Columbia and Montreal, Quebec by 1927 (Leech & Sugden 1967). It was unknown in the Edmonton area as recently as the 1980s, but has become quite common since then.

BIO: Larvae feed on lichens, and can be found actively moving about throughout the summer and on warm winter days. They are abundant in the Edmonton area, on the walls of buildings. Females are short-lived, and lay eggs on their larval case.

COM: The North American population of this Palaearctic species appears to be entirely composed of parthenogenetic, wingless females. Winged males are known from Europe (Sauter 1956). Listed under **Solenobia** in Hodges et al. (1983), the species is now placed in **Dahlica** (Karsholt & Razowski 1996).

Gracillariidae

***Micrurapteryx salicifoliella* (Chambers, 1872)**

ID: A minute (9 to 12 mm WS) moth with very narrow wings and a distinctive FW pattern of diagonal white marks on a dark brown background (Fig. 18). Ives & Wong (1988) provide a brief description and illustrations of the adult, larva, and blotch mine.

AB REC: Junction of Ft. Chipewyan winter road and

Richardson River, 58.0079ºN 111.0271ºW, river margin, 12 June 2000, diurnal, G.R. Pohl et al. [NFRC] (2 specimens); 13 June 2000, UV trap, G.R. Pohl et al. [NFRC] (2 specimens). Edmonton, Winterburn Road, 20 April 1983, G.D. Braybrook [CNC]. High Level, ex. *Salix* sp., reared, emerged 2-7 August 1963 [NFRC] (7 specimens); [CNC] (2 specimens). High Level, ex. *Salix* sp., reared, emerged 27-29 July 1964 [NFRC] (3 specimens). 30 km S of High Level, ex. *Salix* leaf mines, reared, 8 July 1993, D.W. Langor [NFRC] (7 specimens); [CNC] (4 specimens). Highway 35, 20 km S of Indian Cabins, ex. *Salix* sp., reared, 15 July 1990 [NFRC]. Keg River, ex. *Salix* sp., reared, 27 July 1965 [NFRC] (3 specimens). Marguerite Crag & Tail Provincial Wildland Park, 57.7107ºN 110.3337ºW, stream margin, 15 June 2000, adults on *Salix*, G.R. Pohl et al. [NFRC] (7 specimens). Maybelle River Provincial Wildland Park, 58.2092ºN 110.9234ºW, sand dunes, 12 June 2000, at dusk, G.R. Pohl et al. [NFRC]. Paddle Prairie, ex. *Salix* sp., reared, emerged 22-28 July 1964 [NFRC] (6 specimens). 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, 28 October 2001, diurnal [POHL]. Steen River, ex. *Salix* sp., reared, emerged 5-13 August 1963 [NFRC] (6 specimens); [CNC] (3 specimens). 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 28 May 1997, 4 June 1997, 6 August 1997, UV trap, G.R. Pohl et al. [NFRC] (8 specimens).

DIST: Ives & Wong (1988) report this species from the Prairie Provinces, but give no specific provincial or locality records other than the fact that it has been abundant in north-central Saskatchewan. The NFRC contains specimens from Saskatchewan, Manitoba, and Northwest Territories.

BIO: Larvae are blotch miners on *Salix* (Salicaceae) species. Adults emerge in August and remain active into October. They overwinter as adults, and reappear on warm days from March to May the following spring. They tend to fly at dusk, but are sometimes collected at lights.

YPSOLOPHIDAE

***Ypsolopha dentella* (Fabricius, 1775)**

ID: A medium-sized (18 to 20 mm WS) moth with falcate FW with a distinctive pattern; the costal three fourths of the wing is chocolate brown, separated from the yellow caudal area by a thin white line that extends into the brown area at about two-thirds the distance from the wing base. Parenti (2000: Plate 52) provides an excellent color photograph.

AB REC: Mountainview County, Olds, 4 September 1995, 14 September 1995, 27 July - 4 August 1997, 25 July 1998, 14 August 1998, 18-25 August 2000, 14 September 2000, LT, E. Mengersen [BIRD] (2 specimens); [NFRC]; [OLDS] (12 specimens). Stettler County, McKenzie Crossing, 13 km W of Big Valley, 15 September 2000, E. Mengersen [OLDS].

DIST: This introduced European species has not been previously reported in western North America. It is listed by Handfield (1997) as occurring in Quebec/Labrador, and by Forbes (1923) as occurring in northeastern USA (treated by the latter as "*Cerostoma* [=*Plutella*] *xylostella* Linnaeus", a name that now refers to the diamondback moth; however the description by Forbes unmistakably refers to *Y. dentella*).

BIO: Larvae feed on *Lonicera* (Caprifoliaceae). Agassiz (1996) provides a short account of the life history.

COM: This species is known as the European Honeysuckle Leafroller. It has probably been introduced to our area within the last four decades.

PLUTELLIDAE

***Plutella vanella* Walsingham, 1881**

ID: A medium sized (15 to 17 mm WS) moth with a distinctive FW pattern, consisting of a chocolate-brown background, two diagonal white bands which converge on the caudal margin, and a white mark on the costal margin between the diagonal bands (Fig. 2). This species has not been treated in the Nearctic literature since its original description.

AB REC: Banff, ex. white spruce, reared, 26 July 1952 [CNC]. 23 [miles?] W [of] Banff, ex. white spruce, reared, 21 August 1953 [CNC]. Bearberry Creek near Sundre, 23 July 1926, C.H. Young [CNC]. Belly River, ex. white spruce, reared, 26 July 1954 [CNC]. Big Horn River, ex. white spruce, reared, 18 July 1952 [CNC]. 20 miles W-SW Claresholm, ex. willow, reared, emerged 22 July 1956 [NFRC]. Clearwater County, 30 km W of Sundre, NE 12 Twp. 34 Rge. 7 W 5th Mer., 1-14 August 1999, E. Mengersen [OLDS] (6 specimens). Clearwater County, 10 km NW of Bearberry, 24 July 2001, 4 August 2001, 15 July 2002, 19 July 2002, E. Mengersen [OLDS] (11 specimens). Entrance, 7 August 1963, LT [NFRC]. Erskine, 52.32ºN 112.88ºW, 800 m, aspen parkland, 20 July 2002, UV LT [BIRD]. Ft. McMurray, Hangingstone River Valley off Highway 63, 56.68490ºN 111.35508ºW, *Populus*, *Picea*, *Abies* & *Alnus* forest, 12 July 2001, MV light, A.D. Macaulay et al. [NFRC] (3 specimens). Grande Cache, 3 km N of South Smoky River Campground, at river, 53.89029ºN 119.15671ºW, 953 m, aspen/spruce forest, 8 August 2003, UV trap, D. Macaulay [DAM]. Grande Prairie, 16 July 1963, LT [NFRC]. Holmes Crossing Staging Area, 7.3 km SE of Fort Assiniboine, 54.29403ºN 114.86665ºW, pine forest,

18 July 2003, UV trap, D. Macaulay [DAM]. Jasper, 26 July 1926, J.H. McDunnough [CNC]. La Butte Creek Wildland Provincial Park, rock outcrop 13 km E of junction of La Butte Creek and Slave River, 59.36549ºN 111.12988ºW, open *Pinus banksiana/Picea*, 9 July 2001, UV trap, A.D. Macaulay et al. [NFRC]. La Butte Creek Wildland Provincial Park, 3 km S of junction of La Butte Creek and Slave River, La Butte Point, 59.40578ºN 111.45251ºW, *Picea glauca* forest, 8 July 2001, MV light, A.D. Macaulay et al. [NFRC]. Medicine Lake Recreational Area, 52.749ºN 114.744ºW, 950 m, aspen/alder woods beside lake, 5 August 2003, UV LT [BIRD]. 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 28 July 2003, MV light [POHL]. Mountainview County, 3 km NE of Bergen, 17 July 1989, E. Mengersen [OLDS]; Camp Harmattan, 26 July 1997, E. Mengersen [OLDS]; SW 13 Twp. 33 Rge. 4 W 5th Mer., 26 June 1988, E. Mengersen [OLDS]. 38 km NW of Sundre, bench above James River, 51.80ºN 115.21ºW, 1360 m, lodgepole pine, 28 July 2002, UV LT [BIRD] (3 specimens). 8 km NW of Winfield, 53.01ºN, 114.50ºW, mixed woods, 15 July 2000, 28 July 2000, 11 July 2001, 18 July 2001, 17 July 2003, UV LT [BIRD] (16 specimens); 17 July 2003, MV light [BIRD] (2 specimens). 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 28 July 1997, 6 August 1997, UV trap, G.R. Pohl et al. [NFRC] (3 specimens).

DIST: This species is reported for the first time in Canada. It has been treated in the North American literature only in California (Powell & Hsu 1998; Powell 1999).

BIO: Unknown, other than the rearing note on one of the specimens listed above.

COM: It is odd that this common and distinctive species was missed by Bowman (1951). It appears to be generally distributed in the northern half of the province and in the parkland and foothills.

Acrolepiidae

***Acrolepiopsis liliivora* Gaedike, 1994**

ID: A small (12 to 15 mm WS) moth with brown FW with diffuse blackish irrorations and a small white triangular oblique mark in the middle of the caudal edge (Fig. 3). Gaedike (1994) provides a description and genitalia illustrations, including characters for distinguishing it from similar species of *Acrolepiopsis*.

AB REC: 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 21 April 2001 [POHL]; 20 June 2001, house light, G.R. Pohl [CNC]; 22 June 2002, MV light, G.R. Pohl [CNC], 14 April 2003, at dusk [POHL].

DIST: This is the first record of the species in Canada. It was previously known from California and Oregon (Gaedike 1994).

BIO: Some of the type material of this species was reared from the bulbs of *Lilium washingtonianum* Kell. (Liliaceae), which does not occur in Alberta. Several other Liliaceae species occur in Alberta (Moss 1983). In 2003 the authors collected a larva of an Acrolepiidae species which had been mining an unripened fruit of fairy bells (*Disporum trachycarpum* (S. Wats.) B. & H. (Liliaceae)), from the site where the above specimens were collected.

COM: The type material of this species included only six specimens and we are unaware of other published records besides the original series and the specimens reported here. This species was considered distinct from *A. californica* Gaedike by Gaedike (1994) on the basis of slight genitalic differences, and a different host plant (*A. californica* was reared from *Disporum hookeri*). Dr. J.A. Powell (pers. comm.) has reared *A. californica* from both *Lilium* and *Disporum* in California, and considers *A. liliivora* to be conspecific with *A. californica*. This is the first report of the family Acrolepiidae from western Canada.

Glyphipterigidae

***Glyphipterix montisella* Chambers, 1875**

ID: A small (12 mm WS) moth with greenish brown FW, with a series of white marks along the costal and caudal wing margins. Heppner (1985) provides a description and illustrations, including genitalic characters for separation from similar species of glyphipterigids.

AB REC: Calgary, 17 August 1984, D. Lawrie [NFRC].

DIST: This is the first report of this species in Canada. It was previously known from western USA, as far north as Glacier National Park, Montana (Heppner 1985). G.R. Pohl has seen a specimen from the vicinity of Weyburn in SE Saskatchewan.

BIO: Larvae may feed on one or more species of *Juncus* (Juncaceae) (Heppner 1985).

Elachistidae

Depressariinae

***Semioscopis merriccella* Dyar, 1902**

ID: A relatively large (22 to 30 mm WS) grey moth with grey FW extended into a blunt tip, and with an interrupted, wavy black line through the center. It can be separated from *S. packardella* (Clem.) by the wavy black line through the FW, which is uninterrupted in the latter species. Hodges (1974) provides a description and photograph; Clarke (1941) provides genitalia illustrations.

AB REC: Big Knife Provincial Park, 52.49ºN

112.22ºW, chokecherry/saskatoon, 1 May 2002, UV LT [BIRD]; 14 May 2003, UV LT [BIRD] (2 specimens). Holmes Crossing, 7 km SE of Fort Assiniboine, 12 May 2001, mixedwood forest, D. Macaulay [NFRC]. Red Deer, 3 May 1923, K. Bowman [UASM].

DIST: Hodges (1974) reports this species "from Maine west through the northern tier of States and southern Canada to British Columbia" but does not specifically mention Alberta. Though expected, these are the first records known from Alberta.

BIO: Unknown.

***Depressaria atrostrigella* Clarke, 1941**

ID: A relatively large (22 to 25 mm WS) grey moth with a series of straight black dashes along the veins of the FW. It is similar in overall habitus to several other species of Depressariinae, but no other North American species has this FW pattern. Hodges (1974) provides a description and photograph; Clarke (1941: Fig. 194) provides male genitalia figures.

AB REC: Buffalo Lake Conservation Area, 52.53ºN 112.70ºW, aspen parkland, 17 September 2001, 24 September 2001, UV LT [BIRD] (2 specimens). Edmonton, 5 September 1950, K. Bowman [UASM]. Tolman Bridge, 51.33504°N 113.01042°W, 707 m, *Stipa/Artemisia* grassland, 24 August 2003, UV LT [BIRD] (2 specimens). Tolman Bridge, 51.83461°N 113.01139°W, 706 m, chokecherry/aspen, 24 Aug 2003, UV LT [BIRD].

DIST: Previously reported from Manitoba and Colorado (Hodges 1974).

BIO: Unknown.

Elachistinae

***Elachista maritimella* McDunnough, 1942**

ID: A small (10 mm WS) variably colored moth with narrow wings. The FW is usually grey with two pairs of white transverse patches on the leading and caudal margins at one-third and two-thirds from the base. Individual specimens may vary from very dark to completely white. Kaila (1999) provides a description and illustrations, including genitalic characters for separation from many similar *Elachista* species.

AB REC: 8 km NW of Winfield, 53.01ºN, 114.50ºW, mixed woods, 24 June 2000, UV LT [BIRD].

DIST: Previously known from eastern Canada and from Saskatchewan (Kaila 1999).

BIO: Unknown.

Agonoxeninae

***Blastodacna curvilineella* (Chambers, 1872)**

ID: A small (11 to 17 mm WS) moth with lanceolate wings. The FW is cream colored with a dusting of brown scales and two patches of black tufted scales (Fig. 4). A black dash is present on some specimens in the center of the FW. Forbes (1923) provides a brief description; we know of no published illustration of it.

AB REC: Cypress Hills, 49.57ºN 110.35ºW, mixedwood hillside, 15 June 1996, UV trap [POHL]. Cypress Hills, 49.63ºN 110.40ºW, aspen hillside, 15 June 1996, UV trap [POHL] (2 specimens). Cypress Hills, Elkwater Lake, 17 June 1996, at light, G.R. Pohl [NFRC]; [POHL] (2 specimens). Rochon Sands Provincial Park, 52.46ºN 112.88ºW, 720 m, chokecherry/saskatoon, 1 May 2004, UV LT [BIRD]. 8 km E-SE of Sherwood Park, wet meadow, 7 June 1996 [POHL]. 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 20 June 2000, MV light [POHL].

DIST: This species was previously known from eastern United States (Forbes 1923) and Quebec/Labrador (Handfield 1997), and has recently been reported from Touchwood Lake in east-central Alberta (Pohl et al. 2005). The current records indicate a broader distribution in Alberta.

BIO: Larvae are borers in the fruit of *Crateagus* and related species of Rosaceae (Forbes 1923).

COM: This species is extremely similar to *Blastodacna bicristatella* (Chambers) (not known from northwestern North America), and may be conspecific with it.

XYLORYCTIDAE

Scythridinae

***Scythris mixaula* Meyrick, 1916**

ID: A medium-sized (18 mm WS), grey to dirty white slender moth, in some specimens with paler streaks highlighting the FW veins. Landry (1991) provides a description and illustrations, including genitalic characters for separation from similar species. The coloration of *S. mixaula* varies across its range from nearly immaculate ivory white in the South to darker grey in the North. The Tolman Bridge specimen is rather dark grey (though discolored by greasiness) whereas the Buffalo Lake specimen is pale dirty white with some pale brown dusting in the middle of the FW.

AB REC: Buffalo Lake Conservation Area, 52.4985°N 112.702°W, *Artemisia* grassland, 30 August 2003, UV LT [BIRD]. Tolman Bridge Recreation Area, 16 September 2000, LT, E. Mengersen [CNC].

DIST: This is the first record of the species in Canada. It was previously known from southern California to southwestern Texas and the western parts of the Great Plains, N to Montana (Landry (1991).

BIO: Larvae have been reared from cactus, including prickly pear cactus (*Opuntia* spp.) although details of

their life history are unknown (Landry 1991).

Glyphidoceridae

***Glyphidocera hurlberti* Adamski, 2000**

ID: A medium-sized (17 to 19 mm WS) moth with greyish brown FW and pale brown HW. Adamski (2000) provides a description and illustrations. It can be separated from all known Lepidoptera in western Canada by the combination of the evenly arcuate HW terminal margin (separating it from all gelechiids except *Anacampsis* spp.) and the unique pattern of four indistinct dark brown spots on the FW. It can be separated from other *Glyphidocera* species by the unique shape of the genitalic structures, as described by Adamski (2000).

AB REC: Big Knife Provincial Park, 52.486ºN 112.206ºW, 692 m, meadow with aspen/buckbrush, 8 July 2003, UV LT [BIRD]. Edmonton, 24 July 1939, 4 July 1940, 20 June 1941, 2 July 1943, 11-27 July 1945, 24 June to 13 July 1950, K. Bowman [UASM] (15 specimens). Edmonton, Windsor Park area, 8 July 1998, UV LT, F.A.H. Sperling [UASM]. Erskine, 52.32ºN 112.88ºW, 800 m, aspen parkland, 8 July 2000, 1 August 2000, 12 July 2001, 5 August 2002, UV LT [BIRD]. 12 km S-SE of Erskine, 52.20ºN 112.83ºW, 800 m, 24 July 2000, UV LT [BIRD]. Lowden Springs Conservation Area, 17 km S of Stettler, 52.09ºN 112.425ºW, 830 m, 23 July 2002, UV LT [BIRD] (3 specimens). 3 km S of Nevis, Allen Hall acreage, 52.31ºN 113.05ºW, 815 m, aspen parkland, 15 September 2002, 16 July 2003, UV LT [BIRD]. 8 km E-SE of Sherwood Park, wet meadow, 6 July 1999, at dusk [POHL]. 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 19 July 2000, houselight [POHL]; 11 July 2002, MV light [POHL] (2 specimens); 25 June 2003, houselight [POHL]. Strathcona County, Strathcona Wilderness Centre, aspen forest, 20 July 2001, MV light [POHL].

DIST: Previously known only from Colorado (Adamski 2000).

BIO: Unknown. Adults are active at dusk and at night, flying and running with rapid jerky movements.

COM: Prior to it being recognized as a distinct species in 2000, *G. hurlberti* specimens were often identified as *G. septentrionella* Busck. Specimens in the Bowman collection were found scattered in undetermined lots under several families. This is the first published report of the family Glyphidoceridae in Alberta.

Coleophoridae

Coleophorinae

***Coleophora rosaefoliella* Clemens, 1864**

ID: A small (11 to 12 mm WS) cream-colored moth with the distal third of the FW light rusty brown and white, and with brown annulations on the antennae. Landry (1998b) provides illustrations of the genitalia and larval case, which allow separation from similar species of *Coleophora*.

AB REC: Edmonton, 14-19 June 1940, 11-18 June 1946, K. Bowman [UASM] (5 specimens).

DIST: This species was described from Pennsylvania, and has been reported from Nova Scotia, Ontario, Quebec, and British Columbia (McDunnough 1946, Landry 1998b).

BIO: Larvae are case-bearers, and feed attached to the base of leaf buds of *Rosa* species (Rosaceae) (McDunnough 1946).

Gelechiidae

***Coleotechnites laricis* (Freeman, 1965)**

ID: A small (10 to 11 mm WS), narrow-winged black and white moth, very similar to other species of *Coleotechnites* which feed on conifers. Freeman (1965) provides a description and illustrations. It can be identified most easily by the mining habits of the larva (see below); structural differences separating it from other species are very slight.

AB REC: Edmonton, ex. *Larix* sp., reared, 3 June 1985 [NFRC].

DIST: Previously known from the type series, collected at various localities in Ontario (Freeman 1965), and more recently from Quebec/Labrador (Handfield 1997).

BIO: This species is known as the Orange Larch Tubemaker. Larvae are needle miners in larch (*Larix* spp. (Pinaceae)) (Freeman 1965).

COM: The specimen listed above was identified in 1985 by A. Mutuura.

***Xenolechia velatella* (Busck, 1907)**

ID: A medium-sized (14 to 16 mm WS) dark grey moth with a unique pattern on the FW; a pale tan costal margin proximally, and a distinct pattern of raised patches of black scales (Fig. 5).

AB REC: Big Knife Povincial Park, 52.494ºN 112.222ºW, 675 m, chokecherry/saskatoon, 14 May 2003, UV LT [BIRD] (3 specimens); MV light [BIRD] (3 specimens). Buffalo Lake Conservation Area, 52.53ºN 112.70ºW, aspen parkland, 7 May 2001, UV LT [BIRD]. Edmonton, 30 May 1946, 26 April 1949, 22 May 1951, K. Bowman [UASM] (3 specimens). Erskine, 52.322ºN 112.883ºW, 830 m, aspen woods, 20 May 2003, UV trap [BIRD]. Rochon Sands Provincial Park, 52.463ºN 112.895ºW, 830 m, chokecherry/saskatoon, 13 May 2003, UV LT [BIRD] (8 specimens). 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 4 June 2000, houselight [POHL]; 2 June 2001, at dusk,

G.R. Pohl [NFRC]; 25 May 2003, houselight [POHL]; 26 May 2003, MV light [POHL].

DIST: This species was described from Arizona (Busck 1907). The only published record of it in northwestern North America is its inclusion in a list of Lepidoptera specimens collected by FIDS in Saskatchewan and Manitoba, by Wong & Melvin (1969).

BIO: The specimens on which the Wong & Melvin (1969) report is based are housed in the NFRC; they were reared from Black Knot Fungus (*Apiosporina morbosa* (Schw.) Arx on *Prunus* species (Rosaceae) tree branches.

***Caryocolum pullatella* (Tengström, 1848)**

ID: A small (11 mm WS) black moth, with two median grey patches on the caudal margin of the FW, and a white postmedial line. Huemer (1988) provides a description and illustrations, including genital characters for separation from other species of *Caryocolum*.

AB REC: J. J. Collett Natural Area, 11 km NE of Lacombe, 52.33ºN 113.28ºW, 850 m, 27 August 2002, UV LT [BIRD].

DIST: This holarctic species is known from Europe, northern Asia, and Japan. In North America it has been reported in the United States from New York to Oregon, and from Canada in Nova Scotia (Huemer 1988).

BIO: Unknown. All known hosts of other *Caryocolum* species are in the family Caryophyllaceae (Huemer 1988); the host plant of *C. pullatella* is likely a Caryophyllaceae species as well.

***Caryocolum cassella* (Walker, 1864)**

ID: A small (12 to 13 mm WS) black moth, with two median grey patches on the caudal margin of the FW, and an interrupted white postmedial line. Huemer (1988) provides a description and illustrations, including genital characters for separation from other species of *Caryocolum*.

AB REC: Big Knife Provincial Park, 52.49ºN 112.22ºW, 8 August 2002, UV LT [BIRD]. 13 km W of Big Valley, McKenzie Crossing, 52.375ºN 112.96ºW, 16 July 2000, UV LT [BIRD].

DIST: This Holarctic species has been reported from British Columbia (Vancouver Island), and from Utah, Oregon, Michigan, and Kentucky (Huemer 1988).

BIO: In Europe, this species feeds on *Stellaria nemorum* L. (Caryophyllaceae) (Huemer 1988). The larvae feed in webbed-together shoots, "particularly in shadowy woodland" (Huemer 1988).

***Dichomeris bilobella* (Zeller, 1873)**

ID: A medium sized (16 to 17 mm WS) blue-grey and black moth with a triangular FW, featuring a distinctive tan costal band bordered by a black mark. Hodges (1986) provides a re-description and illustrations. It can be separated from other species of *Dichomeris* by details of the FW maculation, or by genitalic characters, as detailed in Hodges (1986).

AB REC: 5 miles E Belloy, undisturbed young forest, reared [host recorded as "probably *Aster* species"], larva collected 8 June 1967, emerged 28 June 1967 [NFRC]. 12 km S-SE of Erskine, 52.23ºN 112.83ºW, aspen parkland, 15 August 2000, UV trap [BIRD]. 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 5 August 2000, houselight [POHL].

DIST: Previously known from eastern North America, as far W as Minnesota and eastern Kansas (Hodges 1986). Handfield (1997) reported it from Quebec/Labrador.

BIO: Larvae are leaf rollers on *Solidago* and *Aster* species (Compositae) (Hodges 1986).

***Dichomeris costarufoella* (Chambers, 1874)**

ID: A small (15 mm WS) moth with dark bluish brown FW. Hodges (1986) provides a description and illustrations, including characters for separation from similar species of *Dichomeris*.

AB REC: 8 km E-SE of Sherwood Park, wet meadow, 17 July 1998, at light, G.R. Pohl [NFRC].

DIST: Previously known from the central United States, as far W as Nebraska and New Mexico. A single record was previously known for Canada, at Riding Mountain National Park, Manitoba (Hodges 1986).

BIO: At Riding Mountain National Park, *D. costarufoella* was reared from *Rudbeckia* species (Compositae) (Hodges 1986). In Michigan, this species is commonly found in loose webs on the underside of *Rudbeckia* species leaves, especially in areas with sandy soils (G. J. Balogh pers. com.). No *Rudbeckia* species is present at the Sherwood Park locality, so it must have other hosts as well.

SESIIDAE

***Paranthrene robiniae* (Edwards, 1880)**

ID: A relatively large (28 to 35 mm WS) slender moth with a wasp-like appearance. The wings have clear areas and dark brown veins dusted with yellow scales. Eichlin & Duckworth (1988) provide a description and illustrations, including characters for separation from similar species of sesiids.

AB REC: Calgary, poplar, 14 June 1970, C. Hergert [CNC] (2 specimens). Calgary, 8 June 1988, A.B. Nearling [OLDS]. Crowsnest, 29 June 1957, R. Gooding [UASM]. Devon, 28 May 1976 [NFRC]. Frank, 18 June 1962, W.R.M. Mason [CNC].

DIST: Eichlin & Duckworth (1988) describe the

range of this species as the Rocky Mountains from Alaska to California, with a single record from western Kansas. No specific records are mentioned from Alberta. The Kansas and Devon specimens are the only known records from outside the Rocky Mountains.

BIO: Larvae are borers in *Populus*, *Salix* (Salicaceae) and *Betula* (Betulaceae) species stems and branches, preferring weak or damaged trees (Eichlin & Duckworth 1988). They can cause damage to ornamentals.

***Synanthedon pictipes* (Grote & Robinson, 1868)**

ID: A relatively large (20 to 22 mm WS) clear-winged moth with a bluish-black body and yellow markings on the legs and body. Eichlin & Duckworth (1988) provide a description and illustrations, including maculation and genitalic characters for separation from other *Synanthedon* species.

AB REC: Edmonton (edge of Fulton Ravine), 53.545ºN 113.439ºW, 12 July 2001, sesiid pheromone trap, G.G. Anweiler [UASM]; 10-13 July 2003, sesiid pheromone trap, G.G. Anweiler [UASM]; [CNC].

DIST: Ives & Wong (1988) report this species from the Prairie Provinces, based on specimens from Saskatchewan and Manitoba in the NFRC. It was reported from eastern North America as far W as Minnesota, by Eichlin & Duckworth (1988).

BIO: Larvae bore into stems and branches of Rosaceae species, preferring sites of injury or disease (Eichlin & Duckworth 1988). Series of specimens have been reared in Saskatchewan and Manitoba from Black Knot Fungus (*Apiosporina morbosa* (Schw.) Arx infections on *Prunus virginiana* L. (Rosaceae) trees.

COM: This species is known as the Lesser Peach Tree Borer, and is a serious pest in fruit-growing regions. Identification of specimens listed above was confirmed by Dr. T.D. Eichlin (CDFA/Entomology, Plant Pest Diagnostics Centre, Sacramento, CA, USA).

***Synanthedon fatifera* Hodges, 1962**

ID: A small to medium-sized (12 to 20 mm WS) clear-winged moth with a bluish-black body. Eichlin & Duckworth (1988) provide a description and illustrations, including maculation and genitalic characters for separation from other *Synanthedon* species.

AB REC: 35 km NW of Dixonville, EMEND site, 56.733ºN 118.333ºW, 26 July 2000, pheromone trap, L. Morneau [UASM] (3 specimens). Edmonton, Devon Ravine, 20 July 1971, J. Belicek [UASM]. Edmonton, 21 July 1971, J. Belicek [UASM]. Edmonton (edge of Fulton Ravine), 53.545ºN 113.439ºW, 6 July 2000, sesiid pheromone trap, G.G. Anweiler [UASM]; [CNC]. Fort McMurray, 56.73ºN 111.38ºW, 3 July 1999, sesiid pheromone trap, D. Macaulay [DAM]. Gregoire Lake, 54.476ºN 111.193º, 22 June 1998, B.C. Schmidt [UASM]. Manning, 10-15 July 2001, *Choristoneura fumiferana* pheromone trap, D. Macaulay [NFRC] (10 specimens); [UASM]. Ministik Lake, 15 km W of Tofield, 19-26 May 1998, *Malacosoma disstria* pheromone trap, B.C. Schmidt [UASM]; 30 July 1999, B.C. Schmidt [UASM]. 8 km NW of Winfield, 53.01ºN 114.50ºW, 900 m, mixed woods, diurnal, 21 July 2003 [BIRD]. 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 10-15 July 2001, *Choristoneura fumiferana* pheromone trap, D. Macaulay [NFRC].

DIST: Previously known from eastern North America, as far W as Wisconsin and southern Ontario, with a single record from Idaho (Eichlin & Duckworth 1988).

BIO: Larvae are borers in *Viburnum* species (Caprifoliaceae) stems (Eichlin & Duckworth 1988).

COM: *Synanthedon fatifera* appears to be the most common and widespread species of *Synanthedon* in the boreal forest region of Alberta, and probably occurs across the boreal forest of western Canada. It appears that previous reports of *S. viburni* (Engel.) in Alberta (Ives & Wong 1988) are actually misidentified *S. fatifera*. The only confirmed Alberta specimens of *S. viburni* are two specimens found in Forest Tent Caterpillar pheromone traps at Gregoire Lake in 2002 by B.C. Schmidt (specimens in UASM). It is noteworthy that adults of *S. fatifera* were collected in Spruce Budworm (*Choristoneura fumiferana* (Clem.)) and Forest Tent Caterpillar (*Malacosoma disstria* Hübner) pheromone traps.

***Synanthedon culiciformis* (Linnaeus, 1758)**

ID: A medium sized (15 to 20 mm WS) clear-winged moth with a black body and a red transverse band around the abdomen. Eichlin & Duckworth (1988) provide a description and illustrations, including maculation and genitalic characters for separation from other *Synanthedon* species.

AB REC: 35 km NW of Dixonville, EMEND site, 56.733ºN 118.333ºW, 19 July 2000, pheromone trap, L. Morneau [UASM] (2 specimens). Ministik Lake, 15 km W of Tofield, 19-26 May 1998, pheromone trap, B.C. Schmidt [UASM] (6 specimens); [NFRC]. 80 miles NW of Peace River, date unknown, pheromone trap, L. Morneau [UASM].

DIST: This is a holarctic species, previously known in North America from Alaska to California and Utah, but not specifically reported from Canada (Eichlin & Duckworth 1988).

BIO: Larvae are borers in *Alnus* and *Betula* species (Betulaceae). In North America they prefer the former,

while in Europe they prefer the latter (Eichlin & Duckworth 1988). They prefer to attack trees that are injured, or growing in disturbed or exposed areas.

COM: This species is known as the Large Red-Belted Clearwing.

***Synanthedon helenis* (Engelhardt, 1946)**

ID: A medium-sized (18-22 mm WS) clear-winged moth with completely dark antennae and a blue-black body with two narrow pale yellow bands on the abdomen. Eichlin & Duckworth (1988) provide a description and illustrations, including maculation and genitalic characters for separation from other *Synanthedon* species.

AB REC: Ministik Lake, 15 km W of Tofield, 29 June 1999, pheromone trap, B.C. Schmidt [UASM] (4 specimens). Wagner Fen Natural area, 15 km W of Edmonton, 19 July 1999, pheromone trap, A. Ngui [UASM] (2 specimens); 27 July 1999, pheromone trap, A. Ngui [UASM] (5 specimens). Caribou Mountains, Wentzel River near outlet, 7-9 July 2003, malaise trap, G. Hilchie [UASM].

DIST: Previously known from three specimens collected in Saskatchewan and Manitoba (Eichlin & Duckworth 1988), and from a single locality in Quebec (Handfield 2002).

BIO: Unknown.

COM: Identification of specimens listed above was confirmed by T.D. Eichlin.

***Synanthedon saxifragae* (Edwards, 1881)**

ID: A relatively large (20 to 25 mm WS) clear-winged moth with a bluish-black body and orange legs. Eichlin & Duckworth (1988) provide a description and illustrations, including maculation and genitalic characters for separation from other *Synanthedon* species.

AB REC: Banff, 5 July 1922, C.B.D. Garrett [CNC]. Frank, 18 June 1962, K.C. Herrmann [CNC]. Prospect Creek, 2000 m, open conifer willow subalpine at treeline, on flower, 13 July 2001, G.G. Anweiler [UASM].

DIST: This is a transcontinental boreal species, reported from Laborador to Alaska, and S at higher altitudes to Colorado and California (Eichlin & Duckworth 1988). It has not specifically been reported from Alberta.

BIO: Nothing is known of the biology of this species, except that its host plant is "definitely not a saxifrage" (Eichlin & Duckworth 1988).

COM: Identification of the specimens listed above was confirmed by T.D. Eichlin.

***Synanthedon proxima* (Edwards, 1881)**

ID: A medium-sized (17 to 22 mm WS) clear-winged moth with a bluish-black body. Eichlin & Duckworth (1988) provide a description and illustrations, including maculation and genitalic characters for separation from other *Synanthedon* species.

AB REC: Tolman Bridge Recreation Area, 51.8325°N 113.0106°W, 1 July 2001, pheromone trap, G.G. Anweiler [UASM] (4 specimens).

DIST: Previously known from eastern and central North America, as far W as Manitoba (Eichlin & Duckworth 1988).

BIO: Larvae are borers in stems of *Salix* species (Salicaceae) (Eichlin & Duckworth 1988).

COM: *Synanthedon proxima* and S. *albicornis* are sister species. Eichlin & Duckworth (1988) believed that the former was restricted to eastern forests only as far W as Manitoba, and that the latter was restricted to the Rocky Mountains. Identification of the specimens listed above was confirmed by T.D. Eichlin.

TORTRICIDAE
Tortricinae

***Acleris paracinderella* Powell, 1964**

ID: A medium-sized (15 to 20 mm WS) moth with bluish-grey FW and cream colored HW (Fig. 6). The FW has a dusting of black scales, and a distinctive white stripe on the costal margin, which may be poorly developed in some specimens. Powell (1964) provides a description and genitalia illustrations. It is very similar to *A. minuta* (Robinson) and *A. celiana* (Robinson) form *albilineana* Kearfott; *A. minuta* is without, or with a vaguely suggested, white costal margin on the FW; *A. celiana* form *albilineana* has the white stripe separated from the costal margin by a grey fringe. The genitalia have unique features, which can be used to identify doubtful specimens (Powell 1964, Razowski 1966). An orange summer form, similar to the orange summer form of *A. minuta* (Powell 1964) has been found in California (J.A. Powell pers. comm.).

AB REC: Kananaskis, Elbow Ranger Station, ex. "s. birch" [=*Betula pumilla* L. (Betulaceae)], reared, emerged 29 August 1951 [NFRC].

DIST: Powell (1964) reported this species from "mountainous areas of the Pacific coast from south-central British Columbia south to the northern Sierra Nevada, California."

BIO: Powell (1964) reports the larval host as *Prunus* species (Rosaceae); the rearing reported above from *Betula* represents a new host record.

***Sparganothis unifasciana* (Clemens, 1864)**

ID: A relatively large (20 to 25 mm WS) moth with dark yellow FW with a unique pattern of brown marks. Pogue & Lavigne (1981) provide a description and

illustration.

AB REC: Big Knife Provincial Park, 52.49ºN 112.22ºW, 675 m, 9 July 2002, 26 August 2002, UV LT [BIRD] (2 specimens). Buffalo Lake Conservation Area, 52.53ºN 112.70ºW, aspen parkland, 22 June 2001, 27 July 2002, 15 July 2001, UV LT [BIRD] (3 specimens). Dominion Range Station, Manyberries [=Onefour], 3 August 1951, D.F. Hardwick [CNC] (2 specimens). Dry Island Buffalo Jump Provincial Park, 51.93ºN 112.97ºW, 12 July 2002, UV LT [BIRD] (2 specimens). Erskine, 52.32ºN 112.88ºW, 800 m, aspen parkland, 20 July 2002, UV LT [BIRD]. Kneehill Co., Tolman Bridge Recreation Area, 51.8325°N 113.0106°W, 21 July 1989, 4 July 2000, 3 July 2001, UV light, E. Mengersen [BIRD]; [OLDS] (5 specimens). 3 km S of Nevis, Allen Hall acreage, 52.31ºN 113.05ºW, 815 m, aspen parkland, 7 July 2002, UV LT [BIRD]; 22 July 2002 [BIRD] (2 specimens). Olds, 23 July 1998, 20 August 1998, UV light, E. Mengersen [OLDS] (2 specimens). Writing-On-Stone Provincial Park, 20 July 1982, UV light in riverine habitat with willows, J.-F. Landry [CNC].

DIST: Previously known from eastern North America and W as far as Saskatchewan and Utah (Pogue & Lavigne 1981).

BIO: A wide variety of host plants have been reported for this species, including *Trifolium* species (Leguminosae), *Prunus virginiana* L., *Malus*, *Rhubus*, and *Crataegus* species (Rosaceae), *Pinus* species, *Picea glauca* (Moench) Voss (Pinaceae), and *Fraxinus* species (Oleaceae) (Pogue & Lavigne 1981).

***Argyrotaenia quadrifasciana* (Fernald, 1882)**

ID: A small to medium-sized (14 to 17 mm WS) moth with bright orange FW and grey-brown HW. The FW has a unique pattern of two narrow diagonal bands and a wide diffuse area at the wingtip; these markings are purple in males, and dark orange in females. Freeman (1958) and Pogue & Lavigne (1981) provide descriptions and adult habitus images; the latter also provides genitalia illustrations.

AB REC: Big Knife Provincial Park, 52.49ºN 112.22ºW, 675 m, 26 August 2002, UV LT [BIRD]. Edmonton, ex. *Cotoneaster*, emerged 28 June 1971 [NFRC] (2 specimens).

DIST: Previously known from eastern North America, as far W as eastern Wyoming in the South (Pogue & Lavigne 1981), and Manitoba in the North (Prentice 1965).

BIO: Larvae feed on *Prunus*, *Malus*, and *Crataegus* species, and *Amelanchier alnifolia* Nutt. (Rosaceae) (Pogue & Lavigne 1981). The life history has been studied by Chapman & Lienk (1971). It overwinters as a third-instar larva, in a hibernaculum attached to host tree branches.

COM: This species is known as the Fourlined Leafroller. It is a conspicuous moth, and larval feeding is quite noticeable on ornamental trees; if it were a native species in Alberta, it likely would have been collected more than once by FIDS rangers, or by Kenneth Bowman. It has probably arrived within the past four decades in Alberta.

***Argyrotaenia mariana* (Fernald, 1882)**

ID: A medium-sized (18 to 22 mm WS) moth with light greyish brown FW crossed by a diagonal band of dark brown. Freeman (1958) provides a description and adult illustration.

AB REC: Big Knife Provincial Park, 52.49ºN 112.22ºW, 675 m, 3 June 2002, MV light [BIRD]. Medicine Lake Grazing Reserve, 9 km SW Winfield, 53.91ºN 114.52ºW, 975 m, 15 June 2002, UV LT [BIRD]. Rochon Sands Provincial Park, 52.463ºN, 112.895ºW, 730 m, chokecherry/saskatoon, 28 May 2003, UV LT [BIRD] (4 specimens). 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 4 June 2000, houselight [POHL] (2 specimens); 20 June 2000, MV light [POHL] (4 specimens); 13 June 2002 [POHL]. Wildwood, ex. *Populus tremuloides*, reared, collected 1962, emerged 5 February 1963 [in lab] [NFRC]. 8 km NW of Winfield, 53.01ºN, 114.50ºW, mixed woods, 17 June 2000, MV light [BIRD]; 15 June 2002, UV LT [BIRD] (2 specimens).

DIST: Previously known from eastern North America as far W as Saskatchewan (Prentice 1965).

BIO: This species is a pest of *Malus* species (Rosaceae). It has also been reported from many other species, including *Vaccinium* species (Ericaceae) and possibly *Quercus* species (Fagaceae) (Freeman 1958), and from *Betula*, *Alnus* (Betulaceae), *Prunus* (Rosaceae), *Salix*, *Populus* (Salicaceae), *Ulmus* (Ulmaceae), and *Acer* (Aceraceae) species (Prentice 1965).

COM: This species is known as the Grey-Banded Leafroller. It is probably a recent arrival in Alberta. It is now common in the Edmonton area; if it had been present at current population levels when Kenneth Bowman was collecting and the FIDS program was active, it would have undoubtedly been collected regularly.

***Lozotaenia hesperia* Powell, 1962**

ID: A relatively large (22 to 24 mm WS) moth, with maculation consisting of two dark brown spots on the costal margin of the brownish-grey FW (Fig. 7). Powell (1962) provides a description and genitalia illustrations. It can be separated from other *Lozotaenia* species via examination of the genitalia, and comparison to figures

in Powell (1962), Obraztsov (1962), and Franclemont (1986).

REC: 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, 25 July 2000, houselight [POHL]. Watson Creek Campground, 5 km NE of Cadomin, 27 June 1982, morning in *Myrica gale* on river bank, J.-F. Landry [CNC]. 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 7 July 1997, 15 July 1997, UV trap, G.R. Pohl et al. [NFRC] (5 specimens).

DIST: This species was described from specimens collected in Yukon Territory and Alaska, and it has since been reported from Quebec (Handfield 2002). The NFRC and POHL collections also have specimens from Saskatchewan.

BIO: Unknown.

Olethreutinae

***Apotomis paludicolana* (Brower, 1953)**

ID: A medium-sized (15 to 18 mm WS) moth with dark greyish brown on the distal two-thirds, and white on the apical one-third of the FW. Adamski & Peters (1986) provide a description and illustrations, including maculation and genital characters for separation from other *Apotomis* species.

AB REC: Edmonton, 15 June 1933, 20 June 1938, 11 June 1941, 7 June 1948, 6 June 1949, K. Bowman [UASM] (5 specimens).

DIST: This species was described from Maine, and has since been reported from New Brunswick (Adamski & Peters 1986) and Quebec (Handfield 2002).

BIO: This species is known from bog habitats (Brower 1953). Adamski & Peters (1986) state that according to Brower (1953), the host is *Myrica gale* (L.) (Myricaceae). However, Brower (1953) contains no such information. *M. gale* is a bog species, but is not known within 500 km of Edmonton (Moss 1983).

COM: The above specimens were likely identified by Bowman (1951) as *A. capreana* (Hübner) or *A. tertiana* (McDunnough). They were determined by D. Adamski in 1981 as *A. paludicolana*, but they were not incorporated into Adamski & Peters' (1986) revision of the genus. Their identity was confirmed by the first author of the current paper.

***Phaneta lapidana* (Walsingham, 1879)**

ID: A medium-sized (18 to 19 mm WS) brownish grey moth with no markings on the FW. Wright et al. (1997) provide habitus and genitalia illustrations, and describe genital characters for separation from similar species.

AB REC: Buffalo Lake Conservation Area, 52.53ºN 112.70ºW, aspen parkland, 24 September 2001, UV LT [BIRD]. Rochon Sands Provincial Park, 52.463ºN 112.895ºW, 720 m, aspen parkland, 14 September 2001, UV LT [BIRD].

DIST: Previously known from Oregon and the Chilcotin Plateau in British Columbia. (Wright et al. 1997).

BIO: Unknown.

***Zeiraphera hesperiana* Mutuura & Freeman, 1966**

ID: A medium-sized (14 to 18 mm WS) moth with a mottled brown and white pattern on the FW. Mutuura & Freeman (1966) provide a description and illustrations. It is somewhat variable and extremely similar to other *Zeiraphera* species; it can be identified with certainty only via examination of the genitalia, or host plant association (see below).

AB REC: Porcupine Hills, ex. Douglas-fir, reared, emerged 7 August 1951 [NFRC].

DIST: Previously known from southern British Columbia, from Vancouver Island to the Kootenay district (Mutuura & Freeman 1966).

BIO: Larvae feed on Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco (Pinaceae)). It is the only *Zeiraphera* species that is known to feed on Douglas-fir (Mutuura & Freeman 1966).

***Gretchena semialba* McDunnough, 1925**

ID: A small (12 to 13 mm WS) moth with distinctive maculation consisting of mottled brown and grey FW with a metallic tornal spot, and glossy white HW with a brown fringe (Fig. 8). McDunnough (1925) provides a description, but no published illustrations are known.

AB REC: 16 miles N of Wandering River, ex. *Alnus* sp., reared, larvae coll. 15 July 1966, adults emerged 16-23 January 1967 [in lab], Layton [NFRC] (5 specimens).

DIST: This species was described from specimens collected in Ontario and Manitoba, and has not been reported elsewhere since.

BIO: The rearing information accompanying these specimens comprise the only known information on the biology of this species.

***Rhopobota naevana* (Hübner, [1817])**

ID: A small (11 to 12 mm WS) moth with a mottled dark brown and white pattern on the FW, including a dark basal patch with an angulate margin, and a prominent diagonal dark bar at two-thirds to three-quarters distance from the base. Parenti (2000: Plate 115) provides an excellent color photograph; Miller (1987) provides a photograph and genitalia illustrations. It is quite similar externally to species of *Gypsonoma* and *Ancylis*, and is best separated via examination of the genitalia.

AB REC: Vicinity of Barrhead, black spruce bog, 24 July 2000, MV light, D. Macaulay [NFRC]. Fidler-Greywillow Provincial Wildland Park, 63 km NE of Ft.

Chipewyan, Fidler Point, 59.107ºN 110.426ºW, 210 m, mixed birch/jack pine, 23 July 2001, UV trap, D. Lawrie [NFRC].

DIST: This is a holarctic species known from eastern North America as far W as Michigan (Miller 1987), and in the West in Washington and British Columbia (Heinrich 1923). The NFRC also has specimens from Northwest Territories.

BIO: This species is a common pest of *Vaccinium* species (Ericaceae). Larvae feed on the leaves, flowers, and fruit. They also feed on other Ericaceae, Rosaceae, and *Rhamnus* species (Rhamnaceae) (Brown 1983).

COM: This species is known as the Black-headed Fireworm. Many publications and collections refer to it as *R. unipunctana* (Haworth), which is an invalid homonym (Poole 1996).

***Epinotia albicapitana* (Kearfott, 1907)**

ID: A medium-sized (20 mm WS) moth with a striking and distinctive FW pattern; the black costal half of the wing adjoins the white caudal half with a zigzag margin (Fig. 9). Heinrich (1923) provides a description and genitalia illustrations. It is similar externally to *E. lindana* (Fernald) and *E. crenana* (Hübner), but in the latter two species the caudal half of the FW is mottled light grey rather than white. It is also similar to *Chimoptesis pennsylvaniana* (Kearfott), which does not occur in northwestern North America.

AB REC: Milk River Ridge, vicinity of Cardston, 10 km N of junction of Highway 820 and Highway 501, 1310 m, 24 August 1998, houselight [POHL]. Rochon Sands Provincial Park, 52.46ºN 112.88ºW, 720 m, aspen parkland, 14 September 2001, 25 September 2001, UV LT [BIRD] (4 specimens).

DIST: Previously known from California, Colorado, and Utah (Heinrich 1923). The senior author has seen specimens from southern British Columbia, although it has not previously been reported from Canada.

BIO: Nothing has been published on the biology of this species. However, a specimen in the CNC from Oliver, British Columia was reared from *Prunus virginiana* L. (Rosaceae) by FIDS. The Rochon Sands locality contains numerous *Prunus virginiana* plants.

Urodidae

***Wockia asperipunctella* (Bruand, [1851])**

ID: A medium-sized (16 to 18 mm WS) grey moth with a black transverse fascia of raised scales on the FW. Landry (1998a) provides a description and illustrations.

AB REC: 8 km NW of Winfield, 53.01ºN 114.50ºW, 1000 m, 25 May 2001, 16 Jun 2001, 8 Jun 2002, 15 Jun 2002, UV LT [BIRD] (4 specimens).

DIST: This holarctic species was reported for the first time in North America by Heppner (1997), and was subsequently reported from Alberta and other provinces by Landry (1998a). The latter reported the species from central British Columbia to Maine, and from Touchwood Lake in east-central Alberta. Here we report a second locality for Alberta.

BIO: Larvae feed on *Populus tremuloides* Michx. (Salicaceae); in Europe they have been reared from *Betula* (Betulaceae) and *Salix* species (Salicaceae) (Landry (1998a).

COM: As Landry (1998a) discussed, this species is probably more common than the rarity of records suggests. It is crepuscular, and does not often come to lights.

Schreckensteiniidae

***Schreckensteinia festaliella* (Hübner, [1819])**

ID: A small (10 to 12 mm WS) narrow-winged moth with a greenish-copper tinge to the wings, and a dark line on the FW (Fig. 10). Forbes (1923) provides a brief description, including characters for separation from other species of *Schreckensteinia*.

AB REC: Caribou Mountains Wildland Provincial Park, Wentzel Lake, marsh near mouth of Wentzel River, 59.075ºN 114.450ºW, dry peat bog over permafrost, 10 June 2003, G.R. Pohl [NFRC]. 8 km E-SE of Sherwood Park, wet meadow, 30 April 1999, at dusk, G.R. Pohl [NFRC]. 8 km SE of Sherwood Park, 53.47792ºN 113.22912ºW, aspen forest, 18 May 2002, diurnal [POHL]. 8 km NW of Winfield, 53.01ºN 114.50ºW, 1000 m, 14 May 2000, UV LT [BIRD].

DIST: This is the first report of this holarctic species in Canada. It was previously known from eastern North America, as far west as Michigan (Forbes 1923). It is also known from California (Powell 2002).

BIO: Larvae skeletonize the underside of leaves of *Rubus* species (Rosaceae) (Emmet 1996). Adults tend to fly during the day or at dusk, and are occasionally attracted to lights.

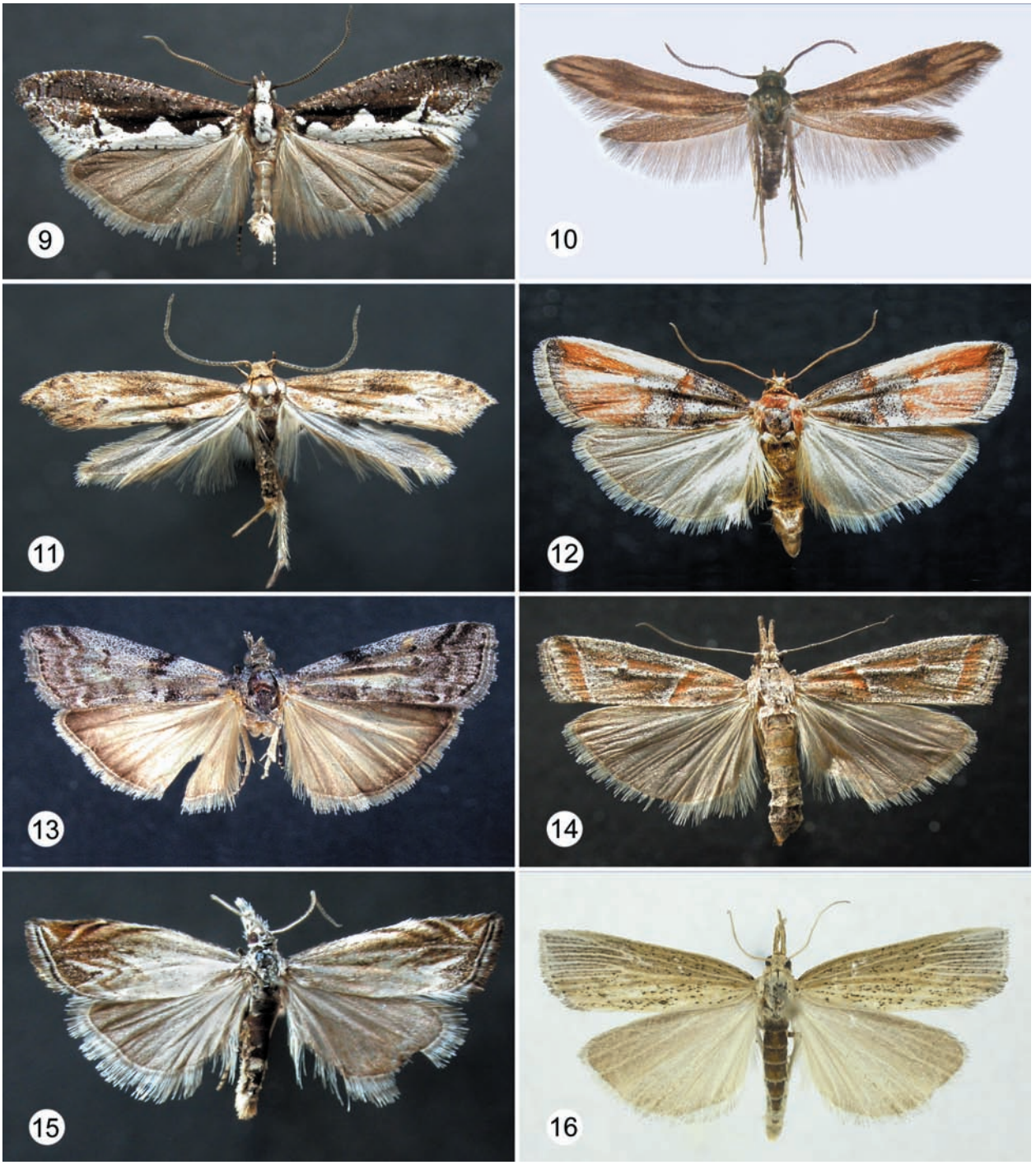
COM: This is the first published report of the family Schreckensteiniidae in Canada.

Epermeniidae

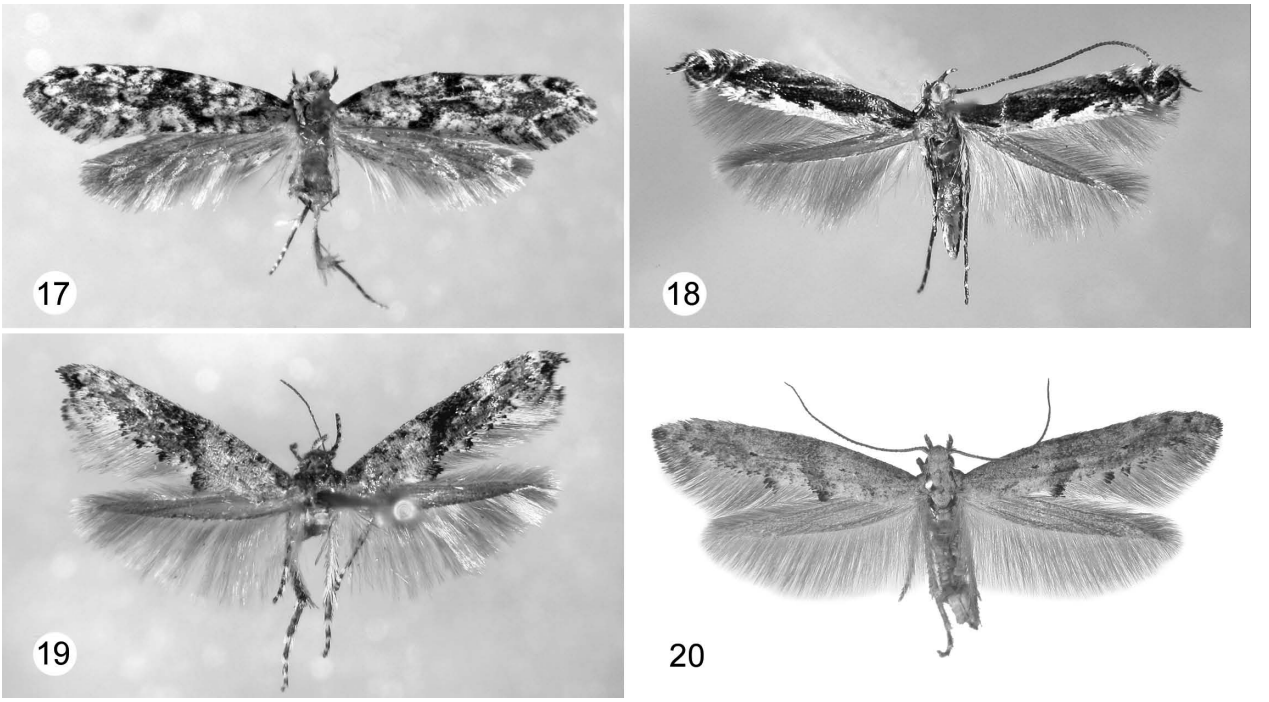
***Epermenia imperialella* (Busck 1906)**

ID: A small to medium-sized (13 to 18 mm WS) moth with light brown head, thorax and FW, and raised tufts of black scales and a diffuse dark longitudinal mark in the discal cell of the FW (Fig. 11). Covell (1984) provides a color photograph; Gaedike (1977) provides a description (in German) and genitalia illustrations, including characters for separation from other species of *Epermenia*.

AB REC: 8 km SE of Sherwood Park, 53.47792ºN



FIGS. 9-16. Microlepidoptera new to Alberta. **9**, *Epinotia albicapitana*, 20.0 mm WS, Milk River Ridge, 24 August 1998 G.R. Pohl; **10**, *Schreckensteinia festaliella*, 11.1 mm WS, Quebec, lac Brûlé near Ste-Agathe, 10 July 1988 J.-F. Landry; **11**, *Epermenia imperialella*, 14.4 mm WS, 8 km SE of Sherwood Park, 13 July 2002 G.R. Pohl; **12**, *Dasypyga alternosquamella*, 20.9 mm WS, Gogo Lake, 16 June 2000 G.R. Pohl; **13**, *Pyla aenigmatica*, 20 mm WS, 5 km S of Nevis, 7 July 2002 C.D. Bird; **14**, *Lipographis fenestrella*, 23 mm, WS, Big Knife Provincial Park, 22 August 2003 C.D. Bird; **15**, *Platytes vobisne*, 12 mm WS, Dry Island Buffalo Jump Provincial Park, 27 June 2002 C.D. Bird; **16**, *Pediasia abnaki*, Cooking Lake, Franck Farm, T50 R21 W4, 29 July 1997 D. Lawrie.



Figs. 17-20. Microlepidoptera new to Alberta. **17**, *Nemapogon acapnopennella*, 14.4 mm WS, Edmonton, 21 July 2001 G.G. Anweiler; **18**, *Micrurapteryx salicifoliella*, 10.6 mm WS, Steen River, 7 August 1963; **19**, *Epermenia lomatii*, 12.1 mm WS, Edmonton, 16 June 1947 K. Bowman; **20**, *Ochromolopis ramapoella*, 13.7 mm WS, Kleskun Hills, 20 July 2003 J.-F. Landry.

113.22912ºW, aspen forest, 13 July 2002, MV light, G.R. Pohl [NFRC].

DIST: Previously known from Pennsylvania and Manitoba (Gaedike 1977).

BIO: Unknown.

***Epermenia lomatii* Gaedike 1977**

ID: A small (12 to 16 mm WS) brown and grey moth, with raised tufts of black scales and a dark reddish brown diagonal mark across the FW (Fig. 19). Gaedike (1977) provides a description (in German) and genitalia illustrations, including characters for separation from other species of *Epermenia*.

AB REC: Edmonton, 16 June 1947, K. Bowman [UASM].

DIST: This is the first report of this species from Canada. It was previously known from California, Oregon, and Washington (Gaedike 1977).

BIO: This species has been reared from *Lomatium* and *Velaea* species (Gaedike 1977).

***Ochromolopis ramapoella* (Kearfott, 1903)**

ID: A small (13 to 15 mm WS) moth with narrow grey wings, with two patches of raised black scales on the caudal margin of the FW (Fig. 20). The raised scales are easily rubbed off, and are often indistinct in worn specimens. Gaedike (1977) provides a description (in German) and genitalia illustrations.

AB REC: Big Knife Provincial Park, 52.486ºN 112.206ºW, 692 m, meadow with aspen/buckbrush, 17 June 2003, UV LT [BIRD]. Breed Creek, 3 km S of Aden, 49.07ºN 111.27ºW, cottonwoods, creek bottom, 14 June 1996, UV trap [POHL]. Cypress Hills, Elkwater Lake, 17 June 1996, at light [POHL] (2 specimens). Dry Island Buffalo Jump Provincial Park, 51.93ºN 112.97ºW, 27 June 2002 [BIRD]. Dunvegan, 19 July 2003, MV light [POHL]. Kleskun Hills, 55º15'38''N 118º30'35''W, 20 July 2003, sweeping low prairie forbs at 21:30H, J.-F. Landry [CNC] (2 specimens). 3 km S of Nevis, Allen Hall acreage, 52.31ºN 113.05ºW, 815 m, aspen parkland, 25 June 2002, 7 July 2002, UV LT [BIRD] (2 specimens). Pinhorn Grazing Reserve, 49.10ºN 110.82ºW, prairie coulee on Milk River, 14 June 1996, UV trap [POHL]. 18.5 km N of Stettler, 52.48ºN 112.70ºW, aspen parkland, 23 June 2002, UV trap [BIRD]. Tolman Bridge Recreation Area, 51.8325°N 113.0106°W, *Populus* scrub and *Artemisia*, 15 June 2002, UV trap, G.G. Anweiler [NFRC] (3 specimens).

DIST: Previously known from eastern North America, as far W as Manitoba, North Dakota, Utah, and Colorado (Gaedike 1977).

BIO: Larvae feed on *Comandra umbellata* (L.) Nutt. (Santalaceae) (Gaedike 1977).

Pyralidae

***Hypsopygia costalis* (Fabricius, 1775)**

ID: A medium-sized (20 mm WS) purple moth with deep yellow costal marks and wing fringes on FW and

HW. It is superficially similar to *Herculia thymetusalis* (Walker), but is easily distinguished by the wider yellow wing fringes. Parenti (2000: Plate 132) provides a color photograph.

AB REC: Olds, 24 July 1998, UV LT, E. Mengersen [OLDS] (2 specimens).

DIST: This is an extension of the known range of this introduced palearctic species. It has previously been reported in the published literature only as far W as Kentucky and Texas (Covell 1984). J.A. Powell (pers. comm.) reports specimens from Utah (1950s), Oregon (1966), and California (1968). The OLDS collection also has a specimen from British Columbia.

BIO: Larvae feed in stored hay, and are sometimes pests.

COM: This species is known as the Clover Hayworm in North America, and as the Gold Triangle Moth in Europe. The Olds records may represent a very recent and localized introduction of this moth in Alberta. Olds is the home of the Olds College, which specializes in agriculture. It is perhaps significant that no further specimens have been encountered since the 1998 collections, even though the collector has trapped at the same location frequently since that time.

***Acrobasis betulella* Hulst, 1890**

ID: A medium-sized to large (17 to 25 mm WS) grey and brown moth. The FW has a wide, diffuse antemedial line, and a narrow zigzag postmedial line. Between the two bands are two small black spots on a background of grey scales. Neunzig (1986) provides a description and illustrations, including maculation characters for separation from other species of *Acrobasis*. There are no consistent differences in the genitalia to distinguish this species. Identification is easiest by food plant association; it is the only *Acrobasis* species in Canada which feeds on *Betula* species (Betulaceae).

AB REC: Empress, reared, ex. *Betula occidentalis*, collected as larvae 29 May 1962, adults emerged 4-12 July 1962, Gautreau [NFRC] (4 specimens).

DIST: According to Neunzig (1986), this species is more common in the East, but it occurs across Canada as far W as southeastern British Columbia. Although it has been collected in Saskatchewan and British Columbia, there are no previously published records for Alberta.

BIO: Larvae of this species feed on several species of *Betula* (Betulaceae). After hatching, they feed briefly, overwinter in hibernacula on branches, and then resume feeding the following spring, constructing a silken tube of new foliage. Adult moths fly in July, and eggs hatch later the same year (Neunzig 1986).

COM: This species is known as the Birch Tubemaker.

***Dasypyga alternosquamella* Ragonot, 1887**

ID: A medium-sized (20 to 21 mm WS) moth with distinctive FW, grey on the basal third, and orange streaked with longitudinal white and grey stripes on the distal two-thirds (Fig. 12). Heinrich (1956) provides a description and genitalia illustrations. No other species of moth in northwestern North America has similar maculation.

AB REC: Fidler-Greywillow Wildland Prov. Park, 20 July 2001, UV trap, D. Lawrie [NFRC]. 3 km NE of Redwater, Range Rd. 205, 3 km N of Victoria Trail, 670 m, 20 July 1999, MV light, D. Lawrie [NFRC]. Gogo Lake, 57.8827°N 111.0333°W, 16 June 2000, adult on *Pinus banksiana*, G.R. Pohl et al. [NFRC].

DIST: Previously known from western United States (California, Arizona, Colorado, Washington) and British Columbia (Heinrich 1956). Prentice (1965) reports it from several sites in southeastern British Columbia.

BIO: Mooney (2001) reports the host as mistletoe (*Arceuthobium* species (Loranthaceae)), and provides the following biological information, based on observation in Colorado. Larvae initially feed externally, and later mine into the mistletoe plants. Even a small amount of larval feeding can kill the hosts. The moths overwinter as pupae on the ground in a cocoon of silk, frass, and soil. FIDS surveys report this species from mistletoe on *Larix*, *Tsuga*, *Pseudotsuga*, and *Abies* species (Pinaceae) (Prentice 1965).

COM: Heavy infestations of *Arceuthobium americanum* Nutt. occur on *Pinus banksiana* Lamb. (Pinaceae) at all three Alberta collection sites listed above.

***Pyla aenigmatica* Heinrich, 1956**

ID: A medium-sized (18 to 21 mm WS) moth with black and white antemedial and postmedial lines and a dusting of white scales on the FW (Fig. 13). Neunzig (2003) provides a description and habitus illustration; Heinrich (1956) provides genitalia illustrations. It is very similar to several other *Pyla* species, but can be separated via genitalic differences, as detailed by Wilterding & Balogh (2002).

AB REC: Big Knife Provincial Park, near Battle River, 52.486°N 112.206°W, 683 m, meadow with chokecherry, 8 July 2003, UV LT [BIRD]. Big Knife Provincial Park, 52.492°N 112.211°W, 660 m, meadow with chokecherry/aspen, 30 July 2003, UV LT [BIRD]. 3 km S of Nevis, Allen Hall acreage, 52.31°N 113.05°W, 815 m, aspen parkland, 7 July 2002, 1 July 2003, UV LT [BIRD] (3 specimens).

DIST: According to Wilterding & Balogh (2002), this species is distributed across North America, from the

Gaspé region of Quebec to Vancouver Island, British Columbia, and as far S as Utah. However, no previous records are known for Alberta specifically.

BIO: Unknown.

COM: Identity of the 7 July 2002 Nevis specimen reported above was confirmed by G. Balogh.

***Lipographis fenestrella* (Packard, 1873)**

ID: A relatively large (21 to 24 mm WS) moth with FW ranging from ash gray to brownish yellow in color (Fig. 14). The FW has narrow, white, nearly straight antemedial and subterminal lines, and five dark dots outside of the subterminal line. The HW is dull white to pale bownish yellow, darkening toward the termen. Heinrich (1956) provides a description and genitalia illustrations; Neunzig (2003) provides illustrations. No other moth in northwestern North America resembles this species.

AB REC: Big Knife Provincial Park, 52.493ºN 112.220ºW, 686 m, aspen/chokecherry/saskatoon, 22 August 2003 [BIRD]. Big Knife Provincial Park, 52.492ºN 112.211ºW, 660 m, meadow with chokecherry, 22 August 2003, UV LT [BIRD] (2 specimens). Lowden Springs Conservation Area, 17 km S of Stettler, 52.09ºN 112.425ºW, 830 m, prairie, 23 August 2002, 14 August 2003, UV LT [BIRD] (9 specimens).

DIST: Previously known from California, Utah, and Manitoba (Neunzig 2003).

BIO: Unknown.

COM: Heinrich (1956) states that no features separate *Lipographis leoninella* from *L. fenestrella* except wing coloration. However, he felt they should not be synonymized until details of their biology was known. B. Scholtens (Biology Department, College of Charleston, Charleston, South Carolina), who identified the 2002 material, noted that the full color range was present in the Alberta specimens and that in his opinion they are conspecific. (*L. fenestrella* is known only from California).

Crambidae

***Platytes vobisne* Dyar, 1920**

ID: A small (11 to 12 mm WS) moth with diffuse brown longitudinal lines and a zigzag postmedial line on the FW (Fig. 15). Landry (1995) provides a description and illustrations. This species could be mistaken for a tiny *Chrysoteuchia topiaria* (Zeller), but in the latter the postmedial line has only a single angle rather than two conspicuous angles.

AB REC: Dry Island Buffalo Jump Provincial Park, 51.93ºN 112.97ºW, mixed grass area with *Symphoricarpos occidentalis*, *Prunus virginiana* and *Amelanchier alnifolia*, 27 June 2002 [BIRD].

DIST: Previously known from Connecticut to western Ontario, S to Oklahoma and W to Colorado (Landry 1995) and South Dakota (Forbes 1923).

BIO: Unknown.

COM: According to Landry (1995), this species is very poorly represented in collections. This specimen was identified by B. Scholtens (Biology Department, College of Charleston, Charleston, South Carolina).

***Catoptria maculalis* (Zetterstedt, 1840)**

ID: A medium-sized (17 mm WS) moth with chocolate brown wings, with two light blotches in the center of the FW, and lacking distinct antemedial, postmedial, and subterminal lines. Landry (1995: Figs. 168, 260, 317) provides illustrations of an adult, and of the male and female genitalia. This species is superficially similar to *Agriphila biarmica* (Tengström), *Catoptria trichostoma* (Christoph) and *Gesneria centuriella* (D. & S.), all of which have a zigzag subterminal line in the FW.

AB REC: 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 15 July 1997, G.R. Pohl [NFRC].

DIST: This holarctic species has previously been reported from Quebec/Labrador (Handfield 1997) and from Yukon Territory (Lafontaine & Wood 1997).

BIO: Unknown.

***Pediasia abnaki* (Klots, 1942)**

ID: A large (23 to 27 mm WS) moth with grayish white FW with a dusting of relatively coarse (approximately 1 mm diameter) dark spots dorsally, and with the distal one third of the wing along the costal margin pale bluish gray (Fig. 16). Klots (1942) provides a description and illustrations. It can be separated from other species of *Pediasia* by the bluish grey ground color in the distal third of the FW, and by the coarse rather than fine scattering of dark spots.

AB REC: Vicinity of Cooking Lake, 29 July 1997, UV LT, D. Lawrie [NFRC]. McKenzie Crossing, 13 km W of Big Valley, 16 July 2000, UV LT [BIRD]. Olds, 18 August 1989, 8 July 1984, 6 July 2002, E. Mengersen [OLDS] (3 specimens). Tolman Bridge, 3 July 2000, 8 July 2000, E. Mengersen [OLDS] (3 specimens). 29 km NE of Zama City, 59.33ºN 118.43ºW, boreal forest, 10 June 1998, UV trap, H.E.J. Hammond et al. [NFRC].

DIST: This species has been reported from Quebec, Ontario, Nova Scotia and New Brunswick by Klots (1942).

BIO: Unknown. In Michigan, it has been found very localized in sedgy wetlands (G. J. Balogh pers. com.).

***Acentria ephemerella* (Denis & Schiffermüller 1775)**

ID: A medium-sized (13 to 18 mm WS) moth with

semitransparent wings; the FW is light grey, and the HW is white. Scholtens & Balogh (1996) provide a brief description; Parenti (2000: Plate 147) provides color photographs. This species resembles no other moth species in western North America, but could easily be mistaken for a caddisfly (see comments below).

AB REC: Big Knife Provincial Park, near Battle River, 52.492ºN 112.211ºW, 660 m, meadow with chokecherry, 26 August 2002, 11 September 2002, 8 July 2003, 30 July 2003, 22 August 2003, UV LT [BIRD] (11 specimens). Big Knife Provincial Park, near Battle River, 52.486ºN 112.206ºW, 683 m, meadow with aspen/buckbrush, 22 August 2003, UV LT [BIRD]. Calgary, Edgemont, 28 July 2003, T. Pike [T.M. Pike COLLECTION]. Dry Island Buffalo Jump Provincial Park, near Red Deer River, 51.93ºN 112.97ºW, 12 July 2002, 10 September 2002, UV LT [BIRD] (2 specimens). Holmes Crossing Staging Area, 7.3 km SE of Fort Assiniboine on Highway 33, 54.29403ºN 114.86665ºW, pine forest, 22 August 2003, UV trap, D. Macaulay [DAM] (4 specimens); [NFRC]. J. J. Collett Natural Area, 52.552ºN 113.640ºW, 895 m, aspen woods, 9 August 2003, UV LT [BIRD]. J. J. Collett Natural Area, 52.551ºN 113.640ºW, 866 m, *Picea glauca* woods, 9 August 2003, UV LT [BIRD]. Lowden Springs Conservation Area, 17 km S of Stettler, 52.09ºN 112.425ºW, 830 m, 23 July 2002, UV LT [BIRD]. Medicine Lake Recreational Area, 52.749ºN 114.744ºW, 950 m, aspen/alder woods beside lake, UV LT [BIRD]. Mountainview County, Olds, 28 July 1995, 6 August 1997, 20 August 1998, 6 September 1998, 10 July 1999, 23 July 2002, 24 August 2002, UV trap, E. Mengersen [NFRC] (4 specimens); [OLDS] (8 specimens). 3 km S of Nevis, Allen Hall acreage, 52.31ºN 113.05ºW, 815 m, aspen parkland, near pond, 7 July 2002, UV LT [BIRD]. Red Deer, Gaetz Lakes Sanctuary, 52.284ºN 113.735ºW, 841 m, meadow with *Artemisia*, 13 August 2003, UV LT [BIRD]. Red Deer, Gaetz Lakes Sanctuary, 52.285ºN 113.791ºW, 858 m, balsam poplar/white spruce woods, 13 August 2003, MV light [BIRD]. Tolman Bridge Recreation Area, E side of river, 51.83461N 113.01139W, 706 m, chokecherry/aspen, 24 August 2003, UV LT [BIRD].

DIST: Scholtens & Balogh (1996) report that this European species was introduced to North America, and first reported in Montreal, Quebec, in 1927. By 1996 it was well established in the Great Lakes region, and as far W as the Missouri River in Iowa.

BIO: The aquatic larvae of this species feed on Water Milfoil (*Myriophyllum spicatum* (Haloragaceae)) and other aquatic plants (Scholtens & Balogh 1996). They obtain oxygen from their hostplants, and possibly via diffusion through the skin (Watson & Whalley 1975).

COM: Watson & Whalley (1975) comment that when members of this genus were first discovered, they were described as caddisflies (Trichoptera) rather than moths. This species is listed as *A. nivea*, (Olivier, 1791) in Hodges et al. (1983).

***Munroessa icciusalis* (Walker, 1859)**

ID: A medium-sized (18 to 20 mm WS) straw-colored moth with a unique pattern of white marks and curved black lines on the wings. Munroe (1972) provides a description and illustrations.

AB REC: Athabasca Sand Dunes Provincial Park, lake 3 km E of dunes, 58.165ºN 110.844ºW, pitcher plant bog, 1050 m, 24 August 2000, D. Macaulay and D. Lawrie [NFRC]. 10 km NE of Bearberry, 15 July 2002, E. Mengersen [OLDS]. 8 km NW of Winfield, 53.01ºN 114.50ºW, mixed woods near East Poplar Creek, 1000 m, 22 July 2000, UV LT [BIRD].

DIST: Munroe (1972) reports this species from Newfoundland and W to Nebraska, and in British Columbia in the Fraser and Okanagan valleys. Besides the Alberta specimens, the NFRC has specimens from Saskatchewan and Manitoba.

BIO: The larvae of this species are aquatic, and feed primarily on *Potamogeton* species (Potamogetonaceae), and also on other aquatic plants (Munroe 1972). They construct oblong biconvex cases of parts of their host plants.

COM: Munroe (1972) thought this species may have been introduced in British Columbia, as there was no evidence at that time that the range was continuous. It is clearly transcontinental.

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