

BUTTERFLIES OF NORTHEASTERN ALBERTA

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The butterflies and skippers of northeastern Alberta (Map 1) are described herein. The area is defined as that region from 56°N latitude north to the Northwest Territories border and from Saskatchewan west to the 5th Meridian (114° longitude). This region has received considerable attention of late due to its oil sand deposits.

Description of the Area

Butterfly diversity is linked with both the physical and biotic diversity of an area. Four major units occur in the boreal forest of northern Alberta; boreal mixed wood (most of study area), boreal-subarctic jackpine sand plains, boreal-subarctic alluvial lowlands, and subarctic woodland. These may be subdivided into 14 vegetation associations (Table 1). Different species of butterflies predominate in each e.g. Jutta Arctic (*Oeneis jutta*), Mancinus Alpine (*Erebia disa*), Frigga Fritillary (*Boloria frigga saga*), and Yukon Blue (*Plabejus optilete*) may be found flying in black spruce while upland forest is home for Macoun's Arctic (*Oeneis macounii*), Chryxus Arctic (*O. chryxus*), and Tiger Swallowtail (*Papilio glaucus*). Butterflies depend on specific members of the plant community for larval food and to a lesser extent, adult food.

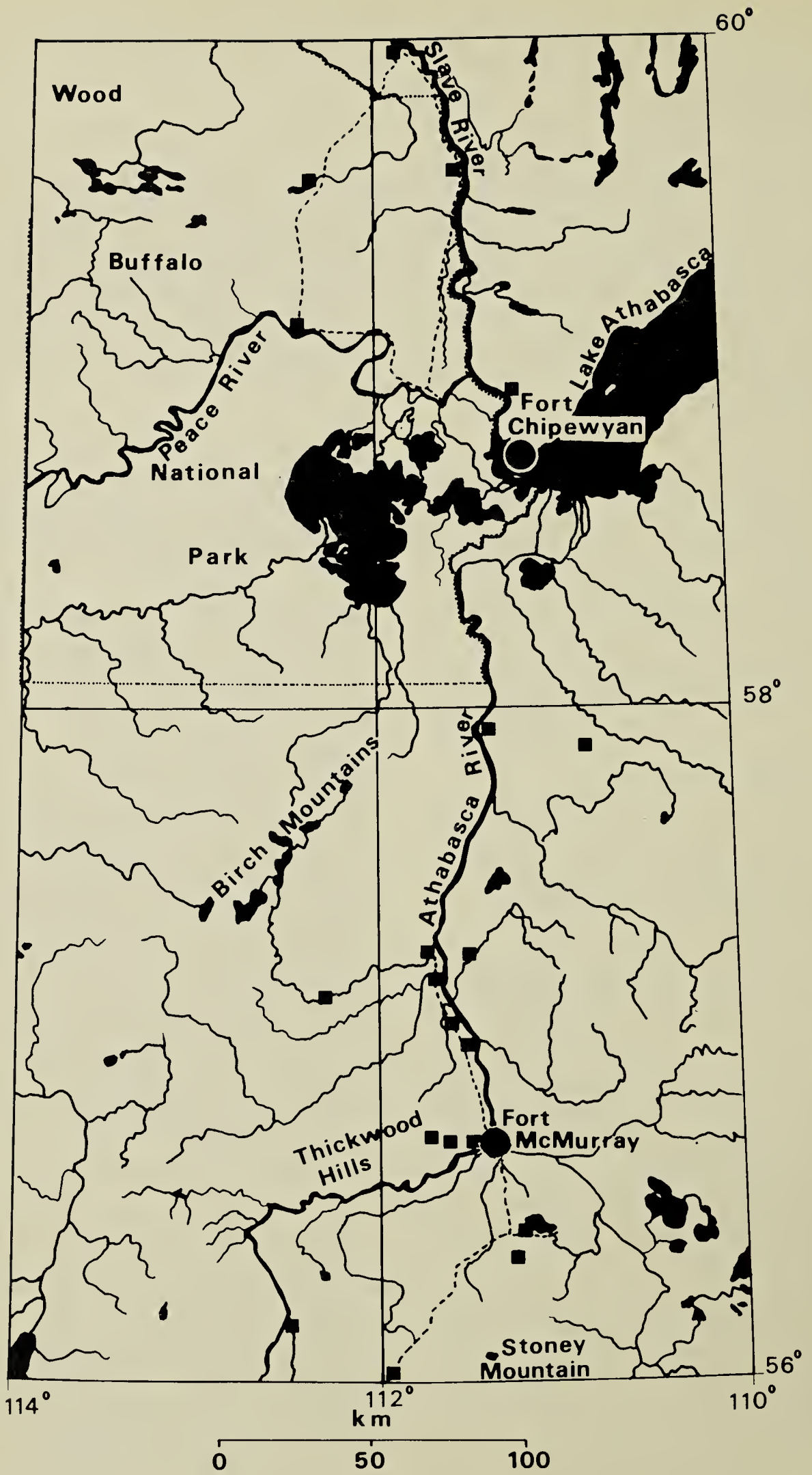
Though somewhat dated, H. M. Raup's publication on the vegetation and flora of Wood Buffalo National Park

is the best single account on the botany of northeastern Alberta and should be consulted by anyone interested in the plants of the area.¹⁴

Physiographic variation affects plant diversity and subsequently butterfly diversity. Major relief features in the area are five highland areas; Birch Mountains (520 m), Stoney Mountain (760 m), Muskey Mountain (580 m) and the eastern escarpment of the Caribou Mountains. The Fort Hills rise more than 100 m above the Athabasca River. Low lying areas between highlands and river flood plains are composed of flat to rolling terrain. In the province's northeast corner numerous small lake and areas of bare rock characterize the Canadian Shield. A large portion of the south and west region is underlain by oil sand deposits, which are being mined and processed by Suncor and Syncrude oil extraction plants.

All creeks arising in the study area are ultimately drained by the Athabasca and Peace rivers via the Slave River drainage. Much of the land is poorly drained, resulting in an abundance of marshes, bogs and fens.

Climate is characterized by long cold winters with short summers. Temperatures average from a maximum of 27°C in July to an average minimum of -23 to -30°C in January. The frost free period ranges from 80 to 100 days per year with an annual precipitation



Map of northeastern Alberta. Collection sites are indicated by solid squares.

Table 1. VEGETATION TYPES OF NORTHEAST ALBERTA ADAPTED FROM THOMPSON *et al.*, 1978.

<i>Vegetation Association</i>	<i>Composition</i>
Bottomland Communities	
Bottomland and riparian forest	Balsam Poplar, Trembling Aspen, White Spruce, willow, alder, Paper Birch
Deciduous shrub wetland	willow, alder, Dwarf Birch, immature Trembling Aspen, Paper Birch
Upland Communities	
White Spruce-aspen, spruce dominated	White Spruce, Trembling Aspen,
White Spruce-aspen, mixed	White Spruce, Jack Pine, Trembling Aspen
White Spruce-aspen, aspen dominated	Trembling Aspen, White Spruce, Jack Pine
Mixed coniferous	Black Spruce, Jack Pine, White Spruce
Jack Pine	Jack Pine, Black Spruce, White Spruce, Trembling Aspen
Upland open	grasses, low herbs and shrubs
Mixed forest	Trembling Aspen, White Spruce, Black Spruce, Tamarack, Paper Birch, Jack Pine, alder
Wetland Communities	
Fen	sedges, rushes, low scattered shrubs, tall shrubs
Black Spruce bog	Black Spruce, sphagnum mosses
Semi-open Black Spruce, Tamarack bog forest	Black Spruce, Tamarack, sphagnum mosses, sedges, rushes
Lightly forested Tamarack and open muskeg	Tamarack, Black Spruce, low shrubs, sphagnum mosses
Disturbed Communities	
Non-vegetated	recent slides, clearings, slumps with sparse vegetation, burns



Thickwood Hills — burned spruce bog as willow-alder shrub wetland. Ryan & Hilchie Biological Consultants Ltd.



MacKay River near Fort MacKay — in autumn. Ryan & Hilchie Biological Consultants Ltd.

range of 36 cm in the Peace-Athabasca Delta to 56 cm at Stoney Mountain. Seasonal fluctuations in climate affect changes in distribution and abundance of butterflies. Climate as a whole affects the distribution of host plants and subsequently the distribution patterns of butterflies.

Butterfly Faunal Source Regions

During the Wisconsinian glacial, northeastern Alberta was under the Laurentide Ice sheet. Animals colonized the region following retreat of the ice sheet and subsequent recolonization by plants. Butterflies may be associated with different faunal source areas. Species associated with the boreal biome include Mancinus Alpine (*Erebia disa*), Red-disked Alpine (*E. dis-*

coidalis), Jutta Arctic (*Oeneis jutta*), Chryxus Arctic (*O. chryxus caryi*), Giant Sulphur (*Colias gigantea gigantea*), Eastern Pine Elfin (*Callophrys niphon clarki*), Hudsonian Old World Swallowtail (*Papilio machaon hudsonianus*) and Frigga Fritillary (*Boloria frigga saga*).

Hecla Sulphur (*Colias hecla*) and Yukon Blue (*Plebejus optilete yukona*) are correlated with a northern sub-arctic refugium, dispersing southward and eastward into the study area.

Two-banded Checkered Skipper (*Pyrgus ruralis*), California White (*Pieris sisymbrii*), Creusa Marble (*Euchloe creusa*), and Mariposa Copper (*Lycaena mariposa*)^a have a cordilleran origin, and occur here at the northeast limit of their range.

^a EDITOR'S NOTE: Mariposa Copper (*Reakirt's Copper*) has been taken in central Saskatchewan eastward to the northeast corner of Prince Albert National Park. — W. Harris.



Ells River near SE escarpment of Birch Mountains.

Ryan & Hilchie
Biological Consultants Ltd.

During the Hypsithermal, climatic conditions were warmer and drier than present. Northward extensions of grassland species were possible. Under present climatic regimes, dry, grass covered hillsides are found along the Athabasca River, some of its larger tributaries, and in portions of the Birch Mountains. Sandy, open jackpine forest with active sand dunes form an extensive plain east of the Athabasca River. Prairie-like grasslands (Wood Buffalo prairie) are found north of the Birch Mountains. Prairie species found in these habitats include Peck's Skipper (*Polites coras*), Common Checkered Skipper (*Pyrgus communis*), and Small Wood Nymph (*Cercyonis oetus charon*), Ochre Ringlet (*Coenonympha ochracea mackenziei*), is closely related to the prairie dwelling ringlets. Other prairie insects have been collected and more discoveries are expected.¹⁶

Recent disturbance by man (roads, gardens, farms) has permitted

colonization by the Cabbage White (*Pieris rapae*) and Yellow Alfalfa Butterfly (*Colias philodice eriphyle*).

Some species cannot be identified as being associated with a specific biome because they are ubiquitous, and it can be inferred that they survived the Wisconsinian south of the ice sheet. Such species are Mourning Cloak (*Nymphalis antiopa*), Milbert's Tortoise Shell (*N. milberti*), Pearl Crescent (*Phyciodes tharos*), Silvery Blue (*Glaucopsche lygdamus*), Spring Azure (*Celastrina argiolus*) and Western Tailed Blue (*Everes amyntula*).

The composite we see today is a result of thousands of years of migrations, colonization and changes in the position of vegetation zones. High vagility and lack of fossil evidence impairs reconstruction of butterfly faunal changes in the study area. Present distributions may be used to deduce past biogeographical events.

History

The earliest collections in the area were a few made by Mrs. Christina Ross, wife of Bernard Ross who was in charge of the Mackenzie District for the Hudson Bay Company, at Smith Portage in 1862 and then sent to W. H. Edwards. He named Christina Sulpher (*Colias alexandra christina*) in her honor.

Miss Elizabeth Taylor made a trip down the Athabasca, Slave and Mackenzie Rivers in 1892 and collected a number of butterflies for the British Museum.¹

Merritt Cary, of the U.S. Biological Survey, in company with Edward A. Preble made numerous collections along the Athabasca and Slave Rivers in 1903 (Cary 1907).

Later collections were made by J. Russell at Fort Chipewyan in 1927; G. Cinnamon at House River in 1932 and 1933; G. E. Ball and W. J. Brown at Fort McMurray in 1953; E. Gautreau at Peace Point in 1967; Elsie Kuyt in Wood Buffalo National Park in 1973¹³, 1974, 1975 and 1976; and Wayne W. Smith at Gregoire Lake in 1976. F. Sperling collected at Fort McMurray and Stoney Mountain on May 30, 1981. Work for the Provincial Museum permitted T. Thormin and L. Bogaert to collect in the area south of Fort Smith from June 17-23, 1981.

Development of petroleum reserves from tar sands led to research which resulted in recent collections by W. B. Porter 20 miles north of Fort McMurray in 1974; N. G. Kondla at the Home Oil Lease a few miles ENE of Fort MacKay in 1975; Wayne Smith at the Shell Test Pit, 40 miles ENE of Fort MacKay in 1977; extensive studies by G. J. Hilchie and J. K. Ryan in 1978-1979 at Mildred Lake, Fort MacKay, Ellis River, Thickwood Hills, Tar Island (Suncor), Fort McMurray, Mariana Lake and Stoney Mountain Lookout; and Ber-

nadette Otto at Mildred Lake and the Thickwood Hills in 1979.

Species List

The present study is a sequel to that of west-central Alberta by Case and Bird.⁴ This list uses the same format and most of the nomenclature of R. R. Hooper's "Butterflies of Saskatchewan" rather than that of Miller and Brown who propose many changes in the scientific names of local butterflies.¹² The collectors names are given in brackets. Those collections made by Hilchie and Ryan are abbreviated to "HR". Collections made by Bogaert, Kuyt and Thormin in Alberta 1-13 km south of Fort Smith, N.W.T. are listed simply as Fort Smith.

Hesperiidae - *Skippers*

ROADSIDE SKIPPER (*Amblyscirtes vialis*). 6 June-23 July. A common species of clearings, trails and roadsides. Known from Fort MacKay (Kondla), Fort Smith (Thormin), Mildred Lake (HR), Shell Pit (Smith), and Thickwood Hills (HR).

PECK'S SKIPPER (*Polites coras*). 26 July. Rare. Found in clearings and grasslands. Known from Mildred Lake (HR).

ARCTIC SKIPPER (*Carterocephalos palaemon*). 29 May-14 July. A common species of open woods, roadsides and clearings. Known from Fort MacKay (Kondla), Fort McMurray (Ball, Brown), Fort Smith (Thormin), Gregoire Lake (Smith), Mildred Lake (HR), Pine Lake (Kuyt), and Shell Pit (Smith). Northern material may belong to ssp. *mackenziei* while the remainder is probably ssp. *mandan*.

ALPINE CHECKERED SKIPPER (*Pyrgus centaureae freija*). 5 July. Rare. Found in open woods and along roadsides. Known from the Thickwood Hills (HR). This is the first published record of this subspecies from Alberta.

TWO-BANDED CHECKERED SKIPPER (*Pyrgus ruralis*). 12 June. Rare. Known only from Smith Portage (Cary). A considerable range extension to the northeast, if correctly determined.

Cary's specimens were deposited at the United States National Museum but a recent search revealed no voucher to back up this report.³ Further documentation is needed.

COMMON CHECKERED SKIPPER (*Pyrgus communis communis*). 7 July. Rare. A species of dry prairie grasslands. Its discovery at Mildred Lake (HR) is a remarkable northern range extension. E. M. Pike has recently found it in relict Peace River grasslands (pers. comm.).

DREAMY DUSKY WING (*Erynnis icelus*). 10 May-20 June. A common skipper of open woods and roadsides. Known from Fort MacKay (HR, Kondla), Gregoire Lake (Smith), House River (Cinnamon), Mildred Lake (HR), Pine Lake (Kuyt), Shell Pit (Smith), and Smith Portage (Cary, Preble).

PERSIUS DUSKY WING (*Erynnis persius*). 30 May-23 June. Occasional in open woods and cleared areas. Known from Fort Smith (Thormin), Pine Lake (Kuyt) and Shell Pit (Smith). Material from northeastern Alberta probably belongs to ssp. *borealis*.

NORTHERN CLOUDY WING (*Thorybes pylades*). 30 May-27 June. A common species of open mixed woods and roadsides. Known from Fort McMurray (Ball, Brown), Fort Smith (Kuyt, Thormin), Gregoire Lake (Smith), Mildred Lake (HR), Smith Portage (Cary), and Shell Pit (Smith).

Papilionidae - Swallowtails

HUDSONIAN OLD WORLD SWALLOWTAIL (*Papilio machaon hudsonianus*). Reported from Fort Chipewyan by McDunnough and Bowman without mention of date, collector, or location of voucher specimen.^{11 2}

TIGER SWALLOWTAIL (*Papilio glaucus canadensis*). 25 May-2 July. Common in areas of aspen and mixed woods. Known from Fort MacKay (Kondla), Fort McMurray (Ball, Brown, Sperling), Fort Smith (Thormin), Gregoire Lake (Smith), Mildred Lake (HR, Otto), Peace Point (Gautreau), Pine Lake (Kuyt), Shell Pit (Smith), Slave River 50 miles north of Fort Chipewyan (Cary), Smith Portage (Cary) and Stoney Mountain (Sperling).

Pieridae - Whites, Sulphurs and Marbles

CALIFORNIA WHITE (*Pieris sisymbrii flavitincta*). 4-8 June. An occasional species of river banks and roadsides. Known from Fort Chipewyan (Cary) and Pine Lake (Kuyt).

WESTERN CHECKERED WHITE (*Pieris occidentalis occidentalis*). 10 July. Known only from a collection made at Mildred Lake (Otto).

MUSTARD WHITE (*Pieris napi oleracea*). 10 May-29 July. A common species of open aspen and mixed woods. Known from Ells River (HR), Fort MacKay (Kondla), Fort McMurray (Ball), Fort Smith (Thormin), Gregoire Lake (Smith), House River (Cinnamon), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), Smith Portage (Cary), Stoney Mountain (Sperling), and Thickwood Hills (HR).

CABBAGE WHITE (*Pieris rapae*). 2 June-15 July. Occasional in disturbed areas. Known from Fort McMurray (Brown) and Gregoire Lake (Smith).

HECLA SULPHUR (*Colias hecla*). 29 June. Known from a collection made at the Ells River (HR). Probably the subspecies *hela* which was described from Churchill, Manitoba. If the latter, it is new to Alberta.

ALFALFA BUTTERFLY (*Colias eurytheme eurytheme*). 2-25 August. Material that may belong to this migrant butterfly is known from the House River (Cinnamon) and Shell Pit (Smith). The distinction between it and *Colias alexandra christina* is sometimes not clear cut.

YELLOW ALFALFA BUTTERFLY (*Colias philodice eriphyle*). 29 May-18 July. Occasional in disturbed areas. Known from Fort McMurray (Ball, Brown, HR, Sperling), Fort Smith (Thormin) and Gregoire Lake (Smith).

PINK-EDGED SULPHUR (*Colias interior interior*). 3-31 July. Common in open woods and along roadsides. Known from Fort MacKay (HR), Mildred Lake (HR, Otto) and the Thickwood Hills (HR, Otto).

GIANT SULPHUR (*Colias gigantea gigantea*). 23 June-18 July. An occasional species of bogs, fens and wet

woods. Known from the Ells River (HR), Fort MacKay (HR), Fort Smith (Kuyt, Thormin) and Gregoire Lake (Smith).

CHRISTINA SULPHUR (*Colias alexandra christina*). 10 May-7 August. A common species of open woods and river banks. Known from Fort MacKay (HR), Fort McMurray (Ball, Porter), Fort Smith (Bogaert, Kuyt, Thormin), Mildred Lake (Otto), Pine Lake (Kuyt), Shell Pit (Smith), and Smith Portage (Ross).

CREUSA MARBLE (*Euchloe creusa*). 17 May-8 June. Material from Pine Lake (Kuyt) and Shell Pit (Smith) extends the known range of this species to the northeast.

LARGE MARBLE (*Euchloe ausonides*). 19 May-13 June. Occasional to common in open woods and along streams and roads. Known from Fort MacKay (Kondla), Fort McMurray (Brown), Mildred Lake (HR, Otto), Pine Lake (Kuyt), and Smith Portage (Cary). Local material may belong to ssp. *ausonides*, ssp. *mayi* or may be in a blend zone between the two.

Lycaenidae - Gossamer-winged Butterflies

HOARY ELFIN (*Callophrys polios obscurus*). 21 May-23 June. Common in jackpine woods near its food plant, bearberry. Known from Fort MacKay (HR), Mildred Lake (HR, Otto) and Pine Lake (Kuyt).

BROWN ELFIN (*Callophrys augustinus augustinus*). 1 May-23 June. Common in dry areas near its food plant, bearberry. Known from Fort Chipewyan (Cary), Fort MacKay (Kondla), Fort Smith (Thormin), Gregoire Lake (Smith), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), Smith Portage (Cary), Stoney Mountain (Sperling), and Thickwood Hills (HR).

EASTERN PINE ELFIN (*Callophrys niphon clarki*). 1-6 June. This rare species of jack pine woods was first reported for Alberta by Reist (1979). Known from Pine Lake (Kuyt). Incorrectly reported as *C. eryphon* by Philip based on a 1973 collection from Pine Lake by Elsie Kuyt.¹³

BRONZE COPPER (*Lycaena thoe*). 16-30 July. A rare species of wet meadows. Known from Fort McMurray (Ball) and

Tar Island (Suncor) (HR).

MARIPOSA COPPER (*Lycaena mariposa*). 22 June-8 July. Occasional in coniferous woods. Known from Fort McMurray (Brown) and Mildred Lake (HR). The subspecific status is uncertain.

DORCAS COPPER (*Lycaena dorcas dorcas*). 3 June-2 August. Common in wet woods. Known from Fort Chipewyan (Cary), Fort MacKay (HR), Gregoire Lake (Smith), Mildred Lake (HR, Otto), Shell Pit (Smith), and the Thickwood Hills (HR, Otto).

SCUDDER'S BLUE (*Lycaeides argyrognomon scudderii*). 23 June-26 July. Occasional in open woods and along roads. Known from Fort MacKay (HR), Fort McMurray (Brown), Fort Smith (Kuyt, Thormin), and Mildred Lake (HR).

GREENISH BLUE (*Plebejus saepiolus amica*). 17 June-23 July. A species of grassland areas and roadsides. Known from Ells River (HR), Fort MacKay (HR), Fort McMurray (Brown), Fort Smith (Thormin) and the Thickwood Hills (HR, Otto).



Greenish Blue.

Gary Anweiler

YUKON BLUE (*Plebejus optilete yukona*). 3-31 July. Found in local colonies in wet coniferous woods. Known from Fort MacKay (HR), Mildred Lake (HR, Otto), and the Thickwood Hills (HR).

ARCTIC BLUE (*Plebejus aquilo*). 11-12 June. Known only from Smith Portage (Cary). Northeastern Alberta lies between the ranges of three subspecies: *lacustris*, described from Norway House, Manitoba, in the boreal forest to the east; *rustica*, described from Colorado, in the prairies to the south; and *megalo*, described from Lillooet, B.C., from B.C. into the Rocky Mountains of Alberta and north into the Yukon and to Great Bear and Great Slave Lakes in the Northwest Territories.⁸

WESTERN TAILED BLUE (*Everes amyntula albrighti*). 27 May-16 July. Abundant in aspen and mixed woods. Known from Elys River (HR), Fort MacKay (HR, Kondla), Fort McMurray (Ball, Brown), Fort Smith (Kuyt, Thormin), Gregoire Lake (Smith), Pine Lake (Kuyt), Shell Pit (Smith), Smith Portage (Cary), and the Thickwood Hills (HR, Otto). Cary reported both *E. comyntas* and *E. amyntula* but it is unlikely that the former occurs in this area.³



Western Tailed Blue.

Gary Anweiler

SILVERY BLUE (*Glaucopsyche lygdamus couperi*). 10 May-3 July. Abundant in open woods, clearings and along roadsides. Known from the Athabasca River (Taylor), Elys River (HR), Fort Chipewyan (Cary), Fort MacKay (HR, Kondla), Fort McMurray (Brown, HR), Fort Smith (Thormin), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), Smith Portage (Cary), Stoney Mountain (Sperling), and the Thickwood Hills (HR).

SPRING AZURE (*Celastrina argiolus lucia*). 4 May-25 June. Common along streams and other areas where its food plant, red osier dogwood, occurs. Known from Fort MacKay (HR, Kondla), Fort McMurray (Brown), Fort Smith (Thormin), Gregoire Lake (Smith), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), Stoney Mountain (Sperling), and the Thickwood Hills (HR).

Nymphalidae - Brush-footed Butterflies

WHITE ADMIRAL (*Limenitis arthemis rubrofasciata*). 21 June-18 July. Common in aspen and mixed woods. Known from Elys River (HR), Fort MacKay (HR), Fort McMurray (Ball), Fort Smith (Thormin), Gregoire Lake (Smith), and Mildred Lake (HR, Otto).

VICEROY (*Limenitis archippus archippus*). 15 June-7 July. Occasional along river banks. Known from Elys River (HR), Fort MacKay (HR), and Shell Pit (Smith).

RED ADMIRAL (*Vanessa atalanta rubria*). 30 May-9 June, 21 August-30 September. Found near patches of stinging nettle. Known from Fort McMurray (Sperling), Fort Smith (Thormin), House River (Cary), Mariana Lake (HR), mouth of the Riviere de Rochers (Cary), and Shell Pit (Smith).

PAINTED LADY (*Vanessa cardui*). 4 July-22 August. Migrant individuals are known from Fort MacKay (HR) and the Thickwood Hills (HR, Otto).

COMPTON TORTOISE SHELL (*Nymphalis vau-album watsoni*). 4 July-6 September. Common in deciduous woods. Known from the Athabasca River 60 miles above the delta (Cary), Fort Chipewyan (Russell), Fort McMurray (Ball), Gregoire Lake (Smith), House River (Cinnamon), Richardson

Lookout (HR), Shell Pit (Smith), and the Thickwood Hills (HR).

MILBERT'S TORTOISE SHELL (*Nymphalis milberti furcillata*). 31 May-14 August. Occasional in open deciduous woods and disturbed areas. Known from Fort Chipewyan (Russell), Fort MacKay (HR), Fort McMurray (Ball), Fort Smith (Kuyt, Thormin), Gregoire Lake (Smith), and Mildred Lake (HR).

MOURNING CLOAK (*Nymphalis antiopa antiopa*). 23 June-5 September. Common in deciduous woods and along streams. Known from Fort Chipewyan (Russell), Fort McMurray (Ball), Fort Smith (Thormin), Gregoire Lake (Smith), House River (Cary), Fort MacKay (HR), Pine Lake (Kuyt), and the Thickwood Hills (HR).

SATYR ANGLE WING (*Polygonia satyrus satyrus*). 10 May-31 June, 26 July-31 August. This common overwintering species occurs in deciduous woods near stinging nettle, its food plant. Known from Fort Chipewyan (Russell), Fort MacKay (HR), Fort McMurray (Ball, Brown), Mildred Lake (Otto), Pine Lake (Kuyt), and the Thickwood Hills (HR).

GREEN COMMA (*Polygonia faunus*). 29 May-22 August. Common in deciduous and mixed woods. Known from Athabasca River delta (Cary), Fort Chipewyan (Russell), Fort MacKay (HR), Fort McMurray (Ball, Brown, HR), Gregoire Lake (Smith), Mildred Lake (HR), Pierre au Calumet (Cary), Pine Lake (Kuyt), Shell Pit (Smith), Smith Portage (Cary), and the Thickwood Hills (HR).

HOARY COMMA (*Polygonia gracilis*). June (no day recorded), 22 August. A rare species of mixed woods. Known from Mildred Lake (Otto), Pine Lake (Kuyt), and the Thickwood Hills (HR).

GRAY COMMA (*Polygonia progne*). 10 May-23 June, 26 July-25 August. An occasional species of mixed woods. Known from Fort McMurray (Ball), Gregoire Lake (Smith), House River (Cinnamon), Fort Smith (Thormin), and Shell Pit (Smith).

PEARL CRESCENT (*Phyciodes tharos*). 2 June-10 August. Abundant in open woods, clearings, meadows, roadsides and along streams. Known from Fort MacKay (HR), Fort McMurray (Ball,



Satyr Angle Wing.

Fred Lahrman

Brown), Fort Smith (Kuyt, Thormin), Gregoire Lake (Smith), House River (Cinnamon), Mildred Lake (HR, Otto), Stoney Mountain Lookout SE of Gregoire Lake (HR), and the Thickwood Hills (HR).

TAWNY CRESCENT (*Phyciodes batesii*). 20 June 1977. Known from one collection by Smith at Shell Pit. Variability in appearance of the hindwing underside in comparison with eastern populations of this species has led to frequent misidentification of western specimens.

SILVER-BORDERED FRITILLARY (*Boloria selene*). 20 June-3 August. A common species of open woods, roadsides and meadows. Known from Fort McMurray (Ball, Brown), Gregoire Lake (Smith), Mildred Lake (HR), Shell Pit (Smith), and the Thickwood Hills (HR, Otto). The line between ssp. *albequina* and ssp. *atrocostalis* occurs in or near northeastern Alberta.

MEADOW FRITILLARY (*Boloria bellona jenistai*). 4 June-17 August. Found occasionally in meadows and cleared areas. Known from Fort MacKay (Kondla), Fort McMurray (Brown), and Mildred Lake (HR).

FRIGGA FRITILLARY (*Boloria frigga saga*). 25 May-24 June. A common species of wet coniferous woods, bogs, and birch and willow fens. Known from Fort MacKay (HR, Kondla), Fort Smith (Thormin), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), and Stoney Mountain (Sperling).

FREIJA FRITILLARY (*Boloria freija freija*). 1 May-24 June. A common species of dry willow fens and open coniferous woods. Known from Fort MacKay (HR), Gregoire Lake (Smith), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Smith Portage (Cary), and Stoney Mountain (Sperling).

PURPLE LESSER FRITILLARY (*Boloria titania grandis*). 16 July-22 August. A common species of roadsides and clearings in mixed woods. Known from Fort MacKay (HR), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), and the Thickwood Hills (HR).

DOG FRITILLARY (*Boloria eunomia*). 23-25 June. An occasional species of wet

coniferous woods and bogs. Known from Fort MacKay (HR), Fort Smith (Thormin), and Mildred Lake (Otto). Regional material could belong to either ssp. *dawsoni* or ssp. *triclaris*.

ATLANTIS FRITILLARY (*Speyeria atlantis*). 5 July-20 August. Abundant throughout the area. Darker individuals of the ssp. *hollandi* type, appear to be restricted to wet coniferous woods and bogs. Known from Fort Chipewyan (Russell), Fort McMurray (Ball, Brown, Taylor), Gregoire Lake (Smith), House River (Cary, Cinnamon), Mildred Lake (HR, Otto), Shell Pit (Smith), and the Thickwood Hills (HR, Otto).

VARIEGATED FRITILLARY (*Euptoieta claudia*). 6 July. Rare. Known only from the Thickwood Hills (HR).

Satyridae - Meadow Browns, Arctics and Alpines

OCHRE RINGLET (*Coenonympha ochracea mackenziei*). 23 June. Uncommon in open grassy areas. Known from Fort Smith (Bogaert, Thormin). New to Alberta, this species has been collected by Elsie Kuyt on 4 and 6 July 1974 at Fort Smith, N.W.T. just north of the Alberta border. It was described from material taken by J. Russell at Nyarling River, N.W.T., on 4 July 1926.⁵ T. C. Emmel states that it occurs "in the vicinity of Great Slave Lake in the Mackenzie District".⁹

SMALL WOOD NYMPH (*Cercyonis oetus charon*). A fresh male labelled "McMurray, 6 July 1953, G. E. Ball" is in the Canadian National Collection. This is a considerable range extension to the northeast. Further documentation is needed to establish the status of the species in the area.

MACOUN'S ARCTIC (*Oeneis macounii*). 6 June-10 July. Locally common in coniferous woods. Known from Fort McMurray (Ball, Brown), Fort Smith (Thormin), Mildred Lake (HR, Otto), and Shell Pit (Smith). All collections have been made in odd-numbered years (1953, 1977, 1979, 1981). John Masters (1974) has stated that the "insect flies only in odd-numbered years from the Riding Mountains west".

CHRYXUS ARCTIC (*Oeneis chryxus caryi*).

10-23 June. An occasional species of coniferous woods. Known from Fort MacKay (Kondla), Fort McMurray (Brown), Mildred Lake (HR), and Smith Portage (Cary). The subspecies *caryi* was described (Dyar 1904) from material collected by M. L. Cary at Smith Landing on 13 June, 1903.

JUTTA ARCTIC (*Oeneis jutta*). 30 May-24

June. An occasional species of wet coniferous woods and bogs. Known from Fort MacKay (HR, Kondla), Fort Smith (Thormin), Mildred Lake (HR, Otto), and Shell Pit (Smith). Material from the area may belong to ssp. *ridingiana*.

DISA OR MANCINUS ALPINE (*Erebia disa mancinus*). 30 May-4 July. Common in

wet coniferous woods. Known from Fort MacKay (HR, Kondla), Fort Smith (Thormin), Mildred Lake (HR, Otto), Peace Point (Gautreau), Pine Lake (Kuyt), Shell Pit (Smith), Stoney Mountain (Sperling), and the Thickwood Hills (HR).

RED-DISKED ALPINE (*Erebia discoidalis*). 4

May-12 June. Common near wet meadows. Known from Fort McMurray (Brown, HR), Mildred Lake (HR, Otto), Pine Lake (Kuyt), Shell Pit (Smith), and Smith Portage (Cary). Local material may belong to either ssp. *mcdunnoughi* or ssp. *discoidalis*. W. Kirby described the latter in 1837 in John Richardson's "Fauna Boreali-Americani" from material collected at Cumberland House, Saskatchewan, while C.F. dos Passos described the former from White Horse, Alaska, and mentions its distribution as "further west in Alberta and extending northward to Alaska".⁶ The differences between the two are slight and primarily involve the "red-disk". Kirby described it as "reddish-tawny" in *discoidalis* while dos Passos refers to it as "hazel" in *mcdunnoughi*.

Hypothetical Species

EYED BROWN (*Lethe eurydice eurydice*).

Merritt Cary reports that he saw an individual at Smith Landing on 12 June 1903. There is no voucher specimen at the United States National Museum and, as there are no other reports, the species should be regarded as hypothetical for the area.

Specimen Location

The specimens of B. Otto, N. G. Kondla, F. A. H. Sperling and T. Thormin are in their collections, while those of W. W. Smith and Elsie Kuyt are at the University of Calgary. The specimens of G. J. Hilchie and J. K. Ryan are deposited in a synoptic collection of insects of the Alberta Oil Sands Environmental Research Program (AOSERP), a butterfly display box for AOSERP and in the private collection of G. J. Hilchie. The G. E. Ball, W. J. Brown, J. Russell and G. Cinnamon specimens are in the Canadian National Collection. M. L. Cary's specimens are at the United States National Museum.

Acknowledgements

The curators of the above collections are thanked for making their facilities open for study.

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Hornet nest.

B. de Vries

WHITE FACED QUEEN WASP ATTACKS CRANE FLY AT THE PAS

WALTER KRIVDA, P.O. Box 864, The Pas, Manitoba. R9A 1K8

At 8:00 a.m. on 17 June 1982 it was clear, sunny and warm. I observed a white faced wasp pounce on a newly emerged crane fly (*tipulidae*) on the south side of the house. The wasp flew ahead a bit first, having spotted the crane fly on the wall drying its wings. It then backed up while in flight without turning and swiftly pounced on its prey. Both fell to the ground and rolled around with the wasp making attempts to sting. They were briefly out of view having fallen into a bed of flowering Iris. A moment later the wasp flew up holding the crane fly between her legs, the head foremost and the abdomen hanging between the wasp's legs.

In these parts, it is only the females or Queens which overwinter and start their paper nests in early spring. A protein-rich diet may be required to promote rapid growth of the larvae enabling the swift increase in wasp numbers that occurs in our brief summers.