

SKIPPERS AND BUTTERFLIES OF THE INDIAN GRAVE CAMPGROUND AREA, ALBERTA

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The study area is situated south of Indian Grave Campground in the Bow Crow Forest in the foothills of the Rocky Mountains approximately 75 kilometres south-southwest of Calgary on secondary road 532. The main campground lies along Johnson Creek in open aspen - White Spruce woods and the overflow campground to the northwest is on a ridge dominated by Lodgepole Pine.

The area of approximately 125 hectares is situated in parts of 9-15-3-W5 and 4-15-3-W5 with elevations varying from 1468 m to 1528 m, bounded on the north by the campgrounds, on the east by a major north-south cut line, on the west by an old four-wheel drive road heading south from the actual Indian graves, and on the south by an arbitrary line, approximately 2500 m south of the campground. About 8 kilometres west of the study area (via No. 532) are the east slopes of the Livingstone Range.

Within the small study area, there is a variety of treed, grassy, and aquatic habitats. The treed habitats vary with the moisture regimes from Lodgepole Pine forests on the drier exposed ridges to aspen and some White Spruce in intermediate moisture regimes to Balsam Poplar and White Spruce along the creeks and other low-lying wet areas. The open areas consist of disturbed grasslands in the campgrounds, along the roadways, and along the cut line; and small pockets of native grasslands on the hillsides. Characteristic herbs of these grasslands include Nodding Onion, White Camas, Three-flowered Avens, Perennial Lupine, Graceful Cinquefoil, White Cinquefoil, Common

Bluebell, Northern Bedstraw, False Dandelion, Wild Gaillardia, and Silvery Groundsel. Aquatic habitats in the study area consist of the creeks and a few low-lying wet areas. The low-lying wet areas (shrub fens) are grassy with numerous willows and Swamp Birch interspersed.

Annotated List

The following list is the result of field observations and collections made by the author on 19 different days over a period of 8 years from 1975 - 1982, with a seasonal spread from 21 May to 1 October. Most of the field time was between the end of May and the end of August. Dates indicating days for which specimen records are available are written in an abbreviated format (e.g. 31/5/80 means 31 May 1980). Also included are some sightings and collections made by Norbert Kondla. These are acknowledged by "NK" following the date. Most of the common names are from Hooper.⁴ Scientific names generally follow Howe for genus, and Miller and Brown for species and subspecies.^{5 7}

Hesperiidae — Skippers

DRACO SKIPPER (*Polites draco*) — Occasional in meadows along the creeks; 10/7/77 NK, 5/7/80.

GARITA SKIPPER (*Oarisma garita*) — Fairly common in meadows and along the cut line; 10/7/77 NK, 5/7/80, 26/7/80, 26/7/80 NK, 11/7/82; prefers native grasslands.

DREAMY DUSKY WING (*Erynnis icelus*) — One specimen was collected on

11/7/82 in a small pocket of native grassland bordered by Aspen woods.

PERSIUS DUSKY WING (*Erynnis persius*) — Uncommon in grassy areas; 10/7/82, 11/7/82; prefers small pockets of native grasslands.

AFRANIUS DUSKY WING (*Erynnis afranius*) — Uncommon, but more numerous than the preceding species, in grasslands; 31/5/80, 11/7/82.

Papilionidae — Parnassians and Swallowtails

CLOUDED PARNASSIAN (*Parnassius phoebus smintheus*) — Individual was observed by Kondla and Pinel on 26/7/80 flying through the Indian Grave Campground. This species occurs in the study area as a stray from the Livingstone Range.

ZELICAON SWALLOWTAIL (*Papilio zelicaon nitra*) — Collected once on 22/5/82 on a south-facing grassy slope.

TIGER SWALLOWTAIL (*Papilio glaucus canadensis*) — Common near poplar woods; flight records from 31 May to 19 July; white forms of females are common especially during the last half of the flight period; 19/7/75, 31/5/80, 8/6/80, 5/7/80, 10/7/80, 11/7/82.



Tiger Swallowtails.

W. S. Richards

Pieridae — Whites and Sulphurs

WESTERN CHECKERED WHITE (*Pieris occidentalis occidentalis*) — Fairly common in disturbed meadows and along cut line; 20/7/75, 23/8/81, 11/7/82.

MUSTARD WHITE (*Pieris napi*) — Occasional along cut line in Lodgepole Pine woods; 31/5/80, 10/7/82, 11/7/82.

CABBAGE WHITE (*Pieris rapae*) — Fairly common in disturbed areas such as the campgrounds and along roadways; flight records from 21 May to 27 August; 27/8/75, 15/8/81, 23/8/81, 21/5/82, 22/5/82, 23/5/82, 24/5/82.

ORANGE ALFALFA BUTTERFLY (*Colias eurytheme eurytheme*) — One male was collected on 23/8/81 in disturbed grasslands.

YELLOW ALFALFA BUTTERFLY (*Colias philodice eriphyle*) — Common in disturbed grasslands, in campgrounds, and along the roadways and cut line; flight records from 31 May to 23 August; 5/8/79, 31/5/80, 8/6/80, 15/8/81, 23/8/81, 10/7/82, 11/7/82.

PINK-EDGED SULPHUR (*Colias interior interior*) — Fairly common in pine woods during July and early August; 5/8/79, 5/7/80, 26/7/80, 9/8/80, 15/8/81, 10/7/82, 11/7/82.

ALEXANDRA SULPHUR (*Colias alexandra astraea*) — Occasional along cut line and in rocky meadows; 19/7/75.



Alexandra Sulphur.

C. R. Wershler

CREUSA MARBLE (*Euchloe creusa*) — Rare straggler to the study area from the Livingstone Range; 26/7/78 NK.

LARGE MARBLE (*Euchloe ausonides*) — Scarce and local in a disturbed grassy meadow near a garbage dump along the cut line; 31/5/80.

Lycaenidae — Gossamer-winged Butterflies

HOARY ELFIN (*Callophrys polios obscurus*) — Collected once in pine woods; 31/5/80.

WESTERN PINE ELFIN (*Callophrys eryphon eryphon*) — Occasional in pine woods; 22/5/82.

MARIPOSA COPPER (*Epidemia mariposa penroseae*) — Occasional along the cut line in pine woods; 19/7/75, 20/7/75, 26/7/80.

PURPLISH COPPER (*Epidemia helloides*) — Collected once in a low wet area along the cut line; 20/7/75.

SCUDDER'S BLUE (*Lycaeides argyrognomon scudderii*) — Occasional in grassy meadows bordered by Lodgepole Pine and aspen; 20/7/75, 10/7/77 NK.

GREENISH BLUE (*Plebejus saepiolus amica*) — Common in grasslands and along the cut line; 19/7/75, 10/7/77 NK, 5/8/79, 5/7/80, 11/7/82.

PEMBINA BLUE (*Plebejus icarioides pembina*) — Common, but local, in native grasslands bordered by aspen woods; 20/7/75, 5/7/80, 10/7/82, 11/7/82.

ARCTIC BLUE (*Plebejus franklinii megalis*) — Scarce in meadows; 20/7/75.

WESTERN TAILED BLUE (*Everes amyntula albrighti*) — Common in aspen woods, native grasslands, and mixed poplar-spruce woods; flight recorded from 31 May to 19 July; 19/7/75, 31/5/80, 8/6/80, 10/7/82, 11/7/82.

SILVERY BLUE (*Glaucopsyche lygdamus couperi*) — Common in aspen woods, grasslands and along cut line; flight period recorded from 21 May to 20 July; 20/7/75, 31/5/80, 8/6/80, 21/5/82, 22/5/82, 23/5/82, 24/5/82, 10/7/82, 11/7/82; occasional during August; 15/8/81.

Nymphalidae — Brush-footed Butterflies

WHITE ADMIRAL (*Basilarchia arthemis rubrofasciata*) — Fairly common in poplar woods; recorded flying from 5 July to 23 August; 19/7/75, 5/8/79, 5/7/80, 26/7/80, 26/7/80 NK, 15/8/81, 23/8/81, 10/7/82.

RED ADMIRAL (*Vanessa atalanta rubria*) — Occasional in disturbed grasslands; 15/8/81.

PAINTED LADY (*Vanessa cardui*) — Collected once on 5/8/79 in a roadside ditch.

MILBERT'S TORTOISE-SHELL (*Nymphalis milberti furcillata*) — Common in poplar woods and along the cut line; recorded flight period from 21 May to 1 October; 19/7/75, 20/7/75, 5/8/79, 8/8/80, 9/8/80, 10/8/80, 21/5/82, 22/5/82, 23/5/82, 24/5/82, 10/7/82, 11/7/82.



Greenish Blue.

C. R. Wershler



Milbert's Tortoise-shell.

R. W. Knapton

MOURNING CLOAK (*Nymphalis antiopa antiopa*) — Fairly common in poplar woods; appear to be most common during last half of May; 31/5/80, 1/10/80, 15/8/81, 21/5/82, 22/5/82, 23/5/82, 24/5/82.

SATYR ANGLE WING (*Polygonia satyrus*) — Uncommon in poplar woods; 31/5/80, 8/6/80, 8/8/80, 9/8/80, 10/8/80.

GREEN COMMA (*Polygonia faunus rusticus*) — Common in wooded areas; flight period recorded from 21 May to 1 October; 31/5/80, 8/6/80, 26/7/80, 8/8/80, 9/8/80, 10/8/80, 1/10/80, 21/5/82, 22/5/82, 23/5/82, 24/5/82, 11/7/82.

GRAY COMMA (*Polygonia progne*) — Collected once on 8/6/80 at the edge of aspen woods.

ROCKY MOUNTAIN CHECKERSPOT (*Chlosyne palla calydon*) — Occasional and local in pockets of native grasslands surrounded by forests; 20/7/75, 10/7/82.

PEARL CRESCENT (*Phyciodes tharos*) — Fairly common in meadows, poplar woods, and along the cut line during July, 20/7/75, 5/7/80, 26/7/80, 10/7/82, 11/7/82.

MEADOW CRESCENT (*Phyciodes praten-sis*) — Fairly common in meadows, poplar woods, and along the cut line during July, 20/7/75, 5/7/80, 26/7/80, 10/7/82, 11/7/82.

HEWITSON'S CHECKERSPOT (*Euphydryas anicia anicia*) — Uncommon in patches of native grassland and along the cut line during July; 5/7/80, 10/7/82, 11/7/82.

GILLETTE'S CHECKERSPOT (*Euphydryas gillettii*) — Scarce; collected at the edge of a low-lying wet area bordered by mixed woods; 19/7/75, 10/7/82.

SILVER-BORDERED FRITILLARY (*Boloria selene*) — Small localized population in a wet area dominated by willows and Swamp Birch; 10/7/77 NK, 26/7/80.

MEADOW FRITILLARY (*Boloria bellona jenistai*) — Uncommon in grasslands and along the cut line; 31/5/80, 8/6/80, 10/7/82, 11/7/82.

FRIGGA FRITILLARY (*Boloria frigga saga*) — Scarce in a low lying wet area dominated by grasses and willows; 31/5/80.

WESTERN MEADOW FRITILLARY (*Boloria epithore borealis*) — Collected once on 10/7/82 flying along the cut line.

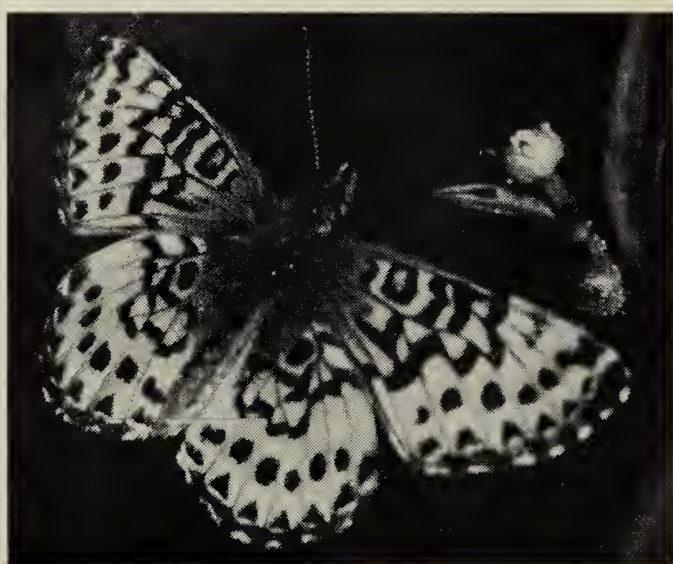
FREIJA FRITILLARY (*Boloria freija freija*) — Common in open grassy areas among Lodgepole Pine and White Spruce from mid-May to mid-June; 31/5/80, 8/6/80, 21/5/82, 22/5/82, 23/5/82, 24/5/82.

PURPLE LESSER FRITILLARY (*Boloria titania*) — Common in coniferous woods, mixed woods, and open areas adjacent woods; flight period recorded from 5 July to 23 August; 5/8/79, 5/7/80, 26/7/80, 26/7/80 NK, 8/8/80, 9/8/80, 10/8/80, 15/8/81, 23/8/81.



Pearl Crescent.

Gary Anweiler



Purple Lesser Fritillary.

Fred Lahrman

EDWARD'S FRITILLARY (*Speyeria edwardsii*) — Occasional in mixed woods from mid-July to mid-August; 19/7/75, 26/7/80, 8/8/80, 9/8/80, 10/8/80, 15/8/81.

ZERENE FRITILLARY (*Speyeria zerene garretti*) — Fairly common in Lodgepole Pine woods, mixed woods, and in native grasslands bordered by mixed woods; flight period recorded from 5 July to 23 August; 5/8/79, 5/7/80, 15/8/81, 23/8/81, 10/7/82, 11/7/82.

CALLIPPE FRITILLARY (*Speyeria callippe calgariana*) — Collected once along the cut line; 5/7/80.

BEAN'S FRITILLARY (*Speyeria atlantis beani*) — Common in Lodgepole Pine woods, mixed woods, and grassy meadows during July and August; 19/7/75, 20/7/75, 10/7/77 NK, 12/7/77 NK, 5/8/79, 5/7/80, 26/7/80, 26/7/80 NK, 8/8/80, 9/8/80, 10/8/80, 15/8/81, 23/8/81, 10/7/82, 11/7/82.

MORMON FRITILLARY (*Speyeria mormonia*) — Common in grasslands, along the cut line, and in open woods from mid-July to the end of August; 20/7/75, 5/8/79, 18/7/80 NK, 26/7/80, 8/8/80, 9/8/80, 10/8/80, 15/8/81, 23/8/81.

APHRODITE (*Speyeria aphrodite*) Collected once by Kondla along the cut line on 26/7/80.

Satyridae — Nymphs, Satyrs and Arctics

RINGLET (*Coenonympha inornata benjamini*) — Uncommon in grasslands and disturbed areas along roadways; 11/7/77 NK, 18/7/80, 15/8/81, 10/7/82, 11/7/82.

COMMON WOOD NYMPH (*Cercyonis pegala ino*) — Fairly common in disturbed grasslands during August; 5/8/79, 11/8/79, 15/8/81, 23/8/81.

SMALL WOOD NYMPH (*Cercyonis oetus*) — Fairly common in disturbed grasslands from mid-July to the end of August; 20/7/75, 18/7/80 NK, 26/7/80, 15/8/81, 23/8/81.

VARUNA ARCTIC (*Oeneis uhleri varuna*) — Collected along the cut line; 10/7/82, 11/7/82.

MACOUN'S ARCTIC (*Oeneis macounii*) — Collected once in Lodgepole Pine forest on 11/7/82. In Alberta this species is reported to fly commonly in odd-numbered years.

CHRYXUS ARCTIC (*Oeneis chryxus chryxus*) — Occasional along the cut line in Lodgepole Pine woods; 8/6/80, 10/7/82, 11/7/82; more common at higher elevations to the west of the study area on the east slopes of the Livingstone Range.

ALBERTA ARCTIC (*Oeneis alberta alberta*) — Occasional in disturbed grasslands in late May; 21/5/82, 22/5/82, 23/5/82, 24/5/82.

RED DISKED ALPINE (*Erebia discoidalis mcdunnoughi*) — Common in May 1982 in disturbed grasslands, roadside ditches, and along the cut line; 21/5/82, 22/5/82, 23/5/82, 24/5/82; there is a late record, 10/7/82.

COMMON ALPINE (*Erebia epipsodea epipsodea*) — Common in grasslands, along roadways, and on the cut line; flight period recorded from late May to late July; 19/7/75, 20/7/75, 11/7/77 NK, 31/5/80, 18/7/80 NK, 26/7/80 NK, 10/7/82, 11/7/82.



Common Wood Nymph.

Gary Anweiler

Discussion

Sixty-one species, representing 6 of the 7 families of Rhopalocerans found in Alberta, were recorded in the study area as follows: HesperIIDae - 5 (8%), Papilionidae - 3 (5%), Pieridae - 9 (15%), Lycaenidae - 10 (16%), Nymphalidae - 25 (41%), Satyridae - 9 (15%). Table 1 compares the Rhopaloceran fauna of the study area to that of Alberta. As shown in Table 1, the Indian Grave fauna had a significantly greater portion of the fauna represented by the Nymphalidae and Satyridae, and a significantly lesser portion represented by the HesperIIDae and Lycaenidae, than the total Alberta fauna.

Of the 61 recorded species for the Indian Grave area, 47 (77%) have been reported in July. The greatest diversity of species occurs in mid-July. In southwestern Alberta, this compares with mid-June for Calgary, mid-July for Banff National Park, late July for Kananaskis Provincial Park, and early August for Plateau Mountain.^{3 2 6 1}

The relatively large number of species recorded for the Indian Grave Campground study area is the result of the interspersed and melding of a variety of habitats within a small area. The grasslands element is represented by such species as Garita Skipper, Pembina Blue, Alberta Arctic and Varuna Arctic. The aquatic habitats support such species as the Draco Skipper

along the creeks, and Gillette's Checkerspot, Frigga Fritillary, and Silver-bordered Fritillary in the wet areas dominated by grasses and willows. The Mustard White, Pink-edged Sulphur, Freija Fritillary, and Western Pine Elfin show a marked preference for Lodgepole Pine woods. Poplar woods are favoured by such species as the Tiger Swallowtail, Western Tailed Blue and Mourning Cloak. A number of species utilize more than one habitat owing to the distribution of their food plants. An example would be members of the genus *Speyeria* which freely feed on blossoms of thistles, fireweed, and gaillardia as adults with the larval food plants reported to be violets.

Because of the proximity of different habitats, namely subalpine and alpine meadows, to the west of the study area in the Livingstone Range, and the fact that the prevailing winds are from the west, windblown strays occur in the Indian Grave area. So far, the Clouded Parnassian and Creusa Marble have been recorded. Some other species that could be expected as strays from the Livingstone Range include the Comma or Labrador Skipper (*Hesperia comma manitoba*), Mead's Sulphur (*Colias meadii elis*), Nastes Sulphur (*Colias nastes streckeri*) and Small Copper (*Lycaena phlaeas arethusa*).

Favourable habitats already exist in the study area for a number of species

Table 1: COMPARISON OF INDIAN GRAVE STUDY AREA AND TOTAL PROVINCIAL RHOPALOCERAN FAUNA.

Family	Indian Grave		Province ⁶	
	No. of Species	Percent of Fauna	No. of Species	Percent of Fauna
HesperIIDae	5	8%	27	17%
Papilionidae	3	5%	8	5%
Pieridae	9	15%	19	13%
Lycaenidae	10	16%	36	24%
Nymphalidae	25	41%	46	30%
Danaidae	0	0	1	0.6%
Satyridae	9	15%	15	10%

not recorded to date. These expected species would include Roadside Skipper, Peck's Skipper, Long Dash, Arctic Skipper, Northern Cloudy Wing, Giant Sulphur, Sara Orange Tip, Zephyr Angle Wing and Variegated Fritillary.

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¹ BIRD, C. D. 1975. A calendar of the butterflies and skippers of the alpine area of Plateau Mountain. *Alberta Naturalist* 5:26-28.

² BIRD, C. D. 1975. A calendar of the skippers and butterflies of Banff National Park. *Alberta Naturalist* 5:71-75.

³ BIRD, C. D. 1975. A revised calendar of the butterflies and skippers of Calgary. *Calgary Field Naturalist* 6:312-314.

⁴ HOOPER, R. R. 1973. The butterflies of Saskatchewan. *Saskatchewan Museum of Natural History*. 216 pp.

⁵ HOWE, W. H. 1975. *The Butterflies of North America*. Doubleday & Company Inc., New York, 633 pp.

⁶ KONDLA, N. G. and C. D. BIRD. 1979. The skippers and butterflies of Kananaskis Provincial Park, Alberta. *Blue Jay* 37:73-85.

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LACEWINGS AND APHIS LIONS

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One of the author's principal research concerns was the diamondback moth and its larvae (*Plutella xylostella* L. (Plutellidae)), an occasional pest of Brassica seed crops in Saskatchewan. In an earlier paper in this journal, I briefly described two hymenopterous parasites of diamondback larvae. Here, I wish to write about another naturally occurring biological control agent, one predator that seemed potentially significant in the natural control of the diamondback. It is one of the lacewings, *Chrysopa carnea* (Neuroptera: Chrysopidae).

Lacewing larvae are commonly called aphis lions, aphids being a common prey. Aphis lions are active little creatures, their appearance suggesting tiny alligators, with their mouth parts extended to form a pair of "pincers", with which they puncture and drain the juices out of anything defenceless and tender enough to handle. They will

sometimes even take a pinch at one's bare arm, no doubt trying it for flavour and tenderness. Completing larval growth rather quickly under good conditions, they spin a small spherical cocoon resembling a miniature tennis ball. Out of this soon emerges a pale green adult lacewing, seeming to be much too bulky ever to have developed in such a tiny space. They are occasionally seen in open spaces in low, clumsy-looking flight.

It was known that aphis lions were broad spectrum feeders, but small scale experiments were first set up for assurance that they would feed on diamondback eggs (easy targets), larvae alone, and especially, larvae in the presence of aphids. It was thought that aphids might be a preferred food, but it turned out that the predators did not discriminate.

The next step was to set up a cage