



# ALBERTA LEPIDOPTERISTS' GUILD NEWSLETTER

Fall 2022

Welcome to the ALG Newsletter, a compendium of news, reports, and items of interest related to lepidopterans and lepidopterists in Alberta. The newsletter is edited by John Acorn, and it is published twice a year, in spring and fall.



Atlantis Fritillary (*Speyeria atlantis*), Wagner Natural Area, photo by Don Delaney

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# **Twenty Years of Lepidoptera Studies at the Wainwright Dunes Ecological Reserve**

## **Doug Macaulay**



I've had the privilege of visiting this spectacular protected area for the past 20 years and have had the unique opportunity of learning about the lepidopterans that reside there.

This hidden gem is located near Wainwright, Alberta and borders the southern edge of the Canadian Forces Base Wainwright Army Base (CFB). The reserve can best be described as entomological oasis. It consists of rolling terrain composed of sand dunes, both vegetated and open, prairie meadows, aspen woodlands and numerous small to large wetlands, including some 'fen' like features. It is rugged terrain is difficult to reach without a 4X4 but once you arrive, you are surrounded by some of the most pristine aspen parkland, prairie meadows and woodlands in the province.

The story starts back in the mid-1990s when Gary Anweiler of the Alberta Lepidopterist Guild bumped into Jim Broatch, an entomologist who worked for Alberta Agriculture. During a casual conversation, Jim mentioned a neat dune system located eastern Alberta. He thought it might be a worth exploring if ALG members ever had the time to do so.

Then on a sweltering Saturday on July 12, 2002, Gary and I decided to sneak



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out there. We met Jim at a gas station in the tiny village of Edgerton. He proceeded to lead us down a series of gravel roads and a very bumpy dirt track through a pasture to the reserve. Jim had another engagement so left us standing in a field beside the reserve. I joked that he was actually scared off by the heat as it was over 40 Celsius that afternoon and he had ice cream on his mind. Anyhow, Gary and I pitched our tents in the shade beside a bubbling spring, relaxed, cooled off and prepared for the evening. It was so hot, Gary drank a cup of unfiltered water out of the spring, I was a bit surprised, as there was plenty of cattle activity in the area, but Gary had no side effects.

At dusk we setup several UV traps and a MV sheet trap. The night didn't cool off much, I believe at dusk it was still near 30 degrees and the insects were a-buzzing, so we knew it would be an epic night. And it was. The MV sheet was alive with an assortment of rare and usual moths. It was glorious.

The following morning, however, as we approached our traps, we knew immediately that we were in trouble. The traps were alive and moth scales were floating out of them. Also, we could hear the movements of scarab beetles and the infamous squeaking noises they make as they crawled around the pail through inches of buzzing moths. To our chagrin, the hot night had resulted in our Ethyl Acetate gassing off, or "flashing off," as Gary put it. And not surprisingly, most of the moths were ruined. Amazingly, many of the tiger moths were in relatively good condition. Good thing, as a few of the tiger moths were a new species for Alberta.

Despite getting only a few quality specimens that trip from the traps, we did discover some very cool moths. The first records of Phyllira Tiger Moth (*Apantesis phyllira*) were pulled out of the traps and a lone Oak Beauty Moth (*Phaeoura quernaria*) arrived at the MV sheet trap.

Since then I've returned eleven times with my wife, my children, with several colleagues and friends. These trips led to the discovery of eight new species for the Alberta list and the discovery of several new populations of rare moths. Some of the big finds made since this trip include the Green Marvel Moth (*Acronicta fallax*), the Apple Sphinx (*Sphinx gordius*), Red-humped Caterpillar Moth (*Schizura concinna*), and the Olive Angle Shades Moth (*Phlogophora iris*), all of which were new to the Alberta list and major range extensions for these eastern Canadian species. Other notable finds and rarities include the Clemen's Sphinx Moth (*Sphinx luscitiosa*), Morning-glory Prominent Moth (*Schizura ipomoeae*), Saunders' Sallow Moth (*Sympistis saundersiana*), Green-spotted Sallow Moth (*Sympistis viriditincta*) and the Pale Yellow Dune Moth (*Copablepharon grandis*).

Last year, in 2021, Greg Pohl visited the reserve mid-July. It was a lovely day and that night we added a total of 100 new lepidopterans to the park list. This included four exciting new finds. The big discoveries included a new Twirler Moth (Gelechiidae), *Gnorimoschema triforme*, the Aproned Cenopis Moth (*Cenopis*



*niveana*), the Mullein Apamea Moth (*Apamea verbascoides*), a rare cutworm moth, *Euxoa clausa*, and the Subgothic Dart Moth (*Feltia subgothica*). All five, other than the rare *E. clausa*, were new to the Alberta list and additional range extensions from eastern Canada.

With the recent additions, including 20 new additions for 2022, the reserves list now has a total of 497 species and contains approximately 20% of lepidopterans found in Alberta (Appendix 1). Of these species there are 38 that are considered rare with 5 or less recorded populations known in Alberta and another 35 that are considered uncommon with fewer than 20 or less populations known. The list continues to grow, especially as we begin to add micro-moths to our forays. As we continue to visit this reserve, I am certain it will lead to the discovery of many new Alberta records and rare finds, especially since only the small southeast corner of the park has been surveyed. Hopefully, if time and weather permit, the deeper and less accessible regions of this special ecological reserve can be explored in future years.







*Copablepharon grandis.*



*Acronicta fallax.*





“Beetle Breakfast,” featuring two delectable scarab species: *Phyllophaga* sp., and the dune-specialty *Cotalpa lanigera*.



Olive Angle Shades (*Phlogophora iris*), starting to become more common in Alberta, amazingly.





### **Further Information:**

To learn more about this unique protected area visit  
<https://www.albertaparks.ca/parks/central/wainwright-dunes-er/>.

To follow this Lepidoptera project visit  
<https://www.researchgate.net/project/Survey-of-Lepidoptera-of-the-Wainwright-Dunes-Ecological-Reserve>.

To contribute observations and discoveries visit the iNaturalist.org project at  
<https://www.inaturalist.org/projects/wainwright-dunes-ecological-reserve>.

### **References:**

Macaulay, A.D. 2016c. Survey of Lepidoptera of the Wainwright Dunes Ecological Reserve. Alberta Species at Risk Report No. 159. Alberta Environment and Parks, Edmonton, AB. 31 pp. Available at: <https://open.alberta.ca/publications/9781460134498>



Appendix 1. Wainwright Dunes Ecological Reserve Species List (last updated July 13th, 2022)					
#	Scarcity	CDN	MONA#	Family	Species
1	C	110008.00	29.00	Hepialidae	Gazoryctra novigannus (Barnes & Benjamin)
2	C	110017.00	19.00	Hepialidae	Sthenopis purpurascens (Packard)
3	C	300176.00	421.00	Tineidae	Monopis spilotella Tengström
4	C	330195.00	669.00	Gracillariidae	Parornix conspicuella (Dietz)
5	C	360044.00	2371.00	Ypsolophidae	Ypsolopha canariella (WISmith)
6	C	360049.00	2376.00	Ypsolophidae	Ypsolopha dentiferella (Walsingham)
7	E	360083.00	2366.00	Plutellidae	Plutella xylostella (Linnaeus)
8	C	360174.00	2467.00	Argyresthiidae	Argyresthia oreasella Clemens
9	R	420082.00	870.00	Depressariidae	Agonopterix fusciterminella Clarke
10	U	420140.00	926.00	Depressariidae	Depressaria alienella Busck
11	SNR	420141.00	927.00	Depressariidae	Depressaria artemisiella McDunnough
12	C	420194.00	987.00	Depressariidae	Ethmia monticola (WISmith)
13	R	420213.00	1001.00	Depressariidae	Ethmia albicostella (Beutenmüller)
14	SNR	420227.00	1014.00	Depressariidae	Antaeotricha leucillana Zeller
15	C	420401.00	1515.00	Cosmopterigidae	Limnaecia phragmitella Stainton
16	U	420670.00	1761.00	Gelechiidae	Aristotelia roseosuffusella (Clemens)
17	A	420867.00	1946.00	Gelechiidae	Gelechia lynceella Zeller
18	A	420971.00	2093.00	Gelechiidae	Chionodes mediofuscella (Clemens)
19	C	421009.00	2090.00	Gelechiidae	Chionodes lugubrella (Fabricius)
20	A	421076.00	2127.00	Gelechiidae	Filatima abactella (Clarke)
21	R	421204.00	1986.00	Gelechiidae	Gnorimoschema gallaesolidaginis (Riley)
22	R	421260.00	2005.10	Gelechiidae	Gnorimoschema triforceps Povolný
23	E	421652.00	1398.20	Coleophoridae	Coleophora deauratella Lienig & Zeller
24	C	421663.00	1399.00	Batrachedridae	Batrachedra praeangusta (Haworth)
25	C	460012.00	6107.00	Pterophoridae	Gillmeria pallidactyla (Haworth)
26	A	460051.00	6118.00	Pterophoridae	Amblyptilia pica (Walsingham)
27	C	460104.00	6203.00	Pterophoridae	Hellinsia homodactylus (Walker)
28	C	460106.00	6205.00	Pterophoridae	Hellinsia pectodactylus (Staud.)
29	C	460142.00	6171.00	Pterophoridae	Oidaematophorus grisescens WISmith
30	U	480010.00	2318.00	Carposinidae	Bondia comonana (Kearfott)
31	C	520011.00	2334.00	Epermeniidae	Ochromolopis ramapoella (Kearfott)
32	C	620002.00	3502.00	Tortricidae	Acleris albicomana (Clemens)
33	R	620006.00	3506.00	Tortricidae	Acleris macdunnoughi Obraztsov
34	U	620032.00	3532.00	Tortricidae	Acleris fragariana Kearfott
35	A	620068.00	3568.00	Tortricidae	Eana argentana (Clerck)
36	R	620089.00	3754.00	Tortricidae	Aethes angulatana (Robinson, 1869)
37	R	620113.00	3758.00	Tortricidae	Aethes rutilana (Hübner)
38	SNR	620115.00	3760.20	Tortricidae	Aethes sexdentata Sabourin & Miller
39	C	620227.00	3565.00	Tortricidae	Eulia ministrana (Linnaeus)
40	R	620266.00	3607.00	Tortricidae	Argyrotaenia occultana Freeman
41	C	620280.00	3621.00	Tortricidae	Argyrotaenia quadrifasciana (Fernald)
42	A	620300.00	3635.00	Tortricidae	Choristoneura rosaceana (Harris)
43	A	620302.00	3637.00	Tortricidae	Choristoneura conflictana (Walker)
44	C	620323.00	3648.00	Tortricidae	Archips argyrospila (Walker)
45	A	620334.00	3661.00	Tortricidae	Archips cerasivorana (Fitch)
46	C	620357.00	3682.00	Tortricidae	Clepsipha persicana (Fitch)
47	C	620360.00	3684.00	Tortricidae	Clepsipha clemensiana (Fernald)
48	C	620366.00	3689.00	Tortricidae	Clepsipha virescana (Clemens)



49	C	620390.00	3695.00	Tortricidae	Sparganothis sulfureana (Clemens)
50	C	620396.00	3711.00	Tortricidae	Sparganothis unifasciana (Clemens)
51	C	620398.00	3706.00	Tortricidae	Sparganothis xanthoides (Walker)
52	R	620418.00	3727.00	Tortricidae	Cenopsis niveana Walsingham
53	C	620419.00	3720.00	Tortricidae	Cenopsis reticulatana (Clemens)
54	R	620425.00	3722.00	Tortricidae	Cenopsis directana (Walker)
55	U	620475.00	2747.00	Tortricidae	Hulda impudens (Walsingham)
56	R	620480.00	2708.00	Tortricidae	Bactra maiorina Heinrich
57	C	620523.00	2768.00	Tortricidae	Apotomis removana (Kearfott)
58	C	620528.00	2753.00	Tortricidae	Apotomis capreana (Hübner)
59	C	620536.00	2767.00	Tortricidae	Apotomis infida (Heinrich)
60	C	620538.00	2769.00	Tortricidae	Pseudosciaphila duplex (Walsingham)
61	A	620539.00	2770.00	Tortricidae	Orthotaenia undulana ([Denis & Schiffermüller])
62	U	620555.00	2786.00	Tortricidae	Olethreutes punctanum (Walsingham)
63	R	620557.00	2788.00	Tortricidae	Olethreutes inornatana (Clemens)
64	C	620601.00	2835.00	Tortricidae	Olethreutes galaxana Kearfott
65	R	620603.00	2838.00	Tortricidae	Olethreutes coruscana (Clemens)
66	C	620629.00	2859.00	Tortricidae	Celypha cespitana (Hübner)
67	U	620641.00	3354.00	Tortricidae	Ancylis nubeculana (Clemens)
68	R	620657.00	3368.00	Tortricidae	Ancylis mira Heinrich
69	SNR	620772.00	2985.00	Tortricidae	Eucosma infimbriana (Dyar)
70	C	620796.00	2973.00	Tortricidae	Eucosma striatana (Clemens)
71	U	620799.00	2980.00	Tortricidae	Eucosma pallidicostana (Walsingham)
72	U	620801.00	2969.00	Tortricidae	Eucosma indagatricana (Heinrich)
73	C	620816.00	2956.00	Tortricidae	Eucosma tarandana (Möschler)
74	C	620832.00	2937.00	Tortricidae	Eucosma parmatana (Clemens)
75	C	620889.00	3037.00	Tortricidae	Pelochrista agricolana (Walsingham)
76	R	620936.00	3012.00	Tortricidae	Pelochrista fandana (Kearfott)
77	R	620937.00	3015.00	Tortricidae	Pelochrista fernaldana (Grote)
78	C	621019.00	3014.00	Tortricidae	Pelochrista ridingsana (Robinson)
79	C	621124.00	3223.00	Tortricidae	Gypsonoma fasciolana (Clemens)
80	C	621128.00	3227.00	Tortricidae	Gypsonoma substitutionis Heinrich
81	A	621218.00	3306.00	Tortricidae	Epipotia nisella (Clerck)
82	C	621219.00	3307.00	Tortricidae	Epipotia cinereana criddleana (Kearfott)
83	U	621250.00	3342.00	Tortricidae	Epipotia lomonana (Kearfott)
84	U	621282.00	3412.00	Tortricidae	Dichrorampha sedatana (Busck)
85	R	621307.00	3428.00	Tortricidae	Grapholita packardi (Zeller)
86	U	621351.00	3463.00	Tortricidae	Cydia populana (Busck)
87	R	621353.00	3465.00	Tortricidae	Cydia flexiloqua (Heinrich)
88	C	640025.00	2675.00	Cossidae	Acossus centerensis (Lint.)
89	C	660010.00	4652.00	Limacodidae	Tortricidia testacea Pack.
90	C	770047.00	3910.00	Hesperiidae	Thorybes pylades pylades (Scudder)
91	C	770086.00	3945.00	Hesperiidae	Erynnis icelus (Scudder & Burgess)
92	C	770102.00	3961.00	Hesperiidae	Erynnis persius fredricki Free.
93	A	770154.00	4007.00	Hesperiidae	Oarisma garita (Reakirt)
94	C	770186.00	4105.00	Hesperiidae	Amblyscirtes vialis (Edw.)
95	C	770232.00	4036.00	Hesperiidae	Polites peckius (Kby.)
96	C	770236.00	4041.00	Hesperiidae	Polites themistocles (Latreille)
97	C	770239.00	4043.00	Hesperiidae	Polites mystic mystic (Edw.)
98	C	770249.00	4059.00	Hesperiidae	Poanes hobomok (Harris)



99	C	770314.00	4183.20	Papilionidae	Papilio canadensis Rothschild & Jordan
100	A	770340.00	4209.00	Pieridae	Colias philodice philodice God.
101	C	770373.00	4200.00	Pieridae	Euchloe ausonides (Lucas)
102	E	770392.00	4197.00	Pieridae	Pieris rapae (L.)
103	C	770415.00	4262.00	Lycaenidae	Tharsalea helloides (Bdv.)
104	C	770432.00	4275.00	Lycaenidae	Satyrus titus immaculosus (Comstock)
105	C	770437.00	4285.00	Lycaenidae	Satyrus liparops fletcheri (Mich.)
106	C	770511.00	4362.00	Lycaenidae	Cupido amyntula albrighti Clench
107	C	770540.00	4372.00	Lycaenidae	Glaucopsyche lygdamus couperi
108	C	770548.00	4376.00	Lycaenidae	Plebejus saepiolus amica (Edw.)
109	C	770556.01	4384.01	Lycaenidae	Agriades glandon lacustris (Freeman)
110	C	770593.00	4522.00	Nymphalidae	Limenitis arthemis rubrofasciata (Barnes & McDunnough)
111	C	770612.00	4464.00	Nymphalidae	Boloria selene atrostalis (Huard) / myrina (Cramer)
112	C	770613.00	4465.00	Nymphalidae	Boloria bellona (Fab.)
113	C	770625.00	4450.00	Nymphalidae	Speyeria cybele pseudocarpeniteri (Chermock)
114	C	770626.00	4451.00	Nymphalidae	Speyeria aphrodite manitoba (Chermock & Chermock)
115	A	770633.00	4457.00	Nymphalidae	Speyeria callippe calgariana (McDunnough)
116	A	770636.00	4459.00	Nymphalidae	Speyeria atlantis hollandi (Chermock & Chermock)
117	C	770637.13	4459.13	Nymphalidae	Speyeria hesperis dennisii dos Passos
118	C	770639.00	4461.00	Nymphalidae	Speyeria mormonia eurynome (Edw.)
119	C	770675.00	4437.00	Nymphalidae	Vanessa atalanta (L.)
120	A	770677.00	4433.00	Nymphalidae	Aglais milberti milberti (Godt.)
121	A	770680.00	4432.00	Nymphalidae	Nymphalis antiopa (Linnaeus)
122	C	770686.00	4427.00	Nymphalidae	Polygonia gracilis gracilis
123	A	770742.00	4481.10	Nymphalidae	Phyciodes coccyta selenis (Kirby)
124	A	770743.00	4482.00	Nymphalidae	Phyciodes batesii lakota Scott.
125	U	770753.00	4568.10	Nymphalidae	Lethe anhedon borealis Clark
126	A	770758.00	4582.00	Nymphalidae	Coenonympha californica benjamini McDunnough
127	A	770782.02	4599.02	Nymphalidae	Erebia epipsodea freemani Ehrlich
128	C	770800.00	4607.00	Nymphalidae	Oeneis uhleri varuna (Edw.)
129	U	800094.00	5533.00	Pyrilidae	Hypsopygia olinalis (Guenée)
130	C	800132.00	5605.00	Pyrilidae	Pococera apastella (Hulst)
131	C	800133.00	5606.00	Pyrilidae	Pococera asperatella (Clemens)
132	C	800153.00	5655.00	Pyrilidae	Acrobasis tricolorella Grote
133	C	800222.00	5999.00	Pyrilidae	Eulogia ochrifrontella (Zell.)
134	C	800291.00	5759.00	Pyrilidae	Ambesa laetella Grote
135	C	800353.00	5799.00	Pyrilidae	Sciota basilaris Zeller
136	C	800394.00	5827.00	Pyrilidae	Pyla aenigmatica Heinrich
137	C	800396.00	5829.00	Pyrilidae	Pyla fusca (Haworth)
138	C	800542.00	5918.00	Pyrilidae	Ancylosis undulatella (Clemens)
139	C	800654.00	6038.00	Pyrilidae	Anerastia lotella Hübner
140	R	800656.00	6040.00	Pyrilidae	Coenochroa illibella (Hulst)
141	U	800670.00	6053.00	Pyrilidae	Peoria approximella (Walker)
142	U	800710.00	5316.00	Crambidae	Donacula melinellus (Clem.)
143	C	800712.00	5316.20	Crambidae	Donacula albicostellus (Fernald)
144	U	800729.00	4755.00	Crambidae	Elophila oblitalis (Walker)
145	C	800753.00	4773.00	Crambidae	Petrophila kearfottalis (Barnes & McDunnough)
146	C	800786.00	5474.00	Crambidae	Occidentalia comptulatalis (Hulst)
147	A	800900.00	5413.00	Crambidae	Pediasia trisepta (Walker)
148	A	800904.00	5417.00	Crambidae	Pediasia dorsipunctella (Kearfott)



149	A	800926.00	5391.00	Crambidae	Chrysoteuchia topiarius (Zeller)
150	C	800931.00	5343.00	Crambidae	Crambus perlella innotatellus (Fernald)
151	C	800932.00	5344.00	Crambidae	Crambus unistriatellus Packard
152	C	800933.00	5345.00	Crambidae	Crambus whitmerellus browni Klots
153	C	800945.00	5357.00	Crambidae	Crambus leachellus (Zincken)
154	A	800982.00	4716.00	Crambidae	Scoparia biplagiata Walker
155	C	801208.00	5128.00	Crambidae	Choristostigma plumbosignalis (Fern.)
156	C	801356.00	5135.00	Crambidae	Mecyna submedialis (Grote)
157	C	801406.00	4935.00	Crambidae	Saucrobotys fumiferalis (Hulst)
158	C	801425.00	4951.00	Crambidae	Perispasta caecalis Zeller
159	C	801427.00	4953.00	Crambidae	Anania tertialis (Guenée)
160	C	801465.00	4987.00	Crambidae	Sitochroa chortalis (Grote)
161	A	801483.00	5004.00	Crambidae	Loxostege munroalis Leraut
162	C	801511.00	5032.00	Crambidae	Pyrausta nicalis (Grote)
163	C	801513.00	5034.00	Crambidae	Pyrausta signatalis (Walker)
164	C	801556.00	5075.00	Crambidae	Pyrausta socialis (Grote)
165	C	850003.00	6235.00	Drepanidae	Habrosyne scripta (Gosse)
166	C	850005.00	6237.00	Drepanidae	Pseudothyatira cymatophoroides (Guenée)
167	C	850016.00	6248.00	Drepanidae	Ceranemota albertae Clarke
168	C	850020.00	6252.00	Drepanidae	Drepana bilineata (Pack.)
169	A	870003.00	7687.00	Lasiocampidae	Phyllodesma americanum (Harr.)
170	C	870018.00	7702.00	Lasiocampidae	Malacosoma californicum (Pack.)
171	C	890070.00	7757.00	Saturniidae	Antheraea polyphemus (Cram.)
172	A	890112.00	7803.00	Sphingidae	Sphinx vashti Stkr.
173	R	890119.00	7810.00	Sphingidae	Sphinx gordius Cram.
174	U	890122.00	7811.00	Sphingidae	Sphinx luscitosa Cram.
175	U	890123.00	7812.00	Sphingidae	Sphinx drupiferarum J.E. Smith
176	C	890140.00	7821.00	Sphingidae	Smerinthus jamaicensis (Drury)
177	A	890141.00	7822.00	Sphingidae	Smerinthus cerisyi Kby.
178	C	890144.00	7824.00	Sphingidae	Paonias exaectatus (J.E. Smith)
179	A	890145.00	7825.00	Sphingidae	Paonias myops (J.E. Smith)
180	C	890148.00	7828.00	Sphingidae	Pachysphinx modesta (Harr.)
181	C	890179.00	7855.00	Sphingidae	Hemaris diffinis (Bdv.)
182	C	890216.00	7893.00	Sphingidae	Hyles gallii (Rottemburg)
183	C	910002.00	7650.00	Uraniidae	Callizia amorata Pack.
184	C	910015.00	7182.00	Geometridae	Dysstroma citrata (Linnaeus)
185	C	910022.00	7188.00	Geometridae	Dysstroma walkerata (Pearsall)
186	C	910024.00	7189.00	Geometridae	Dysstroma hersiliata (Guenée)
187	C	910029.00	7194.00	Geometridae	Dysstroma brunneata (Pack.)
188	C	910034.00	7199.00	Geometridae	Eulithis propulsata (Walker)
189	C	910043.00	7207.00	Geometridae	Eulithis xylina (Hulst)
190	C	910067.00	7229.00	Geometridae	Hydriomena perfracta Swett
191	C	910123.00	7285.00	Geometridae	Triphosa haesitata (Guenée)
192	C	910129.00	7291.00	Geometridae	Rheumaptera undulata (L.)
193	C	910150.00	7307.00	Geometridae	Mesoleuca ruficollata Guenée
194	C	910231.00	7388.00	Geometridae	Xanthorhoe ferrugata (Clerck)
195	C	910238.00	7394.00	Geometridae	Epirrhoe alternata (Mull.)
196	C	910240.00	7396.00	Geometridae	Epirrhoe sperryi Herbulot
197	C	910244.00	7399.00	Geometridae	Euphyia intermediata (Guenée)
198	A	910252.00	7408.00	Geometridae	Zenophleps alpinata Cassino



199	U	910267.00	7423.00	Geometridae	Hydrelia albifera (Walker)
200	U	910286.00	7440.00	Geometridae	Eubaphe mendica (Walker)
201	A	910292.00	7445.00	Geometridae	Horisme intestinata (Guenée)
202	C	910481.00	7640.00	Geometridae	Lobophora nivigerata (Walker)
203	C	910547.00	7139.00	Geometridae	Cyclophora pendulinaria (Guenée)
204	C	910567.00	7159.00	Geometridae	Scopula limboundata (Haw.)
205	C	910570.00	7162.00	Geometridae	Scopula ancillata (Hulst)
206	R	910571.00	7163.00	Geometridae	Scopula fuscata (Hulst)
207	A	910572.00	7164.00	Geometridae	Scopula junctaria (Walker)
208	A	910578.00	7169.00	Geometridae	Scopula inductata (Guenée)
209	C	910581.00	7172.00	Geometridae	Scopula sentinaria (Gey.)
210	C	910599.00	7018.00	Geometridae	Nemoria unitaria (Pack.)
211	C	910639.00	7058.00	Geometridae	Synchlora aerata
212	C	910668.00	7085.00	Geometridae	Mesothea incertata (Walker)
213	C	910676.00	7009.00	Geometridae	Nematocampa resistaria (H. - S.)
214	C	910683.00	6270.00	Geometridae	Protitame virginialis (Hulst)
215	C	910690.00	6272.00	Geometridae	Eumacaria madopata (Guenée)
216	C	910706.00	6284.00	Geometridae	Macaria amboflava (Ferguson)
217	R	910715.00	6299.00	Geometridae	Macaria coortaria (Hulst)
218	C	910725.00	6279.00	Geometridae	Macaria occiduararia (Pack.)
219	C	910733.00	6290.00	Geometridae	Macaria loricaria (Eversmann)
220	C	910774.00	6380.00	Geometridae	Digrammia californiaria (Pack.)
221	C	910781.00	6373.00	Geometridae	Digrammia denticulata Grote
222	C	910845.00	6431.00	Geometridae	Hesperumia sulphuraria Pack.
223	U	911009.00	6590.00	Geometridae	Anavitrinella pampinaria (Guenée)
224	C	911062.00	6640.00	Geometridae	Biston betularia (L.)
225	C	911075.00	6654.00	Geometridae	Hypagyrtis unipunctata (Haw.)
226	C	911098.00	6677.00	Geometridae	Cabera erythemaria Guenée
227	C	911099.00	6678.00	Geometridae	Cabera variolaria Guenée
228	C	911151.00	6726.00	Geometridae	Euchlaena obtusaria (Edw.)
229	C	911154.00	6729.00	Geometridae	Euchlaena johnsonaria (Fitch)
230	C	911156.00	6731.00	Geometridae	Euchlaena madusaria (Walker)
231	C	911159.00	6734.00	Geometridae	Euchlaena marginaria (Minot.)
232	C	911162.00	6737.00	Geometridae	Euchlaena tigrinaria (Guenée)
233	C	911165.00	6740.00	Geometridae	Xanthotype urticaria Swett
234	C	911168.00	6743.00	Geometridae	Xanthotype sospeta (Drury)
235	C	911183.00	6755.00	Geometridae	Pero morrisonaria (Hy. Edw.)
236	R	911191.00	6763.00	Geometridae	Phaeoura quernaria (Smith)
237	C	911226.00	6796.00	Geometridae	Campaea perlata (Guenée)
238	C	911227.00	6797.00	Geometridae	Ennomos magnaria Guenée
239	C	911251.00	6819.00	Geometridae	Metanema inatomaria Guenée
240	C	911252.00	6820.00	Geometridae	Metanema determinata Walker
241	C	911254.00	6822.00	Geometridae	Metarranthis duaria
242	C	911270.00	6838.00	Geometridae	Probole amicararia (H. - S.)
243	C	911274.00	6842.00	Geometridae	Plagodis phlogosaria (Guenée)
244	C	911275.00	6836.00	Geometridae	Plagodis pulveraria (L.)
245	C	911352.00	6912.00	Geometridae	Sicya macularia (Harr.)
246	C	911400.00	6963.00	Geometridae	Tetracis crocallata Guenée
247	C	911401.00	6964.00	Geometridae	Tetracis cachexiata Guenée
248	C	930003.00	7895.00	Notodontidae	Clostera albosigma Fitch



249	C	930008.00	7900.00	Notodontidae	<i>Clostera brucei</i> (Edw.)
250	C	930009.00	7901.00	Notodontidae	<i>Clostera apicalis</i> (Walker)
251	C	930012.00	7922.00	Notodontidae	<i>Pheosia rimosa</i> Pack.
252	C	930013.00	7924.00	Notodontidae	<i>Pheosidea elegans</i> (Strecker)
253	C	930015.10	7926.10	Notodontidae	<i>Notodonta manitou</i> Neumögen & Dyar
254	C	930017.00	7928.00	Notodontidae	<i>Notodonta torva</i> (Hübner)
255	A	930019.00	7931.00	Notodontidae	<i>Gluphisia septentrionis</i> Walker
256	C	930025.30	7937.30	Notodontidae	<i>Furcula wileyi</i> (Walker)
257	C	930027.00	7939.00	Notodontidae	<i>Furcula occidentalis</i> (Lintner)
258	A	930028.00	7940.00	Notodontidae	<i>Furcula scolopendrina</i> (Bdv.)
259	C	930029.00	7941.00	Notodontidae	<i>Furcula modesta</i> (Hudson)
260	C	930046.00	7915.00	Notodontidae	<i>Nadata gibbosa</i> (J.E. Smith)
261	R	930098.00	8005.00	Notodontidae	<i>Schizura ipomoeae</i> Doubleday
262	A	930100.00	8007.00	Notodontidae	<i>Schizura unicornis</i> (Smith)
263	R	930103.00	8010.00	Notodontidae	<i>Schizura concinna</i> (Smith)
264	C	930104.00	8011.00	Notodontidae	<i>Schizura leptinoides</i> (Grote)
265	C	930105.00	8012.00	Notodontidae	<i>Oligocentria semirufescens</i> (Walker)
266	C	930146.00	8294.00	Erebidae	<i>Dasychira vagans</i> (B.; McDunnough)
267	C	930204.00	8089.00	Erebidae	<i>Hypoprepia miniata</i> (Kby.)
268	R	930205.00	8090.00	Erebidae	<i>Hypoprepia fucosa</i> Hübner
269	A	930215.10	8098.20	Erebidae	<i>Clemensia umbrata</i> Packard
270	A	930217.00	8043.00	Erebidae	<i>Manulea bicolor</i> (Grote)
271	A	930225.00	8051.00	Erebidae	<i>Crambidia casta</i> (Pack.)
272	C	930239.00	8174.00	Erebidae	<i>Apantesis obliterata</i> (Stretch)
273	R	930242.00	8194.00	Erebidae	<i>Apantesis phyllira</i> (Drury)
274	C	930244.00	8197.00	Erebidae	<i>Apantesis virgo</i> (L.)
275	C	930246.00	8196.00	Erebidae	<i>Apantesis parthenice</i> (Kirby)
276	C	930247.00	8175.00	Erebidae	<i>Apantesis virguncula</i> (Kirby)
277	A	930264.00	8186.00	Erebidae	<i>Apantesis williamsii</i> (Dodge)
278	C	930288.00	8162.00	Erebidae	<i>Arctia parthenos</i> Harris
279	A	930306.00	8123.00	Erebidae	<i>Virbia ferruginosa</i> (Walker)
280	C	930316.00	8137.00	Erebidae	<i>Spilosoma virginica</i> (F.)
281	C	930317.00	8131.00	Erebidae	<i>Estigmene acrea</i> (Drury)
282	U	930332.00	8156.00	Erebidae	<i>Phragmatobia fuliginosa</i> (Linnaeus)
283	C	930334.00	8158.00	Erebidae	<i>Phragmatobia assimilians</i> Walker
284	C	930335.00	8129.00	Erebidae	<i>Pyrrharctia isabella</i> (Smith)
285	C	930345.00	8111.00	Erebidae	<i>Haploa lecontei</i> (Guérin-Ménéville)
286	A	930373.00	8214.00	Erebidae	<i>Lophocampa maculata</i> Harr.
287	A	930435.00	8262.00	Erebidae	<i>Ctenucha virginica</i> (Esp.)
288	C	930440.00	8267.00	Erebidae	<i>Cisseps fulvicollis</i> (Hbn.)
289	C	930469.00	8322.00	Erebidae	<i>Idia americalis</i> (Guenée)
290	C	930471.00	8323.00	Erebidae	<i>Idia aemula</i> (Guenée)
291	A	930502.00	8355.00	Erebidae	<i>Chytolita morbidalis</i> (Guenée)
292	C	930512.00	8362.00	Erebidae	<i>Phalaenostola metonalis</i> (Walker)
293	C	930515.00	8365.00	Erebidae	<i>Phalaenostola hanhami</i> (Smith)
294	C	930520.00	8370.00	Erebidae	<i>Bleptina caradrinalis</i> Guenée
295	R	930536.00	8384.10	Erebidae	<i>Renia flavipunctalis</i> (Geyer)
296	A	930551.00	8397.00	Erebidae	<i>Palthis angulalis</i> (Hübner)
297	C	930575.00	8452.00	Erebidae	<i>Hypena edictalis</i> Walker
298	C	930584.00	8461.00	Erebidae	<i>Hypena humuli</i> Harr.



299	C	930795.00	8803.00	Erebidae	Catocala relictata Walker
300	A	930797.00	8805.00	Erebidae	Catocala unijuga Walker
301	A	930804.00	8817.00	Erebidae	Catocala briseis Edw.
302	A	930806.00	8821.00	Erebidae	Catocala semirelictata Grote
303	C	930851.00	8867.00	Erebidae	Catocala blandula Hulst.
304	U	930910.00	8636.00	Erebidae	Drasteria adumbrata (Behr)
305	A	930923.00	8738.00	Erebidae	Caenurgina crassiuscula (Haw.)
306	C	931032.00	8697.00	Erebidae	Zale minerea (Guenée)
307	C	931130.00	8990.00	Nolidae	Nola cilicoides (Grote)
308	C	931142.00	8975.00	Nolidae	Nycteola frigidana (Walker)
309	C	931149.00	8970.00	Nolidae	Baileya ophthalmica (Guenée)
310	C	931162.00	8881.00	Noctuidae	Abrostola urentis Guenée
311	C	931178.00	8896.00	Noctuidae	Diachrysa aereoides (Grote)
312	U	931179.00	8897.00	Noctuidae	Diachrysa balluca (Geyer)
313	C	931184.00	8899.00	Noctuidae	Pseudeva purpurigera (Walker)
314	A	931193.00	8914.00	Noctuidae	Autographa californica (Speyer)
315	C	931194.00	8912.00	Noctuidae	Autographa mappa (Grote & Robinson)
316	C	931200.00	8911.00	Noctuidae	Autographa bimaculata (Stephens)
317	C	931204.00	8923.00	Noctuidae	Autographa ampla (Walker)
318	C	931206.00	8909.00	Noctuidae	Autographa rubidus Ottolengui
319	C	931213.00	8929.00	Noctuidae	Syngrapha viridisigma (Grote)
320	A	931234.00	8924.00	Noctuidae	Anagrapha falcifera (Kby.)
321	C	931235.00	8953.00	Noctuidae	Plusia venusta Walker
322	C	931236.00	8950.00	Noctuidae	Plusia putnami Grote
323	C	931291.00	9048.00	Noctuidae	Protodeltote albidula (Guenée)
324	C	931308.00	9085.00	Noctuidae	Ponometia semiflava (Guenée)
325	U	931313.00	9089.00	Noctuidae	Ponometia binocula (Grote)
326	C	931412.00	9193.00	Noctuidae	Raphia frater Grote
327	C	931423.00	9202.00	Noctuidae	Acronicta insita (Walker)
328	C	931425.00	9205.00	Noctuidae	Acronicta lepusculina Guenée
329	C	931427.00	9206.00	Noctuidae	Acronicta vulpina (Grote)
330	C	931428.00	9207.00	Noctuidae	Acronicta innotata Guenée
331	U	931430.00	9209.00	Noctuidae	Acronicta radcliffei (Harvey)
332	C	931433.00	9212.00	Noctuidae	Acronicta grisea Walker
333	U	931441.00	9224.00	Noctuidae	Acronicta quadrata Grote
334	R	931442.10	9281.00	Noctuidae	Acronicta fallax (Herrich-Schäffer)*
335	C	931443.00	9226.00	Noctuidae	Acronicta superans (Guenée)
336	C	931445.00	9229.00	Noctuidae	Acronicta hasta Guenée
337	C	931458.00	9241.00	Noctuidae	Acronicta fragilis (Guenée)
338	C	931474.00	9257.00	Noctuidae	Acronicta impleta Walker
339	U	931475.00	9258.00	Noctuidae	Acronicta sperata Grote
340	C	931477.00	9261.00	Noctuidae	Acronicta impressa (Walker)
341	C	931485.00	9272.00	Noctuidae	Acronicta obliterata (J.E. Smith)
342	C	931493.00	9280.00	Noctuidae	Acronicta insularis (Herrich-Schäffer)
343	U	931505.00	10201.00	Noctuidae	Cucullia montanae Grote
344	C	931516.00	10190.00	Noctuidae	Cucullia speyeri Lint.
345	C	931533.00	10205.00	Noctuidae	Cucullia luna Morrison
346	U	931688.00	9785.00	Noctuidae	Stiria rugifrons Grote
347	R	931800.00	10099.00	Noctuidae	Sympistis saundersiana (Grote)
348	R	931810.00	10108.00	Noctuidae	Sympistis viriditincta (Smith)



349	C	931817.00	10062.00	Noctuidae	<i>Sympistis stabilis</i> Smith
350	C	931821.00	10059.00	Noctuidae	<i>Sympistis badistriga</i> (Grote)
351	C	931823.00	10066.10	Noctuidae	<i>Sympistis dinalda</i> (Smith)
352	U	931853.00	10094.40	Noctuidae	<i>Sympistis poliochroa</i> Hampson
353	C	931859.00	10124.00	Noctuidae	<i>Sympistis cibalis</i> (Grote)
354	C	931875.00	10135.00	Noctuidae	<i>Sympistis riparia</i> (Morrison)
355	U	931909.00	10123.00	Noctuidae	<i>Sympistis piffardi</i> (Walker)
356	C	931911.00	10055.00	Noctuidae	<i>Sympistis dentata</i> (Grote)
357	C	932038.00	11062.00	Noctuidae	<i>Eutricopis nexilis</i> Morrison
358	C	932041.00	11064.00	Noctuidae	<i>Pyrrhia exprimens</i> (Walker)
359	C	932049.00	11077.00	Noctuidae	<i>Heliothis ononis</i> (Fabricius)
360	C	932205.00	9053.00	Noctuidae	<i>Pseudeustrotia carneola</i> (Guenée)
361	C	932234.00	9681.10	Noctuidae	<i>Elaphria alapallida</i> (Pogue & Sullivan)
362	C	932249.50	9556.00	Noctuidae	<i>Chytonix palliatricula</i> (Guenée)
363	C	932260.00	9656.00	Noctuidae	<i>Caradrina montana</i> (Bremer)
364	C	932266.00	9647.00	Noctuidae	<i>Proxenus miranda</i> (Grote)
365	R	932291.00	9546.00	Noctuidae	<i>Phlogophora iris</i> Guenée
366	C	932292.00	9547.00	Noctuidae	<i>Phlogophora periculosa</i> Guenée
367	R	932294.00	9326.00	Noctuidae	<i>Apamea verbascoides</i> (Guenée, 1852)
368	C	932303.00	9341.00	Noctuidae	<i>Apamea vultuosa</i> (Grote)
369	C	932307.00	9351.00	Noctuidae	<i>Apamea alia</i> (Guenée)
370	SNR	932310.00	9362.00	Noctuidae	<i>Apamea indocilis</i> (Walker)
371	C	932314.00	9364.00	Noctuidae	<i>Apamea sordens</i> (Hufnagel)
372	C	932319.00	9333.00	Noctuidae	<i>Apamea lignicolora</i> (Guenée)
373	C	932329.00	9359.00	Noctuidae	<i>Apamea commoda commoda</i> (Walker)
374	A	932333.00	9348.00	Noctuidae	<i>Apamea amputatrix</i> (Fitch)
375	C	932343.00	9365.00	Noctuidae	<i>Apamea scoparia</i> Mik., Must. & Lafontaine
376	C	932347.00	9369.00	Noctuidae	<i>Apamea inficita</i> (Walker)
377	C	932350.00	9382.00	Noctuidae	<i>Apamea devastator</i> (Brace)
378	E	932363.00	9385.10	Noctuidae	<i>Laterologia ophiogramma</i> (Esper)
379	C	932368.00	9391.00	Noctuidae	<i>Resapamea passer</i> (Guenée)
380	C	932370.00	9406.00	Noctuidae	<i>Mesapamea fractilinea</i> (Grote)
381	C	932372.00	9396.00	Noctuidae	<i>Eremobina claudens</i> (Walker)
382	C	932383.00	9417.00	Noctuidae	<i>Oligia egens</i> (Walker)
383	R	932385.00	9418.00	Noctuidae	<i>Oligia obtusa</i> (Smith)
384	U	932419.00	9435.00	Noctuidae	<i>Photodes inops</i> (Grote)
385	C	932421.00	9434.00	Noctuidae	<i>Photodes includens</i> (Walker)
386	C	932425.00	9443.00	Noctuidae	<i>Photodes defecta</i> (Grote)
387	C	932426.00	9437.00	Noctuidae	<i>Hypocoena inquinata</i> (Guenée)
388	C	932428.00	9439.00	Noctuidae	<i>Hypocoena basistriga</i> (McDunnough)
389	C	932429.00	9440.00	Noctuidae	<i>Hypocoena rufostrigata</i> (Pack.)
390	C	932439.00	9450.00	Noctuidae	<i>Globia subflava</i> (Grote)
391	C	932446.00	9456.00	Noctuidae	<i>Amphipoea interoceanica</i> (Smith)
392	C	932447.00	9457.00	Noctuidae	<i>Amphipoea americana</i> (Speyer)
393	C	932517.00	9525.00	Noctuidae	<i>Bellura obliqua</i> (Walker)
394	C	932530.00	9884.00	Noctuidae	<i>Litholomia napaea</i> (Morrison)
395	C	932547.00	9928.00	Noctuidae	<i>Lithophane thaxteri</i> Grote
396	C	932620.00	9962.00	Noctuidae	<i>Anathix puta</i> Grote & Robinson
397	C	932622.00	9965.00	Noctuidae	<i>Xanthia tatago</i> Lafontaine and Mikkola
398	C	932625.00	9431.00	Noctuidae	<i>Parastichtis suspecta</i> (Hübner)



399	C	932653.00	9993.00	Noctuidae	Brachylomia populi (Stkr.)
400	C	932665.00	9579.00	Noctuidae	Hyppa contrasta McDunnough
401	A	932674.00	9549.00	Noctuidae	Enargia decolor (Walker)
402	A	932675.00	9550.00	Noctuidae	Enargia infumata (Grote)
403	C	932679.00	9555.00	Noctuidae	Ipimorpha pleonectusa Grote
404	C	932695.00	9420.00	Noctuidae	Fishia illocata (Walker)
405	C	932696.00	9976.00	Noctuidae	Platypolia anceps (Steph.)
406	C	932699.00	9419.00	Noctuidae	Platypolia mactata (Guenée)
407	C	932776.00	10493.00	Noctuidae	Orthosia segregata (Smith)
408	C	932778.00	10495.00	Noctuidae	Orthosia hibisci (Guenée)
409	C	932816.00	9832.00	Noctuidae	Escaria homogenea McDunnough
410	C	932826.00	10223.00	Noctuidae	Anarta trifolii (Hufn.)
411	C	932837.00	10232.00	Noctuidae	Anarta farnhami (Grote)
412	C	932867.00	10275.00	Noctuidae	Polia nimbosa (Guenée)
413	C	932872.00	10280.00	Noctuidae	Polia purpurissata (Grote)
414	C	932874.00	10292.00	Noctuidae	Melanchra adjuncta (Guenée)
415	C	932876.00	10294.00	Noctuidae	Melanchra pulverulenta (Smith)
416	C	932877.00	10295.00	Noctuidae	Melanchra assimilis (Morrison)
417	C	932878.00	10296.00	Noctuidae	Lacanobia nevadae (Grote)
418	C	932879.00	10297.00	Noctuidae	Lacanobia atlantica (Grote)
419	C	932880.00	10298.00	Noctuidae	Lacanobia radix (Walker)
420	C	932881.00	10299.00	Noctuidae	Lacanobia subjuncta (Grote & Rob.)
421	C	932883.00	10301.00	Noctuidae	Spiramater lutra (Guenée)
422	C	932885.00	10303.00	Noctuidae	Trichordestra tacoma (Strecker)
423	C	932889.00	10307.00	Noctuidae	Trichordestra lilacina (Harvey)
424	C	932890.00	10308.00	Noctuidae	Trichordestra liquida (Grote)
425	C	932897.00	10324.00	Noctuidae	Hada sutrina (Grote)
426	A	932898.00	10271.00	Noctuidae	Mamestra configurata Walker
427	C	932906.00	10265.00	Noctuidae	Sideridis rosea (Harvey)
428	C	932908.00	10268.00	Noctuidae	Sideridis maryx (Guenée)
429	C	932916.00	10322.00	Noctuidae	Hadena circumvadis (Smith)
430	C	932925.00	10428.00	Noctuidae	Dargida procinctus (Grote)
431	A	932928.00	10431.00	Noctuidae	Dargida diffusa (Walker)
432	A	932933.00	10436.00	Noctuidae	Mythimna oxygala (Grote)
433	C	932935.00	10438.00	Noctuidae	Mythimna unipuncta (Haw.)
434	C	932945.00	10446.00	Noctuidae	Leucania multilinea Walker
435	C	932947.00	10447.00	Noctuidae	Leucania commoides Guenée
436	C	932948.00	10449.00	Noctuidae	Leucania insueta Guenée
437	C	933016.00	10368.00	Noctuidae	Lacinipolia meditata (Grote)
438	C	933017.00	10370.00	Noctuidae	Lacinipolia lustralis (Grote)
439	R	933029.00	10381.00	Noctuidae	Lacinipolia naevia (Smith)
440	C	933042.20	10395.10	Noctuidae	Lacinipolia sareta (Smith)
441	C	933044.00	10397.00	Noctuidae	Lacinipolia renigera (Stephens)
442	C	933052.00	10405.00	Noctuidae	Lacinipolia lorea (Guenée)
443	C	933053.00	10406.00	Noctuidae	Lacinipolia olivacea (Morrison)
444	C	933105.00	10552.00	Noctuidae	Protorthodes incincta (Morrison)
445	C	933113.00	10563.00	Noctuidae	Protorthodes oviduca (Guenée)
446	C	933141.00	10289.00	Noctuidae	Orthodes (prov. plcmt.) goodelli (Grote)
447	C	933142.00	10290.00	Noctuidae	Orthodes obscura (Smith)
448	C	933146.00	10288.00	Noctuidae	Orthodes detracta (Walker)



449	C	933223.00	10910.00	Noctuidae	Anicla tepperi (Smith)
450	C	933229.00	10924.00	Noctuidae	Actebia fennica (Tauscher)
451	A	933230.00	10923.00	Noctuidae	Actebia balanitis (Grote)
452	R	933283.00	10681.00	Noctuidae	Copablepharon grandis (Strecker)
453	C	933308.00	10701.10	Noctuidae	Euxoa adumbrata (Eversmann)
454	C	933315.00	10738.00	Noctuidae	Euxoa mimallonis (Grote)
455	C	933319.00	10705.00	Noctuidae	Euxoa messoria (Harr.)
456	C	933320.00	10702.00	Noctuidae	Euxoa divergens (Walker)
457	C	933329.00	10715.00	Noctuidae	Euxoa scandens (Riley)
458	A	933342.00	10723.00	Noctuidae	Euxoa tristicula (Morrison)
459	C	933346.00	10727.00	Noctuidae	Euxoa pleuritica (Grote)
460	C	933360.00	10749.00	Noctuidae	Euxoa intrita (Morrison)
461	C	933378.00	10755.00	Noctuidae	Euxoa declarata (Walker)
462	U	933392.00	10763.00	Noctuidae	Euxoa spumata McDunnough
463	C	933395.00	10805.00	Noctuidae	Euxoa tessellata (Harr.)
464	C	933397.00	10807.00	Noctuidae	Euxoa albipennis (Guenée)
465	C	933405.00	10780.00	Noctuidae	Euxoa comosa ontario (Smith)
466	A	933424.00	10801.00	Noctuidae	Euxoa ochrogaster (Guenée)
467	C	933431.00	10798.00	Noctuidae	Euxoa basalis (Grote)
468	R	933437.00	10827.00	Noctuidae	Euxoa clausa McDunnough
469	C	933439.00	10854.00	Noctuidae	Euxoa servitus (Smith)
470	C	933455.00	10830.00	Noctuidae	Euxoa quadridentata (Grote & Rob.)
471	C	933461.00	10838.00	Noctuidae	Euxoa detersa (Walker)
472	C	933467.00	10855.00	Noctuidae	Euxoa munis (Grote)
473	C	933478.00	10863.00	Noctuidae	Euxoa manitobana McDunnough
474	C	933481.00	10865.00	Noctuidae	Euxoa perpolita (Morrison)
475	C	933483.00	10864.00	Noctuidae	Euxoa flavicollis Smith
476	C	933484.00	10861.10	Noctuidae	Euxoa maimis Smith
477	C	933488.00	10644.00	Noctuidae	Feltia mollis (Walker)
478	A	933498.00	10670.00	Noctuidae	Feltia jaculifera (Guenée)
479	R	933501.00	10674.00	Noctuidae	Feltia subgothica (Haworth)
480	C	933503.00	10676.00	Noctuidae	Feltia herilis (Grote)
481	C	933506.00	10641.00	Noctuidae	Agrotis vetusta Walker
482	C	933512.00	10645.00	Noctuidae	Agrotis orthogonia Morrison
483	C	933516.00	10651.00	Noctuidae	Agrotis venerabilis Walker
484	C	933522.00	10660.00	Noctuidae	Agrotis obliqua (Smith)
485	C	933544.00	10992.00	Noctuidae	Paradiarsia littoralis (Pack.)
486	C	933553.00	11012.00	Noctuidae	Cryptocala acadensis (Bethune)
487	C	933554.00	10926.00	Noctuidae	Spaelotis clandestina (Harr.)
488	A	933560.00	10929.00	Noctuidae	Eurois occulta (L.)
489	A	933561.00	10930.00	Noctuidae	Eurois astricta Morrison
490	C	933563.00	10928.00	Noctuidae	Graphiphora augur (F.)
491	C	933565.00	11001.00	Noctuidae	Anaplectoides pressus (Grote)
492	C	933572.00	10944.00	Noctuidae	Xestia smithii (Snellen)
493	C	933588.00	10942.00	Noctuidae	Xestia c-nigrum (L.)
494	C	933627.00	10954.00	Noctuidae	Agnorisma bugrai (Kocak)
495	C	933630.00	10951.00	Noctuidae	Pseudohermonassa tenuicula (Morrison)
496	C	933648.00	11004.00	Noctuidae	Protolampra rufipictus (Morrison)
497	C	933672.00	11041.00	Noctuidae	Abagrotis placida (Grote)

# The Dillberry Lake Lepidoptera Weekend 2022

Gregory R. Pohl

Members of the Alberta Lepidopterists' Guild went on a group camping trip to Dillberry Lake Provincial Park, June 24 -26, 2022, for a weekend of moth appreciation and safe outdoor gathering after two summers of social distancing. Doug Macaulay has been collecting at Dillberry Lake for several years now, and he convinced us that it would be a great location for an ALG gathering, with great camping and an opportunity to see many dry-land species that are restricted to eastern Alberta. Bruce Christiansen planned the event, but unfortunately was not able to attend. I arranged for a collecting permit, and made the group campground reservations, and about ten ALG members and their families came out. The weather was great, and we ran a variety of sheets and lights at night, and explored the sandy aspen grasslands and pothole lakes by day.



Dave Lawrie created a glorious rainbow of moth sheets, to test various wavelengths of LED light (and celebrate diversity of moths and the diverse people who appreciate them).





There are some prickly and poisonous hazards, but the youngsters managed to get through the weekend with a minimum of "ouches".

We recorded 107 species of moths and 11 species of butterflies, as well as many other insects. Additionally, some ALGers made iNaturalist observations of all sorts of other life forms as well, for a total of 370 species! Many thanks to Matthias Buck, Gerry Hilchie, Dave Lawrie, Hilary Pittel, and Brevan Wagner, for submitting observations to me.

#### Species tally for the Dillberry ALG weekend, 24-26 June 2022:

Moths	107
Butterflies	11
Dragonflies & Damselflies	1
Grasshoppers & allies	6
Caddisflies	1
Sucking Bugs	8
Beetles	34
Flies	23
Wasps & allies	76
Spiders	4
Molluscs	1
Amphibians	1
Birds	15
Mammals	5
Plants	67
Fungi & Lichens	10
<b>Total</b>	<b>370</b>

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Some notable insect records are as follows:



Nevada Buck Moth (*Hemileuca nevadensis*: Saturniidae) by Gerry Hilchie.  
The sighting of this rare moth is a new, second Alberta locality for this rare species. It is currently ranked S1 in Alberta by the National General Status Working Group (Canadian Endangered Species Conservation Council 2016). <https://www.inaturalist.org/observations/136775312>



Pale-edged Ethmia Moth (*Ethmia albicostella*: Depressariidae) by Greg Pohl.  
This is a rare moth in Alberta, more common in semi-arid regions of the USA.  
<https://www.inaturalist.org/observations/140618116>



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A stilleto fly species reported here (*Cerocatus rufiventris*: Thereviidae) is a new Alberta record; it was previously known only as far west as Ontario.

One of the ant species reported here (*Dolichoderus plagiatus*) represents only the second known locality in Alberta. It was previously thought to be introduced to the province, but given the natural habitat at Dillberry Lake, it may be native to Alberta.



A *Pachysphinx modesta*, hanging around a light trap in the morning. (Greg Pohl)



A *Furcula* larva, photographed by Hilary Pittel.





*Paonias myops*— always a crowd-pleaser. (Brevan Wagner)



A pair of *Nadata gibbosa* from the traps (Doug Macaulay).





*Arctia parthenos* (Hillary Pittel)



Our trip coincided with Goldsmith Beetle (*Cotalpa lanigera*) season (Brevan Wagner).



Clerid beetle (*Trichodes nuttalli*) (Matthias Buck).



*Ponometia flava*, rarely seen elsewhere in Alberta, was common at Dillberry (Brevan Wagner)



Even a phycitine can be beautiful (*Acrobasis tricolorella*) (Brevan Wagner).

A few days after we checked out at the end of the weekend, I got a note from the parks people, thanking us for being the cleanest group campers they've ever had at Dillberry.

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Canadian Endangered Species Conservation Council. 2016. Wild Species 2015: The General Status of Species in Canada. National General Status Working Group. 128pp. <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/publications/wild-species-2015.html>



# Effects of hot, dry conditions in 2021 on common butterflies at the Beaverhill Bird Observatory in 2022

Dylan Perrott (dperrott@ualberta.ca)

## Introduction

The Beaverhill Natural Area near Tofield, AB is a great place to observe many species of butterflies thanks to its diverse array of habitats, including deciduous forests, mixed-wood forests, marshes, sloughs and open grasslands (Thormin 1977). Additionally, the lake is quite shallow and therefore its size can vary greatly from one year to the next (BB0 2022). This ebb and flow can have a drastic effect on which species are present as areas flood or dry out.

The summer of 2021 was very hot and dry, so in 2022 I decided to focus my butterfly internship on the effect this may have had on the phenology of some common species, and on the number of species seen.



The author, at the beginning of count season (photo by John Acorn, net courtesy of Joe Belicek).



## Methods

From May 17th, 2022 to August 17th, 2022, 12 surveys were conducted along two predetermined routes as outlined in the BBO Butterfly Internship Handbook (Figure 1). The routes were originally designed to encompass a range of habitats to ensure proper representation of species with different ecological requirements. Any butterflies that could be identified were counted regardless of distance. Any individuals that could not be identified from afar were caught in a butterfly net for identification. Identification was performed using *Butterflies of Alberta* (Acorn 1993) or the *Butterflies of the Beaverhill Bird Observatory* field guide (Greenslade & Salouk, n.d.). Photos of individuals that were hard to identify were sent to John Acorn for identification. A tally of number of individuals of each species observed was recorded on data sheets for both loops, as well as the time and date each survey was conducted. The temperature, wind as measured qualitatively with the Beaufort scale, and cloud cover as a percentage were also recorded at the start of each survey. Surveys were only conducted on days where the temperature was above 15 °C with wind lower than 4 on the Beaufort scale, as these conditions are conducive to butterflies taking flight. Using the same approach as Anderson and Charron (2013), I converted the raw survey data for 4 commonly sighted species from 2019, 2021 and 2022 into percentage of total observed each survey. Scaling the data in this way makes it easier to see the overall trend between years as numbers can vary greatly between years. I used these data sets to generate Figures 2-9. The number of individuals sighted for each of the three surveys is included in Table 1. To study the number of species counted I created a table of total species counted and species per survey (Table 2).



Figure 1. Map of the two survey routes. Loop A is highlighted green and Loop B is highlighted blue.



## Results

The results of the survey are presented here graphically:

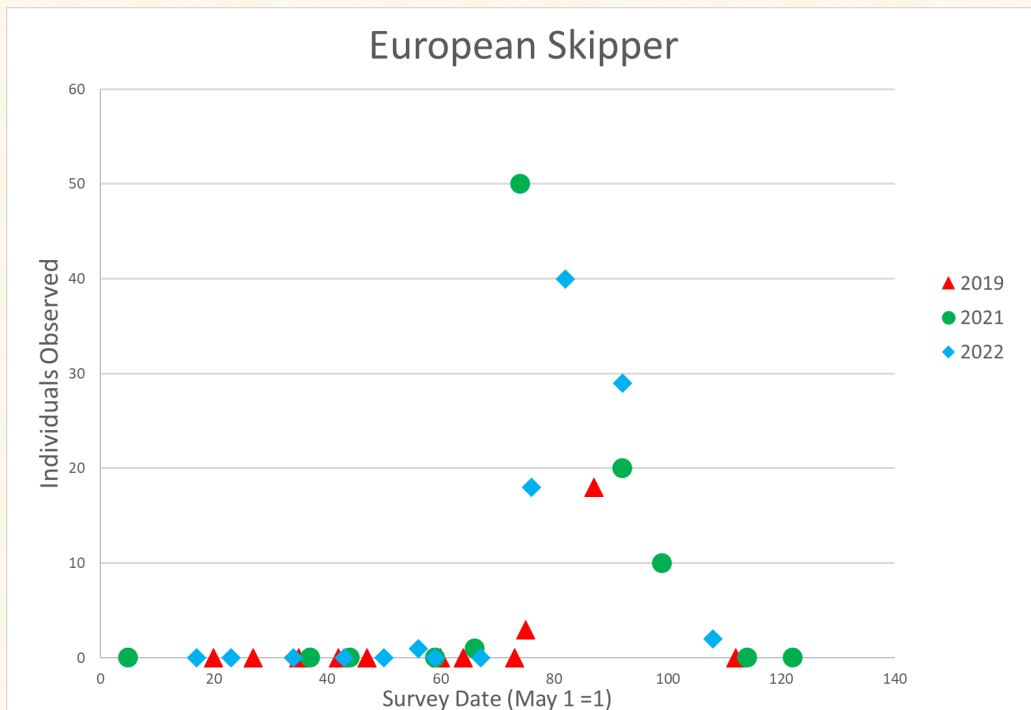


Figure 2. European Skipper observations (raw numbers) at the BBO (2019: n=21, 2021: n=81, 2022: n=90).

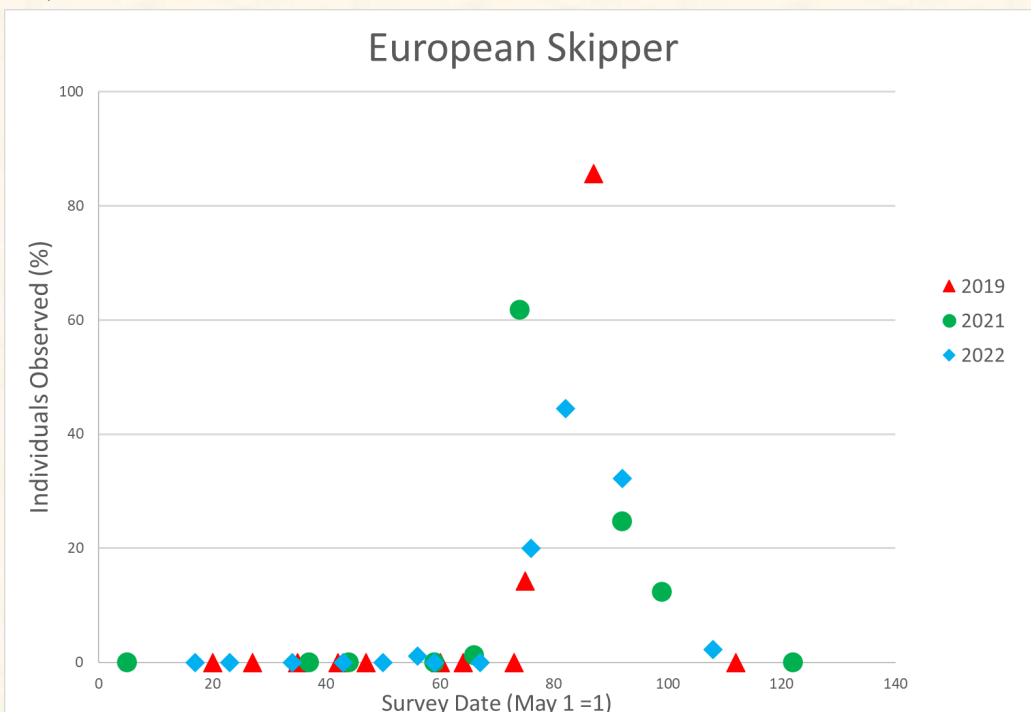


Figure 3. European Skipper observations (% total) at the BBO (2019: n=21, 2021: n=81, 2022: n=90).

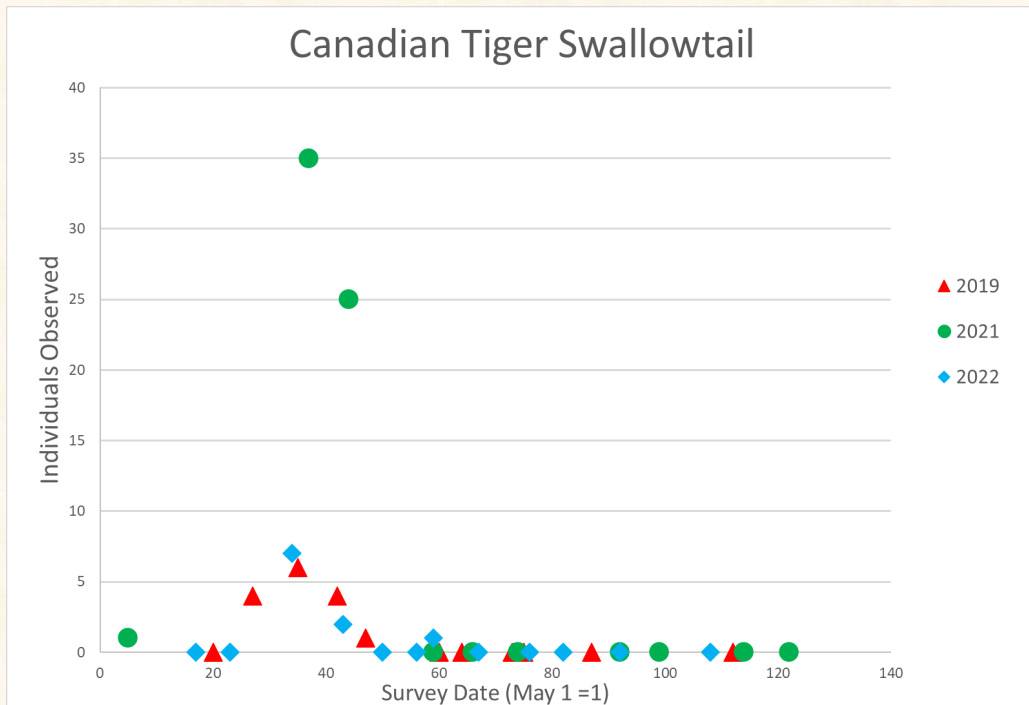


Figure 4. Canadian Tiger Swallowtail observations at the BBO (2019: n=15, 2021: n=61, 2022: n=10).

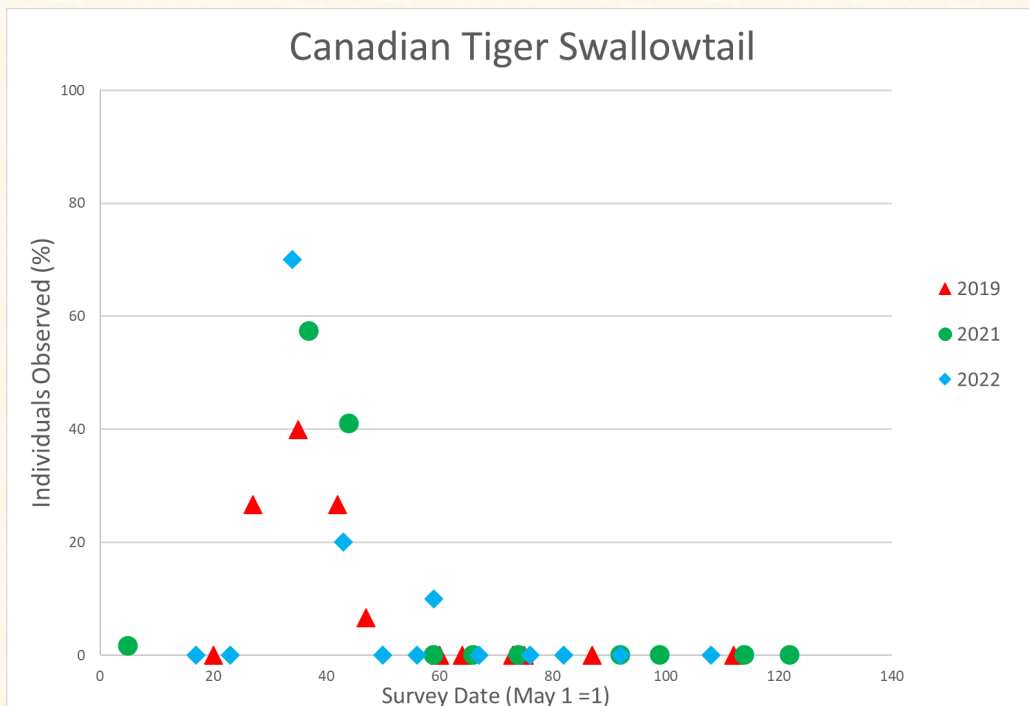


Figure 5. Canadian Tiger Swallowtail observations (%total) at the BBO (2019: n=15, 2021: n=61, 2022: n=10).



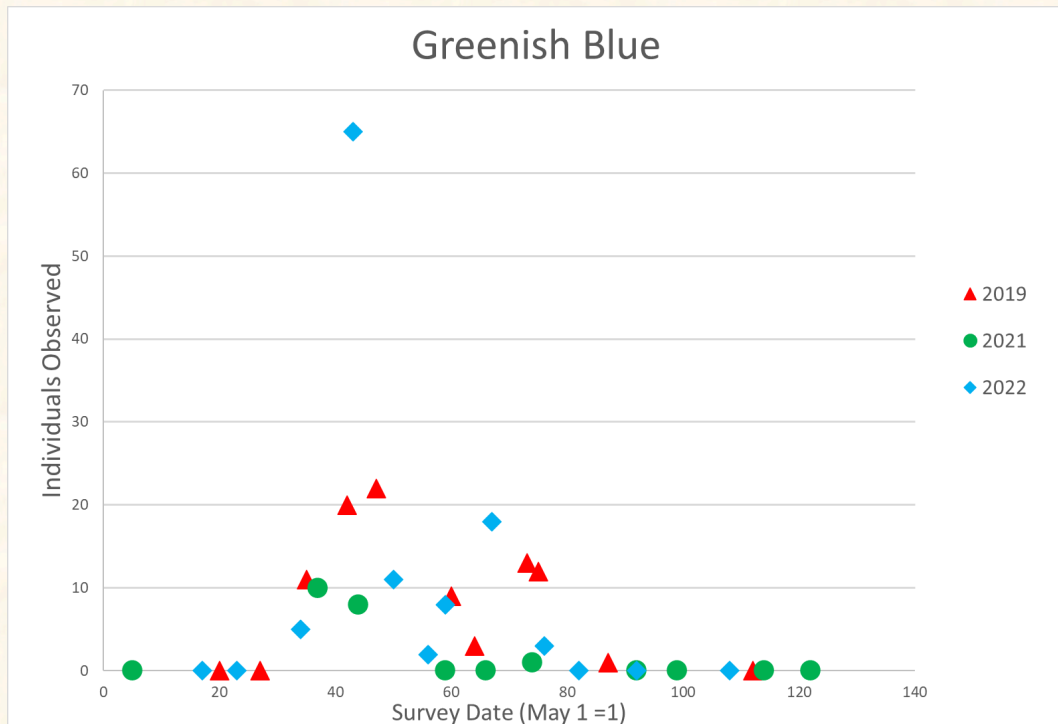


Figure 6. Greenish Blue observations at the BBO (2019: n=91, 2021: n=21, 2022: n=112).

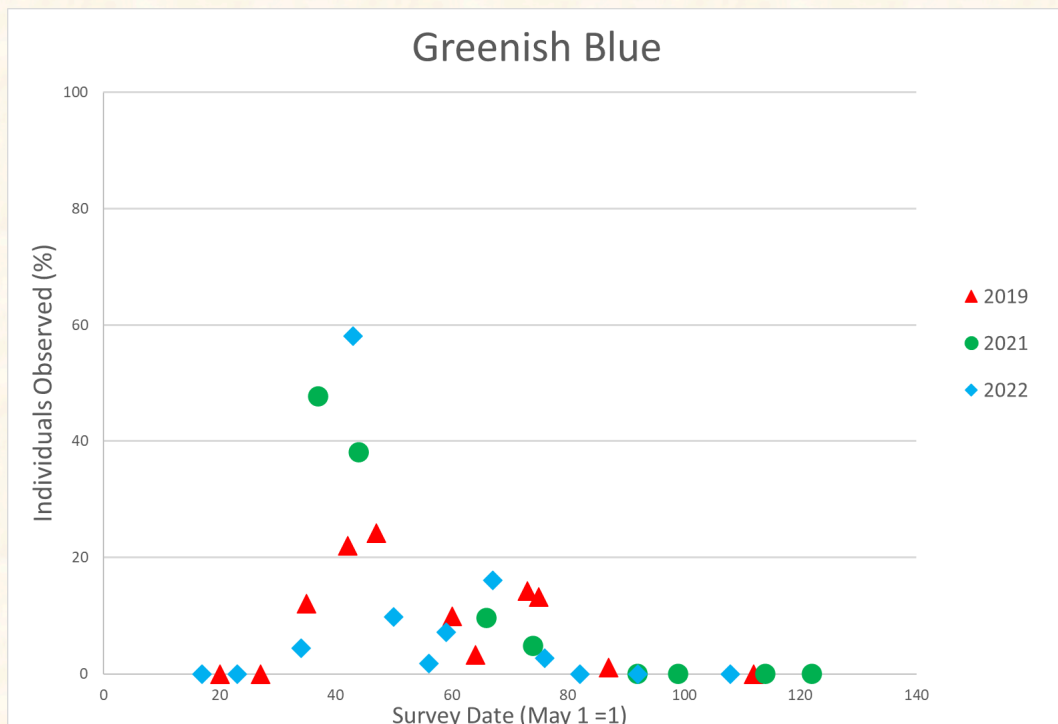


Figure 7. Greenish Blue observations (%total) at the BBO (2019: n=91, 2021: n=21, 2022: n=112).

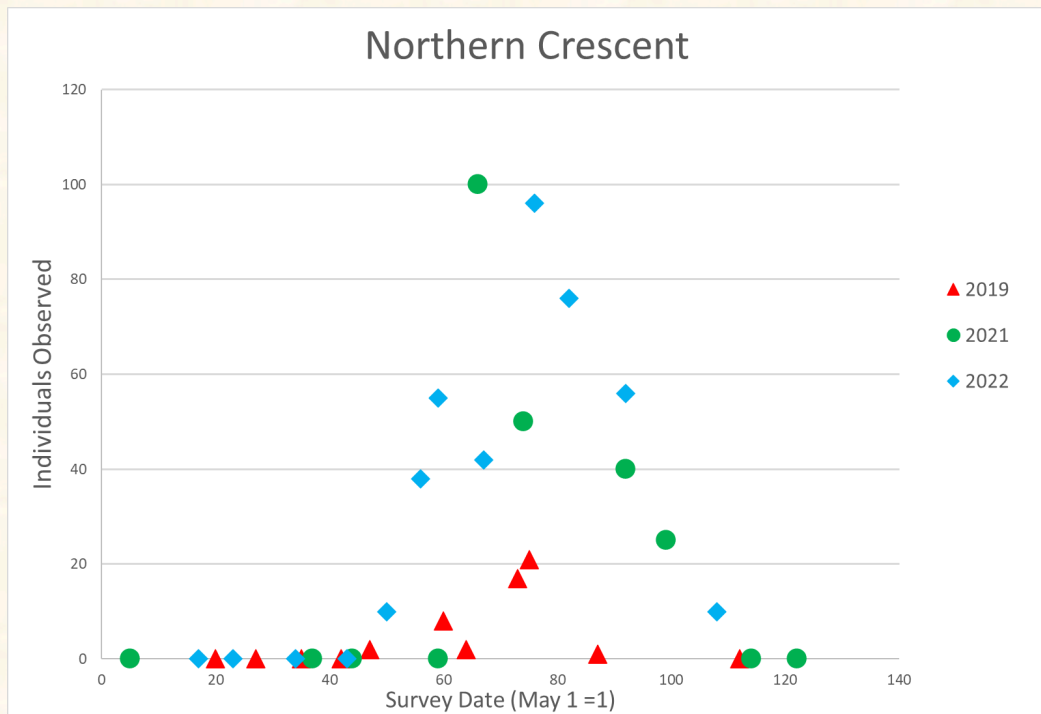


Figure 8. Northern Crescent observations at the BBO (2019: n=51, 2021: n=251, 2022: n=383).

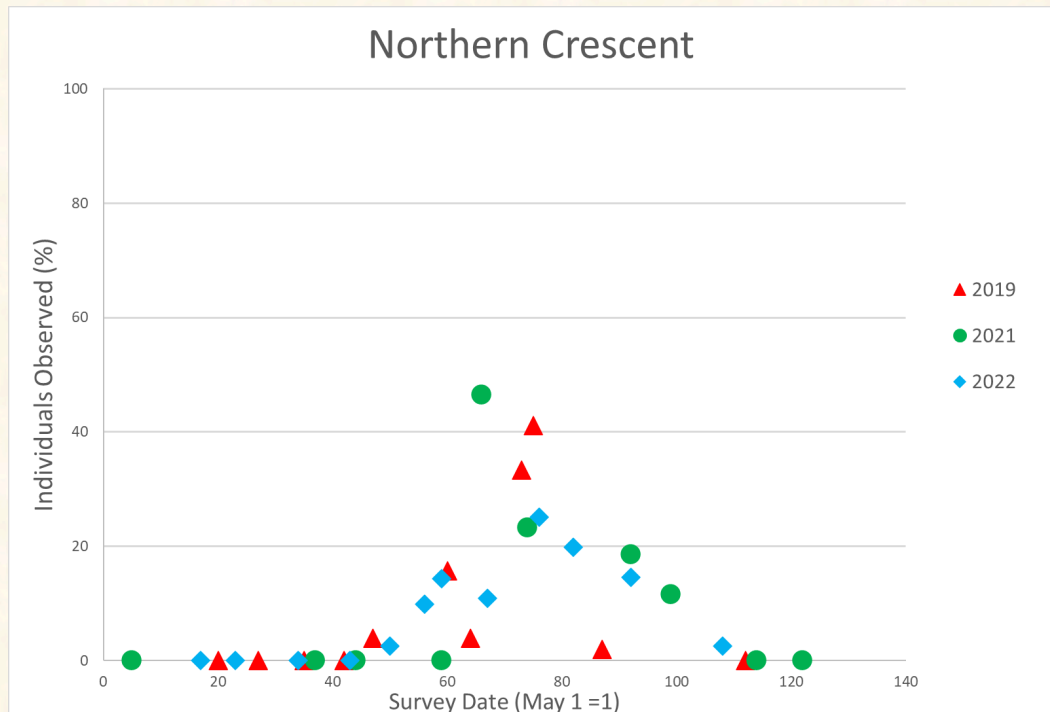


Figure 9. Northern Crescent observations (%total) at the BBO (2019: n=51, 2021: n=251, 2022: n=383).



Species	2019	2021	2022
European Skipper	21	81	90
Canadian Tiger Swallowtail	15	61	10
Greenish Blue	91	21	112
Northern Crescent	51	215	383

Table 1. Number of sightings for selected common species for 2019, 2021, and 2022.

Summary Measures	2019	2021	2022
Total # of Species	18	28	19
Mean Species per Survey	5.0	7.78	4.45

Table 2. Total number of species and species per survey for 2019, 2021 and 2022.

## Discussion

In 2022, there were more European Skippers, Greenish Blues, and Northern Crescents, and fewer Canadian Tiger Swallowtails than in the previous surveys (Table 1), suggesting that the recent dry conditions did not affect all species equally. However, a markedly lower number of species was observed in 2022 than 2021, with only 19 in 2022 compared to 28 in 2021 (Table 2). Species per survey were also much higher in 2021 (7.78) than in 2022 (4.45). In 2022, however, there were appreciable numbers of Northern Crescents into mid-August. In total, 383 Northern Crescents were sighted in 2022, which was far more than the 51 sighted in 2019 and 215 sighted in 2021 (Table 1). Perhaps having a large population allowed them to extend their season. In any event, it is clear that the conditions experienced in 2021 and 2022 were especially beneficial to this species at the BBO.

The timing of sightings appears to be fairly consistent between years for each species. European skippers seem to emerge around mid-July, with numbers peaking near the end of July and falling to near zero by mid-August (Fig.3). The Canadian Tiger Swallowtail appears late in May, with numbers peaking early in June and

Species	May 17	May 23	June 3	June 12	June 19	June 25	June 28	July 6	July 15	July 21	Aug. 1	Aug. 17	Total
European Skipper						1			18	40	29	2	90
Hobomok Skipper			1	1									2
Long Dash Skipper								1	1				2
Arctic Skipper				5									5
Canadian Tiger Swallowtail			7	2			1						10
Cabbage White		1	1								1	8	11
Western White												3	3
Clouded Sulphur			3									4	7
Grey Copper												6	6
Greenish Blue			5	65	11	2	8	18	3				112
Silver Blue						2	2						4
Aphrodite Fritillary											4		4
White Admiral								1	1				2
Mourning Cloak	2	1	3		1								7
Northern Crescent					10	38	55	42	96	76	56	10	383
Common Alpine				6									6
Common Wood Nymph					1					1	19	3	24
Common Ringlet						1				1			2
Red-Disked Alpine	18	17	7										42

Table 3. Results of the 2022 butterfly survey at the Beaverhill Bird Observatory, near Tofield, Alberta.



At the BBO, crescents were ecological “winners” for the past two years. (photo by John Acorn)



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declining into mid-June (Fig.5). Greenish Blue butterflies appear in early June, apparently in two peaks, one in mid-June and the other in early to mid-July (Fig.7). Their numbers dwindle after that. Northern Crescents emerge around mid-June, peaking in mid-July and declining to near zero at the end of July (Fig.9).

I had expected that there would be much more inter-annual variation in the phenologies of these butterflies. I had anticipated that the hot, dry weather would cause later butterfly emergences as poor growing conditions could delay the appearance of leaves and flowers that butterflies and their larvae need to survive. A study by Beaubien and Johnson (1994) found that flower development times vary more as the season progresses due to accumulating differences in degree-days. My results would imply that butterflies do not depend upon the timing of flower emergence in their own phenology.

As a side note, another fascinating lepidopteran sighting was that of a Black Witch Moth (*Ascalapha odorata*) at the BBO on August 17th, 2022. The bat intern team at the BBO also reported seeing one in 2021 (Lawrie, 2021). This is a rare species to see here in Alberta and the fact that a Black Witch was spotted two years in a row in the same area is remarkable!

Some limitations of this study include the fact that the people conducting the surveys have varying levels of experience in identifying and catching butterflies, and the butterfly intern position hires a new person each year. Some discrepancies in identification accuracy are therefore to be expected. Furthermore, differences in eyesight and experience in identifying butterfly species mean that there is a greater chance of incorrect identifications or missed individuals.

Also, in this survey butterflies were counted regardless of distance. While this does mean that some species are more likely to be recorded (for example, Canadian Tiger Swallowtails rarely fly within two metres of the observer, thereby entering the traditional Pollard “recorder’s box” but they are readily identified at a distance), this method compromises the ability that a standardized Pollard transect would have, to compare the relative abundances of the various species.

As well, while I tried to space out my surveys as evenly as my schedule allowed, the variation in time between surveys means that some time periods have more data and others have less.

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Figure 10. Photos of butterflies taken at the BBO by Dylan Perrott. Clockwise from top-left: Greenish Blue (*Icaricia saepiolus*), Aphrodite Fritillary (*Speyeria aphrodite*), Northern Crescent (*Phyciodes cocyta*), two Greenish Blue (*Aricia saepiolus*) butterflies mating.



# A Tribute to ALG Past President Dave Lawrie

## Melissa Penney



Photo: Melissa Penney

A heartfelt thank-you to Dave. Not only for being our President, spending countless hours behind the scenes organizing and planning for the ALG, but also for all the hours on the front line, representing us at events around the province spreading the love of all things Lepidoptera! It was at one of these events, at the University of Alberta Botanical Garden, that I first met Dave. While I waited my turn to get to the display table where he stood with the travelling collection, I admired his kindness and enthusiasm with every person who came by. When it was my turn I was able to show him a photo I had taken on my way to the table of a butterfly that I had never seen before. (At this point in time I was completely unaware of the extent of how many butterflies and moths I had never seen before in Alberta.) It turned out to be a Macoun's Arctic, which made me realize I should have waited a few more minutes to actually get a good shot of it! I had gone to the Botanical Garden specifically to see the Alberta Lepidopterist Guild display. I was curious, and wanted to see a bit more before I decided if I wanted to be more involved. Not long after that Dave let me pick up a spare moth light to try in my backyard. I was hooked! I've never had so much fun running around my backyard in the dark! But of course this is Dave we're talking about, and he wanted to show me



how cool the mercury vapour light was. I have now dubbed it the "Neighbour Hater" and I'm surprised no one shouted from down the street, "Turn off the light!!!" That night, even though it was a bit late in the season we got a few cool moths and a bat visit. I'm sure my little stories can be added to the pile of ones from people Dave has inspired over the years. We're so fortunate to have had someone not only so knowledgeable but also someone to put in the elbow grease and car mileage to bring the love of Lepidoptera to Alberta, and beyond.



September 12th, Astotin Lake NCC Property, "begging for leps" with Dave Lawrie and Brevan Wagner. Photos: Melissa Penney"



# Dry Island Buffalo Jump Provincial Park Butterfly Count 2022

**Claudia Lipski, Karin Lindquist, John Acorn, and David Lawrie**

ALG and the Buffalo Lake Nature Club hosted the 23rd annual Dry Island Buffalo Jump Provincial Park Butterfly Count. With help from Alberta Parks, the event was held on July 3. Dr. Charley Bird, who started this count in 1999, showed his support by dropping off butterfly nets and his copy of *Butterflies of Alberta* earlier in the week. It had been rainy, and it was about 13 °C when we arrived, with almost no wind, and perhaps 17 °C when we left. Partial cloud characterized most of the day, as did mosquitoes.

Over the last two years, count participation was greatly reduced, but this year the count was revitalized with 18 participants, and 18 members of the public dropping in. At 10:00, we met at the upper parking lot, and by 10:30, everyone dispersed to begin their counts. A group photograph took place on the traditional “ant hill” at 12:15. Lepidopterists’ Guild members then led small groups to the various areas of the park in search of butterflies. Bob Brown, Leah Jackson, and Tim Schowalter helped with butterfly identification, and Karin Lindquist compiled the plant list, in keeping with Charley Bird’s tradition for this event. In addition, John Acorn took some old-school 8mm home movies of the event (using a spring-wound camera from the 1960s ). Watch for it on John’s Youtube channel, at <https://www.youtube.com/watch?v=XKRuMGSuSPI&t=138s>

**Participants for the count:** John Acorn, Amanda Brown, Robert Brown, Belle Dodds, Reid Fuller, Branimir Gjetvaj, Gail Hachey, Tian Hui Li, Leah Jackson, David Lawrie, Karin Lindquist, Claudia Lipski, Brian Orr, Myrna Pearman, Hilary Pittel, Ofer Pittel, Tim Schowalter, Neil Whatley.



Photo: Myrna Pearman



## Butterflies reported:

Common Checkered Skipper ( <i>Burnsius communis</i> )	2
Garita Skipper ( <i>Oarisma garita</i> )	3
Old World Swallowtail ( <i>Papilio machaon</i> )	5
Clouded Sulphur ( <i>Colias philodice</i> )	2
Cabbage White ( <i>Pieris rapae</i> )	2
Western White ( <i>Pontia occidentalis</i> )	1
Striped Hairstreak ( <i>Satyrium liparops</i> )	1
Silvery Blue ( <i>Glaucopsyche lygdamus</i> )	5
Melissa Blue ( <i>Plebejus melissa</i> )	8
Greenish Blue ( <i>Icaricia saepiolus</i> )	7
Western Tailed Blue ( <i>Cupido amyntula</i> )	2
Northwestern Fritillary ( <i>Speyeria hesperis</i> )	10
Milbert Tortoiseshell ( <i>Nymphalis milberti</i> )	1
Mourning Cloak ( <i>Nymphalis antiopa</i> )	1
Northern Crescent ( <i>Phyciodes cocyta</i> )	12
Crescent, unidentified ( <i>Phyciodes</i> sp.)	7
Ringlet ( <i>Coenonympha californica</i> )	20
Uhler's Arctic ( <i>Oeneis uhleri</i> )	1







Photo: Myrna Pearman



Photo: John Acorn



Photo: Dave Lawrie



English Name	Scientific Name	Plant Type	Flowering?	Notes
Purple Prairie Clover	<i>Dalea purpurea</i>	Forb	No	
Prairie Rose	<i>Rosa woodsii</i>	Shrub	Yes	
Prickly Rose	<i>Rosa aricularis</i>	Shrub	Yes	
Cicer Milkvetch	<i>Astragalus cicer</i>	Forb	Yes	A non-native weed.
Western Wood Lily	<i>Lilium philadelphicum</i>	Forb	Yes	
Fern-leaf Desert Parsley	<i>Lomatium multifidum</i>	Forb	Yes	
Pale Alyssum	<i>Alyssum alyssoides</i>	Forb	Yes	
Long-leaved sagebrush	<i>Artemisia cana</i>	Shrub	No	
Pasture Sage	<i>Artemisia ludoviciana</i>	Forb	Yes	
Prairie Sage	<i>Artemisia longifolia</i>	Forb	Yes	
Gaillardia	<i>Gaillardia aristata</i>	Forb	Yes	
Goat's Beard/Yellow Salsify	<i>Tragopogon dubius</i>	Forb	Yes	
Yellow Owl-clover	<i>Orthocarpus luteus</i>	Forb	Yes	
Balsam Groundsel	<i>Packera paupercula</i>	Forb	Yes	
Thistle	<i>Cirsium spp.</i>	Forb	No	Suspect Canada thistle, but difficult to tell.
Wild Bergamont	<i>Monarda fistulosa</i>	Forb	Yes	Just starting to bloom.
Prairie Crocus	<i>Pulsatilla nuttalliana</i>	Forb	Yes/No	A member found one very late prairie crocus still blooming...
Prairie Smoke	<i>Geum triflorum</i>	Forb	Yes	
Prairie Milkvetch	<i>Astragalus laxmannii</i>	Forb	Yes	
Showy Locoweed	<i>Oxytropis splendens</i>	Forb	No	
Lilac Beards-tongue	<i>Penstemon gracilis</i>	Forb	Yes	
Slender Blue Beards-tongue	<i>Penstemon procerus</i>	Forb	Yes	
Dandelion	<i>Taraxacum officinalis</i>	Forb	Yes	
Colorado Rubberplant	<i>Hymenoxys richardsonii</i>	Forb	Yes	
Wild Blue Flax	<i>Linus lewisii</i>	Forb	Yes	
Stiffstem (Yellow) Flax	<i>Linus rigidum</i>	Forb	Yes	More observed than in previous years.
Prairie Onion	<i>Allium textile</i>	Forb	Yes	
Common Yarrow	<i>Achillea millefolium</i>	Forb	Yes	
Brittle Prickly Pear Cactus	<i>Opuntia polyacantha</i>	Forb	Yes	Wet year brought out a number of blooms.
Yellow Umbrellaplant	<i>Eriogonum flavum</i>	Forb	Yes	
Small-leaf Pussytoes	<i>Antennaria parvifolia</i>	Forb	Yes	
Umbel Pussytoes	<i>Antennaria umbrinella</i>	Forb	Yes	
Bastard Toadflax	<i>Comandra umbellata</i>	Forb	Yes	
Scarlet Guara	<i>Oenothera suffrutescens</i>	Forb	Yes	
Northern Bedstraw	<i>Galium boreale</i>	Forb	Yes	
Richardson's Alumroot	<i>Heuchera richardsonii</i>	Forb	Yes	
Scarlet Mallow	<i>Sphaeralcea coccinea</i>	Forb	Yes	
Shrubby Cinquefoil	<i>Dasiphora fruticosa</i>	Shrub	Yes	
White Cinquefoil	<i>Drymocallis arguta</i>	Forb	Yes	
Slender Cinquefoil	<i>Potentilla gracilis</i>	Forb	Yes	
Beautiful Cinquefoil	<i>Potentilla pulcherrima</i>	Forb	Yes	
Narrow-leaved Chickweed	<i>Stellaria crassifolia</i>	Forb	Yes	
Buckbrush	<i>Symphoricarpos occidentalis</i>	Shrub	Yes	
Wild Strawberry	<i>Fragaria virginata</i>	Forb	No	Very few flowering, most flowering finished.
Fringed Loosetrife	<i>Lysimachia ciliata</i>	Forb	(Yes)	Usually flowering this time of year, but did not see any.
Yellow Sweetclover	<i>Melilotus officinalis</i>	Forb	Yes	
Bluebells	<i>Campanula rotundifolia</i>	Forb	Yes	
Wild Gooseberry		Shrub	No	If flowering, very late for this time of year.
Goosefoot	<i>Chenopodium spp.</i>	Forb	Yes	
Missouri Goldenrod	<i>Solidago missouriensis</i>	Forb	Yes	A few plants beginning to flower. Most were still in bud stage.
Creeping Juniper	<i>Juniperus communis</i>	Shrub	No	
Junegrass	<i>Koeleria macrantha</i>	Grass	Yes	
Prairie Rough Fescue	<i>Festuca hallii</i>	Grass	Some	Not too many flowering; conditions could be too wet
Smooth Brome	<i>Bromus inermis</i>	Grass	Yes	Invasive non-native naturalized species
Kentucky Bluegrass	<i>Poa pratensis</i>	Grass	Yes	Invasive non-native naturalized species
Western Wheatgrass	<i>Pascopyrum smithii</i>	Grass	Yes	
Red Fescue	<i>Festuca rubra</i>	Grass	Yes	
Sandgrass	<i>Calamovilfa longifolia</i>	Grass	No	
Green Needle Grass	<i>Nassella viridula</i>	Grass	Yes	
Sedges	<i>Carex spp.</i>	Sedge	Yes	
Baltic Rush	<i>Juncus balticus</i>	Rush	Yes	



## 2022 Wolley Dod Discovery Award

Dave Lawrie

This year the winners were Vic Romanyshyn, Gerald Hilchie, and Dave Lawrie, for the rediscovery of *Parnassius clodius* in Alberta, the Clodius Parnassian butterfly.

This past summer, Dave, Gerry, and Vic found the first Alberta specimens of this species in 54 years. It was previously known from two males, from two localities in Waterton Lakes National Park, collected August 1 and 12, 1968. The 2022 records are from July 15-17, at two localities in the Castle Ski Hill area.

Gerry and Dave first recognized the species. Dave reports, "we thought we were seeing female *P. smintheus* flying in an avalanche chute above the lower part of the Paradise Lake trail on July 16. Closer examination showed black antennae and definitely a male! YAY! *P. clodius*!" More individuals were collected that day and the next. Then, weeks later, it was discovered that Vic Romanyshyn, who had been with Gerry and Dave a day earlier, on July 15, had actually taken a *P. clodius* specimen as well. As Dave reported, "Vic wasn't with us that day (he had to leave early), but the previous day (July 15) the 3 of us had hiked up to Haig lake. Having lunch at the lake, Vic mentioned he'd caught an odd-looking quite dark *Parnassius* just below the lake. I suggested it was a female *P. smintheus*, but we didn't look at the specimen. Vic dropped by my place a few weeks later with a beautifully pinned male *P. clodius*! So he technically has the record for the first in 54 years."





# 2022 Alberta Butterfly Roundup Update

John Acorn

The Alberta Butterfly Roundup is an ALG project intended to re-confirm all of the butterfly species ever recorded from Alberta. Initiated in 2015, we have now confirmed 158 of the 176 species known for the province, leaving only 18 to go. Of the species on our need-to-find list, perhaps the most sought-after was the Clodius Parnassian (*Parnassius clodius*), which has now been reconfirmed. A record is at: <https://inaturalist.ca/observations/126725713>. It will be interesting to see if this population is still there in the coming summers. With Clodius in the bag, so to speak, the remaining species for the Roundup are listed below:

## **Established species, or species that expand into southern Alberta some years but not others:**

- Pine White (*Neophasia menapia*): September, dry subalpine pine forests
- Edith's Copper (*Lycaena editha*), July, mountain meadows
- Lilac-bordered Copper (*Lycaena nivalis*): August, southwest corner, meadows
- Hedgerow Hairstreak (*Satyrium saepium*): August, southwest, dry slopes with Ceanothus (soap bush) plants
- Juniper Hairstreak (*Mitoura gryneus*): June, southwest corner, near junipers
- Moss' Elfin (*Callphrys mossii*): May, southwest corner
- Echo Azure (*Celastrina echo*): May, southwest corner
- Asher's Blue (*Celastrina asheri*): spring, southwest corner.
- Dingy Fritillary (*Boloria improba*): July, northern Rockies, alpine areas with willows
- Oreas Anglewing (*Polygonia oreas*): October, southwest corner
- Eyed Brown (*Lethe eurydice*): July, sedge meadows, eastern parklands
- Strecker's Giant Skipper (*Megathymus streckeri*), June, Milk River valley, with yuccas
- Small Checkered Skipper (*Pyrgus scriptura*): July, extreme southeast
- Oslar's Roadside Skipper (*Amblyscirtes oslari*): May, Milk River drainage

## **The remaining species are either migrants or vagrants, which only appear in Alberta when conditions favour a mass movement from the south:**

- Southern Dogface (*Zerene cessionia*), August, one record from near Didsbury
- American Lady (*Vanessa virginiensis*): occasional migrant
- California Tortoiseshell (*Nymphalis californica*): occasional migrant
- Question Mark (*Polygonia interrogationis*): occasional migrant



# Lepidoptera Observed on Flowers, Vegreville, Alberta – Town Yard, 2022

Robert B. Hughes



This year, along with my vegetable garden, I grew two large plots of flowers to see if I could attract a variety of insects and help especially pollinating insects (McKenzie Seeds “Pollinator Mix” of 20 species, 0.6 m X 3.6 m plot seeded 2022.06.07; and Livingston Seeds Cut and Come Again Zinnia Mixture, 0.3 m X 3.6 m plot seeded 2022.06.07). The result was a one meter tall and very colourful hedge that provided a fine photographic opportunity for the study of flowers and insects.

The first plants to germinate in the flower plots were, of course, various weedy species. This was not a problem in the Zinnia plot since Zinnias are easily identified, and everything else I pulled out. Weeds were a problem in the wildflower plot until I could identify the various species as they matured.

Eventually, five wildflower species filled in the plot area. The dominant wildflowers were: *Ratibida pinnata* (Prairie Coneflower), *Coreopsis tinctoria* (Plains Coreopsis), *Rudbeckia hirta* (Black-eyed Susan), *Coreopsis lanceolata* (Lance-leaved Coreopsis), and *Gaillardia* (Blanket Flower), in that order.

I observed the following lepidopterans during August and September. Butterflies I saw were flying solo, not in abundance. The one moth I saw was flying in the afternoon. Unfortunately, I did not have a camera or net that day. In addition to this short list of mainly butterflies, I found other insects in nine orders, with 27 species represented overall. The most prolific insects on this flower trial were Diptera species, mainly syrphid flies.



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**Lepidoptera observed:**

Purplish Copper, *Lycaena helloides*

Milbert Tortoise Shell, *Nymphalis milberti milberti*

Mourning Cloak, *Nymphalis antiopa*

Cabbage Butterfly, *Pieris rapae*

Clouded Sulphur, *Colias philodice*

Inornate Ringlet, *Coenonympha californica*

Mormon Fritillary, *Speyeria mormonia eurynome*

Noctuidae – small grey, day-flying moth



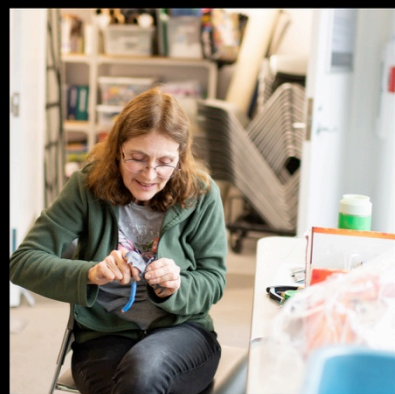
Above: Milbert Tortoiseshell. Below: Purplish Copper. Images by Robert B. Hughes.



# ALG Fall Curation Party Report

Dave Lawrie

ALG's first in person "Post Covid" Curation Party, on Oct. 22, was a great success! Once again, it was held in the meeting room of the Calder branch of the Edmonton Public Library: a great spot with tons of natural lighting. We chatted, worked on our own projects and I did a mini-workshop with Bob Parsons on how I relax and pin dried Lepidoptera specimens. Of course, we gossiped, particularly about folks that weren't there! Great fun! Many thanks to Hilary Pittel for her work in organizing this event, and Melissa Penney for the photos below!





## Photos from ALG Members

The following is a collection of images submitted by ALG members, depicting species of interest from the 2022 field season. Note as well that the photo of *Euchloe ausonides* on the cover of the last newsletter was actually *E. creusa*, something that slipped past many of us, serving as a reminder that butterfly (and moth) identification is not always an easy matter.



A late season *Colias meadii elis* (Mead's Sulphur) photographed on September 27, 2022, just east of the Whitehorse Creek Camp ground, Alberta, by Robert Bercha

3 *Polygonia* species dorsal comparison - NG Kondla photos, 2022-09-15, West Bragg Creek, Alberta

*gracilis*



*faunus*



*progne*







*Hesperia assiniboia* (Plains Skipper) photographed on August 10, 2022. This is a common species in southern Alberta, but rare in the parklands where it was photographed at Bunchberry Meadows, by Don Delaney.



A Franklin Gull (photo by John Acorn). On July 19, at the Wagner Natural Area, numerous Franklin Gulls were seen “hawking” flying insects low over the hay field. Through binoculars, it was apparent that they were catching something at least a centimeter in body length, and orange in colour. One possibility was dragonflies (*Sympetrum internum* in particular) but it was more likely they were feeding on European Skippers (*Thymelicus lineola*)– also common at the time.





One of the last butterflies of the season. A Purplish Copper (*Lycaena helloides*) found in Hawrelak Park, Edmonton, on Oct 19, '22. Anna Mioduchowska



It was unseasonably warm in Jasper in mid-October, when this Variegated Fritillary (*Euptoieta claudia*) was photographed by Jeremy Gatten. He adds, “there are 11 records in October on iNaturalist with this individual in Jasper being narrowly the latest, followed by one from October 15, 2022 down in Waterton. Quite remarkable for a species that seemingly doesn’t overwinter that far north.”





To my Northern Neighbors,

I wanted to give an early notice that Billings, Montana, will host next year's Lepidopterists' Society meetings. The Lep Soc, the Northern Rockies Research and Education Group, and Colorado State University (me), will host the meetings. Field trips will feature trips to the Beartooth Plateau, the Pryor Mountains, and riparian areas up and down the Yellowstone River. Tell your gang! More will come out in the LepSoc News soon.

The Moths of Montana Project is continuing to survey the entire state and efforts piqued the interest of the Lep Soc for these meetings. We may have five new species from the state, including a new species of *Protophygia* taken on some relic sandhills just north of the Wyoming border. *Protophygia alberta* was also taken on this site for a U.S. record in May; Petroglyph Canyon Trailhead, Carbon Co., Montana. As we sample in counties along the Alberta border, we'll let you know if new things turn up. All the material they collect is coming to the Gillette Museum in Ft. Collins where we are spreading, identifying, databasing in SCAN, imaging and adding to the museum collection. We are completing our third season and I've spread just under 24,000 to-date. We are getting the 'macros' and some smaller groups, and the 'micros' are going to Cal Academy of Sciences and Chris Grinter's group. If you use Moth Photographer's Group for moth images and maps, you'll notice they've populated around 3500 new 'dots' for Montana from our efforts so far.

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71<sup>st</sup>  
Annual Meeting of the Lepidopterists' Society  
Billings, Montana  
July 19<sup>th</sup>-23<sup>rd</sup> 2023

Please join us for the **71<sup>st</sup> Annual Meeting of the Lepidopterists' Society** as we gather in Billings, Montana and enjoy the wide-open spaces of the American West. The meeting will be held from Wednesday, July 19<sup>th</sup> to Sunday, July 23<sup>rd</sup> and will be hosted by the Lepidopterists' Society, the Northern Rockies Research and Education Services (NRRES, Lolo, MT), and the C.P. Gillette Museum of Arthropod Diversity (Colorado State University, Ft. Collins, CO). The area provides an outstanding array of scenery, western history, and opportunities for exploring a diverse flora and fauna while set in a modern city, rich in industry and innovation. Billings, the largest city in Montana, is nestled between ancient marine cliffs (the Rimrocks) to the north and the Yellowstone River (North America's longest, free-flowing river), to the south. Residents consider Billings "Montana's Trailhead," as recreational opportunities abound in nearby ranges, including the Beartooth Mountains, which boast a 10,000 foot high alpine plateau, and the older Pryor Mountains to the South.

Field trips will include both collecting and observing, which will feature both daytime and night collecting trips to the Beartooth and Hell-Roaring Plateaus, riparian sites along the Yellowstone River, and to the southern flanks of the Pryor Mountains with its impressive ecological richness and unique high-desert habitats. The region also hosts areas of badlands to the north of Billings and myriad public lands accessed via National Forest, State, and Bureau of Land Management properties.

The meetings and lodging will be held in the historic Northern Hotel located in downtown Billings and less than two miles from the Billings International Airport. Shuttle services are available from the airport. There are many other lodging opportunities across the city as well as camping areas in nearby towns.

The Executive Council meeting will be held Wednesday morning (July 19). The welcome reception will be at the Northern Hotel on Wednesday evening. The scientific program (talks and posters) will be scheduled for Thursday (July 20) and Friday (July 21), with Saturday morning available if needed. The annual BBQ will be held at a location just outside of town with an organized moth collecting/observing opportunity to follow the catered meal. The banquet will be held Saturday night at the Northern, again followed by an organized nighttime collecting trip after the meal. Dark skies come late (>10pm) this far north and collecting sites are always nearby and accessible.

More information on fees, registration and call for talks will be available in Spring 2023 via the Lepidopterists' Society website. A block of rooms will be reserved at the Northern Hotel for LepSoc members, with special rates for the meeting. The organizing committee consists of Mat Seidensticker (mat@nrres.org) and Marian Lyman with NRRES, and Chuck Harp (chuck.harp@colostate.edu) and Todd Gilligan with Colorado State University.

For more information, visit <https://www.lepsoc.org/2023-annual-meeting>. See you in Billings!



# Norbert Kondla's Crescent and Checkerspot Photographs.

Continuing a project begun in 2017, I am borrowing here from Norbert Kondla's work at the flickr site: <https://www.flickr.com/photos/118126948@N03/> with a selection from his images of crescents and checkerspots. Norbert has given me permission, and I consider this a fine opportunity to share some of Norbert's contributions.

John Acorn, Editor

## 3 *Euphydryas* species – Cypress Hills, Alberta

specimens leg B Parsons, J Beck, NG Kondla

*editha hutchinsi*



wingspan 34 mm

*bernadetta*



wingspan 39 mm

*ancia ssp*



wingspan 40.5 mm

### males



wingspan 38 mm



wingspan 44 mm



wingspan 46 mm

### females





A few northwestern North America *Chlosyne* males

*C. acastus*

1980-7-10 nr Police Coulee, Alberta



wingspan 40 mm

*C. sterope*

2004-4-27 Titchenal Canyon nr Waterville, Washington



wingspan 35 mm

*C. palla*

2004-6-18 Pend-d'Oreille valley, British Columbia



wingspan 38 mm

*C. gorgone*

19980-6-9 lower Milk River, Alberta



wingspan 31 mm

*C. damoetas*

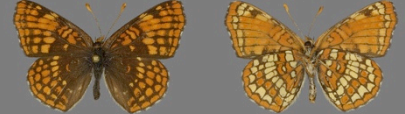
2000-8-1 Red Mtn NW of Lillooet, British Columbia



wingspan 35 mm

*C. hoffmanni*

2001-7-9 Harts Pass, Washington



wingspan 35 mm

female *Euphydryas gillettii*  
1986-7-1 nr West Castle ski hill, Alberta  
NG Kondla



wingspan 44 mm



*Euphydryas anicia anicia*

leg NG Kondla in Alberta

female 1988-7-16 nr Redcap Mountain

male 1989-7-13 Prospect Creek



wingspan 37.5 mm

wingspan 33 mm

*Euphydryas editha beani*

1983-7-19 Plateau Mountain, Alberta

female leg NG Kondla

male leg TC Kondla



wingspan 35 mm

wingspan 27.5 mm



*Euphydryas anicia anicia*

© NG Kondla March 2011

specimens leg NG Kondla, in same Alberta Rocky Mtn. region as type locality

male 1989-7-13 Prospect Creek



male 1989-7-12 Whitehorse Creek



female 1988-7-16 Cardinal River Rec. area



male 1988-7-16 Cardinal River Rec. area



male 1989-7-13 Prospect Creek



female 1988-7-16 Cardinal River Rec. area



male 1989-7-14 Cabin Creek at Hwy 40



male 1988-7-16 Cardinal River Rec. area



female 1988-7-16 Cardinal River Rec. area



male 1989-7-13 Grave Creek



male 1988-7-16 nr Redcap Mtn,



female 1989-7-15 Collie Creek nr Rock Lake



male 1989-7-14 Hwy 40 at Rock Lake road



female 1989-7-13 Grave Creek



female 1989-7-13 Grave Creek





## Four Alberta *Phyciodes* males

specimens leg NG Kondla

### *orantain*

2016-5-7 Battle R  
@ Secondary Road 854



wingspan 29 mm

### *cocyta*

2014-6-27 W of Hoadley



wingspan 31 mm

### *batesii*

2014-6-27 W of Hoadley



wingspan 28 mm

### *pulchellus*

2009-6-15 Highwood R  
W of Longview



wingspan 33.5 mm

## Some Western Canada Female *Phyciodes*

© NG Kondla October 2011

### *pallidus*

1994-5-23  
nr Tranquille, BC  
NG Kondla



### *cocyta selenis*

1988-6-26  
nr Hudson Hope, BC  
NG Kondla



### *cocyta pascoensis*

2000-7-1  
Pend-d'Oreille valley, BC  
NG Kondla



### *orantain*

1991-8-18  
nr Standard, AB  
NG Kondla



### *mylitta*

2000-8-27  
Pend-d'Oreille valley, BC  
NG Kondla



### *pulchellus owimba*

2000-6-24  
nr Greenwood, BC  
NG Kondla



### *pulchellus tutchone*

1987-6-30  
nr Atlin, BC  
NG Kondla



### *batesii saskatchewan*

1980-6-18 nr  
Dinosaur Prov. Park  
NG Kondla





*Phyciodes* specimens illustrated in Alberta Butterflies 1995  
specimens leg NG Kondla

male *Phyciodes batesii saskatchewan*  
1980-6-18 Red Deer River valley nr Dinosaur Provincial Park, Alberta  
location now within the park  
wingspan 31 mm



female *Phyciodes batesii saskatchewan*  
1980-6-18 Red Deer River valley nr Dinosaur Provincial Park, Alberta  
location now within the park  
wingspan 33 mm

male *Phyciodes orantain* aka *P. tharos orantain*  
1979-8-14 Milk River canyon, Pinhorn Grazing Reserve, Alberta  
wingspan 28 mm



female *Phyciodes orantain* aka *P. tharos orantain*  
1975-8-21 Red Deer River valley at Highway 36, Alberta  
wingspan 28 mm



## Four Montana *Phyciodes*

© NG Kondla October 2011

Specimens leg NG Kondla, West Butte, Sweetgrass Hills, Montana

*cocyta*  
1984-7-2



*orantain*  
1987-5-23



*pulchellus*  
1984-7-2



*batesii*  
1980-6-21

