

# **SURVEY OF LEPIDOPTERA OF THE WAINWRIGHT DUNES ECOLOGICAL RESERVE**



**Alberta Species at Risk Report No. 159**

# **SURVEY OF LEPIDOPTERA OF THE WAINWRIGHT DUNES ECOLOGICAL RESERVE**

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Photo: Doug Macaulay of Pale Yellow Dune Moth (*Copablepharon grandis*)

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## **EXECUTIVE SUMMARY**

Alberta Lepidoptera Inventories are initiated by both the Alberta Government and members of the Alberta Lepidopterist Guild (ALG) who are working together to document all species found in Alberta's Parks and Protected Areas. Resulting species lists are used by personnel in resource management planning. This report summaries all species that are known from the park. A total of 22 families and 309 species were collected in Wainwright Dunes Ecological Reserve including 2 that are provincially ranked as S1 and 7 as S2.

## 1.0 INTRODUCTION

The reserve has intrigued me since I was there with Gary Anweiler on July 13 and 14, 2002. We had met Dr. Jim Broatch in Edgerton and he then escorted us out to the reserve entrance at the southeast corner just to the north of David Lake.



Figure 1. *Cucullia speyeri* feeding on golden aster at base of sand dune in ER.

Since this initial introduction to the reserve I have returned several times. My return trip was in 2004 on June 8<sup>th</sup>, then on July 2<sup>nd</sup>, 3<sup>rd</sup>, August 20<sup>th</sup> & 21<sup>st</sup>, 2011, June 28<sup>th</sup>, 29<sup>th</sup> and 30<sup>th</sup>, 2013, September 5<sup>th</sup>, 2014, June 15, 2015 and most recently on July 13, 2016. On all occasions the ecological reserve was accessed from the south side; the same as in 2002 and I camped near the reserve entrance by a small spring fed pond. All collecting and light trapping occurred at and around 52.5960N, -110.6088W (the red dot on the map), see figure 6.

Butterflies and skippers were not collected as intensely as moths, therefore more diurnal collecting is required. Collecting mainly focused on moths that were sampled at night using both UV light traps, bait traps and the MV sheet traps. Some diurnal collecting was done using hand nets but was limited.

## 2.0 STUDY AREA

The Wainwright Dunes Ecological Reserve (figure 26) is located southeast of Wainwright in parts of townships 41 and 42, range 5 and is approximately 28 km<sup>2</sup> in size.

The ecological reserve contains a wide variety of habitats both within the reserve as well as along the outer boundary. These areas contains a variety of habitats ranging from grassland (figure 2), vegetated dunes with small patches of open sand (figure 3) to, aspen parkland (figure 4) and lowland grasslands (figure 5).



Figure 2. Open grassland surrounded by mature aspen forest at SE corner of ER.





Figure 3. Vegetated stabilized dunes with patches of open sand within ER boundary.



Figure 4. Lowland grassland at base of vegetated dunes within ER boundary



Figure 5. Vegetated blowout dunes with a mix of grassland and aspen scrub near southeast border of ER.



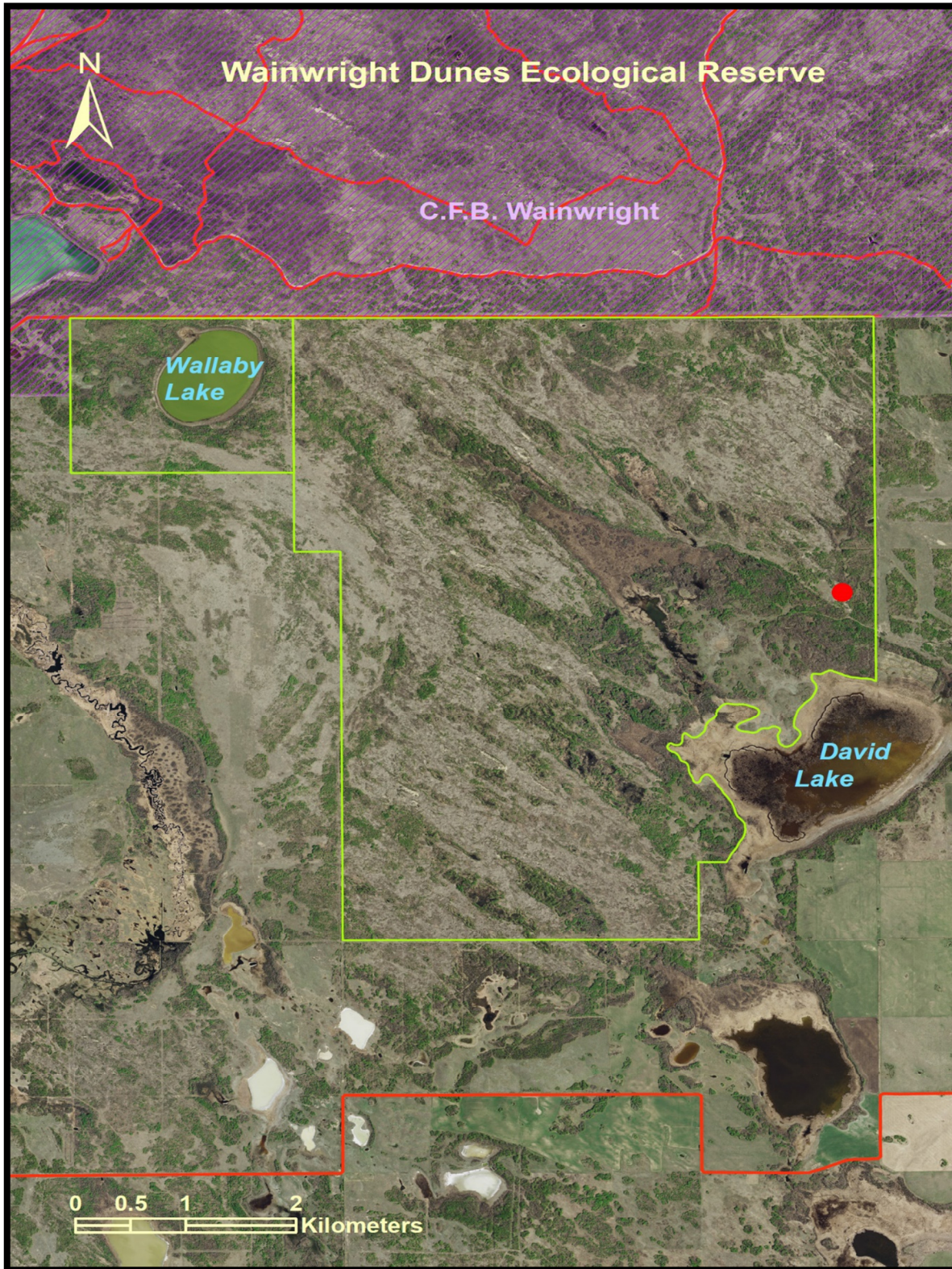


Figure 6. Wainwright Dunes Ecological Reserve. The green line depicts the reserve boundary and the red dot is the location at or near where specimens were collected (map by Drajs Vujnovic).



### 3.0 METHODS

Collecting methods ranged from night sampling using both UV light traps and the traditional MV sheet trap. Day collecting was conducted using hand nets and on a few occasions pheromone traps were deployed as well.

Species collected during this study were rated to highlight those that may be vulnerable provincially. I did not use the Alberta Parks Status Ranking (S-Ranking) system as many of the species listed are not ranked in the Alberta Conservation Information Management System (ACIMS) database. I instead used my own system to rate species (Table 1) based on population data gathered from either the University of Alberta's Strickland Virtual Museum, other similar websites or from technical reports and other publications. On occasion when available data was insufficient I used my personal expertise to determine the ranking. For example if a species only had two documented populations in Alberta but I had observed it in many other localities I would give it a higher rating.

However, these ratings can be loosely translated into S-ranks based on the following criteria. For a species rated as "Rare" these would be potential candidates for either an S1, S2 or S3 and for those rated as "Uncommon" as S3 or S3S4 ranks in Alberta. Those rated as "Common" would be potential candidates for an S4 and ratings of "Abundant" would be S5. Lastly, a rating of "SU" would be a species that require more information before a ranking can be completed and a "SNA" is for species that are not native to North America. For more details on my scarcity rating system used in Appendix 1 see below Table 1 that defines how each rating is determined.

**Table 1. Scarcity Rating System**

<b>Scarcity</b>	<b>Definition</b>
R	Rare species with less than 5 documented populations in Alberta.
U	Uncommon species with less than 20 documented populations in Alberta.
C	Common species with more than 20 documented populations in Alberta.
A	Abundant species with more than 50 documented populations in Alberta.

### 4.0 RESULTS

A total of 23 families and 309 species were collected in Wainwright ER and area. Of these, 27 were butterflies, 236 were macro-moths and 46 were micro-moths (Appendix 1). Of those collected, 14 were ranked as 'rare' and 16 as 'uncommon' (Appendix 1). A total of 4 species discovered in the park are found nowhere else in Alberta.

## 5.0 DISCUSSION

### 5.1 Overview

The following is an annotated species list followed by a discussion of significant species' records that are of interest. For each species discussed, comments are included about relative abundance, range extensions, and any other relevant biological or behavioural information.

### 5.2 Species Accounts

#### Hepialidae

- 1) *Gazoryctra novigannus*

#### Depressariidae

- 2) *Depressaria artemisiella*\*

#### Elachistidae

- 3) *Ethmia monticola*
- 4) *Ethmia albicostella*

#### Ypsolophidae

- 5) *Ypsolopha canariella*

#### Limacodidae

- 6) *Tortricidia testacea*

#### Cossidae

- 7) *Acosus centerensis*

#### Tortricidae

- 8) *Pseudosciaphila duplex*
- 9) *Olethreutes inornatana*
- 10) *Olethreutes galaxana*
- 11) *Phaneta tarandana*
- 12) *Eucosma fandana*
- 13) *Eucosma fernaldana*
- 14) *Gypsonoma fasciolana*
- 15) *Gypsonoma substitutionis*
- 16) *Epinotia criddleana*
- 17) *Acleris fragariana*
- 18) *Eana argentana*
- 19) *Argyrotaenia quadrifasciana*
- 20) *Choristoneura rosaceana*
- 21) *Choristoneura conflictana*
- 22) *Archips cerasivorana*
- 23) *Clepsis persicana*
- 24) *Sparganothis unifasciana*

#### Hesperiidae

- 25) *Erynnis persius fredricki*
- 26) *Polites peckius*
- 27) *Polites mystic*
- 28) *Poanes hobomok*

#### Pieridae

- 29) *Pieris rapae*
- 30) *Colias p. philodice*

#### Lycaenidae

- 31) *Satyrium titus immaculosus*
- 32) *Satyrium liparops fletcheri*
- 33) *Cupido amyntula albrighti*
- 34) *Plebejus saepiolus amica*

#### Nymphalidae

- 35) *Polygonia satyrus*
- 36) *Nymphalis antiopa*
- 37) *Aglais milberti*
- 38) *Vanessa atalanta*
- 39) *Speyeria cybele pseudocarpenteri*
- 40) *Speyeria aphrodite manitoba*
- 41) *Speyeria hesperis lais*
- 42) *Speyeria callippe calgariana*
- 43) *Speyeria atlantis hollandi*
- 44) *Speyeria mormonia eurynome*
- 45) *Boloria selene atrocotalis*
- 46) *Phyciodes cocyta*
- 47) *Phyciodes batesii lakota*
- 48) *Limenitis arthemis rubrofasciata*
- 49) *Enodia anthedon borealis*
- 50) *Coenonympha tullia benjamini*
- 51) *Oeneis uhleri varuna*

#### Pterophoridae

- 52) *Oidaematophorus grisescens*
- 53) *Gillmeria pallidactyla*

### **Crambidae**

- 54) *Saucrobotys fumoferalis*
- 55) *Perispasta caeculalis*
- 56) *Anania coronata*
- 57) *Sitochroa chortalis*
- 58) *Loxostege sticticalis*
- 59) *Pyrausta signatalis*
- 60) *Choristostigma plumbosignalis*
- 61) *Mecyna submedialis*
- 62) *Donacaula melinella*
- 63) *Crambus whitmerellus browni*
- 64) *Pediasia trisecta*

### **Pyralidae**

- 65) *Dolichomia olinalis*
- 66) *Acrobasis tricolorella*
- 67) *Ambesa laetella*
- 68) *Sciota basilaris*
- 69) *Pyla fusca*
- 70) *Staudingeria albipenella*
- 71) *Eulogia ochrifrontella*
- 72) *Anerastia lotella*
- 73) *Peoria approximella*

### **Drepanidae**

- 74) *Habrosyne scripta*
- 75) *Pseudothyatira cymatophoroides*
- 76) *Ceranemota albertae*

### **Geometridae**

- 77) *Eumacaria madopata*
- 78) *Speranza occiduaria*
- 79) *Speranza loricaria*
- 80) *Speranza coortaria*
- 81) *Digrammia denticulata*
- 82) *Hesperumia sulphuraria*
- 83) *Anavitrinella pampinaria*
- 84) *Biston betularia*
- 85) *Hypagyrtis unipunctata*
- 86) *Cabera erythemaria*
- 87) *Cabera variolaria*
- 88) *Euchlaena obtusaria*
- 89) *Euchlaena johnsonaria*
- 90) *Euchlaena madusaria*
- 91) *Euchlaena marginaria*
- 92) *Euchlaena tigrinaria*
- 93) *Xanthotype urticaria*

- 94) *Xanthotype sospeta*
- 95) *Pero morrisonaria*
- 96) *Phaeoura quernaria*
- 97) *Ennomos magnaria*
- 98) *Metanema inatomaria*
- 99) *Metanema determinate*
- 100) *Plagodis pulveraria*
- 101) *Probole amicaria*
- 102) *Nemoria unitaria*
- 103) *Scopula limboundata*
- 104) *Scopula fuscata (Hulst)*
- 105) *Dysstroma citrata*
- 106) *Dysstroma hersiliata*
- 107) *Dysstroma brunneata*
- 108) *Rheumaptera undulata*
- 109) *Mesoleuca ruficillata*
- 110) *Epirrhoe alternata*
- 111) *Zenophleps alpinata*
- 112) *Eubaphe mendica*
- 113) *Lobophora nivigerata*

### **Lasiocampidae**

- 114) *Malacosoma californicum*
- 115) *Phyllodesma americanum*

### **Saturniidae**

- 116) *Antheraea polyphemus*

### **Sphingidae**

- 117) *Sphinx vashti*
- 118) *Sphinx luscitiosa*
- 119) *Sphinx drupiferarum*
- 120) *Smerinthus jamaicensis*
- 121) *Smerinthus cerisyi*
- 122) *Paonias exaecatus*
- 123) *Paonias myops*
- 124) *Pachysphinx modesta*
- 125) *Hemaris diffinis*
- 126) *Hyles galli*

### **Notodontidae**

- 127) *Clostera albosigma*
- 128) *Clostera brucei*
- 129) *Clostera apicalis*
- 130) *Nadata gibbosa*
- 131) *Pheosia rimosa*
- 132) *Odontosia elegans*
- 133) *Notodonta scitipennis*

- 134) *Gluphisia septentrionis*  
 135) *Furcula cinerea*  
 136) *Furcula occidentalis*  
 137) *Furcula scolopendrina*  
 138) *Furcula modesta* (Hudson)  
 139) *Schizura ipomoeae*  
 140) *Schizura unicornis*  
 141) *Schizura concinna*\*  
 142) *Schizura leptinoides*  
 143) *Oligocentria semirufescens*

**Erebidae**

- 144) *Eilema bicolor*  
 145) *Crambidia casta*  
 146) *Hypoprepia miniata*  
 147) *Haploa lecontei*  
 148) *Virbia ferruginosa*  
 149) *Pyrrharctia isabella*  
 150) *Spilosoma congrua*  
 151) *Spilosoma virginica*  
 152) *Platarctia parthenos*  
 153) *Holarctia obliterated*  
 154) *Grammia speciosa*  
 155) *Grammia williamsii*  
 156) *Grammia phyllira*  
 157) *Grammia parthenice*  
 158) *Grammia virgo*  
 159) *Lophocampa maculata*  
 160) *Ctenucha virginica*  
 161) *Cisseps fulvicollis*  
 162) *Dasychira vagans*  
 163) *Idia americalis*  
 164) *Idia aemula*  
 165) *Phalaenostola hanhami*  
 166) *Bleptina caradrinalis*  
 167) *Renia flavipunctalis*  
 168) *Palthus angulalis*  
 169) *Hypena humuli*  
 170) *Zale minerea*  
 171) *Caenurgina crassiuscula*  
 172) *Catocala relict*  
 173) *Catocala unijuga*  
 174) *Catocala briseis*  
 175) *Catocala semirelict*

**Nolidae**

- 176) *Nycteola frigidana*

**Noctuidae**

- 177) *Abrostola urentis*.  
 178) *Pseudeva purpurigera*  
 179) *Autographa rubidus*  
 180) *Autographa ampla*  
 181) *Anagrapha falcifera*  
 182) *Plusia putnami*  
 183) *Protodeltote albidula*  
 184) *Pseudeustrotia carneola*  
 185) *Tarachidia semiflava*  
 186) *Ponometia binocula*  
 187) *Raphia frater*  
 188) *Acronicta dactylina*  
 189) *Acronicta lepusculina*  
 190) *Acronicta vulpina*  
 191) *Acronicta innotata*  
 192) *Acronicta grisea*  
 193) *Acronicta quadrata*  
 194) *Acronicta hasta*  
 195) *Acronicta fragilis*  
 196) *Acronicta impleta*  
 197) *Acronicta sperata*  
 198) *Acronicta oblongata*  
 199) *Acronicta fallax*\*  
 200) *Apamea alia*  
 201) *Apamea commoda*  
 202) *Apamea scoparia*  
 203) *Apamea devastator*  
 204) *Resapamea passer*  
 205) *Eremobina claudens*  
 206) *Platypolia mactata*  
 207) *Fishia illocata*  
 208) *Photodes inops*  
 209) *Chortodes rufostriata*  
 210) *Capsula subflava*  
 211) *Amphipoea americana*  
 212) *Phlogophora iris*\*  
 213) *Enargia decolor*  
 214) *Enargia infumata*  
 215) *Ipimorpha pleonectusa*  
 216) *Chytonix palliatricula*  
 217) *Hyppa contrasta*  
 218) *Proxenus miranda*  
 219) *Graphiphora augur*  
 220) *Caradrina montana*  
 221) *Elaphria alapallida*

- 222) *Stiria rugifrons*  
 223) *Escaria homogena*  
 224) *Litholomia napaea*  
 225) *Anathix puta*  
 226) *Xanthia tatago*  
 227) *Platypolia anceps*  
 228) *Brachylomia populi*  
 229) *Sympistis stabilis*  
 230) *Sympistis infixata*  
 231) *Sympistis dinaldi*  
 232) *Sympistis saundersiana*  
 233) *Sympistis viriditincta*  
 234) *Sympistis piffardi*  
 235) *Sympistis riparia*  
 236) *Sympistis cibalis*  
 237) *Cucullia speyeri*  
 238) *Cucullia luna*  
 239) *Anarta trifolii*  
 240) *Anarta farnhami*  
 241) *Sideridis rosea*  
 242) *Sideridis maryx*  
 243) *Mamestra configurata*  
 244) *Polia nimbose*  
 245) *Orthodes detracta*  
 246) *Orthodes goodelli*  
 247) *Orthodes obscura*  
 248) *Melanchra adjuncta*  
 249) *Melanchra pulverulenta*  
 250) *Melanchra assimilis*  
 251) *Lacanobia nevadae*  
 252) *Lacanobia atlantica*  
 253) *Lacanobia radix*  
 254) *Lacanobia subjuncta*  
 255) *Spiramater lutra*  
 256) *Trichordestra lilacina*  
 257) *Trichordestra liquida*  
 258) *Hadena circumvadis*  
 259) *Hada sutrina*  
 260) *Lacinipolia lustralis*  
 261) *Lacinipolia vicina*  
 262) *Lacinipolia renigera*  
 263) *Lacinipolia lorea*  
 264) *Faronta diffusa*  
 265) *Feltia jaculifera*  
 266) *Mythimna oxygala*  
 267) *Mythimna unipuncta*  
 268) *Leucania multilinea*  
 269) *Leucania commoides*  
 270) *Leucania insueta*  
 271) *Protorthodes incincta*  
 272) *Protorthodes oviduca*  
 273) *Agrotis vetusta*  
 274) *Agrotis orthogonia*  
 275) *Agrotis venerabilis*  
 276) *Agrotis obliqua*  
 277) *Copablepharon grandis*  
 278) *Euxoa adumbrata*  
 279) *Euxoa divergens*  
 280) *Euxoa messoria*  
 281) *Euxoa scandens*  
 282) *Euxoa tristicula*  
 283) *Euxoa pleuritica*  
 284) *Euxoa mimallonis*  
 285) *Euxoa declarata*  
 286) *Euxoa spumata*  
 287) *Euxoa comosa ontario*  
 288) *Euxoa basalis*  
 289) *Euxoa ochrogaster*  
 290) *Euxoa tessellata*  
 291) *Euxoa albipennis*  
 292) *Euxoa quadridentata*  
 293) *Euxoa deterosa*  
 294) *Euxoa servitus*  
 295) *Euxoa munis*  
 296) *Euxoa maimes*  
 297) *Euxoa manitobana*  
 298) *Euxoa flavicollis*  
 299) *Euxoa perpolita*  
 300) *Anicla tepperi*  
 301) *Actebia balanitis*  
 302) *Spaelotis clandestina*  
 303) *Eurois occulta*  
 304) *Xestia c-nigrum*  
 305) *Agnorisma bugrai*  
 306) *Paradiarsia littoralis*  
 307) *Abagrotis placida*  
 308) *Pyrrhia exprimens*  
 309) *Heliothis onois*

### 5.3 Species of Significance

**Northern Pearly-eye (*Enodia anthedon borealis* Clark)** – This uncommon butterfly’s



range has expanded during the last decade but this is the first record from the park and appears to be the rarest butterfly in the area. It is considered an S4 ranked species in Alberta according to ACIMS (2014). The lone adult was collected feeding on fruit at our campsite on June 29<sup>th</sup>, 2013. The larvae feed on grasses and according to Layberry (1998), its hosts are bearded shortgrass (*Brachyelytrum erectum*), False Melic Grass (*Schizachne pupurascens*). In the ER, the likely host is bearded shortgrass that was recorded there by Macdonald (2003).

Figure 7. *Enodia anthedon borealis* from Wainwright Dunes Ecological Reserve (photo by author).



***Depressaria artemisiella*** - This is the first and only record for this species in Alberta. This species was recorded in the ER on June 28, 2013. The larvae are known to feed on Sage (*Artemisia* sp.) that is commonly are found in the reserve.

Figure 8. *Depressaria artemisiella* from Wainwright Dunes Ecological Reserve (photo by Greg Pohl).

**Pale-edged Ethmia Moth (*Ethmia albicostella*)** – This record is rare, a substantial range extension for the province and is only the third location known for Alberta. It was



formerly known from in Cardston and Kananaskis. This species was recorded in the ER on June 28, 2013. The larvae are known to feed on Gromwell (*Lithospermum* sp.) and Narrow - leaved Puccoon (*Lithospermum incisum*) that are found in the reserve (Macdonald 2003).

Figure 9. *Ethmia albicostella* from Wainwright Dunes Ecological Reserve (photo by author).

**Inornate Olethreutes Moth (*Olethreutes inornatana*)** - A rare moth known from only

two other localities in Alberta. The previous locations include Dry Island Buffalo Jump Provincial Park and Edmonton. A lone specimen was found on June 28, 2013 in the ER. The host plants are cherries (*Prunus* sp.) and Dogwoods (*Cornus* sp.) that are common in the reserve.



Figure 10. *Olethreutes inornatana* (Jim Vargo photo, Moth Photographers Group)

***Eucosma fandana*** - A very rare moth known from only two other locations. The previous locations include the Pakowki Lake sand dunes near Orion and Edgerton (Pohl *et al.* 2010). A lone specimen was found on August 21, 2011 in the ER. It is restricted to sand dune habitats (Dombroskie & Simonsen 2010) and host plants are not currently known.

**Fernald's Eucosma Moth (*Eucosma fernaldana*)** - A rare moth known from only two other locations. The previous locations include the Pakowki Lake sand dunes near Orion and Edgerton (Pohl *et al.* 2010). Two host plants are known for this species, Greasewood

(*Sarcobatus vermiculatus*) and Broomweed (*Gutierrezia sarothrae*) plants (Heinrich 1923; Hetz and Werner 1979), broomweed is likely the host in the ER.

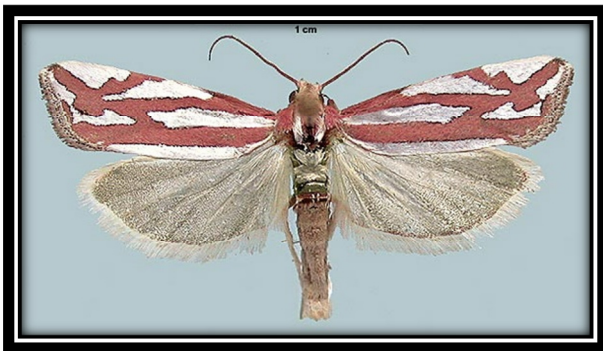


Figure 11. (*Eucosma fernaldana*) (Gary Anweiler photo, University of Alberta Strickland Museum)



**Strawberry Acleris (*Acleris fragariana*)** - A rare moth known from only two other locations. The previous locations include the Nevis and Edmonton but I suspect this species is much more common. The host plants are *Myrica gale* (*Aronia melanocarpa*), *Fragaria* (including *Fragaria virginiana*), *Prunus*, *Rosa*, *Rubus* and *Pouteria* species (Tortricid.net) that are found in the reserve.

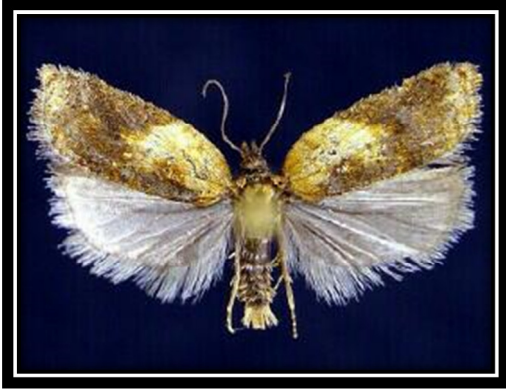


Figure 12. *Acleris fragariana* (Jim Vargo photo, Moth Photographers Group)

**Four-spotted Angle Moth (*Speranza coortaria*)** – A rare moth known from only a few locations and is rarely collected. A lone specimen was found on September 9<sup>th</sup>, 2004. One of the host plants for this species is chokecherry (Ferguson 2008) that is a common shrub found in the dunes.



Figure 13. *Speranza coortaria* (Jim Vargo photo, Moth Photographers Group)

**Common Gray (*Anavitrinella pampinaria*)** - an uncommon species only known from a three other localities in Alberta. It is known from Lloydminster, the Jenner Bridge campground on the Red Deer River, and the Pakowki Lake dunes. Two specimens were found in the ER, one on July 2<sup>nd</sup> and the other on July 3<sup>rd</sup>, 2004. The likely host at the reserve are either Buffaloberry (*Shepherdia*) or willow (*Salix* sp.). However, Wagner (2005) considers it a generalist that feeds on a wide variety of plants.

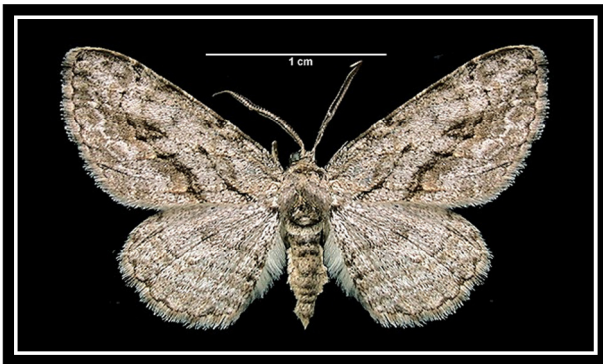


Figure 14. *Anavitrinella pampinaria* (Gary Anweiler photo, University of Alberta Strickland Museum)



**Oak Beauty (*Phaeoura quernaria*) - ONLY ALBERTA RECORD** - This rare species was collected on July 13, 2002 by Gary Anweiler and the author, it still remains as the only record for Alberta. This species was reported feeding on birch, willow, poplars and cherry (Wagner 2005), all of which occur in the park.



Figure 15. *Phaeoura quernaria* from WER (Gary Anweiler photo, University of Alberta Strickland Museum)

**Darkened-winged Wave Moth (*Scopula fuscata*)** - A rare moth known from only two other locations and is rarely collected. The two other documented populations are from Hillcrest and Cypress Hills Provincial Park, Alberta. Two specimens were collected on the 28<sup>th</sup> and 29<sup>th</sup> of June, 2013. Nothing is known about this species' biology.



Figure 16. *Scopula fuscata* (Gary Anweiler photo, University of Alberta Strickland Museum)



**Wild Cherry Sphinx (*Sphinx drupiferarum*)** - This uncommon sphinx is found across Canada in the aspen parkland region. The host plants of this species, primarily cherries are commonly found in the reserve. In Alberta it is known from six localities including the Wainwright Dune Ecological Reserve.

Figure 17. *Sphinx drupiferarum* (Jim Vargo photo, Moth Photographers Group)



**Clemens' Hawkmoth (*Sphinx luscitiosa*)** - This uncommon sphinx moth is found across Canada in the aspen parkland region. In Alberta it is known from seven localities including the Wainwright Dune Ecological Reserve. The larvae of this species feeds on members of the Salicaceae (*Populus*, *Salix*) and Betulaceae (*Betula*) shrubs that commonly occur throughout the ER.

Figure 18. *Sphinx luscitiosa* (Jim Vargo photo, Moth Photographers Group)



**Morning-glory Prominent (*Schizura ipomoeae*)** - This is a rare find in Alberta and only the 3<sup>rd</sup> record for the province. Dr. Charley Bird previously collected this species in Big Knife Provincial Park on July 9, 2002. A more recent population was discovered by Chris Schmidt near Chauvin in 2004. The WER population was discovered on July 2<sup>nd</sup>, 2004. The hosts are birch (*Betula* sp.), willow (*Salix* sp.) and poplars (*Populus* sp.), all occur in the park.

Figure 19 *Schizura ipomoeae* from Wainwright Dunes Ecological Reserve (photo by author).

**Red-humped Caterpillar Moth (*Schizura concinna*) - NEW ALBERTA RECORD**

This is the first record of this species in the province. The other closest documented localities include central Saskatchewan and interior British Columbia. This rare species is



a generalist and feeds on a range of hardwoods and shrubs ranging from Fagaceae, Betulaceae, Rosaceae, Aceraceae, Rhamnaceae, and Ericaceae. The host plant within the reserve is unknown but is likely either from the Betulaceae or Rosaceae family. The lone specimen was collected on June 29, 2014 in a UV light trap.

Figure 20. *Schizura concinna* from Wainwright Dunes Ecological Reserve (photo by author).

**Phyllira Tiger Moth (*Grammia phyllira*)** – This rare moth is known from four locations in Alberta, the Wainwright Dunes by Gary Anweiler and the author in 2002, the dunes



south of Edgerton by Gary Anweiler and Jim Troubridge in 2001, near Chauvin by Dr. Chris Schmidt in 2004 and Medicine Hat by F. S. Carr. As the locations suggest, it is found in either dune or dry prairie habitats (Schmidt 2009). This is a polyphagous species whose genus is often found feeding on low growing forbs such as legumes (Nelson 2010).

Figure 21. *Grammia phyllira* (Jim Vargo photo, Moth Photographers Group)

**Green Marvel Moth (*Acronicta fallax*) - NEW ALBERTA RECORD** - This is the first



record of this for this species in the province. The other closest documented localities include southeastern Saskatchewan near the Manitoba border. The lone specimen was collected on June 28, 2013 in a UV light trap. This larvae are known to feed on *Viburnum* (Wagner et al. 2011). Both Highbush cranberry (*Viburnum edule*) and Guelder-rose (*Viburnum opulus trilobum*) have been

recorded from the reserve (Macdonald 2003) and either could be its host.

Figure 22. *Acronicta fallax* from Wainwright Dunes Ecological Reserve (photo by author).

**Olive Angle Shades Moth (*Phlogophora iris*) - NEW ALBERTA RECORD** – This is



another first time record for the province. The other closest documented localities include south-central Saskatchewan. This polyphagous species host plants range from thistle, dandelion to dock (Wagner et al. 2011), all of which reside in the reserve. The lone specimen was collected on June 28, 2013 in a UV light trap.

Figure 23. *Phlogophora iris* from Wainwright Dunes Ecological Reserve (photo by author).



**Yellow Sunflower Moth (*Stiria rugifrons*)** – This species is an uncommon find in Alberta and is known from seven locations including the Wainwright Dunes. It was last collected here on July 13, 2002 by Gary Anweiler and the author. This species specializes on sunflowers and was recorded feeding on sunflower *Helianthus microcephalus* in Ohio by Poole (1995). Both Coupland’s sunflower (*Helianthus couplandii*) and the Beautiful Sunflower (*Helianthus subrhomboides*) are known from WER (Macdonald 2003) and either species could be the host plants.



Figure 24. *Stiria rugifrons* (Gary Anweiler photo, University of Alberta Strickland Museum)

**Saunders' Sallow Moth (*Sympistis saundersiana*)** – This is the second Alberta population known for this rare species in Alberta. The only other locality is from a 2002 record by Dr. Charley Bird at the Buffalo Lake Conservation Area. This species was discovered in the Wainwright Dunes Ecological Reserve on September 6<sup>th</sup>, 2011. The host of this species is Beard-tongue (*Penstemon* sp.) according to Wagner et al. (2011) and Slender Beardtongue (*Penstemon gracilis*) is known from the WER (Macdonald 2003) a may be its host.



Figure 25. *Sympistis saundersiana* (Gary Anweiler photo, University of Alberta Strickland Museum).

**Green-tinted Sallow Moth (*Sympistis viriditincta*)** – Another rare species known from only two localities in Alberta. The other locality is from a 2001 record by Dr. Charley Bird at the Buffalo Lake Conservation Area. It was discovered here on September 6<sup>th</sup>, 2011. Nothing is known about the biology of this species.



Figure 26. *Sympistis saundersiana* (Gary Anweiler photo, University of Alberta Strickland Museum).

**Black-banded Beauty (*Sympistis piffardi*)** – This uncommon species is known from four other localities in Alberta. It was discovered here .on September 6<sup>th</sup>, 2011. This species prefers dry sandy areas and feeds on *Spiraea*, including *S. latifolia* (Handfield 2011). The likely host is Narrow-leaved Meadowsweet (*Spiraea alba*) that is present in the reserve (Macdonald 2003)



Figure 27. *Sympistis piffardi* (Gary Anweiler photo, University of Alberta Strickland Museum).



Figure 28. *Copablepharon grandis* feeding at a *Oenothera nuttallii* flower (photo by author).

#### **Pale Yellow Dune Moth**

**(*Copablepharon grandis*)** – This rare and critically imperiled (S1) nationally and in Alberta. It is known from seven localities in Alberta including Buffalo Park, Sounding Lake, Dillberry Provincial Park and the Edgerton dune fields. There are also three historical records, one from Gleichen in 1976, Monarch in 1913, and the other from Calgary in 1902 (Environment Canada 2015; Strickland). The 6<sup>th</sup> record listed in the 2007 COSEWIC report stated this species was found in the WER, however, this was an error as the summary of occurrence records (Table 1.) published in the 2015 report by Environment Canada indicates. The actual location referred is C. F. B. Wainwright, not the WER. However, on July 13, 2016 I stumbled across an lone individual feeding at a White Evening Primrose (*Oenothera nuttallii*), see Figure 6.

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## 7.0 APPENDICES

### APPENDIX 1. WAINWRIGHT DUNES ECOLOGICAL RESERVE SPECIES LIST (July 13, 2016)

#	Scarcity	S-Rank	MONA#	Family	Species
1	C	S4	29.00	Hepialidae	Gazoryctra novigannus (Barnes & Benjamin)
2	R	S1	927.00	Depressariidae	Depressaria artemisiella McDunnough
3	C	S4	987.00	Elachistidae	Ethmia monticola (Wlsm.)
4	R	S3	1001.00	Elachistidae	Ethmia albicostella (Beutenmüller)
5	C	S4	2371.00	Ypsolophidae	Ypsolopha canariella (Wlsm.)
6	C	S4	2675.00	Cossidae	Acosus centerensis (Lint.)
7	C	S4	2769.00	Tortricidae	Pseudosciaphila duplex (Walsingham)
8	R	SU	2788.00	Tortricidae	Olethreutes inornatana (Clemens)
9	C	S4	2835.00	Tortricidae	Olethreutes galaxana Kearfott
10	C	S4	2956.00	Tortricidae	Phaneta tarandana (Möschler)
11	R	S2	3012.00	Tortricidae	Eucosma fandana Kearfott
12	R	S3	3015.00	Tortricidae	Eucosma fernaldana (Grote)
13	C	S4	3223.00	Tortricidae	Gypsonoma fasciolana (Clemens)
14	C	S4	3227.00	Tortricidae	Gypsonoma substitutionis Heinrich
15	C	S4	3307.00	Tortricidae	Epinothia criddleana (Kearfott)
16	U	SU	3532.00	Tortricidae	Acleris fragariana Kearfott
17	A	S5	3568.00	Tortricidae	Eana argentana (Clerck)
18	C	S4	3621.00	Tortricidae	Argyrotaenia quadrifasciana (Fernald)
19	A	S5	3635.00	Tortricidae	Choristoneura rosaceana (Harris)
20	A	S5	3637.00	Tortricidae	Choristoneura conflictana (Wlk.)
21	A	S5	3661.00	Tortricidae	Archips cerasivorana (Fitch)
22	C	S4	3682.00	Tortricidae	Clepsipha persicana (Fitch)
23	C	S4	3711.00	Tortricidae	Sparganothis unifasciana (Clemens)
24	C	S4	3961.00	Hesperiidae	Erynnis persius fredricki Free.
25	C	S4	4036.00	Hesperiidae	Polites peckius (Kby.)
26	C	S4	4043.00	Hesperiidae	Polites mystic mystic (Edw.)
27	C	S4	4059.00	Hesperiidae	Poanes hobomok (Harris)
28	A	SNA	4197.00	Pieridae	Pieris rapae (L.)
29	A	S5	4209.00	Pieridae	Colias philodice philodice God.

#	Scarcity	S-Rank	MONA#	Family	Species
30	C	S4	4280.10	Lycaenidae	Satyrium titus immaculosus (Comstock)
31	C	S4	4285.00	Lycaenidae	Satyrium liparops fletcheri (Mich.)
32	C	S4	4362.00	Lycaenidae	Cupido amyntula albrighti Clench
33	C	S4	4376.00	Lycaenidae	Plebejus saepiolus amica (Edw.)
34	C	S4	4427.00	Nymphalidae	Polygonia satyrus
35	A	S5	4432.00	Nymphalidae	Nymphalis antiopa
36	C	S4	4433.00	Nymphalidae	Aglais milberti milberti (Godt.)
37	A	S5	4434.00	Nymphalidae	Vanessa atalanta (L.)
38	C	S4	4450.00	Nymphalidae	Speyeria cybele pseudocarpenteri (F. & R. Chermock)
39	C	S4	4451.00	Nymphalidae	Speyeria aphrodite manitoba (F. & R. Chermock)
40	C	S4	4457.00	Nymphalidae	Speyeria callippe calgariana (McD.)
41	C	S4	4459.00	Nymphalidae	Speyeria atlantis hollandi (Chem.)
42	C	S4	4459.10	Nymphalidae	Speyeria hesperis lais (Edw.)
43	C	S4	4461.00	Nymphalidae	Speyeria mormonia eurynome (Edw.)
44	C	S4	4464.00	Nymphalidae	Boloria selene atrocotalis (Huard)
45	C	S4	4481.10	Nymphalidae	Phyciodes cocyta (Cram.)
46	A	S5	4482.00	Nymphalidae	Phyciodes batesii lakota Scott.
47	A	S5	4522.00	Nymphalidae	Limenitis arthemis rubrofasciata (Drury)
48	U	S3S4	4568.10	Nymphalidae	Enodia anthedon borealis Clark
49	A	S5	4583.00	Nymphalidae	Coenonympha tullia benjamini McD.
50	C	S4	4607.00	Nymphalidae	Oeneis uhleri varuna (Edw.)
51	U	S3S4	4652.00	Limacodidae	Tortricidia testacea Pack.
52	C	S4	4935.00	Crambidae	Saucrobotys fumoferalis (Hulst)
53	C	S4	4951.00	Crambidae	Perispasta caeculalis Zeller
54	C	S4	4953.00	Crambidae	Anania coronata (Hufnagel)
55	A	S5	4987.00	Crambidae	Sitochroa chortalis (Grt.)
56	C	S4	5004.00	Crambidae	Loxostege sticticalis (Linnaeus)
57	C	S4	5034.00	Crambidae	Pyrausta signatalis (Wlk.)
58	C	S4	5128.00	Crambidae	Choristostigma plumbosignalis (Fern.)
59	C	S4	5135.00	Crambidae	Mecyna submedialis (Grt.)
60	C	S4	5316.00	Crambidae	Donacaula melinella (Clem.)
61	C	S4	5345.00	Crambidae	Crambus whitmerellus browni Klots

#	Scarcity	S-Rank	MONA#	Family	Species
62	A	S5	5413.00	Crambidae	Pediasia trisecta (Wlk.)
63	U	SU	5529.00	Pyralidae	Dolichomia olinalis (Guenée)
64	C	S4	5655.00	Pyralidae	Acrobasis tricolorella Grote
65	C	S4	5759.00	Pyralidae	Ambesa laetella Grt.
66	C	S4	5799.00	Pyralidae	Sciota basilaris Zeller
67	C	S4	5829.00	Pyralidae	Pyla fusca (Haworth)
68	U	SU	5917.00	Pyralidae	Staudingeria albipenella (Hulst)
69	C	S4	5999.00	Pyralidae	Eulogia ochrifrontella (Zell.)
70	C	S4	6038.00	Pyralidae	Anerastia lotella Hübner
71	U	S3S4	6053.00	Pyralidae	Peoria approximella (Walker)
72	C	S4	6107.00	Pterophoridae	Gillmeria pallidactyla (Haworth)
73	C	S4	6171.00	Pterophoridae	Oidaematophorus grisescens Wlsm.
74	C	S4	6235.00	Drepanidae	Habrosyne scripta (Gosse)
75	C	S4	6237.00	Drepanidae	Pseudothyatira cymatophoroides (Gn.)
76	C	S4	6248.00	Drepanidae	Ceranemota albertae Clarke
77	C	S4	6272.00	Geometridae	Eumacaria madopata (Gn.)
78	C	S4	6279.00	Geometridae	Speranza occiduaria (Pack.)
79	C	S4	6290.00	Geometridae	Speranza loricaria (Evers.)
80	R	S3	6299.00	Geometridae	Speranza coortaria (Hulst)
81	C	S4	6373.00	Geometridae	Digrammia denticulata Grt.
82	C	S4	6431.00	Geometridae	Hesperumia sulphuraria Pack.
83	U	S3S4	6590.00	Geometridae	Anavitrinella pampinaria (Gn.)
84	C	S4	6640.00	Geometridae	Biston betularia (L.)
85	C	S4	6654.00	Geometridae	Hypagyrtis unipunctata (Haw.)
86	C	S4	6677.00	Geometridae	Cabera erythemaria Gn.
87	C	S4	6678.00	Geometridae	Cabera variolaria Gn.
88	C	S4	6726.00	Geometridae	Euchlaena obtusaria (Edw.)
89	C	S4	6729.00	Geometridae	Euchlaena johnsonaria (Fitch)
90	C	S4	6731.00	Geometridae	Euchlaena madusaria (Wlk.)
91	C	S4	6734.00	Geometridae	Euchlaena marginaria (Minot.)
92	C	S4	6737.00	Geometridae	Euchlaena tigrinaria (Gn.)
93	C	S4	6740.00	Geometridae	Xanthotype urticaria Swett
94	C	S4	6743.00	Geometridae	Xanthotype sospeta (Drury)
95	C	S4	6755.00	Geometridae	Pero morrisonaria (Hy. Edw.)
96	R	S2	6763.00	Geometridae	Phaeoura quernaria (Sm.)
97	C	S4	6797.00	Geometridae	Ennomos magnaria Gn.
98	C	S4	6819.00	Geometridae	Metanema inatomaria Gn.
99	C	S4	6820.00	Geometridae	Metanema determinata Wlk.
100	C	S4	6836.00	Geometridae	Plagodis pulveraria (L.)
101	C	S4	6838.00	Geometridae	Probole amicaria (H. - S.)
102	C	S4	7018.00	Geometridae	Nemoria unitaria (Pack.)
103	C	S4	7159.00	Geometridae	Scopula limboundata (Haw.)

#	Scarcity	S-Rank	MONA#	Family	Species
104	R	S3	7163.00	Geometridae	Scopula fuscata (Hulst)
105	C	S4	7182.00	Geometridae	Dysstroma citrata (L.)
106	C	S4	7189.00	Geometridae	Dysstroma hersiliata
107	C	S4	7194.00	Geometridae	Dysstroma brunneata (Pack.)
108	C	S4	7291.00	Geometridae	Rheumaptera undulata (L.)
109	C	S4	7307.00	Geometridae	Mesoleuca ruficillata Gn.
110	C	S4	7394.00	Geometridae	Epirrhoe alternata (Mull.)
111	C	S4	7408.00	Geometridae	Zenopheps alpinata Cassino
112	U	S3S4	7440.00	Geometridae	Eubaphe mendica (Wlk.)
113	C	S4	7640.00	Geometridae	Lobophora nivigerata (Wlk.)
114	A	S5	7687.00	Lasiocampidae	Phyllodesma americanum (Harr.)
115	C	S4	7702.00	Lasiocampidae	Malacosoma californicum (Pack.)
116	C	S4	7757.00	Saturniidae	Antheraea polyphemus (Cram.)
117	C	S4	7803.00	Sphingidae	Sphinx vashti Stkr.
118	U	S3	7811.00	Sphingidae	Sphinx luscitiosa Cram.
119	U	S3	7812.00	Sphingidae	Sphinx drupiferarum J.E. Sm.
120	A	S4	7821.00	Sphingidae	Smerinthus jamaicensis (Drury)
121	A	S4	7822.00	Sphingidae	Smerinthus cerisyi Kby.
122	C	S4	7824.00	Sphingidae	Paonias exaectatus (J.E. Sm.)
123	C	S4	7825.00	Sphingidae	Paonias myops (J.E. Sm.)
124	C	S4	7828.00	Sphingidae	Pachysphinx modesta (Harr.)
125	C	S4	7855.00	Sphingidae	Hemaris diffinis (Bdv.)
126	C	S4	7893.00	Sphingidae	Hyles galli (Rott.)
127	C	S4	7895.00	Notodontidae	Clostera albosigma Fitch
128	C	S4	7900.00	Notodontidae	Clostera brucei (Edw.)
129	C	S4	7901.00	Notodontidae	Clostera apicalis (Wlk.)
130	C	S4	7915.00	Notodontidae	Nadata gibbosa (J.E. Sm.)
131	C	S4	7922.00	Notodontidae	Pheosia rimosa Pack.
132	C	S4	7924.00	Notodontidae	Odontosia elegans (Strecker)
133	C	S4	7926.00	Notodontidae	Notodonta scitipennis Wlk.
134	C	S4	7931.00	Notodontidae	Gluphisia septentrionis Wlk.
135	C	S4	7937.00	Notodontidae	Furcula cinerea (Wlk.)
136	C	S4	7939.00	Notodontidae	Furcula occidentalis (Lintner)
137	C	S4	7940.00	Notodontidae	Furcula scolopendrina (Bdv.)
138	C	S4	7941.00	Notodontidae	Furcula modesta (Hudson)
139	R	S3	8005.00	Notodontidae	Schizura ipomoeae Doubleday
140	C	S4	8007.00	Notodontidae	Schizura unicornis (Sm.)
141	R	S2	8010.00	Notodontidae	Schizura concinna (Sm.)
142	C	S3	8011.00	Notodontidae	Schizura leptinoides (Grt.)
143	C	S3	8012.00	Notodontidae	Oligocentria semirufescens (Wlk.)
144	C	S4	8043.00	Erebidae	Eilema bicolor (Grote)
145	A	S5	8051.00	Erebidae	Crambidia casta (Pack.)
146	C	S4	8089.00	Erebidae	Hypoprepia miniata (Kby.)
147	C	S4	8111.00	Erebidae	Haploa lecontei (G.-M.)

#	Scarcity	S-Rank	MONA#	Family	Species
148	A	S5	8123.00	Erebidae	Virbia ferruginosa (Wlk.)
149	C	S4	8129.00	Erebidae	Pyrrharctia isabella (Sm.)
150	C	S4	8131.00	Erebidae	Spilosoma congrua Wlk.
151	A	S5	8137.00	Erebidae	Spilosoma virginica (F.)
152	C	S4	8162.00	Erebidae	Platarctia parthenos (Harr.)
153	C	S3S4	8174.00	Erebidae	Holarctia obliterated (Stretch)
154	C	S3	8175.00	Erebidae	Grammia speciosa (Möschler)
155	A	S5	8186.00	Erebidae	Grammia williamsii (Dodge)
156	R	S3	8194.00	Erebidae	Grammia phyllira (Drury)
157	C	S4	8196.00	Erebidae	Grammia parthenice (Kby.)
158	C	S4	8197.00	Erebidae	Grammia virgo (L.)
159	A	S5	8214.00	Erebidae	Lophocampa maculata Harr.
160	A	S5	8262.00	Erebidae	Ctenucha virginica (Esp.)
161	A	S5	8267.00	Erebidae	Cisseps fulvicollis (Hbn.)
162	A	S5	8294.00	Erebidae	Dasychira vagans (B.; McD.)
163	A	S5	8322.00	Erebidae	Idia americalis (Gn.)
164	C	S4	8323.00	Erebidae	Idia aemula (Gn.)
165	C	S4	8365.00	Erebidae	Phalaenostola hanhami (Sm.)
166	C	S4	8370.00	Erebidae	Bleptina caradrinalis Gn.
167	C	S4	8384.10	Erebidae	Renia flavipunctalis (Geyer)
168	C	S4	8397.00	Erebidae	Palthus angulalis (Hbn.)
169	C	S4	8461.00	Erebidae	Hypena humuli Harr.
170	C	S4	8697.00	Erebidae	Zale minerea (Gn.)
171	A	S5	8738.00	Erebidae	Caenurgina crassiuscula (Haw.)
172	C	S4	8803.00	Erebidae	Catocala relictata Wlk.
173	A	S5	8805.00	Erebidae	Catocala unijuga Wlk.
174	A	S5	8817.00	Erebidae	Catocala briseis Edw.
175	C	S4	8821.00	Erebidae	Catocala semirelictata Grt.
176	C	S4	8881.00	Noctuidae	Abrostola urentis Gn.
177	C	S4	8899.00	Noctuidae	Pseudeva purpurigera (Wlk.)
178	C	S5	8909.00	Noctuidae	Autographa rubidus (Wlk.)
179	C	S4	8923.00	Noctuidae	Autographa ampla (Wlk.)
180	A	S5	8924.00	Noctuidae	Anagrapha falcifera (Kby.)
181	C	S4	8950.00	Noctuidae	Plusia putnami Grt.
182	C	S4	8975.00	Nolidae	Nycteola frigidana (Wlk.)
183	C	S4	9048.00	Noctuidae	Protodeltote albidula (Gn.)
184	C	S4	9053.00	Noctuidae	Pseudeustrotia carneola (Gn.)
185	C	S4	9085.00	Noctuidae	Ponometia semiflava (Gn.)
186	U	S3	9089.00	Noctuidae	Ponometia binocula (Grt.)
187	C	S4	9193.00	Noctuidae	Raphia frater Grt.
188	C	S4	9203.00	Noctuidae	Acronicta dactylina Grt.
189	C	S4	9205.00	Noctuidae	Acronicta lepusculina Gn.
190	C	S4	9206.00	Noctuidae	Acronicta vulpina (Grt.)
191	C	S4	9207.00	Noctuidae	Acronicta innotata Gn.

#	Scarcity	S-Rank	MONA#	Family	Species
192	C	S5	9212.00	Noctuidae	Acronicta grisea Wlk.
193	U	S3S4	9224.00	Noctuidae	Acronicta quadrata Grt.
194	C	S4	9229.00	Noctuidae	Acronicta hasta Gn.
195	C	S4	9241.00	Noctuidae	Acronicta fragilis (Gn.)
196	C	S4	9257.00	Noctuidae	Acronicta impleta Wlk.
197	U	S3S4	9258.00	Noctuidae	Acronicta sperata Grt.
198	C	S4	9272.00	Noctuidae	Acronicta obliterata (J.E. Sm.)
199	R	S2	9281.00	Noctuidae	Acronicta fallax (Herrich-Schäffer)*
200	C	S4	9351.00	Noctuidae	Apamea alia (Gn.)
201	A	S5	9359.00	Noctuidae	Apamea commoda (Wlk.)
202	C	S4	9365.00	Noctuidae	Apamea scoparia Mik., Must. & Laf.
203	C	S4	9382.00	Noctuidae	Apamea devastator (Brace)
204	C	S4	9391.00	Noctuidae	Resapamea passer (Gn.)
205	C	S4	9396.00	Noctuidae	Eremobina claudens (Wlk.)
206	C	S4	9419.00	Noctuidae	Platypolia mactata (Gn.)
207	C	S4	9420.00	Noctuidae	Fishia illocata (Wlk.)
208	U	S3S4	9435.00	Noctuidae	Photodes inops (Grt.)
209	C	S4	9440.00	Noctuidae	Chortodes rufostrigata (Pack.)
210	C	S4	9450.00	Noctuidae	Capsula subflava (Grt.)
211	C	S4	9457.00	Noctuidae	Amphipoea americana (Speyer)
212	R	S2	9546.00	Noctuidae	Phlogophora iris Gn.*
213	A	S5	9549.00	Noctuidae	Enargia decolor (Wlk.)
214	A	S5	9550.00	Noctuidae	Enargia infumata (Grt.)
215	C	S4	9555.00	Noctuidae	Ipimorpha pleonectusa Grt.
216	C	S4	9556.00	Noctuidae	Chytonix palliatricula (Gn.)
217	C	S4	9579.00	Noctuidae	Hyppa contrasta McD.
218	C	S4	9647.00	Noctuidae	Proxenus miranda (Grt.)
219	A	S5	9656.00	Noctuidae	Caradrina montana (Bremer)
220	C	S4	9681.10	Noctuidae	Elaphria alapallida (Pogue & Sullivan)
221	U	S3S4	9785.00	Noctuidae	Stiria rugifrons Grt.
222	C	S4	9832.00	Noctuidae	Escaria homogena McD.
223	C	S4	9884.00	Noctuidae	Litholomia napaea (Morr.)
224	C	S4	9962.00	Noctuidae	Anathix puta Grote & Robinson
225	C	S4	9965.00	Noctuidae	Xanthia tatago Lafontaine and Mikkola
226	C	S4	9976.00	Noctuidae	Platypolia anceps (Steph.)
227	C	S4	9993.00	Noctuidae	Brachylomia populi (Stkr.)
228	C	S4	10062.00	Noctuidae	Sympistis stabilis Sm.
229	C	S4	10065.00	Noctuidae	Sympistis infixa (Wlk.)
230	C	S4	10065.90	Noctuidae	Sympistis dinalda (Sm.)
231	R	S2	10099.00	Noctuidae	Sympistis saundersiana (Grt.)



#	Scarcity	S-Rank	MONA#	Family	Species
232	R	S2	10108.00	Noctuidae	Sympistis viriditincta (Sm.)
233	U	S3S4	10123.00	Noctuidae	Sympistis piffardi (Wlk.)
234	C	S4	10124.00	Noctuidae	Sympistis cibalis (Grt.)
235	C	S4	10135.00	Noctuidae	Sympistis riparia Morr.
236	C	S3S4	10190.00	Noctuidae	Cucullia speyeri Lint.
237	C	S3S4	10205.00	Noctuidae	Cucullia luna Morr.
238	C	S4	10223.00	Noctuidae	Anarta trifolii (Hufn.)
239	C	S4	10232.00	Noctuidae	Anarta farnhami (Grt.)
240	C	S4	10265.00	Noctuidae	Sideridis rosea (Harv.)
241	C	S3S4	10268.00	Noctuidae	Sideridis maryx (Gn.)
242	A	S5	10271.00	Noctuidae	Mamestra configurata Wlk.
243	C	S4	10275.00	Noctuidae	Polia nimbosa (Gn.)
244	C	S4	10288.00	Noctuidae	Orthodes detracta (Wlk.)
245	C	S4	10289.00	Noctuidae	Orthodes goodelli (Grt.)
246	C	S4	10290.00	Noctuidae	Orthodes obscura (Sm.)
247	C	S4	10292.00	Noctuidae	Melanchra adjuncta (Bdv.)
248	C	S4	10294.00	Noctuidae	Melanchra pulverulenta (Sm.)
249	C	S4	10295.00	Noctuidae	Melanchra assimilis (Morr.)
250	C	S4	10296.00	Noctuidae	Lacanobia nevadae (Grt.)
251	C	S4	10297.00	Noctuidae	Lacanobia atlantica (Grt.)
252	C	S4	10298.00	Noctuidae	Lacanobia radix (Wlk.)
253	C	S4	10299.00	Noctuidae	Lacanobia subjuncta (Grt. & Rob.)
254	C	S4	10301.00	Noctuidae	Spiramater lutra (Gn.)
255	C	S4	10307.00	Noctuidae	Trichordestra lilacina (Harvey)
256	C	S4	10308.00	Noctuidae	Trichordestra liquida (Grt.)
257	C	S4	10322.00	Noctuidae	Hadena circumvadis (Sm.)
258	C	S4	10324.00	Noctuidae	Hada sutrina (Grt.)
259	C	S4	10370.00	Noctuidae	Lacinipolia lustralis (Grt.)
260	C	S4	10394.00	Noctuidae	Lacinipolia vicina (Grt.)
261	C	S4	10397.00	Noctuidae	Lacinipolia renigera (Stephens)
262	C	S4	10405.00	Noctuidae	Lacinipolia lorea (Gn.)
263	C	S4	10431.00	Noctuidae	Faronta diffusa (Wlk.)
264	A	S5	10433.00	Noctuidae	Feltia jaculifera (Gn.)
265	C	S4	10436.00	Noctuidae	Mythimna oxygala (Grt.)
266	A	S5	10438.00	Noctuidae	Mythimna unipuncta (Haw.)
267	C	S4	10446.00	Noctuidae	Leucania multilinea Wlk.
268	C	S4	10447.00	Noctuidae	Leucania commoides Gn.
269	C	S4	10449.00	Noctuidae	Leucania insueta Gn.
270	C	S4	10552.00	Noctuidae	Protorthodes incincta (Morr.)
271	C	S4	10563.00	Noctuidae	Protorthodes oviduca (Gn.)
272	C	S4	10641.00	Noctuidae	Agrotis vetusta Wlk.
273	C	S4	10645.00	Noctuidae	Agrotis orthogonia Morr.
274	C	S4	10651.00	Noctuidae	Agrotis venerabilis Wlk.

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275	C	S4	10660.00	Noctuidae	Agrotis obliqua (Sm.)
276	R	S1	10681.00	Noctuidae	Copablepharon grandis (Strecker)
277	C	S4	10701.10	Noctuidae	Euxoa adumbrata (Ev.)
278	C	S4	10702.00	Noctuidae	Euxoa divergens (Wlk.)
279	C	S4	10705.00	Noctuidae	Euxoa messoria (Harr.)
280	C	S4	10715.00	Noctuidae	Euxoa scandens (Riley)
281	C	S4	10723.00	Noctuidae	Euxoa tristicula (Morr.)
282	C	S4	10727.00	Noctuidae	Euxoa pleuritica (Grt.)
283	C	S4	10738.00	Noctuidae	Euxoa mimallonis (Grt.)
284	C	S4	10755.00	Noctuidae	Euxoa declarata (Wlk.)
285	C	S4	10763.00	Noctuidae	Euxoa spumata McDunnough
286	C	S4	10780.00	Noctuidae	Euxoa comosa ontario (Sm.)
287	C	S4	10798.00	Noctuidae	Euxoa basalis (Grt.)
288	A	S5	10801.00	Noctuidae	Euxoa ochrogaster (Gn.)
289	C	S4	10805.00	Noctuidae	Euxoa tessellata (Harr.)
290	C	S4	10807.00	Noctuidae	Euxoa albipennis (Gn.)
291	C	S4	10830.00	Noctuidae	Euxoa quadridentata (Grt. & Rob.)
292	C	S5	10838.00	Noctuidae	Euxoa detera (Wlk.)
293	C	S4	10854.00	Noctuidae	Euxoa servitus (Sm.)
294	C	S4	10855.00	Noctuidae	Euxoa munis (Grt.)
295	C	S4	10861.10	Noctuidae	Euxoa maimes Sm.
296	C	S4	10863.00	Noctuidae	Euxoa manitobana McD.
297	C	S4	10864.00	Noctuidae	Euxoa flavicollis Sm.
298	C	S4	10865.00	Noctuidae	Euxoa perpolita (Morr.)
299	C	S4	10910.00	Noctuidae	Anicla tepperi (Sm.)
300	C	S4	10923.00	Noctuidae	Actebia balanitis (Grt.)
301	C	S4	10926.00	Noctuidae	Spaelotis clandestina (Harr.)
302	C	S4	10928.00	Noctuidae	Graphiphora augur (F.)
303	A	S5	10929.00	Noctuidae	Eurois occulta (L.)
304	C	S4	10942.00	Noctuidae	Xestia c-nigrum (L.)
305	C	S4	10954.00	Noctuidae	Agnorisma bugrai (Kocak)
306	A	S5	10992.00	Noctuidae	Paradiarsia littoralis (Pack.)
307	C	S4	11041.00	Noctuidae	Abagrotis placida (Grt.)
308	C	S4	11064.00	Noctuidae	Pyrrhia exprimens (Wlk.)
309	C	S4	11077.00	Noctuidae	Heliothis onois (F.)