

**PRELIMINARY SURVEY OF THE INSECTS
OF THE PARK MESA,
MESA VERDE NATIONAL PARK, COLORADO**

1999

**Report to the Colorado Natural Areas Program
1313 Sherman Street, Suite 618
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by

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INTRODUCTION

Mesa Verde National Park is an impressive landscape in the semiarid country of southwestern Colorado. This landscape is composed of plateaus or mesas between the high San Juan massif to the northeast and the lower desert to the southwest. The topography dips gently over a 15-mile stretch from an elevation of 8,500 at the northern escarpment to about 6,500 feet at the southern end.

Ecologically, Mesa Verde is in the pinyon-juniper (*Pinus edulis* Engelm.)- (*Juniperus osteosperma* (Torr.) Little) climax region that forms the lower forest zone. Gambel oak (*Quercus gambelii* Nutt.) and Utah serviceberry (*Amelanchier utahensis* Koehne) are dominants in the shrub zones caused by recurrent fires, and big sagebrush (*Artemisia tridentata* Nutt.) is common in the sandy loam terraces along the canyon floors. Fire has had both a historical and recently significant impact on the vegetation, producing various mosaics of plant communities throughout the entire Park. Fire and insects are natural disturbance agents in many ecosystems, often interacting to affect succession, nutrient cycling, and species composition. Ecological effects of fire are highly variable, difficult to predict, and influenced by fire behavior, vegetation type, topography, climate, pre

and post-burn weather, human intervention, and other factors (Kozlowski and Ahlgren 1974, Pyne et al. (1996).

Many insects are potential indicator species. The response of these species may determine plant species composition, distribution and habitat complexity. Little information is available on the effects of fire on the abundance and diversity of insects after a burn, especially in the unique habitats of Mesa Verde National Park. Including Park Mesa This information is needed to formulate management strategies to sustain biodiversity and long-term productivity of these ecosystems.

The insects of Mesa Verde National Park area are a mixture of Rocky Mountain, Colorado Plateau and some Great Basin species. It has been estimated that a total of 14,000 to 26,000 insects alone occur within these ecoregions (Nelson 1994). Additionally, there have been numerous introductions of exotic species.

The objectives of this study were to 1) conduct an invertebrate inventory of the proposed Colorado Natural Area, Park Mesa; 2) discovery rare or threatened species of invertebrates of Park Mesa; and 3) provide a management plan for preserving these species of invertebrates.

There are certain advantages of effecting surveys at the Park Mesa Natural Area that cannot be accomplished in surrounding Mesa Verde National Park. Primarily, the Colorado Natural Areas Program will allow research methodology and access that Mesa Verde National Park may prohibit. Secondly, the location of the study area, of which the northern two-thirds was part of the 1996 burn, will provide a unique opportunity to examine recolonization by insects.

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METHODS AND MATERIALS

Two collecting expeditions were made in July and August 1999. Techniques used included standard aerial net capture, rearing, and ultraviolet lights (New 1998). All collected insects were labeled, curated, and identified where possible. All specimens are currently deposited at the C.P. Gillette Museum of Arthropod Diversity housed at Colorado State University.

RESULTS

Results indicated that most insects characteristic of the Park have quickly recolonized the Park Mesa area after the burn. A rich diversity of insects was found (see Appendix). The unnatural flow of water at the bottom of Soda Canyon has also allowed a diverse assemblage of aquatic insects to colonize this area (see Odonata, Dytiscidae, Hydrophilidae in the Appendix). Several significant records of insect species collected in the Park Mesa area include:

1. A new species of Pompilidae (spider wasps) of the genus *Dipogon* Fox. This group of about 22 species of spider wasps is most commonly found in wooded areas. Adult females use pre-existing cavities in wood as a nesting site. Errant spiders are used as prey. The specimen was collected by beating Gambel oak foliage along the rim of the canyon. This species is being described by Professor Howard E. Evans, Colorado State University, an international expert on these wasps.
2. A very rare species of cedar beetle, *Sandalus porosus* LeConte, previously known only from a few specimens from New Mexico and Texas. Larvae of this family are underground parasites of cicada nymphs, common insects of the

Park (especially *Platypedia putnami* Uhler (Putnam's Cicada and *Okanagana* spp.)). Adults were collected by beating foliage of Gambel oak or netting flying adults.

3. *Dicolonus pulchrum* Adisoemarto and Wood, a robberfly. This species was originally described from Lake Tahoe, California, and also known from Yosemite, California; a remarkable range extension. Specimens were collected by sweeping vegetation at the bottom of the canyon.
4. At least four undescribed species of moths (see Appendix). Dr. Paul A. Opler and colleagues will formally describe these in the near future.

Currently, over 950 species of insects and other arthropods are known from Mesa Verde National Park (Appendix). Approximately, 70% are known from the Park Mesa area.

In summary, the long history of fire and the resultant mosaic of vegetation in various successional stages throughout Mesa Verde National Park has allowed for a variable insect fauna. Continued collection in 2000 will allow discovery of additional taxa and provide one of the most comprehensive species list from any national park in the U.S.

LITERATURE CITED

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APPENDIX. Preliminary List of Arthropods Recorded from Mesa Verde National
Park, Colorado, including the Park Mesa area.

AN INVENTORY OF ARTHROPOD SPECIES RECORDED TO DATE FROM
MESA VERDE NATIONAL PARK, COLORADO

[revised January 2000]

ORDER

Family

Genus species

MICROCORYPHIA

Machilidae

(unidentified)

EPHEMEROPTERA (Mancos River)

Acentrella insignificans (McDunnough)

Baetis notos Allen and Murvosh

Baetis tricaudatus Dodds

Callibaetis ferrunginea hageni Eaton (Morefield Canyon)

Heptagenia solitaria (McDunnough)

Tricorythodes minutus Traver

ODONATA

Gomphidae

Ophiogomphus severus Hagen

Aeshnidae

Aeshna palmata Hagen

Anax junius (Drury)

Libellulidae

Sympetrum occidentale Bartenef

Sympetrum corruptum (Hagen)

Coenagrionidae

Enallagma boreale Selys

Enallagma cyathigerum (Charpentier)

Enallagma sp.

PHASMIDA

Heteronemiidae

Parabacillus coloradus (Scudder)

Pseudosermyle straminea (Scudder)

ORTHOPTERA

Acrididae

Amphitornus coloradus (Thomas)

Arphia conspersa Scudder

Arphia pseudonietana (Thomas)

Chorthippus curtipennis (Harris)

Cratypedes neglectus (Thomas)
Dissosteira carolina (Linnaeus)
Encoptolophus costalis Scudder
Hesperotettix viridis (Thomas)
Melanoplus bivittatus (Say)
Melanoplus sanguinipes (Fabricius)
Melanoplus sp.
Trimerotropis campestris McNeill
Trimerotropis cincta (Thomas)
Trimerotropis pallidipennis (Burmeister)
Trimerotropis sparsa (Thomas)
(unidentified)

Tettigoniidae

Anabrus simplex Haldeman
Capnobotes fuliginosus (Thomas)
Capnobotes occidentalis (Thomas)
Eremopedes balli Caudell
Scudderia furcata Brunner

Gryllacrididae

Ceuthophilus spp.
Stenopelmatus sp.

Gryllidae

Gryllus sp.
Oecanthus californicus Saussure
Oecanthus fultoni Walker

BLATTARIA

Polyphagidae

Arenivaga sp.

MANTODEA

Mantidae

Litaneutria minor (Scudder)
Yersiniops solitarium (Scudder)

DERMAPTERA

Forficulidae

Forficula auricularia Linnaeus

PLECOPTERA (Mancos River)

Perlodidae

Isoperla mormona Banks
Isoperla quinquepunctata Banks
Isogenoides zionensis Hanson

Perlidae

Claassenia sabulosa (Banks)

HEMIPTERA

Corixidae

Sigara alternata (Say)

Cenocorixa sp.

Notonectidae

Notonecta kirbyi Hungerford

Gerridae

Gerris remigis Say

Miridae

Coquillettia insignis Uhler

Deraeocoris nebulosus Uhler

Diaphnidia debilis Uhler

Hadronema militaris Uhler

Irbisia brachycera (Uhler)

Irbisia serrata Bliven

Litomiris debilis (Uhler)

Lopidea confraterna (Gibson)

Lygus atriflavus Knight

Lygus nigropallidus Knight

Polymerus rubrocuneatus Knight

Polymerus rubroornatus Knight

Stenodema pilosipes Kelton

Nabidae

Nabacula vanduzeei (Kirkaldy)

Nabis alternatus Parshley

Anthocoridae

Orius sp. ?

Cimicidae

Cimex lectularius Linnaeus

Reduviidae

Apiomerus spissipes Say

Arilus cristatus Linnaeus

Fitchia aptera Stål

Reduvius personatus (Linnaeus)

Triatoma protracta (Uhler)

Phymatidae

Phymata sp.

Lygaeidae

Geocoris sp.

Lygaeus reclinatus Say

Nysius sp.

Xyonysius cf. *californicus* Stål

Coreidae

Coriomeris humilis (Uhler)

Leptoglossus clypealis Heidemann

Leptoglossus occidentalis Heidemann

Alydidae

Alydus sp.

Rhopalidae

Boisea trivittatus (Say)

Harmostes sp.

Liorhyssus hyalinus (Fabricius)

Stictopleurus sp.

Cydnidae

Dallasiellus sp.

Thyreocoridae

Corimelaena sp.

Scutelleridae

Eurygaster alternata (Say)

Tetyra robusta Uhler

Pentatomidae

Banasa euchlora Stål

Banasa sordida Uhler

Brochymena affinis Van Duzee

Cholorochroa sayi Stål

Holcostethus abbreviatus Uhler

Thyanta custator (Fabricius)

(unidentified)

HOMOPTERA

Cicadidae

Neoplatypedia constricta Davis

Okanagana magnifica Davis

Okanagana schaefferi Davis

Okanagana utahensis Davis

Platypedia mohavensis Davis

Platypedia putnami Uhler

Tibicen duryi Davis

Membracidae

Campylenchia sp.

Ceresa sp.

Cyrtolobus limus Van Duzee

Cyrtolobus sp.

Aetalionidae

Microcentrus perdita (Amyot and Serville)

Cercopidae

Aphrophora irrorata Ball

Aphrophora sp.

Philaronia bilineata Say

Cicadellidae

Oncometopia sp.
(unidentified)

Dictyopharidae

Scolops uhleri Ball

Issidae

Picumna sp.

Adelgidae

Pineus coloradensis Gillette

Aphididae

Cinara spp.
(unidentified)

Diaspididae

Chionaspis pinifoliae Fitch

Margarodidae

Matsucoccus acalyptus Herbert
Matsucoccus eduli Morrison

NEUROPTERA

Raphidiidae

Raphidia sp.

Hemerobiidae

(unidentified)

Chrysopidae

(unidentified)

Myrmeleontidae

Brachynemurus peregrinus (Hagen)
Brachynemurus sackeni Hagen
Dendroleon obsoletum (Say)
Myrmeleon immaculata DeGeer
Psammoleon sinuatus Currie
Scotoleon carrizonus (Hagen)
Vella fallax texana (Banks)

COLEOPTERA

Cicindelidae

Amblycheila cylindriformis (Say)
Amblycheila picolominii Reiche
Cicindela decemnotata Say
Cicindela punctulata Oliver
Cicindela purpurea cimmarona LeConte
Cicindela repanda Dejean
Cicindela terricola Say
Cicindela tranquebarica Herbst

Carabidae

Anisodactylus sp.

- Calosoma morrisonii* Horn
- Pasimachus elongatus* LeConte
- Halipidae
- Halipus leechi* Wallis
- Halipus immaculicollis* Harris
- Dytiscidae
- Agabus binotatus* (Harris)
- Agabus griseipennis* LeConte
- Agabus lugens* LeConte
- Agabus obliterated obliterated* LeConte
- Agabus seriatus* LeConte
- Agabus tristis* Aube
- Cybister explanatus* LeConte
- Hydroporus despectus* Sharp
- Hydroporus nubilus* LeConte
- Hygrotus axillaris* LeConte
- Hygrotus dimidiatus* Gemminger and Harold
- Hygrotus impressopunctatus* (Schaller)
- Neoporus* sp.
- Sanfilippodytes* sp.
- Stictotarus striatellus* (LeConte)
- Silphidae
- Nicrophorus guttula* Motschulsky
- Nicrophorus mexicanus* Matthews
- Nicrophorus hybridus* Hatch and Angell
- Thanatophilus lapponicus* (Herbst)
- Staphylinidae
- Creophilus maxillosus* Linnaeus
- (unidentified)
- Hydrophilidae
- Anacaena* sp.
- Berosus stylifer* Horn
- Berosus* sp.
- Cymbiodyta* sp.
- Enochrus horni* Leech
- Tropisternus ellipticus* (LeConte)
- Lucanidae
- Pseudolucanus mazama* (LeConte)
- Scarabaeidae
- Aphodius coloradensis* Horn
- Aphodius fimetarius* (Linnaeus)
- Bolboceras falli* (Wallis)
- Dichelonyx valida* (LeConte)
- Diplotaxis belfragei* Fall
- Diplotaxis brevicollis* LeConte
- Diplotaxis conformis* Fall

Diplotaxis mentalis Fall
Diplotaxis obscura LeConte
Euphoria inda (Linnaeus)
Ochodaeus simplex LeConte
Phyllophaga disparilis (Horn)
Phyllophaga tristis (Fabricius)
Polyphylla arguta Casey
Polyphylla decimlineata (Say)
Serica alternata LeConte
Serica concinna Dawson
Trox aequalis Say
Trox sonorae LeConte
Xyloryctes jamaicensis (Drury)

Buprestidae

Acmaeodera diffusa Barr
Acmaeodera rubronotata Castelnau & Gory
Agrilus politus (Say)
Anthaxia (*Melanthaxia*) sp.
Buprestis subornata (LeConte)
Chrysobothris cuprascens LeConte
Chrysobothris dentipes (Germar)
Chrysobothris femorata (Olivier)
Chrysobothris ludificata Horn
Chrysobothris purpurata Bland
Chrysobothris texana LeConte
Chrysophana placida (LeConte)
Cypriacis aurulenta (Linnaeus)
Xenomelanophila miranda (LeConte)

Elateridae

Cardiophorus sp.
Ctenicera nebraskensis Bland
Ctenicera inflatus (Say)
Ctenicera pudicus (Brown)
Limonius aeger LeConte
Hemicrepidius carbonatus (LeConte)

Lycidae

Lygistopterus rubripennis LeConte

Anobiidae

(unidentified)

Cleridae

Cymatodera sp.
Enoclerus moestus Klug
Enoclerus spegeus (Fabricius)
Phyllobaenus sp.
Trichodes ornatus Say
(unidentified)

Melyridae

Amecocerus sp.

Collops bipunctatus Say

Collops sp.

Malachius sp.

Trichochrous sp.

Dermestidae

Dermestes marmoratus Say

(unidentified)

Nitidulidae

(unidentified)

Erotylidae

Cypherotylus californicus Lacordaire

Coccinellidae

Anatis lecontei Casey

Chilocorus stigma (Say)

Coccinella monticola Mulsant

Coccinella transversoguttata richardsoni Brown

Hippodamia apicalis Casey

Hippodamia convergens Guerin

Myzia interrupta (Casey)

Nephus guttulatus (LeConte)

Tenebrionidae

Asidopsis opaca (Say)

Coelocnemis punctata LeConte

Corticeus sp.

Eleodes carbonarium knausi Blaisdell

Eleodes extricatus (Say)

Eleodes hoppingi Blaisdell

Eleodes nigrina LeConte

Eleodes obscura Say

Eleodes obscurus dispersus LeConte

Eleodes obsoletus Say

Eleodes pimelioides Mannerheim

Eleodes omissas LeConte

Eleodes pimelioides Mannerheim

Eleodes suturalis (Say)

Embaphion contusum LeConte

Embaphion elongatum Horn

Eusattus reticulatus Say

Helops n.sp.??

Iphthiminus laevisissimus (Casey)

Merotemnus sp.

Neobaphion planipennis (LeConte)

Stenomorpha corrugans (Casey)

Stenomorpha sp.

Zopherus uteanus Casey
 Alleculidae
 (unidentified)
 Oedemeridae
Oxaxis bicolor LeConte
 Meloidae
Epicauta ferruginea (Say)
Epicauta pennsylvanica (DeGeer)
Epicauta sp.
Lytta fulvipennis LeConte
Lytta mutilata Horn
Tricrania stabsburyi Haldeman
 (unidentified)
 Cerambycidae
Aneflomorpha parowana Casey
Arhopalus asperatus (LeConte)
Arhopalus rusticus montanus (LeConte)
Callidium sp. ?
Cortodera longicornis (Kirby)
Cortodera militaris (LeConte)
Crossidius coralinus (LeConte)
Crossidius discoideum blandi Casey
Eucrossus villicornis LeConte
Gnathacmaeops pratensis (Laicharteg)
Haplidus testaceus LeConte
Judolia instabilis (Haldeman)
Malobidion brunneum Schaeffer
Megasemum asperum (LeConte)
Methia mormona Linell
Mecas bicallosa Martin
Monochamus clamator (LeConte)
Poecilobrium chalybeum (LeConte)
Prionus californicus Motschulsky
Prionus emarginatus Say
Rhagium inquisitor (Linnaeus)
Rhopalophora longipes (Say)
Rhopalophora meskei Casey
Semanotus juniperus Fisher
Semanotus ligneus (Fabricius)
Stricholeptura canadensis (Oliver)
Tragidion coquus (Linnaeus)
Tragosoma desparius Linnaeus
Tetropium parallelum Casey
 Chrysomelidae
Altica sp.
Babia quadriguttata (Olivier)

Lampridae?
Tortoise beetle

Chelymorpha cassidea (Fabricius)
Coscinoptera mucorea LeConte
Cryptocephalus pinicola Schaeffer
Cryptocephalus conflentus Say
Diachus auratus Fabricius
Disonycha latifrons Schaeffer
Galeruca externa Say
Jonthonota nigripes (Olivier)
Monoxia sp.
Saxinis saucia LeConte
Systema bitaeniata (LeConte)
Trirhabda lewisii Crotch
Xanthonia sp.
Zygogramma heterothecae Linell
Curculionidae
Cleonus sp.
Magdalis leconti Horn
Magdalis gentiles LeConte
Rhynchites bicolor (Fabricius)
(unidentified)
Rhipiceridae
Sandalus porosus LeConte
Scolytidae
Dendroctonus ponderosae Hopkins
Ips confuses LeConte
Ips pini Say
Pityogenes sp.
Pityophthorus sp.
(unidentified)

DIPTERA

Tipulidae
Tipula sp.
Culicidae
Culiseta incidens (Thomson)
Tabanidae
Hybomitra sp.
Silvius sp.
Tabanus punctifer Osten Sacken
Rhagionidae
Symphoromyia sp.
(unidentified)
Therevidae
Psilocephala sp.?
Thereva sp.

Mydidae

Mydas xanthopterus Loew

Asilidae

Choerades aimatis (McAtee)

Dicolonus pulchrum Adisoemarto and Wood

Efferia benedicti (Bromley)

Efferia costalis (Williston)

Efferia frewingi Wilcox

Efferia nr. *pilosa* (Hine)

Heteropogon maculinervis James

Holopogon martini Wilcox

Laphria engelhardti (Bromley)

Pogonosoma ridingsi Cresson

Machimus sp.?

Megaphorus frustra (Pritchard)

Scleropogon neglectus (Bromley)

Stenopogon inquinatus Loew

Bombyliidae

Bombylius sp.

Exoprosopa sp.

Geron sp.

Hemipenthes sp.

Lordotus sp.

Parabombylius sp.

Paravilla sp.

Poecilanthrax sp.

Toxophora sp.

Villa sp.

Empididae

Tachypeza sp.

Dolichopodidae

Dolichopus sp.

Syrphidae

Chrysotoxum integre Williston

Eristalis latifrons Loew

Eristalis tenax (Linnaeus)

Eupeodes volucris Osten Sacken

Ferdinandea sp.

Heringia salax (Loew)

Mesograpta marginata (Say)

Thecophora occidentalis (Walker)

Thecophora propinqua (Adams)

Volucella sp.

Conopidae

Myopa clausa Loew

Physocephala sp.

Thecophora sp.
Zodion fulvifrons Say
 Micropezidae
Micropeza lineata Van Duzee
 Pyrgotidae
Boreothrinax shewelli Steyskal
 Tephritidae
Trupanea nigricornis (Coquillett)
 (unidentified)
 Agromyzidae
 (unidentified)
 Lauxaniidae
 (unidentified)
 Chloropidae
 (unidentified)
 Scathophagidae
Cordilura (Pseudacicephala) sp.
 Anthomyiidae
 (unidentified)
 Muscidae
 (unidentified)
 Calliphoridae
Calliphora coloradensis Hough
Calliphora vomitoria (Linnaeus)
Calliphora sp.
Phormia regina (Meigen)
Protophormia terraenovae (Robineau-Desvoidy)
 Sarcophagidae
 (unidentified)
 Oestridae
Cuterebra lepusculi Townsend
 Tachinidae
Adejeania vexatrix (Osten Sacken)
Archytas sp.
Cylindromyia sp.
Deopalpus sp.
Gymnosoma sp.
Juriniopsis sp.
Paradejeania rutilioides (Jaennicke)
Peleteria sp.
Tachina sp.
 (unidentified)

Sarcophagidae
 prevalent.
 immediately
 following Chopin #5
 fine

LEPIDOPTERA

Stigmellidae

Stigmella spp.

Tischeriidae
Tischeria spp.
 Gracillariidae
Cameraria sp.
Phyllonoryctor sp.
 Acrolophidae
Acrolophus variabilis Walsingham
 Gelechiidae (unidentified)
 Scythridae (unidentified)
 Coleophoridae (unidentified)
 Plutellidae
Plutella xylostella (L.)
 Ypsolophidae
Ypsolopha dentiferella (Walsingham)
 Alucitidae
Alucita hexadactyla L.
 Oecophoridae (Ethmiidae)
Ethmia discostrigella Beutenmuller
Ethmia semitenebrella Dyer
 Incurvariidae
Tegeticula yuccasella (Riley)
 Sesiidae
Synanthedon sp. nr. *plygoni* (Edwards)
 Tortricidae
Acleris spp.
Ancylopera spp.
Anopina spp.
Archips cerasivorana (Fitch)
Argyrotaenia coloradana (Fernald)
Argyrotaenia cockerellana (Kearfott)
Clepsis virescana (Clemens)
Dorithia semicirculana (Fernald)
Epinotia spp.
Eucosma bobana Kearfott
Eucosma crambitana (Walsingham)
Eucosma spp.
Henricus sp.
Phaneta sp.
Platynota spp.
Rhyacionia sp.
Rhyacionia sp.
Sparganothis spp.
 Cossidae
Acossus undosus (Lintner).
 (unidentified)
 Sesiidae (unidentified)

Pyrilidae

Aglossa cuprina Zeller

Cosipara tricoloralis (Dyer)

Herculia spp.

Mecyna mustelinalis (Packard)

Pyrausta spp.

Pterophoridae (unidentified)

Blastobasidae (unidentified)

Phycitidae

Dioryctria auranticella (Grote)

Dioryctria spp.

Hesperidae

Erynnis afranius (Lintner)

Erynnis brizo (Boisduval and LeConte)

Erynnis pacuvius (Lintner)

Erynnis persius (Scudder)

Erynnis telemachus Burns

Hesperia colorado (Scudder)

Hesperia juba (Scudder)

Hesperia viridis (Edwards)

Megathymus yuccae (Boisduval & LeConte)

Poanes taxiles (Edwards)

Pyrgus communis (Grote)

Zestusa dorus (Edward)

Papilionidae

Papilio machaon L.

Papilio indra Reakirt

Papilio indra nr. *kaibabensis* (D. Bauer)

Papilio multicaudatus Kirby

Papilio polyxenes Fabricius

Papilio zelicaon Lucas

Pieridae

Anthocharis sara Lucas

Anthocharis thoosa (Scudder)

Artogeia rapae Linnaeus

Colias alexandra Edwards

Colias eurytheme Boisduval

Colias philodice Godart

Euhloe hyantis lotta Beutenmuller

Pontia beckerii (Edwards)

Pontia protodice (Boisduval & LeConte)

Pontia sisymbrii (Boisduval)

Lycaenidae

Atlides halesus (Cramer)

Brephidium exilis (Boisduval)

Mitoura gryneus Hubner

Celastrina argiolus L. (*ladon*)
Chalceria heteronea (Boisduval)
Euphilotes battoides Behr
Euphilotes spaldingi Barnes and McDunnough
Glaucopsyche lygdamus Doubleday
Glaucopsyche piasus Boisduval
Hemiargus isola Reakirt
Hypaurotis crysalus (Edwards)
Icaricia icarioides (Boisduval)
Lycaeides melissa (Edwards)
Lycaena arota (Boisduval)
Lycaena heteronea Boisduval
Lycaena nivalis Boisduval
Mitoura siva (Edwards)
Satyrrium behrii Edwards
Strymon melinus Hubner
Tharsalea arota (Boisduval)

Libytheidae

Libytheana carinenta Cramer

Nymphalidae

Basilarchia weidemeyerii (Edwards)
Charidryas nycteis (Doubleday)
Chlosyne gorgone Hubner
Chlosyne palla Boisduval
Euphydryas anicia (Doubleday)
Nymphalis antiopa (Linnaeus)
Occidryas anicia (Doubleday)
Phyciodes campestris Behr
Phyciodes batesi anasazi Scott
Phyciodes pallida barnesi Skinner
Phyciodes n.sp.
Polyadryas arachne (Edwards)
Speyeria callippe Boisduval
Speyeria edwardsii (Reakirt)
Thessalia fulvia (Edwards)
Vanessa annabella Field
Vanessa cardui (Linnaeus)

Satyridae

Cercyonis oetus (Boisduval)
Cercyonis pegala (Fabricius)
Cercyonis sthenele (Boisduval)
Coenonympha ochracea Edwards

Danaidae

Danaus plexippus (Linnaeus)

Thyatiridae

Ceranemota spp.

Geometridae

Anavitrinella pampinaria (Guenee)
Antepione indiscretata (Edwards)?
Archirhoe neomexicanaria (Hulst)
Caripeta aequaliaria Grote
Carphoides incopriaria (Hulst)
Chlorosea nevadaria Packard
Chlorosea roseitacta Prout
Coryphista meadii (Packard)
Destutia excelsa (Strecker)
Dichorda rectaria (Grote)
Drepanulatrix bifilata (Hulst)
Drepanulatrix carnearia (Hulst) ??
Eriplatymetra coloradaria (Grote & Robinson)
Erannis tiliaria (Harris)
Euchlaena mollisaria (Hulst)
Eumacaria latiferrugata (Walker)
Eupithecia spp.
Eusarca gemiculata (Hulst)
Gabriola minima (Hulst)
Glaucina ignavaria (Pearsall)
Glena nigricaria (Barnes and McDunnough)
Glena quinquelinearia (Packard)
Hesperumia sulphuraria Packard
Hydriomena barnesata Swett
Hydriomena spp.
Itame colata (Grote)
Itame plumosata Barnes and McDunnough
Itame n. sp.
Lambdina spp.
Marmopteryx animata (Packard)
Marmopteryx marmorata (Packard)
Mericisca gracea Hulst
Prionomelia spododaea (Hulst)
Nacophora mexicanaria (Grote)
Nemeris speciosa (Hulst)
Nemoria caerulescens Prout
Nemoria intensaria (Pearsall)
Nemoria obliqua (Hulst)
Orthonama contrastrigata (Wollaston)
Pero giganteus (Grossbeck)
Pero hubneraria (Guenee) ?
Pero occidentalis (Hulst)?
Plataea trilinearia (Packard) ?
Prochoerodes truxaliata (Guenee)
Scopula ancellata (Hulst)

- Scopula quinquelinearia* (Packard)
Semiothisa atrofasciata (Packard)
Semiothisa curvata (Grote)
Semiothisa delectata Hulst
Semiothisa excurvata (Packard)
Semiothisa pervolata (Hulst)
Semiothisa respersata (Hulst)
Sicya morsicaria (Hulst)
Somatolophia haydenata (Packard)
Stamnoctenis morrisata (Hulst)
Stamnodes formosata (Strecker)
Stamnodes morrisata (Hulst)
Stamnodes tessellata (Packard)
Stenoporpia separataria (Grote)
Tetracis cachexiata (Guenee)
Venusia duodecimlineata (Packard)
(unidentified Sterrhini)
- Lasiocampidae
- Gloveria arizonensis* Packard
Malacosoma californicum (Packard)
Malacosoma tigris (Dyar)
Tolyte velleda (Stoll)
Tolyte spp.
- Saturniidae
- Anisota oslari* Rothschild
Antheraea oculatea Neumoegen
Automeris io (Fabricius)
Coloradia doris Barnes
Coloradia pandora davis Barnes & Benjamin
Hemileuca eglanderina (Boisduval)
Hyalophora cecropia (Linnaeus)
Hyalophora columbia gloveri (Strecker)
- Sphingidae
- Hemaris diffinis* (Boisduval)
Hyles lineata (Fabricius)
Manduca quinquemaculata (Haworth)
Paonias excaecatus (Smith)
Sphinx chersis/asella complex
Sphinx dollii Neumoegen
Sphinx drupiferarum Smith
Sphinx vashti Strecker
- Notodontidae
- Datana neomexicana* Doll
Oligocentria coloradensis (Edwards)
Symmerista suavis (Barnes)
- Lymantriidae

Dasychira grisefacta (Dyar)

Dasychira mescalera Ferguson

Arctiidae

Apantesis nevadensis (Grote & Robinson)

Arachnis picta Packard

Arachnis verna Barnes and McDunnough

Arctia caja (L.)

Bertholdia trigona (Grote)

Cisthene barnesii (Dyar)

Crambidia cephalica (Grote and Robinson)

Crambidia impura Barnes and McDunnough

Ectypia clio (Packard)

Grammia nevadensis (Grote and Robinson)

Grammia williamsii (Dodge)

Grammia n. sp.

Hemihyalea edwardsii (Packard)

Hemihyalea labecula (Grote)

Holomelina costata (Stretch)

Holomelina fragilis (Strecker)

Hypercompe permaculata (Packard)

Hypoprepia cadaverosa Strecker

Hypoprepia inculta Edwards

Lophocampa argentata (Packard)

Lophocampa maculata Harris

Lycomorpha grotei (Packard)

Turuptiana permaculata (Packard)

Noctuidae

Abagrotis trigona (Smith)

Abagrotis spp.

Acronicta strigulata Smith

Agrotis ypsilon (Hufnagel)

Agrotis spp.

Asticta sp.?

Caenurgina spp.

Catocala aholibah Strecker

Catocala coccinata Grote

Catocala pura Hulst

Catocala verrilliana Grote

Catocala violenta Edwards

Copablepharon grandis (Strecker)

Copablepharon n. sp. #1

Copablepharon n. sp. #2

Drasteria adumbrata (Behr)

Drasteria inepta (Edwards)

Drasteria perplexa (Edwards)

Egira simplex (Walker)

Eurois praefixa (Morrison)
Euxoa auxiliaris (Grote)
Euxoa spp.
Fishia spp.
Idia spp.
Lacinipolia strigicollis (Wallengren)
Lacinipolia spp.
Lithophane spp.
Oligia tonsa (Grote)
Oligia sp.
Oncocnemis hayesi Grote
Oncocnemis levis Grote
Oncocnemis spp.
Papaipema spp.
Polia spp.
Pseudanarta singula Grote ??
Rhizagrotis cloanthoides (Grote)
Schinia villosa group
Schinia spp.
Spaelotis spp.
Stylopoda modestella (Barnes & McDunnough)
Synedoida adumbrata (Behr)
Synedoida inepta Edwards
Synedoida perplexa (Edwards)
Ulolonche disticha (Morrison)
Ulolonche fasciata Smith
Ulolonche marloffi (Barnes and McDunnough)
Xestia spp.
Zale spp.

HYMENOPTERA

Argidae

Arge sp.

Cimbicidae

Zaraea americana Cresson

Diprionidae

Neodiprion eduliculus Ross

Zadiprion rohweri Middleton

Tenthredinidae

Tenthredo sp.

unidentified Blennocampinae

unidentified Nematinae

Cephidae

Cephus cinctus Norton

Siricidae

Sirex areolatus (Cresson)

Urocerus gigas flavicornis Fabricius

Gasteruptionidae

Rhydinofoenus barnstoni (Westwood)

Rhydinofoenus occidentalis (Cresson)

Aulacidae

Aulacostethus rufitarsis (Cresson)

Braconidae

Aleiodes sp.

Aliolus sp.

Alysiata caltagironei Wharton

Atanycolus sp.

Bracon sp.

Chelonus spp.

Cremnops sp.

Cyanopterus sp.

Digonogastra sp.

Doryctes sp.

Microplitis sp.

Symphya sp.

Vipio sp.

Zele maximus Muesebeck

Ichneumonidae

Agrypon flaveolatum (Gravenhorst)

Alexeter spp.

Anomalon reticulatum (Cresson)

Apanistes sp.

Banchus sp.

Barylypa necator Dasch

Buathra laborator (Thunberg)

Cratichneumon spp.

Cryptus albitarsis (Cresson)

Cryptus persimilis Cresson

Diphyus spp.

Enicospilus merdarius (Gravenhorst)

Enicospilus sp.

Erigorgus sp.

Exephanes sp.

Exetastes albitarsis Provancher

Exetastes nervulus niger (Cresson)

Exetastes sp.

Exochus sp.

Glypta spp.

Iseropus coelebs (Walsh)

Lissonota sp.?
Melanichneumon sp.
Meringopus asymmetricus (Pratt)
Meringopus relativus (Cresson)
Meringopus symmetricus (Pratt)
Metopius robustus mirandus Cresson
Nitelia sp.
Ophion bilineatus Say
Ophion sp.
Phaeogenes sp.
Pterocormus longulus (Cresson)
Pterocormus spp.
Scambus pterophori (Ashmead)
Spilichneumon inconstans (Cresson)
Spilichneumon nubivagus (Cresson)
Spilichneumon sp.
Therion circumflexum (Linnaeus)
Therion lungipes (Provancher)
Trychosis reflexa Townes
 unidentified Campopleginae
 unidentified Cryptinae (incl. Hemitelini)

Pteromalidae

Pteromalus sp.

Eurytomidae

Eurytoma sp.

Chalcididae

Chalcis sp.

Spilochalcis subobsoleta (Cresson)

Cynipidae

(unidentified)

Chrysididae

Ceratochrysis sp.

Chrysis coerulans Fabricius

Chrysis sp.

Chrysurissa densa (Cresson)

Hedychrum confusum Buysson

Hedychrum nigropilosum Mocsary

Bethylidae

Epyris rufipes (Say)

Epyris sp.

Sphecidae

Ammophila acuta (Fernald)

Ammophila azteca Cameron

Ammophila cleopatra Menke

Ammophila dysmica Menke

Ammophila ferruginosa Cresson

Ammophila juncea Cresson
Ammophila kennedyi (Murray)
Ammophila procera Dahlbom
Ammophila pruinosa Cresson
Ammophila strenua Cresson
Astata nubecula Cresson
Astata occidentalis Cresson
Bembix americana spinolae Lepeltier
Bicyrtes ventralis (Say)
Cerceris bicornuta fidelis Viereck and Cockerell
Cerceris nigrescens Smith
Cerceris vicina Cresson
Cerceris sp.
Crabro latipes Smith
Didineis nodosa Fox
Ectemnius arcuatus (Say)
Ectemnius dilectus (Cresson)
Ectemnius odyneroides (Cresson)
Ectemnius sonorensis (Cameron)
Eucerceris cressoni Schletterer
Eucerceris flavocinctus Cresson
Glenostictia pictifrons (Smith)
Isodontia elegans (Smith)
Passaloecus sp.
Philanthus barbatus Smith
Pisonopsis triangularis Ashmead
Podalonia argentifrons (Cresson)
Podalonia clypeata Murray
Podalonia communis (Cresson)
Podalonia luctuosa (Smith)
Podalonia mexicana (Saussure)
Podalonia robusta (Cresson)
Psenulus frontalis (Fox)
Pseudoplisus phaleratus (Say)
Pseudoplisus venustus (Cresson)
Sphex ichneumoneus Linnaeus
Sphex pensylvanicus Linnaeus
Stictiella emarginata (Cresson)
Tachysphex similis Rohwer
Tachysphix tarsatus (Say)
Tachysphex sp.
Colletidae
Colletes spp.
Hylaeus spp.
Halictidae

Agapostemon angelicus Cockerell
Agapostemon texanus Cresson
Agapostemon sp.
Augochlora pura (Say)
Dialictus sp.
Evyllaesus sp.
Halictus confusus Smith
Halictus farenosus Smith
Halictus ligatus Say
Halictus sp.
Lasioglossum trizonatum Cresson
Lasioglossum spp.
Sphecodes pecosensis pecosensis Cockerell
Sphecodes spp.

Andrenidae

Andrena cerasifolii Cockerell
Andrena lupinorum lupinorum Cockerell
Andrena prunorum Cockerell
Andrena vicina Smith
Andrena spp.
Calliopsis sp.
Pseudopanurgus sp.

Megachilidae

Anthidium emarginatum (Say)
Anthidium spp.
Coelioxys sp.
Dianthidium sp.
Heriades sp.
Heteranthidium occidentale Cresson
Lithurge apicalis Cresson
Megachile agustini Cockerell
Megachile latimanus Say
Megachile montivaga Cresson
Megachile spp.
Osmia brevis brevis Cresson
Osmia gaudiosa Cockerell
Osmia integra Cresson
Osmia montana montana Cresson
Osmia nifoata Cockerell
Osmia spp.
Paranthidium jugatorium (Say)

Anthophoridae

Anthophora bomboides neomexicana Cockerell
Anthophora curta melanops Cockerell
Anthophora furcata terminalis Cresson
Anthophora montana Cresson

Anthophora porterae Cockerell
Anthophora urbana urbana Cresson
Anthophora ursina simillima Cresson
Anthophora sp.
Ceratina neomexicana Cockerell
Ceratina sp.
Diadasia sp.
Melecta pacifica fulvida Cresson
Melissodes agilis Cresson
Melissodes spp.
Nomada craford Cockerell
Nomada luteola Olivier
Nomada pecosensis Cockerell
Nomada spp.
Triepeolus spp.
Xeromelecta californica (Cresson)
Xenoglossodes excurrens Cockerell

Apidae

Apis mellifera Linnaeus
Bombus appositus Cresson
Bombus bifarius Cresson
Bombus centralis Cresson
Bombus fervidus (Fabricius)
Bombus huntii Greene
Bombus morrisoni Cresson
Bombus nevadensis nevadensis Cresson
Bombus occidentalis Greene
Bombus terricola occidentalis Greene
Bombus spp.
Psithyrus insularis (Smith)

Tiphiidae

Brachycistis glabrella (Cresson)

Sapygidae

Sapyga sp.

Mutillidae

Chyphotes albipes (Cresson)
Chyphotes attenuatus (Blake)
Dasymutilla chiron ursula Cresson
Dasymutilla gloriosa (Saussure)
Dasymutilla klugi Gray
Dasymutilla vestita Lepeletier
Photopsis sp.
Pseudomethoca scaevolella Cockerell
Timulla suspensa sonora Mickel

Pompilidae

Ageniella arcuata (Banks)

Ageniella mintaka Brimley
Agenioideus humilis Cresson
Anoplius dreisbachi Evans
Anoplius marginatus (Say)
Anoplius nigrinus (Dahlbom)
Anoplius relativus Fox
Anoplius tenebrosus (Cresson)
Aporinellus yucatanensis (Cameron)
Arachnospila arcta (Cresson)
Arachnospila scelestus (Cresson)
Arachnospila parvula (Banks)
Chirodamus pyrrhomelas Walker
Cryptocheilus terminatus terminatus (Say)
Dipogon anasazi Evans (n.sp.)
Entypus unifasciatus cressoni (Banks)
Episyrus quinquenotatus (Say)
Hemipepsis ustulata ustulata Dahlbom
Pompilus arctus Cresson
Priocnemis oregona Banks
Psorthaspis nigriceps Banks

Scoliidae

Trielis octomaculata texensis Saussure

Vespidae

Ancistrocerus catskill (Saussure)
Ancistrocerus adiabatus (Saussure)
Ancistrocerus waldenii (Viereck)
Dolichovespula arenaria Fabricius
Euodynerus annulatus (Say)
Euodynerus foraminatus (Saussure)
Euodynerus spp.
Eumenes crucifera Provancher
Eumenes crucifera nearcticus Bequaert
Mischocyttarus flavitarsis Saussure
Mischocyttarus flavitarsis centralis Bequaert
Polistes fuscatus aurifer Saussure
Pseudepipona herrichii (Saussure)
Pseudomasaris vespoides (Cresson)
Pterocheilus morrisoni Cresson
Stenodynerus spp.
Symmorphus albomarginatus (Saussure)
Vespula atropilosa Sladen
Vespula consobrina (Saussure)
Vespula pensylvanica Saussure

Formicidae

Acanthomyops latipes (Walsh)
Camponotus laevigatus (Smith)

Camponotus noveboracensis (Fitch)

Camponotus sp.

Crematogaster lineolata Say

Formica obscuripes Forel

Formica spp.

Lasius sp.

Myrmecocystus mexicanus Wesmael

Myrmica sp.

Pheidole sp.

Pogonomyrmex occidentalis (Cresson)

Solenopsis sp.

Tapinoma sessile (Say)

(unidentified)

CRUSTACEA

ISOPODA

(unidentified)

CHILOPODA

SCUTIGEROMORPHA

Scutigeridae

Scutigera coleoptrata (Linnaeus)

ARACHNIDA

ACARI

(unidentified)

SCORPIONIDA

(unidentified)

SULFUGAE

(unidentified)

ARACHNIDA

Theraphosidae

Rhechostica sp.

Theriidae

Latrodectus mactans (Fabricius)

Lycosidae

(unidentified)

(unidentified)