

AN ABSTRACT OF THE THESIS OF

Dana N. R. Ross for the degree of Master of Science in Entomology presented on October 31, 2003.

Butterflies of the H. J. Andrews Experimental Forest: Biological Inventory and Ecological Analysis

Abstract approved:

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Jeffrey ~~Q~~ Miller

A biological inventory of the butterflies of the H. J. Andrews Experimental Forest [HJA] in Linn/Lane County, Oregon was conducted during 1994 and 1995. It was the first comprehensive survey of HJA butterflies for the site and serves as a baseline for future butterfly research. A detailed ecological account is provided for each species documented during this and previous studies from the HJA. Patterns of butterfly richness and abundance are addressed both temporally and spatially. Within-year and between year differences in butterfly richness and abundance are explained. Butterfly richness and abundance were compared between forest, clear-cut, and meadow habitats, as well as along the roads within these habitats. Butterfly richness and abundance comparisons were also made between local butterfly hotspots and immediately adjacent areas. Lastly, the HJA butterfly fauna was compared to those of five other Oregon sites to put it into a regional perspective.

Seventy-two species were recorded during this two year period and increased the total documented butterfly fauna of the HJA to seventy-nine species. Butterfly species richness was high from June through early August. Butterfly abundance increased gradually over the season and peaked in early August.

Each butterfly species displayed one of four patterns of combined relative abundance and distribution: common and widespread, rare and local, common only at low elevations or common only at high elevations. The results of standardized butterfly counts suggested that subalpine meadows were much higher than clear-cuts or forests in butterfly richness and abundance, and that roads served to increase

butterfly richness and abundance on a local scale in most cases. Butterfly hotspots on the HJA appear as relatively small areas of high butterfly richness and abundance and have a correspondingly high number of plant species when compared to adjacent areas.

With virtually one-half of all butterfly species known for the state of Oregon, the HJA ranks among the most species-rich locations for its size within the state. This diversity originates from several biogeographical regions of origin, as defined within this study. A total of 31 HJA species have a generalized Western North American distribution, but several other biogeographical regions are also well represented. Some butterfly species appear to be at or near their geographical limits on the HJA. The assemblage of HJA butterfly species is virtually inclusive of those from Mary's Peak and McDonald Forest in northwestern Oregon, whereas it differs by 30% or more from the more biogeographically distinct faunas of Crater Lake National Park, Mount Ashland and Steens Mountain.

Future butterfly work on the HJA is recommended. Oregon butterfly distribution maps suggest that several additional butterfly species should be found there. More biogeographical analyses combined with long term monitoring of HJA butterflies could help to both predict and document changes in the Pacific Northwest butterfly fauna due to human disturbance and global climate change.

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Butterflies of the H. J. Andrews Experimental Forest:  
Biological Inventory and Ecological Analysis

by  
Dana N. R. Ross

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Dana N. R. Ross, Author

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## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
WHY STUDY BUTTERFLIES?.....	1
Ecological Attributes.....	1
Butterflies as Research Organisms.....	5
THE STUDY SITE.....	6
STUDY OBJECTIVES.....	8
METHODS AND MATERIALS.....	10
FOREST-WIDE SURVEYS.....	10
SPECIES ACCOUNTS.....	11
COMMUNITY PATTERNS OF RICHNESS AND ABUNDANCE.....	14
The Temporal Component.....	14
Patterns of Distribution on the HJA Landscape.....	14
Local differences in Richness and Abundance.....	15
Habitat Comparisons.....	15
Butterfly Hotspots.....	16
COMPARISONS TO OTHER OREGON SITES.....	17
RESULTS.....	19
THE HJA BUTTERFLY FAUNA.....	19
Summary of Survey Results.....	19
Ecological Species Accounts.....	20
<i>Epargyreus clarus californicus</i> .....	20
<i>Erynnis icelus</i> .....	21
<i>Erynnis propertius</i> .....	22
<i>Erynnis persius</i> .....	24
<i>Pyrgus ruralis ruralis</i> .....	25
<i>Pyrgus communis communis</i> .....	28
<i>Carterocephalus palaemon skada</i> .....	29
<i>Hesperia juba</i> .....	30
<i>Hesperia colorado oregonia</i> .....	31

TABLE OF CONTENTS (CONTINUED)

	<u>Page</u>
<i>Ochlodes sylvanoides sylvanoides</i> .....	33
<i>Euphyes vestris vestris</i> .....	39
<i>Ambliscirtes vialis</i> .....	39
<i>Parnassius clodius claudianus</i> .....	40
<i>Papilio zelicaon zelicaon</i> .....	47
<i>Papilio rutulus rutulus</i> .....	48
<i>Papilio multicaudatus pusillus</i> .....	50
<i>Papilio eurymedon</i> .....	51
<i>Neophasia maenapia tau</i> .....	53
<i>Pontia occidentalis occidentalis</i> .....	61
<i>Pieris marginalis marginalis</i> .....	61
<i>Pieris rapae rapae</i> .....	64
<i>Anthocharis sara flora</i> .....	65
<i>Colias eurytheme eurytheme</i> .....	67
<i>Colias alexandra edwardsii</i> .....	70
<i>Colias occidentalis occidentalis</i> .....	71
<i>Lycaena heteronea klotsi</i> .....	72
<i>Lycaena helloides helloides</i> .....	73
<i>Lycaena nivalis bichroma</i> .....	74
<i>Lycaena mariposa mariposa</i> .....	76
<i>Habrodais grunus herri</i> .....	78
<i>Satyrium sylvinum nootka</i> .....	80
<i>Satyrium saepium saepium</i> .....	82
<i>Callophrys dumetorum</i> .....	84
<i>Callophrys perplexa perplexa</i> .....	85
<i>Loranthomitoura johnsoni</i> .....	86
<i>Mitoura grynea plicataria</i> .....	87
<i>Incisalia augustinus iroides</i> .....	88
<i>Incisalia mossii mossii</i> .....	90
<i>Strymon melinus atrofasciatus</i> .....	91
<i>Everes comyntas comyntas</i> .....	92
<i>Everes amyntula amyntula</i> .....	94
<i>Celastrina echo echo</i> .....	95
<i>Euphilotes ancilla columbiae</i> .....	98
<i>Glaucopsyche lygdamus columbia</i> .....	99
<i>Lycaeides anna ricei</i> .....	101
<i>Plebejus saepiolus rufescens</i> .....	103
<i>Icaricia icarioides montis</i> .....	104
<i>Icaricia acmon acmon/lutzi</i> .....	106
<i>Polygonia satyrus</i> .....	109
<i>Polygonia faunus rusticus</i> .....	110
<i>Polygonia zephyrus</i> .....	112



TABLE OF CONTENTS (CONTINUED)

	<u>Page</u>
<i>Polygonia oreas silenus</i> .....	113
<i>Nymphalis californica</i> .....	114
<i>Nymphalis antiopa</i> .....	117
<i>Nymphalis milberti subpallida</i> .....	119
<i>Vanessa virginiensis</i> .....	119
<i>Vanessa cardui</i> .....	120
<i>Vanessa annabella</i> .....	123
<i>Vanessa atalanta rubria</i> .....	124
<i>Speyeria cybele pugetensis</i> .....	125
<i>Speyeria coronis</i> .....	126
<i>Speyeria callippe elaine</i> .....	127
<i>Speyeria atlantis dodgei</i> .....	128
<i>Speyeria hydaspe rhodope</i> .....	129
<i>Boloria epithore chermocki</i> .....	133
<i>Phyciodes pulchellus</i> .....	139
<i>Phyciodes mylitta mylitta</i> .....	140
<i>Chlosyne palla palla</i> .....	143
<i>Chlosyne hoffmanni segregata</i> .....	144
<i>Euphydryas chalcedona colon</i> .....	145
<i>Euphydryas editha colonia</i> .....	150
<i>Limenitis lorquini itelkae</i> .....	151
<i>Adelpha bredowii californica</i> .....	156
<i>Coenonympha californica eunomia</i> .....	158
<i>Cercyonis pegala incana</i> .....	159
<i>Cercyonis sthenele silvestris</i> .....	160
<i>Cercyonis oetus oetus</i> .....	162
<i>Oeneis nevadensis nevadensis</i> .....	163
<i>Danaus plexippus plexippus</i> .....	164
Potential additions to the HJA butterfly fauna.....	165
COMMUNITY ASPECTS.....	167
General Observations.....	167
The Temporal Component.....	175
Patterns of Distribution.....	179
Patterns of Relative Abundance and Distribution.....	181
HABITAT COMPARISONS.....	181
Forests, Clear-cuts and Meadows.....	181
The Influence of Roads.....	182
BUTTERFLY HOTSPOTS.....	183

TABLE OF CONTENTS (CONTINUED)

	<u>Page</u>
COMPARISONS TO OTHER OREGON LOCATIONS.....	185
CONCLUSIONS.....	186
LITERATURE CITED.....	190
APPENDICES.....	196
Appendix A. Checklist of the butterflies of the H. J. Andrews Experimental Forest. Not observed (*), new for the HJA (#).....	197
Appendix B. Distribution maps .....	202
Appendix C. Flight period phenograms.....	213
Appendix D. HJA butterfly species by potential larval hostplant. This butterfly's larval hostplant has not been documented on the HJA (*).....	223

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Map of the HJA forest and its location in Oregon.....	7
2. Butterfly wing areas and vocabulary used in species descriptions.....	12
3. Map of Oregon showing the location of sites used in regional faunal comparisons of butterflies.....	18
4. Distribution of butterfly relative abundance categories.....	171
5. Biogeographical composition of the HJA butterfly fauna (region, number of species, percent of total fauna). WNA- Western North America, B-M- Boreale-Montane, CAL- California, GB- Great basin, GPNW- Greater Pacific Northwest, NP-North Pacific, PC- Pacific Coast....	174
6. HJA butterfly species richness by 15-day period: a) 1994, b) 1995, c) 1994 and 1995 combined.....	177
7. HJA butterfly record totals by 15-day period: a) 1994, b) 1995, c) 1994 and 1995 combined.....	178
8. Butterfly species totals for the HJA, Linn-Lane County, Oregon, from 1994-1995 surveys. Sections (bold), hotspot HI-LO quarter-section pairs (ovals).....	180
9. Location of sites used in habitat comparisons on the HJA, Linn-Lane County, Oregon, 1998. C- clear-cut, F- forest, M- meadow.....	182

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Families of HJA butterflies with genera and species totals.....	20
2. Rank of abundance and relative abundance of HJA butterflies. Not recorded during this study (*).....	169
3. HJA Butterflies by Biogeographical Region of Origin. Total number for each region is in parentheses.....	172
4. Outcome of Chi-square tests for habitat comparisons of pooled richness and pooled abundance. Yes- indicates a difference, No- indicates no-difference.	180
5. Results from the Chi-square statistical test for pooled richness of butterfly species between forest, clear-cut and meadow habitats on the HJA, Linn- Lane Counties, Oregon, 1998.....	183
6. Outcome from the Chi-square statistical test for pooled abundance of butterflies between forest, clear-cut and meadow habitats on the HJA, Linn-Lane Counties, Oregon, 1998.....	183
7. Results from the Chi-square statistical test for pooled richness between HI and LO quarter-sections in hotspot evaluations.....	184
8. Results from the Chi-square statistical test for pooled abundance between HI and LO quarter-sections in hotspot evaluations.....	185
9. Taxonomic comparison of the HJA butterfly fauna to five other Oregon localities.....	185

**Butterflies of the H. J. Andrews Experimental Forest:  
Biological Inventory and Ecological Analysis**

**INTRODUCTION**

**WHY STUDY BUTTERFLIES?**

**Ecological Attributes**

Butterflies are an abundant and conspicuous component of virtually every terrestrial ecosystem (Dennis 1993, Scott 1986). They are a diverse group (Heppner 1991, Scoble 1995) of day-flying insects that perform vital ecological roles as herbivores and pollinators, and as food for a variety of animals (DeVries 1987). They link the available energy in plants, the primary producers, to animals that are first order consumers, that is, carnivores. Butterflies are highly mobile insects that typically have one or more generations each year. They are, therefore, quick to reflect changes in the biological and physical factors that affect them. Each species has a unique set of resource requirements, and their distribution, both locally and regionally, reflects those specific needs.

Butterflies belong to the order Lepidoptera, which also includes moths. Approximately 15,000 of the world's 120,000 named species of Lepidoptera are butterflies (Scott 1986). While the tropics host the greatest number of species, North America is home to over 700 of these (Heppner 1991). Nearly 200 species of butterflies have been documented from the Pacific Northwest (Guppy & Shepard 2001, Pyle 2002) and 162 have been recorded for Oregon (Pyle 2002). The winged adult is the most familiar form of these insects, yet the caterpillar, the larval stage of Lepidoptera, is often longer-lived than the adult and may have a more measurable impact on its immediate environment as a voracious herbivore. Regardless, the butterfly represents the successful survival of a caterpillar to maturity. Fluctuations in adult abundance will generally parallel that of larval success, barring catastrophic loss

of larvae due to other biological or physical factors. Since caterpillar richness and abundance are generally more difficult to document than for the adult, this study focused on the presence, relative abundance, distribution and behavior of the adult stage of these insects.

Butterflies are easy to observe in the field. All butterflies are visible to the naked eye and many are brightly colored. Most Pacific Northwest species have a wingspan of at least two to five cm, and the largest species may have a wingspan of 13 cm. The vast majority of the region's species are brightly colored, with wing patterns that incorporate large amounts of orange, yellow, blue or white. The females of some species, and groups such as Duskywing Skippers (genus *Erynnis*) and Wood Nymphs (genus *Cercyonis*), are relatively drab in color, yet their flight is typically bouncy and eye-catching (Pyle 2002).

Butterflies are typically found in open, sunny places. Temperate species of butterflies generally become active when ambient temperatures reach approximately 55° F. In most cases, this must be accompanied by sunlight, as temperature alone is usually insufficient for adult flight. Butterfly activity then continues until temperature or solar radiation drops to suboptimum levels. With few exceptions, mid-day best provides these conditions for flight and is the time of greatest butterfly activity (Tilden & Smith 1986). Butterfly research is usually best performed during this time period—between about 9am and 4pm. These general rules do not always apply to some spring, fall and high elevation species that are adapted to cooler or more inclement conditions.

Most butterfly species can be observed while feeding at flowers, patrolling corridors, searching for larval hostplants or defending small territories. Males of many species congregate in large numbers at moist, sodium-rich soil (Arms et al. 1974). Nymphalid butterflies of the genera *Polygonia*, *Nymphalis*, *Vanessa* and *Limenitis* (tribe Nymphalini) will gather to feed at rotting fruit and animal feces. Few species have habits that make them difficult to observe or to document.

Caterpillars are the primary feeding stage of butterflies and are major herbivores of vascular plants. All energy for growth is consumed in the larval stage, while adults sip fluids for energy maintenance and moisture (Scott 1986). The larval

host range of a given butterfly species may be broad, narrow, or somewhere in-between. That is, a caterpillar may have the physiological capacity to utilize many plant species or to feed upon only those of a single genus or species. The hairstreak butterfly *Strymon melinus* (Lycaenidae) has been documented feeding on more than 50 plant species from more than 20 plant families (Scott 1986). In contrast, all members of the genus *Speyeria* (Nymphalidae) feed exclusively on violets (Violaceae) (Pyle 1981). Given these butterfly-hostplant relationships, hostplant distribution is one of the best indicators of where a butterfly species may be found in the large sense.

On a smaller scale, a given butterfly may or may not be found in the vicinity of its larval hostplant. Other factors are also important and flight enables butterflies to utilize a larger geographic area in the pursuit of nutrients, mates, and other adult requirements. At one extreme, the small blue butterflies of the genus *Euphilotes* have become so specialized that they can procure virtually all of their necessary resources (save perhaps water and salts) from the larval hostplant, buckwheat (*Eriogonum*: Polygonaceae), and will rarely be found far from it (Howe 1975). In contrast, anise swallowtails (*Papilio zelicaon*: Papilionidae) may be found in flight around a mountain summit or taking nutrients from moist soil far from where they eclosed (Scott 1968).

Nectar-feeding butterflies pollinate a wide variety of flowering plants and most individual butterflies will visit many flower species. Large butterflies such as swallowtails (Papilionidae) and fritillaries (Nymphalidae) generally prefer tall flowers like thistles, whereas small, low flying butterflies, like blues (Lycaenidae), usually visit small flowers that are low to the ground (Scott 1986). Some butterflies are important pollinators of their larval hostplants, including monarchs (Nymphalidae) for milkweed (*Asclepias*: Asclepiaceae) and *Euphilotes* blues (Lycaenidae) for *Eriogonum*.

Butterflies are food for a variety of organisms and every life stage of a butterfly is vulnerable to pathogens, parasitoids and predators. Viruses can cause high rates of larval mortality, especially for gregarious species. Parasitoids include many wasps and flies that require butterfly eggs, larvae or pupae as their hosts. Butterfly

predators include both vertebrates, like birds, lizards and mammals, and invertebrates, such as spiders, ants, wasps and flies (DeVries 1987).

Butterflies respond quickly to changes in their environment. Most butterfly populations exhibit one or more broods per year. The abundance of each successive generation is a reflection of the environmental conditions experienced by the previous one. In poor years, when adult or larval resources are scarce, numbers of individuals and the amount of suitable habitat may decrease. When conditions are once again favorable, populations can quickly increase and proliferate. These are the times of recolonization, range expansion and, for certain species, population outbreaks.

The accurate identification of organisms is the first crucial step in any faunal inventory. Fortunately, butterflies have long been popular with both amateur and professional lepidopterists. This popularity has led to a wealth of publications in the form of both lay-accessible field guides and peer-reviewed, scientific studies. There are currently a variety of books available for the identification of North American butterflies (Howe 1975, Pyle 1981, Scott 1986). The earliest authors to publish books targeting Pacific Northwest species were Pyle (1974) and Neill and Hepburn (1976). Dornfeld (1980) produced a treatise entitled *The Butterflies of Oregon* which was the primary reference book of Oregon Lepidopterists for many years. Hinchliff (1994, 1996) produced two works on the distribution of Oregon and Washington butterflies. The past several years have seen the culmination of decades of butterfly work in the form of three valuable taxonomic and regional guides. Emmel (1998) edited a compendium of recent systematic research on western North American butterflies, including Oregon species. Guppy and Shepard (2001) covered the butterflies of British Columbia, a fauna that includes many Oregon species as well. The distribution maps in this latter volume include all of the Pacific Northwest south to central Oregon. Most recently, Pyle produced a comprehensive field guide, *The Butterflies of Cascadia* (2002), for the region that he roughly defines as the states of Oregon and Washington.



## **Butterflies as Research Organisms**

The role of butterflies in science has become more diverse in recent decades. Butterflies have historically been research organisms for genetic and evolutionary studies (Gilbert & Singer 1975, Turner 1977). Today, their value as indicators of environmental quality (Erhardt 1985, Nelson & Anderson 1994) and climate change (Dennis 1993, Parmesan et al. 1999), and as species of conservation concern (Britten et al. 1994, Collins & Morris 1985, New 1991) is well established. Baseline inventories of butterfly populations and communities are the foundation for these comparative studies. They provide the standard or control for comparison.

Butterfly richness and abundance reflects habitat quality. Ecological evaluations using butterfly counts formally commenced with Pollard et al. (1975) in England. In the nearly thirty years since then, this transect method for standardized butterfly counts has been used, or modified for use (Pollard 1977, Pollard & Yates 1993), in numerous studies (Royer et al. 1998). Many places throughout the world are now monitored for fluctuations in butterfly richness and abundance on an annual basis, with the greatest efforts concentrated in Britain (Corke & Harding 1990, Pollard & Yates 1993) and the United States (Swengel 1990).

Climate change due to global warming is a present-day concern. Dennis published *Butterflies and Climate Change* (1993) at a time when the value of butterflies as indicators of this phenomenon was just being realized. Since that time, butterflies have become popular study organisms in documenting this phenomenon. The expansion and contraction of a number of species ranges have now been correlated to an increase in the Earth's average annual temperature (Murphy and Weiss 1992). Continued increases in the Earth's climate by several degrees Celsius over the next several decades have been projected (Titus and Narayanan 1995) and butterflies should continue to be useful in documenting distributional shifts.

Federal protection for threatened butterfly species now exists in many countries throughout the world (Pullin 1995). In the United States, several species are now formally listed as Threatened or Endangered species under the Endangered

Species Act. Two of these occur in Oregon: the Oregon silverspot (*Speyeria zerene hippolyta*) (Pyle 2002) and Fender's blue (*Icaricia icarioides fenderi*) (Schultz et al. 2003). Three more Pacific Northwest butterflies are candidate species: Taylor's checkerspot (*Euphydryas editha taylori*), the mardon skipper (*Polites mardon*) and the island marble (*Euchloe ausonides insulanus*) (Scott Black, personal communication). In each case, human-induced habitat loss is a primary reason for these population declines (Pullin 1995).

The opportunity to document butterflies in a pristine environment is fast disappearing as human populations increasingly alter the landscape from its natural condition. The vast conifer forests of the Pacific Northwest have been harvested to the point where little old growth remains, giving way to what amounts to a patchwork of clear-cuts and young stands. As humans continue to alter the world, studies that have been conducted under natural conditions will become all the more valuable.

## **THE STUDY SITE**

The H. J. Andrews Experimental Forest [HJA] is located on the western slope of the Cascade Mountains in Oregon (Figure 1). It straddles the Linn-Lane County line approximately 50 miles east of Eugene. The HJA encompasses the entire 15,800-acre watershed of Lookout Creek, a fifth-order tributary of the McKenzie River. This watershed basin is steeply sloped with elevations ranging from 1350 feet along lower Lookout Creek in the west to 5340 feet on the highest summit of the surrounding ridge-tops.

The climate of the Andrews Forest is characterized by mild, wet winters and warm, dry summers. The mean annual temperature ranges from 0°F to 100°F with a mean value of 46°F. About 90 inches of precipitation occur annually and is strongly seasonal, with 75 percent falling between November and March. Substantial snowpack may persist well into June above about 4500 feet in elevation (Parsons et al. 1991).

The dense conifer forests of the HJA can be differentiated into two major forest types. The Douglas-fir (*Pseudotsuga menziesii*)/western hemlock (*Tsuga heterophylla*) Zone occurs below about 3400 feet and the Pacific silver fir (*Abies amabilis*) Zone occupies the elevations above that elevation (Dyrness et al. 1974). Naturally-occurring open habitats within the forest are rare and exist primarily in the form of riparian openings, forest gaps, and subalpine meadows and rocky ridge-top areas.

The HJA is a well studied site, having been host to hundreds of regionally significant scientific studies since 1948 (Brenner 2000). In 1980, the HJA was designated as a Long Term Ecological Research (LTER) site by the National Science Foundation. As such, the HJA is representative of the Western Coniferous Forest Biome, a region of the Pacific Coast that extends from Alaska to Northern California.

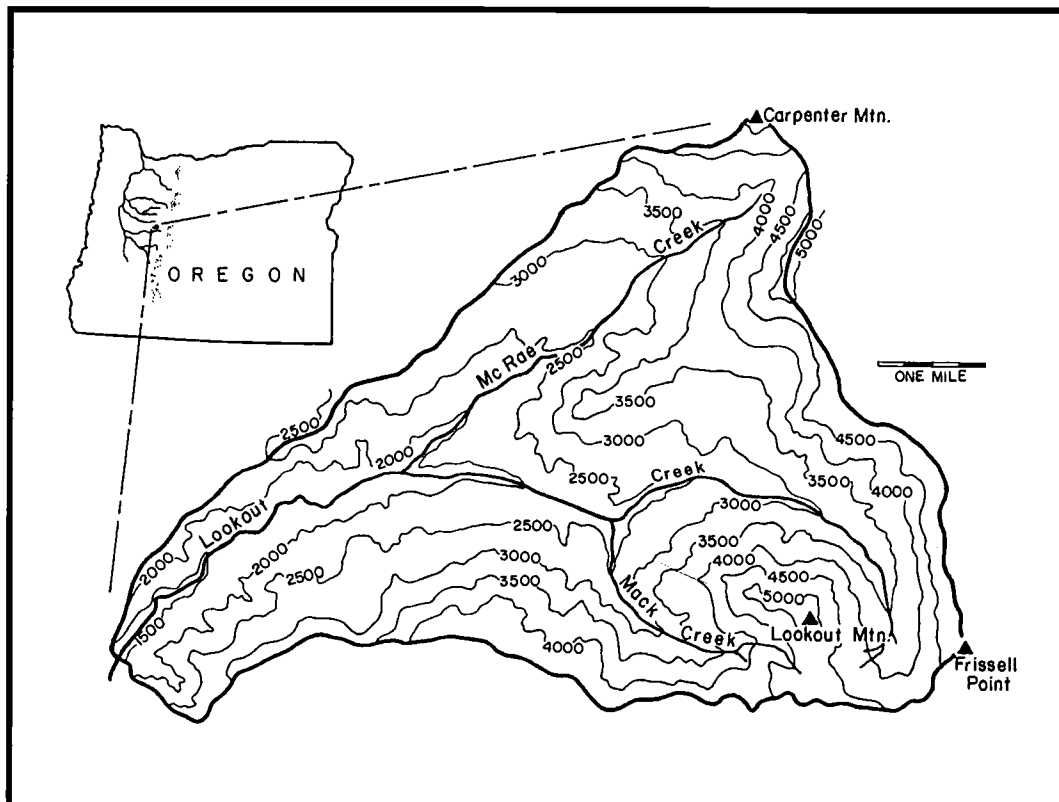


Figure 1. Map of the HJA forest and its location in Oregon.

Researchers have determined that the HJA flora and fauna is typical of the Oregon Cascade Mountains based on surveys for plants (Franklin and Dyness 1971) and site lists for birds, reptiles, amphibians, and mammals.

Arthropods have been a key biological component of the scientific work conducted on the HJA. Parsons et al. (1991) published an annotated list of HJA arthropods. It includes approximately 3,400 species, a total that should grow much larger as further HJA arthropod-based studies are conducted in the future. Inventories of specific arthropod groups include mites (Krantz et al. 1973, Moldenke and Fichter 1998), spiders (McIver et al. 1992), caddisflies (Anderson et al. 1982), grasshoppers and crickets (Lightfoot 1986). HJA beetles have been documented to a moderate degree in comparative habitat studies by Brenner (2000), Work (2000) and Heyborne (2001).

Inventories of HJA Lepidoptera commenced prior to the onset of this study. Hammond, Miller and Ferguson all contributed their site lists to Parsons et al. (1991). Later, Hammond and Miller (1998) compared the diversity of HJA butterflies and moths to that of two other Oregon forests. Also, many researchers contributed Lepidoptera specimens from their various studies to the Andrews Forest Arthropod Collection [AFAC], housed within the Oregon State Arthropod Collection [OSAC] at Oregon State University. By early 1994, 66 species of butterflies were known from the HJA, and an additional 9 species were expected to occur there, having been documented within 5 miles of the HJA in Linn County. This data provided the core list of expected butterflies for this study. In addition, frequent communication with Dr. Paul Hammond of Philomath, Oregon, allowed for an efficient and thorough documentation of the forest's butterflies and their general ecology.

## **STUDY OBJECTIVES**

For any study that measures changes in a given butterfly community, a baseline of data for future comparison is required. An important first task is to document the species of butterflies present and their relative abundance. A biological

inventory provides this essential preliminary data and it is one of the primary objectives of this study. It is expected that the results from this HJA-based work will be relative to a much larger area- the conifer-dominated montane regions of temperate Western North America on the whole- and will not be exclusive in nature to the central Western Cascade Range in the vicinity of the HJA.

The objectives of this study were as follows: 1) to document the occurrence and relative abundance of HJA butterfly species and to provide details of their local ecology; 2) to determine temporal and spatial patterns of Andrews Forest butterfly richness and abundance; and 3) to compare the HJA butterfly fauna to other well-studied locations throughout Oregon.

## METHODS AND MATERIALS

### FOREST-WIDE SURVEYS

Butterfly surveys were conducted throughout the Lookout Creek watershed of the HJA over 1- to 3-day periods during 1994 and 1995. Surveys occurred at approximately two week intervals and about one-third of the total watershed was sampled each time, on a rotating basis. The time between surveys, therefore, was effectively six weeks for any one portion of the HJA. Surveys commenced in April and May with the onset of warm, sunny weather and ended once cool, wet conditions prevailed in October. The highest elevations of the forest, including Carpenter Mountain and Frissell Ridge, were not visited until late May or early June due to the presence of snow drifts on roads which blocked access.

Quantitative butterfly surveys were performed during mid-day hours (10:00am to 3:00pm) by driving slowly along roads and inspecting the sunny portions of roadsides and adjacent areas on foot. Individual butterfly checklists were made for each 1/10<sup>th</sup> mile of road surveyed. Most records were based on sight identifications as most species were easily identified without capture. When the identity of an individual was in doubt, it was netted and identified in hand or was retained for positive determination upon return from the field.

The survey data were entered into a notebook in the field. Field data were then entered into a database (Borland PARADOX, version 5.0) upon return to the lab. This database allowed for the retrieval of specific subsets of information that greatly facilitated analyses. HJA distribution maps were constructed for each species by placing small adhesive paper dots, representing site records, onto a topographic U. S. Forest Service map of the HJA Forest (1986, scale 1:24,000). In addition to showing elevation (contour interval 80 feet), roads and streams, the map information included watershed numbers, harvest units, and a grid of Township, Range and Section.

Voucher specimens of virtually all species encountered were collected and deposited in the AFAC at Oregon State University. Each voucher specimen was provided with a data label denoting location, date of collection, and collector.

## **SPECIES ACCOUNTS**

An HJA-specific ecological 'species account' is presented for each species of butterfly encountered during this two-year period and for those that were not encountered, but had otherwise been documented for the HJA. Each account includes both scientific and common names, a physical description of the butterfly, notes on similar species, adult flight period, relative abundance, a description of both HJA and Oregon distributions, the biogeographical region of origin based on the western North American distribution of the taxon (species or subspecies), observed adult behaviors, potential HJA larval hostplants, comments, and a list of all known HJA records. An HJA butterfly species checklist (Appendix A), HJA butterfly distribution maps (Appendix B), HJA butterfly records by month (Appendix C) and potential larval hostplants of HJA butterflies (Appendix D) are also included. A more detailed explanation for each of the above categories follows:

Scientific name. Genus, species, subspecies (if applicable) and author are given. The most current and generally accepted Latin name is used (Pyle 2002, Guppy and Shepard 2001, Emmel 1998, P.C. Hammond and A.D. Warren, personal communication). This combination is unique for each taxon.

Common name. Where more than one common name exists in the literature (Pyle 2002), I have deferred to Hinchliff (1994) as the source of the most regionally accepted one. Common names are not as reliable as scientific names, but are included here as they have become popular in the amateur arena of study (North American Butterfly Association 1995).

Description. The butterfly is sufficiently described in size, shape and color pattern to differentiate it from the rest of the known HJA butterfly fauna. Wingspan, as used here, is the distance in centimeters from forewing tip to forewing tip of a properly

spread specimen and is the average of five measurements. A statement about sexual similarity or dimorphism follows: males and females are dimorphic if they differ in size, shape or color pattern. Lastly, the upperside (dorsal) and/or underside (ventral) color patterns are described. Figure 2 shows wing areas used in species descriptions.

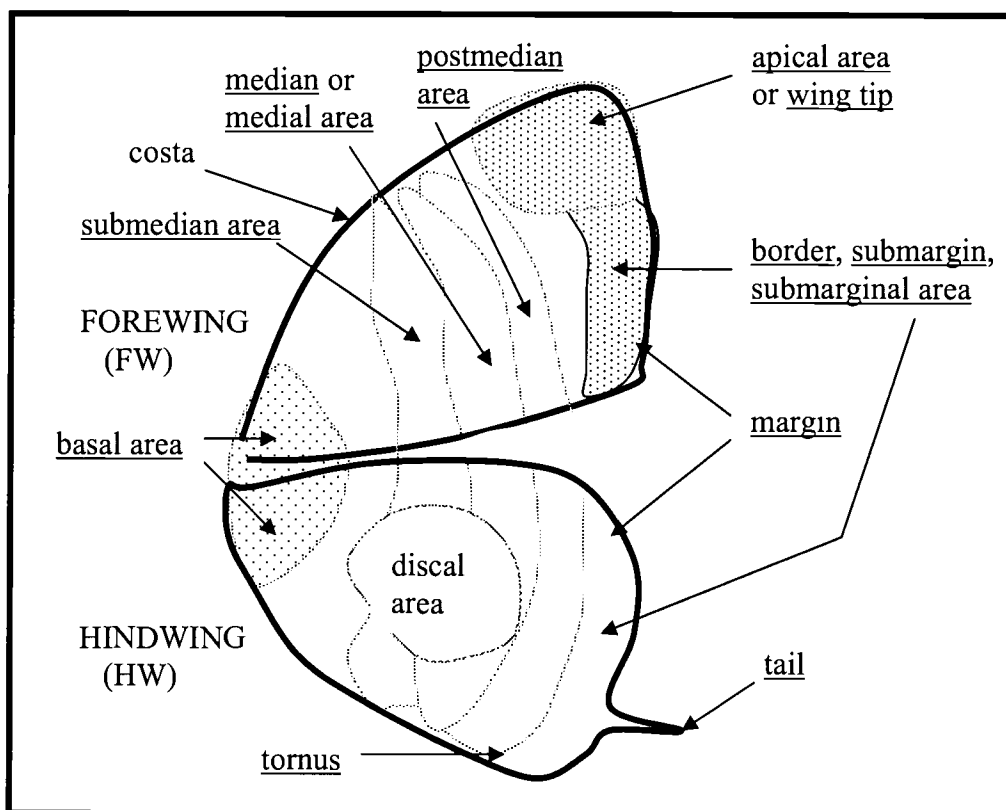


Figure 2. Butterfly wing areas and vocabulary used in species descriptions.

Similar species. Butterflies having a superficial similarity to this species are noted along with specific differences that will separate them from one another.

Adult flight period. The first and last calendar dates of all HJA records for the species is given. The peak flight period is then indicated, based on the period or periods of most numerous records.

Relative abundance. Each species is designated as “abundant”, “common”, “uncommon” or “rare” based on both the number of times that it was recorded during



this study and its local abundance on the HJA. Additional notes on local abundance may follow.

Distribution. Descriptions of both HJA and Oregon distributions are given. The latter will be at the subspecies level when that information is reliable.

Biogeographical Region of Origin. One of seven biogeographical regions of origin is listed: Western North America, Greater Pacific Northwest, North Pacific, Pacific Coast, Boreal-Montane, California and Great Basin. The designation is based on the "best fit" of a butterfly's total distribution within temperate Western North America, north of Mexico, to these biogeographical provinces as defined here 1) Western North America- entire region west of the Rocky Mountain continental divide; 2) Greater Pacific Northwest- all areas west of the continental divide, from northern California through southern British Columbia, excluding the Great Basin; 3) Boreal-Montane- the cooler, most northerly portions, and, the higher mountainous regions of the Pacific Northwest; 4) Pacific Coast- region encompassed by the Sierra Nevada and Cascade Mountains and west to the Pacific Ocean; 5) North Coast- region north of the Siskiyou Mountains and west of and including the Cascade Mountains; 6) California- virtually all of California, north through the Siskiyou Mountains of southwestern Oregon; 7) Great Basin- this region includes the arid, sagebrush-dominated lands east of the Cascade and Sierra Mountains and throughout much of the western United States.

Adult Behavior. Observed behaviors are summarized. These were most often mate-location (male), oviposition (female) or feeding related.

Potential Larval Hostplants. Documented vascular plants for the HJA (Scott Sundberg, unpublished data) were cross referenced with known larval hostplants of HJA butterfly taxa (Scott 1986, Jeff Miller, unpublished data) (Appendix D). The results are listed alphabetically by family. If no hostplants are listed, hostplant species utilized elsewhere by the butterfly and likely to occur on or near the HJA are included.

Comments. Additional taxonomic or ecological information about the butterfly may be included here.

HJA Records. The total number of HJA records through 1995 is given. Each record is then listed and includes the following fields: county, date, Township, Range

Section, Quarter-section, elevation, site description, and collector. The list serves as a unique and authoritative data set for HJA butterflies. Specimens vouchered in the Andrews Forest Arthropod Collection [AFAC] at Oregon State University will have an asterisk (\*) after the name of the collector.

A community level description of the above categories follows and includes all topics that are not discussed further in another section of the paper.

## **COMMUNITY PATTERNS OF RICHNESS AND ABUNDANCE**

### **The Temporal Component**

The temporal nature of the 1994 and 1995 survey results are first described individually. Next, records for both years are combined and the data are clustered into two fifteen-day periods (days 1-15, 11-30 or 31) for each month of the calendar year and the resulting patterns for species richness and relative abundance are described. More than two samples (years, in this case) are required to show a numerical trend in a time-series data set, therefore, no attempt is made to determine long term trends in butterfly richness or abundance. Large fluctuations in the abundance of individual species from one year to the next, however, are worthy of discussion. For these species, plausible explanations were investigated and are presented.

### **Patterns of Distribution on the HJA Landscape**

The set of distribution records for each species was expected to be unique. Also anticipated, were similarities in the distribution of species-groups within the HJA, based on similarities in ecological requirements and species behaviors. These patterns were combined with relative abundance and are characterized and discussed in a community context.

### **Local differences in Richness and Abundance**

Butterfly richness and abundance totals were tallied for each quarter-section (1/4 x 1/4 mile) of the HJA. Since sampling effort was unequal at this scale, additional standardized sampling was required to distinguish actual differences in butterfly richness and abundance from apparent ones. Subsequently, major habitat types and local hotspots were quantified for the comparison of these two variables.

The Chi-square statistical test was used to determine whether or not the numbers for pooled richness and pooled abundance were statistically equivalent in each case. This test compares the observed outcome to the expected outcome. In each case, the expected number is the average of the pooled richness or pooled abundance for the two habitats or quarter-sections being compared. There is one degree of freedom for this test of two possible outcomes. A Chi-square statistic of 3.84 or greater produces a p-value of 0.05 or less, indicating a difference in the numbers being compared.

### **Habitat Comparisons**

Butterfly richness and abundance were compared between all major habitat types within the HJA and along roads within them. Pollard-type butterfly counts, as described below, were performed in two plots each of mature forest, clear-cut and meadow habitats, and along roads that bisected these plots. All sites were located between 3,200 and 4,900 feet in elevation and each habitat plot was chosen for its homogeneity and its representative nature: meadows were open areas of dense herbaceous vegetation on moderately steep SW-facing slopes; clear-cuts were in the early stages of recovery, with co-dominant herb and shrub components to 2 meters in height; forests were mature (age class > 100 years) with a dense canopy and included one silver fir (*Abies amabilis*) stand with little understory vegetation and one Douglas-fir (*Pseudotsuga menziesii*)/western hemlock (*Tsuga heterophylla*) stand with a rich herb-shrub understory; roads were gravel-surfaced and unidirectional through each

plot, allowing sunlight to reach ground level during the hours when sampling occurred.

For each plot, butterfly counts were conducted along five contiguous transects of 100 meters in length. Each 100-meter count was considered one replicate and a total of 10 replicates were performed over one or more sample dates. Counts were conducted between 10am and 3 pm (PDT) and in full sunshine, when butterflies were most active. Each count lasted five minutes and was timed with a stopwatch. During each count, all butterflies within five meters to the front and sides of the counter were identified and tallied. Individuals entering the count area from the front or sides were included, but those entering from behind were not. A conscious effort was made to count each individual only once. Butterflies were identified to species, but if uncertainty existed, they were recorded as the most common taxon of their morphological type- an unidentified small blue butterfly would be counted as *Icaricia icarioides* (Lycaenidae) if the latter was the most abundant blue butterfly for that particular count. Species richness and abundance totals were pooled within each habitat type and were compared across habitat types.

### **Butterfly Hotspots**

Quarter-sections with the highest richness totals [HI] were identified and three of these were paired with adjacent quarter-sections that had comparatively low richness totals [LO]. Butterfly counts were conducted as described above, with the following modifications: 1) all transects were along roads through what appeared to be the “best” butterfly habitat (open, sunny, nectar sources present) in each quarter-section and 2) total count time per replicate was 3 minutes. Species richness and abundance totals were pooled within each quarter-section for comparison to its paired neighbor.

## COMPARISONS TO OTHER OREGON SITES

The HJA butterfly fauna was compared to those of several well-studied sites within Oregon, namely: Mary's Peak, McDonald State Forest, Crater Lake National Park, Mount Ashland and Steens Mountain (Figure 3). These sites were chosen based on the author's personal knowledge of popular and well-documented localities, for their regional representation, and for the existence of accurate and authoritative checklists.

Dot distribution maps for Oregon butterflies (Hinchliff 1994) were the primary source for site-specific checklists. Comparisons of the HJA to other Oregon locations places the HJA butterfly fauna within both a statewide and a diverse biogeographical context. Faunal comparisons were made for 1) butterfly richness, 2) number of shared taxa and 3) percent of shared taxa.

Mary's Peak is located in Benton County and is the tallest mountain in the Oregon Coast Range at 4,096 feet. Mary's Peak has been a popular destination for butterfly collectors for decades. (Dornfeld 1980, Evergreen Aurelians, unpublished data).

McDonald State Forest is also located in Benton County, at the eastern edge of the Oregon Coast Range and is adjacent to the Willamette Valley. The upper Oak Creek drainage at the south end is the best known portion of McDonald State Forest for butterflies and has been the location of at least two multiple-year surveys (Dornfeld unpublished data and the author's unpublished data).

Crater Lake National Park is located in Klamath County and straddles the crest of the Cascade Mountains in southern Oregon. National Park Service policy generally does not allow butterfly collecting on its lands. Tilden and Huntzinger (1977) did, however, perform sanctioned butterfly surveys from 1957-1962 that included limited specimen collecting.

Mount Ashland is located in Jackson County in the Klamath-Siskiyou Mountains of southwestern Oregon near the California border. Like Mary's Peak, it

has been a popular butterfly collecting destination and is the site of annual Fourth of July butterfly counts (Dornfeld 1980, Evergreen Aurelians, unpublished data).

Steens Mountain in Harney County is a large fault-block located in the northern Great Basin of southeastern Oregon. While remote, the accessible “Steens Loop” portion of the mountain has long been a popular destination for butterfly collectors (Evergreen Aurelians unpublished data, Dornfeld 1980).

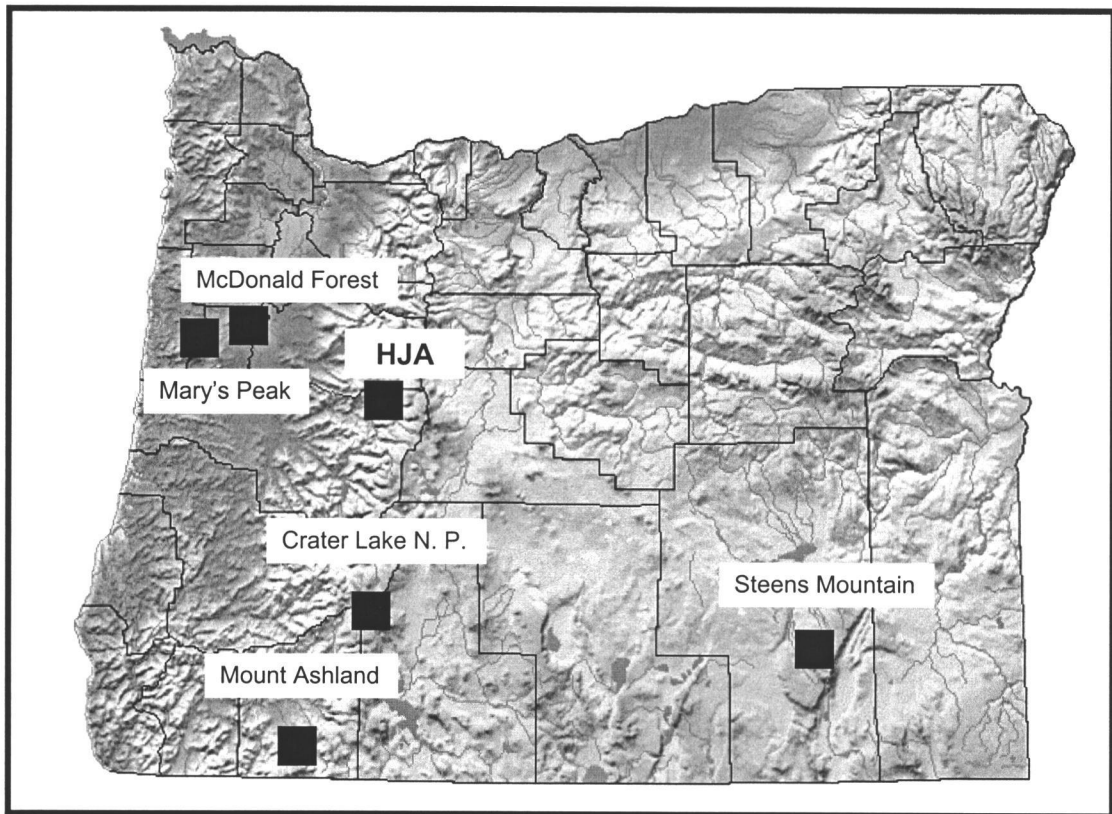


Figure 3. Map of Oregon showing the location of sites used in regional faunal comparisons of butterflies.

## RESULTS

### THE HJA BUTTERFLY FAUNA

#### Summary of Survey Results

A total of 3,423 observations for 72 species of butterflies were made during the course of the two year (1994-1995) forest-wide survey. This brought the known number of HJA butterflies to 79 (Appendix 1). Eight of 9 butterfly species that had been listed as probable for the HJA in Parsons et al. (1991) were confirmed for the site, namely: family Pieridae- *Pieris rapae*; family Lycaenidae- *Incisalia augustinus*, *Incisalia mossii*, *Lycaena helloides*, *Loranthomitoura johnsoni* and *Plebejus saepiolus*; family Nymphalidae- *Nymphalis milberti* and *Vanessa atalanta*. In addition, three species of Nymphalidae- *Danaus plexippus*, *Speyeria coronis* and *Polygonia oreas*, one species of Pieridae- *Colias occidentalis* and one species of Lycaenidae- *Callophrys dumetorum*, were documented for the first time. Seven species were not encountered during this survey that had been previously recorded for the HJA: family Hesperiiidae- *Pyrgus communis* and *Euphyes vestris*, family Papilionidae- *Papilio multicaudatus*, and family Nymphalidae- *Polygonia satyrus*, *Speyeria atlantis*, *Cercyonis pegala* and *C. oetus*. This is not surprising, however, as only one or two records existed for any one of these taxa.

Five families of butterflies were represented and included 44 genera with the following genera/species totals by family: Hesperiiidae- 8/11; Papilionidae- 2/4; Pieridae- 5/8; Lycaenidae- 15/23; Nymphalidae- 14/27 (Table 1). The Lycaenidae and Nymphalidae accounted for the vast majority of both genera and species, with a combined total of 29 genera (66%) and 50 species (71%). Abundance totals are the total number of individual records for each family and were as follows: Hesperiiidae- 494 (14%); Papilionidae- 385 (11%); Pieridae- 530 (16%); Lycaenidae- 707 (21%); Nymphalidae- 1290 (38%) (Table X). Again, the Nymphalidae, and to a lesser extent

the Lycaenidae, were the two groups that combined for the largest proportional representation.

Table 1. . Families of HJA butterflies with genera and species totals.

Family	Number of genera	Number of species
Hesperiidae	8	11
Papilionidae	2	4
Pieridae	5	8
Lycaenidae	15	23
Nymphalidae	14	27

### Ecological Species Accounts

The following are ecological accounts for each species of butterfly documented for the HJA prior to or during this study. Species are listed in systematic order using the checklist in Guppy & Shepard (2001). Numbers correspond to the checklist of HJA butterflies (Appendix A).

Family HESPERIIDAE: 8 genera, 12 species.

Subfamily PYRGINAE: 3 genera, 6 species

1. *Epargyreus clarus californicus* (Smith)

Silver-spotted Skipper

Description. Wingspan 4.3 cm. Sexes similar. Upperside: brown with golden forewing patches. Underside: brown with golden forewing patches and a silvery-white hindwing patch.

Similar Species. None.

Adult Flight Period. Recorded from 22 May to 25 July. Peak flight from late May through early July.



Abundance. Uncommon. May occur in moderate numbers locally.

Distribution. HJA: most records are from the low to middle elevations along Lookout Creek and Blue River Ridge, but it may turn up wherever larval hostplants grow in sufficient numbers. OREGON: widespread throughout western Oregon.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Most adults were recorded from the immediate vicinity of the larval hostplant, often using it as both a perching site and as a nectar source.

Potential Larval Hostplants. Fabaceae: *Lotus crassifolius*.

Comments. *Epargyreus clarus* is the largest skipper on the HJA.

HJA Records. 18 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/22/95	15S	5E	28	NE	1800	rd. 1506 at W L500	Dana NR Ross*
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633- 0.4 mi. NE rd. 784	Dana NR Ross
Lane	6/1/94	16S	5E	6	SE	?	end rd. 202	Dana NR Ross
Lane	6/1/95	15S	5E	25	NE	2650	rd. 1506- 0.1 mi. E Shorter Cr.	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	6E	29	SW	3150	rd. 1506 at L703	Dana NR Ross
Lane	6/19/94	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	6/19/94	15S	5E	22	NE	2400	rd. 320 at sec. 23 border	Dana NR Ross*
Lane	6/26/80	15S	5E	25	NW	?	HJA	Gary M. Cooper*
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130- 0.2 mi. NE rd. 134	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 at S L403	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/29/95	15S	5E	28	SW	1800	rd. 1508 at rd. 410	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/9/94	15S	5E	25	SW	2375	rd. junction. 1506/350	Dana NR Ross
Lane	7/6/94	16S	5E	5	NW	2900	rd. 2633- 0.4 mi. NE rd. 784	Dana NR Ross
Lane	7/7/94	15S	5E	25	NE	2600	rd. 1506 nr Shorter Creek	Dana NR Ross
Linn	7/25/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross

## 2. *Erynnis icelus* (Scudder & Burgess)

### Dreamy Duskywing

Description. Wingspan 2.9 cm. Sexes similar. Upperside: dark brown; forewing with light gray scaling; hindwing bears pale submarginal spots.

Similar Species. *Erynnis persius* is of similar size, but the forewing has several hyaline spots and lacks the extensive gray scaling. *Erynnis propertius* is significantly larger.

Adult Flight Period. Recorded from 28 April to 19 June. Peak flight from mid May to early June.

Abundance. Uncommon. Usually observed as singletons.

Distribution. HJA: recorded from several locations at low to mid elevations.

OREGON: known primarily from the Coast Range, Cascade Mountains and the mountains of northeastern Oregon.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Most often observed at flowers and at moist soil.

Potential Larval Hostplants. Salicaceae: *Populus tremuloides*.

Comments: Care should be taken not to overlook this species among the more commonly encountered *Erynnis persius*.

HJA Records. 11 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Source</u>
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	5/11/79	15S	5E	28	SW	1750	sec. 28 NW/SW	Gary M. Cooper*
Lane	5/23/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	5/6/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross*
Lane	6/1/94	16S	5E	4	NE	4000	rd. 2633 at switchback	Dana NR Ross*
Lane	6/20/94	15S	5E	33	NE	2700	rd. 1507 at L201A	Dana NR Ross
Lane	6/8/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 at concrete bridge	Dana NR Ross*
Lane	6/9/94	15S	5E	24	SE	3200	rd. 350 at SW L302A	Dana NR Ross
Lane	6/9/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	2950	rd. junction 320/408	Dana NR Ross

### 3. *Erynnis propertius* (Scudder & Burgess)

#### Propertius Duskywing

Description. Wingspan 5.0 cm. Sexually dimorphic. Upperside: dark brown; forewing with whitish scaling and subapical hyaline spots; female with noticeably more light scales, lending to a more highly contrasting forewing pattern.

Similar Species. *Erynnis persius* and *Erynnis icelus* are noticeably smaller.

Adult Flight Period. Recorded from 20 April to 27 June. Peak flight in May and early June.

Abundance. Uncommon. Always observed in small numbers.

Distribution. HJA: recorded mostly from low to middle elevations in the western half of the watershed. OREGON: widespread in the Cascade Mountains and in western Oregon.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Most adults were encountered while at flowers or moist soil.

Potential Larval Hostplants. Fagaceae: *Quercus garryana*.

Comments. The scant amount of *Quercus garryana* on the HJA suggests that this species is primarily an influx species from more oak-rich environments nearby. Another possibility is that *Erynnis propertius* is utilizing the more abundant and closely related *Chrysolepis chrysophylla* (also Fagaceae).

HJA Records. 23 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/20/94	16S	5E	6	SE	2750	end rd. 202 (off rd. 1501)	Dana NR Ross
Lane	4/28/94	15S	5E	28	NE	1800	Rd. 1506 at L500	Dana NR Ross
Lane	4/28/94	15S	5E	30	SE	2250	Junction of rds 130/134	Dana NR Ross
Lane	5/11/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	5/22/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/22/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/24/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/24/94	16S	5E	5	NE	3100	rd. 2633 (sec. corner) undercut hillside	Dana NR Ross
Lane	5/25/79	15S	5E	12	SW		HJA	Gary M. Cooper*
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	6	SE	2750	rd. 202	Dana NR Ross
Lane	5/6/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross
Lane	5/7/94	15S	5E	28	NE	1750	rd. 1506, 0.15 mi. NE of concrete bridge	Dana NR Ross
Lane	5/7/94	15S	5E	28	SE	2300	rd. 1508 at sec. 21 border	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	5E	28	SE	1750	rd. 1506 at concrete bridge	Dana NR Ross
Lane	6/20/94	15S	5E	34	SW	3650	rd. 1507, E end L205	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507, S border L207	Dana NR Ross
Lane	6/21/94	15S	5E	31	NE	2100	end rd. 134 (WS 10 rd.)	Dana NR Ross
Lane	6/27/95	15S	5E	28	NW	2650	rd. 130 near sec. 21 border	Dana NR Ross
Lane	6/8/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	6/9/94	15S	5E	25	NE	2950	rd. 350, NE corner of L701	Dana NR Ross
Lane	6/9/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*

4. *Erynnis persius* (Scudder)

## Persius Duskywing

Description. Wingspread 2.9 cm. Sexes similar. Upperside: dark brown; males with some light-gray forewing scaling; forewing discal band with several hyaline spots; hindwing patterned with rows of pale spots.

Similar Species. *Erynnis icelus* is similar but has a heavily gray-patterned forewing that lacks hyaline spots. *Erynnis propertius* is noticeably larger.

Adult Flight Period. Recorded from 28 April to 14 September with no obvious peak period of abundance.

Abundance. Moderately common. Generally observed in small numbers in any given location.

Distribution. HJA: occurs throughout the forest at all elevations. OREGON: widespread across the northern and western mountainous portions of the state; poorly documented from southeastern Oregon.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Frequently encountered at flowers and at moist soil.

Potential Larval Hostplants. Fabaceae: *Lotus purshianus*. Salicaceae: *Populus tremuloides*.

Comments. The long flight period is typical of a multivoltine species.

HJA Records. 49 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site description</u>	<u>Collector</u>
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	4/28/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	2250	rd. 130	Dana NR Ross*
Lane	4/28/94	15S	5E	31	NE	2250	rd. 134	Dana NR Ross
Lane	5/18/95	16S	5E	6	NW	1350	rd. junction 15/130	Dana NR Ross
Lane	5/22/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/25/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	3450	rd. 2633 at rock wall/seep	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	4100	rd. 2633, extreme corner	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3050	rd. 2633	Dana NR Ross
Lane	5/6/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross*
Lane	5/7/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/1/94	16S	5E	4	NE	4000	rd.2633-lower switchback	Dana NR Ross

Lane	6/1/95	15S	5E	26	SE	2100	rd. 1506 at rd. 344	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3800	rd. 1507 at WL1/L207	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	6/28/95	16S	6E	5	NW	3900	rd. 1506 at lower L709	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/7/94	15S	5E	26	SE	2200	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	6/8/94	15S	5E	27	NW	1800	1506/320	Dana NR Ross*
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	6/9/94	15S	5E	25	NE	2850	rd.350	Dana NR Ross
Lane	6/9/94	15S	6E	19	SW	3300	HJA	Dana NR Ross*
Lane	7/7/94	15S	6E	28	NW	4700	rd.2650 at FR11	Dana NR Ross
Lane	7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/1/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	3650	rd. 2633, 0.2 mi W of rock wall seep	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4350	rd. 1507, 0.2 mi. from end	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	3600	rd. 2633 near sec. 3	Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2850	rd. 2633 (0.15 mi. W rock columns)	Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2650 at rock columns	Dana NR Ross
Lane	9/13/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
Linn	6/10/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	6/28/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	6/9/94	15S	6E	7	NE	4500	Carpenter Mountain. trailhead	Dana NR Ross*
Linn	7/18/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/25/95	15S	5E	14	NE	2950	rd. 320 0.1 mi. below cabin	Dana NR Ross
Linn	7/25/95	15S	5E	14	SE	2800	rd. 320 0.3 mi. above rd. 325	Dana NR Ross
Linn	8/1/94	15S	5E	14	NE	3050	rd. junction 320/328	Dana NR Ross
Linn	9/14/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

### 5. *Pyrgus ruralis ruralis* (Boisduval)

#### Two-banded Checkered Skipper

Description. Wingspan 2.4 cm. Sexes similar. Upperside: dark brownish-gray with numerous small, white spots.

Similar Species. *Pyrgus communis* averages larger with a slightly lighter ground

color, has larger white spots and is very rare on the HJA.

Adult Flight Period. Recorded from 20 April to 28 June. Peak flight in May.

Abundance. Common. Usually occurs in moderate numbers where found.

Distribution. HJA: occurs throughout the forest at all elevations. OREGON: widespread throughout the mountainous portions of the state, excluding southeastern Oregon.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Flight is low to the ground. Adults bask frequently. Often associated with wild strawberry plants (*Fragaria*: Rosaceae) growing along roadsides.

Potential Larval Hostplants. Unknown for the HJA. *Potentilla* (Malvaceae) is used elsewhere in Oregon.

Comments. This is the most commonly encountered spring-flying skipper on the HJA.

HJA Records. 102 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/20/94	16S	5E	3	NW	3700	rd. 2633 (0.15 mi. E sec. 4)	Dana NR Ross
Lane	4/20/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross*
Lane	4/20/94	16S	5E	5	NW	2900	rd. 2633	Dana NR Ross
Lane	4/28/94	15S	5E	26	SW	2000	rd. 1506 rock quarry clearing	Dana NR Ross
Lane	4/28/94	15S	5E	28	NW	1800	rd. 1506 at L500 seep	Dana NR Ross
Lane	4/28/94	15S	5E	28	SW	1800	rd. 1506 at E L103 creek	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	2250	rd. 130	Dana NR Ross
Lane	4/28/94	15S	5E	31	NE	2100	end rd. 134 (WS 10 rd.)	Dana NR Ross
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/11/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	5/17/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/17/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/17/95	15S	5E	35	NE	2650	rd. 360 at L114	Dana NR Ross
Lane	5/18/95	15S	5E	22	NW	2250	rd. 320 at L404	Dana NR Ross
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/18/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/18/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	5/18/95	15S	5E	31	NE	1750	rd. 130, N B133	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3500	rd. 350 at rd. 355	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3750	rd. 327 (small meadow seep)	Dana NR Ross
Lane	5/22/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/22/95	15S	6E	19	NE	4850	rd. 357	Dana NR Ross
Lane	5/22/95	15S	6E	19	NW	3700	rd. 357	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3250	end rd. 354 (L352)	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 350 at rd. 354	Dana NR Ross

Lane	5/22/95	15S	6E	19	SW	3300	rd. 354 (curve)	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 354, 1/2 way to end	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 354/358	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3350	rd. 350, 0.1 mi. N rd. 354	Dana NR Ross
Lane	5/24/94	15S	5E	25	NE	2700	rd. 1506 at L701	Dana NR Ross
Lane	5/24/94	15S	5E	26	SE	2100	rd. 1506/L301A	Dana NR Ross
Lane	5/24/94	15S	6E	29	SW	3150	rd. 1506 at L703	Dana NR Ross
Lane	5/25/95	15S	5E	33	NE	2700	rd. 1507 at L201A	Dana NR Ross
Lane	5/25/95	15S	5E	33	NE	2800	rd. 1507 at L201A/L202 border	Dana NR Ross
Lane	5/25/95	15S	5E	33	NW	2000	rd. 1507, 0.25 mi. S of gate	Dana NR Ross
Lane	5/25/95	15S	5E	33	NW	2250	rd. 1507 at rd. 455	Dana NR Ross
Lane	5/25/95	15S	5E	33	SW	2600	rd. 1507 at rd. 465	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3300	rd. 1507 at NW L205	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3450	rd. 1507 at W L205	Dana NR Ross
Lane	5/25/95	15S	5E	35	SW	3800	rd. 1507 at WL1	Dana NR Ross
Lane	5/25/95	15S	5E	35	SW	3850	rd. 1507 at creek bend	Dana NR Ross
Lane	5/25/95	16S	5E	2	NE	4000	rd. 1507 at W L210	Dana NR Ross
Lane	5/31/95	16S	5E	2	NW	4400	rd. 2633, 0.25 mi. from end of rd.	Dana NR Ross
Lane	5/31/95	16S	5E	3	NE	4400	rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	4000	rd. 2633, forest bend E of switchback	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	3400	rd. 2633 (1 of 3, 0.3 apart)	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	3500	rd. 2633 (2 of 3, 0.3 apart)	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	3600	rd. 2633 (3 of 3, 0.3 apart)	Dana NR Ross
Lane	5/31/95	16S	5E	4	NW	3100	rd. 2633, extreme section corner	Dana NR Ross
Lane	5/31/95	16S	5E	4	NW	3300	rd. 2633 near NE section boundary	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3000	rd. 2633 (0.2 mi. E rock columns)	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3100	rd. 2633 overhang road cut	Dana NR Ross
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	6	SE	2750	near end rd. 202 (off rd. 1501)	Dana NR Ross
Lane	5/5/94	15S	5E	24	NE	3750	rd. 357	Dana NR Ross
Lane	5/5/94	15S	5E	24	SE	3200	rd. 350	Dana NR Ross
Lane	5/5/94	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	5/5/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/6/94	15S	5E	22	NE	2750	rd. 1508 at rd. 480	Dana NR Ross
Lane	5/6/94	15S	5E	22	SW	2400	rd. 1508 at "rd. 414"	Dana NR Ross
Lane	5/6/94	15S	5E	22	SW	2450	rd. 1508 "waterfall/seep" (=N L403)	Dana NR Ross
Lane	5/6/94	15S	5E	25	NE	2850	rd. 350/Shorter Creek	Dana NR Ross
Lane	5/6/94	15S	5E	25	SW		1506/350	Dana NR Ross*
Lane	5/6/94	15S	5E	27	NW	1850	rd. 1506 at S1/S2	Dana NR Ross
Lane	5/6/94	15S	5E	32	NW	1500	rd. 1506 at WS3 rd. to met. station	Dana NR Ross
Lane	5/6/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	5/6/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross
Lane	5/6/94	16S	5E	6	NW	1350	rd. junction 1506/15	Dana NR Ross
Lane	5/7/94	15S	5E	21	SE	2300	rd. 1508 at sec. 28 border	Dana NR Ross
Lane	6/1/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
Lane	6/1/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	6/1/95	15S	5E	25	NE	2650	rd. 1506 just E of Shorter Creek	Dana NR Ross
Lane	6/1/95	15S	5E	25	NE	2700	rd. 1506 near sec. 30 boundary	Dana NR Ross

Lane	6/1/95	15S	5E	26	SE	2100	rd. 1506 at rd. 344 (mid-L301)	Dana NR Ross
Lane	6/1/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	6/1/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/1/95	15S	5E	27	NE	1900	rd. 1506 at E S3	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/1/95	15S	6E	30	NE	2900	rd. 1506, 0.15 mi. E of L702	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N 1506	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/10/94	15S	6E	20	NW	4550	rd. 2650 at meadow hillside	Dana NR Ross
Lane	6/10/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/2/95	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	6/2/95	15S	5E	22	SE	2150	rd. 320, 0.3 mi. above gate (L404A)	Dana NR Ross
Lane	6/27/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	6/28/95	15S	6E	28	NW	4700	rd. 2650 at S FR11	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	6/8/94	15S	5E	22	NW	2800	end rd. 480 (off 1508)	Dana NR Ross
Lane	6/9/94	15S	5E	24	SE	3200	rd. 350 at SW corner L302A	Dana NR Ross
Lane	6/9/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Linn	5/18/95	15S	5E	14	NW	3200	rd. 320 at WS6	Dana NR Ross
Linn	5/18/95	15S	5E	14	NW	3350	rd. 320 at WS7	Dana NR Ross
Linn	5/22/95	15S	5E	12	SE	4100	rd. 359 at E L382 curve	Dana NR Ross
Linn	5/22/95	15S	5E	12	SW	4050	end rd. 359	Dana NR Ross
Linn	5/22/95	15S	5E	12	SW	4050	end rd. 359 (N L383)	Dana NR Ross
Linn	5/22/95	15S	5E	7	SW	4100	rd. 359 at NW L381 creek	Dana NR Ross
Linn	6/19/94	15S	5E	14	SW	2600	Linn Co. side of rd. 320/324	Dana NR Ross
Linn	6/9/94	15S	5E	12	SW	4050	last 1/2 mi. rd. 359	Dana NR Ross
Linn	6/9/94	15S	6E	7	SW	4100	rd. 359 creek (McRae)	Dana NR Ross

## 6. *Pyrgus communis communis* (Grote)

### Common Checkered Skipper

Description. Wingspan 2.7 cm. Sexes similar. Upperside: dark gray-brown with numerous squarish, white spots, often overlaid with blue-gray hairs. The white spots are more pronounced in males and lend to a lighter overall appearance.

Similar Species. *Pyrgus ruralis* is slightly smaller and darker with smaller white spots.

Adult Flight Period. The single record is for 2 August.

Abundance. Rare. The species was not encountered during this study.



Distribution. HJA: the record is from Lookout Creek at an elevation of 2400 feet.

OREGON: occurs throughout the state at all elevations.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults are typically found in open weedy areas, in meadows and along open roadsides.

Potential Larval Hostplants. Unknown for the HJA. Members of the mallow family (Malvaceae) are used elsewhere in Oregon.

Comments. It would be quite possible to overlook this butterfly among the vastly more abundant *Pyrgus ruralis*.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/2/87	15S	5E	25	?	2400	Lookout Creek	P.C. Hammond*

Subfamily HESPERIINAE: 5 genera, 6 species

#### 7. *Carterocephalus palaemon skada* (W. H. Edwards)

Arctic Skipper

Description. Wingspan 2.4 cm. Sexes similar. A small, blackish-brown skipper with yellow-orange markings.

Similar Species. None. The markings of this species are unique among HJA skippers.

Adult Flight Period. Recorded from 23 May to 10 July. Peak flight in June.

Abundance. Uncommon. Observed as one or a few individuals in any given location.

Distribution. HJA: occurs sparingly throughout the watershed at all elevations in conjunction with moist habitats. OREGON: most commonly recorded from the higher elevations of the Cascade Mountains and other western Oregon mountain habitats, with sparse records from the Willowa Mountains in northeastern Oregon.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Encountered while perching or making short flights about suitable, moist habitat.

Potential Larval Hostplants. Poaceae: *Calamagrostis* and *Bromus* species are likely hosts.

Comments. This skipper had long been considered as the subspecies *mandan* (Dornfeld 1980, Hinchliff 1994). Mattoon and Tilden (1998) have clarified the status of *Carterocephalus palaemon* subspecies in North America and have placed Oregon populations within the widespread subspecies *skada*.

HJA Records. 19 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/23/1994	15S	5E	26	SE	2175	rd. 1506 at MP 6 creek corner	Ross
Lane	5/23/1994	15S	5E	28	NE	1800	rd. 1506 at L500 clearcut	Ross
Linn	5/25/1979	15S	5E	12	SW	4000	rd.359/L383 area	G Cooper*
Lane	6/1/1994	16S	5E	4	NE	3450	rd. 2633 at rock seep	Ross
Lane	6/1/1994	16S	5E	4	NE	4025	rd. 2633 nr sec 34	Ross
Lane	6/1/1994	16S	5E	6	SE	2750	near end rd. 202 (off 1501)	Ross *
Lane	6/1/1995	15S	5E	26	SE	2100	rd. 1506 at mid-L301	Ross
Lane	6/1/1995	15S	5E	27	NW	1850	rd.1506 at S1	Ross
Lane	6/19/1994	15S	5E	22	NE	2250	rd. 320 at mid-L404 ravine	Ross
Lane	6/19/1994	15S	5E	23	NW	2550	rd. 320/324 junction	Ross
Linn	6/19/1994	15S	5E	14	NW	3350	rd. 410 at WS 6-7 'Y' in road	Ross
Linn	6/19/1994	15S	5E	14	SE	2650	rd. 320 at L503	Ross
Lane	6/2/1995	15S	5E	22	NE	2300	rd. 320 at SE L405A	Ross
Lane	6/20/1994	16S	5E	2	NE	3950	rd. 1507 corner nr FC5	Ross
Lane	7/10/1995	15S	6E	33	NW	4900	rd. junct. 1506/2650	Ross
Lane	7/6/1994	16S	5E	3	NW	4150	rd. 2633 nr sec 4,34	Ross *
Lane	7/6/1994	16S	5E	4	NE	3450	rd. 2633 at rock seep	Ross
Lane	7/6/1994	16S	5E	4	NE	4025	rd. 2633 nr sec 34	Ross
Lane	7/8/1995	15S	5E	22	NE	2300	rd. 320 at SE L405A	E Rosi

## 8. *Hesperia juba* (Scudder)

### Juba Skipper

Description. Wingspan 3.3 cm. Sexes similar. Upperside: wings are orange, with well defined, dark brown borders; forewing of male bears a dark stigma. Underside: hindwing has white markings.

Similar Species. *Hesperia colorado* is smaller and has less well defined borders on the upperside of the wings. *Ochlodes sylvanoides* is smaller and lacks the bold white underside markings.

Adult Flight Period. Recorded from 1 June to 14 September. There are two generations of *Hesperia juba*, flying primarily in June and in September.

Abundance. Uncommon. Usually observed as singletons.

Distribution. HJA: most records are from Blue River Ridge, Carpenter Mountain and Lookout Ridge at elevations above 3,000 feet. OREGON: found throughout the state, but is most common in the Cascade Mountains and eastward.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Encountered as individuals on flowers and on bare ground. Adults are capable of fast flight when alarmed.

Potential Larval Hostplants. Poaceae: *Deschampsia elongata*.

Comments. *Hesperia colorado* and *H. juba* are difficult to distinguish at a distance. The netting of all *Hesperia* species is generally recommended for positive identification.

HJA Records. 13 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/1/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	6/9/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	7/7/94	15S	6E	28	NW	4700	FR11	Dana NR Ross*
Lane	7/7/94	15S	6E	33	NW	4900	0.4 mi N rd. 1506/2650	Dana NR Ross*
Lane	9/13/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross*
Linn	6/9/94	15S	6E	18	NW	4000	rd. 350/359 gate	Dana NR Ross
Linn	8/29/94	15S	6E	18	NW	4000	rd. 350/359 gate	Dana NR Ross
Linn	8/29/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trailhead	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at N L381 creekbed	Dana NR Ross*
Linn	9/14/94	15S	5E	14	NE	3050	rd. junction 320/327	Dana NR Ross
Linn	9/14/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
?	?	?	?	?	?	?	HJA	?

## 9. *Hesperia colorado oregonia* (W. H. Edwards)

### Western Branded Skipper

Description. Wingspan 2.9 cm. Sexes similar. Upperside: orange-brown with darker wing borders; male forewing bears a dark stigma. Underside: the hindwing is light golden brown with several white to yellowish markings.

Similar Species. *Hesperia juba* averages larger and the upperside is a brighter orange with the inside of the wing border more strongly defined and displaying a jagged, toothlike pattern. *Ochlodes sylvanoides* averages slightly smaller, has better defined borders and does not have the bold markings on the underside of the hindwing.

Adult Flight Period. Recorded from 7 July to 29 August. Peak flight in early to mid August.

Abundance. Uncommon. May be encountered in moderate numbers locally.

Distribution. HJA: all records are from above 3600 feet and include sites along Lookout Ridge, Frissell Ridge and the west summit of Lookout Mountain. OREGON: higher elevations of the Cascade and Siskiyou Mountains.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Adults were encountered at flowers and while basking on bare ground.

Potential Larval Hostplants. Poaceae: *Festuca rubra*, *Poa scabrella*.

Comments. With few exceptions, the Cascade crest neatly divides western Oregon *Hesperia colorado oregonia* populations from the much paler subspecies *harpalus* to the east.

HJA Records. 24 total. Specimen vouchered (\*).

Date	T	R	S	Q	Elev.	Location	Collector
7/20/94	15S	6E	31	NW	5100	W summit Lookout Mountain.	Dana NR Ross*
7/25/98	16S	6E	5	NW	4300	rd. 1506 at L711	Dana NR Ross
7/7/94	15S	6E	28	NW	4700	rd. 2650, FR11 meadow	Dana NR Ross
7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
8/15/84	15S	6E	19	NE	4550	rd. 2650 at section 20 border	G. L. Parsons*
8/15/94	16S	5E	2	NW	4400	rd. 2633 at FC4	Dana NR Ross
8/15/94	16S	5E	2	SE	4450	end rd. 2633 (FC5)	Dana NR Ross
8/15/94	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross*
8/15/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
8/16/94	15S	6E	20	NW	4500	rd. 2650, meadow hillside	Dana NR Ross*
8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
8/16/94	15S	6E	28	SW	4850	rd. 2650, NE side ridge-top hill	Dana NR Ross
8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
8/16/94	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
8/17/94	16S	6E	5	NW	4300	rd. 1506 at L711/L707	Dana NR Ross
8/2/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
8/3/95	16S	5E	2	NW	4450	rd. 2633, 0.2 mi. E saddle	Dana NR Ross
8/3/95	16S	5E	2	SE	4450	last 0.1 mi. of rd. 2633	Dana NR Ross

8/3/95	16S	5E	3	NE	4400	rd. 2633 (0.15 E of saddle)	Dana NR Ross
8/3/95	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
7/26/98	15S	5E	12	SE	4100	rd. 359	Dana NR Ross
8/29/94	15S	6E	7	NE	4550	Carpenter Mountain. trailhead	Dana NR Ross*

## 10. *Ochlodes sylvanoides sylvanoides* (Boisduval)

### Woodland Skipper

Description. Wingspan 2.7 cm. Sexes similar. Upperside: orange with jagged, brown borders. Underside: hindwing brownish with several yellow spots that often form a contiguous band.

Similar Species. Both *Hesperia juba* and *H. colorado* are larger and have more contrasting markings on the underside of the hindwing.

Adult Flight Period. Recorded from 18 July to 9 October. Peak flight in August and early September.

Abundance. Abundant.

Distribution. HJA: found throughout the forest at all elevations. OREGON: found throughout most of the state, although it is replaced by other subspecies along the immediate coast and in southeastern Oregon.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Commonly observed at flowers and moist soil.

Potential Larval Hostplants. Poaceae: *Agropyron caninum*.

Comments. This is the most abundant and widespread skipper on the HJA.

HJA Records. 251 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	10/4/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	10/4/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	10/5/94	15S	6E	20	SW	4650	rd. 2650- middle of big bend	Dana NR Ross
Lane	10/9/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	7/18/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 at concrete bridge	Dana NR Ross*
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross*
Lane	8/1/94	15S	5E	29	NE	2550	rd. 130 (section corner)	Dana NR Ross

Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/1/94	15S	5E	30	SE	2250	junction 130/134	Dana NR Ross
Lane	8/1/94	15S	5E	31	NE	1750	rd. 130 at W B133	Dana NR Ross
Lane	8/1/94	15S	5E	31	NE	2250	rd. 134	Dana NR Ross
Lane	8/1/94	15S	5E	31	SE	1400	HJA Headquarters	Dana NR Ross*
Lane	8/1/94	15S	5E	31	SW	1500	rd. 130 near gate	Dana NR Ross
Lane	8/1/94	15S	5E	32	NW	2000	rd. 130 at SW end B134	Dana NR Ross
Lane	8/1/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross
Lane	8/13/80	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	8/15/94	16S	5E	2	NW	4400	rd. 2633 at FC4	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4400	rd. 2633 at FC5	Dana NR Ross
Lane	8/15/94	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4375	rd. 2633 (mid-FC3)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4400	rd. 2633 (east part of FC3)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	3850	rd. 2633 (1 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	3900	rd. 2633 (2 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	3950	rd. 2633 (3 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	4050	rd. 2633 (4 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	3	SW	3900	rd. 2633	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	3400	rd. 2633 (1 of 3)	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	3500	rd. 2633 (2 of 3)	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	3600	rd. 2633 (3 of 3)	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	2950	rd. 2633 (1 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	3000	rd. 2633 (2 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	3050	rd. 2633 (3 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	3150	rd. 2633 (4 of 4)	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/15/94	16S	5E	5	SW	2850	rd. 2633 at HJA border (rd. 784)	Dana NR Ross
Lane	8/16/94	15S	6E	19	NE	4550	rd. 2650 at section 20 border	Dana NR Ross
Lane	8/16/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650-nr SE 1/4 sect.	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4650	rd. 2650-middle big curve	Dana NR Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at S end FR11	Dana NR Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650-0.2 mi. S FR11	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650-0.4 mi. S FR11	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	8/16/94	16S	6E	5	NE	4350	rd. 1506 at E end L709	Dana NR Ross
Lane	8/16/94	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
Lane	8/17/94	15S	5E	25	NE	2700	rd. 1506 at E L701A	Dana NR Ross
Lane	8/17/94	15S	5E	25	NW	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	8/17/94	15S	5E	25	SW	2500	rd. 1506 at old growth trailhead	Dana NR Ross
Lane	8/17/94	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/17/94	15S	5E	27	NE	1925	rd. 1506	Dana NR Ross
Lane	8/17/94	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross

Lane	8/17/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	8/17/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	8/17/94	15S	5E	28	SE	1750	rd. 1506	Dana NR Ross
Lane	8/17/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/17/94	15S	5E	29	SE	1850	rd. 1506/1507	Dana NR Ross
Lane	8/17/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/17/94	15S	6E	30	SE	3000	rd. 1506	Dana NR Ross
Lane	8/17/94	15S	6E	32	SE	3700	rd. 1506 at L704A	Dana NR Ross
Lane	8/17/94	15S	6E	32	SE	3850	rd. 1506 at L704C	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	3900	rd. 1506 (1 of 5)	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	3975	rd. 1506 (2 of 5)	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4050	rd. 1506 (3 of 5)	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4150	rd. 1506 (4 of 5)	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4250	rd. 1506 (5 of 5)	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4300	rd. 1506 at L707	Dana NR Ross
Lane	8/2/94	15S	5E	33	SW	2600	junction rds. 1507/465	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4200	rd. 1507 (1 of 3)	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4250	rd. 1507 (2 of 3)	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4300	rd. 1507 (3 of 3)	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4000	rd. 1507 (1 of 5)	Dana NR Ross*
Lane	8/2/94	16S	5E	1	NW	4000	rd. 1507 (2 of 5)	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4050	rd. 1507 (3 of 5)	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4100	rd. 1507 (4 of 5)	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4150	rd. 1507 (5 of 5)	Dana NR Ross
Lane	8/2/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/2/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650, 0.1 mi. N rd. 1506	Dana NR Ross
Lane	8/2/95	16S	5E	6	NW	1350	rd. 1506/15 junction	Dana NR Ross
Lane	8/2/95	16S	5E	6	NW	1375	rd. 1506, 0.1 mi. NE rd. 15	Dana NR Ross
Lane	8/24/95	15S	5E	21	SE	2300	rd. 1508 at sec. 28 border	Dana NR Ross
Lane	8/24/95	15S	5E	22	NE	2750	rd. 1508 at rd. 480	Dana NR Ross
Lane	8/24/95	15S	5E	22	NW	2800	rd. 1508 at rd. 480 "Y" in road	Dana NR Ross
Lane	8/24/95	15S	5E	26	SE	2500	rd. 360, 0.1 mi. W of rd. 362	Dana NR Ross
Lane	8/24/95	15S	5E	26	SE	2575	rd. 360/362 junction	Dana NR Ross
Lane	8/24/95	15S	5E	26	SE	2650	rd. 362	Dana NR Ross
Lane	8/24/95	15S	5E	26	SW	2150	rd. 360 at L108A	Dana NR Ross
Lane	8/24/95	15S	5E	26	SW	2150	rd. 360 at mid-L107B	Dana NR Ross
Lane	8/24/95	15S	5E	26	SW	2250	rd. 360, 0.15 mi. E rd. 365	Dana NR Ross
Lane	8/24/95	15S	5E	26	SW	2300	rd. 360, 0.25 mi. E rd. 365	Dana NR Ross
Lane	8/24/95	15S	5E	27	SE	2050	rd. 360 at L116 (1 of 2)	Dana NR Ross
Lane	8/24/95	15S	5E	27	SE	2050	rd. 360 at L116 (2 of 2)	Dana NR Ross
Lane	8/24/95	15S	5E	27	SW	2400	0.7 mi. up rd. 363	Dana NR Ross
Lane	8/24/95	15S	5E	27	SW	2400	0.9 mi. up rd. 363	Dana NR Ross
Lane	8/24/95	15S	5E	28	NE	2150	rd. 1508- middle W L402	Dana NR Ross
Lane	8/24/95	15S	5E	28	SE	2100	rd. 363 at N L232	Dana NR Ross
Lane	8/24/95	15S	5E	28	SW	1800	rd. 1506, creek E of 1507	Dana NR Ross
Lane	8/24/95	15S	5E	28	SW	1800	rd. 1508, 0.1 mi. W rd. 410	Dana NR Ross
Lane	8/24/95	15S	5E	35	NE	2550	rd. 362	Dana NR Ross

Lane	8/24/95	15S	5E	35	NE	2650	rd. 360 at L114	Dana NR Ross
Lane	8/24/95	15S	5E	35	NE	2850	end rd. 362	Dana NR Ross
Lane	8/27/80	15S	5E	28	SW	1750	HJA	Gerasimos Cassis*
Lane	8/29/94	15S	5E	24	NE	3750	rd. 327	Dana NR Ross
Lane	8/3/94	15S	5E	22	SE	2150	rd. 320 at S end L404	Dana NR Ross
Lane	8/3/94	15S	5E	22	SW	2000	rd. 320 at L502	Dana NR Ross
Lane	8/3/94	15S	5E	27	NW	1850	rd. 320 (1 of 2)	Dana NR Ross
Lane	8/3/94	15S	5E	27	NW	1900	rd. 320 (2 of 2)	Dana NR Ross
Lane	8/3/94	15S	5E	28	NE	1800	rd. 1507 at L500	Dana NR Ross
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/3/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633- SE FC3	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633- mid-FC3	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3900	rd. 2633, SE-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3000	rd. 2633 (0.25 mi. E of rock columns	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3025	rd. 2633 (0.45 mi. E of rock columns	Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633 (0.1 mi. E of rock columns	Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/30/94	15S	5E	19	SW	3300	junction rds. 350/358	Dana NR Ross
Lane	8/30/94	15S	5E	24	NE	3500	junction rds. 350/355	Dana NR Ross
Lane	8/30/94	15S	5E	24	NE	3600	rd. 350 at mid-L303	Dana NR Ross
Lane	8/30/94	15S	5E	24	NE	3700	rd. 350/357	Dana NR Ross
Lane	8/30/94	15S	5E	25	NW	2650	rd. 350 at S7	Dana NR Ross
Lane	8/31/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	8/31/94	15S	5E	28	NW	2650	rd. 130-section corner	Dana NR Ross
Lane	8/31/94	15S	5E	29	NE	2650	rd. 130-very corner of section	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2300	rd. 130-0.2 mi. SW of rock quarry	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2300	rd. 130-extreme section corner	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/31/94	15S	5E	31	SE	1600	rd. 130 at N B132	Dana NR Ross
Lane	8/8/95	15S	5E	19	SW	3300	rd. 350/354 junction	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 spur to cutover hilltop	Dana NR Ross
Lane	8/8/95	15S	5E	25	NW	2800	rd. 350, 1.1 rd. mi. N of rd. 1506	Dana NR Ross
Lane	8/8/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	8/8/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	27	NE	1900	rd. 1506, W S4	Dana NR Ross
Lane	8/8/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/8/95	15S	5E	28	SW	1800	rd. 1506, creek E of 1507	Dana NR Ross
Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130- 0.2 mi. SW rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130- 0.5 mi. SW rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	1750	rd. 130 at NW B133	Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	2250	rd. 134- 1/2 way to end	Dana NR Ross
Lane	8/8/95	15S	5E	31	NW	2100	end rd. 134	Dana NR Ross
Lane	8/8/95	15S	5E	31	SW	1400	rd. 1506 at rd. to WS1 met. station	Dana NR Ross



Lane	8/8/95	15S	5E	31	SW	1400	rd. 1506, 0.4 mi. NE rd. 15	Dana NR Ross
Lane	8/8/95	15S	5E	32	NE	1700	rd. 1506, creek W of 1507	Dana NR Ross
Lane	8/8/95	15S	5E	32	NW	1500	rd. 1506 at WS3 met. station rd.	Dana NR Ross
Lane	8/8/95	15S	5E	32	NW	2150	rd. 130 at B134	Dana NR Ross
Lane	8/8/95	15S	5E	32	NW	2200	rd. 130- 0.15 mi. S rd. 134	Dana NR Ross
Lane	8/8/95	16S	5E	6	NW	1350	rd. 15/1506 junction	Dana NR Ross
Lane	9/10/76	?	?	?	?	?	? HJA	Voegtlin & Christy*
Lane	9/12/95	15S	5E	22	NE	2300	rd. 320 at S L405A	Dana NR Ross
Lane	9/12/95	15S	5E	22	NE	2300	rd. 320, 0.1 mi. E L405A	Dana NR Ross
Lane	9/12/95	15S	5E	23	NW	2550	rd. 320 at rd. 324	Dana NR Ross
Lane	9/13/94	15S	5E	34	NE	2950	rd. 1507	Dana NR Ross
Lane	9/13/94	15S	5E	34	SE	3800	rd. 1507	Dana NR Ross
Lane	9/13/94	15S	5E	34	SE	3800	rd. 1507 at W L206	Dana NR Ross
Lane	9/13/94	15S	5E	35	SE	3800	rd. 1507- S L208	Dana NR Ross
Lane	9/13/94	16S	5E	1	NE	4200	rd. 1507	Dana NR Ross
Lane	9/13/94	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	9/13/94	16S	5E	1	NW	4100	rd. 1507 at WL3/L211 border	Dana NR Ross
Lane	9/13/94	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross
Lane	9/13/94	16S	5E	2	NE	3900	rd. 1507 (1 of 2)	Dana NR Ross
Lane	9/13/94	16S	5E	2	NE	3900	rd. 1507 (2 of 2)	Dana NR Ross
Lane	9/13/94	16S	6E	6	NW	4350	end rd. 1507	Dana NR Ross
Lane	9/13/95	15S	5E	33	NE	2800	rd. 1507 at L201A/L202	Dana NR Ross
Lane	9/13/95	15S	5E	34	SE	3800	rd. 1507 at W L206	Dana NR Ross
Lane	9/13/95	15S	5E	34	SW	3600	rd. 1507 at mid-L205	Dana NR Ross
Lane	9/13/95	15S	5E	34	SW	3650	rd. 1507 at E L205 cliff	Dana NR Ross
Lane	9/13/95	15S	5E	35	SW	3800	rd. 1507 at WL1	Dana NR Ross
Lane	9/13/95	16S	5E	1	NE	4300	rd. 1507, forest bend	Dana NR Ross
Lane	9/13/95	16S	5E	1	NE	4350	rd. 1507 at L211A	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4000	rd. 1507 at L210/WL3	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4150	rd. 1507, 0.1 mi. W of rd. 530	Dana NR Ross
Lane	9/13/95	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross
Lane	9/13/95	16S	5E	2	NE	3950	rd. 1507 creek (mid-1/4 sec. curve)	Dana NR Ross
Lane	9/13/95	16S	5E	2	NE	4000	rd. 1507, 0.1 mi. S of L209	Dana NR Ross
Lane	9/13/95	16S	5E	2	NE	4050	rd. 1507 at L210	Dana NR Ross
Lane	9/13/95	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	9/14/94	15S	5E	22	SW	2150	rd. 320 at L404A	Dana NR Ross
Lane	9/14/94	15S	5E	23	NW	2450	rd. 320	Dana NR Ross
Lane	9/14/94	15S	5E	27	NW	1925	rd. 320 at N L501	Dana NR Ross
Lane	9/14/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 at hillside mdw (1 of 3)	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 at hillside mdw (2 of 3)	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 at hillside mdw (3 of 3)	Dana NR Ross
Lane	9/14/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650, middle of big bend	Dana NR Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650, near sec. 20NW	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4800	rd. 2650, 0.15 mi. S FR11	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650, MP 9.1-9.2	Dana NR Ross

Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at N FR11	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at (mid-S) L704A	Dana NR Ross
Lane	9/14/95	16S	6E	5	NW	4300	rd. 1506 at L707	Dana NR Ross
Lane	9/17/80	15S	5E	28	SE	1750	rd. 1506 concrete bridge	R.W. Sleeter*
Lane	9/26/79	16S	5E	1	NE	4300	HJA	Gary M. Cooper*
Lane	?	15S	5E	25		2400	Lookout Creek	P.C. Hammond
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	7/25/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
Linn	8/16/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	8/29/94	15S	6E	18	NE	4250	rd. 350 at sec. 7	Dana NR Ross
Linn	8/29/94	15S	6E	18	NW	4100	rd. 350/359 junction	Dana NR Ross
Linn	8/29/94	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trailhead	Dana NR Ross
Linn	8/29/94	15S	6E	7	NW	4700	0.25 E of end of rd. 350	Dana NR Ross
Linn	8/29/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/3/94	15S	5E	14	NW	3300	rd. 410 at WS 6.	Dana NR Ross
Linn	8/3/94	15S	5E	14	NW	3400	WS 7	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L385	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L387	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (1 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (2 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (3 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (4 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (5 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (6 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359-all along to end (7 of 7)	Dana NR Ross
Linn	8/30/94	15S	5E	13	SE	3850	rd. 350 at L304	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 (1 of 2)	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 (2 of 2)	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at N L381 creek	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at E L382 bend	Dana NR Ross
Linn	8/9/95	15S	5E	12	SW	4050	end rd. 359	Dana NR Ross
Linn	8/9/95	15S	5E	12	SW	4100	0.25 mi. E of end rd. 359	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4700	rd. 350, 0.2 E of road end	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at N L381 creek bend	Dana NR Ross
Linn	9/12/95	15S	5E	14	NE	3050	rd. 320 at N L522	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3200	rd. 320, mid-WS6	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3350	rd. 410, mid-WS6	Dana NR Ross
Linn	9/12/95	15S	5E	14	SE	2700	rd. 320 at rd. 325	Dana NR Ross
Linn	9/12/95	15S	5E	14	SW	2700	rd. 320 at N L503	Dana NR Ross
Linn	9/14/94	15S	5E	14	NE	2950	rd. 320 at S L522	Dana NR Ross
Linn	9/14/94	15S	5E	14	NE	3050	rd. 320/328 junction	Dana NR Ross
Linn	9/14/94	15S	5E	14	NW	3300	rd. 320/410 junction (WS 6)	Dana NR Ross
Linn	9/14/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
Linn	9/14/94	15S	5E	14	SE	2700	rd. 320- S L523 (2 of 2)	Dana NR Ross

Linn	9/14/94	15S	5E	14	SE	2750	rd. 320- S L523 (1 of 2)	Dana NR Ross
Linn	9/14/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

### 11. *Euphyes vestris vestris* (Boisduval)

#### Dun Skipper

Description. Wingspan 2.7 cm. Sexes similar. Upperside: brown; male forewing bears a dark stigma.

Similar Species. *Hesperia juba*, *H. colorado*, and *Ochlodes sylvanoides* are more orange in color. *Erynnis* species are a much darker brown, bordering on black.

Adult Flight Period. There is a single HJA record for this species without a collection date.

Abundance. Rare.

Distribution. HJA: unknown. OREGON: occurs throughout western Oregon and the Cascade Mountains.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Unknown for the HJA. The species can be found in damp grassy areas along roadsides elsewhere in Oregon.

Potential Larval Hostplants. Cyperaceae: unknown sedges.

Comments. It is somewhat surprising that this species is not more prevalent on the HJA.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
?	?	?	?	?	?	?	"HJA"	?

### 12. *Ambliscirtes vialis* (W.H. Edwards)

#### Roadside Skipper

Description. Wingspread 2.4 cm. Sexes similar. Upperside: dark brown, almost black, with a faint row of spots on the forewing. Underside: like the upperside, but

with white scales on the outer half of the wings, suggesting an overall gray color.

Similar Species. *Erynnis* species are both larger and a lighter shade of brown.

Adult Flight Period. Recorded from 7 May to 9 June.

Abundance. Uncommon. Only one or two individuals were observed at any one of four locations.

Distribution. HJA: a few roadside locations along lower Lookout Creek. OREGON: sparsely distributed throughout the Cascade Mountains and the northern half of the state.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Flight is low to the ground. Adults alight on low vegetation and come to moist soil. Males defend small territories in moist grassy areas.

Potential Larval Hostplants. Poaceae: unknown grasses.

Comments. This small, dark skipper can be easily overlooked.

HJA Records. 5 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/18/1995	15S	5E	28	NE	1800	rd. 1506 at L500 clearcut	Dana NR Ross
Lane	5/24/1994	16S	5E	6	SE	2750	near end rd. 202 (off 1501)	Dana NR Ross*
Lane	5/7/1994	15S	5E	28	NE	1800	rd. 1506 at L500 clearcut	Dana NR Ross
Lane	6/4/1980	15S	5E	28	SW	1750	sec. 28 NW/SW boundary	Gary M. Cooper*
Lane	6/9/1994	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross

Family PAPILIONIDAE: 2 genera, 5 species.

Subfamily PARNASSIINAE: 1 genus, 1 species.

### 13. *Parnassius clodius clodianus* Stichel

#### Clodius Parnassian

Description. Wingspan 6.0 cm. Mild sexual dimorphism. Upperside: white; forewing with a wide, translucent gray margin; hindwing bears red spots and is tailless. The female has more translucent wings and mated females will have a sphragis attached to the end its abdomen (see comments below).

Similar Species. None. *Papilio* species have tailed hindwings.

Adult Flight Period. Recorded from 6 May to 14 September. Peak flight from late June through early August.

Abundance: Abundant. Most common at higher elevations.

Distribution. HJA: found throughout the forest at all elevations. OREGON: all of western Oregon including the Cascade Mountains; also found in the Warner Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Males patrol in search of females. Both sexes visit flowers and bask frequently.

Potential Larval Hostplants. Fumariaceae: *Dicentra formosa*, *Dicentra uniflora*.

Comments. During copulation, the male *Parnassius* secretes a hard, white structure called a sphragis onto the abdomen of the female. This prevents other males from mating with her.

HJA Records. 262 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
?	7/20/77	?	?	?	?	4800'	HJA	Eulensen*
?	7/6/77	15S	?	?	?	4800	HJA- Carpenter Mtn.	Eulensen & Searles*
Lane	6/1/95	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Ross
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	6/19/94	15S	5E	27	NW	1800	rd. 1506/320	Ross
Lane	6/19/94	15S	5E	27	NW	1850	rd. 1506 at S2	Ross
Lane	6/19/94	15S	5E	27	NW	1900	rd. 320/L501	Ross
Lane	6/20/94	15S	5E	34	SE	3800	rd. 1507 at L206	Ross
Lane	6/20/94	15S	5E	34	SE	3800	rd. 1507 at L206B	Ross
Lane	6/20/94	15S	5E	34	SW	3600	rd. 1507 nr L205	Ross
Lane	6/20/94	15S	5E	35	SE	3800	rd. 1507 at L208 (1 of 2)	Ross
Lane	6/20/94	15S	5E	35	SE	3800	rd. 1507 at L208 (2 of 2)	Ross
Lane	6/20/94	15S	5E	35	SW	3850	rd. 1507 at creek	Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507 at L207	Ross
Lane	6/20/94	15S	5W	27	NW	1800	rd. 1506/320	Ross*
Lane	6/20/94	16S	5E	1	NE	4200	rd. 1507, E of L211	Ross
Lane	6/20/94	16S	5E	1	NW	4000	rd. 1507 at L210	Ross
Lane	6/20/94	16S	5E	1	NW	4100	rd. 1507 at L211	Ross
Lane	6/20/94	16S	5E	2	NE	3900	rd. 1507	Ross
Lane	6/21/94	15S	5E	29	NE	2650	rd. 130, at sec. 28	Ross
Lane	6/21/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Ross
Lane	6/21/94	15S	5E	30	SE	2250	rd. 130 at sec. 31	Ross
Lane	6/22/95	15S	5E	28	SE	1800	rd. 1506, 0.2 mi. SW of rd. 360	Ross
Lane	6/23/95	15S	5E	30	SE	2250	rd. 130/134	Ross

Lane	6/23/95	16S	5E	6	NW	1350	rd. 15/1506	Ross
Lane	6/26/79	15S	5E	28	SW	1750	HJA	Cooper
Lane	6/26/79	15S	5E	28	SW	1750	near concrete bridge?	Cooper
Lane	6/26/95	15S	5E	26	NW	1950	rd. 1506/330	Ross
Lane	6/26/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Ross
Lane	6/26/95	15S	5E	27	NW	1800	rd. 1506/320	Ross
Lane	6/26/95	15S	5E	27	NW	1850	rd. 1506 at S3	Ross
Lane	6/26/95	15S	5E	29	SE	1850	rd. 1506/1507	Ross
Lane	6/26/95	15S	5E	32	NE	1600	rd. 304, 1/2 way to Gypsy Camp	Ross
Lane	6/26/95	15S	5E	32	NW	1500	rd. 1506 /300	Ross
Lane	6/27/95	15S	5E	21	SW	2650	rd. 130, spur rd. to west	Ross
Lane	6/27/95	15S	5E	28	NW	2650	rd. 130	Ross
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130, 0.3 mi. SW of rock quarry	Ross
Lane	6/27/95	15S	5E	30	SE	2250	rd. 130/134	Ross
Lane	6/27/95	15S	5E	31	NE	1750	rd. 130 at W B133	Ross
Lane	6/27/95	15S	5E	31	SE	1400	HJA headquarters	Ross
Lane	6/27/95	15S	5E	31	SE	1600	rd. 130, 0.1 mi. above debris flume	Ross
Lane	6/28/95	15S	6E	20	NW	4500	rd. 2650 at N hillside meadow	Ross
Lane	6/28/95	15S	6E	20	SE	4500	rd. 2650/630	Ross
Lane	6/28/95	15S	6E	28	SW	4850	rd. 2650 (SE side ridge-top hill)	Ross
Lane	6/28/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650 at sec.28	Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross
Lane	6/28/95	16S	6E	5	NW	3950	rd. 1506 0.1 mi. E lower Lookout Creek crossing	Ross
Lane	6/28/95	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Ross
Lane	6/28/95	16S	6E	5	NW	4050	rd. 1506 0.1 mi. W lower Lookout Creek crossing	Ross
Lane	6/29/95	15S	5E	28	NE	2150	rd. 1508, 0.45 mi. above rd. 410	Ross
Lane	6/29/95	15S	5E	28	NW	1800	rd. 1508/410	Ross
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Ross
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Ross
Lane	7/12/95	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Ross
Lane	7/12/95	16S	6E	5	NW	4200	rd. 1506 at upper Lookout Creek crossing	Ross
Lane	7/13/95	15S	5E	24	NE	3700	rd. 350/357	Ross
Lane	7/13/95	15S	5E	26	SW	2225	rd. 360/365	Ross
Lane	7/13/95	15S	5E	27	NE	1900	rd. 1506, 0.5 mi. E McRae Creek	Ross
Lane	7/13/95	15S	5E	27	NW	1850	rd. 1506 at S3	Ross
Lane	7/13/95	15S	5E	27	SE	2050	rd. 360 at L107	Ross
Lane	7/13/95	15S	6E	19	SW	3350	rd. 350, 0.3 mi. above rd. 354 (N L302A)	Ross
Lane	7/18/94	15S	5E	24	NE	3450	rd. 350 at S L303	Ross
Lane	7/18/94	15S	5E	24	NE	3450	rd. 350 at sec. 19	Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Ross
Lane	7/18/94	15S	6E	19	SW	3300	rds. 354/358	Ross
Lane	7/20/94	16S	6E	6	NE	4500	L.O. Mtn. trail at secs.32/6NW	Ross

Lane	7/20/94	16S	6E	6	NE	4600	L.O. Mtn. trail at sec. 32 (alder hillside)	Ross
Lane	7/20/94	16S	6E	6	NE	4650	L.O. Mtn. trail, fork	Ross
Lane	7/20/98	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	7/26/95	16S	5E	2	NE	3950	rd. 1507, middle of bend	Ross
Lane	7/27/95	15S	5E	34	SE	3800	rd. 1507	Ross
Lane	7/27/95	15S	5E	34	SW	3300	rd. 1507, 0.25 mi. SW rd. 470	Ross
Lane	7/27/95	15S	5E	34	SW	3600	rd. 1507, 0.15 mi. W of L205 cliff	Ross
Lane	7/27/95	15S	5E	34	SW	3650	rd. 1507 at E L205 cliff	Ross
Lane	7/27/95	15S	5E	34	SW	3650	rd. 1507, 0.2 mi. NE of E L205 cliff	Ross
Lane	7/27/95	15S	5E	35	SE	3800	rd. 1507, E side creek bend	Ross
Lane	7/27/95	15S	5E	35	SE	3800	rd. 1507, W side creek bend	Ross
Lane	7/27/95	15S	5E	35	SW	3800	rd. 1507 at WL1	Ross
Lane	7/27/95	15S	5E	35	SW	3850	rd. 1507, E side creek bend	Ross
Lane	7/27/95	15S	5E	35	SW	3850	rd. 1507, W side creek bend	Ross
Lane	7/27/95	15S	5E	35	SW	3900	rd. 1507 at S L207 curve	Ross
Lane	7/27/95	15S	5E	36	SW	3950	rd. 1507 at L209	Ross
Lane	7/27/95	16S	5E	1	NW	4000	rd. 1507 at L210	Ross
Lane	7/27/95	16S	5E	1	NW	4050	rd. 1507 at WL3	Ross
Lane	7/27/95	16S	5E	1	SE	4350	rd. 1507, 0.1 mi. W of end meadow	Ross
Lane	7/27/95	16S	5E	2	NE	3900	rd. 1507, 0.1 mi. E of creek	Ross
Lane	7/27/95	16S	5E	2	NE	3900	rd. 1507, 0.2 mi. E of creek	Ross
Lane	7/27/95	16S	5E	2	NE	3900	rd. 1507, bend above FC5	Ross
Lane	7/27/95	16S	5E	2	NE	3950	rd. 1507 creek bend	Ross
Lane	7/31/79	15S	5E	26	SW	2250	HJA nr Lookout Creek	Cooper*
Lane	7/4/95	15S	5E	26	SE	2550	rd. 360 at E L109A	Ross
Lane	7/4/95	15S	5E	26	SW	2100	rd. 360 at L107	Ross
Lane	7/4/95	15S	5E	32	NW	1500	rd. 1506, 0.2 mi. SW rd. 304	Ross
Lane	7/4/95	15S	5E	35	NE	2550	rd. 360 at L110	Ross
Lane	7/4/95	15S	5E	35	NE	2650	rd. 360 at L114	Ross
Lane	7/4/95	15S	5E	36	NW	2550	rd. 360 at Mack Creek	Ross
Lane	7/6/77						Mack Creek	?
Lane	7/6/94	16S	5E	2	NW	4375	rd. 2633 at W FC5	Ross
Lane	7/6/94	16S	5E	2	SE	4450	end rd. 2633	Ross
Lane	7/6/94	16S	5E	3	NE	4375	rd. 2633 at FC3 (at 3NW)	Ross
Lane	7/6/94	16S	5E	3	NE	4375	rd. 2633 between FC3/FC4	Ross
Lane	7/6/94	16S	5E	3	NW	3650	rd. 2633 at hillside ravines	Ross
Lane	7/6/94	16S	5E	3	NW	3850	rd. 2633 at SW-most corner of ¼ section	Ross
Lane	7/6/94	16S	5E	3	NW	4000	rd. 2633 above SE-most corner of ¼ section	Ross
Lane	7/6/94	16S	5E	3	NW	4050	rd. 2633 (lower switchback)	Ross
Lane	7/6/94	16S	5E	3	SW	3900	rd. 2633 at SE-most corner	Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Ross
Lane	7/6/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Ross
Lane	7/6/94	16S	5E	4	NW	3300	rd. 2633 at 4 NE	Ross
Lane	7/6/94	16S	5E	5	NE	3050	rd. 2633	Ross
Lane	7/7/94	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Ross

Lane	7/7/94	15S	6E	20	SE	4500	rd. 2650/630	Ross
Lane	7/7/94	15S	6E	20	SW	4550	rd. 2650 at 20 SE	Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	7/7/94	15S	6E	28	NW	4750	rd. 2650 at sec. 28SW	Ross
Lane	7/7/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Ross
Lane	7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Ross
Lane	7/7/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Ross
Lane	7/7/94	16S	6E	5	NW	3900	rd. 1506 at L707 (N)	Ross
Lane	7/7/94	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Ross
Lane	7/7/94	16S	6E	5	NW	4200	rd. 1506 at L711/L708	Ross
Lane	7/8/95	15S	5E	27	NW	1950	rd. 320/322	Ross
Lane	8/1/94	15S	5E	29	SW	2250	rd. 130	Ross
Lane	8/15/94	16S	5E	2	NW	4375	rd. 2633 at W FC5	Ross
Lane	8/15/94	16S	5E	2	NW	4450	rd. 2633 at E FC4 corner	Ross
Lane	8/15/94	16S	5E	2	SE	4450	end rd. 2633	Ross
Lane	8/15/94	16S	5E	3	NE	4375	rd. 2633 at FC3 saddle	Ross
Lane	8/15/94	16S	5E	3	NE	4400	rd. 2633, 0.15 mi. E FC3	Ross
Lane	8/15/94	16S	5E	3	NW	3650	rd. 2633 at hillside ravines	Ross
Lane	8/15/94	16S	5E	3	NW	4000	rd. 2633 below dry hillside	Ross
Lane	8/15/94	16S	5E	3	NW	4100	rd. 2633, extreme corner	Ross
Lane	8/15/94	16S	5E	4	NE	3300	rd. 2633, 0.35 mi. W of rock wall seep	Ross
Lane	8/15/94	16S	5E	4	NE	3350	rd. 2633, 0.2 mi. W of rock wall seep	Ross
Lane	8/16/94	15S	6E	20	SE	4500	rd. 2650/630	Ross
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650, straight stretch at 20SE	Ross
Lane	8/16/94	15S	6E	20	SW	4650	rd. 2650, mid-big curve	Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	8/16/94	15S	6E	28	SW	4700	rd. 2650 (1 of 3)	Ross
Lane	8/16/94	15S	6E	28	SW	4800	rd. 2650 (2 of 3)	Ross
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650 (3 of 3)	Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 1506/2650	Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross
Lane	8/17/94	15S	6E	29	SW	3250	rd. 1506	Ross
Lane	8/17/94	15S	6E	32	NE	3500	rd. 1506 0.2 mi. N of old growth trailhead	Ross
Lane	8/17/94	15S	6E	32	NE	3550	rd. 1506 at old growth trailhead	Ross
Lane	8/17/94	16S	6E	5	NW	3900	rd. 1506 at N L707	Ross
Lane	8/17/94	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Ross
Lane	8/17/94	16S	6E	5	NW	4200	rd. 1506 at L708/L711	Ross
Lane	8/2/94	15S	5E	34	SE	3800	rd. 1507 at L206 "creek"	Ross
Lane	8/2/94	15S	5E	35	SE	3800	rd. 1507 at L208 (E)	Ross
Lane	8/2/94	15S	5E	35	SE	3800	rd. 1507 at L208 (mid-creek)	Ross
Lane	8/2/94	15S	5E	35	SW	3850	rd. 1507 at L207 (W)	Ross
Lane	8/2/94	15S	5E	35	SW	3850	rd. 1507 at L208 (W)	Ross
Lane	8/2/94	15S	5E	35	SW	3900	rd. 1507 at L207 (E)	Ross
Lane	8/2/94	15S	5E	35	SW	3900	rd. 1507 at L207 (mid)	Ross
Lane	8/2/94	16S	5E	1	NW	4000	rd. 1507 at L210	Ross



Lane	8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Ross
Lane	8/2/94	16S	5E	1	NW	4100	rd. 1507 at W L211	Ross
Lane	8/2/94	16S	5E	1	SE	4200	rd. 1507 at L211A	Ross
Lane	8/2/94	16S	5E	2	NE	3900	rd. 1507 ("E")	Ross
Lane	8/2/94	16S	5E	2	NE	3900	rd. 1507 ("MID")	Ross
Lane	8/2/94	16S	5E	2	NE	3900	rd. 1507 ("NW")	Ross
Lane	8/2/94	16S	6E	6	SW	4350	end meadow rd. 1507	Ross
Lane	8/2/95	15S	6E	19	NE	4600	rd. 2650 at FR8	Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650 at mid-hillside meadow	Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650, hillside meadow (N)	Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650/630	Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650, 0.2 mi. W of rd. 630	Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650, hillside meadow (S)	Ross
Lane	8/2/95	15S	6E	20	SW	4700	rd. 2650, upper-mid big curve	Ross
Lane	8/2/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Ross
Lane	8/2/95	15S	6E	28	SW	4850	rd. 2650 (NE side ridge-top hill)	Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650, mid-cliff bend	Ross
Lane	8/2/95	15S	6E	29	NE	4600	rd. 2650, 0.15 mi. N of FR11 (N)	Ross
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Ross
Lane	8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N 1506 junction.	Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 1506/2650	Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650, 0.35 mi. N 1506 junction.	Ross
Lane	8/2/95	15S	6E	33	SW	4750	rd. 1506 at L704A	Ross
Lane	8/3/95	16S	5E	2	NW	4375	rd. 2633 saddle	Ross
Lane	8/3/95	16S	5E	2	NW	4375	rd. 2633, saddle nr end (FC5)	Ross
Lane	8/3/95	16S	5E	2	NW	4400	rd. 2633, extreme W FC5	Ross
Lane	8/3/95	16S	5E	2	NW	4450	rd. 2633 at S FC4	Ross
Lane	8/3/95	16S	5E	2	SE	4450	end rd. 2633	Ross
Lane	8/3/95	16S	5E	3	NE	4375	rd. 2633 at saddle	Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, 0.1 mi. E E-FC3 curve	Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, E FC3 curve	Ross
Lane	8/3/95	16S	5E	3	NE	4425	rd. 2633, 0.15 mi. E of FC3 saddle	Ross
Lane	8/3/95	16S	5E	3	NW	3700	rd. 2633 at creek curve	Ross
Lane	8/3/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633 forest bend, E of lower switchback	Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633, nr sec. 4	Ross
Lane	8/3/95	16S	5E	3	NW	4150	rd. 2633, 0.1 mi. E of upper switchback	Ross
Lane	8/3/95	16S	5E	3	SW	3900	rd. 2633 at SE-most corner	Ross
Lane	8/3/95	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Ross
Lane	8/3/95	16S	5E	4	NE	4100	rd. 2633 at upper switchback	Ross
Lane	8/3/95	16S	5E	4	NW	3350	rd. 2633, curve nr 4NE	Ross
Lane	9/14/95	15S	6E	20	NW	4650	rd. 2650 at hillside meadow (S)	Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650, rock slide corner	Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 2650/1506	Ross
Lane	9/14/95	15S	6E	33	SW	4600	rd. 1506, in woods 0.1 mi. S L704A	Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross
Lane	?	15S	5E	25		2400	Lookout Creek	Hammond

Lane ?	15S	6E	28	NW	4850	FR11 meadow	Hammond
Lane ?	15S	6E	32		3600	Lookout Creek	Hammond
Lane ?	15S	6E	33	SW?	4900	Frissell Point area	Hammond
Linn 5/6/77	15S	6E	12	NE	5000'	Carpenter Mountain	Eulensen
Linn 6/19/94	15S	5E	14	NE	3050	rd. 320 between 327/328	Ross
Linn 6/22/95	15S	6E	7	SE	4400	rd. 350, 0.4 mi. S Carp. Mtn. trailhd	Ross
Linn 6/26/95	15S	5E	14	NE	3000	rd. 320 at L522	Ross
Linn 6/29/77	15S	5E	12	NE	5000	Carpenter Mtn.	Eulensen
Linn 6/9/94	15S	5E	12	SW	4100	end rd. 359	Ross
Linn 7/13/95	15S	6E	18	NW	4000	rd. 350 at creek/bend below 359 gate	Ross
Linn 7/13/95	15S	6E	18	NW	4100	rd. 350 at 359 gate	Ross
Linn 7/13/95	15S	6E	18	SW	4000	rd. 350	Ross
Linn 7/13/95	15S	6E	7	NW	4800	end rd. 350	Ross
Linn 7/13/95	15S	6E	7	SE	4250	rd. 350 at sec. 18	Ross
Linn 7/18/94	15S	5E	13	SE	3800	rd. 350 at sec. 24	Ross
Linn 7/18/94	15S	6E	18	NW	4000	rd. 350, creek bend below 359	Ross
Linn 7/18/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trlhd.	Ross
Linn 7/18/94	15S	6E	7	NW	4700	0.3 mi. E end rd. 350	Ross
Linn 7/18/94	15S	6E	7	NW	4800	end rd. 350	Ross
Linn 7/18/94	15S	6E	7	SE	4250	rd. 350 at sec. 18	Ross
Linn 7/19/94	15S	5E	12	SE	4100	rd. 359 at L386	Ross
Linn 7/19/94	15S	5E	12	SW	4050	end rd. 359	Ross
Linn 7/19/94	15S	5E	12	SW	4100	rd. 359 at sec.12SE	Ross
Linn 7/19/94	15S	5E	7	SW	4100	rd. 359 at N L381	Ross
Linn 7/19/94	15S	5E	7	SW	4100	rd. 359 at sec.7SE	Ross
Linn 7/19/94	15S	6E	7	NW	5000	meadow above end rd. 350	Ross
Linn 7/20/77	15S	6E	12	NE	5000'	HJA	Eulensen
Linn 7/25/95	15S	6E	13	SW	3050	end rd. 325	Ross
Linn 7/6/77	15S	5E	12	NE	5000	Carpenter Mtn.	Eulensen
Linn 7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Ross
Linn 7/7/95	15S	5E	14	NE	2950	rd. 320/408	Ross
Linn 7/7/95	15S	5E	14	NE	3000	rd. 320 at curve near cabin	Ross
Linn 8/16/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Ross
Linn 8/2/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Ross
Linn 8/20/77	15S	5E	12	NE	5000	Carpenter Mtn.	Cooper*
Linn 8/23/77	15S	5E	12	NE	5000	Carpenter Mtn.	Eulensen
Linn 8/30/94	15S	5E	12	SE	4100	rd. 359 at L387	Ross
Linn 8/30/94	15S	5E	12	SW	4100	rd. 359	Ross
Linn 8/30/94	15S	6E	7	SW	4100	rd. 359 at W L381	Ross
Linn 8/8/95	15S	6E	18	NW	4100	rds. 350/359	Ross
Linn 8/9/95	15S	5E	12	SE	4100	rd. 359 at L384	Ross
Linn 8/9/95	15S	5E	12	SE	4100	rd. 359 at L386	Ross
Linn 8/9/95	15S	5E	12	SE	4100	rd. 359/430	Ross
Linn 8/9/95	15S	5E	12	SW	4100	rd. 359, 0.3 mi. W of rd. 430	Ross
Linn 8/9/95	15S	6E	18	NW	4000	rd. 350, creek-bend below rd. 359	Ross
Linn 8/9/95	15S	6E	18	NW	4100	rd. 359 gate	Ross
Linn 8/9/95	15S	6E	18	NW	4150	rd. 350, 0.15 mi. N rd. 359 junct.	Ross
Linn 8/9/95	15S	6E	18	NW	4150	rd. 359, 0.15 mi. N gate	Ross

Subfamily PAPILIONINAE: 1 genus, 4 species.

14. *Papilio zelicaon zelicaon* Lucas

Anise Swallowtail

Description. Wingspan 7.1 cm. Sexes similar. Upperside: black and yellow. The hindwing bears a single tail.

Similar Species. All other HJA *Papilio* are larger and are predominantly yellow or white in color.

Adult Flight Period. Recorded from 24 May to 14 October. Peak flight in July.

Abundance. Uncommon. Usually observed as one or a few individuals in any given location.

Distribution. HJA: most often encountered in the high elevation meadows of Carpenter Mountain and Frissell Ridge. Rarely observed at lower elevations.

OREGON: found throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Males are often observed flying rapidly along roadsides and around ridge-top and mountain summits. Females are most often encountered as they search out the larval hostplant in subalpine meadows. Both sexes visit flowers. Males also come to moist soil.

Potential Larval Hostplants. Apiaceae: *Daucus carota*, *Ligusticum grayi*, *Lomatium dissectum*, *Lomatium utriculatum*.

Comments. The long flight period and trimodal distribution of the collection records suggest that there may be as many as three generations of this butterfly on the HJA.

HJA Records. 21 total. Specimen vouchered (\*).

<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
7/6/77	?	?	?	?	4800'	Carpenter Mountain.	Eulensen & Searles
10/14/95	15S	6E	20	NW	4500	rd. 2650, hillside meadow (N end)	Dana NR Ross
10/14/95	15S	6E	20	NW	4550	rd. 2650, hillside meadow (S end)	Dana NR Ross
5/24/94	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
5/24/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
6/1/95	15S	6E	33	SW	5125	Frissell Point communication. site	Dana NR Ross
6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*

7/20/94	16S	6E	6	NE	4650	Lookout Mountain. trail (fork)	Dana NR Ross
7/20/94	16S	6E	6	NE	4900	Lookout Mountain., just E of S ridge-top meadow	Dana NR Ross
7/27/95	15S	5E	35	SW	3875	rd. 1507, mid-L207	Dana NR Ross
7/28/95	15S	6E	20	NW	4500	rd. 2650 (N) hillside meadow	Dana NR Ross
7/28/95	15S	6E	30	NW	2725	rd. 1506 at W L702 (curve in road)	Dana NR Ross
7/28/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
7/6/77	?	?	?	?	?	Mack Creek	?*
?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
6/10/94	15S	6E	18	NW	4000	rd. 350/L305	Dana NR Ross
6/29/77	15S	5E	12	NE	5000	Carpenter Mountain.	G. Eulensen*
6/9/94	15S	6E	7	NW	4750	rd. 350/L307	Dana NR Ross
7/12/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
7/12/95	15S	6E	7	NW	4900	SW slope Carp Mountain above end rd. 350	Dana NR Ross

### 15. *Papilio rutulus rutulus* (Lucas)

#### Western Tiger Swallowtail

**Description.** Wingspan 8.5 cm. Sexes similar. A large butterfly. Upperside: yellow with black margins and bands. The hindwing bears a single tail.

**Similar Species.** *Papilio eurymedon* is white with black markings. *Papilio multicaudatus* is very rare and is larger with two tails on each hindwing. *Papilio zelicaon* averages smaller, lacks the black bands and is blacker overall.

**Adult Flight Period.** Recorded from 1 June to 9 August. Peak flight in late June and early July.

**Abundance:** Common.

**Distribution:** HJA: most records are from low to mid elevations along Lookout Creek and its tributaries, but this species has been observed throughout the forest.

OREGON: occurs throughout the state.

**Biogeographical Region of Origin.** Western North America.

**Adult Behavior.** Most adults encountered were males patrolling in or near riparian areas. Adults visit flowers and males come to moist soil.

**Potential Larval Hostplants.** Betulaceae: *Alnus rubra*, *Alnus viridis*; Salicaceae:

*Populus tremuloides*, *Populus trichocarpa*, *Salix scouleriana*; Rosaceae: *Prunus emarginata*.

Comments. On the HJA, virtually every large yellow swallowtail will be this species.

HJA Records. 54 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/1/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/1/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	6/2/95	15S	5E	32	NE	1600	rds. 1506/305	Dana NR Ross
Lane	6/22/95	15S	5E	25	NW	2350	rd. 350 at S5	Dana NR Ross
Lane	6/22/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	6/23/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/23/95	16S	5E	6	NW	1350	rd. 15/1506	Dana NR Ross
Lane	6/27/95	15S	5E	21	SW	2650	rd. 130, N HJA boundary	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130, 0.4 mi. SW of rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/29/95	15S	5E	22	NE	2750	rds. 1508/480	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 "waterfall/seep" (=N L403)	Dana NR Ross
Lane	6/29/95	15S	5E	28	NW	1850	rd. 1508 at mid-L401	Dana NR Ross
Lane	6/29/95	15S	5E	28	NW	1950	rd. 1508 at NNE L401	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/29/95	15S	5E	28	SW	1800	rd. 1506, 0.1 E of 1507	Dana NR Ross
Lane	6/29/95	15S	5E	31	SE	1475	rd. 1506 at sec. 32	Dana NR Ross
Lane	6/29/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	6/8/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	6/8/94	15S	5E	32	NW	1500	rd. 1506 at WS3 rd.	Dana NR Ross
Lane	7/13/95	15S	5E	27	SW	1900	rd. 360 at sec. 28	Dana NR Ross
Lane	7/13/95	15S	5E	36	NW	2550	rd. 360 at Mack Creek	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3700	rds. 350/357	Dana NR Ross
Lane	7/20/94	16S	6E	6	NE	4650	Lookout Mtn. trail (fork)	Dana NR Ross
Lane	7/20/94	16S	6E	6	NE	4900	Lookout Mtn., just E of S ridge-top mdw	Dana NR Ross
Lane	7/27/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	7/27/95	15S	5E	35	SW	3850	rd. 1507 at creek bend	Dana NR Ross
Lane	7/27/95	16S	5E	1	NE	4300	rd. 1507 at W L211A forest bend	Dana NR Ross
Lane	7/3/95	15S	5E	22	SW	1950	rd. 322 (off 320) at L502	Dana NR Ross
Lane	7/3/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/3/95	15S	5E	28	SW	1800	rd. 1508 at rd. 410 (L401)	Dana NR Ross
Lane	7/4/95	15S	5E	26	SE	2550	rd. 360 at E L109A	Dana NR Ross
Lane	7/4/95	15S	5E	28	SE	1850	rd. 360 gate	Dana NR Ross
Lane	7/4/95	15S	5E	35	NE	2550	rd. 360, 0.3 mi. NW Mack Creek	Dana NR Ross
Lane	7/4/95	15S	5E	35	NE	2550	rd. 360, 0.5 mi. NW Mack Creek	Dana NR Ross
Lane	7/4/95	15S	5E	36	NW	2550	rd. 360 at Mack Creek	Dana NR Ross
Lane	7/4/95	15S	5E	36	NW	2550	rd. 360, 0.1 mi. NW Mack Creek	Dana NR Ross
Lane	7/4/95	15S	5E	36	NW	2550	rd. 360, 0.2 mi. NW Mack Creek	Dana NR Ross

Lane	7/4/95	16S	5E	6	NW	1350	rd. 1506/15	Dana NR Ross
Lane	7/6/94	16S	5E	6	NW	1350	rd. 15/Lookout Creek	Dana NR Ross
Lane	7/7/94	15S	6E	20	NW	4500	rd. 2650 hillside meadow	Dana NR Ross
Lane	7/7/95	15S	5E	27	NW	1900	rd. 320 at L501	Dana NR Ross
Lane	8/1/94	15S	5E	32	NW	2150	rd. 130 at B134	Dana NR Ross
Lane	8/2/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	8/3/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4375	rd. 2633, 0.1 mi. E of FC3 saddle	Dana NR Ross
Lane	8/3/95	16S	5E	6	NW	1350	rds. 15/130	Dana NR Ross
Lane	8/8/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	31	SE	1600	rd. 130 at top of debris slide (B132)	Dana NR Ross
Linn	6/22/95	15S	6E	7	NW	4700	rd. 350, E L307	Dana NR Ross
Linn	7/6/77	15S	6E	12	NE	5000	Carpenter Mountain	G. Eulensen*
Linn	8/9/95	15S	6E	18	NW	4150	rd. 359, 0.15 mi. N of gate	Dana NR Ross

#### 16. *Papilio multicaudatus pusillus* Austin & J. Emmel

##### Two-tailed Swallowtail

**Description.** Wingspan 9.6 cm. Sexes similar. A very large butterfly. The hindwing bears two tails. Upperside: yellow with narrow black borders and wing bands.

**Similar Species.** *Papilio rutulus* averages smaller and has a single tail on the hindwing.

**Adult Flight Period.** Unknown for the HJA. The data label reads simply "1970". Elsewhere in Oregon, *multicaudatus* flies from early May to early August.

**Abundance.** Rare. Known from a single, worn specimen.

**Distribution.** HJA: unknown. OREGON: occurs throughout much of the state. Except for the HJA record, it is virtually unknown west of the Cascade Mountains crest and north of Coos County.

**Biogeographical Region of Origin.** Western North America.

**Adult Behavior.** Based on observations elsewhere in the state, these butterflies are strong fliers and are avid flower feeders.

**Potential Larval Hostplants.** Rosaceae: *Prunus emarginata*.

**Comments.** The HJA record is unusual. Distribution records and the worn state of the specimen suggest that it originated from some distance away.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
?	"1970"	?	?	?	?	?	HJA.....(worn)	G. Hawk*

17. *Papilio eurymedon* (Lucas)

Pale Tiger Swallowtail

Description. Wingspan 8.4 cm. Sexes similar. A large butterfly. Upperside: white to very pale yellow (in some females), with heavy black margins and black wing bands. The hindwing bears a single tail.

Similar Species. *Papilio rutulus* and *P. multicaudatus* are yellow with black markings.

Adult Flight Period. Recorded from 28 April to 23 August. Most records are from late June and early July.

Abundance. Common. Generally occurs in small to moderate numbers in any given area.

Distribution. HJA: found throughout the forest at all elevations. OREGON: widespread throughout all but the southeastern portion of the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Most records are for patrolling males. Both sexes visit flowers and males come to moist soil.

Potential Larval Hostplants. Betulaceae: *Alnus rubra*; Rhamnaceae: *Ceanothus sanguineus*, *Ceanothus velutinus*; Rosaceae: *Holodiscus discolor*, *Prunus emarginata*.

Comments. *Papilio rutulus* and *P. eurymedon* are often observed flying together. However, *rutulus* generally prefers the riparian habitat of lower elevations whereas *eurymedon* is more prevalent at higher elevations.

HJA Records. 70 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/28/94	16S	5E	6	NW	1350	Rd. 15/ Lookout Creek (mouth)	Dana NR Ross
Lane	5/18/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/18/95	16S	5E	6	NW	1350	Rd. 15/130 junction	Dana NR Ross
Lane	5/24/94	15S	5E	26	SW	2000	Rd. 1506 rock quarry	Dana NR Ross

Lane	5/24/94	15S	5E	28	SE	1850	Rd. 360	Dana NR Ross
Lane	5/25/79	15S	5E	28	SW	1750	HJA (S L401?)	Gary M. Cooper*
Lane	5/25/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/25/95	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	5/26/79	15S	5E	28	SW	1750	HJA (S L401?)	Gary M. Cooper*
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633, 150 yds. E of rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	6	SE	2750	nr end rd. 202 (off rd. 1501)	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	5E	28	SE	1750	rd. 1506 at concrete bridge	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/1/95	16S	5E	6	NW	1350	rds. 15/1506	Dana NR Ross
Lane	6/10/94	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	6/19/94	15S	5E	23	NW	2450	rd. 320	Dana NR Ross
Lane	6/2/95	15S	5E	27	NW	1900	rd. 320, mid-L501	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507 at L207	Dana NR Ross
Lane	6/21/94	15S	5E	32	NW	2200	rd. 130 at extreme NW corner	Dana NR Ross
Lane	6/22/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	6/23/95	15S	5E	22	SW	2450	rd. 1508 at S L403	Dana NR Ross
Lane	6/23/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/23/95	16S	5E	6	NW	1400	rd. 1506 at sec. 31	Dana NR Ross
Lane	6/26/79	15S	5E	28	SW	1750	HJA (S L401?)	Gary M. Cooper
Lane	6/26/95	15S	5E	23	NW	2400	rd. 320 at sec. 22	Dana NR Ross
Lane	6/26/95	15S	5E	27	NW	1800	rd. 1506/320	Dana NR Ross
Lane	6/26/95	15S	5E	32	NE	1600	end rd. 304 (=Gypsy Camp)	Dana NR Ross
Lane	6/27/95	15S	5E	28	NW	2650	rd. 130	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	30	SW	2250	rd. 130/134	Dana NR Ross
Lane	6/27/95	15S	6E	19	NE	4600	rd. 2650 at mid-FR8	Dana NR Ross
Lane	6/28/95	16S	6E	5	NE	4350	rd. 1506 at mid-L709	Dana NR Ross
Lane	6/28/95	16S	6E	5	NE	4350	rd. 1506, 0.2 mi. S L709	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 at SW-L403	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/29/95	15S	5E	28	SW	1800	rd. 1506, 0.1 mi. E rd. 1507	Dana NR Ross
Lane	6/29/95	15S	5E	29	SE	1850	rd. 1506/1507	Dana NR Ross
Lane	6/29/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	6/8/94	15S	5E	32	NW	1500	rd. 1506 at WS3 met. station rd.	Dana NR Ross
Lane	6/9/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3700	rds. 350/357	Dana NR Ross
Lane	7/27/95	15S	5E	34	SW	3600	rd. 1507 at mid-L205	Dana NR Ross
Lane	7/27/95	15S	5E	35	SE	3800	rd. 1507 at S-L208 creek bend	Dana NR Ross
Lane	7/27/95	16S	5E	1	NE	4200	rd. 1507 at N-L212A	Dana NR Ross
Lane	7/3/95	15S	5E	28	NW	1850	rd. 320 at L401	Dana NR Ross
Lane	7/4/95	15S	5E	26	SW	2250	rd. 360 at L108	Dana NR Ross
Lane	7/4/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	7/6/94	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	3850	rd. 2633 at SW-most curve	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4000	rd. 2633, lower switchback, at sec 4	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3350	rd. 2633 (1 of 2)	Dana NR Ross



Lane	7/6/94	16S	5E	4	NE	3500	rd. 2633 (2 of 2)	Dana NR Ross
Lane	7/6/94	16S	5E	4	NW	3450	rd. 2633	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	8/3/95	16S	5E	2	NW	4375	rd. 2633 saddle	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, 0.1 mi. E of curve	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	?	15S	6E	32		3600	Lookout Creek	P.C. Hammond
Linn	6/19/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	6/26/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	6/9/94	15S	6E	7	NW	4750	rd. 350 at L307	Dana NR Ross
Linn	7/13/95	15S	6E	18	NW	4125	rd. 350, 150 yds. N of rd. 359 gate	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	4700	0.2 mi. E end rd. 350	Dana NR Ross
Linn	7/19/94	15S	5E	12	SE	4100	rd. 359 at L386	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359	Dana NR Ross
Linn	7/6/77	15S	6E	12	NE	4800	Carpenter Mountain	Eulensen & Searles*
Linn	8/23/77	15S	6E	12	NE	5000	Carpenter Mountain	G. Eulensen*
Linn	8/9/95	15S	6E	18	NW	4100	rds. 350/359 gate	Dana NR Ross

Family PIERIDAE: 5 genera, 8 species.

Subfamily PIERINAE: 3 genera, 4 species.

18. *Neophasia menapia menapia* (Felder & Felder)

Pine White

Description. Wingspan 4.1 cm. Mild sexual dimorphism. Upperside: males are white with black markings on the apex of the forewing; females have a light yellowish ground color and are additionally marked with a broken black border on the hindwing. Underside: hindwing of the female bears heavy black markings along the veins and orange to red highlights along the veins and wing margins.

Similar Species. *Pieris marginalis* and *Pieris rapae* are similar in size and ground color, but lack the bold black forewing markings.

Adult Flight Period. Recorded from 18 July to 14 September. Peak flight in August and early September.

Abundance. Abundant.

Distribution. HJA: occurs throughout the forest. OREGON: found throughout the coniferous forests of the state.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Adults are weak fliers and spend much of their time fluttering high among the conifer treetops. They are also avid flower visitors and sometimes descend in large numbers to feed on the yellow flowers of roadside Asteraceae.

Potential Larval Hostplants. Pinaceae: *Abies grandis*, *Pinus contorta*, *Pinus jeffreyi*, *Pinus monticola*, *Pinus ponderosa*, *Tsuga heterophylla*.

Comments. Population outbreaks of Pine Whites occur with some regularity and can seriously defoliate portions of their conifer hosts.

HJA Records. 310 total. Specimen vouchered (\*).

<u>County</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	7/18/94	15S	5E	27	NE	1950	rd. 1506, 0.3 mi. E of rd. 330	Ross
Lane	7/19/94	15S	5E	32	NW	1550	rd. 1506/304	Ross
Lane	7/19/94	15S	6E	19	SW	3250	near end rd. 354	Ross
Lane	7/20/94	16S	6E	6	NE	4900	Lookout Mtn., S end meadow	Ross
Lane	7/25/95	15S	5E	22	NE	2300	rd. 320 at SE L405A	Ross
Lane	7/25/95	15S	5E	23	NE	2550	rd. 320/324	Ross
Lane	7/25/95	15S	5E	27	NW	1950	rd. 320, 0.4 mi. N of 1506	Ross
Lane	7/25/95	15S	5E	32	NE	1700	rd. 1506, creek W of 1507	Ross
Lane	7/27/95	15S	5E	31	SE	1400	HJA headquarters	Ross
Lane	7/27/95	15S	5E	33	NW	2000	rd. 1507, 0.25 mi. N of rd.465	Ross
Lane	7/27/95	15S	5E	33	NW	2250	rd. 1507/455	Ross
Lane	7/27/95	15S	5E	33	SW	2600	rd. 1507/465	Ross
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Ross
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 at sec. 28	Ross
Lane	8/1/94	15S	5E	22	NE	2300	rd. 320	Ross
Lane	8/1/94	15S	5E	25	NE	2700	rd. 1506 at L701	Ross
Lane	8/1/94	15S	5E	25	NE	2850	rd. 350 at W L701	Ross
Lane	8/1/94	15S	5E	25	NE	2900	rd. 350 at N L701	Ross
Lane	8/1/94	15S	5E	25	SW	2375	rd. 1506/350	Ross
Lane	8/1/94	15S	5E	26	NW	1950	rd. 1506/330	Ross
Lane	8/1/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Ross
Lane	8/1/94	15S	5E	27	NW	1850	rd. 1506 at S3	Ross
Lane	8/1/94	15S	5E	27	NW	1950	rd. 1506 at sec. 26 boundary	Ross
Lane	8/1/94	15S	5E	28	NE	1800	rd. 1506 at L500	Ross
Lane	8/1/94	15S	5E	28	SE	1800	rd. 1506/360	Ross
Lane	8/1/94	15S	5E	29	NE	2500	rd. 130/336	Ross
Lane	8/1/94	15S	5E	29	NE	2650	rd. 130 at sec. 28	Ross
Lane	8/1/94	15S	5E	29	SW	2300	rd. 130, 0.3 mi. SW of rock quarry	Ross
Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Ross

Lane	8/1/94	15S	5E	30	SE	2250	rd. 130/134	Ross
Lane	8/1/94	15S	5E	31	NE	2250	rd. 134	Ross
Lane	8/1/94	15S	5E	32	NW	1500	rd. 1506 at WS2 rd.	Ross
Lane	8/1/94	15S	5E	32	NW	1500	rd. 1506 at WS3 rd.	Ross
Lane	8/1/94	15S	6E	29	SW	3150	rd. 1506 at L703	Ross
Lane	8/1/94	15S	6E	30	NW	2725	rd. 1506 at W L702	Ross
Lane	8/1/94	15S	6E	30	SE	3100	rd. 1506 at W L703	Ross
Lane	8/1/94	16S	5E	6	NW	1350	rd. 15 at mouth of Lookout Creek	Ross*
Lane	8/15/94	16S	5E	2	NW	4375	rd. 2633 (1 of 3)	Ross
Lane	8/15/94	16S	5E	2	NW	4400	rd. 2633 (2 of 3)	Ross
Lane	8/15/94	16S	5E	2	NW	4450	rd. 2633 (3 of 3)	Ross
Lane	8/15/94	16S	5E	2	SE	4400	rd. 2633	Ross
Lane	8/15/94	16S	5E	2	SW	4400	rd. 2633	Ross
Lane	8/15/94	16S	5E	3	NE	4350	rd. 2633 (1 of 2)	Ross
Lane	8/15/94	16S	5E	3	NE	4375	rd. 2633 at sections 34,35	Ross
Lane	8/15/94	16S	5E	3	NE	4425	rd. 2633 (2 of 2)	Ross
Lane	8/15/94	16S	5E	3	NW	4200	rd. 2633	Ross
Lane	8/15/94	16S	5E	4	NE	3400	rd. 2633 (1 of 3)	Ross
Lane	8/15/94	16S	5E	4	NE	3500	rd. 2633 (2 of 3)	Ross
Lane	8/15/94	16S	5E	4	NE	3600	rd. 2633 (3 of 3)	Ross
Lane	8/15/94	16S	5E	4	NW	3150	rd. 2633 (1 of 2)	Ross
Lane	8/15/94	16S	5E	4	NW	3250	rd. 2633 (2 of 2)	Ross
Lane	8/15/94	16S	5E	5	NE	2950	rd. 2633 (1 of 3)	Ross
Lane	8/15/94	16S	5E	5	NE	3050	rd. 2633 (2 of 3)	Ross
Lane	8/15/94	16S	5E	5	NE	3150	rd. 2633 (3 of 3)	Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Ross
Lane	8/16/94	15S	6E	19	NE	4550	rd. 2650 at sec. 20	Ross
Lane	8/16/94	15S	6E	20	NW	4500	rd. 2650 at hillside meadow	Ross
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650 at straight stretch	Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	8/16/94	15S	6E	28	SW	4800	rd. 2650 at (1 of 3)	Ross
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650 at (2 of 3)	Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 at (3 of 3)	Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross
Lane	8/16/94	16S	6E	5	NE	4350	rd. 1506 at L709	Ross
Lane	8/17/94	15S	5E	25	NE	2600	rd. 1506 at W L701	Ross
Lane	8/17/94	15S	5E	25	NE	2700	rd. 1506 at L701	Ross
Lane	8/17/94	15S	5E	25	SW	2375	rd. 1506/350	Ross
Lane	8/17/94	15S	5E	25	SW	2500	rd. 1506 at old growth trailhead	Ross
Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 at rock quarry	Ross
Lane	8/17/94	15S	6E	29	SW	3250	rd. 1506	Ross
Lane	8/17/94	15S	6E	30	NW	2725	rd. 1506 at W L702	Ross
Lane	8/17/94	15S	6E	30	NW	2800	rd. 1506 at mid-L702	Ross
Lane	8/17/94	15S	6E	32	NE	3450	rd. 1506, 0.2 mi. N of old growth trailhead	Ross
Lane	8/17/94	15S	6E	32	NE	3550	rd. 1506 at old growth trailhead	Ross
Lane	8/17/94	15S	6E	32	SE	3600	rd. 1506 at L704	Ross

Lane	8/17/94	15S	6E	32	SE	3700	rd. 1506 at L704A	Ross
Lane	8/17/94	15S	6E	32	SE	3850	rd. 1506 at L704C	Ross
Lane	8/17/94	16S	6E	5	NW	3900	rd. 1506 (1 of 5)	Ross
Lane	8/17/94	16S	6E	5	NW	3975	rd. 1506 (2 of 5)	Ross
Lane	8/17/94	16S	6E	5	NW	4050	rd. 1506 (3 of 5)	Ross
Lane	8/17/94	16S	6E	5	NW	4150	rd. 1506 (4 of 5)	Ross
Lane	8/17/94	16S	6E	5	NW	4250	rd. 1506 (5 of 5)	Ross
Lane	8/17/94	16S	6E	5	SW	4300	rd. 1506 at Lookout Mtn. trailhead	Ross
Lane	8/2/94	15S	5E	22	NE	2300	rd. 320 at L404/L405A	Ross
Lane	8/2/94	15S	5E	22	SE	2150	rd. 320 at L404A	Ross
Lane	8/2/94	15S	5E	22	SW	2000	rd. 320 at L502	Ross
Lane	8/2/94	15S	5E	23	NW	2550	rd. 320/324	Ross
Lane	8/2/94	15S	5E	33	NE	2700	rd. 1507 at L201A	Ross
Lane	8/2/94	15S	5E	33	NE	2900	rd. 1507 at L202	Ross
Lane	8/2/94	15S	5E	33	NW	2300	rd. 1507/458	Ross
Lane	8/2/94	15S	5E	33	NW	2400	rd. 1507 at L201	Ross
Lane	8/2/94	15S	5E	33	SW	2600	rd. 1507/465	Ross
Lane	8/2/94	15S	5E	34	NW	3000	rd. 1507 at S L204	Ross
Lane	8/2/94	15S	5E	34	SE	3800	rd. 1507 at L206 (1 of 2)	Ross
Lane	8/2/94	15S	5E	34	SE	3800	rd. 1507 at L206 (2 of 2)	Ross
Lane	8/2/94	15S	5E	34	SE	3850	rd. 1507 at sec. 35	Ross
Lane	8/2/94	15S	5E	34	SW	3600	rd. 1507 at L205 (1 of 4)	Ross
Lane	8/2/94	15S	5E	34	SW	3600	rd. 1507 at L205 (2 of 4)	Ross
Lane	8/2/94	15S	5E	34	SW	3600	rd. 1507 at L205 (3 of 4)	Ross
Lane	8/2/94	15S	5E	34	SW	3600	rd. 1507 at L205 (4 of 4)	Ross
Lane	8/2/94	15S	5E	35	SE	3900	rd. 1507 at SE L208	Ross
Lane	8/2/94	15S	5E	35	SW	3900	rd. 1507 at L207	Ross
Lane	8/2/94	15S	5E	35	SW	3900	rd. 1507 at W L208	Ross
Lane	8/2/94	16S	5E	1	NE	4300	rd. 1507 mid-L211A	Ross
Lane	8/2/94	16S	5E	1	NE	4350	rd. 1507 at W L211A	Ross
Lane	8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Ross
Lane	8/2/94	16S	5E	1	NW	4100	rd. 1507 at L211	Ross
Lane	8/2/94	16S	5E	2	NE	3950	rd. 1507 above FC5	Ross
Lane	8/2/94	16S	5E	2	NE	4050	rd. 1507 at L210	Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507	Ross
Lane	8/2/95	15S	5E	25	NE	2700	rd. 1506 at L701	Ross
Lane	8/2/95	15S	5E	25	NE	2700	rd. 1506 at L701A	Ross
Lane	8/2/95	15S	5E	25	SW	2375	rd. 1506/350 (1 of 2)	Ross
Lane	8/2/95	15S	5E	25	SW	2375	rd. 1506/350 (2 of 2)	Ross
Lane	8/2/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Ross
Lane	8/2/95	15S	6E	28	SW	4750	rd. 2650 at sec. 28NW	Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 at cliff	Ross
Lane	8/24/95	15S	5E	26	SE	2300	rd. 360, S-most L108	Ross
Lane	8/24/95	15S	5E	26	SW	2250	rd. 360 at L108A	Ross
Lane	8/24/95	15S	5E	26	SW	2250	rd. 360, 0.1 mi. E of rd. 365	Ross
Lane	8/24/95	15S	5E	27	SE	2050	rd. 360 at L107	Ross
Lane	8/24/95	15S	5E	27	SW	2300	rd. 363 L232 (S)	Ross
Lane	8/24/95	15S	5E	35	NE	2650	rd. 360 at L114	Ross

Lane	8/24/95	15S	5E	36	NW	2550	rd. 360 at creek/cabin	Ross
Lane	8/3/95	15S	5E	2	NW	4400	rd. 2633 at W FC4 saddle	Ross
Lane	8/3/95	15S	5E	2	NW	4400	rd. 2633, FC5 saddle near end	Ross
Lane	8/3/95	15S	5E	2	SE	4400	end rd. 2633	Ross
Lane	8/3/95	15S	5E	34	SW	4050	rd. 2633 at corner	Ross
Lane	8/3/95	16S	5E	3	NE	4000	rd. 2633 at saddle	Ross
Lane	8/3/95	16S	5E	3	NE	4000	rd. 2633, 0.1 mi. E of E FC3	Ross
Lane	8/3/95	16S	5E	3	NE	4000	rd. 2633, E FC3 curve	Ross
Lane	8/3/95	16S	5E	3	NW	3850	rd. 2633 at W end of rd. jog to south	Ross
Lane	8/3/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633 at forest bend E of switchback	Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633 at sec. 4NE	Ross
Lane	8/3/95	16S	5E	3	NW	4200	rd. 2633, 0.2 mi. E of upper switchback	Ross
Lane	8/3/95	16S	5E	3	SW	3900	rd. 2633 at SE-most corner	Ross
Lane	8/3/95	16S	5E	4	NE	3350	rd. 2633, 0.2 mi. W of rock wall seep	Ross
Lane	8/3/95	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Ross
Lane	8/3/95	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Ross
Lane	8/3/95	16S	5E	4	NE	4100	rd. 2633 at upper switchback	Ross
Lane	8/3/95	16S	5E	4	NW	3200	rd. 2633, 0.1 W rd. 789	Ross
Lane	8/3/95	16S	5E	4	NW	3250	rd. 2633, 0.1 E rd. 789	Ross
Lane	8/3/95	16S	5E	4	NW	3350	rd. 2633, 0.25 E rd. 789	Ross
Lane	8/3/95	16S	5E	5	NE	2950	rd. 2633 (1 of 4)	Ross
Lane	8/3/95	16S	5E	5	NE	3000	rd. 2633 (2 of 4)	Ross
Lane	8/3/95	16S	5E	5	NE	3050	rd. 2633 (3 of 4)	Ross
Lane	8/3/95	16S	5E	5	NE	3150	rd. 2633 (4 of 4)	Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633, 0.15mi. W of rock columns	Ross
Lane	8/3/95	16S	5E	5	SW	2850	rd. 2633 nr 784	Ross
Lane	8/3/95	16S	5E	5	SW	2850	rd. 2633/784	Ross
Lane	8/30/94	15S	5E	24	NE	3450	rd. 350 at S L303	Ross
Lane	8/30/94	15S	5E	24	NE	3700	rd. 350/357	Ross
Lane	8/8/95	15S	5E	19	SW	3300	rd. 350/354	Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 at junction spur to clearcut hill	Ross
Lane	8/8/95	15S	5E	21	SW	2700	0.2 mi. S of N HJA boundary (rd. 130)	Ross
Lane	8/8/95	15S	5E	24	NE	3500	rd. 350/355	Ross
Lane	8/8/95	15S	5E	24	NE	3550	rd. 350, 0.2 mi. E of 350/355	Ross
Lane	8/8/95	15S	5E	24	SE	3100	rd. 350/353	Ross
Lane	8/8/95	15S	5E	24	SE	3200	rd. 350, 0.2 mi. NE of rd. 353	Ross
Lane	8/8/95	15S	5E	25	NE	2850	rd. 350 at Shorter Creek	Ross
Lane	8/8/95	15S	5E	25	NW	2400	rd. 350, 0.2 mi. N 1506	Ross
Lane	8/8/95	15S	5E	25	SW	2375	rd. 1506/350	Ross
Lane	8/8/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Ross
Lane	8/8/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Ross
Lane	8/8/95	15S	5E	28	NW	2300	rd. 130 at sec. 21SW	Ross
Lane	8/8/95	15S	5E	29	NE	2450	rd. 336, off 130 (2 of 2)	Ross
Lane	8/8/95	15S	5E	29	NE	2500	rd. 336, off 130 (1 of 2)	Ross
Lane	8/8/95	15S	5E	29	NE	2650	130 at rd. junction 0.3 mi. NE of 336	Ross

Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.4 mi. SW of rock quarry	Ross
Lane	8/8/95	15S	5E	29	SW	2450	rd. 130 rock quarry	Ross
Lane	8/8/95	15S	5E	30	SE	2250	rd. 130/134	Ross
Lane	8/9/95	15S	5E	24	NE	3600	rd. 350, mid-L303	Ross
Lane	8/9/95	15S	5E	24	NE	3700	rd. 350/357	Ross
Lane	9/12/95	15S	5E	33	NE	2800	rd. 1507 at L201A/L202	Ross
Lane	9/13/94	15S	5E	34	SE	3800	rd. 1507 at SW L206	Ross
Lane	9/13/94	15S	5E	36	SW	3950	rd. 1507 at L209	Ross
Lane	9/13/94	16S	5E	1	NE	4200	rd. 1507	Ross
Lane	9/13/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Ross
Lane	9/13/94	16S	5E	1	SE	4150	rd. 1507/530	Ross
Lane	9/13/94	16S	5E	2	NE	3900	rd. 1507	Ross
Lane	9/13/95	15S	5E	33	SE	3300	rd. 1507 at W L205	Ross
Lane	9/13/95	15S	5E	33	SE	3300	rd. 1507 at sec. 34	Ross
Lane	9/13/95	15S	5E	34	NE	3800	rd. 1507 at NE L206A	Ross
Lane	9/13/95	15S	5E	34	NE	3850	rd. 1507, 0.1 mi. E L206A	Ross
Lane	9/13/95	15S	5E	34	SE	3800	rd. 1507 at SW L206/L206B	Ross
Lane	9/13/95	15S	5E	34	SW	3250	rd. 1507 at N L205	Ross
Lane	9/13/95	15S	5E	34	SW	3650	rd. 1507 at E L205 cliff	Ross
Lane	9/13/95	15S	5E	34	SW	3650	rd. 1507, 0.18 mi NE of E L205 cliff	Ross
Lane	9/13/95	15S	5E	35	SE	3800	rd. 1507 at S L208 creek bend	Ross
Lane	9/13/95	15S	5E	35	SE	3800	rd. 1507, 0.2 mi. NE of S L208 creek bend	Ross
Lane	9/13/95	15S	5E	35	SE	3875	rd. 1507, between L208/WL2	Ross
Lane	9/13/95	15S	5E	35	SW	3850	rd. 1507 at E L208	Ross
Lane	9/13/95	15S	5E	35	SW	3900	rd. 1507 at SE L207	Ross
Lane	9/13/95	15S	5E	35	SW	3900	rd. 1507, 0.1 mi. S L207	Ross
Lane	9/13/95	15S	5E	35	SW	3900	rd. 1507, 0.2 mi. S L207	Ross
Lane	9/13/95	16S	5E	1	NE	4200	rd. 1507, 0.25 mi. NE rd. 530	Ross
Lane	9/13/95	16S	5E	1	NE	4300	rd. 1507, 0.37 mi. NE rd. 530	Ross
Lane	9/13/95	16S	5E	1	NW	4050	rd. 1507, 0.5 mi. W rd. 530	Ross
Lane	9/13/95	16S	5E	1	NW	4150	rd. 1507, 0.1 mi. W rd. 530	Ross
Lane	9/13/95	16S	5E	1	SE	4150	rd. 1507/530	Ross
Lane	9/13/95	16S	5E	1	SE	4350	rd. 1507 at L211A/L212	Ross
Lane	9/13/95	16S	5E	2	NE	4000	rd. 1507 W L210	Ross
Lane	9/13/95	16S	5E	2	NE	4000	rd. 1507, 0.1 mi. S L209	Ross
Lane	9/13/95	16S	6E	6	NW	4350	end rd. 1507 (past meadow)	Ross
Lane	9/13/95	16S	6E	6	SW	4350	end 1507 meadow	Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 at mid-N hillside meadow	Ross
Lane	9/14/95	15S	6E	20	NW	4550	rd. 2650 at mid-S hillside meadow	Ross
Lane	9/14/95	15S	6E	20	SE	4500	rd. 2650/630	Ross
Lane	9/14/95	15S	6E	20	SE	4550	rd. 2650, 0.2 mi. W of rd. 630	Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650, at 20NW	Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650, mid-curve	Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Ross
Lane	9/14/95	15S	6E	28	SW	4750	rd. 2650 at 28NW	Ross

Lane	9/14/95	15S	6E	28	SW	4850	rd. 2650 (NE side ridge-top hill)	Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650 (SE side ridge-top hill)	Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (sec. 28 border)	Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at N FR11 border	Ross
Lane	9/14/95	15S	6E	29	SE	3425	rd. 1506 0.4 mi. SE Cold Creek	Ross
Lane	9/14/95	15S	6E	29	SW	3150	rd. 1506 at L703	Ross
Lane	9/14/95	15S	6E	29	SW	3200	rd. 1506, 0.15 mi. SE L703	Ross
Lane	9/14/95	15S	6E	29	SW	3250	rd. 1506 at Cold Creek	Ross
Lane	9/14/95	15S	6E	29	SW	3275	rd. 1506 0.1 mi. SE Cold Creek	Ross
Lane	9/14/95	15S	6E	29	SW	3350	rd. 1506 0.25 mi. SE Cold Creek	Ross
Lane	9/14/95	15S	6E	30	NE	2900	rd. 1506, 0.15 mi. E L702	Ross
Lane	9/14/95	15S	6E	30	NE	2950	rd. 1506, 0.25 mi. E L702	Ross
Lane	9/14/95	15S	6E	30	NW	2725	rd. 1506 at W L702	Ross
Lane	9/14/95	15S	6E	30	SE	2850	rd. 1506 at E L702	Ross
Lane	9/14/95	15S	6E	30	SE	3050	rd. 1506, 0.35 mi. E L702	Ross
Lane	9/14/95	15S	6E	30	SE	3100	rd. 1506, 0.45 mi. E L702	Ross
Lane	9/14/95	15S	6E	30	SW	2800	rd. 1506 at mid-L702	Ross
Lane	9/14/95	15S	6E	32	NE	3500	rd. 1506, 0.15 mi. N old growth trailhead.	Ross
Lane	9/14/95	15S	6E	32	NE	3550	rd. 1506, at old growth trailhead.	Ross
Lane	9/14/95	15S	6E	32	NE	3600	rd. 1506 at N L704	Ross
Lane	9/14/95	15S	6E	32	NE	3600	rd. 1506 at mid-L704	Ross
Lane	9/14/95	15S	6E	32	SE	3600	rd. 1506 at SE L704	Ross
Lane	9/14/95	15S	6E	32	SE	3700	rd. 1506 at L704A	Ross
Lane	9/14/95	15S	6E	32	SE	3750	rd. 1506 btwn L704C/L704A	Ross
Lane	9/14/95	15S	6E	32	SE	3850	rd. 1506 at L704C	Ross
Lane	9/14/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 1506/2650	Ross
Lane	9/14/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Ross
Lane	9/14/95	15S	6E	33	SW	4600	rd. 1506 at woods (L704A/C)	Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross
Lane	9/14/95	16S	6E	5	NE	4350	rd. 1506 at L709	Ross
Lane	9/14/95	16S	6E	5	NW	3900	rd. 1506 at N L707	Ross
Lane	9/14/95	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Ross
Lane	9/14/95	16S	6E	5	NW	4100	rd. 1506 at N L708	Ross
Lane	9/14/95	16S	6E	5	NW	4100	rd. 1506 at NW-most curve in rd.	Ross
Lane	9/14/95	16S	6E	5	NW	4200	rd. 1506 at L708/L711	Ross
Lane	9/14/95	16S	6E	5	NW	4250	rd. 1506 at mid-L711	Ross
Lane	9/14/95	16S	6E	5	NW	4250	rd. 1506, W side L709	Ross
Lane	9/14/95	16S	6E	5	NW	4300	rd. 1506, forest 0.1 mi. NE of L.O.Mtn trlhd	Ross
Lane	9/14/95	16S	6E	5	SW	4300	rd. 1506 at L.O. Mtn. trailhead	Ross
Linn	7/25/95	15S	5E	14	NE	3250	end rd. 327	Ross
Linn	8/1/94	15S	5E	14	NE	3000	rd. 320 cabin	Ross
Linn	8/1/94	15S	5E	14	NE	3050	rd. 320/327	Ross
Linn	8/1/94	15S	5E	14	NE	3050	rd. 320/328	Ross
Linn	8/1/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Ross
Linn	8/1/94	15S	5E	14	SE	2700	rd. 320, E side L523	Ross
Linn	8/1/94	15S	5E	14	SE	2700	rd. 320/325	Ross
Linn	8/1/94	15S	5E	14	SE	2900	rd. 320, N side L523	Ross

Linn	8/16/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Ross
Linn	8/2/94	15S	5E	14	NW	3300	rd. 320/410	Ross
Linn	8/29/94	15S	6E	18	NW	4100	rd. 359 gate	Ross
Linn	8/29/94	15S	6E	18	NW	4250	rd. 350 at 18NE	Ross
Linn	8/29/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trlhd.	Ross*
Linn	8/29/94	15S	6E	7	NW	4750	nr end rd. 350	Ross
Linn	8/29/94	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	8/29/94	15S	6E	7	SE	4250	rd. 350 at sec. 18	Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 (1 of 6)	Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 (2 of 6)	Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 (3 of 6)	Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 (4 of 6)	Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 (5 of 6)	Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 (6 of 6)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (1 of 7)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (2 of 7)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (3 of 7)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (4 of 7)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (5 of 7)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (6 of 7)	Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 (7 of 7)	Ross
Linn	8/30/94	15S	5E	13	SE	3850	rd. 350	Ross
Linn	8/30/94	15S	6E	18	NW	4000	rd. 350 at S L305	Ross
Linn	8/30/94	15S	6E	18	SW	4050	rd. 350 at 18NW	Ross
Linn	8/30/94	15S	6E	7	SW	4050	rd. 359 at sec. 18	Ross
Linn	8/8/95	15S	6E	18	NW	4100	rd. 350/359	Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L384	Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L386	Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359/430	Ross
Linn	8/9/95	15S	5E	12	SW	4050	end rd. 359	Ross
Linn	8/9/95	15S	5E	12	SW	4100	rd. 359, 0.3 mi. W of rd. 430	Ross
Linn	8/9/95	15S	6E	18	NW	4100	rd. 350/359	Ross
Linn	8/9/95	15S	6E	18	NW	4150	rd. 359, 0.15 mi. N of gate	Ross
Linn	8/9/95	15S	6E	18	SW	4050	rd. 350 at sec.18NW	Ross
Linn	8/9/95	15S	6E	7	NW	4700	rd. 350, 0.2 mi. E of end	Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.2 mi. S of McRae Creek	Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.2 mi. W of McRae Creek	Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.35 mi. W of McRae Creek	Ross
Linn	9/12/95	15S	5E	13	SW	3050	end rd. 325	Ross
Linn	9/12/95	15S	5E	13	SW	3050	rd. 325, 1/2 way to end	Ross
Linn	9/12/95	15S	5E	14	NE	3200	rd. 327 near end	Ross



19. *Pontia occidentalis occidentalis* (Reakirt)

## Western White

Description. Wingspan 3.9 cm. Mild sexual dimorphism. Upperside: white; male with dark markings on the forewing; female with markings on both forewing and hindwing.

Similar Species. The upperside of both *Pieris marginalis* and *P. rapae* are less heavily marked. *Neophasia menapia* has forewing markings that are darker and are mirrored on the underside of the wing.

Adult Flight Period. The few records span from 19 June to 19 July.

Abundance. Uncommon. Usually observed as singletons.

Distribution. HJA: occurs sparingly on the higher ridges and summits. OREGON: widespread throughout Oregon, with the fewest records from the southwestern part of the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Males patrol open ridges and hilltops.

Potential Larval Hostplants. Brassicaceae: *Arabis holboellii*.

Comments. The species was previously placed in the genus *Pieris*.

HJA Records. 6 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	1997-8	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	1998	15S	6E	28	NW	4900	At top of meadow hillside	Dana NR Ross
Lane	6/19/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross*
Lane	7/11/87	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	7/19/98	15S	6E				Frissell Ridge area	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4850	FR11	Dana NR Ross

20. *Pieris marginalis marginalis* Scudder

## Margined White

Description. Wingspan 4.2 cm. Mild sexual dimorphism and seasonal dimorphism. Upperside: male is white; female is pale yellow with two dark spots on the forewing.

Underside: wings immaculate (summer brood) or with darkly scaled veins (spring brood).

Similar Species. *Pieris rapae* lacks the dark venation of the spring form and has a gray to black wing tip patch. *Pontia occidentalis* and *Neophasia menapia* bear more extensive dark markings on the upperside.

Adult Flight Period. Recorded from 20 April to 8 August. Peak flight periods are mid May (first generation) and mid to late July (second generation).

Abundance. Common. There are more records for the spring generation.

Distribution. HJA: most records are from the vicinity of lower to middle Lookout Creek and its tributaries. OREGON: this subspecies occurs throughout most of Oregon but is replaced by other subspecies in the southwestern and northeastern portions of the state.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Most adults encountered were patrolling males. Females were observed while searching for the larval hostplant among roadside forest vegetation. The adults keep to the forest gaps and margins, rarely flying across large, open expanses.

Potential Larval Hostplants. Brassicaceae: *Barbarea orthoceras*.

Comments. This is the most common white butterfly encountered on the HJA from spring through early summer.

HJA Records. 52 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/20/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross*
Lane	4/28/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	4/28/94	15S	5E	27	NW	1850	rd. 1506 at S2	Dana NR Ross
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross*
Lane	4/28/94	15S	5E	31	SE	1400	MP 0.5 of rd. 1506	Dana NR Ross
Lane	4/28/94	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	5/17/95	15S	5E	25	NW	2600	rd. 1506, 150 yds. E of old growth trailhead	Dana NR Ross
Lane	5/17/95	15S	5E	26	NW	1950	rd. 1506/330	Dana NR Ross
Lane	5/17/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/17/95	15S	5E	26	SW	2225	rd. 360/365	Dana NR Ross
Lane	5/17/95	15S	5E	27	NE	1900	rd. 1506 at S4	Dana NR Ross
Lane	5/17/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/17/95	15S	5E	36	NW	2600	rd. 360 at L110	Dana NR Ross

Lane	5/18/95	15S	5E	27	NW	1800	rd. 1506/320	Dana NR Ross
Lane	5/18/95	15S	5E	28	SW	1800	rd. 1506	Dana NR Ross
Lane	5/18/95	15S	5E	28	SW	1800	rd. 1506, cliff to S	Dana NR Ross
Lane	5/18/95	15S	5E	31	SE	1400	rd. 1506	Dana NR Ross
Lane	5/18/95	15S	5E	32	NE	1600	rd. 1506	Dana NR Ross
Lane	5/18/95	15S	5E	32	NW	1500	rd. 1506	Dana NR Ross
Lane	5/18/95	16S	5E	6	NW	1350	Junction rds. 15/130	Dana NR Ross
Lane	5/22/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	5/24/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross*
Lane	5/24/94	15S	5E	26	SW	2200	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	27	SW	1900	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1850	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	28	SW	1800	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	5/25/95	15S	5E	33	SW	2600	rd. 1507/465	Dana NR Ross
Lane	5/6/94	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	5/6/94	15S	5E	28	SW	1800	rd. 1506 at MP 2.8	Dana NR Ross
Lane	5/6/94	15S	5E	32	NW	1500	rd. 1506 at WS3 rd.	Dana NR Ross
Lane	6/21/94	15S	5E	29	NE	2650	rd. 130 at rd. 0.3 mi. NE rd. 336	Dana NR Ross
Lane	6/28/95	15S	5E	28	SE	1750	rd. 1506, 0.1 mi. E concrete bridge	Dana NR Ross
Lane	6/29/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	6/8/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/8/94	15S	5E	32	SW	1500	rd. 1506, MP 1.0	Dana NR Ross
Lane	6/9/94	15S	6E	19	SW	3350	rd. 350 at N L302	Dana NR Ross
Lane	7/13/95	15S	5E	22	SW	2100	rd. 320, 0.2 mi. N of gate	Dana NR Ross
Lane	7/13/95	15S	5E	24	SE	3100	rd. 350/353	Dana NR Ross
Lane	7/13/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3550	rd. 355	Dana NR Ross
Lane	7/18/94	15S	5E	24	SE	3200	rd. 350	Dana NR Ross
Lane	7/18/94	15S	5E	25	NE	2600	rd. 1506 at 25NW	Dana NR Ross
Lane	7/18/94	15S	5E	27	NE	2350	rd. 332 at S4	Dana NR Ross
Lane	7/25/95	15S	5E	27	NW	1900	rd. 320, 0.2 mi. above rd. 1506	Dana NR Ross
Lane	7/25/95	15S	5E	32	NE	1600	rd. 1506/305	Dana NR Ross
Lane	7/27/95	15S	5E	32	SW	1500	rd. 1506 at MP 1.0	Dana NR Ross
Lane	8/2/95	15S	5E	27	NE	1900	rd. 1506 at S4	Dana NR Ross
Lane	8/2/95	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	8/24/95	15S	5E	28	SE	2200	rd. 363 at L232	Dana NR Ross
Lane	8/8/95	15S	5E	27	NW	1900	rd. 1506 between S1/S2	Dana NR Ross
Linn	7/25/95	15S	5E	13	SW	3050	end rd. 325	Dana NR Ross

21. *Pieris rapae* (Linnaeus)

## Cabbage Butterfly

Description. Wingspan 4.1 cm. Sexes similar. Upperside: white; forewing marked with one (male) or two (female) dark spots and a gray to black apical patch.

Underside: off-white to light yellow.

Similar Species. *Pieris marginalis* lacks the black-tipped forewings. *Pontia occidentalis* and *Neophasia menapia* have more extensive wing markings.

Adult Flight Period. Recorded twice: on 19 June and 24 August.

Abundance. Rare.

Distribution. HJA: recorded only from the SE slope of Blue River Ridge (2700 and 3100 feet) and from Mack Creek (2600 feet). OREGON: found throughout the state, primarily in gardens, agricultural fields and disturbed habitats.

Biogeographical Region of Origin. Western North American.

Adult Behavior. All records are for singleton individuals flying along roads.

Potential Larval Hostplants. Brassicaceae: *Barbarea orthoceras*, *Rorippa curvisiliqua*.

Comments. *Pieris rapae* is a well known agricultural pest species of European origin. It prefers open, disturbed sites in contrast to the endemic, forest dwelling *Pieris marginalis*. The rarity of *rapae* on the HJA is evidence that the forest ecosystem is relatively intact in its natural state.

HJA Records. 3 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/24/95	15S	5E	35	NE	2550	rd. 360 at L110	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3100	rd. 320 at SE WS6	Dana NR Ross*
Linn	6/19/94	15S	5E	14	SE	2700	rd. 320/325	Dana NR Ross*

Subfamily ANTHOCHARINAE: 1 genus, 1 species.

22. *Anthocharis sara flora* Wright

Sara's Orangetip

Description. Wingspan 3.7 cm. Sexually dimorphic. Upperside: males are white with a solid orange forewing patch; females are light yellow with a paler, yellow-orange forewing patch.

Similar Species. None.

Adult Flight Period. Recorded from 25 April to 12 July. Peak flight in late May.

Abundance. Common. Numerous during peak flight, but encountered sparingly otherwise.

Distribution. HJA: while most commonly encountered along Lookout Ridge and Frissell Ridge, it occurs in open habitats at all elevations. OREGON: throughout western Oregon, north of the Siskiyou Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Most individuals encountered were males patrolling roadsides.

Potential Larval Hostplants. Brassicaceae: *Barbarea orthoceras*.

Comments. Two other subspecies of Sara's Orangetip occur in Oregon (Hinchliff 1994). Subspecies *stella* occurs east of the crest of the Cascade Mountains, while subspecies *sara* is found in the Siskiyou Mountains of southwestern Oregon.

HJA Records. 68 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site description</u>	<u>Recorder</u>
Lane	4/25/79	15S	5E	28	SW	1800	rd. 410	Cooper*
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Ross
Lane	5/11/79	15S	5E	28	SW	1800	rd. 410	Cooper*
Lane	5/18/95	15S	5E	27	NW	1800	rd. 1506/320 junction	Ross
Lane	5/22/95	15S	5E	24	NE	3350	rd. 350 at N L302A (at sec 19)	Ross
Lane	5/22/95	15S	5E	24	NE	3500	rd. 350/355 junction	Ross
Lane	5/22/95	15S	5E	24	NE	3700	rd. 350, 0.15 mi below rd. 357	Ross
Lane	5/22/95	15S	5E	24	NE	3700	rd. 350/357 junction	Ross
Lane	5/22/95	15S	5E	24	NE	3750	rd. 357 at meadow seep	Ross
Lane	5/22/95	15S	5E	24	NE	3750	rd. 357, 1/3 way down	Ross
Lane	5/22/95	15S	6E	19	NW	3700	rd. 357, 2/3 way down	Ross
Lane	5/22/95	15S	6E	19	SW	3350	rd. 350, 0.25 above rd. 354	Ross

Lane	5/24/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	5/25/95	15S	5E	35	NW	3800	rd. 1507 at WL1/L207	Ross
Lane	5/25/95	16S	5E	1	NE	4350	rd. 1507 at L211A	Ross
Lane	5/25/95	16S	5E	1	NW	4100	rd. 1507 at WL3/L211	Ross
Lane	5/25/95	16S	5E	1	SE	4150	rd. 1507/530	Ross
Lane	5/25/95	16S	5E	2	NE	3900	rd. 1507, big curve N of FC5	Ross
Lane	5/25/95	16S	6E	6	NW	4350	rd. 1507, past end of rd.	Ross
Lane	5/25/95	16S	6E	6	SW	4350	rd. 1507 end/mdw/turnaround	Ross
Lane	5/3/95	16S	5E	4	NE	3450	rd. 2633 at rock seep	Ross
Lane	5/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Ross
Lane	5/31/95	15S	5E	34	SW	4050	rd. 2633 at hillside, bend	Ross
Lane	5/31/95	16S	5E	2	NW	4375	rd. 2633 at W FC5	Ross
Lane	5/31/95	16S	5E	2	NW	4450	rd. 2633, 0.15 mi. N of FC5	Ross
Lane	5/31/95	16S	5E	3	NE	4400	rd. 2633 at E FC3 curve	Ross
Lane	5/31/95	16S	5E	3	NW	4000	rd. 2633, forest bend (below switchbacks)	Ross
Lane	5/31/95	16S	5E	3	NW	4025	rd. 2633 upper switchback	Ross
Lane	5/31/95	16S	5E	3	NW	4250	rd. 2633, 0.2 mi. W FC3	Ross
Lane	5/31/95	16S	5E	4	NE	3350	rd. 2633, 0.2 mi. W of creek bend	Ross
Lane	5/31/95	16S	5E	4	NE	3650	rd. 2633, 0.35 mi. W of creek bend	Ross
Lane	5/6/94	15S	5E	27	NW		rd. 1506 at S2	Ross*
Lane	5/6/94	15S	5E	28	NE		L500	Ross*
Lane	5/6/94	15S	6E	19	NW	3750	rd. 357, mid-357	Ross
Lane	6/1/94	16S	5E	3	NW	3650	rd. 2633 at small ravines	Ross
Lane	6/1/94	16S	5E	4	NE	3450	rd. 2633 at rock seep	Ross
Lane	6/1/94	16S	5E	5	NE	3100	rd. 2633 at cliff overhang	Ross
Lane	6/1/95	15S	6E	33	NW	4900	rd. 2650/1506 junction	Ross
Lane	6/1/95	15S	6E	33	SW	5125	Frissell Point COMM SITE	Ross
Lane	6/1/95	16S	6E	5	SW	4300	rd. 1506 at L.O. Mtn. trailhead	Ross
Lane	6/10/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Ross
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	6/10/94	15S	6E	28	SW	4850	rd. 2650	Ross
Lane	6/10/94	16S	6E	5	NW	4300	rd. 1506/L707	Ross
Lane	6/19/94	15S	6E	33	NW	4900	rd. 1506/2650 junction	Ross
Lane	6/19/94	16S	6E	5	NW	4300	rd. 1506 at L707	Ross
Lane	6/20/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Ross
Lane	6/20/94	16S	6E	6	SW	4350	rd. end rd. 1507 meadow	Ross
Lane	6/21/94	15S	6E	33	NW	4900	rd. 2650/1506 junction	Ross
Linn	6/22/95	15S	6E	7	SE	4400	rd. 350, 0.4 mi. below Carpt. Mt. trlhd	E Rosi
Lane	6/28/95	15S	6E	20	NW	4500	rd. 2650, N end hillside meadow	Ross
Lane	6/28/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Ross
Lane	6/28/95	15S	6E	29	NE	4650	rd. 2650 at N FR11	Ross
Lane	6/28/95	15S	6E	33	NW	4850	rd. 2650, 0.35 mi. N 1506 junct.	Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650/1506 junction	Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross

Lane	6/31/95	16S	5E	4	NE	3450	rd. 2633 at rock seep	Ross
Lane	6/5/79	15S	5E	24	NE	?	L303?	Cooper*
Linn	6/9/94	15S	5E	12	SW	4100	rd. 359	Ross
Lane	6/9/94	15S	5E	24	NE	3750	rd. 357	Ross
Linn	6/9/94	15S	6E	18	NW	4100	rd. 350/359	Ross
Linn	6/9/94	15S	6E	7	SE	4400	rd. 350	Ross
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650 at (S) FR11	Ross
Lane	7/6/94	16S	5E	2	NW	4400	rd. 2633, W end FC4	Ross
Lane	7/6/94	16S	5E	3	NE	4400	rd. 2633	Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock seep	Ross
Lane	7/7/94	15S	6E	20	SE	4500	rd. 2650/630	Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross

Subfamily COLIADINAE: 1 genus, 3 species.

### 23. *Colias eurytheme eurytheme* Boisduval

#### Orange Sulphur

Description. Wingspread 4.5 cm. Sexually dimorphic. Upperside: males are yellow with a variable amount of orange and relatively wide, solid black wing borders; females are either yellow or white (form *alba*) and have broken black wing borders.

Similar Species. HJA specimens of *Colias occidentalis* and *C. alexandra* lack the orange of *eurytheme*. Females of *C. alexandra*, if whitish in color, are noticeably larger than females of *eurytheme* and have fainter wing borders

Adult Flight Period. Recorded from 20 April to 5 October, this species has multiple broods annually. The late summer generation is most often encountered, with a peak flight from August through mid-September.

Abundance. Common.

Distribution. HJA: most often encountered on Frissell Ridge and Lookout Ridge, but records exist for all areas of the forest. OREGON: occurs throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Usually observed in flight or at flowers.

Potential Larval Hostplants. Fabaceae: *Lotus crassifolius*, *Melilotus alba*, *Trifolium pratense*, *T. repens*, *T. tridentatum*, *T. wormskjoldii*, *Vicia americana*.

Comments. The caterpillar of *Colias eurytheme* utilizes a wide array of plants within the family Fabaceae and is a well known pest of alfalfa.

HJA Records. 98 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	10/5/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	10/5/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	4/20/94	16S	5E	5	NE	3100	rd. 2633	Dana NR Ross*
Lane	6/1/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	6/10/94	15S	6E	20	SW	4650	rd. 2650	Dana NR Ross
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*
Lane	6/20/94	15S	5E	35	SE	3825	rd. 1507, just E of creek	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650 at sec. 28	Dana NR Ross
Lane	6/28/95	16S	6S	5	NW	3900	rd. 1506 at L709	Dana NR Ross
Lane	6/8/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross*
Lane	6/9/94	15S	6E	19	SW	3300	rd. 358	Dana NR Ross
Lane	7/25/95	15S	5E	23	NW	2500	rd. 320, 0.1 mi. S rd. 324	Dana NR Ross
Lane	7/6/94	16S	5E	3	NE	4375	rd. 2633 between FC3 and FC4	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	3650	rd. 2633 at small ravines	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	7/7/94	15S	6E	32	SE	3850	rd. 1506 at L704C	Dana NR Ross
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 saddle (at sec. 28)	Dana NR Ross
Lane	8/1/94	15S	5E	21	SW	2650	rds. 130/137 (outside HJA)	Dana NR Ross
Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/1/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4375	rd. 2633 at W FC5	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4400	rd. 2633 at W end FC4	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4450	rd. 2633 at E end FC4	Dana NR Ross
Lane	8/15/94	16S	5E	2	SE	4450	end rd. 2633 (FC5)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4350	rd. 2633 (1 of 2)	Dana NR Ross*
Lane	8/15/94	16S	5E	3	NE	4375	rd. 2633 at secs. 34,35 borders	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4425	rd. 2633 (2 of 2)	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	3150	rd. 2633, above upper switchback	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	3650	rd. 2633 at small ravines	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	8/15/94	16S	5E	4	NW	3450	rd. 2633	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	3100	rd. 2633	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/16/94	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650, straight stretch	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4650	rd. 2650 at big curve	Dana NR Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33 border	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross



Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	8/16/94	16S	6E	5	NW	3900	rd. 1506 at L709	Dana NR Ross
Lane	8/17/94	15S	5E	25	NE	2650	rd. 1506 (1 of 2)	Dana NR Ross
Lane	8/17/94	15S	5E	25	NE	2700	rd. 1506 (2 of 2)	Dana NR Ross
Lane	8/17/94	15S	5E	26	NW	1950	rd. 1506/330	Dana NR Ross
Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/17/94	15S	5E	27	NW	1850	rd. 1506 at S3	Dana NR Ross
Lane	8/17/94	15S	6E	29	SW	3250	rd. 1506 at Cold Creek	Dana NR Ross
Lane	8/17/94	15S	6E	32	SE	3700	rd. 1506 at L704A	Dana NR Ross
Lane	8/17/94	15S	6E	32	SE	3850	rd. 1506 at L704C	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4000	rd. 1506 at (lower) Lookout Cr.	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4200	rd. 1506 at (upper) Lookout Cr.	Dana NR Ross
Lane	8/2/94	15S	5E	33	SW	2600	rd. 1507/465	Dana NR Ross
Lane	8/2/94	15S	5E	34	SE	3800	rd. 1507 at L206B	Dana NR Ross
Lane	8/2/94	15S	5E	35	SE	3900	rd. 1507 at WL2	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4150	rd. 530	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4200	rd. 1507, 0.1 mi. E of 530	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4350	rd. 1507, 0.2 mi. E of 530	Dana NR Ross
Lane	8/2/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	8/20/80	15S	5E	28	SW	1800	rd. 410?	Gerasimos Cassis*
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/30/94	15S	6E	19	SW	3300	rd. 358/354	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	9/13/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	9/13/95	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 at hillside mdw	Dana NR Ross
Lane	9/14/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4750	rd. 2650 at 28NW	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4850	rd. 2650, 0.3 mi. N rd. 1506 junct.	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	9/14/95	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C.Hammond
Linn	10/4/95	15S	6E	7	SW	4100	rd. 359, S of McRae Creek	Dana NR Ross
Linn	6/10/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2850	rd. 320/331 (L521)	Dana NR Ross
Linn	6/9/94	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross
Linn	6/9/94	15S	6E	7	NW	4750	rd. 350 at L307 clearcut	Dana NR Ross
Linn	8/1/94	15S	5E	14	NE	3000	rd. 320 at cabin	Dana NR Ross
Linn	8/29/94	15S	6E	18	NW	4100	rd. 350/359 gate	Dana NR Ross
Linn	8/29/94	15S	6E	18	NW	4250	rd. 350 at 18NE	Dana NR Ross
Linn	8/29/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	8/29/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. Trailhead.	Dana NR Ross

Linn	8/29/94	15S	6E	7	SE	4400	rd. 350	Dana NR Ross
Linn	8/3/94	15S	5E	14	NE	3000	rd. 320 at cabin	Dana NR Ross
Linn	8/3/94	15S	5E	14	NW	3350	rd. 410, WS6-7 "Y" in road	Dana NR Ross
Linn	8/3/94	15S	5E	14	SE	2900	rd. 320, 0.15 mi. S of rd. 408	Dana NR Ross
Linn	8/30/94	15S	6E	12	SE	4100	rd. 359 at L387	Dana NR Ross
Linn	8/30/94	15S	6E	7	NW	4050	rd. 359 at section 18	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at W L387	Dana NR Ross
Linn	8/8/95	15S	6E	18	NW	4100	rd. 350/359 junction.	Dana NR Ross

#### 24. *Colias alexandra edwardsii* W.H. Edwards

##### Queen Alexandra's Sulphur

Description. Wingspan 5.1 cm. Sexually dimorphic. Forewing tip somewhat narrow. Upperside: yellow (nearly white in some females); males with solid, narrow, black wing borders; black borders of female reduced or absent. Underside: hindwing greenish.

Similar Species. *Colias occidentalis* has more rounded wing tips, a greater amount of pink wing-fringe, and the underside of the hindwing tends to have more dark scaling and a more developed discal spot. *Colias eurytheme* averages smaller in size with heavier black borders and always has some orange scaling.

Adult Flight Period. The two known collection dates are 7 July and 20 July.

Abundance. Rare.

Distribution. HJA: known only from Frissell Ridge and the east summit of Lookout Mountain. OREGON: widespread east of the crest of the Cascade Mountains.

Biogeographical Region of Origin. Great Basin.

Adult Behavior. Adults are encountered as fast-flying individuals and are difficult to net.

Potential Larval Hostplants. Fabaceae: *Trifolium pratense*, *Vicia americana*.

Comments. These HJA specimens comprise the westernmost records for *Colias alexandra* in Oregon. While this butterfly may simply occur as strays from east of the Cascade Mountains, the presence of the larval hostplant on Frissell Ridge makes a small, resident population a possibility. Due to the mutual rarity and similarity in

color pattern and behavior of *Colias alexandra* and *C. occidentalis*, all yellow sulphurs should be netted for positive identification and for continued documentation of these two species.

HJA Records. 4 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
?	"1970"	?	?	?	?	?	HJA, 11 mi. NE Blue River	G. Hawk*
Lane	7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Dana NR Ross
Lane	7/7/95	15S	6E	20	SW	4650	rd. 2650, nr NW quadrant of sec 20	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond

## 25. *Colias occidentalis occidentalis* Scudder

### Western Sulphur

Description. Wingspan 4.7 cm. Sexually dimorphic. Wings are pink-edged.

Upperside: males are yellow with solid black wing borders; females vary from yellow to white with reduced to absent wing borders.

Similar Species. *Colias alexandra* is very similar but has more angular wing tips and wing fringes are less pink (especially on the underside). *Colias eurytheme* includes some orange in the wing pattern and the dark wing borders are wider in the males and better developed in the females than in *occidentalis*.

Adult Flight Period. Recorded twice: on 7 July and 19 July.

Abundance. Rare. Both records are for singletons.

Distribution HJA: known only from Frissell Ridge. OREGON: generally restricted to north-central Oregon in the Ochoco Mountains and on the east slope of the Cascade Mountains.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Both individuals were collected while in flight on Frissell Ridge.

Potential Larval Hostplants. Fabaceae: *Melilotus alba*.

Comments. This species and *Colias alexandra* are so similar that on-the-wing determinations of these two butterflies are not reliable. No *Colias occidentalis* females have been recorded from the HJA.

HJA Records. 2 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	7/19/98	15S	6E				Frissell Ridge	Dana NR Ross*
Lane	7/7/94	15S	6E	28	NW	4850	Frissell Ridge at FR11	Dana NR Ross*

Family LYCAENIDAE: 15 genera, 23 species.

Subfamily LYCAENINAE: 1 genus, 4 species.

26. *Lycaena heteronea klotsi* Field

Blue Copper

Description. Wingspan 2.9 cm. Sexually dimorphic. Upperside: males are an iridescent light blue; females are grayish brown with black spots. Underside: a very light gray-white with variable black spotting, heavier on the forewings and sometimes nearly absent on the hindwings.

Similar Species. While the male could be mistaken for a blue, it is larger than any blues that would be flying with it in close association with its *Eriogonum* hostplant.

Adult Flight Period. Recorded from 25 July to 16 August. Peak flight in early August.

Abundance. Uncommon. Males may occur in moderate numbers locally.

Distribution. HJA: known only from above 4,000 feet on Frissell Ridge and eastern Lookout Ridge. OREGON: occurs as one or more subspecies east of the crest of the Cascade Mountains and in the Siskiyou Mountains of extreme southwestern Oregon.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Both sexes are usually encountered in close proximity to the larval hostplant. Both sexes have been observed nectaring on *Eriogonum* flowers.

Potential Larval Hostplants. Polygonaceae: *Eriogonum compositum*, *Eriogonum umbellatum*.

Comments. The blue color of the *heteronea* male is unique among Oregon *Lycaena* species.

HJA Records. 25 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
?	7/28/91	?	?	?	?	?	HJA	*
Lane	7/25/98	15S	6E	20	NW	4600	rd. 2650 at hillside meadow	Dana NR Ross
Lane	7/28/91	15S	6E	33	SW		rd. 2650 - Frissell Pt.	P.C. Hammond
Lane	8/16/94	15S	6E	20	NW	4500	rd. 2650 at meadow hillside	Dana NR Ross*
Lane	8/16/94	15S	6E	20	SW	4650	rd. 2650 at mid-big curve	Dana NR Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Dana NR Ross*
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650 (NE side ridge-top hill)	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33 border	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at rd. L704A	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross*
Lane	8/2/95	15S	6E	19	NE	4600	rd. 2650 at mid-FR8	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650 at mid-N end hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at S end hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at mid-S end hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4850	rd. 2650 (NE side ridge-top hill)	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 - saddle S side ridge-top hill	Dana NR Ross
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at N FR11	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/4/84	15S	6E	33	SW	4800	rd. 2650 - Frissell Pt.	P.C. Hammond
Linn	8/16/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	8/2/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

27. *Lycaena helloides helloides* (Boisduval)

## Purplish Copper

Description. Wingspan 2.7 cm. Sexually dimorphic. Upperside: males are coppery brown with a purplish sheen and have orange crescents on the submargin of the hindwing; females are orange with dark borders and a variable amount of dark basal suffusion; black spots are usually present across the wing surface, and are larger and bolder in females.

Similar Species. *Lycaena nivalis* has a similar upperside pattern, but the underside of the hindwing is an immaculate two-tone pale yellow and light purplish-brown.

Adult Flight Period. The records are for 17 August and 14 September.

Abundance. Rare. It has only been recorded twice, both times as singletons.

Distribution. HJA: recorded from Frissell Ridge and along road 1506 near Shorter Creek. OREGON: widespread throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Both individuals were observed perching on tall roadside grasses.

Potential Larval Hostplants. Polygonaceae: *Polygonum douglasii*, *Rumex acetosella*, *Rumex crispus*, *Rumex salicifolius*.

Comments. This species is common and widespread throughout western North America, yet it is rare on the HJA. This is somewhat surprising since at least four species of its larval hostplant occur there.

HJA Records. 2 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/17/94	15S	5E	25	NE	2700	rd. 1506 at L701 grassy pullout	Dana NR Ross*
Lane	9/14/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross

## 28. *Lycaena nivalis bichroma* Emmel & Pratt

### Nivalis Copper

Description. Wingspan 2.7 cm. Sexually dimorphic. Upperside: males are coppery brown with a purple sheen and usually have a well developed, jagged, orange submarginal band; females are orange with dark borders and basal areas and have numerous black spots. Underside: the hindwing is two-toned, yellowish and light lilac-brown.

Similar Species. *Lycaena helloides* and *L. mariposa* bear similar uppersides.

Inspection of the undersides will separate them.

Adult Flight Period. Recorded from 7 July to 29 August. Peak flight from late July through mid August.

Abundance. Uncommon. May occur in moderate numbers locally.

Distribution. HJA: Carpenter Mountain, Frissell Ridge, Lookout Mountain and Lookout Ridge. All records are from above 3,500 feet. OREGON: in the Siskiyou

Mountains and in the Cascade Mountains from southern Oregon north to at least Linn County.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Males are territorial and aggressively chase other butterflies. Both sexes visit flowers.

Potential Larval Hostplants. Polygonaceae: *Polygonum douglasii*.

Comments. This is the most common and widespread copper on the HJA.

HJA Records. 50 total. Specimen vouchered (\*).

Co.	Date	T	R	S	Q	Elev.	Location	Collector
Lane	7/18/94	15S	6E	19	NW	3700	rd. 357 at L371	Ross
Lane	7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Ross
Lane	7/20/94	16S	6E	6	NE	4900	Meadow, S end Lookout Mtn. ridge	Ross
Lane	7/27/95	16S	5E	2	NE	3950	rd. 1507 creek/curve (just E FC5)	Ross
Lane	7/28/91	16S	5E	?	?	?	HJA	Hammond*
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross*
Lane	7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Ross*
Lane	8/15/94	16S	5E	2	NW	4400	0.25 mi. NW end rd. 2633	Ross
Lane	8/15/94	16S	5E	2	SE	4450	end rd. 2633	Ross
Lane	8/16/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Ross*
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650, straight stretch at SE 1/4 sec.	Ross
Lane	8/16/94	15S	6E	20	SW	4650	rd. 2650 mid-big curve	Ross
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650, NE side ridgetop hill	Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33 border	Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1506 meadow	Ross
Lane	8/2/95	15S	6E	19	NE	4600	rd. 2650 at FR8	Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at S hillside meadow	Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at mid-hillside meadow	Ross
Lane	8/2/95	15S	6E	20	SE	4500	rd. 2650/630	Ross
Lane	8/2/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Ross
Lane	8/2/95	15S	6E	28	SW	4750	rd. 2650 at NW 1/4 sec. border	Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650, E side ridgetop hill	Ross
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650 at sec. 28 border	Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Ross
Lane	8/3/95	16S	5E	2	NW	4350	rd. 2633, W FC4 saddle	Ross
Lane	8/3/95	16S	5E	2	SE	4450	end rd. 2633	Ross
Lane	8/3/95	16S	5E	2	SW	4350	rd. 2633, saddle near end rd.	Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, 0.1 mi. SE FC3	Ross
Lane	8/4/84	16S	5E	?	?	?	HJA	Hammond
Lane	?	15S	6E	28	NW	4850	rd. 2650 at FR11	Hammond
Lane	?	15S	6E	33	?	4800	Frissell Point	Hammond

Linn	7/18/94	15S	6E	18	NW	4100	rd. 350/359 junction	Ross*
Linn	7/19/94	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	7/19/94	15S	6E	7	NW	5000	Meadow above end rd. 350	Ross*
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Ross
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	7/26/98	15S	5E	12	SE	4100	rd. 359 at L386	Ross
Linn	8/2/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Ross
Linn	8/29/94	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	8/9/95	15S	6E	12	SE	4100	rd. 359 at L384	Ross
Linn	8/9/95	15S	6E	18	NW	4100	rd. 350 at rd. 359 gate	Ross
Linn	8/9/95	15S	6E	18	NW	4150	rd. 2650, 0.15 mi. N rd. 359 gate	Ross
Linn	8/9/95	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trailhead	Ross
Linn	8/9/95	15S	6E	7	NW	4700	0.2 mi. E end rd. 350	Ross
Linn	8/9/95	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at NW L381 creek bend	Ross

29. *Lycaena mariposa mariposa* (Reakirt)

Mariposa Copper

Description. Wingspread 2.5 cm. Sexually dimorphic. Upperside: males are dark coppery brown with a purple sheen; females are orange with dark borders and a variable amount of darker basal suffusion. Underside: light gray and orange with black spots and markings- unique among HJA species.

Similar Species. *Lycaena helloides* and *L. nivalis* have a similar upperside pattern, but are easily separated by inspection of the underside.

Adult Flight Period. Recorded from 18 July to 30 August. Peak flight from late July to mid August.

Abundance. Uncommon. May occur in moderate numbers locally.

Distribution. HJA: recorded from above 3,000 feet on Carpenter Mountain, and along Frissell Ridge and Lookout Ridge. OREGON: occurs in the Siskiyou and Cascade Mountains, and is distributed from the Ochoco Mountains northeast through the Willowa Mountains. It is virtually unknown elsewhere in the state.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Most often encountered on flowers in moist, subalpine habitats.



Potential Larval Hostplants. Unconfirmed for the HJA, but likely includes *Vaccinium* (Ericaceae).

Comments: The Mariposa Copper blends with the Rocky Mountain subspecies *penrosae* in the mountains of northeastern Oregon. Two coastal lowland subspecies, *charlottensis* and another undescribed one, occur to the north in Washington and British Columbia (Pyle 2002).

HJA Records. 32 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	7/18/94	15S	5E	24	NE	3550	rd. 355 at sharp bend	Dana NR Ross
Lane	7/18/94	15S	5E	24	SE	3100	rd. junction 350/353	Dana NR Ross*
Lane	7/18/94	15S	6E	19	SW	3300	rd. 350 at L302	Dana NR Ross*
Lane	7/18/94	15S	6E	19	SW	3300	rds. 350/358	Dana NR Ross
Lane	7/25/98	16S	6E	5	NW	4300	rd. 1506 at L711	Dana NR Ross
Lane	7/27/95	16S	5E	1	SE	4350	rd. 1507, 0.1 mi. from end meadow	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4400	rd. 2633 at FC3	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross
Lane	8/16/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650 straight stretch near SE ¼-section.	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4650	rd. 2650 mid-big curve	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4850	rd. 2650, 0.4 mi. N rd. 1506 junct.	Dana NR Ross*
Lane	8/17/94	16S	6E	5	NW	4200	rd. 1506 at L708/L711 creek crossing	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650, E side ridge-top hill	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650 at sec. 28 border	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/3/95	16S	5E	2	NW	4375	rd. 2633 saddle (W FC5)	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	4100	rd. 2633 upper switchback	Dana NR Ross
Lane	7/28/91	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	7/19/94	15S	5E	12	SW	4100	rd. 359, 0.2 mi. W rd. 430	Dana NR Ross
Linn	7/19/94	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trailhead.	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Dana NR Ross
Linn	7/26/98	15S	5E	12	SE	4100	rd. 359 at L387	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L384	Dana NR Ross
Linn	8/9/95	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trailhead.	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4700	0.2 mi. E of end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.2 mi. W McRae creek	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.35 mi. W McRae creek	Dana NR Ross

Subfamily THECLINAE: 7 genera, 10 species.

30. *Habrodais grunus herri* Field

Chinquapin Hairstreak

Description. Wingspread 2.9 cm. Sexes similar. Wings are somewhat rounded. Hindwing bears a short tail. Upperside: yellow-brown with variable dark brown borders and basal areas. Underside: pale yellow-tan; lightly marked with a brown medial line; the submargin of the hindwing has a variably defined row of crescents and subtle metallic scaling.

Similar Species. None.

Adult Flight Period. Recorded from 27 July to 14 October. Most records are from August, but many adults were still present during mid October of 1995

Abundance: Common.

Distribution. HJA: this butterfly is found primarily on sunny, south-facing slopes at low to mid elevations in close association with its larval hostplant. OREGON: occurs throughout the northern half of the Cascade Mountains and in the vicinity of Mary's Peak in the Coast Range.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Adults are most active during the latter half of the day. They perch on and fly about the larval hostplant.

Potential Larval Hostplants. Fagaceae: *Chrysolepis chrysophylla*.

Comments. Elsewhere in Oregon, the larvae of *Habrodais grunus* also feed on *Quercus chrysolepis* and *Lithocarpus densiflorus* (Bowden 2003).

HJA Records. 77 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	10/12/95	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	10/12/95	15S	5E	22	NE	2350	rd. 320, 0.2 mi. N of SE L405A	Dana NR Ross
Lane	10/12/95	15S	5E	22	SE	2150	rd. 320 at S L404	Dana NR Ross
Lane	10/12/95	15S	5E	22	SW	2100	rd. 320 gate	Dana NR Ross
Lane	10/12/95	15S	5E	23	NW	2400	rd. 320 near sec. 22	Dana NR Ross
Lane	10/13/94	15S	5E	34	SE	3800	rd. 1507 at SW L206	Dana NR Ross
Lane	10/13/94	16S	5E	1	NW	4100	rd. 1507 at WL3/L211	Dana NR Ross

Lane	10/13/95	15S	5E	34	SE	3800	rd. 1507, L206A curve near sec. 35	Dana NR Ross
Lane	10/13/95	15S	5E	34	SE	3800	rd. 1507 at S L206 curve	Dana NR Ross
Lane	10/13/95	15S	5E	34	SE	3800	rd. 1507 at W L206	Dana NR Ross
Lane	10/13/95	15S	5E	34	SW	3650	rd. 1507 at E L205 cliff	Dana NR Ross
Lane	10/13/95	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross
Lane	10/13/95	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	10/14/95	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	10/14/95	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	10/14/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	7/27/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/1/94	15S	5E	29	NE	2500	rd. 130 (1 of 2)	Dana NR Ross
Lane	8/1/94	15S	5E	29	NE	2600	rd. 130 (2 of 2)	Dana NR Ross
Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/1/94	15S	5E	31	NE	1750	rd. 130, N side B133	Dana NR Ross
Lane	8/1/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/1/94	15S	5E	31	SW	1500	rd. 130 (1 of 2)	Dana NR Ross
Lane	8/1/94	15S	5E	31	SW	1550	rd. 130 (2 of 2)	Dana NR Ross
Lane	8/1/94	16S	5E	6	NW	1350	Mouth of Lookout Creek	Dana NR Ross*
Lane	8/15/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	8/15/94	16S	5E	4	NW	3200	rd. 2633 0.2 mi E of overhang road cut	Dana NR Ross*
Lane	8/15/94	16S	5E	5	NE	3100	rd. 2633 0.2 mi. W of overhang road cut	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/17/94	15S	5E	26	NW	1950	rd. 1506 at rd. 330	Dana NR Ross
Lane	8/17/94	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	8/17/94	15S	5E	27	NW	1850	rd. 1506 at S3	Dana NR Ross
Lane	8/17/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/17/94	15S	5E	32	NE	1600	rd. 1506 at L101	Dana NR Ross
Lane	8/2/95	15S	5E	26	NW	1950	rd. 1506 at rd. 330	Dana NR Ross
Lane	8/2/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/24/95	15S	5E	22	NW	2550	rd. 1508, midway between L403/L404	Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508 "waterfall/seep" (=N L403)	Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508 at NE L403	Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508 at SW L403	Dana NR Ross
Lane	8/24/95	15S	5E	28	NE	2250	rd. 1507 at mid-W L402	Dana NR Ross
Lane	8/29/94	15S	6E	19	NW	3700	rd. 357 at L371	Dana NR Ross
Lane	8/3/94	15S	5E	22	SW	2100	rd. 320 at gate (L502)	Dana NR Ross
Lane	8/3/94	15S	5E	27	NW	1900	rd. 320	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	2950	rd. 2633 (1 of 3, 0.2 mi. apart)	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3050	rd. 2633 (2 of 3, 0.2 mi. apart)	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3150	rd. 2633 (3 of 3, 0.2 mi. apart)	Dana NR Ross
Lane	8/3/95	16S	5E	5	SW	2850	rd. 2633 at rd. 784	Dana NR Ross
Lane	8/3/95	16S	5E	5	SW	2875	rd. 2633, 0.1 mi. E rd. 784	Dana NR Ross
Lane	8/30/94	15S	6E	19	SW	3225	rd.350 at S L302/L302A	Dana NR Ross
Lane	8/30/94	15S	6E	19	SW	3325	rd.350 at N L302/L302A	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/31/94	15S	5E	31	NW	1750	rd. 130 at N B133	Dana NR Ross

Lane	8/31/94	15S	5E	31	SE	1450	rd. 130 (1 of 2)	Dana NR Ross
Lane	8/31/94	15S	5E	31	SE	1500	rd. 130 (2 of 2)	Dana NR Ross
Lane	8/31/94	15S	5E	31	SW	1500	rd. 130	Dana NR Ross
Lane	8/31/94	15S	5E	32	NW	1700	rd. 130 (extreme corner of section)	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2700	rd. 130, 0.2 mi. S HJA border	Dana NR Ross
Lane	8/8/95	15S	5E	25	NE	2800	rd. 350 at NW L701	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	2250	rd. 134, 1/2 way to end	Dana NR Ross
Lane	8/8/95	15S	6E	19	SW	3200	rd. 350, 0.15 mi. W rd. 354	Dana NR Ross
Lane	9/15/80	15S	5E	28	SW	1750	HJA	R.W. Sleeter*
Linn	10/12/95	15S	5E	14	NE	3050	rd. 320 at rd. 327	Dana NR Ross
Linn	10/12/95	15S	5E	14	NE	3050	rd. 320 at rd. 328	Dana NR Ross
Linn	10/12/95	15S	5E	14	NE	3300	rd. 327, near end	Dana NR Ross
Linn	10/12/95	15S	5E	14	NW	3200	rd. 320 at WS6	Dana NR Ross
Linn	10/12/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	10/12/95	15S	5E	14	SE	3050	rd. 320 near sec. 14NE	Dana NR Ross
Linn	10/14/94	15S	5E	14	NE	3050	rd. 320 near rd. 328	Dana NR Ross
Linn	10/14/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	8/1/94	15S	5E	14	NE	3050	rd. 320/328 junction	Dana NR Ross
Linn	8/29/94	15S	5E	12	SW	4100	rd. 359	Dana NR Ross
Linn	8/3/94	15S	5E	14	NW	3300	rd. 410 (top of rd. 320)	Dana NR Ross

### 31. *Satyrium sylvinum nootka* Fisher

#### Sylvan Hairstreak

Description. Wingspan 2.8 cm. Sexes similar. Hindwing bears a single tail.

Upperside: brown with a variable amount of orange near the tail; the orange is more extensive in females and often includes the entire hindwing border and a portion of the forewing border. Underside: light gray with black markings and a blue and orange patch near the base of the tail.

Similar Species. None. All other HJA hairstreaks are noticeably different, especially on the underside.

Adult Flight Period. Recorded from 2 August to 31 August. Peak flight in early to mid August.

Abundance. Uncommon. May occur in moderate numbers locally.

Distribution. HJA: Carpenter Mountain, Frissell Point and west along Lookout Ridge, plus two lower elevation records. OREGON: occurs in the northern and western portions of the state, including the Cascade Mountains.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Adults perch on and near willows and visit a variety of flowers.

Potential Larval Hostplants. Salicaceae: various *Salix* species. Exact host species are unknown for the HJA.

Comments. *Satyrium californicum* is very similar in appearance, but has not been recorded from the HJA.

HJA Records. 19 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/15/94	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross*
Lane	8/17/94	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Dana NR Ross
Lane	8/17/94	16S	6E	5	NW	4100	rd. 1506 at extreme corner of section	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross*
Lane	8/2/94	16S	6E	6	SW	4350	end meadow rd. 1507	Dana NR Ross*
Lane	8/3/95	16S	5E	3	NW	3650	rd. 2633 at dry hillside ravines (1 of 2)	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3700	rd. 2633 at dry hillside ravines (2 of 2)	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4150	rd. 2633 just E of upper switchback	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	?	15S	5E	26	?	2150	Lookout Creek creek-bed area, L301	Dana NR Ross
Lane	?	15S	5E	26	SE	2175	rd. 1506 at creek/curve	P.C. Hammond
Linn	8/29/94	15S	6E	18	NW	4100	rd. junction 350/359	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L384	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at rd. 430	Dana NR Ross
Linn	8/9/95	15S	5E	12	SW	4100	rd. 359, 0.3 mi. W of rd. 430	Dana NR Ross
Linn	8/9/95	15S	6E	18	NW	4000	rd. 350, creek bend below rd. 359 gate	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at NW L381 creek bend	Dana NR Ross

32. *Satyrrium saepium saepium* (Boisduval)

## Hedgerow Hairstreak

Description. Wingspan 2.7 cm. Sexes similar. The hindwing bears a single short tail. Upperside: glossy copper-brown; male forewing bears a black patch of androconial (sex) scales. Underside: brown.

Similar Species. None. All other tail-bearing hairstreaks are noticeably different, especially on the underside.

Adult Flight Period. Recorded from 11 July to 14 September. Peak flight in August.

Abundance. Common.

Distribution. HJA: most records are from Carpenter Mountain, Frissell Ridge, Lookout Ridge and other relatively dry south facing slopes above 3,000 feet where *Ceanothus* is present. OREGON: commonly recorded from the Cascade and Siskiyou Mountains, with fewer and more widely scattered records coming from the mountains of northwestern and eastern Oregon.

Biogeographical Region of Origin. Grater Pacific Northwest.

Adult Behavior. Males perch on shrubs and tall grasses from where they chase other small, dark butterflies, especially other *S. saepium*. Both sexes visit flowers, especially *Eriogonum*.

Potential Larval Hostplants. Rhamnaceae: *Ceanothus integerrimus*, *Ceanothus sanguineus*, *Ceanothus velutinus*.

Comments: It is unclear as to whether the HJA subspecies of this butterfly should be referred to as *okanaganum* (Guppy & Shepard 2001) or *saepium* (Pyle 2002). I have chosen to keep the historically accepted subspecies, *saepium*, for the HJA population.

HJA Records. 48 total. Specimen vouchered (\*).

Co.	Date	T	R	S	Q	Elev.	Location	Collector
Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross*
Lane	8/15/94	16S	5E	3	NW	3650	rd. 2633 at hillside ravines	Dana NR Ross*
Lane	8/15/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross

Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/17/94	15S	6E	32	SE	3750	rd. 1506 between L704A/L704C	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at mid-hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/3/95	15S	5E	34	SE	4300	rd. 2633 spur in FC3	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3850	rd. 2633 at SW-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3850	rd. 2633 between creek and SW-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
Lane	8/3/95	16S	5E	3	SW	3900	rd. 2633 at SE-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	4100	rd. 2633 at upper switchback	Dana NR Ross
Lane	8/3/95	16S	5E	4	NW	3100	rd. 2633 near sec. 5 NE boundary	Dana NR Ross
Lane	8/3/95	16S	5E	4	NW	3300	rd. 2633 near 4 NE boundary	Dana NR Ross
Lane	8/30/94	15S	5E	24	NE	3600	rd. 350 at mid-L303	Dana NR Ross
Lane	8/8/95	15S	5E	24	NE	3500	rd. 350, 0.1 mi E rd. 355	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	7/11/87	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	7/25/95	15S	5E	14	NW	3300	rd. 410 at WS6	Dana NR Ross
Linn	7/25/95	15S	5E	14	NW	3350	rd. 320/410, WS 6-7 "Y" in road.	Dana NR Ross
Linn	8/29/94	15S	6E	7	NE	4500	rd. 350 at Carpt. Mtn. Trlhd.	Dana NR Ross
Linn	8/29/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/3/94	15S	5E	14	NE	3400	rd. 410 spur end = WS7	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L385	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at N L381	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at W L381	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L386	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at rd. 430	Dana NR Ross
Linn	8/9/95	15S	5E	12	SW	4100	rd. 359, 0.25 E of road end	Dana NR Ross
Linn	8/9/95	15S	6E	18	SW	3950	rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	NE	4500	rd. 350 at Carpt. Mtn. Trlhd.	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4750	rd. 350, 0.1 mi. E end	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3350	rd. 320/410, WS 6-7 "Y" in road.	Dana NR Ross

33. *Callophrys dumetorum* (W. H. Edwards)

## Green Hairstreak

Description. Wingspan 2.4 cm. Sexes similar. Upperside: brownish-gray.

Underside: green with a generally faint and poorly defined white postmedian line.

Similar Species. The underside of *Callophrys perplexa* is also green, but the white postmedian line tends to be better developed. The upperside of female *perplexa* is reddish-brown in color, not brownish-gray. Also, *perplexa* is associated with *Lotus* (Fabaceae) on the HJA whereas *dumetorum* larvae feed on *Eriogonum* (Polygonaceae).

Adult Flight Period. Recorded from 23 May to 10 July. Peak flight from late May through mid June.

Abundance. Uncommon.

Distribution. HJA: The six records suggest three local populations: at Frissell Point, on Carpenter Mountain and near Shorter Creek. All records are from above 2500 feet. OREGON: known from very few locations; recorded from the west slope of the Cascade Mountains and from one site in the Coast Range of Polk County.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Adults have been found only in close proximity to the larval hostplant.

Potential Larval Hostplants. Polygonaceae: *Eriogonum* sp. (exact species unknown).

Comments. The true identity of this HJA species is uncertain. For a number of years, this butterfly was called *Callophrys viridis* (Hinchliff 1994). Emmel, Emmel & Matoon (1998a), however, have shown that the correct species name for *viridis* is *dumetorum*, the name used here. There is, however, some speculation (Andrew D. Warren, personal communication) that HJA *dumetorum* may in fact be a subspecies of either *Callophrys affinis* or, more likely, *C. sheridanii*. Additional specimens and life history observations are needed for a conclusive diagnosis.

HJA Records. 6 total. Specimen vouchered (\*).

<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site description</u>	<u>Recorder</u>
5/23/94	15S	6E	33	NW	4900	rd. junction 2650/1506	Dana NR Ross*



5/24/94	15S	5E	25	NE	2700	rd. 1506 at L701	Dana NR Ross*
6/19/94	15S	6E	33	NW	4900	rd. junction 1506/2650	Dana NR Ross
6/9/94	15S	5E	25	NE	2900	rd. 350 at N L701	Dana NR Ross*
7/10/88	15S	6E	33	SW?	4800	Frissell Point	P.C. Hammond*
6/9/94	15S	6E	7	NW	4750	rd. 350 at L307	Dana NR Ross

### 34. *Callophrys perplexa perplexa* (Barnes & Benjamin)

#### Bramble Hairstreak

Description. Wingspan 2.7 cm. Mild sexual dimorphism. Upperside: males are gray-brown and females are reddish-brown. The underside is green in both sexes with a white postmedian line that is moderately well developed, though variable.

Similar Species. The underside of *Callophrys dumetorum* is also green but it is slightly smaller, has a gray upperside in both sexes and is associated with *Eriogonum*. The ventral white postmedian line in *dumetorum* tends to be less well developed.

Adult Flight Period. Recorded from 31 May to 27 June.

Abundance. Uncommon and local. Always found in small numbers and most often as singletons.

Distribution. HJA: this butterfly is known from four sites below 3,000 feet in the western third of the forest. OREGON: occurs west of the crest of the Cascade Mountains.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Adults do not stray far from the larval hostplant and are often found on it. Their green wing coloration camouflages them well against the foliage.

Potential Larval Hostplants. Fabaceae: *Lotus crassifolius*.

Comments. *Callophrys perplexa* was until recently called *C. dumetorum*. The name *dumetorum*, however, now applies to the *Callophrys* species formerly known as *viridis*. Emmel, Emmel & Matoon (1998b) raised *Callophrys perplexa* to the species level and described two new subspecies, one of which is this one.

HJA Records. 6 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site description</u>	<u>Recorder</u>
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633 (100 yds. E of rock columns)	Dana NR Ross

Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633 (rock columns)	Dana NR Ross
Lane	6/1/94	16S	5E	5	NW	2900	rd. 2633 (rock columns)	Dana NR Ross*
Lane	6/27/95	15S	5E	21	SW	2650	rd. 130, at sec. 28	Dana NR Ross
Lane	6/6/94	16S	5E	4	NE	3450	rd. 2633 (rock wall/seep)	Dana NR Ross
Lane	6/8/94	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross

### 35. *Loranthomitoura johnsoni* (Skinner)

#### Johnson's Hairstreak

Description. Wingspread 2.7 cm. Sexes similar. The hindwing bears a single tail.

Upperside: dark brown. Underside: dark brown with a thin white postmedian line.

Similar Species. *Mitoura grynea* is smaller and the underside has a purplish sheen.

*Incisalia* species are smaller and tailless.

Adult Flight Period. The two records are for 1 June and 20 June.

Abundance. Rare. Recorded only as singletons.

Distribution. HJA: recorded from Carpenter Mountain at 4000 feet and from the east end of Lookout Ridge at 4350 feet. OREGON: most records are from the Cascade and Siskiyou Mountains. It is less well known from the Coast Range and from the Warner, Blue and Willowa Mountains of eastern Oregon.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. One adult was collected in flight, the other at moist soil.

Potential Larval Hostplants. Viscaceae: *Arceuthobium campylopodum*.

Comments. Johnson's Hairstreak is probably not as rare as collecting records suggest. Its larval hostplant, the parasitic, conifer-dependent dwarf mistletoe, grows among the forest canopy and the adults probably spend most of their time well above ground and out of sight.

HJA Records. 2 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/20/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Linn	6/1/95	15S	6E	18	NW	4000	rd. 350, S end L305	Dana NR Ross

36. *Mitoura grynea plicataria* Johnson/*nelsoni* (Boisduval)

## Cedar Hairstreak

Description. Wingspan 2.4 cm. Sexes similar. The hindwing bears a single tail.

Upperside: the male is dark brown with rusty brown submarginal highlights; the female is rusty brown with dark brown costal margins, borders and basal areas. The underside has a purplish sheen and a wavy and variably expressed white medial line.

Similar Species. *Loranthomitoura johnsoni* averages slightly larger and the underside is dark brown. *Incisalia* species are tailless.

Adult Flight Period. Recorded from 8 May to 13 July. Peak flight is in late June.

Abundance: Uncommon. Usually found in small numbers in any given location.

Distribution. HJA: most records are from low to middle elevations in the vicinity of Lookout Creek. There is one record from Frissell Point. OREGON: occurs on the west slope of the central portion of the Cascade Mountains.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Regularly observed feeding on roadside flowers.

Potential Larval Hostplants. Cupressaceae: *Thuja plicata*, *Calocedrus decurrens*.

Comments. *Mitoura grynea* occurs throughout much of Oregon as one subspecies or another (Hinchliff 1994). The HJA falls within a region where this butterfly shows intermediate characters between the two subspecies *plicataria* and *nelsoni*, thus the clinal designation *plicataria/nelsoni*.

HJA Records. 29 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/24/94	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	5/8/96	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	6/1/95	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	6/1/95	15S	5E	27	NW	1900	rd. 1506 between S1/S2	Dana NR Ross
Lane	6/18/80	15S	5E	28	SW	1750	at 28 NW border	Gary M. Cooper*
Lane	6/19/94	15S	5E	22	NE	2300	rd. 320, SE L405A	Dana NR Ross
Lane	6/22/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/23/95	15S	5E	28	NE	2150	rd. 1508 at S L402	Dana NR Ross
Lane	6/23/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/26/95	15S	5E	27	NE	1900	rd. 1506 at S3	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130, 0.3 mi. SW of rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	32	NE	1600	end rd. 304 (=Gypsy Camp)	Dana NR Ross

Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1775	rd. 1508 at SE L401	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1800	rd. 1506, 0.25 mi. SW rd. 360	Dana NR Ross
Lane	6/29/95	15S	5E	31	SE	1475	rd. 1506 nr. sec. 32	Dana NR Ross
Lane	6/29/95	15S	5E	32	NE	1600	rd. 1506 at NE L101	Dana NR Ross
Lane	6/29/95	15S	5E	32	NW	1550	rd. 1506 at rd. 304	Dana NR Ross
Lane	6/8/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/9/94	15S	5E	25	NE	2700	rd. 350 at L701	Dana NR Ross
Lane	7/13/95	15S	5E	24	SE	3100	rd. 350 at rd. 353	Dana NR Ross
Lane	7/13/95	15S	6E	19	SW	3150	rd. 350, 0.25 mi. below rd. 354	Dana NR Ross
Lane	7/3/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/4/95	15S	5E	26	SE	2550	rd. 360, at E L109A	Dana NR Ross
Lane	7/4/95	15S	5E	32	NE	1700	rd. 1506 at L102	Dana NR Ross
Lane	7/4/95	15S	5E	36	NW	2600	rd. 360 at L114	Dana NR Ross
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	7/8/95	15S	5E	14	SW	2650	rd. 320 at L503	Dana NR Ross

### 37. *Incisalia augustinus iroides* (Boisduval)

#### Western Brown Elfin

**Description.** Wingspan 2.2 cm. Sexes similar. Hindwing bears a deeply lobed posterior area that somewhat resembles a thick, short tail. Upperside: dark brown. Underside: dark brown with a reddish-purple sheen.

**Similar Species.** *Incisalia mossii* does not have the deeply lobed hindwing and has more contrasting underside markings. *Loranthomitoura grynea* and *L. johnsoni* have tailed hindwings.

**Adult Flight Period.** Recorded from 20 April to 20 July. Peak flight is in May.

**Abundance.** Uncommon. May occur in moderate numbers locally.

**Distribution.** HJA: most records are from dry south facing slopes and ridgetops at middle to high elevations. OREGON: found statewide, but most records are from the Cascade and Siskiyou Mountains, and from the Coast Range of northwestern Oregon.

**Biogeographical Region of Origin.** Western North America.

**Adult Behavior.** Males aggressively defend favored perches which are often on the larval hostplant. Males will chase each other wildly over long distances, before returning to the same perch.

Potential Larval Hostplants. Rhamnaceae: *Ceanothus integerrimus*, *Ceanothus velutinus*; Ericaceae: *Arbutus menziesii*. *Gaultheria shallon*; Rosaceae: *Holodiscus discolor*.

Comments. This butterfly is among the earliest of spring flying species and, being inconspicuous, can be easily overlooked.

HJA Records. 31 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/20/94	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross*
Lane	4/20/94	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
Lane	4/28/94	15S	5E	31	NE	1650	rd. 130 (SW B133)	Dana NR Ross
Lane	4/28/94	15S	5E	31	NW	2100	end rd. 134 (WS 10)	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3550	1/2 way down rd. 355	Dana NR Ross
Lane	5/22/95	15S	6E	19	NE	3800	end rd. 357	Dana NR Ross
Lane	5/22/95	15S	6E	19	NW	3700	2/3 way down rd. 357	Dana NR Ross
Lane	5/24/94	15S	5E	25	NE	2700	rd. 1506 at L701	Dana NR Ross
Lane	5/25/95	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	5/3/95	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross
Lane	5/3/95	16S	5E	4	NE	3450	rd. 2633 rock wall/seep	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	4100	rd. 2633, upper switchback	Dana NR Ross
Lane	5/6/94	15S	5E	24	NE	3600	rd. 350, mid-L303	Dana NR Ross
Lane	5/6/94	15S	6E	19	NE	3800	end rd. 357	Dana NR Ross*
Lane	5/6/94	15S	6E	19	NW	3700	mid-rd. 357	Dana NR Ross*
Lane	6/1/94	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross*
Lane	6/1/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	6/1/94	16S	5E	6	SE	2750	end rd. 202 (off 1501)	Dana NR Ross
Lane	6/1/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	4850	rd. 2650, 0.25 mi. SE rd. 1506	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	5050	1/4 mi. N Frissell Pt Comm Site	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	5125	Frissell Point Comm. Site	Dana NR Ross
Lane	6/20/94	15S	5E	34	SW	3650	rd. 1507 at E L205	Dana NR Ross
Lane	7/20/94	15S	6E	31	NW	5100	W summit of Lookout Mtn.	Dana NR Ross*
Linn	5/18/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
Linn	5/22/95	15S	5E	12	SW	4000	end rd. 359 (into clearcut)	Dana NR Ross
Linn	5/22/95	15S	6E	18	NW	4000	creek bend below 350/359	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
Linn	6/28/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

38. *Incisalia mossii mossii* (Hy Edwards)

## Moss's Elfin

Description. Wingspan 2.3 cm. Sexes similar. Upperside: males are grayish brown and females are reddish brown. Underside: hind wing discal area is dark brown and thinly outlined by an irregular white line.

Similar Species. *Incisalia augustinus* has a lobed hindwing posterior and lacks the white line on the underside of the wing. *Loranthomitoura grynea* and *L. johnsoni* are tailed.

Adult Flight Period. Recorded from 20 April to 9 June.

Abundance. Rare. Usually observed as one or a few individuals at any given location.

Distribution. HJA: known only from two locations, one on Frissell Ridge and a second on Lookout Ridge, where steep, rocky hillsides support populations of the larval hostplant. OREGON: occurs west of the crest of the Cascade Mountains and north of the Siskiyou Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Generally observed perching or making short, erratic flights in the vicinity of the larval hostplant.

Potential Larval Hostplants. Crassulaceae: *Sedum oregonense*, *Sedum spathulifolium*, *Sedum stenopetalum*.

Comments. This butterfly is easily overlooked due to its small size, localized populations, steep, rocky habitat and early flight period.

HJA Records. 7 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/20/94	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross*
Lane	4/20/94	16S	5E	4	NE	3450	rd. 2633 rock wall/seep	Dana NR Ross*
Lane	4/20/94	16S	5E	4	NE	4000	rd. 2633 lower switchback	Dana NR Ross
Lane	5/3/95	16S	5E	3	SW	3900	rd. 2633, SE-most road corner	Dana NR Ross
Lane	5/3/95	16S	5E	4	NE	3450	rd. 2633 rock wall/seep	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	3450	rd. 2633 rock wall/seep	Dana NR Ross
Lane	6/9/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross

39. *Strymon melinus atrofasciatus* McDunnough

## Gray Hairstreak

Description. Wingspan 2.4 cm. Upperside: dark gray; hindwings are tailed and bear an orange spot. Underside: light gray with a black and white postmedial line and two orange spots at the base of the tail.

Similar Species. None. The underside in particular is unique among HJA lycaenids.

Adult Flight Period. Recorded from 20 April to 24 August. There appear to be three broods, with peak flights centered around late April, mid June and early August.

Abundance. Uncommon. Usually observed as singletons.

Distribution. HJA: most records are from the low to mid elevations in the western half of the forest. There is one record from Frissell Ridge at 4,650 feet. OREGON: west of the crest of the Cascade Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Most often encountered as singletons on flowers.

Potential Larval Hostplants. Fabaceae: *Melilotus alba*, *Trifolium repens*, *Trifolium tridentatum*, *Verbascum thapsus*; Polygonaceae: *Polygonum phytolaccaefolium*, *Rumex salicifolius*.

Comments. *Strymon melinus* caterpillars are classic generalist feeders, utilizing a wide array of hostplants.

HJA Records. 18 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/20/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
Lane	4/20/94	16S	5E	6	SE	2750	end rd. 202 (off rd. 1501)	Dana NR Ross
Lane	4/28/94	15S	5E	31	NE	2150	rd. 130 "hillside"	Dana NR Ross
Lane	4/28/94	15S	5E	31	NW	2100	end rd. 134	Dana NR Ross*
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/21/94	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	6/21/94	15S	5E	31	NW	2100	end rd. 134	Dana NR Ross
Lane	6/6/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	8/1/94	15S	5E	31	NE	1750	rd. 130 at N B133	Dana NR Ross
Lane	8/1/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Dana NR Ross
Lane	8/24/95	15S	5E	35	NE	2850	end rd. 362	Dana NR Ross
Lane	8/3/95	16S	5E	3	SW	3900	rd. 2633 at SE-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	4	NW	3350	rd. 2633, curve near 4 NE	Dana NR Ross

Lane	8/8/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	?	15S	5E	25		2400	Lookout Creek	P.C. Hammond

Subfamily POLYOMMATINAE: 7 genera, 9 species.

40. *Everes comyntas comyntas* (Godart)

Eastern Tailed Blue

Description. Wingspan 2.1 cm. Sexually dimorphic. This is a small, tailed species.

Upside: males are blue and females are a dull, gray-brown with faint blue overscaling. Underside: the ground color is light gray and bears a row of well-defined black spots.

Similar Species. *Everes amyntula* is very similar, but the ground color of the underside is chalky-white and the darker markings are fainter.

Adult Flight Period. Recorded from 28 April to 4 October. There are two generations per year with peak flights from late April to early May and from late July to early August.

Abundance. Uncommon. May occur in moderate numbers locally.

Distribution. HJA: most records are from low to mid elevations along Lookout Creek and Blue River Ridge, with some higher elevation records from Lookout Ridge.

OREGON: widespread in western Oregon. Very few records exist for the eastern portion of the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults visit flowers and moist soil in open, sunny areas.

Potential Larval Hostplants: Fabaceae: *Lotus purshianus*, *Trifolium hybridum*, *Trifolium pratense*, *Trifolium repens*, *Trifolium tridentatum*, *Vicia americana*.

Comments: *Everes* species are blues, not hairstreaks, even though they bear tailed hindwings that are more typical of the latter.



HJA Records. 41 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	10/4/94	15S	6E	32	NE	3600	rd. 1506 at L704	Dana NR Ross*
Lane	4/28/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross*
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	4/28/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	1750	rd. 1506	Dana NR Ross*
Lane	4/28/94	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/17/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/18/95	15S	5E	22	SW	1950	rd. 322 at L502 meadow	Dana NR Ross
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/18/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	1/2 way up rd. 354	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 354/358 meadow	Dana NR Ross
Lane	5/24/94	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	6/1/95	15S	5E	25	NW	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	6/1/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/8/94	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross*
Lane	7/18/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/23/80	15S	5E	28	SW	1750	HJA	K. A. Phillips*
Lane	7/27/95	15S	5E	33	SW	2600	rd. 1507 at rd. 465	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross*
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	8/1/94	15S	5E	29	SW	2250	rd. 130	Dana NR Ross
Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	8/24/95	15S	5E	26	SE	2400	rd. 360, sharp curve at N L109B	Dana NR Ross
Lane	8/27/80	15S	5E	28	SW	1750	HJA	Gerasimos Cassis
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/3/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/3/95	16S	5E	5	SE	2500	beg. rd. 2633	Dana NR Ross
Lane	8/8/95	15S	5E	25	NW	2750	rd. 350, 0.9 rd. mi. N of rd. 1506	Dana NR Ross
Lane	8/8/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	6E	19	SW	3300	rd. 350/354 junction	Dana NR Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Dana NR Ross
Lane	?	15S	5E	25		2400	Lookout Creek	P.C. Hammond

41. *Everes amyntula amyntula* (Boisduval)

## Western Tailed Blue

Description. Wingspan 2.4 cm. Sexually dimorphic. This is a small, tailed species. Upperside: the male is blue and the female is a dull, dark gray with blue overscaling. The underside ground color is chalky white.

Similar Species. The only other tailed blue is *Everes comyntas*, which bears a darker and more heavily spotted underside.

Adult Flight Period. Recorded from 6 May to 2 August. Peak flight appears to be in in late June.

Abundance. Uncommon. Usually observed in small numbers at any given location.

Distribution. HJA: most frequently encountered on Frissell Ridge, but has been recorded from several locations at lower elevations. OREGON: occurs throughout most of the state, but has rarely been recorded from the southern half of the Coast Range or from southeastern Oregon, east of the Warner Mountains.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Encountered in flight or while perching low to the ground in moist, open habitats.

Potential Larval Hostplants. Fabaceae: *Lathyrus polyphyllus*, *Vicia americana*.

Comments. All small blue butterflies should be netted or observed closely while at rest to ensure proper identification.

HJA Records. 16 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/31/95	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross
Lane	5/6/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	5/7/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	6/1/94	16S	5E	6	SE	2750	end rd. 202 (off rd. 1501)	Dana NR Ross
Lane	6/21/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	6/28/95	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	6/28/95	15S	6E	20	SE	4500	rd. 2650 at sec. 29 border	Dana NR Ross
Lane	6/28/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (South end)	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	6/9/94	15S	6E	19	SW	3300	rd. 354/358 junction	Dana NR Ross
Lane	7/30/80	15S	6E			2000'	HJA	Gerasimos Cassis
Lane	7/6/94	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross*

Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (North end)	Dana NR Ross
Linn	7/12/95	15S	6E	7	NW	5000	trail above end of rd. 350	Dana NR Ross
Linn	7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

#### 42. *Celastrina echo echo* (W.H. Edwards)

##### Echo Blue

Description. Wingspan 2.6 cm. Sexually dimorphic. Upperside: males are a uniform lilac blue; females show reduced blue areas with broad, dark forewing margins and a row of dark submarginal hindwing spots or crescents. Underside: light gray with a delicate pattern of darker spots, bars and crescents.

Similar Species. Blue lycaenids may at first appear similar, however, no other HJA species closely resemble *Celastrina* on the ventral surface.

Adult Flight Period. Recorded from 20 April to 25 July. Adults emergence commences with the first warm days of spring.

Abundance. Common. Can be quite numerous locally.

Distribution. HJA: occurs throughout the HJA at all elevations. OREGON: most common and widespread in western Oregon, but occurs statewide.

Biogeographical Region of Origin. Western North American.

Adult Behavior. Males are more commonly encountered than females. Whereas individuals observed in flight may be of either sex, aggregations of this butterfly at moist soil or animal feces are nearly always composed of males only.

Potential Larval Hostplants. Asteraceae: *Leucanthemum vulgare*; Rhamnaceae: *Ceanothus integerrimus*; Rosaceae: *Holodiscus discolor*, *Holodiscus dumosus*.

Comments: While this species is multiple brooded (Hinchliff 1994) at lower elevations in Oregon, records from this study suggest a single brood on the HJA. This species is among the earliest of spring-flying butterflies.

HJA Records: 98 total. Specimen vouchered (\*).

Co.	Date	T	R	S	Q	Elev.	Site Description	Collector
Lane	4/20/94	16S	5E	3	NW	3975	rd. 2633 dry hillside	Dana NR Ross*
Lane	4/20/94	16S	5E	3	SW	3900	rd. 2633 -SW extreme	Dana NR Ross

Lane	4/20/94	16S	5E	4	NE	4000	rd. 2633 -lower switchback	Dana NR Ross*
Lane	4/25/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	4/28/94	15S	5E	28	SE	1750	rd. 1506 at rd. 360	Dana NR Ross
Lane	4/28/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/17/94	15E	5E	26	SE	2450	rd. 360, large bend L109A	Dana NR Ross
Lane	5/17/94	15E	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/17/94	15E	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/18/95	15S	5E	22	SW	1950	rd. 322 at L502 meadow	Dana NR Ross
Lane	5/18/95	15S	5E	23	NW	2550	rd. 320/324 junction	Dana NR Ross
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at E L500	Dana NR Ross
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at W L500	Dana NR Ross
Lane	5/18/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/18/95	15S	5E	31	SE	1400	rd. 1506	Dana NR Ross
Lane	5/18/95	16S	5E	6	NW	1350	rd. 130/15 junction	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3500	rd. 350/355 junction	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3550	1/3 way down rd. 357	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3700	rd. 350, 0.15 mi. N rd 357	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3700	rd. 350, 0.15 mi. below rd. 357	Dana NR Ross
Lane	5/22/95	15S	5E	24	NE	3750	rd. 357 small meadow seep	Dana NR Ross
Lane	5/22/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/22/95	15S	6E	19	NE	3800	end rd. 357	Dana NR Ross
Lane	5/22/95	15S	6E	19	NW	3700	2/3 way down rd. 357	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3250	last 1/3 of rd. 354	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	1/2 way up rd. 354	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 320/324 junction	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 324 at unnamed creek curve	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3350	rd. 350, 0.1 mi. above rd. 324	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3350	rd. 350, 0.25 mi. above rd. 324	Dana NR Ross
Lane	5/23/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/24/94	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	5/24/94	15S	5E	25	NE	2700	rd. 1506 at L701	Dana NR Ross
Lane	5/24/94	15S	5E	25	SW	2375	rd. junction 350/1506	Dana NR Ross
Lane	5/24/94	15S	5E	26	SE	2175	rd. 1506 at mile 6 creek bend	Dana NR Ross
Lane	5/24/94	15S	5E	26	SE	2300	rd. 1506 at L301A	Dana NR Ross
Lane	5/24/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/24/94	15S	5E	27	SW	1900	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1750	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1850	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	28	SW	1800	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	6E	29	SW	3150	rd. 1506 at L703 rock face	Dana NR Ross
Lane	5/24/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	5/25/79	15S	5E	12	SW		HJA	Gary M. Cooper*
Lane	5/25/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3450	rd. 1507 at W L205	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3500	rd. 1507, mid-West L205	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3650	rd. 1507, mid-East L205	Dana NR Ross
Lane	5/25/95	16S	5E	2	NE	3950	rd. 1507 above FC5	Dana NR Ross

Lane	5/25/95	16S	6E	6	NW	4350	Just past very end rd. 1507	Dana NR Ross
Lane	5/25/95	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	5/3/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/3/95	16S	5E	4	NE	3450	rd. 2633 rock wall/seep	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	3650	rd. 2633- small ravines	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	4000	rd. 2633 (above SE-most curve)	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	4000	rd. 2633, 0.2 mi. W forest bend	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	4000	rd. 2633, forest bend	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	4350	rd. 2633 at W FC3	Dana NR Ross
Lane	5/31/95	16S	5E	3	SW	3900	rd. 2633, SE-most curve	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	4100	rd. 2633, upper switchback	Dana NR Ross
Lane	5/31/95	16S	5E	4	NW	3250	rd. 2633/789 junction	Dana NR Ross
Lane	5/5/94	15S	5E	24	NE	3500	rd. 350/355 junction	Dana NR Ross
Lane	5/5/94	15S	5E	24	NE	3550	rd. 355, mid-1/4 sec.	Dana NR Ross
Lane	5/5/94	15S	5E	24	NE	3750	rd. 357	Dana NR Ross
Lane	5/5/94	15S	5E	24	SE	3100	rd. 350/353 junction	Dana NR Ross
Lane	5/5/94	15S	5E	24	SE	3200	rd. 350	Dana NR Ross
Lane	5/5/94	15S	6E	19	NW	3700	rd. 357	Dana NR Ross
Lane	5/5/94	15S	6E	19	SW	3300	rd. 354	Dana NR Ross
Lane	5/6/94	15S	5E	25	NE	2850	rd. 350 at Shorter Creek	Dana NR Ross
Lane	5/6/94	15S	5E	32	NW	1500	rd. 1506 at WS3 met. stat. rd.	Dana NR Ross
Lane	6/1/95	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	6/1/95	15S	6E	30	NW	2700	rd. 1506, 0.1 mi. W unnamed creek	Dana NR Ross
Lane	6/1/95	15S	6E	30	NW	2850	rd. 1506 at E L702	Dana NR Ross
Lane	6/1/95	15S	6E	32	SE	3700	rd. 1506 at L704A	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	5050	Frissell Ridge, 0.2 mi. N of comm. site	Dana NR Ross
Lane	6/20/94	15S	5E	34	SW	3600	rd. 1507 at L205	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3850	rd. 1507 creek bend	Dana NR Ross
Lane	6/20/94	16S	5E	1	SE	4150	rd. 1507/530 junction	Dana NR Ross
Lane	6/27/95	15S	5E	21	SW	2650	rd. 130 at NW HJA boundary	Dana NR Ross
Lane	6/28/95	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
Lane	6/9/94	15S	5E	25	SW	2375	rd. 1506/350 junction	Dana NR Ross
Linn	5/18/95	15S	5E	14	NW	3300	rd. 410 at WS 6	Dana NR Ross
Linn	5/18/95	15S	5E	14	NW	3400	rd. 410 at WS 7	Dana NR Ross
Linn	5/18/95	15S	5E	14	SE	2900	rd. 320 on N L523 bend	Dana NR Ross
Linn	5/22/95	15S	5E	12	SE	4100	rd. 359/430 junction	Dana NR Ross
Linn	5/22/95	15S	5E	12	SW	4050	end rd. 359	Dana NR Ross
Linn	5/22/95	15S	5E	12	SW	4050	past end rd. 359, N L383	Dana NR Ross
Linn	5/22/95	15S	5E	12	SW	4050	rd. 359, forest bend near end rd.	Dana NR Ross
Linn	5/22/95	15S	6E	18	NW	4000	rd. 350, ravine below rd. 359 gate	Dana NR Ross
Linn	5/22/95	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross
Linn	6/19/94	15S	5E	13	NW	3000	rd. 325 at L505	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	3050	rd. 320, between rds. 327/328	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3350	rd. 410 at WS 6-7 "Y" in road	Dana NR Ross
Linn	6/9/94	15S	5E	12	SW	4100	rd. 359	Dana NR Ross
Linn	6/9/94	15S	6E	7	SW	4100	rd. 359, McRae Creek bend	Dana NR Ross
Linn	7/12/95	15S	6E	18	NW	4000	rd. 350 at L305 creek bend	Dana NR Ross
Linn	7/25/95	15S	5E	14	NW	3000	rd. 320, at cabin	Dana NR Ross

43. *Euphilotes ancilla columbiae* (Mattoni)

Dotted Blue

Description. Wingspread 2.3 cm. Sexually dimorphic. Upperside: males are blue with black borders and females are brown. Underside: pale with numerous black spots; hindwing with a submarginal row of orange crescents.

Similar Species. In *Icaricia acmon*, there are metallic scales on the submargin of the hindwing underside.

Adult Flight Period. Recorded from 19 June to 2 August, with most records for the month of July.

Abundance. Uncommon. Occurs in moderate numbers locally.

Distribution. HJA: found locally along the higher ridgetops in close association with the larval hostplant. OREGON: most records are from the northern half of the Cascade Mountains, but it occurs in scattered populations throughout much of the northern two-thirds of the state.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Most often encountered on flowers of the *Eriogonum* larval hostplant, where they may be found perching or feeding, and the females may be observed ovipositing. Males fly from flower to flower in search of females.

Potential Larval Hostplants. Polygonaceae: *Eriogonum compositum*, *Eriogonum umbellatum*.

Comments. This butterfly was formerly known as *Euphilotes enoptes* but was recently reclassified as the species *ancilla* by Pratt and Emmel (1998).

HJA Records. 10 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/19/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross*
Lane	7/10/88	15S	6E	?	?	?	HJA	P.C. Hammond*
Lane	7/14/97	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	7/26/95	16S	5E	1	NW	4000	rd. 1507 at W L210	Dana NR Ross
Lane	7/28/91	16S	5E	?	?	?	HJA	P.C. Hammond*
Lane	7/6/94	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4025	rd. 2633 (lower switchback)	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633, at rock wall/seep	Dana NR Ross*

Lane 7/7/94 15S 6E 20 NW 4550 rd. 2650 at meadow hillside Dana NR Ross  
 Lane 8/2/95 15S 6E 33 NW 4900 rd. 2650/1506 Dana NR Ross

#### 44. *Glaucopsyche lygdamus columbia* (Skinner)

##### Silvery Blue

Description. Wingspread 2.7 cm. Sexually dimorphic. Upperside: males are bright silvery blue; females are brownish gray, often with some blue overscaling on the basal half of the wings. Underside: gray with a row of large, black spots.

Similar Species. *Icaricia icarioides* and others, but *lygdamus*' gray underside with a single row of large black spots is diagnostic.

Adult Flight Period. Recorded from 20 April to 14 July. Peak flight is from late May through June.

Abundance. Common. May occur in large numbers locally.

Distribution. HJA: found throughout the forest at all elevations. OREGON: widespread throughout the state.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Often encountered near lupine. Males patrol roadsides and visit moist soil. Females are encountered while feeding at flowers or while egg-laying.

Potential Larval Hostplants. Fabaceae: *Lotus purshianus*, *Melilotus alba*, *Vicia americana*. Lupine is also a likely host.

Comments. The Silvery Blue is a common sight throughout spring and early summer. It was the second most recorded "blue" butterfly during the course of this study.

HJA Records. 82 total. Specimen vouchered (\*).

Co.	Date	T	R	S	Q	Elev.	Location	Collector
?	7/14/76	?	?	?	?	?	HJA	Voegtlin*
Lane	4/20/94	16S	5E	4	NE	3450	rd. 2633 rock wall/seep	Dana NR Ross*
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	2300	rd. 130-along road	Dana NR Ross*
Lane	4/28/94	15S	5E	31	NE	1800	rd. 130-along road	Dana NR Ross
Lane	4/28/94	15S	5E	32	NW	1550	rd. 1506 at rd. 304 (pullout)	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 354/358 meadow	Dana NR Ross
Lane	5/24/94	15S	5E	25	NE	2700	rd. 1506 at L701	Dana NR Ross

Lane	5/24/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/24/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3650	rd. 1507 at E L205	Dana NR Ross
Lane	5/25/95	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	5/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	5/31/94	16S	5E	4	NE	3450	rd. 2633 at rock wall/seep	Dana NR Ross
Lane	5/31/95	16S	5E	2	NE	4450	end rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	2	NW	4375	rd. 2633 at W FC5	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	4150	rd. 2633, upper switchback	Dana NR Ross
Lane	5/31/95	16S	5E	4	NW	3200	rd. 2633, 0.2 mi. E overhang road cut	Dana NR Ross
Lane	5/31/95	16S	5E	4	NW	3350	rd. 2633, 0.2 mi. E rd. 789	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3100	rd. 2633, 0.2 mi. SW overhang road cut	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3100	rd. 2633, at overhang road cut	Dana NR Ross
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633, 100 yds. E rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633, 100 yds. W rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633, at rock columns	Dana NR Ross
Lane	5/31/95	16S	5E	5	SW	2850	rd. 2633 at rd. 784 (HJA border)	Dana NR Ross
Lane	5/6/94	15S	6E	19	NW	3700	mid-rd. 357	Dana NR Ross*
Lane	6/1/94	16S	5E	2	SE	4450	end rd. 2633 (FC5)	Dana NR Ross
Lane	6/1/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	6/1/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
Lane	6/1/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross*
Lane	6/1/95	15S	5E	25	NW	2700	rd. 1506, 0.1 mi. W Shorter Creek	Dana NR Ross
Lane	6/1/95	15S	5E	27	NW	1800	rd. 1506 at rd. 320	Dana NR Ross
Lane	6/1/95	15S	6E	30	NW	2850	rd. 1506 at E L702	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	5050	Frissell Ridge 0.2 mi. N of Comm Site	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	5125	Frissell Ridge Comm Site	Dana NR Ross
Lane	6/10/94	15S	6E	20	NW	4500	rd. 2650	Dana NR Ross
Lane	6/10/94	15S	6E	20	SW	4650	rd. 2650	Dana NR Ross
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	6/10/94	15S	6E	28	SW	4850	rd. 2650	Dana NR Ross
Lane	6/10/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/10/94	16S	6E	5	NW	4300	rd. 1506 at L707	Dana NR Ross
Lane	6/19/94	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	6/19/94	15S	5E	23	NW	2450	rd. 320	Dana NR Ross
Lane	6/19/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/20/94	15S	5E	35	SE	3800	rd. 1507 at S end L208 creek	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3800	rd. 1507 at N L207	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507 at S L207	Dana NR Ross
Lane	6/20/94	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	6/20/94	16S	5E	1	NW	4100	rd. 1507 at L211	Dana NR Ross
Lane	6/20/94	16S	5E	1	SE	4350	rd. 1507 at L212A	Dana NR Ross
Lane	6/20/94	16S	6E	6	SW	4350	end rd. 1507	Dana NR Ross
Lane	6/21/94	15S	6E	20	NW	4500	rd. 2650	Dana NR Ross
Lane	6/21/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130, 0.4 mi. SW of rock quarry	Dana NR Ross



Lane	6/27/95	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	6/28/95	15S	6E	29	NE	4600	rd. 2650, 0.1 mi. N FR11	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650 near sec. 28	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	6/28/95	16S	6E	5	NW	3900	rd. 1506 at L709	Dana NR Ross
Lane	6/28/95	16S	6E	5	NW	4200	rd. 1506 at L708/L711 creek	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 at bottom of L403	Dana NR Ross
Lane	6/8/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/8/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross*
Lane	6/9/94	15S	5E	24	NE	3750	rd. 357	Dana NR Ross*
Lane	7/4/95	15S	5E	36	NW	2550	rd. 360 at Mack Creek	Dana NR Ross
Lane	7/6/94	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4200	rd. 2633	Dana NR Ross
Lane	7/6/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	2950	rd. 320 at rd. 408	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	6/19/94	15S	5E	14	SW	2600	rd. 320 at sec. 23 border	Dana NR Ross
Linn	6/28/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	6/9/94	15S	6E	18	NW	4100	rd. 350/359 junction	Dana NR Ross
Linn	6/9/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mountain. trlhd.	Dana NR Ross*
Linn	6/9/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek bend	Dana NR Ross
Linn	7/12/95	15S	5E	7	NW	5000	SW slope Carp. Mtn. above trail	Dana NR Ross
Linn	7/12/95	15S	5E	7	NW	5000	trail above end rd. 350	Dana NR Ross

#### 45. *Lycaeides anna ricei* (Cross)

##### Anna's Blue

**Description.** Wingspan 2.6 cm. Sexually dimorphic. Upperside: male is purplish blue; female is brown, often with a row of orange crescents on the submargin of the hindwing. The wings of both sexes are fringed with white scales.

**Similar Species.** The undersides of *Icaricia icarioides*, *Glaucopsyche lygdamus* and *Lycaena heteronea* lack the submarginal row of orange crescents usually present on *L. anna* and these butterflies are different in other respects.

**Adult Flight Period.** Recorded from 28 June to 14 September. Peak flight is from mid July through early August.

**Abundance.** Common. Occurs in moderate to large numbers where found.

Distribution. HJA: Carpenter Mountain, Frissell Ridge and Lookout Ridge. All records are from over 3200 feet in elevation. OREGON: occurs in the Cascade, Siskiyou, Ochoco and Warner Mountains.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Adults fly among meadow and roadside vegetation in the vicinity of the larval hostplant. Males come to moist soil and both sexes visit flowers.

Potential Larval Hostplants. Fabaceae: *Lathyrus polyphyllus*.

Comments. Until recently, this butterfly was known as the Northern Blue (*Lycaeides idas*). Guppy and Shepard (2001) separated *anna* from *idas* based on differences in larval hostplant use and the ventral wing patterns of the adults.

HJA Records. 56 total. Specimen vouchered (\*).

<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
9/10/76	?	?	?	?	?	HJA	Voegtlin/Christy
6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
7/12/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
7/18/94	15S	5E	13	SE	3850	rd. 350 at sec. 18 border	Dana NR Ross*
7/18/94	15S	5E	24	NE	3500	rd. 350/355	Dana NR Ross*
7/18/94	15S	6E	19	NW	3700	rd. 357	Dana NR Ross
7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Dana NR Ross
7/20/94	16S	6E	6	NE	4900	Lookout Mtn. saddle, lush meadow (trail)	Dana NR Ross
7/27/95	16S	5E	1	NE	4300	rd. 1507 forest bend	Dana NR Ross
7/27/95	16S	5E	1	SE	4350	rd. 1507 at L211A/L212	Dana NR Ross
7/30/80	15S	5E	34	SE	3940	HJA	Gerasimos Cassis
7/6/94	16S	5E	2	NW	4250	rd. 2633 at sec. 3 border	Dana NR Ross*
8/15/94	16S	5E	3	NE	4400	rd. 2633 at FC3	Dana NR Ross
8/16/94	15S	6E	20	SW	4650	rd. 2650, middle of big curve	Dana NR Ross
8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
8/16/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33 border	Dana NR Ross
8/16/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
8/2/94	15S	5E	35	SW	3900	rd. 1507 at L207	Dana NR Ross
8/2/94	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
8/2/94	16S	5E	1	SE	4350	rd. 1507 at L211A/L212	Dana NR Ross
8/2/95	15S	6E	19	NE	4550	rd. 2650. 0.15 mi. S of HJA border	Dana NR Ross
8/2/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
8/2/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S end)	Dana NR Ross
8/2/95	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Dana NR Ross
8/2/95	15S	6E	28	NW	4750	rd. 2650 at sec. SW border	Dana NR Ross
8/2/95	15S	6E	28	SW	4700	rd. 2650 at sec. NW border	Dana NR Ross
8/2/95	15S	6E	28	SW	4900	rd. 2650 at rocky cliff	Dana NR Ross
8/2/95	15S	6E	29	NE	4550	rd. 2650, 0.25 mi. S rd. 630	Dana NR Ross

8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
8/2/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
8/29/94	15S	6E	19	SW	3250	rd. 354, S end L351	Dana NR Ross
8/3/95	16S	5E	2	NW	4400	rd. 2633 (W FC4 saddle)	Dana NR Ross
8/3/95	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
8/3/95	16S	5E	3	NE	4400	rd. 2633 at SE FC3 (1 of 2)	Dana NR Ross
8/3/95	16S	5E	3	NE	4400	rd. 2633 at SE FC3 (2 of 2)	Dana NR Ross
8/3/95	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
9/14/95	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Dana NR Ross
9/14/95	15S	6E	20	NW	4850	rd. 2650 at sec. SW border	Dana NR Ross
9/14/95	15S	6E	33	NW	4900	rd. 2650 nr. sec. 28	Dana NR Ross
?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
?	15S	6E	32		3600	Lookout Creek	P.C. Hammond
?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
7/18/94	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross
7/18/94	15S	6E	7	NE	4500	rd. 350 at Carpenter Mountain trailhead.	Dana NR Ross
7/18/94	15S	6E	7	NW	4650	1/3 mi. E end rd. 350	Dana NR Ross
7/18/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
7/19/94	15S	6E	7	NW	5000	hillside above end rd. 350	Dana NR Ross
7/19/94	15S	6E	7	SW	4100	rd. 359	Dana NR Ross
8/23/77	15S	6E	12	NE	5000	HJA (Carpenter Mountain.)	R.W. Sleeter
8/9/95	15S	6E	18	NW	4000	rd. 350, creek bend below rd. 359	Dana NR Ross
8/9/95	15S	6E	18	SW	3950	rd. 350 near section 13	Dana NR Ross
8/9/95	15S	6E	7	NW	4700	0.2 mi. E end rd. 350	Dana NR Ross
8/9/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
8/9/95	15S	6E	7	SW	4100	rd. 359, 0.2 mi. S McRae Creek.	Dana NR Ross

#### 46. *Plebejus saepiolus rufescens* (Boisduval)

##### Greenish Blue

**Description.** Wingspan 2.5 cm. Sexually dimorphic. Upperside: male is glossy light blue; female is dark brown with a faint orange band along the submarginal area of the hindwing. Underside: light gray in male; light brown in female; both sexes have two rows of black markings (spots and crescents) and may have some orange scales at the anal angle of the hindwing.

**Similar Species.** *Icaricia icarioides*, *Lycaeides anna* and *Glaucopsyche lygdamus* are somewhat similar, but are much more common than this species. On *I. icarioides*, the hindwing spots on the underside of the hindwings are enclosed by white halos. The

underside of *L. anna* will either have a row of orange crescents present, or will be near immaculate and lack the heavier black spotting of *saepiolus*. The underside of *G. lygdamus* bears only one row of black spots.

Adult Flight Period. There is a single record for 29 June.

Abundance. Rare. Known from a single fresh female.

Distribution. HJA: known only from the vicinity of the concrete bridge over Lookout Creek at 1750 feet. OREGON: occurs throughout Oregon, except for the immediate coast where it is replaced by subspecies *littoralis*.

Biogeographical Region of Origin. Western North America.

Adult Behavior. The female was taken while flying about a moist, grassy, riparian opening.

Potential Larval Hostplants. Fabaceae: *Trifolium hybridum*, *Trifolium repens*, *Trifolium wormskjoldii*.

Comments. Experts disagree on the subspecies designation of this butterfly. It is referred to as subspecies *aehaja* by Pyle (2002) and subspecies *amica* by Guppy and Shepard (2001). Andy Warren (personal communication) suggests that the name *rufescens* is the most appropriate subspecies, as was argued by Austin (1998) and is the one used here. The fresh condition of the HJA specimen suggests that this species may occasionally breed within the watershed. Its larval hostplant is present and other colonies have been recorded nearby in Linn County (Parson et al. 1991).

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*

#### 47. *Icaricia icarioides montis* (Blackmore)

##### Lupine Blue

Description. Wingspan 2.4 cm. Sexually dimorphic. Upperside: males are blue; females are brown with some blue scaling over the basal area. Underside: light gray with black spots; hindwing spots with white halos.

Similar Species. *Glaucopsyche lygdamus* is a more brilliant blue dorsally (males) and has a single row of large black spots on the submargin of the hindwing. In *Lycaeides idas*, the underside of the hindwing often displays a submarginal row of orange crescents (more often in females) and a few metallic scales at the tornus.

Adult Flight Period. Recorded from 8 June to 3 August. Peak flight from late June to mid July.

Abundance. Uncommon. May occur in moderate numbers locally.

Distribution. HJA: found primarily along the higher ridgetops, from Carpenter Mountain and Frissell Ridge to Lookout Ridge. OREGON: occurs on the west slope and higher peaks of the Cascade Mountains, in the Siskiyou Mountains and less frequently at high elevations in the Coast Range.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. Males patrol meadow and roadside lupine patches for females. Females spend most of their time in the vicinity of the larval hostplant. Both sexes frequent flowers and males come to moist soil.

Potential Larval Hostplants. Fabaceae: various *Lupinus* species. The particular species of lupine being used by HJA populations is unknown.

Comments. The distribution map in Guppy and Shepard (2001) suggests that HJA *icarioides* populations are the subspecies *montis*. Pyle (2002) recognizes *montis*, but also notes that a blend zone with subspecies *icarioides* occurs somewhere between the western Washington Cascades and the Sierra Nevada Mountains. HJA populations may well fall within this blend zone, but are called *montis* in this study. The larvae of some lupine blue populations are tended by ants (Pyle 2002). This has not, however, been observed on the HJA.

HJA Records. 38 total. Specimen vouchered (\*).

Co.	Date	T	R	S	Q	Elev.	Location	Collector
Lane	6/19/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross*
Lane	6/20/83	15S	6E	?	?	?	HJA	P.C. Hammond*
Lane	6/20/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	6/21/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	6/28/95	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	6/28/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	6/28/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S end)	Dana NR Ross

Lane	6/28/95	15S	6E	29	NE	4650	rd. 2650 at FR11	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	6/8/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross*
Lane	7/10/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S end)	Dana NR Ross
Lane	7/20/94	15S	6E	31	NW	5100	West summit Lookout Mtn.	Dana NR Ross*
Lane	7/25/95	15S	5E	22	NE	2300	rd. 320 ar SE L405A	Dana NR Ross
Lane	7/7/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross*
Lane	7/7/94	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	7/7/94	15S	6E	20	SW	4650	rd. 2650, middle of big curve	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	7/7/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/2/95	15S	6E	20	SW	4650	rd. 2650 at middle of big curve	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 at rock face	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4375	rd. 2633 at FC3 saddle	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	?	15S	6E	32		3600	Lookout Creek	P.C. Hammond
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	6/28/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	5000	trail above end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	18	NW	4050	rds. 350/359	Dana NR Ross*
Linn	7/18/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trailhead.	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/19/94	15S	5E	12	SW	4050	end rd. 359 (N L383)	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

#### 48. *Icaricia acmon acmon/lutzi* (dos Passos)

##### Acmon Blue

**Description.** Wingspan 2.2 cm. Sexually dimorphic. Upperside: males are a light, purplish blue; females are brown, sometimes partially overlaid with blue scales; hindwing has an orange submarginal band enclosing a row of black spots. Underside: metallic scales are present on the submargin of the hindwing.

**Similar Species.** *Euphilotes enoptes* is similar in size and color, but lacks the metallic scaling on the submargin of the hindwing.

Adult Flight Period. Recorded from 20 April to 24 October. There are multiple generations per year.

Abundance. Common. Usually occurs in small to moderate numbers at any given location. The spring generation is not common, but subsequent generations are.

Distribution. HJA: recorded from open habitats throughout the forest. OREGON: found throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Flight is low to the ground. Frequently observed at flowers or while basking on low vegetation.

Potential Larval Hostplants. Polygonaceae: *Eriogonum compositum*, *Eriogonum umbellatum*; Fabaceae: *Lotus micranthus*, *Lotus purshianus*, *Melilotus alba*.

Comments: The Acmon Blue is very similar to another species, the Lupine Blue (*Icaricia lupini*). The latter species has yet to be found on the HJA.

HJA Records. 59 total. Specimen vouchered (\*).

Co.	Date	T	R	S	Q	Elev.	Location	Collector
Lane	10/14/94	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	10/14/94	15S	5E	22	SE	2300	rd. 320 at L404A/L404	Dana NR Ross
Lane	10/14/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	10/14/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	10/28/80	15S	5E	28	SW	1750	HJA	Gary M. Cooper
Lane	10/5/94	15S	5E	24	NE	3500	rd. junction 350/355	Dana NR Ross
Lane	10/5/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross*
Lane	4/20/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross*
Lane	5/18/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	5/25/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/6/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross*
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/19/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	7/20/83	15S	6E	?	?	?	? HJA	D.V. McCorkle
Lane	7/7/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross*
Lane	7/7/94	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Dana NR Ross*
Lane	8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	8/1/94	15S	5E	21	SW	2650	rd. junction 130/137	Dana NR Ross*
Lane	8/1/94	15S	5E	29	NE	2550	rd. 130	Dana NR Ross
Lane	8/1/94	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross*
Lane	8/15/94	16S	5E	5	SW	2850	rd. 2633/784 HJA border	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 at sec.33 border	Dana NR Ross

Lane	8/16/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/17/94	15S	5E	27	NW	1850	rd. 1506 at S1	Dana NR Ross
Lane	8/2/94	15S	5E	34	SW	3650	rd. 1507 at E end L205	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507	Dana NR Ross
Lane	8/2/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Dana NR Ross
Lane	8/29/94	15S	5E	24	NE	3750	rd. 357	Dana NR Ross
Lane	8/29/94	15S	6E	19	NW	3700	rd. 357	Dana NR Ross
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/30/94	15S	6E	19	SW	3300	rd. junction 354/358	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	9/13/95	15S	5E	35	NW	3900	rd. 1507 nr. 35 SW	Dana NR Ross
Lane	9/13/95	16S	5E	1	SE	4150	rd. 1507 at rd. 530	Dana NR Ross
Lane	9/13/95	16S	5E	2	NE	3900	rd. 1507, 0.15 E of creek at middle of quarter-section.	Dana NR Ross
Lane	9/13/95	16S	6E	6	SW	4350	end rd. 1507 turnaround meadow	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at mid-FR11	Dana NR Ross
Lane	9/22/80	15S	5E	28	SW	1750	HJA	R.W. Sleeter*
Lane	9/24/80	15S	5E	28	SE	1750	rd. 1506 concrete bridge	R.W. Sleeter
Linn	10/14/94	15S	5E	14	NW	3300	rd. junction 320/410	Dana NR Ross
Linn	10/14/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road.	Dana NR Ross
Linn	10/14/94	15S	5E	14	SE	2700	rd. 320 at L523	Dana NR Ross
Linn	10/14/94	15S	5E	14	SE	2850	rd. 320/331 junction	Dana NR Ross
Linn	7/7/95	15S	5E	14	NE	3050	rd. junction 320/327	Dana NR Ross
Linn	8/29/94	15S	6E	18	NW	4100	rd. junction 350/359	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L385	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 (1 of 2)	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 (2 of 2)	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3200	rd. 320 at E WS 6	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road.	Dana NR Ross



Family NYMPHALIDAE: 14 genera, 31 species.

Subfamily NYMPHALINAE: 3 genera, 11 species.

49. *Polygonia satyrus* (W. H. Edwards)

Satyr Anglewing

Description. Wingspan 4.8 cm. Sexes similar. Wing margins are angular and ragged-looking. Upperside: orange-brown with darker wing margins that may be reduced on the hindwing; large, black spots are scattered across the wings. Underside: brown; hindwing with a silvery white "comma" mark.

Similar Species. *Polygonia gracilis*, *P. faunus* and *P. progne* are similar, but none have the brown underside coloration of *satyrus*.

Adult Flight Period. The three records are for 25 April, 11 May and 7 August. The first two are for overwintered adults and the last is for a freshly emerged specimen.

Abundance. Rare. It was only encountered once during 1994-1995.

Distribution. HJA: only known from just west of the Lookout Creek concrete bridge (1750 feet) and on the southeast facing slope of Blue River Ridge (2650 feet).

OREGON: occurs statewide, with most records from northwest Oregon.

Biogeographical Region of Origin. Western North America.

Adult Behavior. One specimen was collected while flying over roadside vegetation at the edge of the forest.

Potential Larval Hostplants. Urticaceae: *Urtica* is the larval hostplant used elsewhere, but has not been documented for the HJA.

Comments. Since the larval hostplant has not been recorded on the HJA, *satyrus* adults there may be strays from nearby areas where nettles do occur.

HJA Records. 3 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	4/25/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	5/11/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	8/7/96	15S	5E	23	NW	2550	rd. 320/324	Dana NR Ross

50. *Polygonia faunus rusticus* (W. H. Edwards)

## Faun Anglewing

Description. Wingspan 4.1 cm. Sexes similar. Wing margins are angular and ragged looking. Upperside: orange-brown with dark brown borders and large black spots; submargin with a row of yellow spots. Underside: mostly gray-toned with a leaf or bark-like pattern; hindwing with green spots and a white "comma" mark (reduced in the female).

Similar Species. The underside of *Polygonia satyrus* is brown with a more silvery "comma" mark. *Polygonia zephyrus* has a brighter yellow-brown upperside and a lighter gray, yellow-spotted underside. *Polygonia oreas* is dark brown to black on the underside.

Adult Flight Period. Recorded from 14 March to 14 September. Peak flight for somewhat worn, post-hibernating adults occurs in May. Fresh adults appear in mid July and are most common from mid August through mid September.

Abundance. Common. Adults are frequently encountered in the spring. Fresh, late summer to fall specimens are less often encountered.

Distribution. HJA: occurs throughout the HJA, but is more frequently encountered at low to mid elevations. OREGON: found throughout the Cascade Mountains, western Oregon and the mountains of northeastern Oregon.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Adults are frequently found at fresh mammal feces and at moist soil along forest edges and openings.

Potential Larval Hostplants. Salicaceae: *Populus tremuloides*.

Comments. *Polygonia faunus* is the most common HJA anglewing species.

HJA Records. 65 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	3/14/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	4/25/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	4/28/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	5/17/95	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross
Lane	5/18/95	15S	5E	22	SW	1950	rd. 322 at L502 meadow	Dana NR Ross

Lane	5/18/95	15S	5E	27	NW	1950	rd. 320/322	Dana NR Ross
Lane	5/18/95	15S	5E	28	SW	1800	rd. 1506 at E L103 creek	Dana NR Ross
Lane	5/18/95	15S	5E	32	NE	1700	rd. 1506 at L102 creek	Dana NR Ross
Lane	5/18/95	16S	5E	6	NW	1400	rd. 1506	Dana NR Ross
Lane	5/22/95	15S	5E	24	SE	3100	rd. 350/353	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	rd. 358 meadow	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3350	rd. 350- 0.25 mi. above rd. 354	Dana NR Ross
Lane	5/23/94	15S	6E	33	NW	4850	rd. 1506/2650	Dana NR Ross*
Lane	5/24/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1850	rd. 360 at L104	Dana NR Ross
Lane	5/24/94	15S	5E	32	NE	1600	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	5/25/95	15S	5E	22	NE	2300	rd. 320 at L405A	Dana NR Ross
Lane	5/25/95	15S	5E	26	NW	1950	rd. 1506/330	Dana NR Ross
Lane	5/25/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/25/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/25/95	15S	5E	32	NE	1600	rd. 1506/305	Dana NR Ross
Lane	5/25/95	15S	5E	33	NW	2400	rd. 1507, mid-L201	Dana NR Ross
Lane	5/25/95	15S	5E	34	NW	3000	rd. 1507, SE L204 (1 of 2)	Dana NR Ross
Lane	5/25/95	15S	5E	34	NW	3000	rd. 1507, SE L204 (2 of 2)	Dana NR Ross
Lane	5/25/95	15S	5E	34	SW	3650	rd. 1507 at E L205	Dana NR Ross
Lane	5/25/95	15S	5E	35	SE	3800	rd. 1507, mid-L208(1 of 2)	Dana NR Ross
Lane	5/25/95	15S	5E	35	SE	3800	rd. 1507, mid-L208(2 of 2)	Dana NR Ross
Lane	5/25/95	15S	5E	35	SW	3850	rd. 1507 at first Creek (W)	Dana NR Ross
Lane	5/25/95	15S	6E	29	SW	3150	rd. 1506 at L703 rock face	Dana NR Ross
Lane	5/25/95	15S	6E	32	NE	3550	rd. 1506 at old growth trailhead	Dana NR Ross
Lane	5/25/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	5/25/95	16S	5E	1	NE	4200	rd. 1507, 0.15 mi. NE L212A	Dana NR Ross
Lane	5/25/95	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	5/25/95	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
Lane	5/6/94	15S	5E	24	NE	3500	rd. 355 at L341	Dana NR Ross*
Lane	5/6/94	15S	5E	24	SE	3100	rd. 350/353	Dana NR Ross
Lane	5/6/94	15S	5E	25	NW	2650	rd. 350 at S7	Dana NR Ross
Lane	5/6/94	15S	5E	25	SW	2400	1506/350	Dana NR Ross*
Lane	5/7/94	15S	6E	29	SW	3200	rd. 1506	Dana NR Ross*
Lane	6/10/94	15S	6E	20	SW	4650	rd. 2650	Dana NR Ross
Lane	6/19/94	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	6/19/94	15S	5E	22	SE	2250	rd. 320 at L404 (at NE qtr. sec.)	Dana NR Ross
Lane	6/20/94	15S	5E	34	SE	3800	rd. 1507 at L206	Dana NR Ross
Lane	6/8/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/9/94	15S	5E	25	NE	2850	rd. 350 at Shorter Creek	Dana NR Ross
Lane	8/13/95	16S	5E	2	NE	3900	rd. 1507, nr creek, mid-bend (2 of 2)	Dana NR Ross
Lane	8/13/95	16S	5E	2	NE	3950	rd. 1507, nr creek, mid-bend (1 of 2)	Dana NR Ross
Lane	8/14/95	15S	6E	29	SW	3200	rd. 1506, 0.2 mi. SE Cold Creek	Dana NR Ross
Lane	8/14/95	15S	6E	33	SW	4600	rd. 1506, woods btwn L704A & C	Dana NR Ross
Lane	8/14/95	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Dana NR Ross
Lane	8/24/95	15S	5E	35	NE	2550	rd. 360, 0.3 mi. from cabin/creek	Dana NR Ross

Lane	9/13/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
Lane	9/14/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	9/14/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	9/5/80	15S	5E	28	SW	1750	HJA	Gary M. Cooper
Linn	5/22/95	15S	6E	18	NW	4000	rd. 350- curve blw rd. 359	Dana NR Ross
Linn	6/9/94	15S	5E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross
Linn	6/9/94	15S	6E	7	NW	4750	rd. 350 at L307 clearcut	Dana NR Ross
Linn	7/18/94	15S	6E	18	NW	4150	rd. 350 at L305	Dana NR Ross
Linn	8/29/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trihd.	Dana NR Ross
Linn	8/31/94	15S	6E	7	SW	4050	rd. 359 at sec. 18	Dana NR Ross
Linn	8/31/94	15S	6E	7	SW	4100	rd. 359	Dana NR Ross*
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross

### 51. *Polygonia zephyrus* (W. H. Edwards)

#### Zephyr Anglewing

**Description.** Wingspan 4.6 cm. Sexes similar. Wing margins are angular and ragged looking. Upperside: golden-tan and brown with dark wing margins, often reduced or absent on the hindwing; fore and hindwings with several black spots. Underside: patterned like gray tree bark, with white overtones and yellow submarginal spots; hindwing with a thin, white “comma” mark.

**Similar Species.** *Polygonia faunus* and *P. oreas* have wider, darker wing margins on the upperside and are darker overall on both wing surfaces. The underside of *P. satyrus* is brown.

**Adult Flight Period.** Recorded from 6 May to 14 September. Post-hibernating adults were found flying well into July. Fresh individuals were encountered beginning in August.

**Abundance.** Uncommon. Encountered most often during spring and early summer.

**Distribution.** HJA: occurs throughout the forest at elevations above 3200 feet. OREGON: widespread throughout the mountains of Oregon, but absent from the Coast Range.

**Biogeographical Region of Origin.** Boreal-Montane.

**Adult Behavior.** Adults visit flowers.

**Potential Larval Hostplants.** Grossulariaceae: *Ribes lacustre*, *Ribes sanguineum*.

Comments. This is the most common *Polygonia* species at higher elevations.

HJA Records. 31 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>¼</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/23/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	5/25/95	15S	5E	35	SE	3800	rd. 1507, mid-L208	Dana NR Ross
Lane	5/25/95	15S	5E	35	SE	3900	rd. 1507 at WL2	Dana NR Ross
Lane	5/25/95	16S	5E	1	NW	4050	rd. 1507 at E L210	Dana NR Ross
Lane	5/6/94	15S	5E	24	NE	3700	beginning rd. 357	Dana NR Ross
Lane	5/6/94	15S	6E	19	SW	3300	rd. 354, L351	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	6/1/95	15S	6E	33	SW	4850	rd. 2650, 0.25 mi. SE rd. 1506	Dana NR Ross
Lane	6/10/94	15S	6E	20	SW	4650	rd. 2650, at sec. 20NW	Dana NR Ross
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*
Lane	6/10/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33	Dana NR Ross
Lane	6/20/94	15S	5E	35	SE	3800	rd. 1507 at L208	Dana NR Ross*
Lane	6/28/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4200	rd. 2633	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	8/16/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	8/17/94	15S	6E	32	NE	3450	rd. 1506, 0.2 mi. N old growth trlhd.	Dana NR Ross
Lane	8/2/94	15S	5E	34	SE	3800	rd. 1507 at L206	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4650	rd. 2650 at hillside meadow (S end)	Dana NR Ross
Linn	5/22/95	15S	6E	7	SW	4100	rd. 359 at NW L381 creek bend	Dana NR Ross
Linn	6/22/95	15S	6E	7	NW	4700	rd. 350. 0.1 mi. from end	Dana NR Ross
Linn	6/28/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	6/29/77	15S	5E	12	NE	5000	Carpenter Mountain.	R.W. Sleeter*
Linn	7/18/94	15S	6E	7	SE	4400	rd. 350	Dana NR Ross
Linn	7/7/95	15S	5E	14	NE	2950	rd. 320/408	Dana NR Ross
Linn	8/20/77	15S	5E	12	NE	5000	Carpenter Mountain.	G. Eulensen*
Linn	8/29/94	15S	6E	7	NW	4650	rd. 350	Dana NR Ross*
Linn	8/30/94	15S	5E	12	SW	4050	rd. 359, NE L383	Dana NR Ross*
Linn	8/31/94	15S	6E	18	NW	4000	rd. 350 at S L305	Dana NR Ross
Linn	9/14/94	15S	5E	14	NE	3050	rd. 320/328	Dana NR Ross

## 52. *Polygonia oreas silenus* (W. H. Edwards)

### Dark Anglewing

Description. Wingspan 4.0 cm. Sexes similar. Wing margins are angular and ragged-looking. Upperside: rich brown and golden-tan with darker wing margins; fore and hind wings bear several large, black spots. Underside: very dark, almost black in

some males; hindwing with a white "comma" mark.

Similar Species. *Polygonia satyrus*, *P. gracilis* and *P. faunus* have gray to brown undersides that are never as dark as in *P. progne*.

Adult Flight Period. The single record is for 12 September.

Abundance: Rare.

Distribution. HJA: a single, fresh male was taken from the southeast slope of Blue River Ridge at an elevation of 2350 feet. OREGON: occurs in western Oregon north of the Siskiyou Mountains, in the northern two-thirds of the Cascade Mountains, and in the mountains of northeastern Oregon.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. The specimen was taken from mature forest habitat. It was basking in a patch of sunlight on a gravel road.

Potential Larval Hostplants. Grossulariaceae: *Ribes*. The exact species used locally are not known.

Comments. This is the rarest of the four HJA *Polygonia* species.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	9/12/95	15S	5E	22	NE	2350	rd. 320- 0.2 mi. NE of SE L405A	Dana NR Ross*

### 53. *Nymphalis californica* (Boisduval)

#### California Tortoiseshell

Description. Wingspan 5.0 mm. Sexes similar. Upperside: orange-brown with dark borders and several black spots. Underside: patterned much like gray-brown tree bark.

Similar Species. *Polygonia* species average smaller and have more angular wings. *Nymphalis milberti* is smaller with a conspicuous yellow and orange submarginal band.

Adult Flight Period. Recorded from 4 April to 5 October with three peak periods: early spring, June and mid to late August.

Abundance. Common.

Distribution. HJA: occurs throughout the HJA at all elevations. OREGON: widespread throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. These butterflies are fond of flowers and moisture can turn up anywhere. Late emerging adults overwinter and fly again in the spring.

Potential Larval Hostplants. Rhamnaceae: *Ceanothus integerrimus*, *Ceanothus sanguineus*, *Ceanothus velutinus*.

Comments. This species is subject to periodic population outbreaks where the gregarious caterpillars can seriously defoliate *Ceanothus* shrubs.

HJA Records. 101 total. Specimen vouchered (\*).

Date	T	R	S	1/4	Elev.	Location	Collector
10/5/94	15S	6E	28	SW	4900	rd. 2650 at SE side ridgetop hill	Dana NR Ross
10/5/94	15S	6E	29	NE	4650	rd. 2650 at N FR11	Dana NR Ross
10/5/94	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Cr. crossing	Dana NR Ross
4/20/94	16S	5E	5	NE	3100	rd. 2633 overhang road cut	Dana NR Ross
4/20/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
4/20/94	16S	5E	6	SW	2750	end rd. 202	Dana NR Ross
4/28/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
4/28/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
4/28/94	15S	5E	29	SW	2300	rd. 130, sw 1/4 sec. extreme	Dana NR Ross
4/28/94	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
4/28/94	15S	5E	32	NW	2200	rd. 130, extreme corner	Dana NR Ross
5/18/95	15S	5E	29	SW	2300	rd. 130 near 134	Dana NR Ross
5/24/94	15S	5E	28	SW	1800	rd. 1506	Dana NR Ross
5/24/94	15S	6E	28	NW	4700	FR11	Dana NR Ross
5/31/95	16S	5E	3	NW	3900	rd. 2633 at SW-most curve	Dana NR Ross
5/31/95	16S	5E	3	NW	3900	rd. 2633, 0.2 mi. SW creek bend	Dana NR Ross
5/31/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
5/31/95	16S	5E	4	NE	4100	rd. 2633 at upper switchback	Dana NR Ross
5/6/94	15S	6E	19	NW	3700	mid-rd. 357	Dana NR Ross
5/6/94	15S	6E	19	SW	3300	rd. 354	Dana NR Ross
6/1/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N 1506	Dana NR Ross
6/1/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
6/1/95	15S	6E	33	SW	4850	rd. 2650, 0.25 mi. SE rd. 1506	Dana NR Ross
6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*
6/19/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
6/20/94	15S	5E	33	SW	2600	rd. 1507/465	Dana NR Ross
6/20/94	15S	5E	34	SW	3450	rd. 1507 at W end L205	Dana NR Ross
6/20/94	15S	5E	34	SW	3600	rd. 1507 at L205	Dana NR Ross
6/20/94	15S	5E	35	SE	3900	rd. 1507 at SE L208	Dana NR Ross
6/20/94	15S	5E	35	SW	3850	rd. 1507 at creek between L207/L208	Dana NR Ross

6/20/94	15S	5E	35	SW	3900	rd. 1507 at L207	Dana NR Ross
6/20/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
6/20/94	16S	5E	1	SE	4350	rd. 1507, 0.2 mi. E of rd. 530	Dana NR Ross
6/20/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
6/20/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
6/21/94	15S	5E	31	NE	2250	1/2 way down rd. 134	Dana NR Ross
6/21/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
6/21/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
7/11/87						HJA	?*
7/18/94	15S	5E	27	NE	1925	rd. 1506	Dana NR Ross
7/18/94	15S	6E	19	NW	3700	rd. 357 at L372	Dana NR Ross
7/20/94	16S	6E	6	NE	4600	L.O. Mtn. trail, E facing alder hillside	Dana NR Ross
7/6/94	16S	5E	2	NW	4250	rd. 2633 at sec. 3 border	Dana NR Ross*
7/6/94	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross
7/6/94	16S	5E	3	NW	3700	rd. 2633 main creek corner	Dana NR Ross
7/6/94	16S	5E	4	NE	3450	rd. 2633 rock wall seep	Dana NR Ross
7/7/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
7/7/94	15S	6E	20	SW	4550	rd. 2650 at SE 1/4 sec. border	Dana NR Ross
7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
7/7/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33 border	Dana NR Ross
7/7/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
7/7/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
7/7/94	16S	6E	5	NW	3900	rd. 1506 at N L707	Dana NR Ross
7/7/94	16S	6E	5	NW	4200	rd. 1506 at upper Lookout Cr. crossing	Dana NR Ross
8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
8/15/94	16S	5E	2	NW	4250	rd. 2633 at sec. 3 border	Dana NR Ross
8/16/94	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Dana NR Ross
8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
8/16/94	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
8/16/94	16S	6E	5	SW	4300	rd. 1506 at Lookout Mtn. trailhead	Dana NR Ross
8/17/94	15S	5E	25	NE	2600	rd. 1506 at W L701	Dana NR Ross
8/17/94	15S	5E	25	NE	2700	rd. 1506 at L701A	Dana NR Ross
8/17/94	15S	5E	26	NW	1950	rd. 1506/330	Dana NR Ross
8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
8/17/94	15S	5E	27	NE	1900	rd. 1506 at S4	Dana NR Ross
8/17/94	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross
8/17/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
8/17/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
8/17/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
8/17/94	15S	5E	32	NE	1600	rd. 1506/305	Dana NR Ross
8/17/94	15S	6E	29	SW	3150	rd. 1506 at L703	Dana NR Ross
8/17/94	15S	6E	29	SW	3250	rd. 1506 near Cold Creek	Dana NR Ross
8/17/94	15S	6E	30	NE	2850	rd. 1506 at E L702	Dana NR Ross
8/17/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
8/17/94	15S	6E	32	NW	3450	rd. 1506, 0.2 mi. N O.G.trlhd	Dana NR Ross
8/17/94	15S	6E	32	SW	3700	rd. 1506 at L704/L704A	Dana NR Ross
8/17/94	16S	6E	5	NW	3900	rd. 1506, N side L707	Dana NR Ross



8/30/94	15S	5E	24	NE	3450	rd. 350 at S L303	Dana NR Ross
8/30/94	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
8/30/94	15S	6E	19	SW	3300	rds. 354/358	Dana NR Ross
9/13/94	15S	5E	35	SW	3850	rd. 1507 at W L207	Dana NR Ross
?	15S	5E	25		2400	Lookout Creek	P.C. Hammond
?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
5/18/95	15S	5E	14	NW	3200	rd. 320 at WS6	Dana NR Ross
6/19/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
6/9/94	15S	6E	7	NW	4750	rd. 350 at L307 clearcut	Dana NR Ross
7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
8/15/84	15S	6E	19			North Frissell Point	G. L. Parsons*
8/29/94	15S	6E	18	NW	4150	rd. 350 above gate	Dana NR Ross
8/29/94	15S	6E	7	SE	4400	rd. 350	Dana NR Ross
8/30/94	15S	5E	12	SE	4100	rd. 359 at L387	Dana NR Ross
8/30/94	15S	5E	12	SW	4100	rd. 359	Dana NR Ross
8/30/94	15S	6E	18	NW	4000	rd. 350 at S L305	Dana NR Ross
8/30/94	15S	6E	7	SW	4050	rd. 359 at sec. 18	Dana NR Ross
8/30/94	15S	6E	7	SW	4050	rd. 359, W L381	Dana NR Ross
8/30/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross
9/14/94	15S	5E	14	NE	3000	rd. 320 at L522	Dana NR Ross
9/14/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross

#### 54. *Nymphalis antiopa* (Linnaeus)

##### Mourning Cloak

**Description.** Wingspan 6.5 cm. Sexes similar. Upperside: dark brown with light yellow borders and a row of blue submarginal spots.

**Similar Species.** None.

**Adult Flight Period.** Recorded from 14 March to 14 September. Most records are for post-hibernating individuals in late April and May.

**Abundance.** Uncommon. Usually observed as singletons.

**Distribution.** HJA: most frequently encountered along the lower half of Lookout Creek, but it also occurs at higher elevations. OREGON: widespread throughout the state.

**Biogeographical Region of Origin.** Western North America.

**Adult Behavior.** Most adults emerge in late summer and fall and typically hibernate

over the winter. Males are territorial and will stake out and defend sunny, riparian openings.

Potential Larval Hostplants. Salicaceae: *Populus tremuloides*, *Populus trichocarpa*;  
Polygonaceae: *Rumex acetosella*.

Comments. *Nymphalis antiopa* may go through two generations on the HJA, as is the case throughout much of Oregon.

HJA Records. 34 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	3/14/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	4/20/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
Lane	4/20/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
Lane	4/20/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	4/28/94	15S	5E	25	SW	2375	rds. 350/1506	Dana NR Ross
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	4/28/94	15S	5E	28	SW	1800	rd. 1506 at E L103 creek	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	2250	rd. 130	Dana NR Ross
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	4/28/94	15S	5E	32	NW	2200	rd. 130, NW sec. extreme	Dana NR Ross
Lane	4/28/94	16S	5E	6	NW	1400	rd. 1506	Dana NR Ross
Lane	5/11/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper*
Lane	5/17/95	15S	5E	26	SE	2175	rd. 1506 at "mile 6 creek" bend	Dana NR Ross
Lane	5/17/95	15S	5E	36	NW	2600	rd. 360 at L110 (Mack Creek)	Dana NR Ross
Lane	5/18/95	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at W L500	Dana NR Ross
Lane	5/22/95	16S	5E	6	NW	1400	rd. 130, 1/2 way from rd 15 to HQ fork	Dana NR Ross
Lane	5/23/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1850	rd. 360 at L104	Dana NR Ross
Lane	5/24/94	15S	5E	32	NW	1500	rd. 1506	Dana NR Ross
Lane	5/6/94	15S	5E	25	SW	2350	rd. 350, 0.1 mi. N rd. 1506	Dana NR Ross
Lane	5/6/94	15S	5E	26	NW	1950	rd. 1506/330	Dana NR Ross
Lane	6/20/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
Lane	6/9/94	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/18/94	16S	5E	6	NW	1400	rd. 1506, 0.2 NE rd. 15	Dana NR Ross
Lane	8/16/94	15S	6E	20	SE	4500	rd. 2650 at sec. 29 border	Dana NR Ross*
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	9/14/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
Linn	5/22/95	15S	6E	18	NW	4000	rd. 350, creek bend below 359 gate	Dana NR Ross
Linn	5/22/95	15S	6E	7	SW	4100	rd. 359, 2/3 way to McRae Creek	Dana NR Ross
Linn	6/9/94	15S	6E	7	NW	4750	rd. 350 at L307	Dana NR Ross

55. *Nymphalis milberti subpallida* (Cockerell)

## Milbert's Tortoiseshell

Description. Wingspread 4.3 cm. Sexes are similar. Upperside: dark brown with a wide orange and yellow submarginal band.

Similar Species. *Nymphalis californica* is larger, and lacks the orange and yellow submarginal band.

Adult Flight Period. Recorded within a single two week time period on the dates of 16, 29 and 30 August of 1994.

Abundance. Rare. Known from four singleton records.

Distribution. HJA: the higher elevations of Carpenter Mountain and Frissell Ridge.

OREGON: occurs throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults visit flowers.

Potential Larval Hostplants. Urticaceae: *Urtica* is the larval hostplant used elsewhere, but has not been documented for the HJA.

Comments. Milbert's Tortoiseshell may not breed within the boundaries of the HJA. Most likely, HJA specimens are strays from nearby areas where the larval hostplant occurs.

HJA Records. 4 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/16/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650, NE side ridge-top hill	Dana NR Ross*
Linn	8/29/94	15S	6E	7	SE	4400	rd. 350, S end L306	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at L381 creek bend	Dana NR Ross

56. *Vanessa virginiensis* (Drury)

## American Painted Lady

Description. Wingspan 4.4 cm. Sexes similar. Upperside: orange with black markings; forewing with white subapical spots; hindwing with a row of dark

submarginal spots. Underside: the hindwing bears two conspicuous eyespots.

Similar Species. *Vanessa cardui* and *V. annabella* have similar uppersides, but the underside of the hindwing has smaller and more numerous eyespots in both species.

Adult Flight Period. Recorded from 6 July to 5 October. There appear to be two generations per year.

Abundance. Rare. Encountered four times as singletons during this study.

Distribution. HJA: Lookout Ridge and Carpenter Mountain. All records are from above 3600 feet in elevation. OREGON: recorded from scattered locations throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults visit flowers.

Potential Larval Hostplants. Asteraceae: *Anaphalis margaritacea*, *Artemisia ludoviciana*, *Cirsium arvense*, *Gnaphalium purpureum*.

Comments. This is the least encountered of the *Vanessa* species

HJA Records. 4 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	10/5/94	15S	6E	19	NW	3700	rd. 357 at L371	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross*
Lane	9/13/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Linn	7/20/77	15S	5E	12	NE	5000	Carpenter Mountain.	G. Eulensen*

## 57. *Vanessa cardui* (Linnaeus)

### Painted Lady

Description. Wingspan 5.2 cm. This is a medium-sized, mostly orange butterfly.

Upperside: orange with a darker, glossy brown basal area and black spots and markings; the forewing apical area bears a short, white bar and several white spots.

Similar Species. The upperside of *Vanessa annabella* has an orange bar on the apical area of the forewing. *Vanessa virginiensis* has two large eyespots on the underside of the hindwing.

Adult Flight Period. Recorded from 25 May to 14 September. Migratory individuals and multiple generations provide for regular sightings throughout the season.

Abundance. Common.

Distribution. HJA: found throughout the forest at all elevations, but most records are from the higher ridgetops. OREGON: occurs statewide.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults are commonly found on flowers.

Potential Larval Hostplants. Asteraceae: *Achillea millefolium*, *Anaphalis margaritacea*, *Artemisia ludoviciana*, *Cirsium arvense*, *Cirsium vulgare*.

Comments. Under favorable conditions these butterflies undergo population outbreaks and migrate northward in huge numbers during the spring and early summer months.

HJA Records. 67 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	5/31/95	16S	5E	3	NE	4350	rd. 2633 "saddle"	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	3650	rd. 2633, 0.2 mi. W of creek/bend	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	3900	rd. 2633, SW-most corner	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	4100	rd. 2633, upper switchback	Dana NR Ross
Lane	6/1/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	6/2/95	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	6/2/95	15S	5E	27	NW	1800	rd. 1506/320	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130, 0.4 mi. SW of rock quarry	Dana NR Ross
Lane	6/28/95	15S	5E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/28/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Lane	6/28/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	7/11/87	15S	6E				HJA	P.C. Hammond*
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (South end)	Dana N. R. Ross
Lane	7/12/95	16S	6E	5	NW	4000	rd. 1506 at lower Lookout Creek crossing	Dana NR Ross
Lane	7/12/95	16S	6E	5	NW	4200	rd. 1506 at upper Lookout Creek crossing	Dana NR Ross
Lane	7/27/95	15S	5E	35	SW	3850	rd. 1507 at L207	Dana NR Ross
Lane	7/27/95	15S	5E	36	SW	3950	rd. 1507 at L209	Dana NR Ross
Lane	7/27/95	16S	5E	1	NW	4050	rd. 1507, between WL3 and L210	Dana NR Ross
Lane	7/27/95	16S	5E	1	SE	4350	rd. 1507, 0.1 mi. W of end meadow	Dana NR Ross
Lane	7/3/95	15S	5E	28	NE	1750	rd. 1506, NE of concrete bridge	Dana NR Ross
Lane	8/2/95	15S	5E	25	NW	2700	rd. 1506, 0.2 mi. E of the old growth trailhead	Dana NR Ross

Lane	8/2/95	15S	5E	25	SW	2375	rd. 1506/350	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650 at upper-hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at mid-hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (South end)	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 at S end rocky hilltop	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/24/95	15S	5E	22	NW	2750	rd. 480 'Y' (off rd.1508)	Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508 at S L403 curve	Dana NR Ross
Lane	8/24/95	15S	5E	27	SE	2050	rd. 360 at L116	Dana NR Ross
Lane	8/24/95	15S	5E	27	SW	2200	rd. 363 at L232	Dana NR Ross
Lane	8/24/95	15S	5E	35	NE	2850	end rd. 362	Dana NR Ross
Lane	8/3/95	15S	5E	31	SE	1400	HJA Headquarters	Dana NR Ross
Lane	8/3/95	16S	5E	2	NW	4350	rd. 2633, saddle, just W of FC4	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, 0.1 mi. E of bend	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	4100	rd. 2633 at upper switchback	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	9/13/95	15S	5E	33	NW	2250	rd. 1507 at rd. 455	Dana NR Ross
Lane	9/13/95	15S	5E	34	NW	3200	rd. 1507 at rd. 470	Dana NR Ross
Lane	9/13/95	15S	5E	35	SW	3900	rd. 1507 at S L207	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4000	rd. 1507 at S L210	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4000	rd. 1507 at W L210	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (South end)	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 2650, 0.35 mi. N rd. 1506	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	9/14/95	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	5/25/95	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trlhd.	Dana NR Ross
Linn	7/13/95	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trlhd.	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	5000	trail above end rd. 350	Dana NR Ross
Linn	7/25/95	15S	5E	14	NE	2950	rd. 320, curve 0.1 mi. below cabin	Dana NR Ross
Linn	7/25/95	15S	5E	14	NE	3050	rd. 320/328	Dana NR Ross
Linn	7/25/95	15S	5E	14	NW	3300	rd. 320/410, WS6-7 "Y" in rd.	Dana NR Ross
Linn	7/25/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in rd.	Dana NR Ross
Linn	7/25/95	15S	5E	14	SE	2900	rd. 320, curve N side of L523 pond	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L384	Dana NR Ross
Linn	8/9/95	15S	6E	18	NW	4000	creek/bend below 350/359	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4700	0.2 mi. E end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross

58. *Vanessa annabella* (Field)

## West Coast Lady

Description. Wingspan 4.2 cm. Upperside: orange with black markings; forewing with an orange subapical bar and white subapical spots; hindwing with four black, blue-centered submarginal spots.

Similar Species. *Vanessa cardui* has a white subapical bar on the upperside of the forewing. *Vanessa virginiensis* has two large eyespots on the underside of the hindwing.

Adult Flight Period. Recorded from 1 June to 14 September. Most records are for mid-September of 1995. It was not encountered in 1994.

Abundance. Uncommon. Generally encountered as singletons.

Distribution. HJA: Carpenter Mountain, Frissell Ridge and eastern Lookout Ridge. All records are from above 4,000 feet in elevation. OREGON: occurs statewide.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults frequently visit flowers.

Potential Larval Hostplants. Unknown for the HJA. The larvae feed on nettles (Urticaceae) and certain members of the Malvaceae elsewhere in Oregon.

Comments: This is one of four *Vanessa* species that frequent the HJA. The West Coast Lady occurs throughout temperate western North America (Stanford & Opler 1993) while the other three species occur throughout the eastern portion of the continent as well (Scott 1986).

HJA Records. 20 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/1/95	15S	6E	33	SW	5050	0.2 mi. N Frissell Ridge Comm Site	Dana NR Ross
Lane	7/11/87	15S	6E				HJA	D.V. McCorkle
Lane	8/2/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 at cliff corner	Dana NR Ross
Lane	8/2/95	15S	6E	29	NE	4600	rd. 2650, 0.15 mi. N of FR11 (N)	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4100	rd. 1507, 0.25 mi. W rd. 530	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4150	rd. 1507, 0.1 mi. W rd. 530	Dana NR Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650, mid-big curve	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4850	rd. 2650 (NE side ridgetop hill)	Dana NR Ross

Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650 (SE side ridgetop hill)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650 rockslide corner	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow (above road)	P.C. Hammond
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	8/23/77	15S	5E	12	NE	5000	Carpenter Mtn.	G. Eulensen*
Linn	8/9/95	15S	6E	7	NW	4700	rd. 350, 0.2 mi. E of end	Dana NR Ross
Linn	9/14/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

59. *Vanessa atalanta rubria* (Fruhstorfer)

Red Admiral

Description. Wingspan 4.7 cm. Upperside: dark brown to black with two red bands, one on the margin of the hindwing and one transversely across the forewing.

Similar Species. None.

Adult Flight Period. Recorded from 20 April to 14 September. This species is multiple brooded.

Abundance. Uncommon. Encountered infrequently as singletons.

Distribution. HJA: most records are from the higher elevations of Carpenter Mountain, Frissell Ridge and Lookout Ridge. One record is from the HJA headquarters. OREGON: occurs throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults were observed at flowers or while perching on vegetation. This is a wary species and can be difficult to approach.

Potential Larval Hostplants. Unknown for the HJA. The larvae feed on nettles (Urticaceae) and hops (Moraceae) elsewhere in Oregon.

Comments. Since the larval hostplant has yet to be recorded on the HJA, this species may not breed there. The adults are strong flyers and may simply wander into the Lookout Creek watershed from nearby breeding sites.



HJA Records. 10 total. Specimen vouchered (\*).

<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
4/20/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
5/31/94	16S	5E	3	NW	3850	rd. 2633 at SW-most corner	Dana NR Ross
6/21/94	15S	5E	31	SE	1400	HJA Headquarters	Dana NR Ross
6/21/94	15S	6E	20	SW	4650	rd. 2650 big bend	Dana NR Ross
8/2/95	15S	6E	28	SW	4850	rd. 2650 (NE side of ridge-top hill)	Dana NR Ross
9/13/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross*
9/13/95	15S	5E	35	SE	3800	rd. 1507 creek bend	Dana NR Ross
9/14/95	16S	6E	5	NW	4200	rd. 1506 at L708/L711	Dana NR Ross
10/5/95	15S	6E	7	NW	4700	rd. 350, 1/2 way btwn end & Carp Mt. trlhd	Dana NR Ross
8/30/94	15S	6E	18	NW	4100	rd. 359 gate	Dana NR Ross

Subfamily ARGYNNINAE: 2 genera, 6 species.

60. *Speyeria cybele pugetensis* Chermock & Frechin

Great Spangled Fritillary

Description. Wingspan 6.8 cm. Sexually dimorphic. Upperside: the male is bright orange with a darker orange-brown basal suffusion; the female is black with a wide, pale-yellow submarginal band; both sexes have numerous black spots and markings. Underside: hindwing bears several widely spaced silver spots.

Similar Species. With the exception of the *Speyeria cybele* female, which is uniquely patterned, all HJA *Speyeria* share a similar orange, black-spotted upperside. Only *Speyeria coronis* approaches *S. cybele* in size and also bears silver spots on the underside of the hindwings. The underside of *coronis*, however, is much paler.

Adult Flight Period. Recorded on 18 July, 2 August and 24 August.

Abundance. Rare. All records are for males.

Distribution. HJA: three records are from the lower half of Lookout Creek; one record is from Carpenter Mountain at 4,000 feet. OREGON: west of the crest of the Cascade Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. The two records from this study are for males flying along roadsides.

Potential Larval Hostplants. Violaceae: *Viola palustris*.

Comments. *Speyeria cybele* is the largest fritillary in Oregon. The HJA is near the eastern range limit for the subspecies *pugetensis*. Subspecies *leto* replaces it east of the Cascade Mountains (Hinchliff 1994).

HJA Records. 4 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/2/87	15S	5E	31	SE	1400	HJA headquarters	P.C. Hammond*
Lane	8/24/95	15S	6E	26	SW	2150	rd. 360, N/mid-L107B	Dana NR Ross
Lane	?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
Linn	7/18/94	15S	6E	18	SW	3950	rd. 350 at sec. 13	Dana NR Ross*

#### 61. *Speyeria coronis* (Behr)

##### Coronis Fritillary

Description. Wingspan 6.0 cm. Upperside: orange with many black spots and markings. Underside: bears large silver spots.

Similar Species. Virtually all HJA *Speyeria* share a similar upperside pattern.

*Speyeria cybele* is also silver-spotted, but has a much darker underside overall. HJA *Speyeria callippe* are smaller in size.

Adult Flight Period. The single record is for 2 August.

Abundance. Rare. Encountered once.

Distribution. HJA: Frissell Ridge. OREGON: the species *coronis* occurs throughout the Siskiyou Mountains and from the east slope of the Cascade Mountains through eastern Oregon.

Biogeographical Region of Origin. Western North America (Great Basin for subspecies *snyderi* and Greater Pacific Northwest for subspecies *simaetha*).

North Pacific for subspecies *simaetha*.

Adult Behavior. The fresh female specimen was collected while nectaring on *Cirsium callilepis* (Asteraceae).

Potential Larval Hostplants. Violaceae: *Viola nuttallii*.

Comments. The HJA is the westernmost known location for *Speyeria coronis* in central and northern Oregon and lies within a subspecies blend zone (Hinchliff 1994). Given the variability present in many *Speyeria* populations (Pyle 2002), no subspecies designation was made for this single individual, which may have originated some distance to the east.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650, N FR11 curve	Dana. N.R. Ross*

## 62. *Speyeria callippe elaine* dos Passos & Grey

### Callippe Fritillary

Description. Wingspan 5.0 cm. Upperside: orange with many black spots and markings. Underside: silver spotted; disc color may be greenish.

Similar Species. Virtually all HJA *Speyeria* have a similar upperside. Both *Speyeria coronis* and *S. cybele* have silver spotted undersides, but average much larger in size.

Adult Flight Period. The three records are for 11 July, 19 July and 20 August.

Abundance. Rare. Encountered as singletons.

Distribution. HJA: Carpenter Mountain and Frissell Ridge. All records are from above 4,000 feet. OREGON: occurs in the Cascade Mountains and Siskiyou Mountains.

Biogeographical Region of Origin. Pacific Coast.

Adult Behavior. The only specimen encountered during this study was taken in flight along a road bordering mature forest and clearcut habitat.

Potential Larval Hostplants. Violaceae: *Viola nuttallii*.

Comments. While rarely encountered, this species probably does breed on the HJA.

HJA Records. 3 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	7/11/87	15S	6E	33	SE	4900	Frissell Point area	P.C. Hammond
Linn	7/19/94	15S	5E	12	SE	4100	rd. 359 at 12 SW	Dana NR Ross*
Linn	8/20/77	15S	6E	12	NE	5000	Carpenter Mountain	G. Eulensen*

63. *Speyeria atlantis dodgei* (Gunder)

## Atlantis Fritillary

Description. Wingspan 4.7 cm. Upperside: orange with many black spots and markings. Underside: bears cream to light yellow spots and markings; margin of the hindwing with a row of large spots.

Similar Species. Virtually all HJA *Speyeria* share a similar upperside pattern. *Speyeria hydaspe* is most similar to *atlantis*, but tends to be more heavily marked with black and the underside is more reddish-purple with smaller spots along the margin of the hindwing.

Adult Flight Period. Recorded from 14 July to 20 August. Peak flight in late July.

Abundance. Uncommon. May be numerous within its extremely localized subalpine meadow habitat.

Distribution. HJA: known only from the higher elevation meadows of Carpenter Mountain and Frissell Ridge. OREGON: occurs from the Cascade and Siskiyou Mountains through the mountains of northeastern Oregon.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Males are conspicuous as they fly low in search of females. Females are less obvious as they seek out the larval hostplant for oviposition and may literally crawl among the herbaceous vegetation.

Potential Larval Hostplants. Violaceae: *Viola nuttallii*.

Comments. *Speyeria hydaspe* and *Speyeria atlantis* can be difficult to separate on the HJA. The preferred habitats differ, however, with *atlantis* flying in the open meadows and *hydaspe* keeping to the forest edges and openings.

HJA Records. 7 total. Specimen vouchered (\*).

Co.	Date	T	R	S	1/4	Elev.	Location	Collector
Lane		15S	6E	28	NW	4850	Frissell Ridge, FR11 meadow	P.C. Hammond
Lane	1996	15S	6E			4800	Frissell Ridge, rd. 2650	Dana NR Ross
Lane	7/14/97	15S	6E	20	NW	4500	rd. 2650 (upper) hillside mdw	Dana NR Ross*
Lane	7/22/98	15S	6E	20	NW	4500	rd. 2650 (upper) hillside mdw	Dana NR Ross
Lane	7/25/98	15S	6E	20	NW	4500	rd. 2650 (upper) hillside mdw	Dana NR Ross*
Linn	7/22/98	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/20/77	15S	5E	12	NE	5000	Carpenter Mtn.	G. Eulensen*

64. *Speyeria hydasphe rhodope* (W. H. Edwards)

## Hydaspe Fritillary

Description. Wingspan 5.4 cm. Upperside: orange with many dark spots and markings. Underside: forewing with black markings that are usually quite heavy; wings are overlaid with a purplish cast.

Similar Species. Virtually all HJA *Speyeria* share a similar upperside pattern.

*Speyeria atlantis* is most similar to *hydasphe*, but differs in that the black markings are somewhat less pronounced. Also, in *atlantis*, the underside of the wings usually bear cream colored spots and markings and the margin of the hindwing has a row of comparatively large spots.

Adult Flight Period. Recorded from 19 June to 14 September. Peak flight in August.

Abundance. Abundant.

Distribution. HJA: occurs throughout the forest at all elevations, but most records are from the higher ridge-tops and mountain slopes. OREGON: found throughout the Cascade Mountains and in western Oregon north of the Siskiyou Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Hydaspe fritillaries prefer forest gaps and edges to large expanses of open habitat. Most adults encountered were males. Both sexes were observed at flowers.

Potential Larval Hostplants. Violaceae: *Viola glabella*, *Viola nuttallii*, *Viola orbiculata*.

Comments. This is the most common and widespread species of HJA *Speyeria*.

HJA Records. 167 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/19/94	15S	5E	27	NW	1800	rd. 1506/320	Dana NR Ross
Lane	6/19/94	15S	5E	27	NW	1900	rd. 320, N L501	Dana NR Ross
Lane	6/25/79	15S	5E	28	SW	1750	HJA	Gary M. Cooper
Lane	7/18/94	15S	5E	24	NE	3700	rd. 350/357	Dana NR Ross
Lane	7/18/94	15S	5E	24	SE	3200	rd. 350 at SW L302A	Dana NR Ross
Lane	7/20/94	15S	6E	31	NW	5100	W summit Lookout Mtn.	Dana NR Ross*
Lane	7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Dana NR Ross
Lane	7/25/95	15S	5E	22	NE	2300	rd. 320, 0.1 mi. E L405A	Dana NR Ross

Lane	7/27/95	15S	5E	34	SW	3300	rd. 1507, 0.25 mi. SW rd. 470	Dana NR Ross
Lane	7/27/95	15S	5E	34	SW	3300	rd. 1507, sec. 33 border	Dana NR Ross
Lane	7/27/95	15S	5E	34	SW	3450	rd. 1507, 0.4 mi. SW rd. 470	Dana NR Ross
Lane	7/27/95	15S	5E	35	SW	3850	rd. 1507 at L208	Dana NR Ross
Lane	7/27/95	16S	5E	1	NE	4300	rd. 1507 forest bend	Dana NR Ross
Lane	7/30/83	15S	6E	28	?	4800	Frissell Ridge	D.V. McCorkle
Lane	7/6/94	16S	5E	3	NW	3850	rd. 2633 at SW-most corner	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4000	rd. 2633 at sec. 4	Dana NR Ross*
Lane	7/6/94	16S	5E	3	SW	3900	rd. 2633 at SE-most corner	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
Lane	7/7/94	15S	6E	20	NW	4500	rd. 2650 at hillside meadow	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	8/1/94	15S	5E	28	NW	2650	rd. 130 at sec. 29	Dana NR Ross
Lane	8/1/94	15S	5E	31	NW	2100	end rd. 134 (WS10)	Dana NR Ross
Lane	8/1/94	15S	5E	33	NE	2900	rd. 1507 at L202	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4375	rd. 2633 at W FC5	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4400	rd. 2633 at FC4	Dana NR Ross
Lane	8/15/94	16S	5E	2	NW	4450	rd. 2633, just SE FC4	Dana NR Ross
Lane	8/15/94	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4400	rd. 2633 at FC3	Dana NR Ross
Lane	8/15/94	16S	5E	3	NE	4400	rd. 2633, 0.2 mi. W sec.2	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	3850	rd. 2633 at SW-most corner	Dana NR Ross
Lane	8/15/94	16S	5E	3	NW	4000	rd. 2633 at forest bend E of lower switchback	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at 0.2 mi. E of rock columns	Dana NR Ross
Lane	8/16/94	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Dana NR Ross
Lane	8/16/94	15S	6E	20	SW	4550	rd. 2650, straight stretch of rd.	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4850	rd. 2650, NE side ridge-top hill	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 (SE side ridge-top hill)	Dana NR Ross
Lane	8/16/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33	Dana NR Ross
Lane	8/16/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/16/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/16/94	16S	6E	5	NE	4350	rd. 1506 at L709	Dana NR Ross
Lane	8/16/94	16S	6E	5	NW	4300	rd. 1506 at E L707	Dana NR Ross
Lane	8/2/94	15S	5E	34	SW	3600	rd. 1507 at L205	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4300	rd. 1507 forest bend	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4300	rd. 1507, 0.2 mi. S forest bend	Dana NR Ross
Lane	8/2/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507	Dana NR Ross
Lane	8/2/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650, hillside meadow (S)	Dana NR Ross
Lane	8/2/95	15S	6E	20	SE	4550	rd. 2650, 0.2 mi. W of rd. 630	Dana NR Ross
Lane	8/2/95	15S	6E	20	SW	4600	rd. 2650, 0.4 mi. W rd. 630	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4750	rd. 2650 at sec. 28NW	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4850	rd. 2650 (NE side ridge-top hill)	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650, S end rocky hilltop	Dana NR Ross

Lane	8/2/95	15S	6E	29	NE	4600	rd. 2650, 0.15 mi. N FR11	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd.1506 junct.	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	8/24/95	15S	5E	22	NW	2550	rd. 1508, midway btwn L403/L404	Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508, SW L403	Dana NR Ross
Lane	8/24/95	15S	5E	28	SE	2100	rd. 363 at N L232	Dana NR Ross
Lane	8/3/95	15S	5E	34	SW	4050	rd. 2633 at corner	Dana NR Ross
Lane	8/3/95	16S	5E	2	NW	4375	rd. 2633, saddle nr E end of road	Dana NR Ross
Lane	8/3/95	16S	5E	2	NW	4400	rd. 2633, SW FC4	Dana NR Ross
Lane	8/3/95	16S	5E	2	NW	4450	rd. 2633, 0.15 mi. NW saddle near end of road.	Dana NR Ross
Lane	8/3/95	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4375	rd. 2633 at FC3 saddle	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, 0.1 mi. SE E FC3 curve	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4425	rd. 2633 0.1 mi. E FC3 saddle	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3700	rd. 2633, main creek corner	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3900	rd. 2633, SW-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633, forest bend E of lower switchback	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633, lower switchback (1 of 2)	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4050	rd. 2633, lower switchback (2 of 2)	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4100	rd. 2633, upper switchback	Dana NR Ross
Lane	8/3/95	16S	5E	3	SW	3900	rd. 2633, SE-most corner	Dana NR Ross
Lane	8/3/95	16S	5E	4	NW	3350	rd. 2633, curve nr 4NE	Dana NR Ross
Lane	8/30/94	15S	5E	24	NE	3700	rd. 350/357	Dana NR Ross
Lane	8/30/94	15S	6E	19	SW	3300	rd. 358/354	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 at sec. 28	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2650	rd. 130 fork to logged hilltop	Dana NR Ross
Lane	8/8/95	15S	5E	21	SW	2700	rd. 130 0.2 mi. S N-HJA boundary	Dana NR Ross
Lane	8/8/95	15S	5E	25	NE	3000	rd. 350, 0.2 mi. S rd. 353	Dana NR Ross
Lane	8/8/95	15S	5E	29	NE	2500	rd. 130, 0.1 mi. NE rd. 336	Dana NR Ross
Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.5 mi. SW of rock quarry	Dana NR Ross
Lane	8/8/95	15S	6E	19	SW	3300	rd. 350/354	Dana NR Ross
Lane	8/8/95	15S	6E	19	SW	3350	rd. 350, 0.25 mi. NW rd. 354	Dana NR Ross
Lane	8/8/95	15S	6E	24	NE	3500	rd. 350, 0.4 rd. mi. SE rd. 357	Dana NR Ross
Lane	9/12/95	15S	5E	22	NE	2300	rd. 320, SE L405A	Dana NR Ross
Lane	9/12/95	15S	5E	22	SW	2100	rd. 320 gate	Dana NR Ross
Lane	9/13/95	15S	5E	36	SW	3950	rd. 1507 at L209	Dana NR Ross
Lane	9/13/95	16S	5E	1	NE	4300	rd. 1507 forest bend	Dana NR Ross
Lane	9/13/95	16S	5E	1	SE	4350	rd. 1507, 0.15 mi. E rd. 530	Dana NR Ross
Lane	9/13/95	16S	5E	1	SE	4350	rd. 1507, L211A/L212	Dana NR Ross
Lane	9/13/95	16S	6E	6	NW	4350	end rd. 1507, past meadow	Dana NR Ross

Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 at mid-hillside meadow	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650, hillside meadow (N)	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4550	rd. 2650, hillside meadow (S)	Dana NR Ross
Lane	9/14/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	9/14/95	15S	6E	20	SE	4550	rd. 2650, 0.2 mi. W of rd. 630	Dana NR Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650 at sec. 20NW	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 FR11 (mid)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4700	rd. 2650 (1 of 5)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4800	rd. 2650 (2 of 5)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4850	rd. 2650 (3 of 5)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650 (4 of 5)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4950	rd. 2650 (5 of 5)	Dana NR Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650, FR11 (N) (1 of 2)	Dana NR Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650, FR11 (N) (2 of 2)	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N 1506 junct.	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4525	rd. 2650 at L704C	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4650	rd. 2650, L704A/C woods	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	9/14/95	16S	6E	5	NW	4350	rd. 1506, 0.5 mi. E of Lookout Mtn. trailhead.	Dana NR Ross
Lane	?	15S	5E	25		2400	Lookout Creek	P.C. Hammond
Lane	?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	?	15S	6E	32		3600	Lookout Creek	P.C. Hammond
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	7/13/95	15S	6E	18	NW	4000	rd. 350, at creek/curve blw 359	Dana NR Ross
Linn	7/13/95	15S	6E	18	SW	3950	rd. 350 at sec. 13	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross*
Linn	7/19/94	15S	6E	7	NW	5000	meadow above end rd. 350	Dana NR Ross
Linn	7/20/77	15S	?	?	?	4800	Carpenter Mountain	Eulensen & Searles
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/25/95	15S	5E	14	NE	3000	rd. 320 cabin	Dana NR Ross
Linn	7/25/95	15S	5E	14	NE	3250	end rd. 327	Dana NR Ross
Linn	7/25/95	15S	5E	14	NW	3300	rd. 320/410 (WS6)	Dana NR Ross
Linn	8/1/94	15S	5E	14	NE	3050	rd. 320/327	Dana NR Ross
Linn	8/20/77	15S	6E	12	NE	5000	Carpenter Mountain	G. Eulensen
Linn	8/23/77	15S	6E	12	NE	5000	Carpenter Mountain	G. Eulensen
Linn	8/29/94	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross
Linn	8/29/94	15S	6E	7	NW	4700	0.3 mi. E end rd. 350	Dana NR Ross
Linn	8/29/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/29/94	15S	6E	7	SE	4250	rd. 350 at sec. 18 border	Dana NR Ross
Linn	8/29/94	15S	6E	7	SE	4400	rd. 350	Dana NR Ross
Linn	8/3/94	15S	5E	14	NW	3300	rd. 320/410, WS 6-7 "Y" in rd.	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L385	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4000	end rd. 359 (W L383)	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359 at 12SE	Dana NR Ross



Linn	8/30/94	15S	6E	18	NW	4100	rd. 359 at sec. 7	Dana NR Ross
Linn	8/9/95	15S	6E	12	SE	4100	rd. 359 at L386	Dana NR Ross
Linn	8/9/95	15S	6E	12	SE	4100	rd. 359 at sec. 7SW	Dana NR Ross
Linn	8/9/95	15S	6E	12	SE	4100	rd. 359/430	Dana NR Ross
Linn	8/9/95	15S	6E	12	SW	4100	rd. 359, 0.3 mi. W rd. 430	Dana NR Ross
Linn	8/9/95	15S	6E	18	NW	4000	rd. 350, bend below rd. 359	Dana NR Ross
Linn	8/9/95	15S	6E	18	NW	4100	rd. 359/350	Dana NR Ross
Linn	8/9/95	15S	6E	18	NW	4150	rd. 359, 0.15 mi. N of gate	Dana NR Ross
Linn	8/9/95	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trlhd.	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4700	0.2 mi. E end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	SE	4400	rd. 350, 0.2 S Carp. Mtn. trlhd.	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4050	rd. 359, bend near sec. 12SE	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.2 mi. W of McRae Creek	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, 0.3 mi. N of gate	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359, creek bend W of McRae Crk	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3350	rd. 320/410, WS 6-7 "Y" in road	Dana NR Ross
Linn	9/12/95	15S	5E	14	SE	2900	rd. 320, curve N side L523 pond	Dana NR Ross
Linn	9/14/94	15S	5E	14	SE	2850	rd. 320/331	Dana NR Ross

### 65. *Boloria epithore chermocki* (Perkins & Perkins)

#### Western Meadow Fritillary

**Description.** Wingspan 4.3 cm. Smaller than *Speyeria* species. Upperside: orange with heavy black spots and markings. The ventral pattern is unique and lacks silver spots.

**Similar Species.** HJA *Speyeria* species share a similar upperside pattern, but are all much larger butterflies. The underside pattern of *Boloria* and its smaller size will readily separate it from them.

**Adult Flight Period.** Recorded from 28 April to 23 August. Peak flight from late May through the first week of July.

**Abundance.** Abundant. One of the most common and widespread species of butterflies on the HJA.

**Distribution.** HJA: found throughout the forest at all elevations. OREGON: occurs throughout the Cascade Mountains and western Oregon; also found in the Warner

Mountains of south-central Oregon and in the Blue and Wallowa Mountains of northeastern Oregon.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. *Boloria* occurs wherever there are roads, meadows, clear cuts or forest openings. Flight is low to the ground, with males pausing frequently to inspect low vegetation for females.

Potential Larval Hostplants. Violaceae: *Viola glabella* and *V. sempervirens*.

Comments. *Boloria epithore* belongs to a group of butterflies commonly referred to as Lesser Fritillaries. They are smaller in size than the *Speyeria*, or Greater Fritillaries (Tilden & Smith 1986).

HJA Records. 235 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site description</u>	<u>Recorder</u>
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/18/95	16S	5E	6	NW	1350	rd. 15/1506	Dana NR Ross
Lane	5/22/95	15S	6E	19	SW	3300	2nd half rd. 354	Dana NR Ross
Lane	5/24/94	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross*
Lane	5/24/94	15S	5E	25	SW	2375	rd. 350/1506	Dana NR Ross
Lane	5/24/94	15S	5E	26	SE	2175	rd. 1506 at mile 6 creek bend	Dana NR Ross
Lane	5/24/94	15S	5E	26	SE	2300	rd. 1506 at L301A	Dana NR Ross
Lane	5/24/94	15S	5E	26	SW	2000	rd. 1506 at rock quarry	Dana NR Ross
Lane	5/24/94	15S	5E	26	SW	2200	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	27	SE	2000	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	27	SW	1900	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1750	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	5E	28	SE	1850	rd. 360	Dana NR Ross
Lane	5/24/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/24/94	15S	5E	32	NE	1600	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	5E	32	NW	1500	rd. 1506	Dana NR Ross
Lane	5/24/94	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	5/25/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	5/25/95	15S	5E	33	NE	2800	rd. 1507 at E 201A	Dana NR Ross
Lane	5/25/95	15S	5E	33	SE	2650	rd. 1507, just E of rd. 465	Dana NR Ross
Lane	5/31/95	16S	5E	3	NW	3650	rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	3450	rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	4	NE	4000	rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	4	NW	3250	rd. 2633/789	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3000	rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	5	NE	3100	rd. 2633	Dana NR Ross
Lane	5/31/95	16S	5E	5	SW	2850	rd. 2633/784	Dana NR Ross
Lane	5/31/95	16S	5E	6	SE	2750	nr. end rd. 202 (off 1501)	Dana NR Ross

Lane	6/1/94	16S	5E	3	NW	3650	rd. 2633	Dana NR Ross*
Lane	6/1/94	16S	5E	4	NW	3450	rd. 2633	Dana NR Ross
Lane	6/1/94	16S	5E	5	NE	3050	rd. 2633	Dana NR Ross
Lane	6/1/94	16S	5E	6	SE	2750	end rd. 202 (off 1501)	Dana NR Ross
Lane	6/1/95	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	6/1/95	15S	5E	25	NE	2650	rd. 1506, 0.1 mi. E Shorter Crk.	Dana NR Ross
Lane	6/1/95	15S	5E	25	NE	2700	rd. 1506, 0.3 mi. E Shorter Crk.	Dana NR Ross
Lane	6/1/95	15S	5E	25	NW	2650	rd. 1506 0.2 mi. E O.Growth trlhd	Dana NR Ross
Lane	6/1/95	15S	5E	25	SW	2500	rd. 1506 at lower Old Growth trlhd	Dana NR Ross
Lane	6/1/95	15S	5E	26	NW	1950	rd. 1506 just W of rd. 330	Dana NR Ross
Lane	6/1/95	15S	5E	26	SE	2100	rd. 1506, 0.15 mi. W of creek bend	Dana NR Ross
Lane	6/1/95	15S	5E	26	SE	2300	rd. 1506 at L301A	Dana NR Ross
Lane	6/1/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/1/95	15S	5E	27	NE	1900	rd. 1506 at W S4	Dana NR Ross
Lane	6/1/95	15S	5E	27	NE	1925	rd. 1506 0.2 mi E of S4	Dana NR Ross
Lane	6/1/95	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross
Lane	6/1/95	15S	5E	27	NW	1900	rd. 1506 at S2	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/1/95	15S	5E	28	SW	1800	rd. 1506 at creek 0.2 mi E 1507	Dana NR Ross
Lane	6/1/95	15S	5E	32	NE	1600	rd. 1506 /305	Dana NR Ross
Lane	6/1/95	15S	5E	32	NE	1700	rd. 1506 at L102 creek bend	Dana NR Ross
Lane	6/1/95	15S	5E	32	NW	1500	rd. 1506 at rd. 300	Dana NR Ross
Lane	6/1/95	15S	5E	32	NW	1550	rd. 1506 at rd. 304	Dana NR Ross
Lane	6/1/95	15S	5E	32	SW	1500	rd. 1506, 0.2 mi. SW of rd. 300	Dana NR Ross
Lane	6/1/95	15S	6E	30	NE	2900	rd. 1506, 0.1 mi. E L702	Dana NR Ross
Lane	6/1/95	15S	6E	30	NW	2700	rd. 1506 at unnamed creek	Dana NR Ross
Lane	6/1/95	15S	6E	30	NW	2800	rd. 1506, 0.2 mi SE unnamed creek	Dana NR Ross
Lane	6/1/95	15S	6E	30	SE	3050	rd. 1506, 0.1 mi. W L703	Dana NR Ross
Lane	6/1/95	15S	6E	32	NE	3600	rd. 1506, 0.1 mi. S trailhead	Dana NR Ross
Lane	6/1/95	16S	6E	5	NW	3900	rd. 1506 at L709	Dana NR Ross
Lane	6/1/95	16S	6E	5	NW	3900	rd. 1506 at mid-N L711	Dana NR Ross
Lane	6/10/94	15S	6E	20	SE	4500	rd. 2650/630 junction	Dana NR Ross
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	6/19/94	15S	5E	22	NE	2300	rd. 320	Dana NR Ross
Lane	6/19/94	15S	5E	22	SE	2250	rd. 320 at L404	Dana NR Ross
Lane	6/19/94	15S	5E	22	SW	2100	rd. 320 gate	Dana NR Ross
Lane	6/19/94	15S	5E	23	NW	2450	rd. 320	Dana NR Ross
Lane	6/19/94	15S	5E	23	NW	2550	rd. 320 at L503A	Dana NR Ross
Lane	6/19/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	6/2/95	15S	5E	22	NE	2300	rd. 320 at L405A	Dana NR Ross
Lane	6/2/95	15S	5E	22	NE	2300	rd. 320 at NE L404	Dana NR Ross
Lane	6/2/95	15S	5E	22	NE	2300	rd. 320, 0.1 mi. E L405A	Dana NR Ross
Lane	6/2/95	15S	5E	22	SE	2150	rd. 320 at L404A	Dana NR Ross
Lane	6/2/95	15S	5E	22	SW	2000	rd. 320 just N of rd. 322	Dana NR Ross
Lane	6/2/95	15S	5E	22	SW	2050	rd. 320 at SW L502	Dana NR Ross
Lane	6/2/95	15S	5E	27	NW	1950	rd. 320/322	Dana NR Ross
Lane	6/20/94	15S	5E	33	NE	2900	rd. 1507 at L202 (1 of 2)	Dana NR Ross

Lane	6/20/94	15S	5E	33	NE	2900	rd. 1507 at L202 (2 of 2)	Dana NR Ross
Lane	6/20/94	15S	5E	33	NW	2250	rds. 1507/455	Dana NR Ross
Lane	6/20/94	15S	5E	33	SW	2600	rds. 1507/465	Dana NR Ross
Lane	6/20/94	15S	5E	34	NW	2900	rd. 1507 (1 of 3)	Dana NR Ross
Lane	6/20/94	15S	5E	34	NW	2950	rd. 1507 (2 of 3)	Dana NR Ross
Lane	6/20/94	15S	5E	34	NW	3000	rd. 1507 (3 of 3)	Dana NR Ross
Lane	6/20/94	15S	5E	34	SE	3800	rd. 1507 at L206B	Dana NR Ross
Lane	6/20/94	15S	5E	34	SW	3500	rd. 1507	Dana NR Ross
Lane	6/20/94	15S	5E	35	SE	3850	rd. 1507 (2 of 2)	Dana NR Ross
Lane	6/20/94	15S	5E	35	SE	3900	rd. 1507 (1 of 2)	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3800	rd. 1507	Dana NR Ross
Lane	6/20/94	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	6/20/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
Lane	6/20/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
Lane	6/20/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	6/21/94	15S	5E	29	NE	2550	rd. 130 (29 NE corner)	Dana NR Ross
Lane	6/21/94	15S	5E	29	NE	2650	rd. 130 at fork to spur (no #)	Dana NR Ross
Lane	6/21/94	15S	5E	31	NE	2250	1/2 way out rd. 134	Dana NR Ross
Lane	6/21/94	15S	5E	31	NE	2250	rd. 134	Dana NR Ross
Lane	6/21/94	15S	6E	33	NW	4900	rds. 1506/2650	Dana NR Ross
Lane	6/22/95	15S	5E	25	SW	2375	rds. 1506/350	Emma Rosi
Lane	6/22/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Emma Rosi
Lane	6/22/95	15S	5E	28	SE	1800	rd. 1506, 0.2 mi. SW rd. 360	Emma Rosi
Lane	6/22/95	15S	5E	29	SE	1850	rds. 1506/1507	Emma Rosi
Lane	6/22/95	15S	5E	31	SW	1400	rd. 1506, 0.5 mi. NE rd. 15	Emma Rosi
Lane	6/23/95	15S	5E	28	NW	1800	rd. 1508 at S L401	Emma Rosi
Lane	6/23/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Emma Rosi
Lane	6/23/95	15S	5E	30	SE	2250	rd. 130/134	Emma Rosi
Lane	6/23/95	16S	5E	6	NW	1400	rd. 1506, 0.4 mi. NE rd. 15	Emma Rosi
Lane	6/26/80	15S	5E	24	NE	3750	near rd. 350/357 junction	Gerasimos Cassis
Lane	6/26/95	15S	5E	22	SW	2050	rd. 320, 0.25 mi. below gate	Emma Rosi
Lane	6/26/95	15S	5E	22	SW	2100	rd. 320 gate	Emma Rosi
Lane	6/26/95	15S	5E	23	NW	2400	rd. 320 nr sec. 22	Emma Rosi
Lane	6/26/95	15S	5E	26	SW	2000	rd. 1506 quarry	Emma Rosi
Lane	6/27/95	15S	5E	29	SW	2300	rd. 130, 0.4 mi. SW rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	31	NE	2250	rd. 130, 0.1 mi. S rd. 134	Dana NR Ross
Lane	6/27/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/27/95	15S	5E	31	SW	1600	rd. 130 at mid B132	Dana NR Ross
Lane	6/27/95	15S	5E	32	NE	1600	1/2 way down rd. 304	Emma Rosi
Lane	6/27/95	15S	5E	32	NE	1600	end rd. 304 (=Gypsy Camp)	Emma Rosi
Lane	6/27/95	15S	5E	32	NW	1500	rd. 1506/300 (WS2)	Emma Rosi
Lane	6/27/95	15S	5E	32	NW	1550	rds. 1506/304	Emma Rosi
Lane	6/28/95	15S	6E	19	NE	4600	rd. 2650 at FR8	Dana NR Ross
Lane	6/28/95	15S	6E	20	NW	4500	rd. 2650 at N hillside meadow	Dana NR Ross
Lane	6/28/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	6/28/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Dana NR Ross
Lane	6/28/95	15S	6E	29	SW	3250	rd. 1506, 0.25 mi. SE Cold Creek.	Dana NR Ross
Lane	6/28/95	15S	6E	32	NE	3550	rd. 1506 at Upper O.G. trailhead	Dana NR Ross

Lane	6/28/95	15S	6E	32	SE	3850	rd. 1506 at L704C	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rds. 2650/1506	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	6/28/95	16S	6E	5	NW	3900	rd. 1506 nr NW L707	Dana NR Ross
Lane	6/28/95	16S	6E	5	NW	4200	rd. 1506 at Lookout Creek	Dana NR Ross
Lane	6/29/95	15S	5E	21	SE	2400	rd. 1508 at sec. 22	Dana NR Ross
Lane	6/29/95	15S	5E	21	SE	2400	rd. 1508, E edge L402A	Dana NR Ross
Lane	6/29/95	15S	5E	22	NW	2650	rd. 1508, W extreme L404	Dana NR Ross
Lane	6/29/95	15S	5E	22	NW	2700	rds. 1508/480	Dana NR Ross
Lane	6/29/95	15S	5E	22	NW	2750	rd. 480 "Y" (off rd.1508)	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 "waterfall" (N L403)	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508, S L403	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/29/95	15S	5E	28	SW	1800	rds. 1508/410	Dana NR Ross
Lane	6/29/95	15S	5E	32	NE	1600	rd. 1506 at NE L101	Dana NR Ross
Lane	6/29/95	15S	5E	32	NW	1500	rd. 1506, 0.15 mi. W rd. 304	Dana NR Ross
Lane	6/29/95	15S	5E	32	NW	1550	rds. 1506/304	Dana NR Ross
Lane	6/29/95	16S	5E	6	NW	1400	rd. 130	Dana NR Ross
Lane	6/8/94	15S	5E	22	NW	2800	end rd. 480 (HJA NW border)	Dana NR Ross
Lane	6/8/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/8/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/8/94	15S	5E	32	SW	1500	rd. 1506, mile 0.9	Dana NR Ross
Lane	6/9/94	15S	5E	24	NE	3750	rd. 357	Dana NR Ross
Lane	6/9/94	15S	5E	24	SE	3200	rd. 350 at SW corner L302A	Dana NR Ross
Lane	6/9/94	15S	5E	24	SW	3100	rd. 350 at rd. 353	Dana NR Ross
Lane	6/9/94	15S	5E	25	NE	2950	rd. 350 at NE L701	Dana NR Ross
Lane	6/9/94	15S	5E	25	NW	2700	rd. 350 at NE S7	Dana NR Ross
Lane	6/9/94	15S	5E	25	SW	2375	rds. 1506/350	Dana NR Ross
Lane	6/9/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/9/94	15S	6E	19	SW	3300	rd. 358	Dana NR Ross
Lane	7/12/95	16S	6E	5	NW	4000	rd. 1506 at lower L.O. Crk. crossing	Dana NR Ross
Lane	7/12/95	16S	6E	5	NW	4200	rd. 1506 at upper L.O. Crk crossing	Dana NR Ross
Lane	7/13/95	15S	5E	25	NE	2850	rd. 350 near Shorter Creek	Dana NR Ross
Lane	7/13/95	15S	5E	25	NW	2650	rd. 350 at S7 creek bend	Dana NR Ross
Lane	7/13/95	15S	5E	25	SW	2375	rd. 350/1506	Dana NR Ross
Lane	7/13/95	15S	6E	19	SW	3150	rd. 350, 0.25 mi. below rd. 354	Dana NR Ross
Lane	7/13/95	15S	6E	24	NE	3400	rd. 350, 0.35 mi. above rd. 354	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3700	rds. 350/357	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3300	NW 1/2 of rd. 354	Dana NR Ross
Lane	7/18/94	16S	6E	6	NE	4900	Meadow, L.O. Mtn. Ridge	Dana NR Ross
Lane	7/2/80	15S	5E	24	NE	3750	near rd. 350/357 junction	Gerasimos Cassis
Lane	7/4/95	15S	5E	26	SE	2575	rds. 360/362	Emma Rosi
Lane	7/4/95	15S	5E	26	SW	2150	rd. 360 at L107B	Emma Rosi
Lane	7/4/95	15S	5E	26	SW	2300	rd. 360 at mid L108	Emma Rosi
Lane	7/4/95	15S	5E	27	SE	2050	rd. 360 at L116	Emma Rosi
Lane	7/4/95	15S	5E	27	SW	1900	rd. 360 at W L106	Emma Rosi
Lane	7/4/95	15S	5E	35	NE	2550	rd. 360 at L110	Emma Rosi
Lane	7/6/77	?	?	?	?	4800'	access rd. 1501, 6.6 mi. N 1502	Eulensen and Searles*

Lane	7/6/94	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4000	rd. 2633 forest bend	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4300	rd. 2633 (near 3 NE saddle)	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock wall/seep	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	4100	rd. 2633 (NE corner extreme)	Dana NR Ross
Lane	7/7/94	15S	5E	26	SE	2175	rd. 1506 at mile 6 creek bend	Dana NR Ross
Lane	7/7/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	7/7/94	15S	6E	32	NW	3600	rd. 1506 at L704	Dana NR Ross
Lane	7/7/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	7/7/94	16S	6E	5	NW	3900	rd. 1506, N side L707	Dana NR Ross
Lane	7/7/94	16S	6E	5	NW	4200	rd. 1506 at upper L.O. creek crossing	Dana NR Ross
Lane	7/8/95	15S	5E	23	NW	2450	rd. 320 (mid 1/4 sec.)	Emma Rosi
Lane	8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N of rd. 1506	Dana NR Ross
Lane	?	15S	5E	25	?	2400	"Lookout Creek"	P.C. Hammond
Lane	?	15S	6E	32	?	3600	"Lookout Creek"	P.C. Hammond
Lane	?	15S	5E	25		2400	Lookout Creek	P.C.Hammond
Lane	?	15S	6E	32		3600	Lookout Creek	P.C.Hammond
Linn	6/19/94	15S	5E	13	NW	3000	rd. 325, L505 curve	Dana NR Ross
Linn	6/19/94	15S	5E	13	SW	3050	end rd. 325	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	2950	rd. 320, all along (1 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	2950	rd. 320, all along (2 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	3000	rd. 320, all along (3 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	3000	rd. 320, all along (4 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	3050	rd. 320, all along (5 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3100	rd. 320, all along (2 of 2)	Dana NR Ross
Linn	6/19/94	15S	5E	14	NW	3200	rd. 320, all along (1 of 2)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2700	rd. 320, all along (1 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2700	rd. 325 at sec. 13 border	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2750	rd. 320, all along (2 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2800	rd. 320, all along (3 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2850	rd. 320, all along (4 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SE	2900	rd. 320, all along (5 of 5)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SW	2600	rd. 320, all along (1 of 3)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SW	2650	rd. 320, all along (2 of 3)	Dana NR Ross
Linn	6/19/94	15S	5E	14	SW	2700	rd. 320, all along (3 of 3)	Dana NR Ross
Linn	6/22/95	15S	6E	7	NW	4800	end rd. 350	Emma Rosi
Linn	6/26/95	15S	5E	14	NE	3000	rd. 320 at L522	Emma Rosi
Linn	6/26/95	15S	5E	14	NE	3050	rd. 320/327	Emma Rosi
Linn	6/26/95	15S	5E	14	NW	3350	rd. 410	Emma Rosi
Linn	6/26/95	15S	5E	14	SE	2700	rd. 320/325	Emma Rosi
Linn	6/26/95	15S	5E	14	SE	2850	rd. 320/331	Emma Rosi
Linn	6/26/95	15S	5E	14	SW	2650	rd. 320 at L503	Emma Rosi
Linn	6/29/77	15S	6E	12	NE	5000	SW slope Carpenter Mtn.	G. Eulensen
Linn	6/29/95	15S	5E	15	SE	2800	rd. 1508/416 (N HJA border)	Dana NR Ross
Linn	6/9/94	15S	5E	13	SE	3950	rd. 350 at sec. 18 border	Dana NR Ross
Linn	6/9/94	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross

Linn	6/9/94	15S	6E	7	NW	4750	rd. 350/L307 clear cut	Dana NR Ross
Linn	7/13/95	15S	6E	18	SW	4000	rd. 350	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/13/95	15S	6E	7	NW	5000	trail above end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	18	NW	4200	rd. 350, 0.2 mi. N rd. 359 gate	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	5000	meadow above end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	7	SE	4400	rd. 350 (1 of 2)	Dana NR Ross
Linn	7/18/94	15S	6E	7	SE	4400	rd. 350 (2 of 2)	Dana NR Ross
Linn	7/18/94	15S	6E	7	SW	4100	rd. 359	Dana NR Ross
Linn	7/7/94	15S	6E	18	SE	4600	rd. 2650 at NE HJA boundary	Dana NR Ross
Linn	7/7/95	15S	5E	14	NE	2950	rd. 320 at S L522	Emma Rosi
Linn	7/8/95	15S	5E	14	SE	2700	rd. 320/325	Emma Rosi
Linn	7/8/95	15S	5E	14	SW	2650	rd. 320 at L503	Emma Rosi
Linn	8/23/77	15S	6E	12	NE	5000	SW slope Carpenter Mtn.	G. Eulensen

Subfamily MELITAEINAE: 3 genera, 6 species.

66. *Phyciodes pulchellus* (Boisduval)

Field Crescent

**Description.** Wingspan 3.0 cm. Sexes similar. Upperside: orange with heavy dark brown to black lines, patches and wing margins that give it an overall dark appearance. Underside: various shades of tan to orange-brown; submargin of the hindwing bears a pale crescent-shaped mark.

**Similar Species:** The upperside of *Phyciodes mylitta* is much more orange overall.

**Adult Flight Period.** Recorded from 19 June to 2 August. Peak flight in early to mid July.

**Abundance.** Uncommon. Usually observed as singletons. May occur in moderate numbers locally.

**Distribution.** HJA: widely distributed through the higher ridge-tops and mountain slopes in moist habitats. OREGON: occurs throughout the state in several forms or subspecies.

**Biogeographical Region of Origin.** Greater Pacific Northwest.

**Adult Behavior.** Adults visit various flowers.

Potential Larval Hostplants. Unknown for the HJA population. Larvae have been recorded on *Aster* species (Asteraceae) elsewhere.

Comments: The HJA subspecies of this butterfly was long considered to be the nominate one, *pulchellus*, and remains so according to Guppy and Shepard (2001). Pyle (2002) calls it *owimba*, however, so no subspecies is designated here at this time.

HJA Records. 24 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	6/19/94	15S	5E	22	NE	2250	rd. 320 at L404	Ross
Lane	6/19/94	15S	5E	22	NE	2300	rd. 320 at SE L405A curve	Ross
Lane	6/20/94	15S	5E	34	SE	3800	rd. 1507	Ross*
Lane	6/20/94	16S	6E	6	SW	4350	end rd. 1507	Ross
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Ross
Lane	7/18/94	15S	6E	19	SW	3300	rd. 354/358	Ross
Lane	7/20/94	15S	6E	31	NW	5100	W summit Lookout Mtn.	Ross*
Lane	7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Ross
Lane	7/20/98	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	7/30/83	15S	6E	28			Frissell Ridge (FR11?)	McCorkle
Lane	7/6/94	16S	5E	3	NW	4150	rd. 2633 at upper switchback	Ross*
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Ross
Lane	7/6/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Ross
Lane	7/7/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Ross
Lane	8/2/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Ross
Lane	?	15S	6E	28	NW	4700	FR11 (Frissell Ridge)	Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	Hammond
Linn	7/13/95	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	7/18/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trlhd.	Ross
Linn	7/18/94	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	7/19/94	15S	6E	7	NW	5000	meadow above end rd. 350	Ross
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Ross

67. *Phyciodes mylitta mylitta* (W. H. Edwards)

Mylitta Crescent

Description. Wingspan 3.3 cm. Sexes similar. Upperside: bright orange to yellow-orange with fine black lines and markings.



Similar Species. *Phyciodes pulchellus* is much darker. *Chlosyne palla*, *C. hoffmanni* and *Boloria epithore* are somewhat larger, darker, and have very different patterns on the underside of the wings.

Adult Flight Period. Recorded from 28 April to 5 October. There appear to be three broods per year, flying primarily in mid May, early August and mid September. The September generation exhibits the highest population counts.

Abundance: Common.

Distribution. HJA: found throughout the forest in open habitat. Most records are from the higher ridge-tops and from the middle to upper slopes of Carpenter Mountain.

OREGON: occurs throughout the state.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Males patrol for females. Both sexes are fond of flowers among roadside vegetation.

Potential Larval Hostplants. Asteraceae: *Cirsium arvense*, *Cirsium vulgare*;

Scrophulariaceae: *Mimulus guttatus*.

Comments: This is one of the most ubiquitous species in the western United States. It has been found in nearly every county of every western state (Stanford and Opler 1993).

HJA Records. 100 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
Lane	10/4/94	15S	6E	29	SW	3150	rd. 1506 at L703 rock face	Dana NR Ross
Lane	10/4/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	10/4/94	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	10/5/94	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	4/28/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	4/28/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross*
Lane	4/28/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	4/28/94	15S	5E	29	SW	2250	rd. 130	Dana NR Ross*
Lane	4/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	4/28/94	15S	5E	32	NW	1550	rds. 1506/304 pullout	Dana NR Ross
Lane	5/17/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	5/18/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	5/18/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	5/18/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry	Dana NR Ross
Lane	5/18/95	15S	5E	29	SW	2300	rd. 130, 0.5 mi. SW of rock quarry	Dana NR Ross
Lane	5/18/95	15S	5E	31	NE	1750	rd. 130, N B133 curve	Dana NR Ross
Lane	5/28/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross*

Lane	6/1/94	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross
Lane	6/1/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/1/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	6/8/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/8/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	7/18/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3300	rd. 354/358	Dana NR Ross
Lane	8/1/94	16S	5E	6	NW	1350	mouth of Lookout Creek	Dana NR Ross
Lane	8/16/94	15S	6E	20	NW	4550	rd. 2650 hillside meadow	Dana NR Ross
Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/17/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	8/17/94	15S	6E	32	SE	3700	rd. 1506 at L704A	Dana NR Ross
Lane	8/2/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	8/29/94	15S	5E	24	NE	3750	rd. 357	Dana NR Ross
Lane	8/3/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/3/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	8/3/95	15S	6E	33	SW	4900	rd. 2650 at E HJA boundary	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4400	rd. 2633, 0.1 mi. SE of curve	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	4100	rd. 2633, upper switchback	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/8/95	15S	6E	19	SW	3300	Junction rds. 350/354	Dana NR Ross
Lane	8/9/95	15S	5E	24	NE	3600	rd. 350, mid-L303	Dana NR Ross
Lane	9/13/94	15S	5E	34	SE	3800	rd. 1507 at L206B	Dana NR Ross
Lane	9/13/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	9/13/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
Lane	9/13/94	16S	6E	6	SW	4350	end rd. 1507	Dana NR Ross
Lane	9/13/95	15S	5E	33	NE	2800	rd. 1507 at L201A/L202	Dana NR Ross
Lane	9/13/95	15S	5E	34	NE	3800	rd. 1507-bend, E L206A	Dana NR Ross
Lane	9/13/95	15S	5E	34	SE	3800	rd. 1507 at SW L206	Dana NR Ross
Lane	9/13/95	15S	5E	34	SW	3650	rd. 1507 at E L205 cliff	Dana NR Ross
Lane	9/13/95	15S	5E	36	SW	3950	rd. 1507 at L209	Dana NR Ross
Lane	9/13/95	16S	5E	1	NE	4300	rd. 1507 at W L211A forest bend	Dana NR Ross
Lane	9/13/95	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	9/13/95	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
Lane	9/13/95	16S	5E	2	NE	4875	rd. 1507-0.15 mi. E of creek	Dana NR Ross
Lane	9/13/95	16S	6E	6	SW	4350	end rd. 1507 turnaround meadow	Dana NR Ross
Lane	9/14/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 hillside mdw (1 of 3)	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 hillside mdw (2 of 3)	Dana NR Ross
Lane	9/14/95	15S	6E	20	NW	4500	rd. 2650 hillside mdw (3 of 3)	Dana NR Ross
Lane	9/14/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	9/14/95	15S	6E	20	SW	4650	rd. 2650 nr sec. 20NW	Dana NR Ross

Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	9/14/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (mid)	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4700	rd. 2650 nr sec. 28NW	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650 at "S. rockslide corner"	Dana NR Ross
Lane	9/14/95	15S	6E	28	SW	4900	rd. 2650 at rockslide corner	Dana NR Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)(1 of 2)	Dana NR Ross
Lane	9/14/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)(2 of 2)	Dana NR Ross
Lane	9/14/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	?	15S	5E	25		2400	Lookout Creek	P.C. Hammond
Linn	10/4/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	4700	rd. 350, 0.2 mi. from end	Dana NR Ross
Linn	7/19/94	15S	5E	12	SE	4100	rd. 359, 0.2 mi. E of rd. 430	Dana NR Ross
Linn	7/25/95	15S	5E	14	NE	3000	rd. 320 at cabin	Dana NR Ross
Linn	8/29/94	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross
Linn	8/29/94	15S	6E	7	NE	4800	end rd. 350	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L385	Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L387	Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4050	rd. 359, W end L381	Dana NR Ross
Linn	8/30/94	15S	6E	7	SW	4100	rd. 359 at McRae Creek	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at L384	Dana NR Ross
Linn	8/9/95	15S	5E	12	SE	4100	rd. 359 at rd. 430	Dana NR Ross
Linn	8/9/95	15S	6E	18	SW	3950	rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	9/12/95	15S	5E	14	NE	3000	rd. 320 cabin	Dana NR Ross
Linn	9/12/95	15S	5E	14	NE	3050	rd. 320/328	Dana NR Ross
Linn	9/12/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	9/12/95	15S	5E	14	SE	2900	rd. 320, 0.2 mi. S rd. 408	Dana NR Ross
Linn	9/14/94	15S	5E	14	NE	3050	rd. 320/328	Dana NR Ross
Linn	9/14/94	15S	5E	14	NW	3300	rd. 320/410 (WS6)	Dana NR Ross
Linn	9/14/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	9/14/94	15S	5E	14	SE	2850	rd. 320/331	Dana NR Ross
Linn	9/14/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

68. *Chlosyne palla palla* (Boisduval)

Northern Checkerspot

Description. Wingspan 3.5 cm (male). Sexual dimorphism may be mild or strong with females being larger than males. Upperside: mostly orange; inner third of

hindwing is quite dark while that of the forewing is not; wings are checkered with dark orange to yellow, squarish spots.

Similar Species. *Chlosyne hoffmanni* is nearly identical, but exhibits a smeared FW pattern.

Adult Flight Period. Recorded from 19 June to 25 July.

Abundance. Uncommon. Usually observed as singletons. May occur in moderate numbers locally.

Distribution. HJA: most records come from the higher elevations of Frissell Ridge and Carpenter Mountain, but it has been recorded as low as 1750 feet at the rd. 1506 concrete bridge. OREGON: occurs at higher elevations throughout the Cascade, Siskiyou and Warner Mountains, and in the mountains of northeastern Oregon.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. This species comes to flowers and moist soil.

Potential Larval Hostplants. Asteraceae: *Aster radulinus*, *Senecio triangularis*.

Comments. Very dark females (form 'eremita') occur in some populations of this species but have yet to be observed on the HJA.

HJA Records. 7 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	7/11/87	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond*
Lane	7/25/98	15S	6E	20	NW	4600	rd. 2650 at hillside meadow	Dana NR Ross
Lane	7/6/94	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	7/7/94	15S	6E	20	SW	4650	rd. 2650, mid big bend	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	3300	rd.410 S WS7	Dana NR Ross*
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross*

#### 69. *Chlosyne hoffmanni segregata* (Barnes & McDunnough)

##### Hoffmann's Checkerspot

Description. Wingspan 3.9 cm. Sexes similar. Upperside: orange and dark brown; inner third of wings quite dark; outer portion with a checkered pattern of orange to

yellow, squarish spots; the blending or smeared appearance of the median and post-median bands of the forewing is a good character.

Similar Species. *Chlosyne palla* is very similar, but the forewing bands do not blend together.

Adult Flight Period. Recorded from 7 July to 23 August.

Abundance. Rare. There are only four HJA records for this butterfly.

Distribution. HJA: known only from Carpenter Mountain and Frissell Ridge at elevations above 4500 feet. OREGON: found throughout the higher elevations of the Cascade Mountains and less commonly in the Siskiyou Mountains.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Prefers open meadows and roadsides. Adults come to flowers and moist soil.

Potential Larval Hostplants. Asteraceae: *Aster ledophyllus*.

Comments. The more common *Chlosyne palla* looks very similar to this species and flies with it.

HJA Records. 4 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	7/7/94	15S	6E	20	SW		rd. 2650, hillside meadow (S end)	Dana NR Ross*
Lane	?	15S	6E	28	NW	4700	FR11 (Frissell Ridge)	P.C. Hammond
Linn	7/20/77	15S	?	?	?	4800	6.6 mi N junction of 1502/1501	Eulensen & Searles*
Linn	8/23/77	15S	6E	12	NE	5000	SW slope Carpenter Mountain.	G. Eulensen*

#### 70. *Euphydryas chalcedona colon* (W. H. Edwards)

##### Chalcedon Checkerspot

Description. Wingspread 4.4 cm. Sexes similar. Upperside: Black; spotted with a variable amount of yellow and a lesser amount of red.

Similar Species. *Euphydryas editha* often flies with the more numerous *E. chalcedona*, but is much redder in overall color.

Adult Flight Period. Recorded from 31 May to 23 August. Peak flight in late June and early July.

Abundance. Common. Can be quite numerous during the peak flight period.

Distribution. HJA: occurs throughout the HJA at all elevations. Most often encountered along ridgetops and on south-facing slopes. OREGON: widespread in the Cascade Mountains and in western Oregon, north of the Siskiyou Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Males typically perch on the ground or on low vegetation and will chase after any butterfly that flies near it. Males visit moist soil and both sexes are avid flower feeders.

Potential Larval Hostplants. Scrophulariaceae: *Penstemon procerus*, *Verbascum thapsus*; Plantaginaceae: *Plantago lanceolata*, *Plantago major*; Caprifoliaceae: *Symphoricarpus albus*. Jeff Miller (Oregon State University) has reared adults from HJA larvae collected on *Penstemon cardwellii*.

Comments. There are three additional subspecies of the Chalcedon Checkerspot in Oregon (Dornfeld 1980).

HJA Records. 156 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
?	7/14/76	?	?	?	?	?	HJA	D. Voegtlin
Lane	5/31/95	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	6/1/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	6/20/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross*
Lane	6/21/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	6/21/94	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	6/21/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/23/95	15S	5E	21	SE	2400	rd. 1508 at E L402A	Emma Rosi
Lane	6/23/95	15S	5E	31	SE	1750	rd. 1506 concrete bridge	Emma Rosi
Lane	6/26/95	15S	5E	26	SW	2000	rd. 1506 rock quarry	Emma Rosi
Lane	6/27/95	15S	5E	29	SE	1600	end rd. 304 (Gypsy Camp)	Emma Rosi
Lane	6/27/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	6/27/95	15S	5E	29	SW	2250	rd. 130, 0.15 mi. above rd. 134	Dana NR Ross
Lane	6/27/95	15S	5E	30	SE	2250	rd. 130/134	Dana NR Ross
Lane	6/27/95	15S	5E	31	NE	1750	rd. 130 at N B133	Dana NR Ross
Lane	6/27/95	15S	5E	31	NE	1750	rd. 130 at W B133	Dana NR Ross
Lane	6/27/95	15S	5E	31	SE	1600	rd. 130 at top of debris slide (B132)	Dana NR Ross
Lane	6/27/95	15S	5E	32	NW	1550	rd. 1506/304	Emma Rosi
Lane	6/28/95	15S	5E	22	NE	2650	rd. 1508/480	Dana NR Ross
Lane	6/28/95	15S	6E	28	SW	4900	rd. 2650, E side ridge-top hill	Dana NR Ross
Lane	6/28/95	15S	6E	32	NE	3600	rd. 1506 at mid L704	Dana NR Ross
Lane	6/28/95	15S	6E	32	SE	3700	rd. 1506 at L704A	Dana NR Ross
Lane	6/28/95	15S	6E	32	SE	3850	rd. 1506 at L704C	Dana NR Ross

Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	6/28/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	6/29/95	15S	5E	22	NE	2650	rd. 1508/408	Dana NR Ross
Lane	6/29/95	15S	5E	22	NW	2750	rd. 480 'Y'	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 "waterfall/seep" (=N L403)	Dana NR Ross
Lane	6/29/95	15S	5E	22	SW	2450	rd. 1508 at SW L403	Dana NR Ross
Lane	6/29/95	15S	5E	28	SE	1800	rd. 1508/410	Dana NR Ross
Lane	6/29/95	15S	5E	28	SW	1800	rd. 1506, curve mid-L103/L231	Dana NR Ross
Lane	6/4/95	15S	5E	26	SE	2550	rd. 360 at E L109A	Dana NR Ross
Lane	6/4/95	15S	5E	28	SW	1800	rd. 1506, 0.4 mi. SW rd. 360	Dana NR Ross
Lane	6/4/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/5/79	15S	5E	24	NE	?	HJA	Gary M. Cooper
Lane	6/7/94	15S	6E	33	NW		rd. 1506/2650	Dana NR Ross
Lane	6/8/95	15S	5E	22	NE	2300	rd. 320 at NE L404	Emma Rosi
Lane	6/9/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross*
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650 at FR11 (S)	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3350	rd. 350, (10 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3350	rd. 350, (9 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3400	rd. 350, (8 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3450	rd. 350, (7 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3500	rd. 350, (6 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3550	rd. 350, (4 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3550	rd. 350, (5 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3600	rd. 350, (3 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3650	rd. 350, (2 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	24	NE	3700	rd. 350, (1 of 10) solid for 0.65 mi. below rd. 357	Dana NR Ross
Lane	7/13/95	15S	5E	25	NE	2750	rd. 350, 0.5 mi. below rd. 353	Dana NR Ross
Lane	7/13/95	15S	5E	25	NE	2900	rd. 350, 0.35 mi. below rd. 353	Dana NR Ross
Lane	7/13/95	15S	5E	25	NW	2700	rd. 350, 0.25 SW of Shorter Creek	Dana NR Ross
Lane	7/13/95	15S	6E	19	SW	3300	Junction rds. 350/354	Dana NR Ross
Lane	7/13/95	15S	6E	19	SW	3350	rd. 350, 0.3 mi. above rd. 354	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3500	Junction rds. 350/355	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3550	3/4 way down rd. 355	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3550	rd. 350 in L303 (1 of 2)	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3650	rd. 350 in L303 (2 of 2)	Dana NR Ross
Lane	7/18/94	15S	5E	24	SE	3100	rd. junction 350/353	Dana NR Ross
Lane	7/18/94	15S	5E	24	SE	3200	rd. 350 at SW L302A	Dana NR Ross
Lane	7/18/94	15S	5E	25	NW	2400	rd. 350 at S6 creek	Dana NR Ross
Lane	7/18/94	15S	5E	27	NW	1850	rd. 1506 at S3	Dana NR Ross

Lane	7/18/94	15S	6E	19	NW	3700	rd. 357 at L303	Dana NR Ross
Lane	7/18/94	15S	6E	19	NW	3700	rd. 357 at L372	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3300	NW 1/2 rd. 354	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3300	S 1/2 rd. 354	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3300	rd. 350	Dana NR Ross
Lane	7/20/94	15S	5E	32	SW	5275	E summit Lookout Mtn.(VABM 5276)	Dana NR Ross
Lane	7/20/94	15S	6E	31	NW	5100	W summit Lookout Mtn.	Dana NR Ross
Lane	7/20/94	16S	6E	6	NE	4900	Lookout Mtn. ridge (1 of 3)	Dana NR Ross
Lane	7/20/94	16S	6E	6	NE	4900	Lookout Mtn. ridge (2 of 3)	Dana NR Ross
Lane	7/20/94	16S	6E	6	NE	4900	Lookout Mtn. ridge (3 of 3)	Dana NR Ross
Lane	7/27/80	15S	5E	34	SE	3940	?	G. Cassis
Lane	7/27/95	15S	5E	35	SW	3850	rd. 1507, creek between L207/L208	Dana NR Ross
Lane	7/27/95	16S	5E	1	NW	4000	rd. 1507 at L210	Dana NR Ross
Lane	7/27/95	16S	5E	2	NE	3900	rd. 1507, just W of L210	Dana NR Ross
Lane	7/30/80	15S	5E	29	SE	4850	?	G. Cassis
Lane	7/30/80	15S	5E	34	SE	3940	?	G. Cassis
Lane	7/6/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross*
Lane	7/6/94	16S	5E	3	NW	3900	rd. 2633 at SW road corner	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4025	rd. 2633 (lower switchback)	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 rock wall seep	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	4000	rd. 2633 (lower switchback)	Dana NR Ross
Lane	7/6/94	16S	5E	5	NE	3100	rd. 2633 at overhanging road cut	Dana NR Ross
Lane	7/6/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross*
Lane	7/7/94	15E	6E	32	SE	3700	rd. 1506 at L704A	Dana NR Ross
Lane	7/7/94	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
Lane	7/7/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	7/7/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	7/7/94	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	7/7/94	15S	6E	20	SW	4650	rd. 2650 big curve	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	7/7/94	15S	6E	28	SW	4900	rd. 2650 at sec. 33 border	Dana NR Ross
Lane	7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross*
Lane	7/7/94	16S	5E	32	SE	4250	rd. 1506 at L704C	Dana NR Ross
Lane	7/7/94	16S	6E	5	NW	4300	rd. 1506 at L707	Dana NR Ross
Lane	8/16/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4350	rd. 1507 at L211A	Dana NR Ross
Lane	8/2/94	16S	5E	1	NW	4100	rd. 1507 at WL3	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end meadow rd. 1507	Dana NR Ross
Lane	8/2/95	15S	6E	19	NE	4600	rd. 2650 at FR8	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650 at N hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4500	rd. 2650 at mid-N hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	NW	4550	rd. 2650 at S hillside meadow	Dana NR Ross
Lane	8/2/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	8/2/95	15S	6E	28	NW	4700	rd. 2650 (FR11 S)	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4750	rd. 2650 at 28NW border	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4850	rd. 2650 (NE side ridge-top hill)	Dana NR Ross
Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 (SE side ridge-top hill)	Dana NR Ross



Lane	8/2/95	15S	6E	28	SW	4900	rd. 2650 at sec. 33	Dana NR Ross
Lane	8/2/95	15S	6E	29	NE	4600	rd. 2650, 0.15 mi. N FR11	Dana NR Ross
Lane	8/2/95	15S	6E	29	NE	4650	rd. 2650 at FR11 (N)	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4850	rd. 2650, 0.2 mi. N rd. 1506	Dana NR Ross
Lane	8/2/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4700	rd. 1506 at L704A	Dana NR Ross
Lane	8/3/95	15S	5E	34	SW	4050	rd. 2633 at corner	Dana NR Ross
Lane	8/3/95	16S	5E	2	SE	4450	end rd. 2633	Dana NR Ross
Lane	8/3/95	16S	5E	2	SW	4400	rd. 2633, 0.1 mi. from end rd.	Dana NR Ross
Lane	8/3/95	16S	5E	3	NE	4300	rd. 2633 near sec.2	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4000	rd. 2633 near 4NE	Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	4100	rd. 2633 at sec.4, upper switchback	Dana NR Ross
Lane	1980's	15S	5E	25		2400	Lookout Creek	P.C. Hammond
Lane	1980's	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
Lane	1980's	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	1980's	15S	6E	32		3600	Lookout Creek	P.C. Hammond
Lane	1980's	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	6/26/95	15S	5E	14	NW	3200	rd. 320 at WS6	Emma Rosi
Linn	6/26/95	15S	5E	14	SE	2700	rd. 320/325	Emma Rosi
Linn	7/18/94	15S	5E	13	SE	3850	rd. 350 at S L304	Dana NR Ross
Linn	7/18/94	15S	6E	18	NW	3850	rd. 350 at S L304	Dana NR Ross
Linn	7/18/94	15S	6E	18	SW	4250	rd. 350 at sec. 7 boundary	Dana NR Ross
Linn	7/18/94	15S	6E	7	NE	4500	rd. 350 at Carpenter Mtn. trailhead.	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	4700	0.2 mi. from end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	7/19/94	15S	5E	12	SE	4100	rd. 359, 0.2 mi. E of rd. 430	Dana NR Ross
Linn	7/19/94	15S	5E	12	SW	4050	rd. 359 at L383	Dana NR Ross
Linn	7/19/94	15S	5E	12	SW	4100	rd. 359, 0.2 mi. W rd. 430	Dana NR Ross
Linn	7/19/94	15S	6E	7	NW	5000	meadows above end rd. 350	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 (1 of 2)	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 (2 of 2)	Dana NR Ross
Linn	7/20/77	15S	5E	12	NE	5000	SW slope Carpenter Mountain.	G. Eulensen
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Ross
Linn	7/25/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
Linn	7/6/77	15S	5E	12	NE	5000	SW slope Carpenter Mountain.	Eulensen
Linn	7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA border	Dana NR Ross
Linn	8/1/94	15S	5E	14	NE	3050	Junction rds. 320/328	Dana NR Ross
Linn	8/2/95	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross
Linn	8/20/77	15S	6E	12	NE	5000	HJA	G. Eulensen
Linn	8/23/77	15S	5E	12	NE	5000	SW slope Carpenter Mountain.	G. Eulensen
Linn	8/9/95	15S	6E	7	NW	4700	0.2 mi. E of end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4050	rd. 359, curve 0.15 mi. S of W L381 crk.	Dana NR Ross
Linn	8/9/95	15S	6E	7	SW	4100	rd. 359 at W L381 creek	Dana NR Ross

71. *Euphydryas editha colonia* (Wright)

## Edith's Checkerspot

Description. Wingspread 4.0 cm. Sexes similar. Upperside: black; boldly patterned with red spots or bands on an otherwise yellow-spotted background.

Similar Species. *Euphydryas chalcedona* is similar, but lacks the red post-median band and is less red and more black and yellow overall.

Adult Flight Period. Recorded from 20 June to 3 August.

Abundance. Uncommon. Always observed in small to moderate numbers at any given location.

Distribution. HJA: found only at higher elevations. Most common on Carpenter Mountain and Frissell Ridge. OREGON: west slope of the Cascade Mountains and in the Siskiyou Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Males are territorial. Adults visit flowers.

Potential Larval Hostplants. Scrophulariaceae: *Collinsia parviflora*; Plantaginaceae: *Plantago lanceolata*.

Comments. There are four additional subspecies of *Euphydryas editha* in Oregon (Dornfeld 1980).

HJA Records. 24 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
?	6/28/77	?	?	?	?	?	HJA	D. Voegtlin*
Lane	6/20/94	15S	5E	34	SE	3800	rd. 1507 at W L206	Dana NR Ross*
Lane	6/21/94	15S	6E	33	SW	4900	rd. 2650 N of communication site	Dana NR Ross
Lane	6/21/94	15S	6E	33	SW	4900	rd. 2650 at 33SE boundary	Dana NR Ross
Lane	6/28/95	15S	6E	28	NW	4700	rd. 2650, South end of FR11	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650 at section 28	Dana NR Ross
Lane	6/28/95	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
Lane	7/12/95	15S	6E	28	NW	4700	rd. 2650, South end FR11	Dana NR Ross
Lane	7/20/94	15S	6E	31	NW	5100	West summit of Lookout Mtn.	Dana NR Ross*
Lane	7/30/83	15S	6E	28	?	?	Frissell Ridge	D.V. McCorkle
Lane	7/6/94	15S	6E	33	NW	?	rd. 1506/2650	Dana NR Ross*
Lane	7/6/94	16S	5E	2	NW	4250	rd. 2633 at sec. 3	Dana NR Ross*
Lane	7/7/94	15S	6E	28	SW	4900	rd. 2650, E side ridge-top hill	Dana NR Ross*
Lane	8/2/95	15S	6E	28	NW	4700	rd. 2650, South end FR11	Dana NR Ross
Lane	8/2/95	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross

Lane	8/3/95	16S	5E	2	NW	4375	rd. 2633 at saddle near road end	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Lane	?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
Linn	7/13/95	15S	5E	7	NE	4500	rd. 350 at Carp. Mtn. trailhead	Dana NR Ross
Linn	7/13/95	15S	5E	7	NW	5000	trail above end rd. 350	Dana NR Ross
Linn	7/18/94	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trailhead.	Dana NR Ross
Linn	7/19/94	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross*
Linn	7/19/94	15S	6E	7	NW	5000	meadow above end rd. 350	Dana NR Ross
Linn	7/20/98	15S	6E	7	NW	4800	end rd. 350	Dana NR Ross

Subfamily LIMENITIDINAE: 2 genera, 2 species.

72. *Limenitis lorquini itelkae* Guppy

Lorquin's Admiral

Description. Wingspan 5.4 cm. Sexes similar. Upperside: black with a white median band and rusty-orange wing tips.

Similar Species. *Adelpha bredowii* is similarly patterned on the upperside, but can be easily separated by the very different underside pattern.

Adult Flight Period. Recorded from 1 June to 4 October. Peak flight in July and early August.

Abundance. Common. Frequently observed as singletons or in small numbers.

Distribution. HJA: found throughout the forest at all elevations. OREGON: widespread throughout the state except for the Siskiyou Mountains and the south coast.

Biogeographical Region of Origin. Greater Pacific Northwest.

Adult Behavior. Most adults encountered were males exhibiting territorial behavior: favored perches were returned to after short patrols or after chasing aerial intruders. Adults were also observed at moist soil and at animal feces.

Potential Larval Hostplants. Rosaceae: *Holodiscus discolor*, *Prunus emarginata*, *Spiraea douglasii*; Salicaceae: *Populus tremuloides*, *Populus trichocarpa*.

Comments. For many years *Limenitis lorquini* populations from northwestern Oregon were considered to be the subspecies *burrisonii* (Howe 1975, Tilden & Smith 1986).

According to Guppy and Shepard (2001), the description of *burrisonii* was based on a hybrid individual of *L. lorquini* and *L. arthemis*, and was not, therefore, a valid subspecies. The subspecies *ilgae* and *itelkae* were thus described by Guppy (Guppy and Shepard 2001) and occupy the range of former *burrisonii* populations. HJA *lorquini* fall under the geographic range of *itelkae*, and are so designated.<sup>3</sup>

HJA Records. 187 total. Specimen vouchered (\*).

<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
10/4/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
10/4/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
6/1/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
6/19/94	15S	5E	22	SE	2150	rd. 320 at L404A	Dana NR Ross
6/19/94	15S	5E	25	NE	2700	rd. 1506 at L701A	Dana NR Ross
6/2/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross*
6/20/94	15S	5E	35	NW	3850	rd. 1507 at WL1	Dana NR Ross
6/20/94	15S	5E	35	SW	3800	rd. 1507 at WL1	Dana NR Ross
6/20/94	16S	5E	1	SE	4150	rd. 1507/530	Dana NR Ross
6/20/94	16S	5E	2	NE	3900	rd. 1507	Dana NR Ross
6/21/94	15S	5E	31	NW	2100	end rd. 134	Dana NR Ross
6/23/95	16S	5E	6	NW	1400	rd. 1506, 0.2 mi. NE rd. 15	Dana NR Ross
6/26/95	15S	5E	22	SW	2000	rd. 320 at L502	Dana NR Ross
6/27/95	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
6/27/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
6/27/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
6/27/95	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross
6/28/95	15S	6E	28	SW	4900	rd. 2650 at E side ridge-top hill	Dana NR Ross
6/29/95	15S	5E	22	SW	2450	rd. 1508 at bottom of L403	Dana NR Ross
6/29/95	15S	5E	28	NW	1850	rd. 1508 at mid-L401	Dana NR Ross
6/29/95	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
6/29/95	16S	5E	6	NW	1400	rd. 130	Dana NR Ross
6/8/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
6/9/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
6/9/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
7/13/95	15S	5E	22	SW	2100	rd. 320 at gate	Dana NR Ross
7/13/95	15S	5E	24	NE	3500	rd. junction 350/355	Dana NR Ross
7/13/95	15S	5E	24	NE	3550	rd. 350, 0.4 mi. below rd. 357	Dana NR Ross
7/13/95	15S	5E	24	SE	3100	rd. 350/353	Dana NR Ross
7/13/95	15S	5E	25	NW	2650	rd. 350 at S7 creek bend	Dana NR Ross
7/13/95	15S	5E	26	SW	2300	rd. 360 at S L108	Dana NR Ross
7/13/95	15S	5E	27	NW	1850	rd. 1506 at S3	Dana NR Ross
7/13/95	15S	5E	28	SE	1850	rd. 360 near gate	Dana NR Ross
7/13/95	15S	5E	36	NW	2550	rd. 360 at Mack Creek	Dana NR Ross
7/13/95	15S	6E	19	SW	3150	rd. 350, 0.25 below rd. 354	Dana NR Ross
7/18/94	15S	5E	24	NE	3700	rd. 350, N L303	Dana NR Ross
7/18/94	15S	5E	24	SE	3100	rd. 350/355	Dana NR Ross

7/18/94	15S	5E	24	SE	3150	rd. 350 at S end L302A	Dana NR Ross
7/18/94	15S	5E	25	NE	2850	rd. 350, 0.1 mi. E of Shorter Creek.	Dana NR Ross
7/18/94	15S	5E	25	NW	2650	rd. 350 at S7	Dana NR Ross
7/18/94	15S	5E	26	NW	1950	rd. 1506/330	Dana NR Ross
7/18/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
7/18/94	15S	6E	19	NW	3700	rd. 357 at L372	Dana NR Ross
7/18/94	15S	6E	19	NW	3700	rd. 357, NE L303	Dana NR Ross
7/18/94	15S	6E	19	SW	3300	1st half rd. 354	Dana NR Ross
7/18/94	15S	6E	19	SW	3300	2nd half rd. 354	Dana NR Ross
7/18/94	15S	6E	19	SW	3300	rd. 350	Dana NR Ross
7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Dana NR Ross
7/20/94	16S	6E	6	NE	4600	L.O. Mtn. trail: E face alder-fern hillside	Dana NR Ross
7/23/80	15S	5E	28	SW	1750	HJA	Gary M. Cooper
7/25/95	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
7/25/95	15S	5E	27	NW	1900	rd. 320, at mid-L501	Dana NR Ross
7/27/95	15S	5E	34	NE	3800	rd. 1507 at L206A curve	Dana NR Ross
7/27/95	15S	5E	34	NW	2925	rd. 1507 at L204	Dana NR Ross
7/27/95	15S	5E	34	SE	3800	rd. 1507 at L206	Dana NR Ross
7/27/95	15S	5E	34	SW	3300	rd. 1507 at mid-N L205	Dana NR Ross
7/27/95	15S	5E	34	SW	3300	rd. 1507 at sec. 33 border	Dana NR Ross
7/27/95	15S	5E	34	SW	3600	rd. 1507 at mid-L205	Dana NR Ross
7/27/95	15S	5E	35	SW	3900	rd. 1507 at W creek bend	Dana NR Ross
7/27/95	16S	5E	1	NE	4300	rd. 1507, W edge L211A bend	Dana NR Ross
7/27/95	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
7/4/95	15S	5E	26	SE	2550	rd. 360 at E L109A	Dana NR Ross
7/4/95	15S	5E	27	SW	1900	rd. 360 at L104	Dana NR Ross
7/4/95	15S	5E	28	SE	1800	rd. junction 360/1506	Dana NR Ross
7/4/95	15S	5E	28	SE	1850	rd. 360 gate	Dana NR Ross
7/4/95	15S	5E	31	SW	1400	rd. 130 at B131	Dana NR Ross
7/6/94	15S	5E	25	NE	2700	rd. 1506 at L701A	Dana NR Ross
7/6/94	16S	5E	2	NW	4250	rd. 2633 near section 3	Dana NR Ross
7/6/94	16S	5E	3	NE	4300	rd. 2633 near section 2	Dana NR Ross
7/6/94	16S	5E	3	NW	3650	rd. 2633, at small ravines	Dana NR Ross
7/6/94	16S	5E	4	NE	3450	rd. 2633 rock wall seep	Dana NR Ross
7/6/94	16S	5E	4	NW	3150	rd. 2633 (1 of 2)	Dana NR Ross
7/6/94	16S	5E	4	NW	3250	rd. 2633 (2 of 2)	Dana NR Ross
7/6/94	16S	5E	5	NE	3100	rd. 2633 overhang road cut	Dana NR Ross
7/6/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
7/6/94	16S	5E	5	SW	2850	rds. 2633/784	Dana NR Ross
7/7/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
7/7/94	15S	6E	32	NE	3600	rd. 1506 at L704	Dana NR Ross
7/7/94	15S	6E	33	NW	4900	rd. 2650/1506	Dana NR Ross
7/7/94	16S	6E	5	NW	4300	rd. 1506 mid L707	Dana NR Ross
7/8/95	15S	5E	23	NW	2450	rd. 320 (mid 1/4 sec.)	Dana NR Ross
8/1/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
8/1/94	15S	5E	21	SW	2650	rd. 130/137 (outside HJA proper)	Dana NR Ross
8/1/94	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross

8/1/94	15S	5E	28	NW	2650	rd. 130, mid-1/4 corner	Dana NR Ross
8/1/94	15S	5E	29	NE	2550	rd. 130	Dana NR Ross
8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
8/1/94	15S	5E	30	SE	2200	Junction of roads 130/134	Dana NR Ross
8/1/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
8/1/94	15S	5E	32	NW	1500	rd. 1506 at WS3 met. station rd.	Dana NR Ross
8/15/94	16S	5E	2	NW	4350	rd. 2633 at sec. 3 border	Dana NR Ross
8/15/94	16S	5E	4	NE	4000	rd. 2633, lower switchback	Dana NR Ross
8/15/94	16S	5E	4	NW	3450	rd. 2633	Dana NR Ross
8/15/94	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
8/16/94	15S	6E	20	NW	4550	rd. 2650 at hillside meadow	Dana NR Ross
8/16/94	15S	6E	28	SW	4850	rd. 2650, NE side ridge-top hill	Dana NR Ross
8/17/94	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
8/17/94	15S	5E	25	NE	2700	rd. 1506	Dana NR Ross
8/17/94	15S	5E	27	NE	1925	rd. 1506	Dana NR Ross
8/17/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
8/2/94	15S	5E	28	SW	1850	rd. 1507- just inside gate	Dana NR Ross
8/2/94	15S	5E	33	NE	2900	rd. 1507 at L202	Dana NR Ross
8/2/94	15S	5E	34	SE	3800	rd. 1507 at W L206B	Dana NR Ross
8/2/94	15S	5E	34	SW	3250	rd. 1507 at N L205	Dana NR Ross
8/2/94	15S	5E	35	NW	3850	rd. 1507 at WL1	Dana NR Ross
8/2/94	15S	5E	35	SE	3800	rd. 1507 at L208 (1 of 2)	Dana NR Ross
8/2/94	15S	5E	35	SE	3800	rd. 1507 at L208 (2 of 2)	Dana NR Ross
8/2/94	15S	5E	35	SW	3800	rd. 1507 at WL1	Dana NR Ross
8/2/94	15S	5E	35	SW	3850	rd. 1507 at L208	Dana NR Ross
8/2/94	15S	5E	35	SW	3900	rd. 1507 at L207	Dana NR Ross
8/2/94	15S	5E	36	SW	3950	rd. 1507 at L209	Dana NR Ross
8/2/94	16S	5E	1	NE	4350	rd. 1507 at L211A	Dana NR Ross
8/2/94	16S	5E	1	NW	4050	rd. 1507 at WL3	Dana NR Ross
8/2/94	16S	5E	1	NW	4100	rd. 1507 at L211	Dana NR Ross
8/2/94	16S	5E	2	NE	3900	rd. 1507 (1 of 2)	Dana NR Ross
8/2/94	16S	5E	2	NE	3900	rd. 1507 (2 of 2)	Dana NR Ross
8/2/95	15S	5E	27	NW	1800	rd. 1506/320	Dana NR Ross
8/2/95	15S	6E	19	NE	4600	rd. 2650 at FR8	Dana NR Ross
8/2/95	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
8/2/95	15S	6E	20	SW	4650	rd. 2650 at middle of big curve	Dana NR Ross
8/2/95	15S	6E	28	NW	4750	rd. 2650 nr sec. 28 NW	Dana NR Ross
8/2/95	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
8/24/95	15S	5E	26	SE	2400	sharp bend at sec. 35 border	Dana NR Ross
8/24/95	15S	5E	28	NW	1925	rd. 1508, top of L401	Dana NR Ross
8/3/94	15S	5E	22	SE	2150	rd. 320 at L404A	Dana NR Ross
8/3/94	15S	5E	23	NW	2550	rd. 320/324	Dana NR Ross
8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
8/3/95	16S	5E	2	NW	4375	rd. 2633 at W FC5	Dana NR Ross
8/3/95	16S	5E	2	NW	4450	rd. 2633 at S FC4	Dana NR Ross
8/3/95	16S	5E	2	NW	4450	rd. 2633 at SE FC4	Dana NR Ross
8/3/95	16S	5E	3	NE	4425	rd. 2633 (FC3), 0.1 mi. E of corner	Dana NR Ross
8/3/95	16S	5E	3	NE	4425	rd. 2633 (FC3), 0.1 mi. W of corner	Dana NR Ross

8/3/95	16S	5E	3	NE	4425	rd. 2633 (FC3), 0.2 mi. W of corner	Dana NR Ross
8/3/95	16S	5E	3	NW	3650	rd. 2633 at small ravines	Dana NR Ross
8/3/95	16S	5E	3	NW	3700	rd. 2633 at main creek bend	Dana NR Ross
8/3/95	16S	5E	3	NW	3850	rd. 2633 at SW-most corner	Dana NR Ross
8/3/95	16S	5E	3	NW	3975	rd. 2633 (dry hillside)	Dana NR Ross
8/3/95	16S	5E	3	NW	4000	rd. 2633, forest bend E of lower switchback	Dana NR Ross
8/3/95	16S	5E	3	NW	4150	rd. 2633, just E of upper switchback	Dana NR Ross
8/3/95	16S	5E	4	NE	3350	rd. 2633, 0.2 mi. W of rock wall seep	Dana NR Ross
8/3/95	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
8/3/95	16S	5E	4	NE	4100	rd. 2633 at upper switchback	Dana NR Ross
8/3/95	16S	5E	4	NW	3250	rd. 2633, 0.1 mi. E of rd. 789	Dana NR Ross
8/3/95	16S	5E	4	NW	3350	rd. 2633, 0.25 mi. E of rd. 789	Dana NR Ross
8/3/95	16S	5E	5	NE	3100	rd. 2633 at overhang road cut	Dana NR Ross
8/3/95	16S	5E	5	NW	2850	rd. 2633, 0.2 mi. NE rd. 784	Dana NR Ross
8/3/95	16S	5E	5	NW	2900	rd. 2633, rock columns (1 of 2)	Dana NR Ross
8/3/95	16S	5E	5	SW	2850	Junction rds. 2633/784	Dana NR Ross
8/30/94	15S	6E	19	SW	3300	Junction rds. 354/358	Dana NR Ross
8/31/94	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
8/31/94	15S	5E	29	NE	2550	rd. 130	Dana NR Ross
8/8/95	15S	5E	21	SW	2650	rd. 130 at HJA boundary	Dana NR Ross
8/8/95	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross
8/8/95	15S	5E	32	NW	2100	rd. 130, 0.2 mi. S rd. 134 (curve)	Dana NR Ross
8/8/95	15S	6E	19	SE	3300	rd. 350 at rd. 354	Dana NR Ross
8/8/95	16S	5E	6	NW	1375	rd. 1506, 0.15 mi. NE rd. 15	Dana NR Ross
8/9/95	15S	5E	24	NE	3750	rd. 350 at rd. 357	Dana NR Ross
9/12/95	15S	5E	22	SE	2150	rd. 320 at L404A	Dana NR Ross
9/14/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
9/14/95	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek	Dana NR Ross
9/15/80	15S	5E	28	SW	1750	HJA	R.W. Sleeter*
?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
?	15S	6E	32		3600	Lookout Creek	P.C. Hammond
?	15S	6E	33	SW?	4900	Frissell Point area	P.C. Hammond
6/19/94	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y"	Dana NR Ross
6/19/94	15S	5E	14	SE	2700	Junction rds. 320/325	Dana NR Ross
6/26/95	15S	5E	14	NE	3000	rd. 320 at L522	Dana NR Ross
7/13/95	15S	5E	14	SE	2850	Junction rds. 320/331	Dana NR Ross
7/18/94	15S	6E	18	NW	4000	rd. 350 at S L305	Dana NR Ross
7/18/94	15S	6E	7	SE	4350	rd. 350, 0.5 mi. S Carp. Mtn. trailhead.	Dana NR Ross
7/19/94	15S	6E	12	SE	4100	rd. 359	Dana NR Ross
7/19/94	15S	6E	12	SE	4100	rd. 359 at L385	Dana NR Ross
7/19/94	15S	6E	7	SW	4100	rd. 359, N L381	Dana NR Ross
7/25/95	15S	5E	14	NE	3000	rd. 320 at L522 cabin	Dana NR Ross
7/25/95	15S	5E	14	NW	3350	rd. 320/410, WS6-7 "Y" in road	Dana NR Ross
7/7/95	15S	5E	14	NE	3200	rd. 327 near curve	Dana NR Ross
7/8/95	15S	5E	14	SW	2650	rd. 320 at L503	Dana NR Ross
8/23/77	15S	5E	12	NE	4800	SW slope Carpenter Mtn.	G. Eulensen*
8/3/94	15S	5E	14	NE	3000	rd. 320 at L522 cabin	Dana NR Ross

8/30/94	15S	5E	12	SE	4100	rd. 359 at L387	Dana NR Ross
8/30/94	15S	5E	12	SW	4100	rd. 359 at SE border	Dana NR Ross
8/30/94	15S	6E	7	SW	4050	rd. 359, W L381	Dana NR Ross
8/9/95	15S	5E	12	SE	4100	rd. 359/430	Dana NR Ross
8/9/95	15S	6E	18	NW	4150	rd. 359, 0.15 mi. N gate	Dana NR Ross
8/9/95	15S	6E	7	NE	4500	rd. 350 at Carp. Mtn. trailhead.	Dana NR Ross
8/9/95	15S	6E	7	SE	4050	rd. 359, 0.3 mi. N gate	Dana NR Ross

### 73. *Adelpha bredowii californica* (Butler)

#### California Sister

**Description.** Wingspan 5.7 cm. Upperside: dark brown with a white median band; forewing with a large orange patch near the wing tip.

**Similar Species.** *Limenitis lorquini* is patterned similarly on the upperside and is often found in the same habitat. However, the forewing patch of *lorquini* is smaller, dark brick-red in color, and covers the forewing apex and anterior border as a band.

**Adult Flight Period.** Recorded from 13 July to 31 August, with a single, late record for 4 October.

**Abundance.** Uncommon. Usually observed as singletons. May occur in moderate numbers locally.

**Distribution.** HJA: occurs at elevations up to about 3,000 feet along Lookout Creek, Blue River Ridge and the far west end of Lookout Ridge. OREGON: common throughout western Oregon; very rare in the southeastern portion of the state.

**Biogeographical Region of Origin.** Pacific Coast.

**Adult Behavior.** This butterfly is typically found in the vicinity of the larval hostplant. Adults come to moist soil. Males are highly territorial and will chase aerial intruders for some distance before returning to favored perches.

**Potential Larval Hostplants.** Fagaceae: *Chrysolepis chrysophylla*, *Quercus garryana*.

**Comments.** This subspecies is the northernmost representative of the neotropical genus *Adelpha* (Tilden & Smith 1986). It occurs in California and western Oregon.

**HJA Records.** 45 total. Specimen vouchered (\*).

Co.	Date	T	R	S	1/4	Elev.	Site description	Recorder
Lane	10/4/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross



Lane	7/13/95	15S	5E	22	SE	2150	rd. 320, 0.4 mi. above gate	Dana NR Ross
Lane	7/13/95	15S	5E	22	SW	2100	rd. 320, 0.2 mi. below gate	Dana NR Ross
Lane	7/13/95	15S	5E	27	SE	2050	rd. 360 at sec. 26 border	Dana NR Ross
Lane	7/18/94	15S	5E	25	NW	2650	rd. 350 at S7 creek	Dana NR Ross
Lane	7/18/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross*
Lane	7/23/80	15S	5E	28	SW	1750	HJA	R.W. Sleeter*
Lane	7/25/95	15S	5E	22	NE	2300	rd. 320 at SE L405A	Dana NR Ross
Lane	7/25/95	15S	5E	22	NE	2400	rd. 320 near sec. 23	Dana NR Ross
Lane	7/25/95	15S	5E	22	SW	2000	rd. 320, 0.3 mi. above gate	Dana NR Ross
Lane	7/25/95	15S	5E	31	SW	1450	rd. 130/132 junction	Dana NR Ross
Lane	8/1/94	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross
Lane	8/1/94	15S	5E	29	NE	2500	rd. 130 at rd. 336	Dana NR Ross
Lane	8/1/94	15S	5E	29	NE	2550	rd. 130 at extreme corner	Dana NR Ross
Lane	8/1/94	15S	5E	29	SW	2250	rd. 130 at extreme corner	Dana NR Ross
Lane	8/1/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross*
Lane	8/1/94	15S	5E	32	NW	1500	rd. 1506 at rd. 300 (WS 2 rd.)	Dana NR Ross
Lane	8/15/94	16S	5E	5	NE	3050	rd. 2633	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock wall (columns)	Dana NR Ross
Lane	8/17/94	15S	5E	26	NW	1950	rd. 1506 at rd. 330	Dana NR Ross
Lane	8/17/94	15S	5E	27	NE	1900	rd. 1506 near S4	Dana NR Ross
Lane	8/2/87	?	?	?	?	?	HJA	?*
Lane	8/2/94	15S	5E	33	NW	2250	rd. 1507 at rd. 455	Dana NR Ross
Lane	8/2/95	15S	5E	31	SE	1450	rd. 130/132 (HQ) gate	Dana NR Ross
Lane	8/24/95	15S	5E	22	NW	2750	rd. 480 (off 1508) "Y" in road	Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508 at N L403 "waterfall"	Dana NR Ross
Lane	8/24/95	15S	5E	28	SW	1800	rd. 1508 at rd. 410	Dana NR Ross
Lane	8/3/94	15S	5E	27	NW	1900	rd. 320	Dana NR Ross
Lane	8/3/94	15S	5E	28	SE	1750	rd. 1506 concrete bridge	Dana NR Ross
Lane	8/3/94	15S	5E	32	NW	1500	rd. 1506 at rd. 300 (WS 2 rd.)	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3000	rd. 2633 (1 of 2, 0.4 mi. apart)	Dana NR Ross
Lane	8/3/95	16S	5E	5	NE	3100	rd. 2633 (2 of 2, 0.4 mi. apart)	Dana NR Ross
Lane	8/31/94	15S	5E	21	SW	2650	rd. 130 at NW HJA boundary	Dana NR Ross
Lane	8/31/94	15S	5E	21	SW	2650	rd. 130 at spur rd. to slash hill	Dana NR Ross
Lane	8/31/94	15S	5E	29	NE	2550	rd. 130	Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/31/94	15S	5E	31	NE	1750	rd. 130 at N B133	Dana NR Ross
Lane	8/31/94	15S	5E	31	SW	1500	rd. 130 gate	Dana NR Ross
Lane	8/31/94	15S	5E	32	NW	2150	rd. 130 at W B134	Dana NR Ross
Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry	Dana NR Ross
Lane	8/8/95	15S	5E	30	SE	2250	rd. 130/134 junction	Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	1700	rd. 130 at B133	Dana NR Ross
Lane	?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
Lane	?	15S	5E	28	SE	1750	rd. 1506 concrete bridge	P.C. Hammond
Linn	8/3/94	15S	5E	14	NE	3400	WS7 at end of rd. 410 spur	Dana NR Ross

Subfamily SATYRINAE: 3 genera, 5 species.

74. *Coenonympha californica eunomia* Dornfeld

Ringlet

Description. Wingspan 3.0 cm. Upperside: uniformly colored off-white to light orange-brown.

Similar Species. None.

Adult Flight Period. Recorded from 24 May to 6 July and on 22 September. Peak flight in June. The September record suggests the presence of a late summer generation.

Abundance. Uncommon. Generally encountered as singletons.

Distribution. HJA: open, grassy areas at low elevations. OREGON: northwestern Oregon.

Biogeographical Region of Origin. North Pacific.

Adult Behavior. Adults are best located by flushing them from grassy areas. The flight is slow and bouncy.

Potential Larval Hostplants. Poaceae: *Poa* and *Stipa* are likely hosts.

Comments. Guppy and Shepard (2001) determined that the Oregon species of *Coenonympha* is *californica*, not the predominantly Eurasian species *tullia* as had long been accepted (Dornfeld 1980).

HJA Records. 5 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	5/24/94	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/27/95	15S	5E	31	SE	1400	HJA headquarters	Dana NR Ross
Lane	6/8/94	15S	5E	32	NW	1550	rd. 1506/304	Dana NR Ross*
Lane	7/6/94	16S	5E	4	NE	4025	rd. 2633 at sec. 34	Dana NR Ross*
Lane	9/22/80	15S	5E	28	SW	1800	rd. 410?	R.W. Sleeter*

75. *Cercyonis pegala incana* (W.H. Edwards)

## Large Wood Nymph

Description. Wingspan 4.9 cm (male). Mild sexual dimorphism. Females are slightly larger and more strikingly patterned than males. A medium-sized, brown butterfly. Upperside: forewing with two white-centered eyespots; eyespots of the female are larger than those of the male and are surrounded by a yellowish halo that may be encompassed by a lighter brown patch. Underside: wing markings are more pronounced than on the upperside.

Similar Species. *Cercyonis oetus* and *C. sthenele* are smaller and less boldly marked.

Adult Flight Period. A single record exists for 16 August, 1987.

Abundance. Rare. This butterfly was not encountered during this study.

Distribution. HJA: known only from the vicinity of the headquarters. OREGON: occurs west of the crest of the Cascade Mountains and north of the Siskiyou Mountains.

Biogeographical Region of Origin. North Pacific.

Adult Behavior: Unknown for the HJA. Elsewhere in Oregon adults can be found flying in dry, grassy meadows, in forest openings and along forest edges.

Potential Larval Hostplants. Unknown for the HJA. Poaceae: grass species.

Comments. The subspecies *incana* was unrecognized by Dornfeld (1980) who included western Oregon populations with the more widespread subspecies *boopis*. Oregon *boopis* subsequently became known as *ariane* (Hinchliff 1994). More recently, Guppy and Shepard (2001) determined that *incana* was the proper subspecies name for *pegala* populations west of the Cascade crest. A local scarcity of the larval hostplant, a grass (Poaceae), may explain the rareness of this species on the HJA, as elevation does not.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	8/16/87	15S	5E	31	SE	1400	Headquarters	P.C. Hammond*

76. *Cercyonis sthenele sylvestris* (W. H. Edwards)

## Lesser Wood Nymph

Description. Wingspan 4.2 cm. Sexes similar. A medium-sized, dark brown butterfly. Upperside: forewing with one or two darker spots which may exhibit a central white spot or speck. Underside: forewing with two eyespots which may be equal or subequal in size; hindwing margin is noticeably scalloped.

Similar Species. *Cercyonis pegala* is similarly marked, but is larger. *Cercyonis oetus* averages slightly smaller in size and is less broad-winged.

Adult Flight Period. Recorded from 25 July to 14 September. Peak flight in August.

Abundance. Common.

Distribution. HJA: occurs somewhat locally throughout the drier, open areas of the watershed at low to middle elevations. OREGON: found throughout the Siskiyou Mountains, but only sparingly in the Cascade Mountains.

Biogeographical Region of Origin. California.

Adult Behavior. Adults have a slow, bouncing flight and land frequently among the underbrush.

Potential Larval Hostplants. Poaceae: unknown grasses.

Comments. This is by far the most common *Cercyonis* species on the HJA and was the only one encountered during this study.

HJA Records. 58 total. Specimen vouchered (\*).

<u>Co</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>Q1/4</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	8/15/94	16S	5E	3	NW	3650	rd. 2633 at small ravines	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	3350	rd. 2633 at sec 4, NW ¼ boundary	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	3450	rd. 2633 at rock wall/seep	Dana NR Ross
Lane	8/15/94	16S	5E	4	NE	4025	rd. 2633 at sec. 34	Dana NR Ross
Lane	8/15/94	16S	5E	4	NW	3100	rd. 2633 at sec. 5	Dana NR Ross
Lane	8/15/94	16S	5E	5	NW	2900	rd. 2633 at rock columns	Dana NR Ross
Lane	8/17/94	15S	5E	26	SW	2000	rd. 1506 rock quarry	Dana NR Ross
Lane	8/17/94	15S	5E	27	NW	1800	rd. 1506 at McRae Creek	Dana NR Ross
Lane	8/17/94	15S	5E	31	SE	1400	rd. 1506 at 31SW	Dana NR Ross
Lane	8/2/95	15S	5E	26	SE	2175	rd. 1506 at SE L301	Dana NR Ross
Lane	8/2/95	15S	5E	27	NW	1850	rd. 1506 at S1/S2	Dana NR Ross
Lane	8/2/95	15S	5E	28	NE	1800	rd. 1506 at L500	Dana NR Ross

Lane	8/20/80	15S	5E	28	SW	1750	HJA		?
Lane	8/24/95	15S	5E	22	NE	2650	rd. 1508/480		Dana NR Ross
Lane	8/24/95	15S	5E	22	NW	2750	rd. 410, at rd. 480 "Y" in road		Dana NR Ross
Lane	8/24/95	15S	5E	22	SW	2450	rd. 1508 at S L403 curve		Dana NR Ross
Lane	8/24/95	15S	5E	28	SE	2100	rd. 363 at N L232		Dana NR Ross
Lane	8/24/95	15S	5E	35	NE	2850	end rd. 362		Dana NR Ross
Lane	8/3/95	15S	5E	31	SE	1400	HJA headquarters		Dana NR Ross
Lane	8/3/95	16S	5E	3	NW	3975	rd. 2633 at dry hillside		Dana NR Ross
Lane	8/3/95	16S	5E	4	NE	3450	rd. 2633 at rock wall/seep		Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633 at rock columns		Dana NR Ross
Lane	8/3/95	16S	5E	5	NW	2900	rd. 2633, 0.15 mi. E columns		Dana NR Ross
Lane	8/30/94	15S	5E	24	NE	3450	rd. 350 at S L303		Dana NR Ross
Lane	8/31/94	15S	5E	21	SW	2650	rd. 130 at N HJA boundary		Dana NR Ross
Lane	8/31/94	15S	5E	21	SW	2650	rd. 130 at sec. 28		Dana NR Ross
Lane	8/31/94	15S	5E	28	NW	2650	rd. 130		Dana NR Ross
Lane	8/31/94	15S	5E	29	SE	2450	rd. 130 rock quarry		Dana NR Ross
Lane	8/31/94	15S	5E	29	SW	2450	rd. 130 rock quarry		Dana NR Ross
Lane	8/31/94	15S	5E	31	SE	1600	rd. 130 at B132		Dana NR Ross
Lane	8/31/94	15S	5E	32	NW	1850	rd. 130 at B133A		Dana NR Ross
Lane	8/8/95	15S	5E	25	NE	2600	rd. 1506 at Shorter Creek		Dana NR Ross
Lane	8/8/95	15S	5E	26	SE	2100	rd. 1506/344		Dana NR Ross
Lane	8/8/95	15S	5E	26	SW	2000	rd. 1506 rock quarry		Dana NR Ross
Lane	8/8/95	15S	5E	29	NE	2650	rd. 130 at junction rd. near 28NW		Dana NR Ross
Lane	8/8/95	15S	5E	29	SE	2450	rd. 130 rock quarry		Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.2 mi. SW of rock quarry		Dana NR Ross
Lane	8/8/95	15S	5E	29	SW	2300	rd. 130, 0.5 mi. SW of rock quarry		Dana NR Ross
Lane	8/8/95	15S	5E	30	SE	2250	rd. 130/134		Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	1750	rd. 130, B133 (NW)		Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	1750	rd. 130, B133 (W)		Dana NR Ross
Lane	8/8/95	15S	5E	31	NE	2250	1/2 way down rd. 134		Dana NR Ross
Lane	8/8/95	15S	5E	31	NW	1600	rd. 130 at top of debris flume		Dana NR Ross
Lane	8/8/95	15S	5E	31	SW	1500	rd. 130 gate		Dana NR Ross
Lane	8/8/95	15S	5E	32	NW	1850	rd. 130 at B133A curve		Dana NR Ross
Lane	8/8/95	15S	5E	32	NW	2200	rd. 130 at NW sec. extreme		Dana NR Ross
Lane	8/8/95	16S	5E	6	NW	1350	rd. 130/15		Dana NR Ross
Lane	8/8/95	16S	5E	6	NW	1400	rd. 1506, 0.4 mi. NE of rd. 15		Dana NR Ross
Lane	9/10/80	15S	5E	27	NW	2000	HJA		Gary M. Cooper*
Lane	9/12/95	15S	5E	27	NW	1900	rd. 320, 0.1 mi. N of rd. 1506		Dana NR Ross
Lane	9/14/95	15S	6E	33	SW	4550	rd. 1506 at L704C		Dana NR Ross
Lane	?	15S	5E	25		2400	Lookout Creek		P.C. Hammond
Linn	7/25/95	15S	5E	14	NW	3350	rd. 410 at WS 6-7 "Y" in road		Dana NR Ross
Linn	8/30/94	15S	5E	12	SE	4100	rd. 359 at L385		Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4050	rd. 359 at L383		Dana NR Ross
Linn	8/30/94	15S	5E	12	SW	4100	rd. 359		Dana NR Ross
Linn	9/12/95	15S	5E	14	NE	3050	rd. 320, 0.1 mi. W of rd. 328		Dana NR Ross
Linn	9/12/95	15S	5E	14	SE	2900	rd. 320, curve above L523 pond		Dana NR Ross

77. *Cercyonis oetus oetus* (Boisduval)

## Dark Wood Nymph

Description. Wingspan 3.8 cm. Upperside: chocolate brown with one or two darker forewing spots. Underside: forewing with two eyespots, the posterior spot being closer to the wing margin; the median area of the hindwing is bounded by lines which have a zigzag pattern; submargin of the hind wing has a row of minute eyespots.

Similar Species. *Cercyonis pegala* is much larger and occurs only at low elevations. *Cercyonis sthenele* tends to be slightly larger, more broad-winged and bears somewhat larger eyespots.

Adult Flight Period. No collection dates exist for HJA *Cercyonis oetus*. Elsewhere in Oregon this butterfly has been collected from mid to late summer.

Abundance. Rare.

Distribution. HJA: only documented from the Frissell Point area. OREGON: widespread throughout eastern Oregon, but rarely documented from the west slope of the Cascade Mountains.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Adults are avid flower feeders. Flight is low, slow and bouncy, as is typical of wood nymphs. If disturbed, *oetus* will fly quickly and erratically for some distance before hiding among vegetation.

Potential Larval Hostplants. Poaceae: unknown grass species.

Comments. *Cercyonis oetus* prefers drier habitats than either *C. pegala* or *C. sthenele*. In Oregon, it is more typically found in more arid sagebrush communities.

HJA Records. 1 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>¼</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	?	15S	6E	33	SW?	4900	Frissell Point	P.C. Hammond

78. *Oeneis nevadensis nevadensis* (Felder & Felder)

## Great Arctic

Description. Wingspan 5.7 cm. Sexes similar. Upperside: light orange-brown; wing margins and forewing discal areas are gray-brown; forewing with one or more eyespots; male bears a large androconial patch on the discal area of the forewing. Underside: the hindwing is patterned like tree bark.

Similar Species. None.

Adult Flight Period. Flies only during even-numbered years. Recorded from 9 June to 2 August. Peak flight in late June and early July.

Abundance. Common. Occurs in small to moderate numbers at any given location.

Distribution. HJA: Found throughout the middle to high elevations of the forest.

OREGON: widespread in the Cascade, Siskiyou and Warner Mountains, but is rare and local elsewhere.

Biogeographical Region of Origin. Boreal-Montane.

Adult Behavior. Males are territorial. Adults perch on the ground or on the bark of fallen trees where they are well camouflaged.

Potential Larval Hostplants. Poaceae: unknown grasses.

Comments. The two year life cycle of this species is unusual. While it flies only in even-numbered years throughout most of its range, individuals may be encountered every year in some locations (Pyle 2002).

HJA Records. 47 total. Specimen vouchered (\*).

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Location</u>	<u>Collector</u>
?	"1970"	?	?	?	?	?	HJA	G. Hawk*
Lane	6/10/94	15S	5E	25	SW		1506/350	Dana NR Ross*
Lane	6/10/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross*
Lane	6/10/94	15S	6E	33	NW	4900	rd. 1506/2650	Dana NR Ross
Lane	6/10/94	15S	6E	33	NW	4900	rd. 2650 at sec. 28	Dana NR Ross*
Lane	6/19/94	15S	5E	25	NE	2700	rd. 1506 at L701A	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507 at L207 (1 of 3)	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507 at L207 (2 of 3)	Dana NR Ross
Lane	6/20/94	15S	5E	35	SW	3900	rd. 1507 at L207 (3 of 3)	Dana NR Ross
Lane	6/20/94	16S	5E	1	NW	4100	rd. 1507 at L211 (mid)	Dana NR Ross
Lane	6/20/94	16S	6E	6	SW	4350	end 1507 meadow	Dana NR Ross
Lane	6/21/94	15S	5E	29	NE	2650	rd. 130, side road nr sec.28	Dana NR Ross

Lane	6/9/94	15S	5E	24	SE	4100	rds. 350/359	Dana NR Ross
Lane	6/9/94	15S	5E	25	SW	2375	rds. 350/1506	Dana NR Ross
Lane	6/9/94	15S	6E	19	SW	3300	rd. 350/358	Dana NR Ross
Lane	6/9/94	15S	6E	19	SW	3350	rd. 350, N L302	Dana NR Ross
Lane	7/18/94	15S	5E	24	NE	3450	rd. 350 at sec. 19	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3250	nr end rd. 354	Dana NR Ross
Lane	7/18/94	15S	6E	19	SW	3300	rds. 354/358	Dana NR Ross
Lane	7/20/94	15S	6E	32	SW	5275	E summit Lookout Mtn. (=VABM 5276)	Dana NR Ross
Lane	7/6/94	16S	5E	2	NW	4375	rd. 2633 at W FC5	Dana NR Ross
Lane	7/6/94	16S	5E	3	NE	4375	rd. 2633 at sections 34,35	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	3850	rd. 2633 (1 Of 4)	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	3900	rd. 2633 (2 Of 4)	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	3950	rd. 2633 (3 Of 4)	Dana NR Ross
Lane	7/6/94	16S	5E	3	NW	4050	rd. 2633 (4 Of 4)	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	3450	rd. 2633 at rock wall seep	Dana NR Ross
Lane	7/6/94	16S	5E	4	NE	4000	rd. 2633 at lower switchback	Dana NR Ross
Lane	7/7/94	15S	6E	20	SE	4500	rd. 2650/630	Dana NR Ross
Lane	7/7/94	15S	6E	20	SW	4550	rd. 2650 at 20SE	Dana NR Ross
Lane	7/7/94	15S	6E	28	NW	4700	rd. 2650 at FR11	Dana NR Ross
Lane	7/7/94	15S	6E	28	SW	4900	rd. 2650 at section 33	Dana NR Ross
Lane	7/7/94	15S	6E	30	NW	2800	rd. 1506 at L702	Dana NR Ross
Lane	7/7/94	15S	6E	32	NE	3600	rd. 1506 at N L704	Dana NR Ross
Lane	7/7/94	15S	6E	33	SW	4550	rd. 1506 at L704C	Dana NR Ross
Lane	7/7/94	16S	6E	5	NW	4300	rd. 1506 at S L707	Dana NR Ross
Lane	8/2/94	16S	5E	1	NE	4300	rd. 1507 forest bend	Dana NR Ross
Lane	8/2/94	16S	6E	6	SW	4350	end rd. 1507 meadow	Dana NR Ross
Lane	?	15S	6E	28	NW	4850	FR11 meadow	P.C. Hammond
Linn	6/19/94	15S	5E	14	NE	3000	rd. 320, just E of rd. 327	Dana NR Ross
Linn	6/19/94	15S	5E	14	NE	3050	rd. 320, just W of rd. 327	Dana NR Ross
Linn	6/9/94	15S	5E	12	SW	4050	rd. 359 at L383	Dana NR Ross
Linn	7/18/94	15S	6E	18	NW	4100	rd. 350/359	Dana NR Ross
Linn	7/19/94	15S	5E	12	SW	4100	rd. 359 nr end	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 at E end L381	Dana NR Ross
Linn	7/19/94	15S	6E	7	SW	4100	rd. 359 at W L381	Dana NR Ross
Linn	7/7/94	15S	6E	18	SE	4600	rd. 2650 at HJA boundary	Dana NR Ross

Subfamily DANAINAE: 1 genus, 1 species.

79. *Danaus plexippus plexippus* (Linnaeus)

Monarch

Description. Wingspan 9.8 cm. A large butterfly. Upperside: orange to orange-



brown with white to orange spotted black wing borders and heavy black markings along the wing veins.

Similar Species. None.

Adult Flight Period. The single record is for 21 June.

Abundance. Rare.

Distribution. HJA: a single monarch butterfly was observed flying in a southwest direction in the vicinity of Watershed 10 on Blue River Ridge. OREGON: occurs statewide.

Biogeographical Region of Origin. Western North America.

Adult Behavior. Migratory individuals probably pass through the HJA on an occasional basis throughout the summer months.

Potential Larval Hostplants. The milkweed hostplant (Asclepiaceae) has not been recorded for the HJA.

Comments. There is a yearly influx of this species into Oregon from California. These individuals then breed where milkweed is encountered and the offspring migrate south to overwinter as adults in central and southern California. The eastern North America population overwinters in the highlands of central Mexico (Pyle 2000).

HJA Records. 1 total.

<u>Co.</u>	<u>Date</u>	<u>T</u>	<u>R</u>	<u>S</u>	<u>1/4</u>	<u>Elev.</u>	<u>Site Description</u>	<u>Collector</u>
Lane	6/21/94	15S	5E	31	NW	2100	end rd. 134-WS 10	Dana NR Ross

### **Potential additions to the HJA butterfly fauna**

While the HJA butterfly fauna is now well known, the presence of additional species is almost certain. Very local or rare species may take many years to document by their very nature, requiring the proverbial “fine toothed comb” to find them. Other species, for which the HJA is at the edge of their range, may occur there as vagrants only in particularly favorable years when their populations are at peak levels and expanding. *Papilio multicaudatus* and *Speyeria coronis* may be documented examples of such a phenomenon. As highly mobile organisms, butterflies rapidly colonize

suitable habitat as it becomes available to them. With continued human disturbance, and with the climatic and biotic changes brought on by global warming, additions to the HJA butterfly fauna simply will occur. The following butterflies appear to be good candidates for future additions to the HJA fauna based on the results of this study and the information in Dornfeld (1980), Guppy & Shepard (2001) and Pyle (2002):

- 1) *Thorybes pylades*- A few records exist for the west slope of the Oregon Cascade Mountains both north and south of the HJA. Many more *pylades* records come from the area to the northeast of the HJA, just east of the Cascade divide. The larval hostplants include *Trifolium* and *Lathyrus* species.
- 2) *Erynnis pacuvius*- This species looks very similar to *Erynnis persius* and may have been overlooked on the HJA. Oregon records show this species to be most common east of the crest of the Cascade Mountains and in the Siskiyou Mountains of southwestern Oregon. Several records are from Douglas County on the west slope of the Cascade Mountains. The larval hostplants include *Ceanothus*.
- 3) *Atalopedes campestris*- The northward range expansion of this butterfly has been well documented by Pacific Northwest Lepidopterists (Pyle 2002). It is conceivable that this species could reach the HJA from the Willamette Valley via the McKenzie River corridor. It is commonly found in gardens, old fields and on lawns. The larval hostplants include *Cynodon dactylon* and other grasses.
- 4) *Polites sonora*- Records exist for this species just to the west, north and east of the HJA and at similar elevations. The larval hostplants include various grasses.
- 5) *Colias philodice*- A common species east of the Cascade Mountains, this butterfly has been recorded west of the Cascades on a number of occasions. I may frequent commercial alfalfa fields in abundance. Larval hostplants include *Astragalus*, *Lathyrus*, *Trifolium* and other species in the family Fabaceae.
- 6) *Loranthomitoura spinetorum*- Another species more typical of the drier forests of eastern Oregon and the Siskiyou Mountains, yet with some records from the west slope of the Cascade Mountains. The hostplant, *Arceuthobium campylopodum*, is present on the HJA.

7) *Incisalia eryphon*- This butterfly is rarely found on the west slope of the Cascade Mountains, but at least two records are from just NE of the HJA. The author has taken it within one mile of the HJA at Wolf Meadow. The larval hostplants are *Pinus ponderosa* and *Pinus contorta*.

## COMMUNITY ASPECTS

### General Observations

By combining species-level information, certain patterns and characteristics of the larger butterfly community were apparent.

**Wing Patterns.** HJA butterflies display a wide variety of wing patterns. Similar wing patterns occur largely within each subfamily or genus- orange fritillaries (subfamily Argynniinae), dark brown duskywings (genus *Erynnis*). The underside of the wings in some genera mimic tree bark, like the brown to gray patterns of *Polygonia* and *Nymphalis*, or the leaves of the larval hostplant, as in *Callophrys* (green) and *Habrodais* (yellow). *Adelpha bredowii* and *Limenitis lorquini* share an upperside pattern that is remarkably similar- dark brown with a white band and orange wing-tips.

**Dimorphism.** If the male and female of a species differs in size or wing pattern, then they are sexually dimorphic. A total of 26 HJA species exhibited this type of dimorphism to a mild or pronounced degree. The females of *Papilio*, *Chlosyne*, and *Euphydryas* species are all larger than the males of their respective species. Color pattern differences between the sexes are sometimes mild, as in *Pyrgus communis*, where males are lighter colored than females. Color pattern differences can also be pronounced, as in the dorsal coloration of most species of blues and coppers- males are blue or purple and females are orange, brown or gray.

*Pieris marginalis* exhibits seasonal dimorphism on the HJA. The spring generation bears dark spots and markings and the summer brood is virtually immaculate.

**Relative Abundance Categories.** A relative abundance category of “abundant”, “common”, “uncommon” and “rare” was assigned to each species (Table 2 and Figure 4).

Only 4 butterfly species were abundant during 1994 -1995: *Neophasia menapia*, *Parnassius clodius*, *Ochlodes sylvanoides* and *Boloria epithore*. Each was recorded over 200 times and was found in high densities over large portions of the HJA.

A total of 22 species were common, including *Limenitis lorquini*, *Habrodais grunus*, *Cercyonis sthenele* and *Lycaeides anna*. These species were recorded from 45 to 182 times, with one exception: *Icaricia icarioides* was only recorded 33 times. These species occurred throughout the HJA at moderate densities, or were somewhat restricted within the watershed- such as to high or low elevations-, but were found in large numbers where they did occur.

The 32 uncommon species included *Erynnis persius*, *Euphydryas editha*, *Papilio zelicaon* and *Amblyscirted vialis*. These butterflies were recorded from 4 to 44 times, with one exception: *Erynnis persius* was recorded 49 times, but virtually always as a singleton. These species were either recorded as singletons from several or more sites, or were recorded from very few sites, but in moderate numbers.

A total of 21 species were considered rare. These included all species encountered 3 or fewer times, including all previously recorded HJA species that were not recorded during this study. *Pieris rapae*, *Loranthomitoura johnsoni*, *Colias occidentalis* and *Danaus plexippus* were included in this category. These are mostly non-resident species that wander onto the HJA, or are resident species that exist there very locally and in low densities. The single exception may be the mistletoe-feeding and old growth conifer forest obligate, *Loranthomitoura johnsoni*. It may actually occur in moderate numbers but remains out of sight high in the canopy of the forest.

**Sympatry.** Many butterfly genera include multiple species on the HJA. In particular, *Papilio*, *Lycaena*, *Polygonia* and *Vanessa* each have four species, while *Speyeria* has five. Species within each of these groups are closely related, but must differ enough for each to occupy a unique ‘ecological space’. Within each of these

genera, species differ sufficiently in their combined flight period, larval hostplant, habitat or behavior to accomplish this.

As an example, of the five *Speyeria* species present, only two were common at higher elevations. *Speyeria atlantis* remained in the open meadows and *Speyeria hydaspe* inhabited the smaller forest gaps and forest edges. These two similar butterflies may use different species of the *Viola* hostplant to further segregate them ecologically. Behavioral and pheromonal differences during courtship are important as well.

**Biogeographical Origins.** Each species has an affinity with one of several well-defined biogeographical regions (Table 3 and Figure 5). The greatest number of species, thirty one (40%), have a widespread distribution throughout Western North America. Those with North Pacific (14 species, 18%), Greater Pacific Northwest (13 species, 16%), Boreal-Montane (10 species, 13%) and Pacific Coast (9 species, 11%) origins are also well represented. The California and Great Basin regions contributed only one species (1%) each.

Table 2. Rank of abundance and relative abundance of HJA butterflies. Not recorded during this study (\*).

Rank of Abundance	Relative Abundance	Butterfly Species	1994	1995	TOTAL
1	Abundant	<i>Neophasia menapia</i>	144	166	310
2	Abundant	<i>Parnassius clodius</i>	108	135	243
3	Abundant	<i>Ochlodes sylvanoides</i>	139	103	242
4	Abundant	<i>Boloria epithore</i>	102	123	225
5	Common	<i>Limenitis lorquini</i>	94	88	182
6	Common	<i>Speyeria hydaspe</i>	55	101	156
7	Common	<i>Euphydryas chalcedona</i>	61	80	141
8	Common	<i>Pyrgus ruralis</i>	37	64	101
9	Common	<i>Celastrina echo</i>	43	56	99
9	Common	<i>Phyciodes mylitta</i>	46	53	99
11	Common	<i>Nymphalis californica</i>	88	9	97
12	Common	<i>Colias eurytheme</i>	82	14	96
13	Common	<i>Glaucopsyche lygdamus</i>	45	36	81
14	Common	<i>Habrodais grunus</i>	36	41	77
15	Common	<i>Anthocharis sara</i>	26	39	65
16	Common	<i>Vanessa cardui</i>	0	64	64

Table 2 (Continued)

17	Common	<i>Papilio eurymedon</i>	20	43	63
17	Common	<i>Polygonia faunus</i>	27	36	63
19	Common	<i>Cercyonis sthenele</i>	20	36	56
20	Common	<i>Icaricia acmon</i>	40	14	54
21	Common	<i>Papilio rutulus</i>	9	44	53
22	Common	<i>Pieris marginalis</i>	23	29	52
23	Common	<i>Lycaeides anna</i>	22	28	50
24	Uncommon	<i>Erynnis persius</i>	27	22	49
25	Common	<i>Satyrium saepium</i>	18	28	46
26	Common	<i>Oeneis nevadensis</i>	45	0	45
27	Uncommon	<i>Lycaena nivalis</i>	20	24	44
28	Uncommon	<i>Adelpha bredowii</i>	25	16	41
29	Uncommon	<i>Everes comyntas</i>	20	19	39
30	Common	<i>Icaricia icarioides</i>	17	16	33
31	Uncommon	<i>Incisalia augustinus</i>	14	17	31
32	Uncommon	<i>Nymphalis antiopa</i>	23	7	30
33	Uncommon	<i>Lycaena mariposa</i>	16	13	29
33	Uncommon	<i>Polygonia zephyrus</i>	16	13	29
35	Uncommon	<i>Mitoura grynea</i>	5	21	26
36	Uncommon	<i>Erynnis propertius</i>	14	7	21
36	Uncommon	<i>Lycaena heteronea</i>	11	10	21
38	Uncommon	<i>Euphydryas editha</i>	10	9	19
38	Uncommon	<i>Hesperia colorado</i>	14	5	19
38	Uncommon	<i>Phyciodes pulchellus</i>	16	3	19
41	Uncommon	<i>Carterocephalus palaemon</i>	13	5	18
42	Uncommon	<i>Epargyreus clarus</i>	7	10	17
42	Uncommon	<i>Satyrium sylvinum</i>	8	9	17
42	Uncommon	<i>Strymon melinus</i>	10	7	17
45	Uncommon	<i>Papilio zelicaon</i>	7	9	16
45	Uncommon	<i>Vanessa annabella</i>	0	16	16
47	Uncommon	<i>Everes amyntula</i>	8	7	15
48	Uncommon	<i>Hesperia juba</i>	12	0	12
49	Uncommon	<i>Erynnis icelus</i>	10	0	10
49	Uncommon	<i>Vanessa atalanta</i>	6	4	10
51	Uncommon	<i>Euphilotes enoptes</i>	5	2	7
51	Uncommon	<i>Incisalia mossii</i>	3	4	7
53	Uncommon	<i>Callophrys perplexa</i>	3	3	6
54	Uncommon	<i>Callophrys dumetorum</i>	5	0	5
55	Uncommon	<i>Amblyscirted vialis</i>	3	1	4
55	Uncommon	<i>Chlosyne palla</i>	3	1	4
55	Uncommon	<i>Coenonympha tullia</i>	3	1	4
55	Uncommon	<i>Nymphalis milberti</i>	4	0	4
59	Rare	<i>Pieris rapae</i>	2	1	3

Table 2 (Continued)

59	Rare	<i>Vanessa virginiensis</i>	3	0	3
61	Rare	<i>Colias alexandra</i>	1	1	2
61	Rare	<i>Lycaena helloides</i>	1	1	2
61	Rare	<i>Loranthomitoura johnsoni</i>	1	1	2
61	Rare	<i>Pontia occidentalis</i>	1	1	2
61	Rare	<i>Speyeria cybele</i>	1	1	2
66	Rare	<i>Chlosyne hoffmanni</i>	1	0	1
66	Rare	<i>Colias occidentalis</i>	1	0	1
66	Rare	<i>Danaus plexippus</i>	1	0	1
66	Rare	<i>Plebejus saepiolus</i>	0	1	1
66	Rare	<i>Polygonia oreas</i>	0	1	1
66	Rare	<i>Speyeria callippe</i>	1	0	1
66	Rare	<i>Speyeria coronis</i>	0	1	1
*	Rare	<i>Cercyonis oetus</i>	0	0	0
*	Rare	<i>Cercyonis pegala</i>	0	0	0
*	Rare	<i>Euphyes vestris</i>	0	0	0
*	Rare	<i>Papilio multicaudatus</i>	0	0	0
*	Rare	<i>Polygonia satyrus</i>	0	0	0
*	Rare	<i>Pyrgus communis</i>	0	0	0
*	Rare	<i>Speyeria atlantis</i>	0	0	0

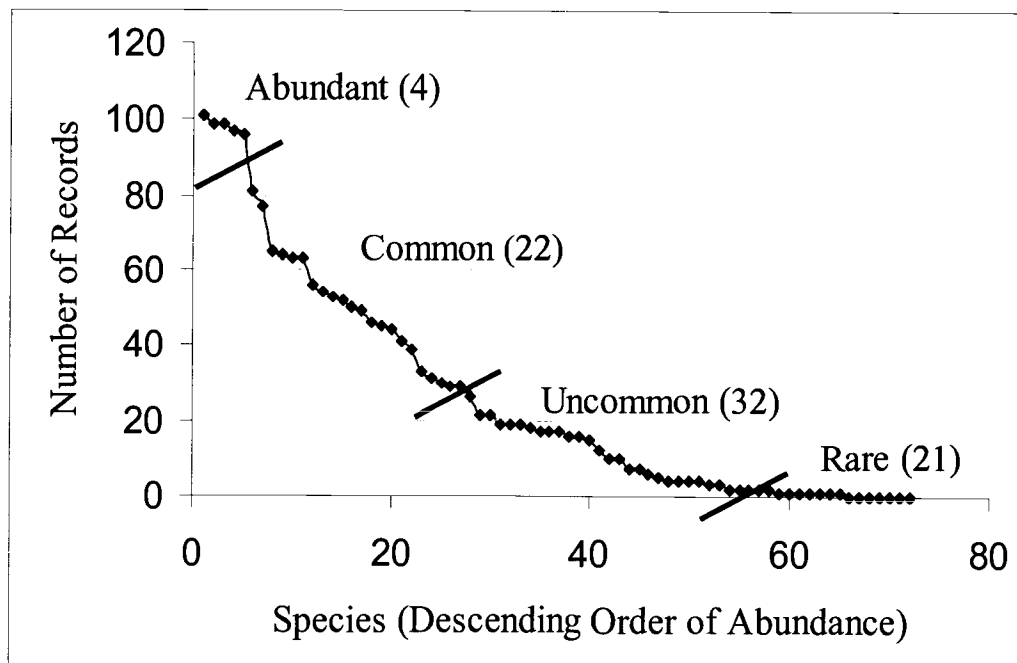


Figure 4. Distribution of butterfly relative abundance categories.

Table 3. HJA Butterflies by Biogeographical Region of Origin. Total number for each region is in parentheses.

<u>BIOGEOGRAPHICAL REGION</u>	<u>BUTTERFLY TAXON</u>
Western North America (31)	<i>Celastrina echo echo</i>
	<i>Cercyonis oetus oetus</i>
	<i>Colias eurytheme</i>
	<i>Danaus plexippus plexippus</i>
	<i>Everes amyntula amyntula</i>
	<i>Everes comyntas comyntas</i>
	<i>Hesperia juba</i>
	<i>Icaricia acmon acmon/lutzi</i>
	<i>Incisalia augustinus iroides</i>
	<i>Lycaena helloides</i>
	<i>Lycaena heteronea klotsi</i>
	<i>Nymphalis antiopa</i>
	<i>Nymphalis californica</i>
	<i>Nymphalis milberti subpallida</i>
	<i>Ochlodes sylvanoides sylvanoides</i>
	<i>Papilio eurymedon</i>
	<i>Papilio multicaudatus pusillus</i>
	<i>Papilio rutulus rutulus</i>
	<i>Papilio zelicaon zelicaon</i>
	<i>Phyciodes mylitta mylitta</i>
	<i>Pieris rapae</i>
	<i>Plebejus saepiolus rufescens</i>
	<i>Polygonia satyrus</i>
	<i>Pontia occidentalis occidentalis</i>
	<i>Pyrgus communis communis</i>
	<i>Satyrium saepium saepium</i>
	<i>Speyeria coronis simaetha/snyderi</i>
	<i>Vanessa annabella</i>
	<i>Vanessa atalanta rubria</i>
	<i>Vanessa cardui</i>
	<i>Vanessa virginiensis</i>
North Pacific (14)	<i>Anthocharis sara flora</i>
	<i>Callophrys dumetorum</i>
	<i>Cercyonis pegala incana</i>
	<i>Coenonympha californica eunomia</i>
	<i>Euphydryas chalcedona colon</i>
	<i>Euphydryas editha colonia</i>
	<i>Habrodais grunus herri</i>
	<i>Incisalia mossii mossii</i>
	<i>Parnassius clodius claudianus</i>
<i>Pieris marginalis marginalis</i>	



Table 3 (Continued)

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	<i>Polygonia oreas silenus</i>
	<i>Speyeria cybele pugetensis</i>
	<i>Speyeria hydaspe rhodope</i>
	<i>Strymon melinus atrofasciatus</i>
Greater Pacific Northwest (13)	<i>Ambliscirtes vialis</i>
	<i>Boloria epithore chermocki</i>
	<i>Chlosyne palla palla</i>
	<i>Erynnis persius</i>
	<i>Euphilotes ancilla columbiae</i>
	<i>Glaucopsyche lygdamus columbia</i>
	<i>Limenitis lorquini itelkae</i>
	<i>Loranthomitoura johnsoni</i>
	<i>Neophasia menapia tau</i>
	<i>Phyciodes pulchellus</i>
	<i>Polygonia faunus rusticus</i>
	<i>Pyrgus ruralis ruralis</i>
	<i>Satyrrium sylvinum nootka</i>
Boreal-Montane (10)	<i>Carterocephalus palaemon skada</i>
	<i>Chlosyne hoffmanni segregata</i>
	<i>Colias occidentalis occidentalis</i>
	<i>Erynnis icelus</i>
	<i>Lycaeides anna ricei</i>
	<i>Lycaena nivalis bichroma</i>
	<i>Lycaena mariposa mariposa</i>
	<i>Oeneis nevadensis nevadensis</i>
	<i>Polygonia zephyrus</i>
	<i>Speyeria atlantis dodgei</i>
Pacific Coast (9)	<i>Adelpha bredowii californica</i>
	<i>Callophrys perplexa perplexa</i>
	<i>Epargyreus clarus californicus</i>
	<i>Erynnis propertius</i>
	<i>Euphyes vestris vestris</i>
	<i>Hesperia colorado oregonia</i>
	<i>Speyeria callippe elaine</i>
	<i>Icaricia icarioides montis</i>
	<i>Mitoura grynea plicataria/nelsoni</i>
California (1)	<i>Cercyonis sthenele silvestris</i>
Great Basin (1)	<i>Colias alexandra edwardsii</i>

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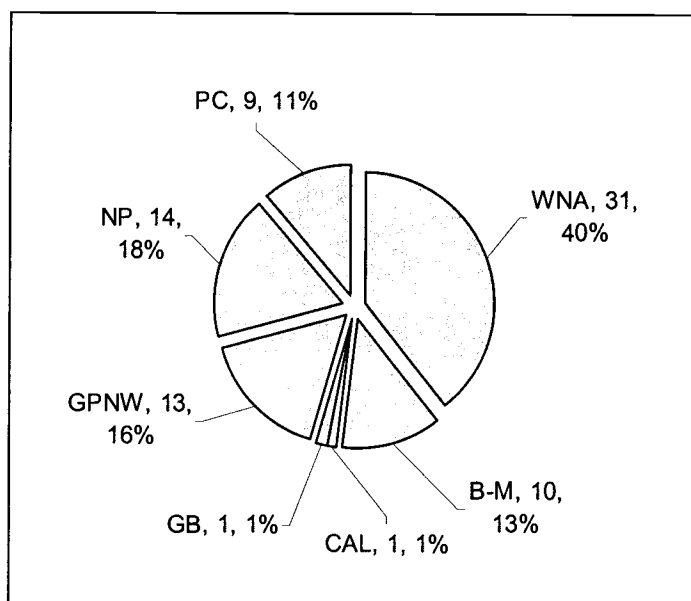


Figure 5. Biogeographical composition of the HJA butterfly fauna (region, number of species, percent of total fauna). WNA- Western North America, B-M- Boreale-Montane, CAL- California, GB- Great basin, GPNW- Greater Pacific Northwest, NP- North Pacific, PC- Pacific Coast.

**Adult Nutritional Resources.** Most HJA species obtain nectar from flowers. Some species, including *Celastrina echo*, *Polygonia faunus* and *Limenitis lorquini*, were regularly observed at mammal feces. Males of many butterflies, most notably *Erynnis* and *Papilio* species, *Celastrina echo* and *Adelpha bredowii* were recorded at moist soil, a source of fluids and sodium.

**Mate Location.** The primary purpose of a male butterfly is to find and mate with a female of its species. A large number of the butterflies recorded in this study were males patrolling roadsides, hilltops or the larval hostplant in search of females. A second commonly observed mate-location behavior was territorial in nature. Males would stake out small territories from specific perch sites- on the ground, a flower, or a bush or tree branch- and fly out to inspect other butterfly intruders before returning to the same perch. Conspecific males and individuals of others species were most often encountered and were chased away. Less frequently, males would encounter females and courtship would ensue (with receptive females) or the female would reject

the male by flying off, hiding in nearby vegetation or by simply refusing to let him mate with her.

**Female Behavior.** Female butterflies were encountered less often than males. This was expected and probably does not indicate a paucity of female butterflies on the HJA as they are simply less likely to be observed. Many females are more cryptically colored than males. As evidence, the dorsal wing surface of the females of all 9 species of HJA blues are mostly, if not completely, brown, in contrast to the bright blue males. Also, female behavior is mostly inconspicuous. Females tend to fly less than males and spend much of their time among the vegetation searching for suitable hostplants. *Speyeria atlantis* females were observed literally crawling among the understory vegetation in search of violets.

**Crepuscular Species.** One HJA butterfly, *Habrodais grunus*, reasonably qualifies as a crepuscular species. Whereas the rest of the HJA fauna is active throughout the day, *Habrodais* is most active during the late afternoon and early evening hours. This adaptation is more commonly observed in the tropics (DeVries 1986).

### **The Temporal Component**

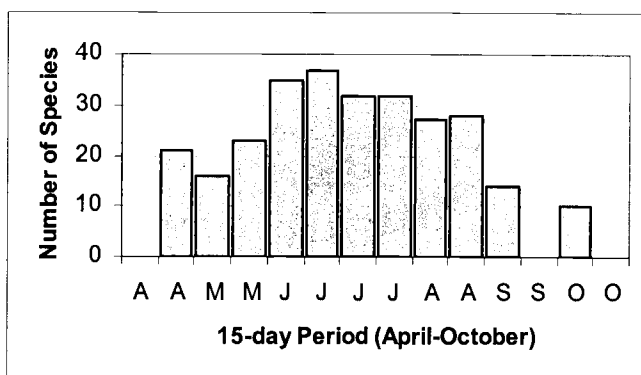
Butterflies were recorded from April through early October (Figure 6, Figure 7). The seasonal trend was for a gradual increase in species richness with a seasonal peak from June through early August. Fifteen-day record totals, as a proxy for relative abundance, increased gradually until a peak was reached in August. Both species richness and abundance decreased rapidly after the seasonal peak.

**Richness.** A total of 67 species were recorded from the HJA in 1994. Of these, 21 species were recorded during the first sample period in late April and 10 were recorded during the last sample period in early October. A maximum of 37 species were recorded in late June (Figure 6a).

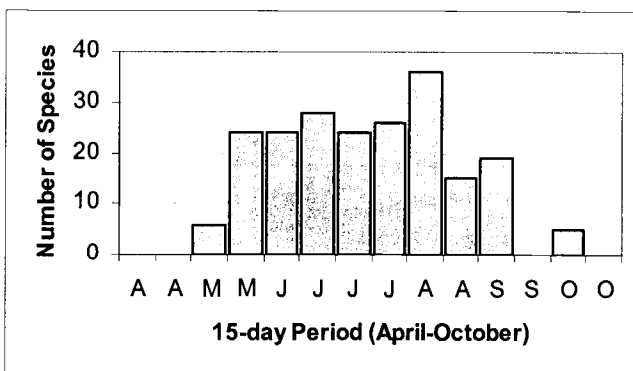
In 1995, 60 species were recorded. Only 6 species were documented during the first sample-period in early May, but richness increased rapidly to 24 species by

late May. A maximum of 36 species were recorded in early August. Richness decreased to 5 species by early October (Figure 6b).

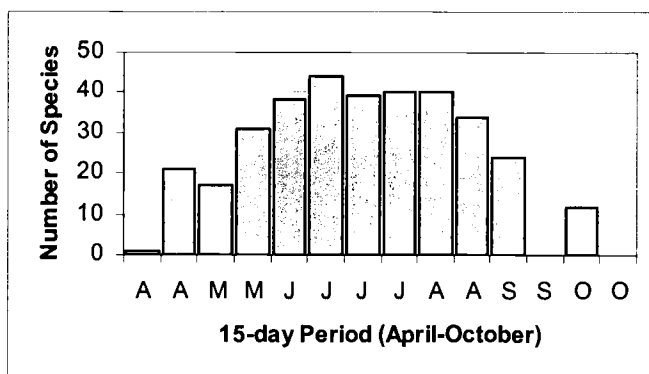
Combining the 1994 and 1995 data smoothed the seasonal graph of species richness. This two-year average showed peak richness in Late June (44 species), although richness remained high for over 10 weeks, with an average of 38 or more species recorded for every two-week period from early June through early August (Figure 6c).



a) 1994



b) 1995



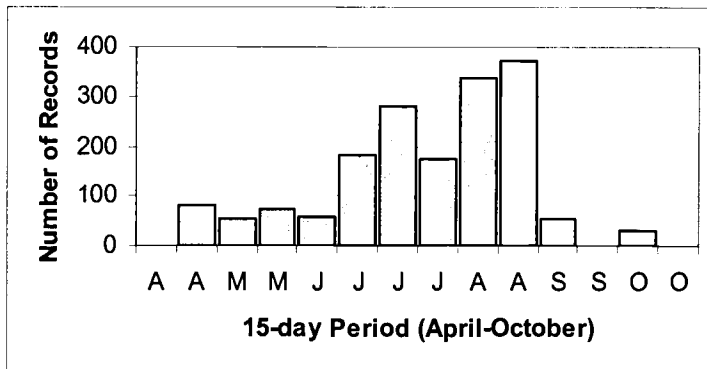
c) 1994 and 1995 combined.

Figure 6. HJA butterfly species richness by 15-day period: a) 1994, b) 1995, c) 1994 and 1995 combined.

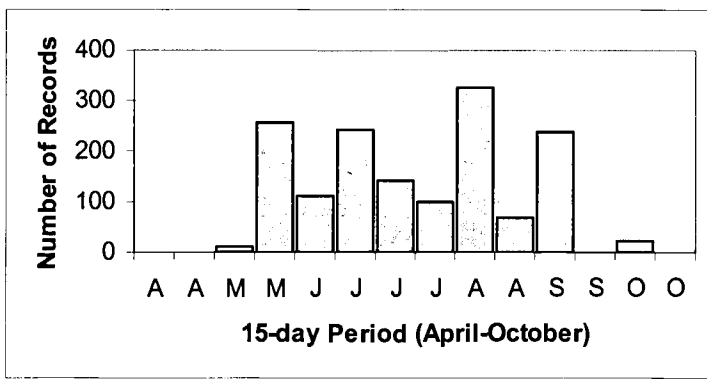
**Abundance.** There were a total of 1,708 butterfly records for the 1994 season. A total of 83 were recorded in late April, with 15-day period record totals rising steadily starting in late June and reaching a maximum of 373 in late August. Total records decreased sharply by early September (53) and totaled only 31 by the final sample period (Figure 7a).

The 1995 record total was 1,714. This was virtually identical to the 1994 total. Record totals between sample periods in 1995 varied much more than in 1994. While a maximum of 337 records occurred in early August, only 101 and 68 records were recorded for the late July and late August periods, respectively (Figure 7b).

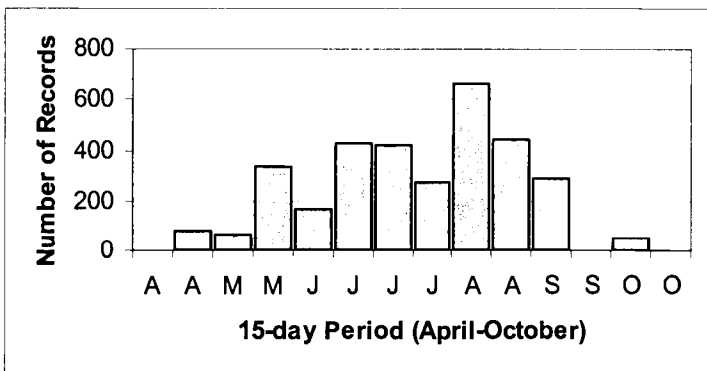
Combining abundance totals over both years showed a gradual increase from late April (83) to a high in early August (663). Post-peak numbers decreased more rapidly to 56 total records for the early October sample period (Figure 7c).



a) 1994.



b) 1995.



c) 1994 and 1995 combined.

Figure 7. HJA butterfly record totals by 15-day period: a) 1994, b) 1995, c) 1994 and 1995 combined.

**Species Contributions to Year-To-Year Differences.** A total of 17 species were only recorded within a single year: 12 in 1994 and 5 in 1995. These were all

species with a relative abundance that was uncommon (5 species) to rare (10 species). There were two exceptions: *Oeneis nevadensis* and *Vanessa cardui*. *Oeneis nevadensis* is a butterfly with a two-year life cycle and adults fly only in even-numbered years. It was only present during 1994, when it was common (45 records). This is typical of the species throughout its range. *Vanessa cardui* was only recorded during 1995 (64 times) during a regional population outbreak.

Two additional common species were significantly more numerous in 1994 than in 1995. *Nymphalis californica* was recorded 88 times in 1994 and only 9 times in 1995. Similarly, 1994 records for *Colias eurytheme* totaled 82, but only totaled 14 in 1995. Each of these species is known to experience periodic population outbreaks.

### **Patterns of Distribution**

Butterflies were not evenly distributed across the landscape of the HJA. Each species had a unique distribution (Appendix B), although several patterns were apparent. Butterfly richness totals for each section (1 square mile) of the HJA (Figure 8) suggested that the higher ridgetop environments were particularly rich in butterfly species. These sections consistently showed richness totals of 30 or more species, with a maximum of 44 species recorded for one section on Frissell Ridge.

Meadows are important habitats for HJA butterflies. Butterfly richness and abundance in meadows are far greater than in clear-cuts and forests. Roads clearly increase butterfly richness and abundance in clear-cut and forest habitats (Table 4).

Relative abundance and overall richness were roughly equivalent for elevations at or above above 3,500 feet (1,776 records, 61 species) versus those below 3,500 feet (1,642 records, 62 species) elevations. A number of local butterfly hotspots (quarter-sections) were apparent at both high and low elevation sites. These appear to correlate with areas of high plant richness and open, sunny habitats.

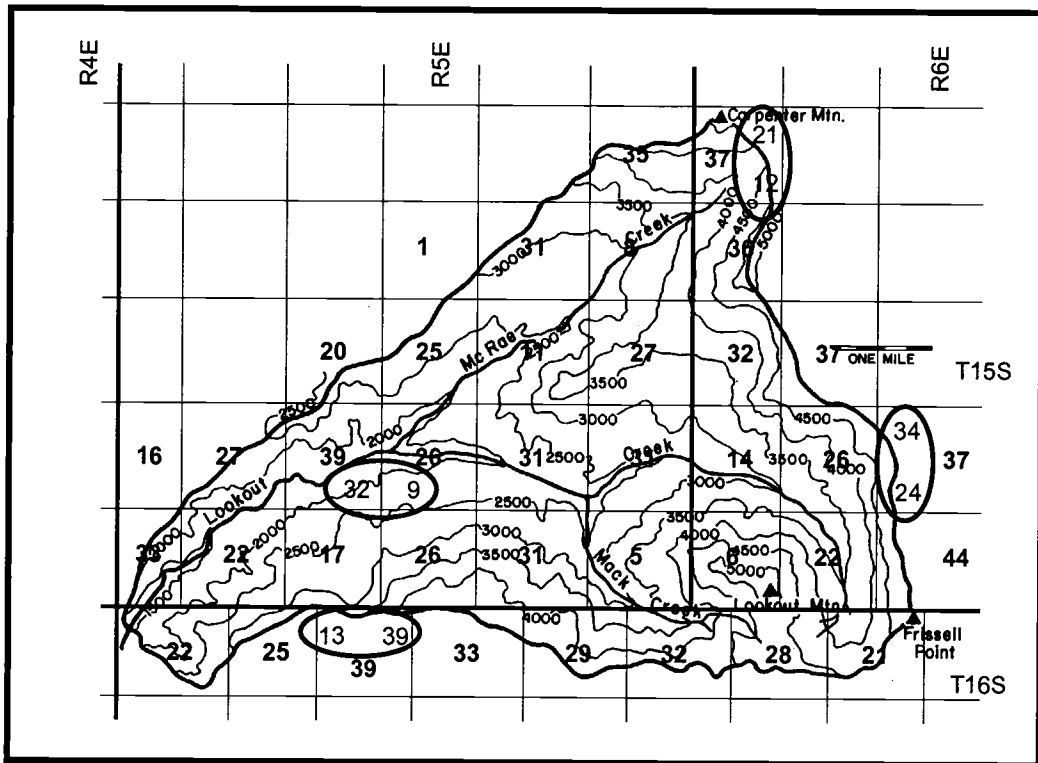


Figure 8. Butterfly species totals for the HJA, Linn-Lane County, Oregon, from 1994-1995 surveys. Sections (bold), hotspot HI-LO quarter-section pairs (ovals).

Table 4. Outcome of Chi-square tests for habitat comparisons of pooled richness and pooled abundance. Yes- indicates a difference, No- indicates no difference.

HABITAT	Forest	Forest Rd	Clearcut	Clearcut Rd	Meadow	Meadow Rd	R I C H N E S S
Forest		YES	YES	YES	YES	YES	
Forest Rd	YES		NO	NO	NO	NO	
Clearcut	YES	YES		NO	NO	YES	
Clear. Rd	YES	YES	YES		NO	NO	
Meadow	YES	YES	YES	YES		NO	
Mdw. Rd	YES	YES	YES	YES	YES		
ABUNDANCE							



### **Patterns of Relative Abundance and Distribution.**

Each HJA butterfly species displayed one of four generalized patterns of combined relative abundance and distribution within the HJA.

**Common and Widespread.** This pattern was exhibited by 26 HJA species, including the 10 most abundant ones. *Limenitis lorquini*, *Boloria epithore* and *Euphydryas chalcedona* show this pattern well.

**Rare and Local.** A total of 15 species fit this pattern. Most butterflies determined to be "rare" are in this category. Rare species not included here have an ecological basis for their placement elsewhere- they are known to be exclusively high or low elevation species. This pattern is shown by the vagrant species, *Danaus plexippus*, and by forest species like *Polygonia oreas* and *Mitoura johnsoni*.

**Common at High Elevations.** A total of 26 species are included. Some species are restricted entirely to the higher ridgetops of the HJA based on the distribution of the larval hostplant (*Euphilotes ancilla* and *Lycaena heteronea* on *Eriogonum*). Others are found throughout much of the HJA, but occur in greater numbers above about 3,500 feet (*Anthocharis sara* and *Everes amyntula*).

**Common at Low Elevations.** A total of 12 species display this pattern. These are primarily species which also occur in the Willamette Valley and the Oregon Coast Range. Examples include *Pieris napi* and *Adelpha bredowii*.

## **HABITAT COMPARISONS**

### **Forests, Clear-cuts and Meadows**

Forest, clear-cut and meadow habitats (Figure 9) were compared for butterfly species richness and abundance. Results were from standardized butterfly counts within each habitat (N=20). Chi-square tests were performed for pooled richness and for pooled abundance between all three habitat types (Table 2). A Chi-square value of

>3.84 indicates a p-value of <0.05 and allows one to reject the null hypothesis that the observed and expected values are not significantly different

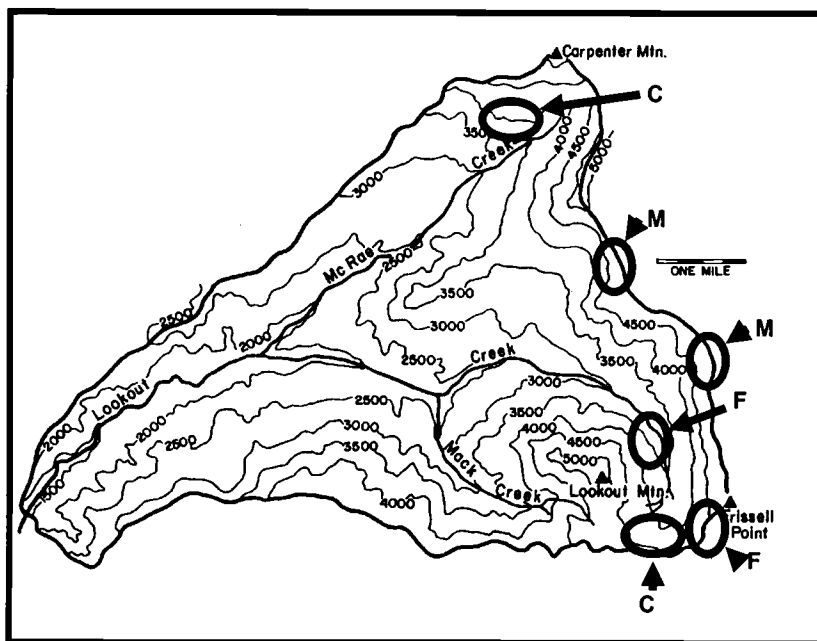


Figure 9. Location of sites used in habitat comparisons on the HJA, Linn-Lane County, Oregon, 1998. C- clear-cut, F- forest, M- meadow.

Meadows had more butterfly species than forests (19 versus 1,  $\chi^2 = 16.20$ ), but did not differ significantly from clear-cuts (19 versus 10,  $\chi^2 = 2.79$ ). Clearcuts had more butterfly species than forests (10 versus 1,  $\chi^2 = 7.36$ ). Butterflies were more abundant in meadows than in clear-cuts (823 versus 39,  $\chi^2 = 713.06$ ) or forests (823 versus 2,  $\chi^2 = 817.02$ ). Clear-cuts supported more butterflies than forests (39 versus 2,  $\chi^2 = 7.36$ ).

Field observations suggest that meadows do support more butterfly species than clear-cuts. The Chi-square statistical test may simply not be sensitive enough to detect this difference.

### The Influence of Roads

Based on the Chi-square statistical test, roads increased the number of species within forested habitats with very low species richness (14 versus 1,  $\chi^2 = 11.27$ ), but

not within clear-cut (19 versus 10,  $\chi^2 = 2.79$ ) or meadow (26 versus 19,  $\chi^2 = 1.09$ ) habitats. Roads did, however, increase butterfly abundance within each habitat type: within forests (107 versus 2,  $\chi^2 = 101.15$ ), within clear-cuts (182 versus 39,  $\chi^2 = 488$ ), and within meadows (917 versus 823,  $\chi^2 = 5.08$ ). These statistical evaluations agree with field observations in each cases.

Table 5. Results from the Chi-square statistical test for pooled richness of butterfly species between forest, clear-cut and meadow habitats on the HJA, Linn-Lane Counties, Oregon, 1998.

HABITAT COMPARISON	EXPECTED VALUE	OBSERVED VALUES	CHI-SQUARE STATISTIC
FOREST, CLEARCUT	5.5	1, 10	7.36
FOREST, MEADOW	10	1, 19	16.20
CLEARCUT, MEADOW	14.5	10, 19	2.79
FOREST, FOREST RD	7.5	1, 14	11.27
CLEARCUT, CLEARCUT RD	14.5	10, 19	2.79
MEADOW, MEADOW RD	22.5	19, 26	1.09

Table 6. Outcome from the Chi-square statistical test for pooled abundance of butterflies between forest, clear-cut and meadow habitats on the HJA, Linn-Lane Counties, Oregon, 1998.

HABITAT COMPARISON	EXPECTED VALUE	OBSERVED VALUES	CHI-SQUARE STATISTIC
FOREST, CLEARCUT	20.5	2, 39	33.39
FOREST, MEADOW	412.5	2, 823	817.02
CLEARCUT, MEADOW	431	39, 823	713.06
FOREST, FOREST RD	54.5	2, 107	101.15
CLEARCUT, CLEARCUT RD	60.5	39, 182	488.0
MEADOW, MEADOW RD	870	823, 917	5.08

## BUTTERFLY HOTSPOTS

Field observations and analysis of quarter-section richness totals from the 2-year forest-wide surveys suggested localized areas of butterfly species richness and abundance. Four geographically distinct, species-rich quarter-sections [HI] and

adjacent quarter-sections that were relatively species-poor [LO] were selected (Figure 8) and compared. Standardized butterfly counts were conducted within these pairs-within-pair replicates varied from 7 to 17. Pooled richness and average abundance were tested within each HI-LO pair using the Chi-square test.

Neither pooled richness nor average abundance was found to be significantly different within any of the four HI-LO pairs. The Chi-square statistic was from 0.1 to 1.0 for pooled richness (Table 5) and from 0.84 to 1.54 for average abundance (Table 6).

Plant surveys conducted for each HI-LO pair by Scott Sundberg (unpublished data) showed that the HI quarter-sections had greater plant richness than LO quarter-sections in each case. This can be construed intuitively as an additional form of ecological evidence supporting the HJA local hotspot hypothesis.

Table 7. Results from the Chi-square statistical test for pooled richness between HI and LO quarter-sections in hotspot evaluations.

LOCATION OF HI-LO PAIR	HI OR LO UNIT	EXPECTED VALUE	OBSERVED VALUES	CHI-SQUARE STATISTIC
Lookout Ridge	HI		12	
	LO	9	6	2
Concrete Bridge	HI		14	
	LO	10.5	7	2.33
Carpenter Mountain	HI		17	
	LO	14.5	12	0.86
Frissell Ridge	HI		22	
	LO	21.5	21	0.02

Table 8. Results from the Chi-square statistical test for pooled abundance between HI and LO quarter-sections in hotspot evaluations.

LOCATION OF HI-LO PAIR	HI OR LO UNIT	EXPECTED VALUE	OBSERVED VALUES	CHI-SQUARE STATISTIC
Lookout Ridge	HI	8.355	77	1.67
	LO		40	
Concrete Bridge	HI	3.505	35	0.44
	LO		21	
Carpenter Mountain	HI	10.815	232	2.51
	LO		114	
Frissell Ridge	HI	13.5	307	3.12
	LO		152	

### COMPARISONS TO OTHER OREGON LOCATIONS

The butterfly fauna of the HJA is taxonomically rich (79 species) and includes virtually all Mary's Peak (94%) and McDonald Forest (96%) butterflies at the subspecies level. The number of butterfly taxa shared with the HJA diminishes as one goes south to Crater Lake (70%) and Mount Ashland (59%), and east to Steens Mountain (39%) (Table X).

TableX. Taxonomic comparison of the HJA butterfly fauna to five other Oregon localities.

Locality	Total # taxa	# taxa shared	% taxa shared
HJA	79	79	100%
McDonald Forest	47	45	96%
Mary's Peak	48	45	94%
Crater Lake	80	56	70%
Mount Ashland	71	42	59%
Steens Mountain	67	26	39%

## CONCLUSIONS

The HJA is an ideal location to study butterflies. The butterfly fauna is rich and abundant and is easily observed in a variety of habitats. The location of the HJA and the diversity of environments and plant communities within this single small watershed make it an ideal natural laboratory for studies that are applicable to a much larger area. The findings of this study are the baseline for future butterfly work on the HJA and add to our understanding of Pacific Northwest butterflies as a whole.

As the sole LTER site representing Pacific Northwest forests, documentation of HJA biodiversity is essential to understanding ecosystem processes within this region. Biological surveys were an important early focus of the LTER system, but are still far from complete where arthropods are concerned. This study not only documented the extraordinary richness of the HJA butterfly fauna, but provided details of its ecology, both at the species and community levels. It should prove valuable to future researchers studying biodiversity, ecology, or the larger aspects of ecosystem functions on the HJA.

This study provided both local and regional insight into the ecology of our Pacific Northwest butterfly species. On a watershed scale, this study showed how the butterfly community is distributed both temporally and spatially and that there are unique combinations of resource exploitation by each species. Temporally, only the months of April through October appear to provide optimum environmental conditions for adult activity. Likewise, there are specific locations and habitats where each species, or many species together, may exist- meadow habitats, though scarce, provide the best butterfly habitat overall. Certain specialist species, like *Euphilotes ancilla* and *Callophrys dumetorum*, require specific larval hostplants that are only found in small areas and within specific habitat types.

On a larger scale, this study provided valuable distributional data for species at the edge of their range. Hinchliff (1994) incorporated the 1994 HJA butterfly data into his Atlas of Oregon Butterflies and Pyle (2002) incorporated, likewise included the HJA records as part of his Butterflies of Cascadia. Their larger distributional

perspectives suggest that the HJA occupies both an elevational and a regional ecotone. High Cascade species, such as *Chlosyne hoffmanni*, are restricted to the higher elevations of the HJA and do not occur west of there. Other Coast Range and Willamette Valley taxa, like *Coenonympha tullia eunomia*, do not occur east of the lower elevations of the HJA. *Speyeria coronis*, *Colias Alexandra*, and *Colias occidentalis* are all common east of the Cascade Mountain crest, but only occur on the higher ridgetops of the HJA, and are uncommon there. *Cercyonis sthenele silvestris* is a common low elevation species on the HJA, but does not occur north of there. It is only in this statewide or regional context that the convergent nature of the HJA fauna becomes apparent.

Forest butterfly biodiversity is best preserved by the maintenance of naturally occurring habitats. Subalpine meadows are relatively rare on the HJA, but they are rich in butterfly species and high in butterfly abundance. Subalpine rock gardens also appear to host many butterfly species. On the whole, forested and clear-cut habitats are butterfly poor, yet some rare species like *Loranthomitoura johnsoni* may be restricted to old growth conifer environments. This suggests that subalpine and old growth conifer forest habitats must be conserved by forest land managers if high butterfly biodiversity is desired.

This study provided evidence that roads may increase butterfly richness and abundance on a local scale. Roads allow sunlight to enter a shady habitat and provide habitat for early successional (weedy) plant species, many of which are butterfly nectar sources. Roads act as corridors for butterfly dispersal. When the butterfly is an endemic species, this should not be of concern- more butterfly habitat is being provided. When roads allow exotic species like the cabbage butterfly, *Pieris rapae*, to exploit new environments, a different value judgement may apply. The impact of roads on native forest habitats is complex and will not be resolved here.

Comparison of the HJA butterfly fauna with those of other Oregon locations shows few unshared taxa by Coast Range sites like Mary's Peak and McDonald Forest, but a general decrease in shared taxa as one moves up in elevation (Crater Lake), southward (Mount Ashland) or eastward (Steens Mountain). While the HJA

shares many widespread taxa with each of these sites, the proportion of regionally endemic taxa, especially at the subspecies level, differs.

There have been numerous changes to the taxonomy of western North American butterflies in recent years. In most cases, regionally distinct forms have been raised to the subspecies level. In others, original species level descriptions have been rectified. Many other populations remain to be studied to the point where proper subspecies designations, if any, can be applied. Specimens from the HJA are part of this ongoing work in understanding the evolutionary relationships of butterflies. Warren (unpublished) has taken series of *Callophrys dumetorum* and *Euphilotes ancilla* from Frissel Ridge for his analysis of those genera in Oregon. Voucher specimens placed in the AFAC will provide specimens for taxonomic studies well into the future.

No federal or state listed butterflies have been found on the HJA. *Euphydryas editha colonia* is a near relative of the federal candidate Taylor's checkerspot (*E. e. taylori*), but is secure throughout most of its extensive Cascadian distribution. *Icaricia icarioides montis* is the widespread Cascadian counterpart to the federally endangered prairie endemic, Fender's blue (*I. i. fenderi*). There is always the possibility that undescribed taxa are included within the HJA fauna and that they may require conservation in the future.

Future butterfly research on the HJA is recommended. This study has identified the HJA butterflies and their ecology to a limited degree. They can now be further utilized as research organisms for a variety of studies. The documentation of larval hostplants on the HJA is a natural continuation of this study. While potential larval hostplants have been suggested, they have not been verified. Since many butterflies tend to use a single hostplant species in any single location, the list of actual larval hostplants used on the HJA may be much shorter. Which plant species support the most butterfly, Lepidoptera or total insect species?

Studies on butterfly predation and parasitism would also have merit. What predator and parasitoid species are impacting the HJA butterfly fauna and to what



extent? How do abiotic factors like rainfall and temperature affect parasitism? Are any introduced biological control agents impacting HJA butterflies?

Butterfly sympatry and resource allocation issues could be explored further. The fact that many genera are represented by multiple species on the HJA makes these questions especially intriguing.

Perhaps most interesting and timely would be a long term study involving HJA butterflies and the potential documentation of shifts in species assemblages and distributions due to global warming. This should include standardized butterfly counts over multiple years for a limited number of monument sites. The higher ridgetops are among the best choices for such a study as they tend to include many butterfly species, and several at the edge of their geographical range. Appropriate local and regional climatic data should be included as well.

## LITERATURE CITED

- Anderson, N.H., G.M. Cooper, and D.G. Denning. 1982. Invertebrates of the H.J. Andrews Experimental Forest, western Cascades, Oregon, 2: An annotated checklist of the caddisflies (Trichoptera). Res. Note PNW-402. Portland, Oregon: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 16 pages.
- Arms, K., P. Feeney, and R.C. Lederhouse. 1974. Sodium:stimulus for puddling behavior by tiger swallowtail butterflies. *Science* 185: 372-374.
- Austin, G.T. 1998. Notes on *Plebejus saepiolus* (Boisduval) (Lepidoptera: Lycaenidae: Polyommatainae) in Nevada, with description of a new subspecies. *In Systematics of western North American butterflies*. Edited by T.C. Emmel. Mariposa Press: Gainesville, Florida. Pages 819-824.
- Borland International Inc. 1996. Paradox for Windows v. 7 Borland International Inc. Scotts Valley, CA, USA.
- Bowden, R.I. 2003. The influence of light intensity on the photochemistry of *Chrysolepis chrysophylla* (Fagaceae) and its relationship to the herbivory of *Habrodais grunus herri* (Lycaenidae). M.S. Thesis. Oregon State University, Corvallis. 61 pages.
- Brenner, G.J. 2000. Riparian and adjacent upslope beetle communities along a third order stream in the Western Cascade Mountain Range, Oregon. Ph.D. Thesis. Oregon State University, Corvallis. 327 pages.
- Britten, H.B., P.F. Brussard, and D.D. Murphy. 1994. The impending extinction of the Uncompahgre fritillary butterfly. *Conservation Biology* 8: 86-94.
- Collins, N.M and M.G. Morris. 1985. Threatened swallowtail butterflies of the world. *The IUCN Red Data Book*. Gland and Cambridge: IUCN.
- Dennis, R.L.H. 1993. Butterflies and climate change. University Press: Manchester, UK.
- DeVries, P.J. 1987. The butterflies of Costa Rica and their natural history. Princeton University Press: Princeton, New Jersey. 327 Pages.
- Dornfeld, E.J. 1980. The Butterflies of Oregon. Timber Press: Forest Grove, Oregon. 276 pages.

- Dyrness, C.T., J.F. Franklin, and W.H. Moir. 1974. A preliminary classification of forest communities in the central portion of the western Cascades in Oregon. United States/International Biological Program, Coniferous Forest Biome Project Bulletin Number 4. College of Forestry Resources, University of Washington, Seattle. 123 pages.
- Emmel, T.C. (Ed.). 1998. Systematics of western North American butterflies. Mariposa Press: Gainesville, Florida. 878 pages.
- Emmel, J.F., T.C. Emmel and S.O. Mattoon. 1998a. The types of California butterflies named by Jean Alphonse Boisduval: designation of lectotypes and a neotype, and a fixation of type localities. *In* Systematics of western North American butterflies. Edited by T.C. Emmel. Mariposa Press: Gainesville, Florida. Pages 619-623.
- Emmel, J.F., T.C. Emmel and S.O. Mattoon. 1998b. New Theclinae subspecies of Lycaenidae from California, separation of *Incisalia mossii* and *Incisalia fotis*, and seven species groups of the subgenus *Callophrys* (Lepidoptera: Lycaenidae). *In* Systematics of western North American butterflies. Edited by T.C. Emmel. Mariposa Press: Gainesville, Florida. Pages 3-78.
- Erhardt, A. 1985. Diurnal Lepidoptera: sensitive indicators of cultivated and abandoned grassland. *Journal of Applied Ecology* 22: 849-861.
- Franklin, J.F. and C.T. Dyrness. 1988. Natural vegetation of Oregon and Washington. Oregon State University Press. 452 pages.
- Guppy, C.S. and J.H. Shepard. 2001. Butterflies of British Columbia. University of British Columbia Press: Vancouver, Canada. 414 pages.
- Hammond, P.C. and J.C. Miller. 1998. Comparison of the biodiversity of Lepidoptera within three forested ecosystems. *Annals of the Entomological Society of America* 91: 323-328.
- Heppner, J.B. 1991. Faunal regions and the diversity of Lepidoptera. *Tropical Lepidoptera* 2 (Supplement 1): 1-85.
- Heyborne, W. 2001. Thesis.**
- Hinchliff, J. 1994. An Atlas of Oregon Butterflies. Corvallis, Oregon: Oregon State University Bookstore, Inc. 176 pages.
- Hinchliff, J. 1996. An Atlas of Washington Butterflies. Corvallis, Oregon: Oregon State University Bookstore, Inc. 162 pages.

- Howe, W.H. 1975. The butterflies of North America. Doubleday & Company, Inc.: Garden City, New York. 633 pages.
- Krantz et al. 1973. "MITES"**
- Kremen, C. 1994. Biological inventory using target taxa: a case study of the butterflies of Madagascar. *Ecological Applications* 4: 407-422.
- Lightfoot, D.C. 1986. Invertebrates of the H.J. Andrews Experimental Forest, Western Cascades, Oregon, III: the Orthoptera (Grasshoppers and Crickets). Res. Note PNW-443. Portland, Oregon: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 23 pages.
- Mattoon, S.O. and J.W. Tilden. 1998. Re-evaluation of North American *Carterocephalus palaemon* (Pallas) (Lepidoptera: HesperIIDae) and description of a new subspecies *In Systematics of western North American butterflies*. Edited by T.C. Emmel. Mariposa Press: Gainesville, Florida. Pages 641-660.
- McCune, B. 1998. Community Structure and Analysis. Biology 570/670 course packet. Oregon State University, Corvallis. 296 pages.
- McIver, J.D., G.L. Parsons and A.R. Moldenke. 1992. Litter spider succession after clear-cutting in a western coniferous forest. *Canadian Journal of Forest Research* 22: 984-992.
- McKee, A. 1998. Focus on field stations: H.J. Andrews Experimental Forest. *Bulletin of the Ecological Society of America* 79: 241-246.
- Miller, J.Y. 1992. The common names of North American butterflies. Washington, D.C.: Smithsonian Institution Press. 177 pages.
- Moldenke, A.R. and B.L. Fichter. 1988. Invertebrates of the H.J. Andrews Experimental Forest, Western Cascade Mountains, Oregon:IV. The Oribatid mites (Acari: Cryptostigmata). U.S.D.A., Forest Service, Pacific Northwest Research Station General Technical Report PNW-GTR-217.
- Murpy, D.D. and S.B. Weiss. 1992. Effects of climate change on biological diversity in western North America: species losses and mechanisms. *In Global warming and biodiversity*. New Haven, Connecticut: Yale University Press. Pages 355-358.
- Neill, W. 2001. The guide to butterflies of Oregon and Washington. Englewood, CO: Westcliffe Publishers. 160 pages.

- Neill, W. A. and D. J. Hepburn. 1976. Butterflies afield in the Pacific Northwest. Pacific Search Books. **XX Pages.**
- Nelson, S.M. and D.C. Anderson. 1994. An assessment of riparian and environmental quality by using butterflies and disturbance susceptibility scores. *The Southwestern Naturalist* 39: 137-142.
- North American Butterfly Association. 1995. Checklist and English names of North American butterflies. North American Butterfly Association: Morristown, N.J.. 25 pages.
- Parmsesan, C., N. Ryrholm, C. Steganescu, J.K. Hill, C.D. Thomas, H. Descimon, B. Huntley, L. Kaila, J. Kullberg, T. Tammaru, W.J. Tennent, J.A. Thomas, and M. Warren. 1999. Poleward shifts in geographical ranges of butterfly species associated with regional warming. *Nature* 399: 365-369.
- Parsons G.L., Gerasimos Cassis, A. R. Moldenke, J. D. Lattin, N. H. Anderson, J. C. Miller, P. Hammond, and T. D. Schowalter. 1991. Invertebrates of the H. J. Andrews Experimental Forest, western Cascade Mountains, Oregon. V. An annotated list of the insects and other arthropods. U.S. Forest Service Pacific Northwest Research Station General Technical Report PNW-GTR-290.
- Pollard, E. 1977. A method for assessing changes in the abundance of butterflies. *Biological Conservation* 12: 115-134.
- Pollard, E., D.O. Elias, M.J. Skelton, and J.A. Thomas. 1975. A method of assessing the abundance of butterflies in Monks Wood National Nature Reserve in 1973. *Entomologist's Gazeteer* 26: 79-88.
- Pollard E. and T.J. Yates. 1993. Monitoring butterflies for ecology and conservation. The British butterfly monitoring scheme. Institute of Terrestrial Ecology and Joint Nature Conservation Committee. Chapman and Hall: London. 274 pages.
- Pratt, G.F. and J.F. Emmel. 1998. Revision of the *Euphilotes enoptes* and *E. battoides* complexes (Lepidoptera: Lycaenidae). *In Systematics of western North American butterflies*. Edited by T.C. Emmel. Mariposa Press: Gainesville, Florida. Pages 207-270.
- Pullin, A.S. 1995. Biology and conservation of butterflies. Chapman and Hall. 363 pages.
- Pyle, R.M. 1974. Watching Washington butterflies. Seattle Audubon Society: Seattle, Washington. 109 pages.

- Pyle, R. M. 2000. *Chasing Monarchs: migrating with the butterflies of passage*. Houghton Mifflin.
- Pyle, R.M. 2002. *The butterflies of Cascadia*. Seattle Audubon Society: Seattle, Washington. 420 pages.
- Royer, R.A., J.E. Austin and W.E. Newton. 1998. Checklist and "Pollard Walk" survey methods on public lands. *American Midland Naturalist* 140: 358-371.
- Schowalter, T.D. 1989. Canopy arthropod community structure and herbivory in old-growth and regenerating forests of western Oregon. *Canadian Journal of Forest Research* 19: 318-322.
- Schowalter, T.D. 1995. Canopy arthropod communities in relation to forest age and alternative harvest practices in western Oregon. *Forest Ecology and Management* 78: 115-125.
- Schultz, C. B., P.C. Hammond, and M.V. Wilson. 2003. Biology of Fender's Blue Butterfly (*Icaricia icarioides fenderi* Macy), an endangered species in western Oregon native prairies. *Natural Areas Journal* 23: 61-71
- Scott, J.A. 1968. Hilltopping as a mating mechanism to aid the survival of low density species. *Journal of Research on the Lepidoptera* 7: 191-204.
- Scott, J.A. 1986. *The butterflies of North America: a natural history and field guide*. Stanford University Press: Stanford, California. 583 pages.
- Sokal, R.R. and F.J. Rohlf. 1981. *Biometry*. W.H. Freeman and Company: San Francisco. 859 pages.
- Stanford, R.E. and P.A. Opler. 1993. *Atlas of western USA butterflies including adjacent parts of Canada and Mexico*. Denver and Fort Collins, Colorado. 275 pages.
- Swengel, A. 1990. Monitoring butterfly populations using the Fourth of July butterfly count. *American Midland Naturalist* 124: 395-406.
- Tilden, J.W. and D.H. Huntzinger. 1977. The butterflies of Crater Lake National Park, Oregon. *Journal of Research on the Lepidoptera*, 16: 176-192.
- Tilden, J.W. and A.C. Smith. 1986. *A field guide to western butterflies*. Houghton Mifflin Company: Boston . 370 pages.

- Titus, J.G., and V. Narayanan. 1995. The probability in sea-level rise. Climatic Change. U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation, Climate Change Division, Adaptation Branch, Washington, D.C. 186 pages.
- Tyrner, J.R.G. 1977. Butterfly mimicry: the genetical evolution of an adaptation. *In* Hecht, M.K., W.C. Steere and B. Wallace (Eds.). *Evolutionary Biology* 10: 163-206.
- Work, T.T. 2000. Edge effects of clearcut harvesting on ground arthropod species composition and predator community structure in old-growth Douglas-fir forests. Ph.D. Thesis. Oregon State University, Corvallis. 98 pages.

APPENDICES



Appendix A. Checklist of the butterflies of the H. J. Andrews Experimental Forest.  
Not observed (\*), new for the HJA (#).

Superfamily **Hesperioidea** Latreille, 1809

Family **Hesperiidae** Latreille, 1809

Subfamily **Pyrginae** Burmeister, 1878

1. *Epargyreus clarus californicus* MacNeill, 1975  
Silver-spotted skipper
2. *Erynnis icelus* (Scudder & Burgess), 1870  
Dreamy Duskywing
3. *Erynnis propertius* (Scudder & Burgess), 1870  
Propertius Duskywing
4. *Erynnis persius* (Scudder), 1983  
Persius Duskywing
5. *Pyrgus ruralis ruralis* (Boisduval), 1852  
Two-banded Checkered Skipper
6. *Pyrgus communis communis* (Grote), 1872 \*  
Common Checkered Skipper

Subfamily **Hesperiinae** Latreille, 1809

7. *Carterocephalus palaemon skada* (Edwards), 1870  
Arctic Skipper
8. *Hesperia juba* (Scudder), 1874  
Juba Skipper
9. *Hesperia colorado oregonia* (Edwards), 1883  
Western Branded Skipper
10. *Ochlodes sylvanoides sylvanoides* (Boisduval), 1852  
Woodland Skipper
11. *Euphyes vestris vestris* (Boisduval), 1852 \*  
Dun Skipper
12. *Ambliscirtes vialis* (Edwards), 1862  
Roadside Skipper

Superfamily **Papilionoidea** Latreille, [1802]

Family **Papilionidae** Latreille, [1802]

Subfamily **Parnassiinae** Duponchel, [1835]

13. *Parnassius clodius clodianus* Stichel, 1907  
Clodius Parnassian

Subfamily **Papilioninae** Latreille, [1802]

14. *Papilio zelicaon zelicaon* Lucas, 1852  
Anise Swallowtail
15. *Papilio rutulus rutulus* Lucas, 1852

## Western Tiger Swallowtail

16. *Papilio multicaudatus pusillus* Austin & J.Emmel, 1998 \*  
Two-tailed Swallowtail
17. *Papilio eurymedon* Lucas, 1852  
Pale Tiger Swallowtail

Family **Pieridae** Duponchel, [1835]Subfamily **Pierinae** Duponchel, [1835]

18. *Neophasia maenapia tau* (Scudder), 1861  
Pine White
19. *Pontia occidentalis occidentalis* (Reakirt), 1866  
Western White
20. *Pieris marginalis marginalis* Scudder, 1861  
Margined White
21. *Pieris rapae rapae* Linnaeus, 1758 #  
Cabbage White

Subfamily **Anthocharinae** Tutt, 1896

22. *Anthocharis sara flora* Wright, 1892  
Sara's Orangetip

Subfamily **Coliadinae** Swainson, 1827

23. *Colias eurytheme* Boisduval, 1852  
Orange Sulphur
24. *Colias alexandra edwardsii* Edwards, 1870  
Queen Alexandra's Sulphur
25. *Colias occidentalis occidentalis* Scudder, 1862 #  
Western Sulphur

Subfamily **Lycaeninae** Leach, 1815

26. *Lycaena heteronea klotsi*, Field, 1936  
Blue Copper
27. *Lycaena helloides* (Boisduval), 1852 #  
Purplish Copper
28. *Lycaena nivalis bichroma* Emmel & Pratt, 1998  
Nivalis Copper
29. *Lycaena mariposa mariposa* (Reakirt), 1866  
Mariposa Copper

Subfamily **Theclinae** Swainson, 1831

30. *Habrodais grunus herri* Field, 1838  
Chinquapin Hairstreak
31. *Satyrium sylvinum nootka* Fisher, 1998  
Sylvan Hairstreak
32. *Satyrium saepium saepium* (Boisduval), 1852

## Hedgerow Hairstreak

33. *Callophrys dumetorum* (Boisduval), 1852 #  
Green Hairstreak
34. *Callophrys perplexa perplexa* (Barnes & Benjamin), 1923  
Bramble Hairstreak
35. *Loranthomitoura johnsoni* (Skinner), 1904 #  
Johnson's Hairstreak
36. *Mitoura grynea plicataria* K. Johnson, 1976/*nelsoni* (Boisduval), 1869  
Cedar Hairstreak
37. *Incisalia augustinus iroides* (Boisduval), 1852 #  
Western Brown Elfin
38. *Incisalia mossii mossii* (Hy. Edwards), 1881 #  
Moss's Elfin
39. *Strymon melinus atrofasciatus* McDunnough, 1921  
Gray Hairstreak

Subfamily **Polyommatae** Swainson, 1827

40. *Everes comyntas comyntas* (Godart), 1824  
Eastern Tailed Blue
41. *Everes amyntula amyntula* (Boisduval), 1852  
Western Tailed Blue
42. *Celastrina echo echo* (Edwards), 1864  
Echo Blue
43. *Euphilotes ancilla columbiae* (Mattoni), 1955  
Dotted Blue
44. *Glaucopsyche lygdamus columbia* (Skinner), 1917  
Silvery Blue
45. *Lycaeides anna ricei* (Cross), 1937  
Anna's Blue
46. *Plebejus saepiolus rufescens* (Boisduval), 1869 #  
Greenish Blue
47. *Icaricia icarioides montis* (Blackmore), 1923  
Lupine Blue
48. *Icaricia acmon acmon* (Westwood & Hewitson), 1852/  
*lutzi* (Dos Passos), 1938  
Acmon Blue

Family **Nymphalidae** Swainson, 1827Subfamily **Nymphalinae** Swainson 1827

49. *Polygonia satyrus* (Edwards), 1869\*  
Satyr Anglewing
50. *Polygonia faunus rusticus* (Edwards), 1874  
Faun Anglewing
51. *Polygonia zephyrus* (Edwards), 1870

- Zephyr Anglewing
52. *Polygonia oreas silenus* (Edwards), 1870  
Dark Anglewing
  53. *Nymphalis californica* (Boisduval), 1852  
California Tortoiseshell
  54. *Nymphalis antiopa* Linnaeus, 1758  
Mourning Cloak
  55. *Nymphalis milberti subpallida* (Cockerell), 1889 #  
Milbert's Tortoiseshell
  56. *Vanessa virginiensis* (Drury), 1773  
American Painted Lady
  57. *Vanessa cardui* (Linnaeus), 1758  
Painted Lady
  58. *Vanessa annabella* (Field), 1971  
Western Painted Lady
  59. *Vanessa atalanta rubria* (Fruhstorfer), 1909 #  
Red Admiral

Subfamily **Argynninae** Duponchel, [1835]

60. *Speyeria cybele pugetensis* (F.Chermock & Frechin), 1947  
Great Spangled Fritillary
61. *Speyeria coronis* (Behr), 1864 #  
Coronis Fritillary
62. *Speyeria callippe elaine* Dos Passos & Grey, 1945  
Callippe Fritillary
63. *Speyeria atlantis dodgei* (Gunder), 1931\*  
Atlantis Fritillary
64. *Speyeria hydasphe rhodope* (Edwards), 1874  
Hydaspe Fritillary
65. *Boloria epithore chermocki* (Edwards), 1864  
Western Meadow Fritillary

Subfamily **Melitaeinae** Grote, 1897

66. *Phyciodes pulchellus* (Boisduval), 1852  
Field Crescent
67. *Phyciodes mylitta mylitta* Edwards, 1861  
Mylitta Crescent
68. *Chlosyne hoffmanni segregata* (Barnes & McDunnough), 1918  
Hoffmann's Checkerspot
69. *Chlosyne palla palla* (Boisduval), 1852  
Northern Checkerspot
70. *Euphydryas chalcedona colon* (Edwards), 1881  
Chalcedon Checkerspot
71. *Euphydryas editha colonia* (Wright), 1905  
Edith's Checkerspot

**Subfamily Limenitidinae** Behr, 1864

- 72. *Limenitis lorquini itelkae* Guppy, 2001  
Lorquin's Admiral
- 73. *Adelpha bredowii californica* (Butler), 1865  
California Sister

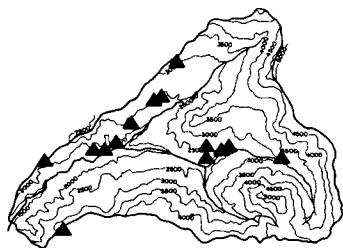
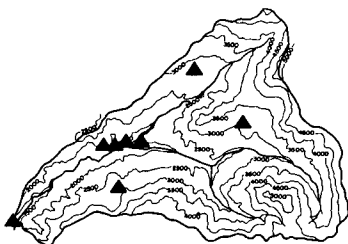
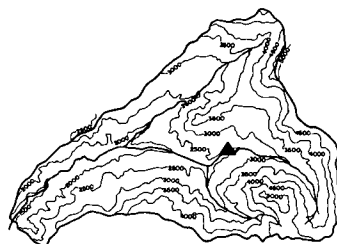
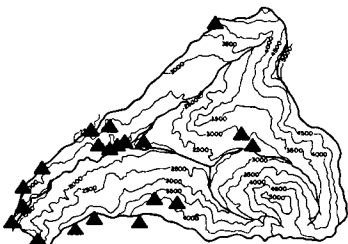
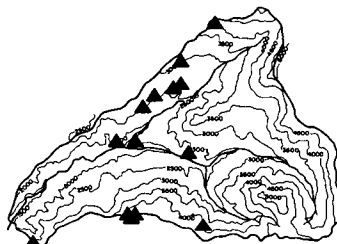
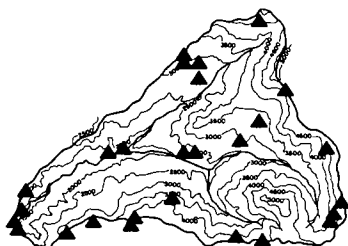
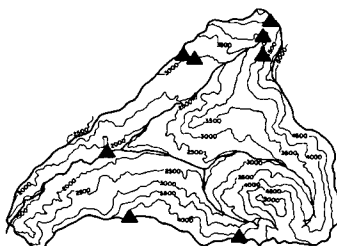
**Subfamily Satyrinae** Boisduval, 1833

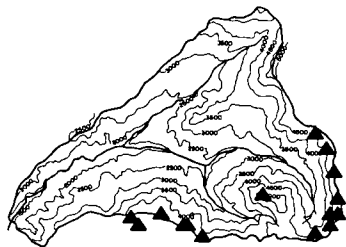
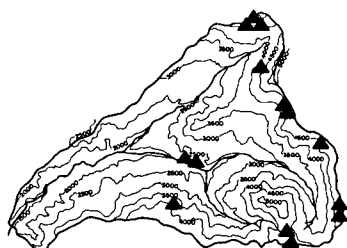
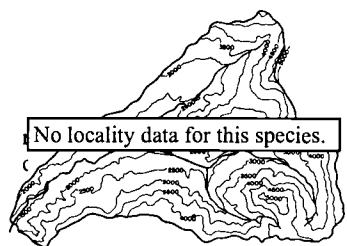
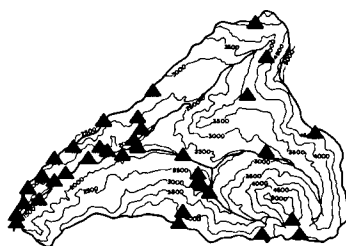
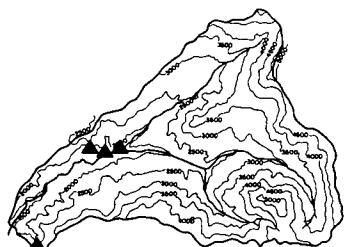
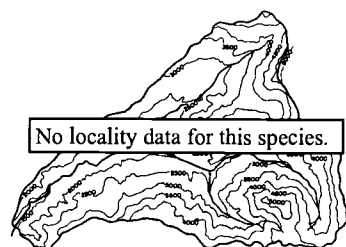
- 74. *Coenonympha californica eunomia* Dornfeld, 1967  
Ringlet
- 75. *Cercyonis pegala incana* (Edwards), 1880 \*  
Large Wood Nymph
- 76. *Cercyonis sthenele silvestris* (Edwards), 1861  
Lesser Wood Nymph
- 77. *Cercyonis oetus oetus* (Boisduval), 1869 \*  
Dark Wood Nymph
- 78. *Oeneis nevadensis nevadensis* (C. & R. Felder), 1866  
Great Arctic

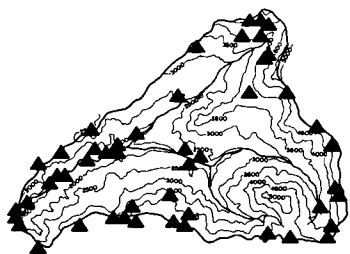
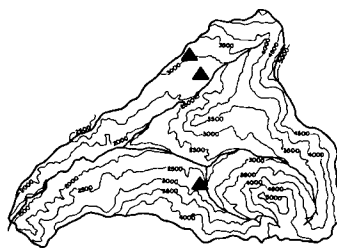
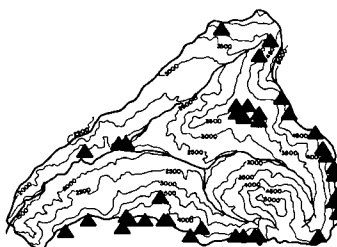
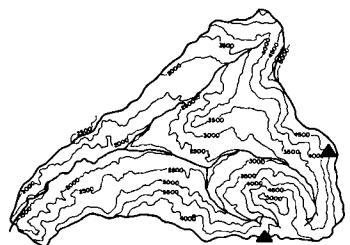
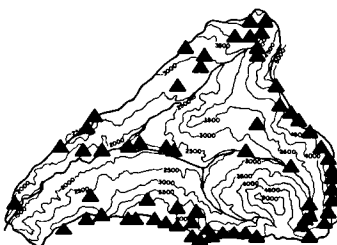
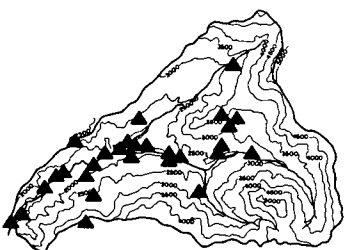
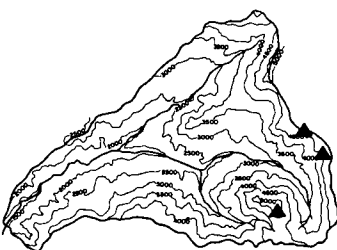
**Subfamily Danainae** Boisduval, 1833

- 79. *Danaus plexippus plexippus* (Linnaeus), 1758 #  
Monarch

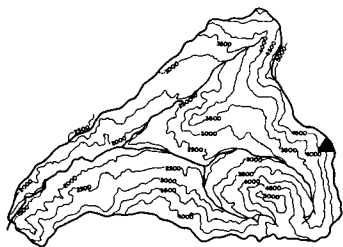
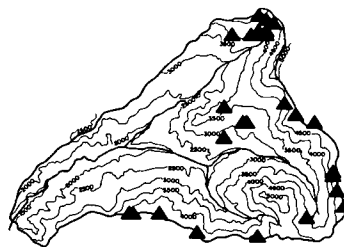
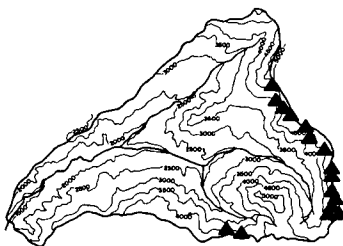
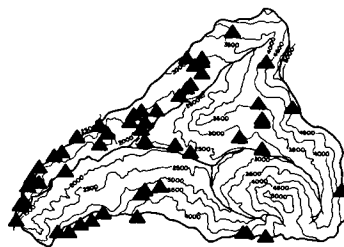
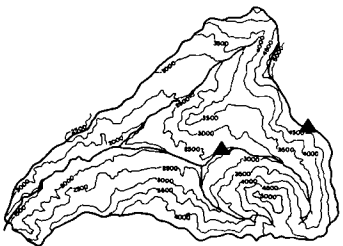
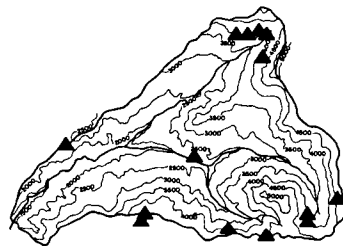
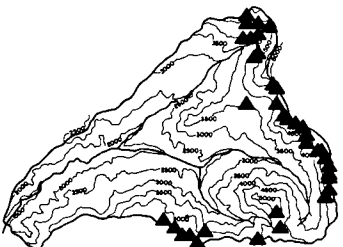
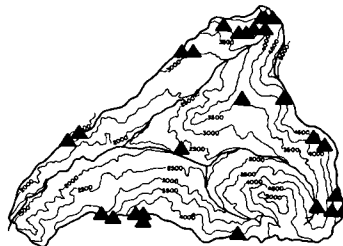
## Appendix B. Distribution maps.

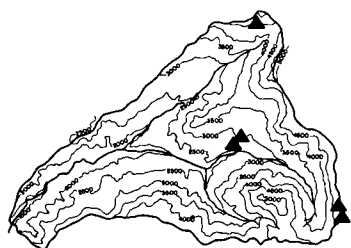
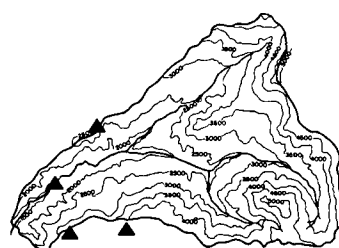
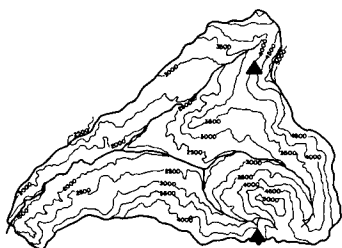
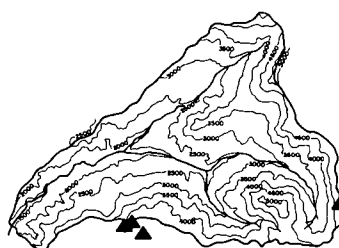
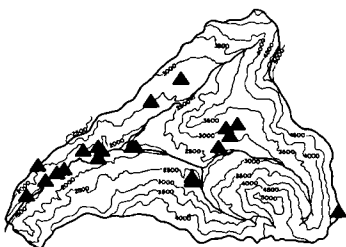
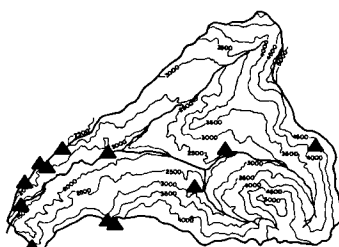
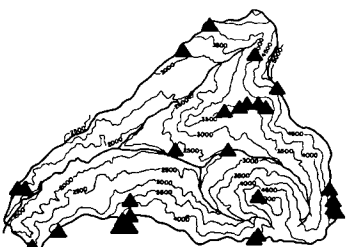
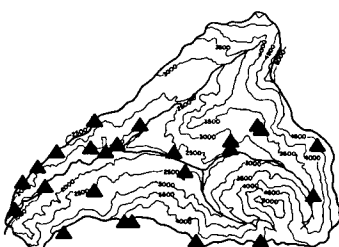
1. *Epargyreus clarus californicus*5. *Pyrgus ruralis ruralis*2. *Erynnis icelus*6. *Pyrgus communis*3. *Erynnis propertius*7. *Carterocephalus palaemon skada*4. *Erynnis persius*8. *Hesperia juba*

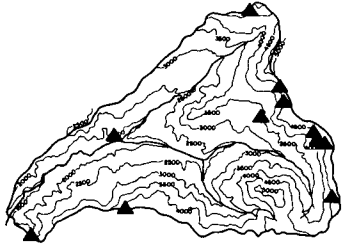
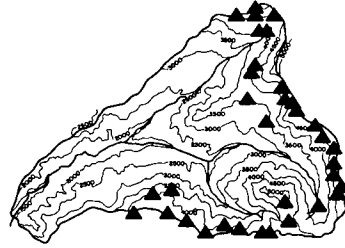
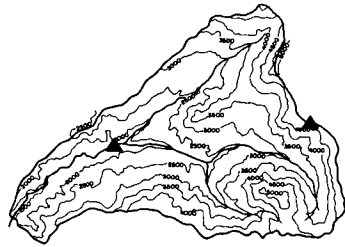
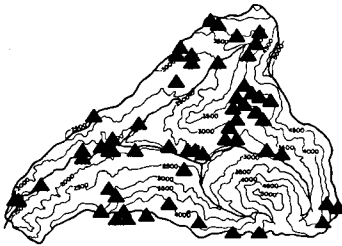
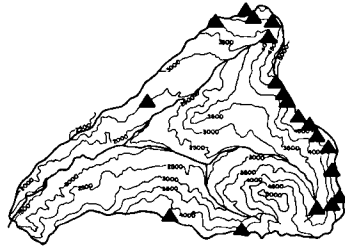
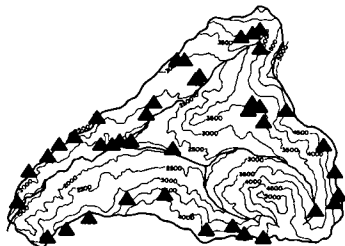
9. *Hesperia colorado oregonia*13. *Parnassius clodius claudianus*10. *Ochloides sylvanoides sylvanoides*14. *Papilio zelicaon zelicaon*11. *Euphyes vestris vestris*15. *Papilio rutulus rutulus*12. *Ambliscirtes vialis*16. *Papilio multicaudatus pusillus*

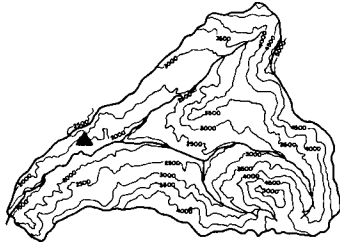
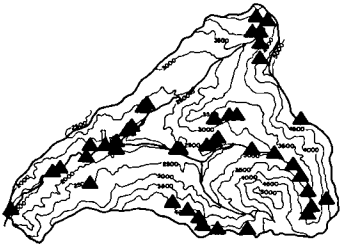
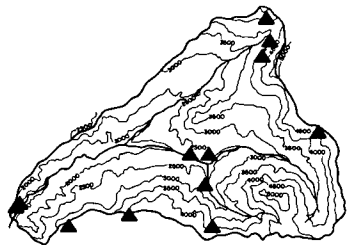
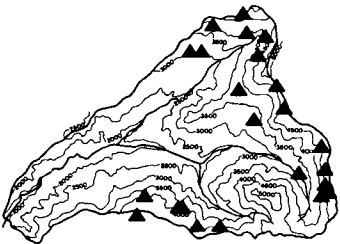
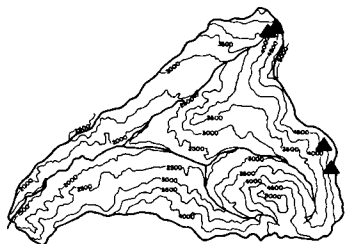
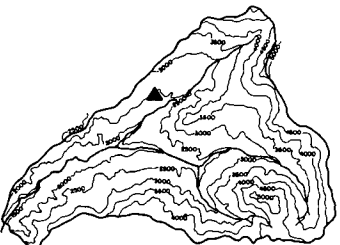
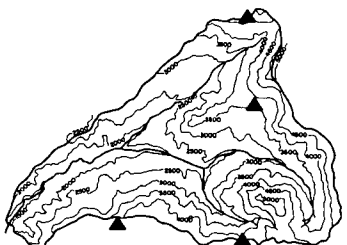
17. *Papilio eurymedon*21. *Pieris rapae rapae*18. *Neophasia maenapia tau*22. *Anthocharis sara flora*19. *Pontia occidentalis occidentalis*23. *Colias eurytheme*20. *Pieris marginalis marginalis*24. *Colias alexandra edwardsii*

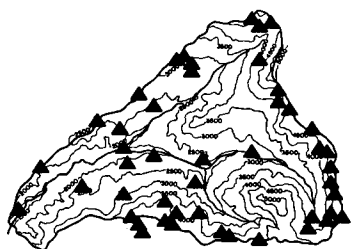
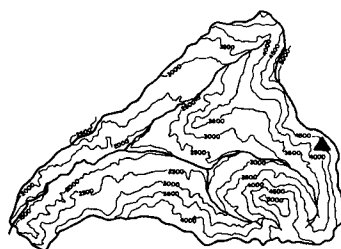
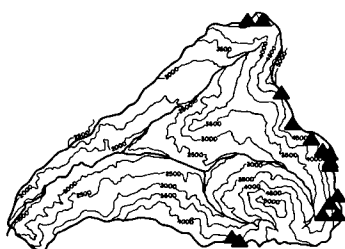
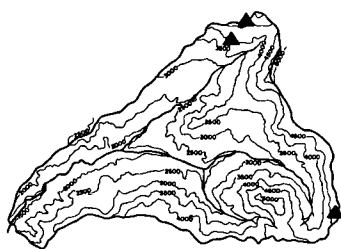
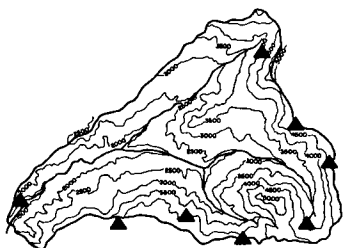
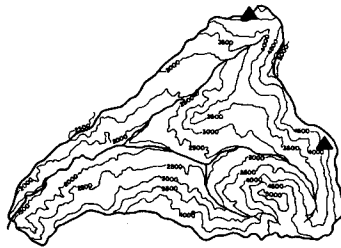
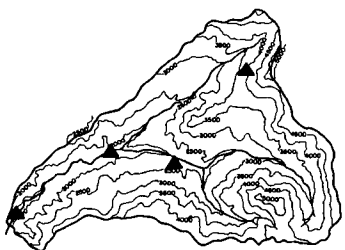


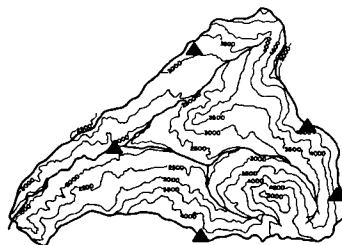
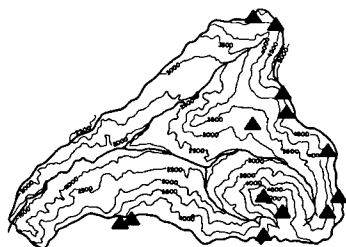
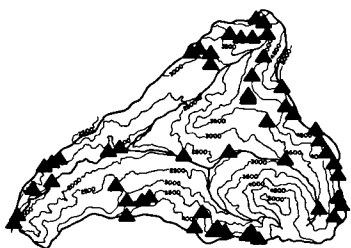
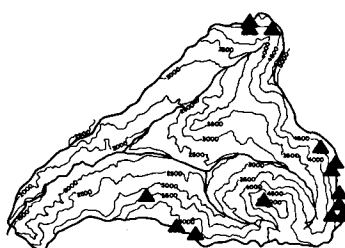
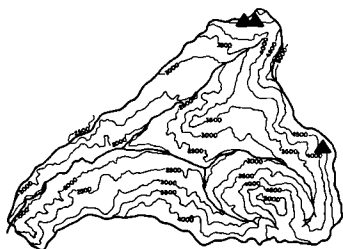
25. *Colias occidentalis occidentalis*29. *Lycaena mariposa mariposa*26. *Lycaena heteronea*30. *Habrodais grunus herri*27. *Lycaena helloides*31. *Satyrium sylvinum nootka*28. *Lycaena nivalis bichroma*32. *Satyrium saepium*

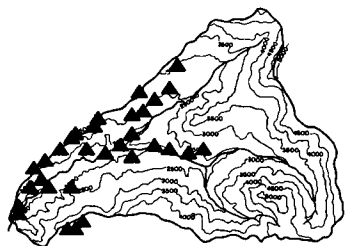
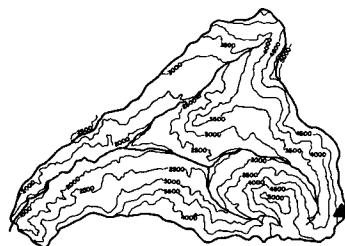
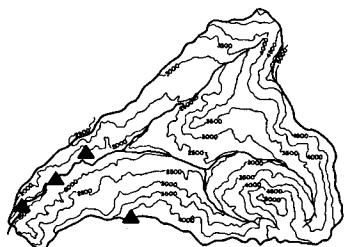
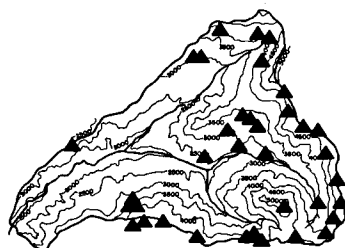
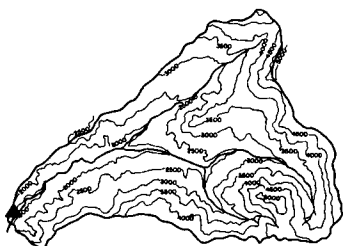
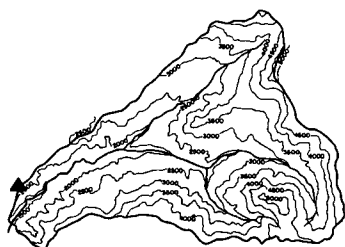
33. *Callophrys dumetorum*34. *Callophrys perplexa perplexa*35. *Loranthomitoura johnsoni*38. *Incisalia mossii mossii*36. *Mitoura grynea plicataria/nelsoni*39. *Strymon melinus atrofasciatus*37. *Incisalia augustinus iroides*40. *Everes comyntas comyntas*

41. *Everes amyntula amyntula*45. *Lycaeides anna ricei*42. *Celastrina echo echo*46. *Plebejus saepiolus*43. *Euphilotes ancilla columbiae*47. *Icaricia icarioides*44. *Glaucopsyche lygdamus columbia*48. *Icaricia acmon acmon/lutzi*

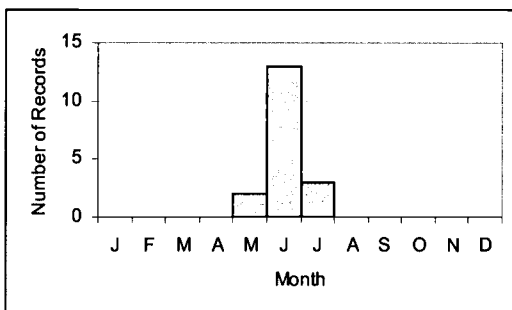
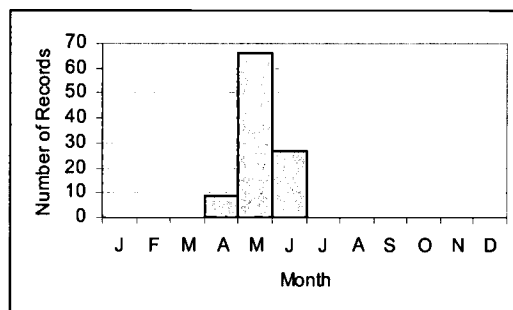
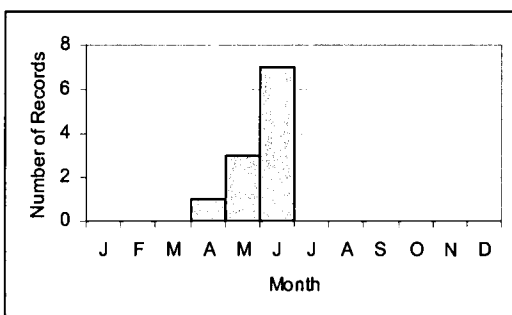
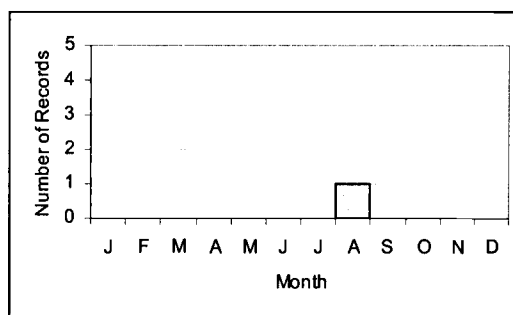
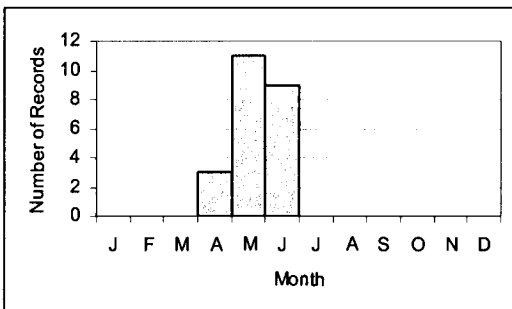
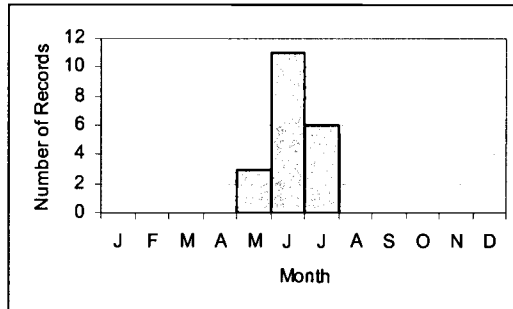
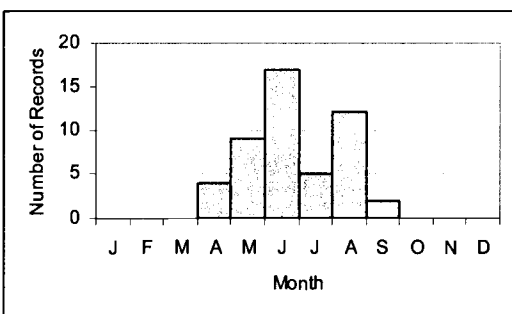
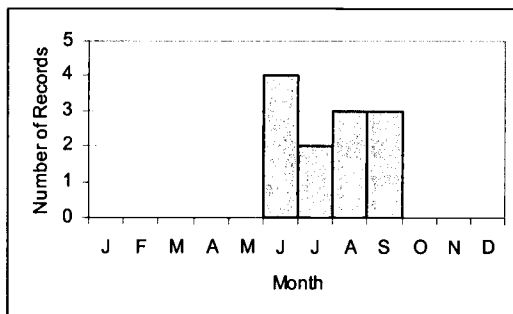
49. *Polygonia satyrus*53. *Nymphalis californica*50. *Polygonia faunus rusticus*54. *Nymphalis antiopa*51. *Polygonia zephyrus*55. *Nymphalis milberti subpallida*52. *Polygonia oreas silenus*56. *Vanessa virginiensis*

57. *Vanessa cardui*61. *Speyeria coronis*58. *Vanessa annabella*62. *Speyeria callippe elaine*59. *Vanessa atalanta rubria*63. *Speyeria atlantis dodgei*60. *Speyeria cybele pugetensis*64. *Speyeria hydasphe rhodope*

65. *Boloria epithore chermocki*69. *Chlosyne palla palla*66. *Phyciodes pulchellus*70. *Euphydryas chalcedona colon*67. *Phyciodes mylitta mylitta*71. *Euphydryas editha colonia*68. *Chlosyne hoffmanni segregata*72. *Limenitis lorquini itelkae*

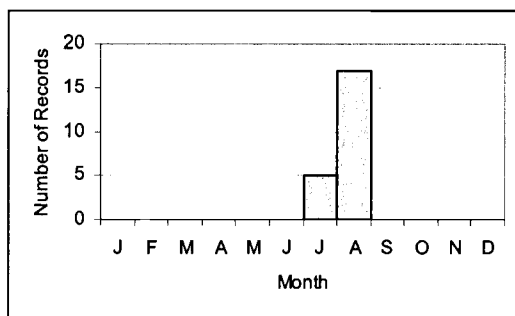
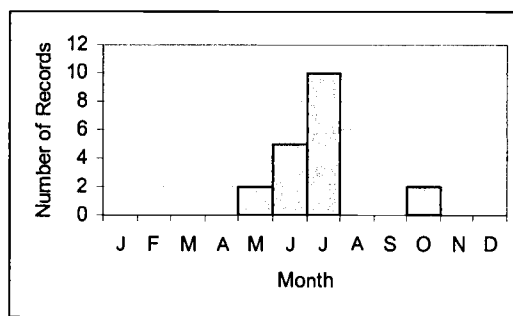
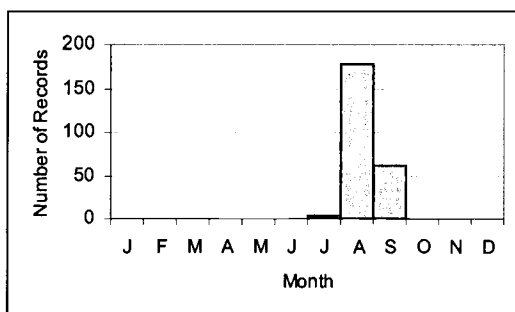
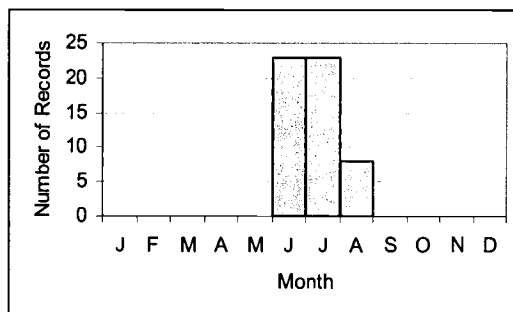
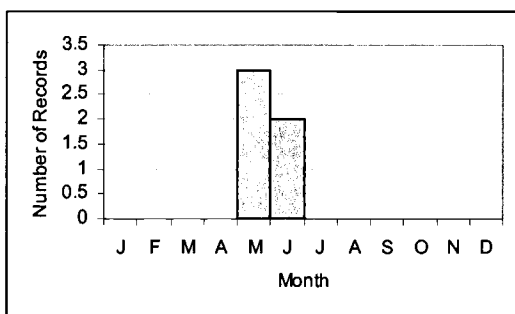
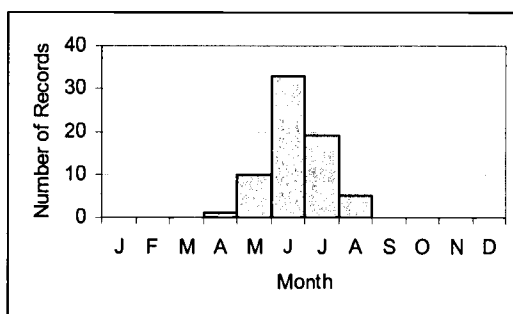
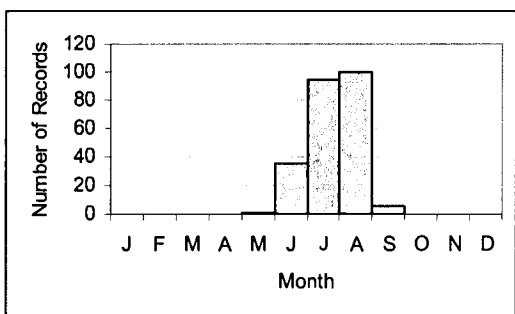
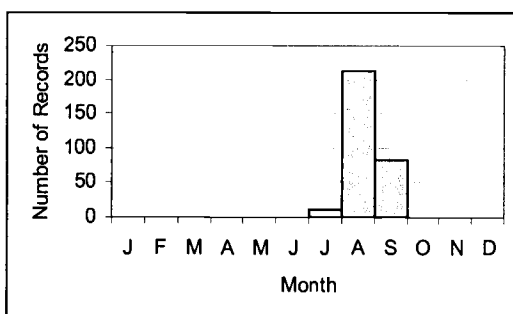
73. *Adelpha bredowii californica*77. *Cercyonis oetus oetus*74. *Coenonympha californica eunomia*78. *Oeneis nevadensis nevadensis*75. *Cercyonis pegala incana*79. *Danaus plexippus plexippus*76. *Cercyonis sthenele silvestris*

## Appendix C. Flight period phenograms.

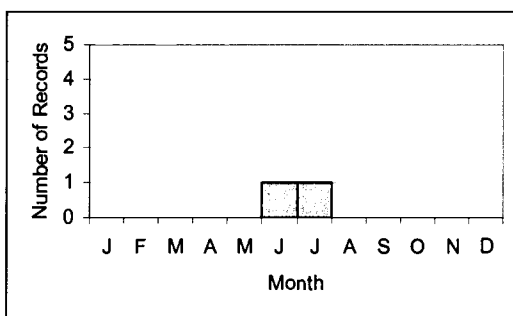
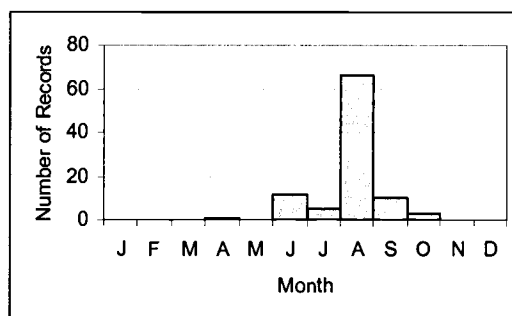
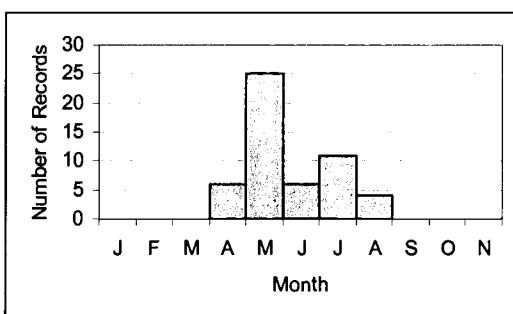
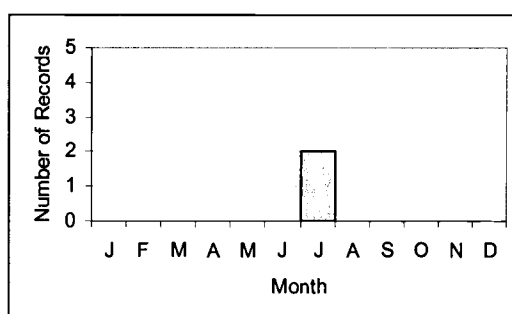
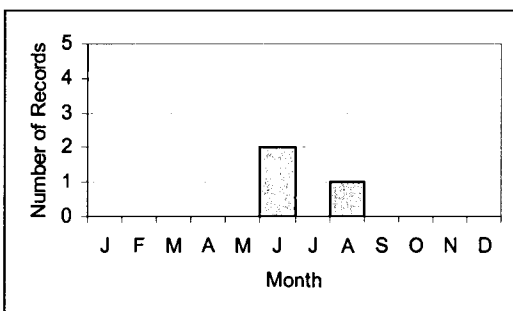
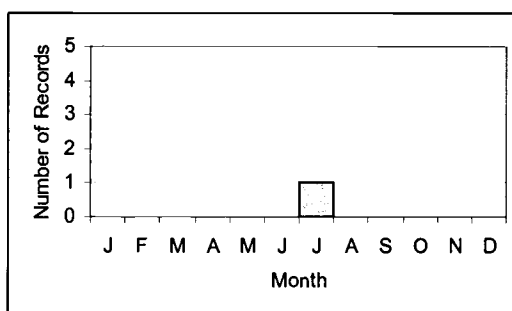
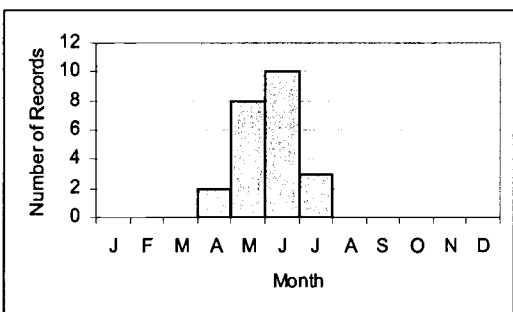
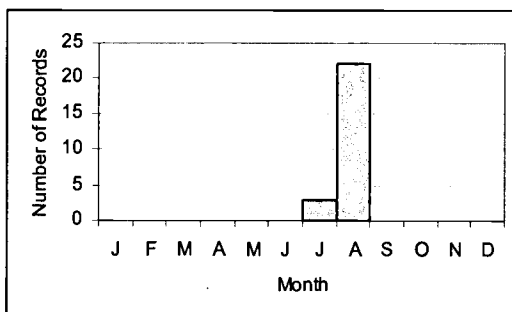
1. *Epargyreus clarus californicus*5. *Pyrgus ruralis ruralis*2. *Erynnis icelus*6. *Pyrgus communis*3. *Erynnis propertius*7. *Carterocephalus palaemon skada*4. *Erynnis persius*8. *Hesperia juba*



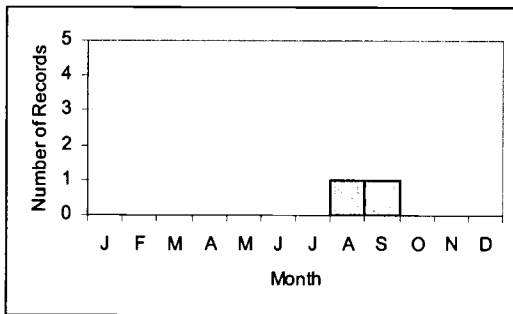
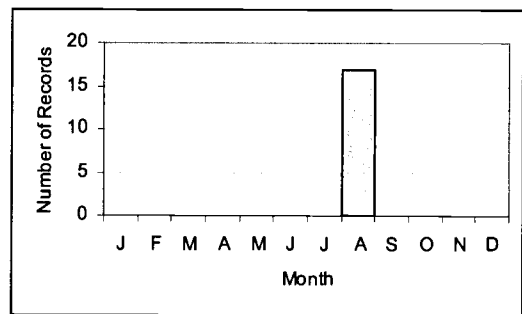
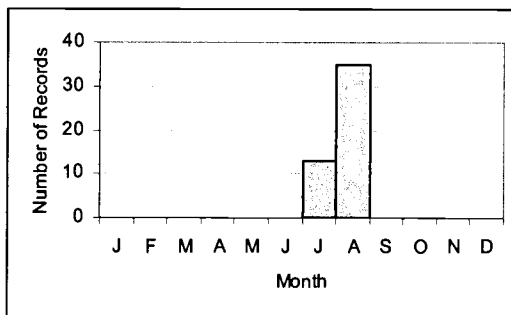
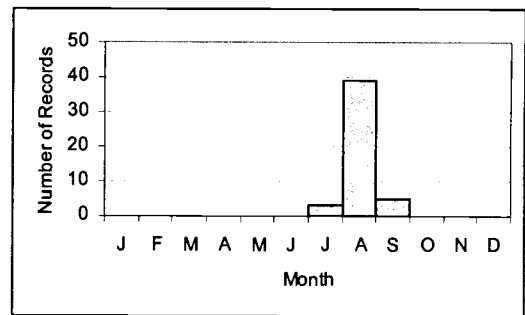
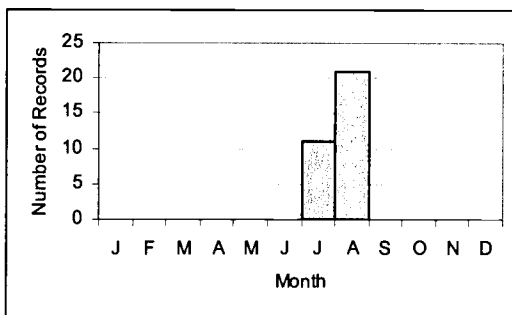
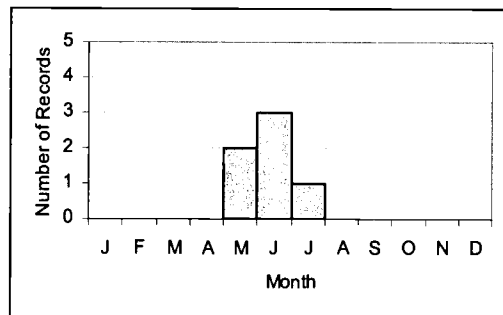
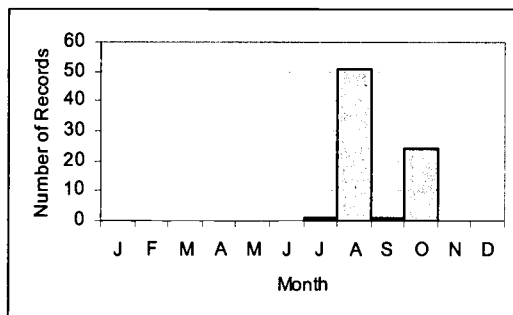
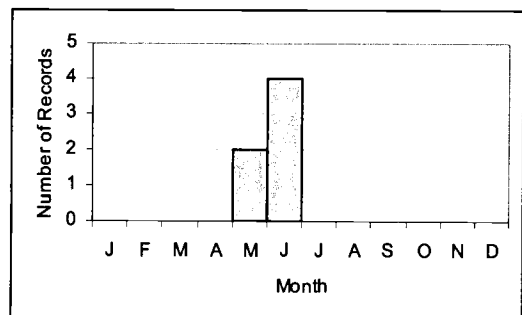
## Appendix C (Continued)

9. *Hesperia colorado oregonia*14. *Papilio zelicaon zelicaon*10. *Ochlodes sylvanoides sylvanoides*15. *Papilio rutulus rutulus*12. *Ambliscirtes vialis*17. *Papilio eurymedon*13. *Parnassius clodius claudianus*18. *Neophasia maenapia tau*

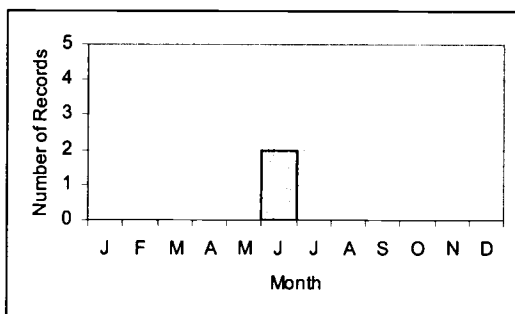
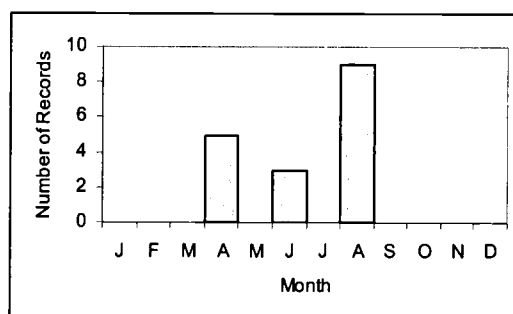
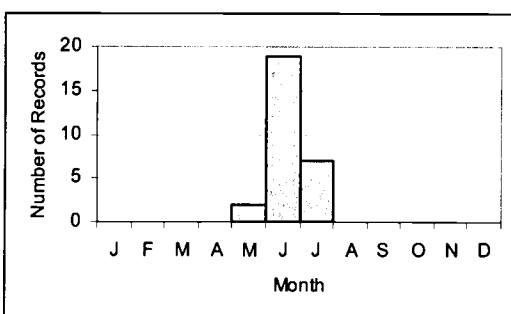
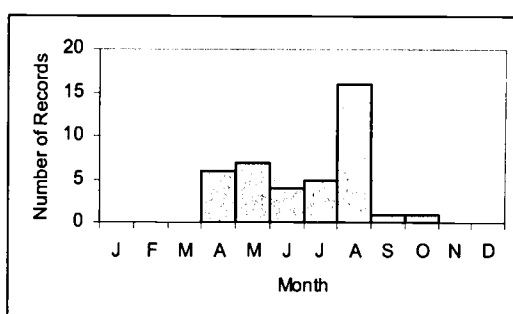
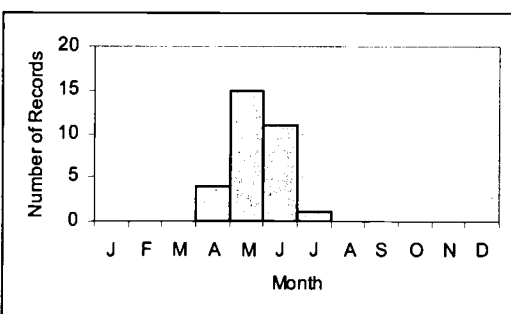
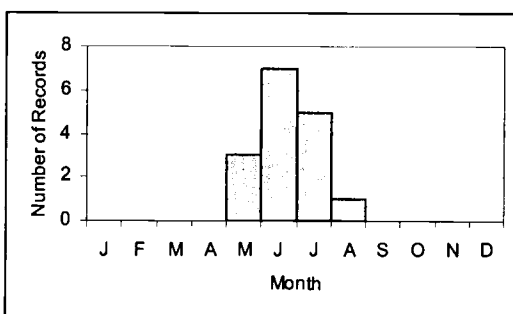
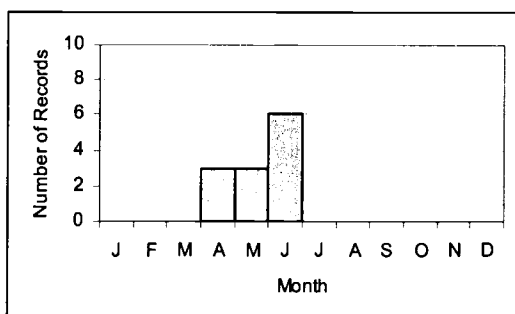
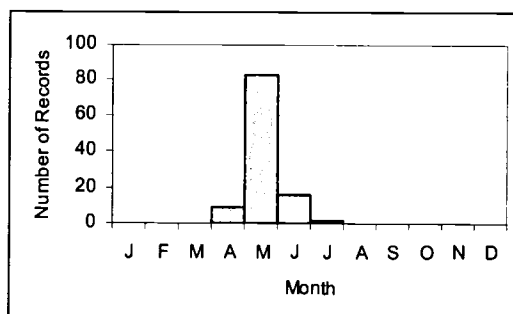
## Appendix C (Continued)

19. *Pontia occidentalis occidentalis*23. *Colias eurytheme*20. *Pieris marginalis marginalis*24. *Colias alexandra edwardsii*21. *Pieris rapae rapae*25. *Colias occidentalis occidentalis*22. *Anthocharis sara flora*26. *Lycaena heteronea*

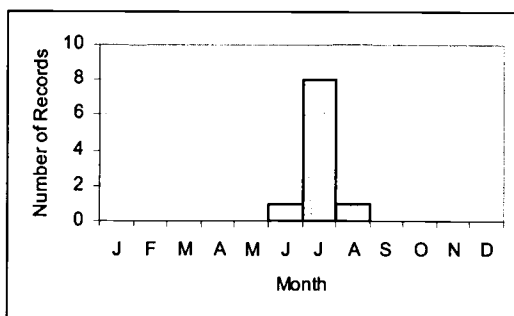
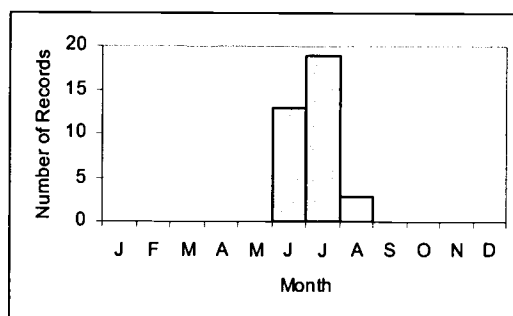
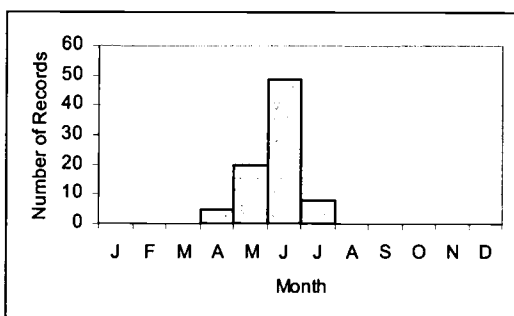
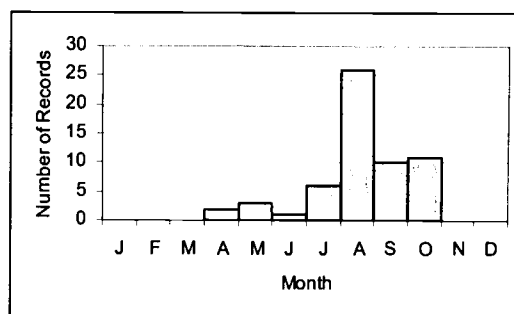
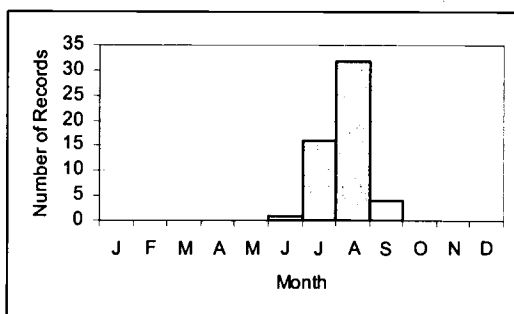
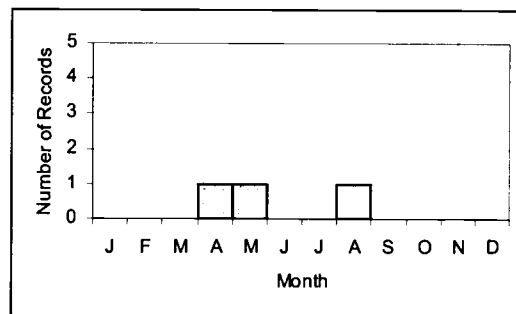
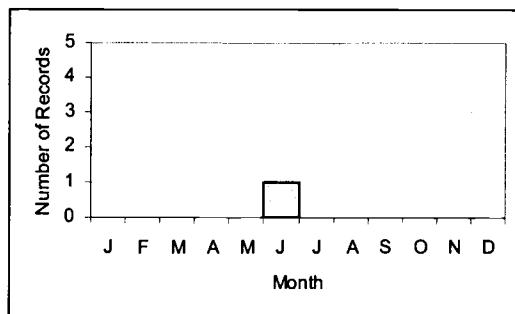
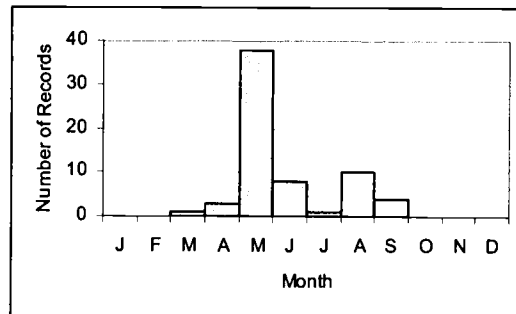
## Appendix C (Continued)

27. *Lycaena helloides*31. *Satyrium sylvinum nootka*28. *Lycaena nivalis bichroma*32. *Satyrium saepium*29. *Lycaena mariposa mariposa*33. *Callophrys dumetorum*30. *Habrodais grunus herri*34. *Callophrys perplexa perplexa*

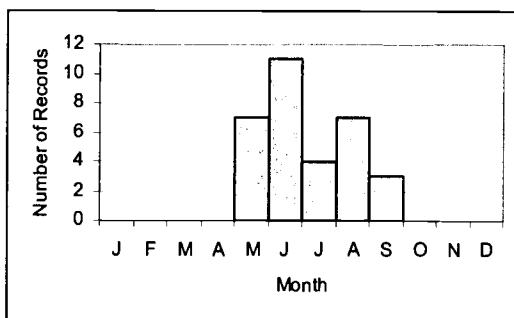
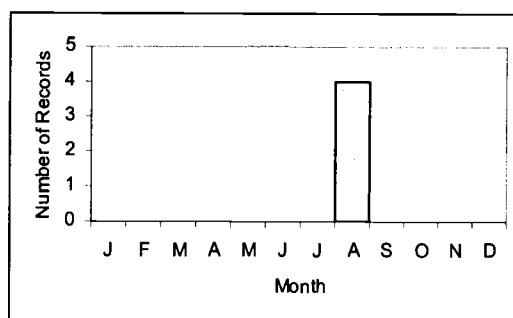
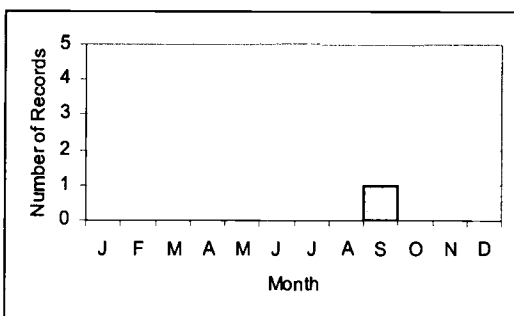
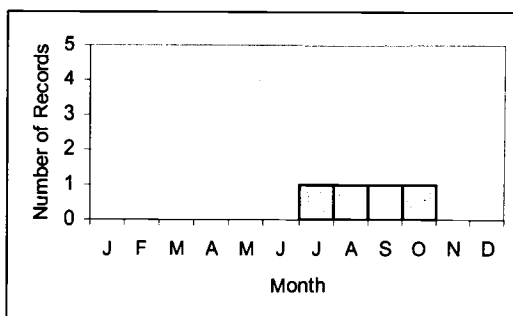
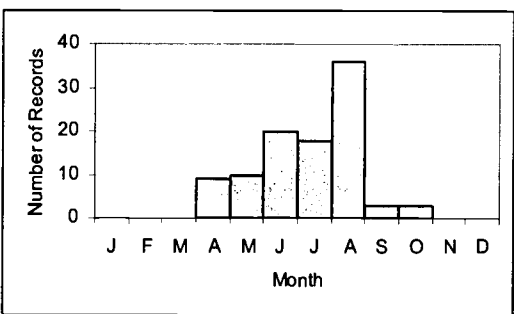
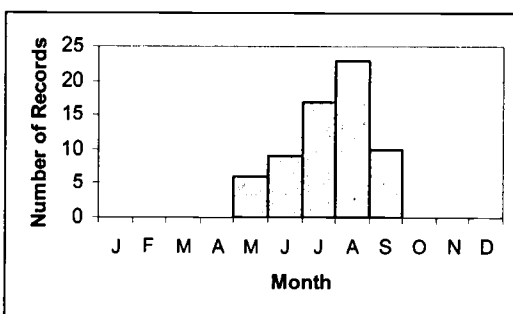
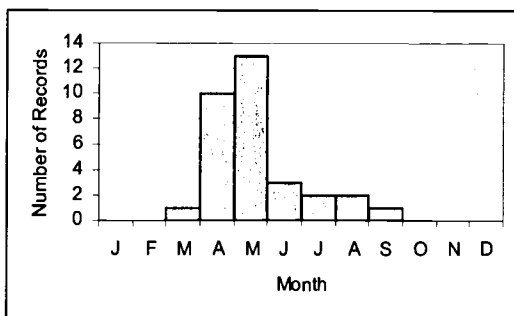
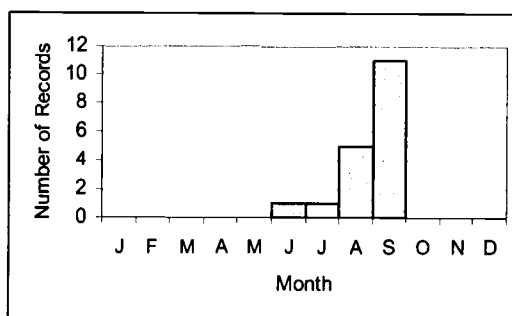
## Appendix C (Continued)

35. *Loranthomitoura johnsoni*39. *Strymon melinus atrofasciatus*36. *Mitoura grynea plicataria/nelsoni*40. *Everes comyntas comyntas*37. *Incisalia augustinus iroides*41. *Everes amyntula amyntula*38. *Incisalia mossii mossii*42. *Celastrina echo echo*

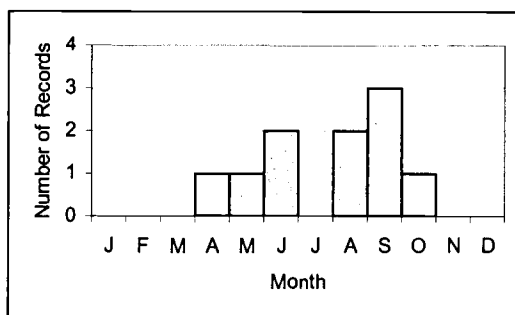
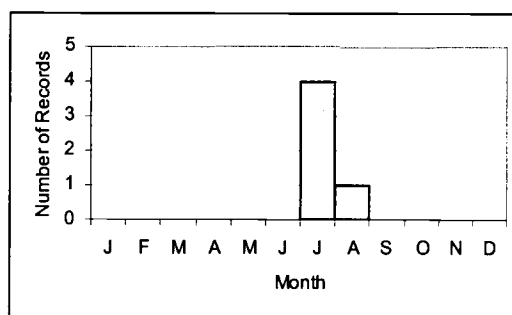
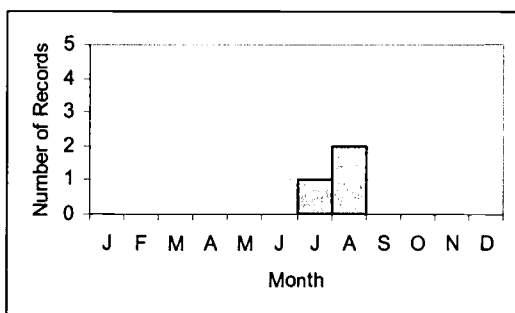
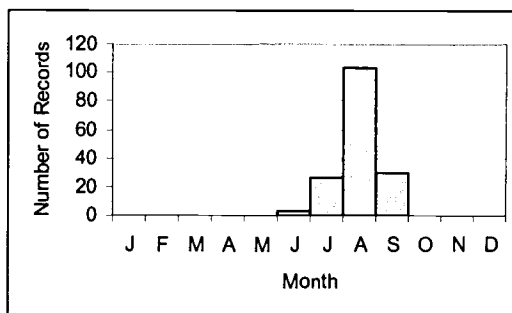
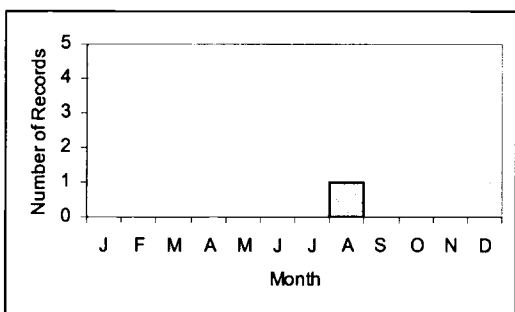
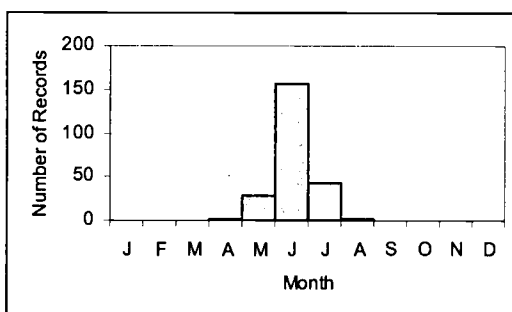
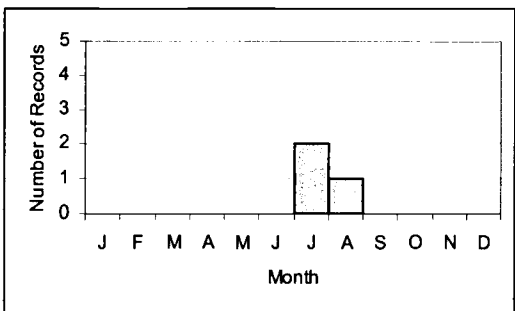
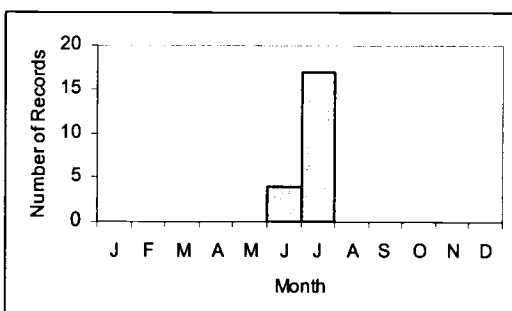
## Appendix C (Continued)

43. *Euphilotes ancilla columbiae*47. *Icaricia icarioides*44. *Glaucopsyche lygdamus columbia*48. *Icaricia acmon acmon/lutzi*45. *Lycaeides anna ricei*49. *Polygonia satyrus*46. *Plebejus saepiolus*50. *Polygonia faunus rusticus*

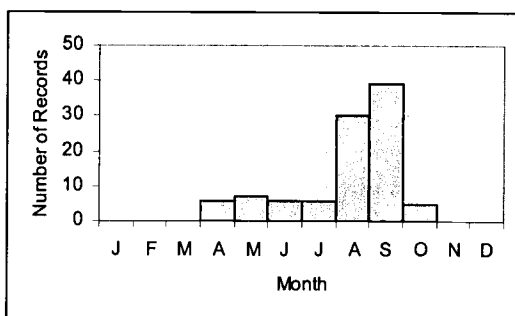
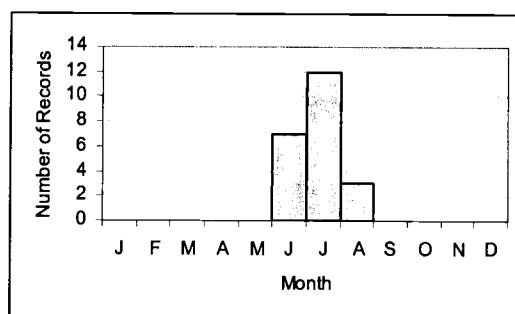
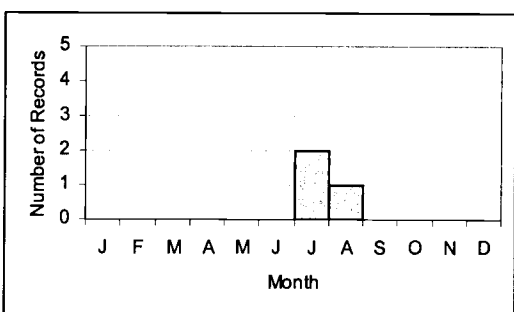
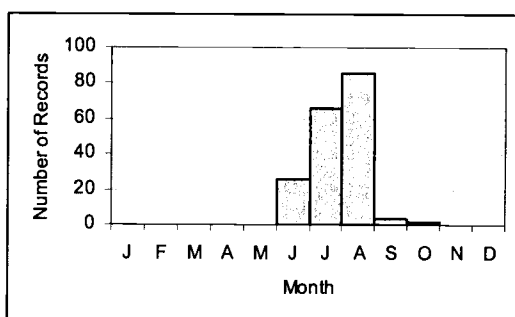
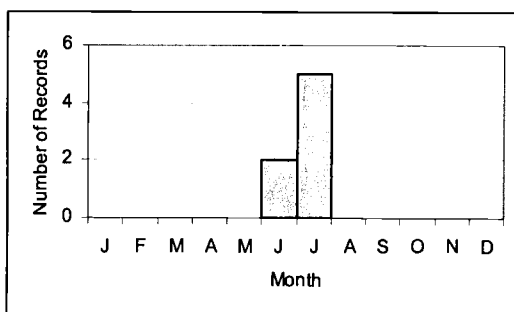
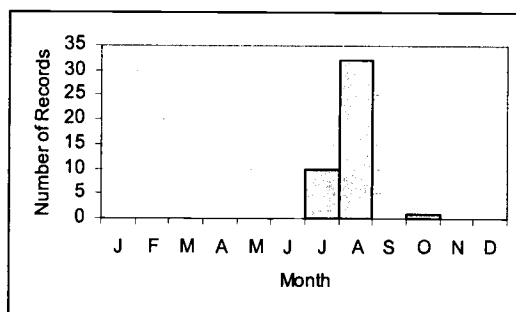
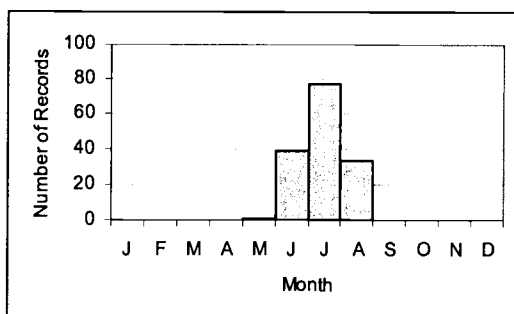
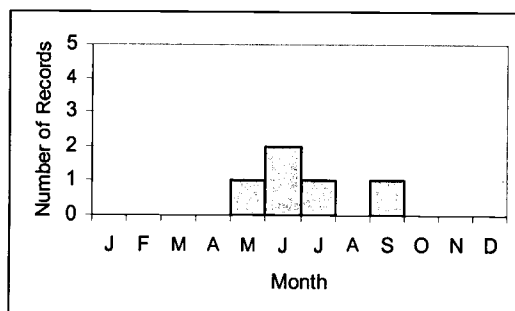
## Appendix C (Continued)

51. *Polygonia zephyrus*55. *Nymphalis milberti subpallida*52. *Polygonia oreas silenus*56. *Vanessa virginiensis*53. *Nymphalis californica*57. *Vanessa cardui*54. *Nymphalis antiopa*58. *Vanessa annabella*

## Appendix C (Continued)

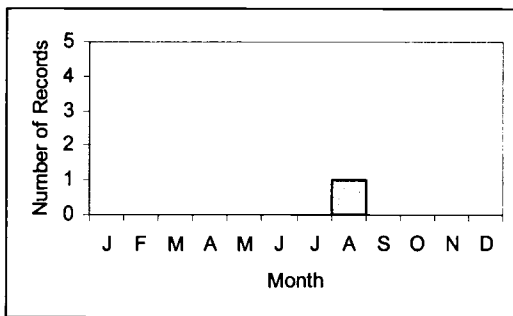
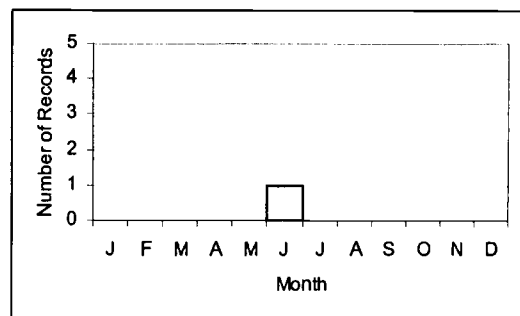
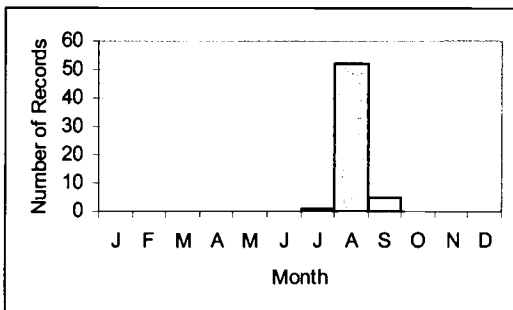
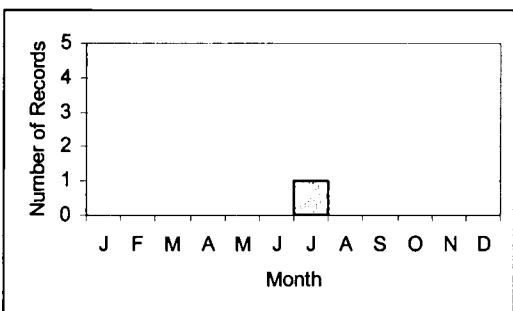
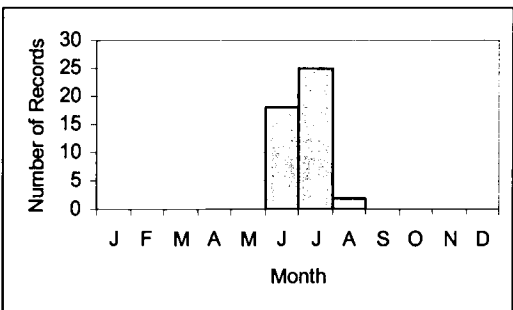
59. *Vanessa atalanta rubria*63. *Speyeria atlantis dodgei*60. *Speyeria cybele pugetensis*64. *Speyeria hydaspe rhodope*61. *Speyeria coronis*65. *Boloria epithore chermocki*62. *Speyeria callippe elaine*66. *Phyciodes pulchellus*

## Appendix C (Continued)

67. *Phyciodes mylitta mylitta*71. *Euphydryas editha colonia*68. *Chlosyne hoffmanni segregata*72. *Limenitis lorquini itelkae*69. *Chlosyne palla palla*73. *Adelpa bredowii californica*70. *Euphydryas chalcedona colon*74. *Coenonympha californica eunomia*



## Appendix C (Continued)

75. *Cercyonis pegala incana*79. *Danaus plexippus plexippus*76. *Cercyonis sthenele silvestris*77. *Cercyonis oetus oetus*78. *Oeneis nevadensis nevadensis*

Appendix D. HJA butterfly species by potential larval hostplant.  
 This butterfly's larval hostplant has not been documented on the HJA (\*).

<u>Hostplant Family</u>	<u>Hostplant Genus/Species</u>	<u>Butterfly Genus/Species</u>
Asclepiaceae		<i>Danaus plexippus</i> *
Asteraceae	<i>Achillea millefolium</i>	<i>Vanessa cardui</i>
	<i>Anaphalis margaritacea</i>	<i>Vanessa cardui</i>
		<i>Vanessa annabella</i>
	<i>Artemisia ludoviciana</i>	<i>Vanessa cardui</i>
		<i>Vanessa virginiensis</i>
	<i>Aster ledophyllus</i>	<i>Chlosyne hoffmanni</i>
	<i>Aster radulinus</i>	<i>Chlosyne palla</i>
	<i>Aster species</i>	<i>Phyciodes pulchellus</i>
	<i>Cirsium arvense</i>	<i>Phyciodes mylitta</i>
		<i>Vanessa cardui</i>
		<i>Vanessa virginiensis</i>
	<i>Cirsium vulgare</i>	<i>Phyciodes mylitta</i>
		<i>Vanessa cardui</i>
	<i>Gnaphalium purpureum</i>	<i>Vanessa virginiensis</i>
	<i>Leucanthemum vulgare</i>	<i>Celastrina echo</i>
	<i>Senecio triangularis</i>	<i>Chlosyne palla</i>
Betulaceae	<i>Alnus rubra</i>	<i>Papilio eurymedon</i>
		<i>Papilio rutulus</i>
	<i>Alnus viridis</i>	<i>Papilio rutulus</i>
Brassicaceae	<i>Arabis holboellii</i>	<i>Pontia occidentalis</i>
	<i>Barbarea orthoceras</i>	<i>Anthocharis sara</i>
		<i>Pieris marginalis</i>
		<i>Pieris rapae</i>
	<i>Rorippa curvisiliqua</i>	<i>Pieris rapae</i>
Caprifoliaceae	<i>Symphoricarpus albus</i>	<i>Euphydryas chalcedona</i>
	<i>Sedum oregonense</i>	<i>Incisalia mossii</i>
	<i>Sedum spathulifolium</i>	<i>Incisalia mossii</i>
	<i>Sedum stenopelatum</i>	<i>Incisalia mossii</i>
Cupressaceae	<i>Calocedrus decurrens</i>	<i>Mitoura grynea</i>
	<i>Thuja plicata</i>	<i>Mitoura grynea</i>
Cyperaceae		<i>Euphyes vestris</i>
Ericaceae	<i>Arbutus menziesii</i>	<i>Incisalia augustinus</i>

## Appendix D (Continued)

Fabaceae	<i>Gaultheria shallon</i>	<i>Incisalia augustinus</i>
	<i>Vaccinium</i>	<i>Lycaena mariposa</i>
	<i>Lathyrus polyphyllus</i>	<i>Everes amyntula</i>
		<i>Lycaeides anna</i>
	<i>Lotus crassifolius</i>	<i>Callophrys perplexa</i>
		<i>Colias eurytheme</i>
		<i>Epargyreus clarus</i>
	<i>Lotus micranthus</i>	<i>Icaricia acmon</i>
	<i>Lotus purshianus</i>	<i>Erynnis persius</i>
		<i>Everes comyntas</i>
		<i>Glaucopsyche lygdamus</i>
		<i>Icaricia acmon</i>
	<i>Lupinus</i>	<i>Icaricia icarioides</i>
	<i>Melilotus alba</i>	<i>Colias eurytheme</i>
		<i>Colias occidentalis</i>
		<i>Glaucopsyche lygdamus</i>
		<i>Icaricia acmon</i>
		<i>Strymon melinus</i>
	<i>Trifolium hybridum</i>	<i>Everes comyntas</i>
		<i>Plebejus saepiolus</i>
<i>Trifolium praetense</i>	<i>Colias alexandra</i>	
	<i>Colias eurytheme</i>	
	<i>Everes comyntas</i>	
<i>Trifolium repens</i>	<i>Colias eurytheme</i>	
	<i>Everes comyntas</i>	
	<i>Plebejus saepiolus</i>	
	<i>Strymon melinus</i>	
<i>Trifolium tridentatum</i>	<i>Colias eurytheme</i>	
	<i>Everes comyntas</i>	
	<i>Strymon melinus</i>	
<i>Trifolium wormskjoldii</i>	<i>Colias eurytheme</i>	
	<i>Plebejus saepiolus</i>	
<i>Verbascum thapsus</i>	<i>Strymon melinus</i>	
<i>Vicia americana</i>	<i>Colias alexandra</i>	
	<i>Colias eurytheme</i>	
	<i>Everes amyntula</i>	
	<i>Everes comyntas</i>	
	<i>Glaucopsyche lygdamus</i>	
Fagaceae	<i>Chrysolepis chrysophylla</i>	<i>Adelpha bredowii</i>
		<i>Habrodais grunus</i>
	<i>Quercus garryana</i>	<i>Adelpha bredowii</i>
		<i>Erynnis propertius</i>

## Appendix D (Continued)

Fumariaceae	<i>Dicentra formosa</i> <i>Dicentra uniflora</i>	<i>Parnassius clodius</i> <i>Parnassius clodius</i>
Grossulariaceae	<i>Ribes</i> <i>Ribes lacustre</i> <i>Ribes sanguineum</i>	<i>Polygonia oreas</i> <i>Polygonia zephyrus</i> <i>Polygonia zephyrus</i>
Malvaceae	<i>Potentilla</i>	<i>Pyrgus communis</i> * <i>Vanessa annabella</i> * <i>Vanessa atalanta</i> * <i>Pyrgus ruralis</i> *
Pinaceae	<i>Abies grandis</i> <i>Pinus contorta</i> <i>Pinus jeffreyi</i> <i>Pinus monticola</i> <i>Pinus ponderosa</i> <i>Tsuga heterophylla</i>	<i>Neophasia menapia</i> <i>Neophasia menapia</i> <i>Neophasia menapia</i> <i>Neophasia menapia</i> <i>Neophasia menapia</i> <i>Neophasia menapia</i>
Plantaginaceae	<i>Plantago lanceolata</i>  <i>Plantago major</i>	<i>Euphydryas chalcedona</i> <i>Euphydryas editha</i> <i>Euphydryas chalcedona</i>
Poaceae	<i>Agropyron caninum</i> <i>Bromus</i> <i>Calamagrostis</i> <i>Deschampsia elongata</i> <i>Festuca rubra</i> <i>Poa scabrella</i> <i>Poa</i> <i>Stipa</i>	<i>Amblyscirtes vialis</i> * <i>Cercyonis oetus</i> * <i>Cercyonis pegala</i> * <i>Cercyonis sthenele</i> * <i>Oeneis nevadensis</i> * <i>Ochlodes sylvanoides</i> <i>Carterocephalus palaemon</i> * <i>Carterocephalus palaemon</i> * <i>Hesperia juba</i> <i>Hesperia colorado</i> <i>Hesperia colorado</i> <i>Coenonympha californica</i> * <i>Coenonympha californica</i> *
Polygonaceae	<i>Eriogonum</i> <i>Eriogonum compositum</i>  <i>Eriogonum umbellatum</i>	<i>Callophrys dumetorum</i> <i>Euphilotes ancilla</i> <i>Icaricia acmon</i> <i>Lycaena heteronea</i> <i>Euphilotes ancilla</i> <i>Icaricia acmon</i>

## Appendix D (Continued)

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		<i>Lycaena heteronea</i>
	<i>Polygonum</i>	<i>Lycaena mariposa</i>
	<i>Polygonum douglasii</i>	<i>Lycaena helloides</i>
		<i>Lycaena nivalis</i>
	<i>Polygonum phytolaccaefolium</i>	<i>Strymon melinus</i>
	<i>Rumex acetosella</i>	<i>Lycaena helloides</i>
		<i>Nymphalis antiopa</i>
	<i>Rumex crispus</i>	<i>Lycaena helloides</i>
	<i>Rumex salicifolius</i>	<i>Lycaena helloides</i>
		<i>Strymon melinus</i>
Rhamnaceae	<i>Ceanothus integerrimus</i>	<i>Celastrina echo</i>
		<i>Incisalia augustinus</i>
		<i>Nymphalis californica</i>
		<i>Satyrium saepium</i>
	<i>Ceanothus sanguineus</i>	<i>Nymphalis californica</i>
		<i>Papilio eurymedon</i>
		<i>Satyrium saepium</i>
	<i>Ceanothus velutinus</i>	<i>Incisalia augustinus</i>
		<i>Nymphalis californica</i>
		<i>Papilio eurymedon</i>
		<i>Satyrium saepium</i>
Rosaceae	<i>Holodiscus discolor</i>	<i>Celastrina echo</i>
		<i>Incisalia augustinus</i>
		<i>Limenitis lorquini</i>
		<i>Papilio eurymedon</i>
	<i>Holodiscus dumosus</i>	<i>Celastrina echo</i>
	<i>Prunus emarginata</i>	<i>Limenitis lorquini</i>
		<i>Papilio eurymedon</i>
		<i>Papilio multicaudatus</i>
		<i>Papilio rutulus</i>
	<i>Spiraea douglasii</i>	<i>Limenitis lorquini</i>
Salicaceae	<i>Populus tremuloides</i>	<i>Erynnis icelus</i>
		<i>Erynnis persius</i>
		<i>Limenitis lorquini</i>
		<i>Nymphalis antiopa</i>
		<i>Papilio rutulus</i>
		<i>Polygonia faunus</i>
	<i>Populus trichocarpa</i>	<i>Limenitis lorquini</i>
		<i>Nymphalis antiopa</i>
		<i>Papilio rutulus</i>
	<i>Salix</i>	<i>Satyrium sylvinum</i>

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## Appendix D (Continued)

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	<i>Salix scouleriana</i>	<i>Papilio rutulus</i>
Scrophulariaceae	<i>Collinsia parviflora</i> <i>Mimulus guttatus</i> <i>Penstemon cardwellii</i> <i>Penstemon procerus</i> <i>Verbascum thapsus</i>	<i>Euphydryas editha</i> <i>Phyciodes mylitta</i> <i>Euphydryas chalcedona</i> <i>Euphydryas chalcedona</i> <i>Euphydryas chalcedona</i>
Urticaceae	<i>Urtica</i>	<i>Nymphalis milberti*</i> <i>Polygonia satyrus*</i> <i>Vanessa annabella*</i> <i>Vanessa atalanta*</i>
Violaceae	<i>Viola glabella</i>  <i>Viola nuttallii</i>  <i>Viola orbiculata</i> <i>Viola palustris</i> <i>Viola sempervirens</i>	<i>Boloria epithore</i> <i>Speyeria hydaspae</i> <i>Speyeria atlantis</i> <i>Speyeria callippe</i> <i>Speyeria coronis</i> <i>Speyeria hydaspae</i> <i>Speyeria hydaspae</i> <i>Speyeria cybele</i> <i>Boloria epithore</i>
Viscaceae	<i>Arceuthobium campylopodium</i>	<i>Loranthomitoura johnsoni</i>

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