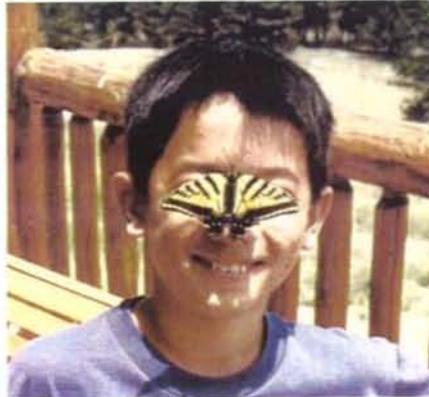


# An Inventory of Butterflies – On Open Space Properties



A Closer Look

## **Boulder County Parks and Open Space** Boulder, Colorado **Small Grants Program** **2005**

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## **I. Abstract**

The inventory of butterflies in Boulder County Parks and Open Space (BCPOS) was implemented during 40 field days in April through August 2005. In the Plains ecosystem, 22 species were observed. In the Foothills 77 species were tallied at Heil Valley plus 16 additional species at Anne U. White and Steamboat Rock for a total of 93. The Montane ecosystem produced 51 species at Caribou with an additional three species at Meyers Gulch and Reynolds Ranch.

On Boulder County Open Space properties during 2002-2005, 103 species of butterflies have been observed by this team. One new county record was reported, raising the long-standing Boulder County count to 198 species. These BCPOS lands are becoming well-known as rich habitat for butterflies.

## **II. Introduction and Literature Review**

### **A. Introduction**

The joy of exploration and discovery initially led this team into the Parks and Open Spaces of Boulder County. Jan Chu, Cathy and Donn Cook have been together four years studying and inventorying butterflies in the County. We have served as Boulder County Parks and Open Space Volunteer Naturalists, both learning and interpreting, for about six years, and during the past two years, have been fortunate recipients of BCPOS Small Grants. Our passionate interests are in protecting butterflies, preserving critical habitats, and sharing information with others.

The 2005 butterfly surveys included 16 field days in Heil Valley Ranch, and six days each at Caribou Ranch and Anne U. White. New survey areas this season were Anne U. White, Rabbit Mountain, and Carolyn Holmberg Preserve at Rock Creek Farm, Pella Crossing, Steamboat Rock, Meyers Gulch and Reynolds Ranch. On each surveyed property we compiled butterfly inventories by identifying species, gaining understanding of their habitat requirements, looking at changes in populations due to disturbance of the habitat or impacts of weather, and locating colonies of rare butterflies and new species. Our primary goal in gathering this information is to assure the continuing survival of these butterflies. Another equally important goal is to raise awareness of the existence of these Lepidoptera with the county staff, naturalists, volunteers and the public.

One of the rewards came in adding one new species to Boulder County records, mylitta crescent (*Phyciodes mylitta*), which raises the long-standing count to 198. One uncommon butterfly, hops azure (*Celastrina humulus*) was documented; others continue to be sought. This summer, this team added to our lists nine previously unrecorded species at Heil Valley and 12 unrecorded at Caribou.

During this 2005 season the team has invested at least 424 hours inventorying butterflies and has traveled over 1,500 miles to various BCPOS areas. Numerous additional hours have been required on the computer adding data to the spreadsheets, organizing photos, and preparing this report.

### **B. Literature Review:**

Two field guides are constant references in the field: 1) Brock & Kaufman, Butterflies of North America and 2) Glassberg, Butterflies through Binoculars, the West. Both have excellent photographs, organization, range maps and descriptions. *Scientific Names for Butterfly Species of North America, north of Mexico*, by Opler and Warren is our source for scientific names which change, due to increased field research and DNA mapping. Because there is confusion with multiple common names, we use the North America Butterfly Association *Annual Butterfly Count* list. Desk references are Opler (1999), Brown (1957), and Ferris and Brown (1980).

Weather plays an important role in our field success, therefore each field day we make a determination if the weather is advantageous for butterfly flight. Sunny, clear, dry days are especially good. Reference is made to the "Weather Review," *Daily Camera* both daily to plan field days and monthly to include in the final report.

"An Inventory of Butterflies at Heil Valley Ranch Open Space 2003," and "An Inventory of Butterflies at Heil Valley Ranch Open Space, 2002-2004; Caribou Ranch Open Space 2004" are references for continuing the list of identified butterflies (Chu, Cooks). The list of Boulder County butterflies on the Northern Prairie Wildlife Research Center website (Opler, Stanford, and Pavulaan, editors) provides available access for review and for those being introduced to this field of study. Additional information, lists, and photographs are also available on the website.

## **III. Description of Research**

### **A. Sampling methods and materials**

Butterfly surveys were conducted randomly by casual observation near waterways, trails or where butterflies congregate, rather than within measured transects. Butterflies shift locations based on the availability of host plants, nectar and moisture. Since we were inventorying large

areas we moved from trails, streams and roadways to observe as many different species as possible. However, the tendency was to repeat productive habitats from one summer to the next. As butterflies were sighted, they were identified using close-focusing binoculars or a net and release procedure. The species and numbers (clearly identified at close range) were listed on the enclosed spreadsheets (Tables 2-9). These records also include the date, time in the field, temperature (degrees C), general sky and atmospheric conditions. Special notations were made of caterpillars feeding, nectaring sightings (the proboscis of the butterfly extending into the flower), and ovipositing (egg laying on a leaf).

The accompanying records will be registered in the Listing and Mapping of Western USA County Records. We have conferred with Ray Stanford, MD, Western Regional Editor, for Western North American Butterflies, U.S.G.S., to consider our findings, especially sightings of only one of a species. When butterflies were not identified in the field we sought assistance by sending digitized images to Paul Opler, PhD, Department of Bioagricultural Sciences, Colorado State University, Ft. Collins, and to Jim Scott, highly published author. New discoveries by the lepidopterists continue to alter scientific naming of species and further rearrangement of relationships. A comprehensive up-to-date source (Opler, Warren, 2003) provided the scientific names included in this report. Common names follow the North American Butterfly Association list.

Some butterflies were photographed using digital cameras. Certain images have been placed on a CD, and will accompany this final report, to be added to the resource collection of Boulder County photographs. Additional butterfly images are available upon request.

### **B. Project Requirements**

The present Small Grant was greatly appreciated and helped cover some of the costs. BCPOS provided research permits, parking passes, and access to any Open Space for the three researchers. Access to most of the Open Spaces allowed us to survey a greater variety of habitats. We were able to drive on roadways behind locked gates, which helped us reach distant areas efficiently. The research permits allowed us to include our 'associates' who added expertise on plants and increased the number of butterfly-observers and record keepers.

We are pleased to note that six Ecosystem Stewardship Initiative (ESI) trainees (Boulder County Nature Association) and four County Volunteer Naturalists, as well as seven additional associates have assisted us in the field several times. Five visitors from out-of-state, including three professional photographers, accompanied us during three field days.

Weather conducive to butterfly field excursions is primary. Only Nature could help with this requirement. Butterflies generally choose the sunny warm times of day because flight muscles usually require at least 16 degrees C temperature to generate enough energy to fly. When clouds come overhead, our Colorado butterflies seek shelter.

### **C. Inventory Timeline**

Inventories of butterflies were undertaken as often as possible, including 16 visits to Heil Valley from March to the end of August; six to Caribou in June through August, and new areas added another 18 excursions from April to August (See Table 1- "Dates and Locations of Surveys").

### **D. Survey Habitats**

#### **Plains Habitats**

Rabbit Mountain has large ridges and undisturbed dry hills. In early spring the diminutive salt and pepper plants provide nectar for earliest butterflies, the Sheridan's hairstreak (*Callophrys sheridanii*) and canyon bramble hairstreak (*Callophrys affinis*). These are welcome harbingers of butterfly season.

Pella Crossing is a lake area with repeated burning of the banks which destroys food plants and secure places for chrysalides. However, planting of hawthorn, choke cherries, willows and wild plums provided good nectar sources in the spring for migrating species.

Carolyn Holmberg Preserve at Rock Creek supports a habitat definitely affected by farming, man-made reservoirs and invasive weeds. Canada thistle, bindweed and wild plums were favored nectaring plants.

Steamboat Rock is unique with its huge sandstone base and a prominence. Western and checkered whites used the crest for hill topping (riding the breeze and displaying). Often these two species are difficult to distinguish, but the new males showed all of their identifying black and white patterns.

#### **Foothills Habitats**

Anne U. White is a deep and well-preserved small foothill canyon. Its well-covered slopes and large variety of plants provided high counts of species.

Heil Valley Ranch – (4,923 acres; elevation 5,390 ft. to 8,080 ft.) (North Foothills, 1996) preserves a wide diversity of habitats with intermittent streams, wetlands, riparian, meadows, forests, disturbed areas around Lyons sandstone quarries, roads and trails. This large area with tremendous numbers of plant species is conducive to butterfly survival. In addition, the Overland Fire burned nearly 2,000 acres, providing a renewing habitat. Burned areas, however,

take a long time to return to growing complex species, so are lacking in butterflies. Study sites were along Plumely Canyon, Geer Creek and Red Hill Road.

Plumely Canyon – (620 acres; elevation 6,020 – 6,620 ft.) is dramatically narrow, forested, and gains a steep 600 ft. elevation. The east-west canyon has water present year round, and maintains the overall best habitat on Heil Valley. The Ochs homestead at the higher elevation has an extensive meadow, which produced many sightings, including one of an uncommon dusted skipper (*Atrytonopsis hianna*). This canyon also serves as a corridor for migrating butterflies.

Geer Creek (elevation 5,900 – 6,400 ft.) is a riparian habitat shaded by ponderosa pine. From the public parking lot to the Manager's Residence the stream valley was very conducive to butterflies. Above the residence, Geer Valley narrows revealing forested sheltered cliffs and exposed hilltops covered with xeric native plants and some invasive weeds. Near the saddle, a once-mowed field was not as productive a butterfly habitat. The roadway toward the Lichen Trailhead and Plumely Canyon was used by the heat-seeking butterflies which preferred the warm dirt to the surrounding grasses. A small stream often crossed this road, where butterflies were seen puddling in the moist sand, disturbed by the traffic of trucks, mountain bikes, and hikers.

Red Hill – (2,800 acres - 6,240 ft. to 6,360 ft.) is covered primarily with big bluestem, ponderosa pine, and mountain mahogany woodland (Simonson, 1995). Red Hill saddle is on top of a sandstone ridge, where a seep provided moisture for toads and butterflies – relief from the summer's heat. A black swallowtail caterpillar was photographed feeding on a *Daucus* sp. plant growing in the moisture.

### **Montane – Subalpine Habitats**

Caribou Ranch Open Space - (2,180 acres – elevation 8,310 ft. to 10,130 ft.) is a rich parkland governed by conservation measures to preserve diverse wildlife habitat, plants and especially watershed resources. This survey at higher altitude provided wet meadows supporting different species of grasses surrounded by ponderosa, lodge pole, limber pines and aspen glens.

Observations were made in the southern Delonde Creek watershed from 8,440 ft. to 8,800 ft. elevation. There were agricultural fields of hay where sulphur butterflies chose to fly. One roadway led to a willow bog and beaver ponds. The bog and ponds had noticeably fewer butterflies for reasons unknown at this time. Another roadway led westward into the forest and met the Switzerland Trail, where the forest was shady for many butterflies.

# 2005 Butterfly Surveys



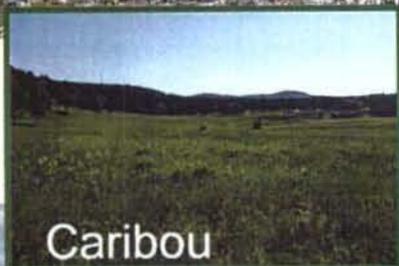
Nets,  
close-  
focusing  
binoculars,  
butterflies



Field Guide Study



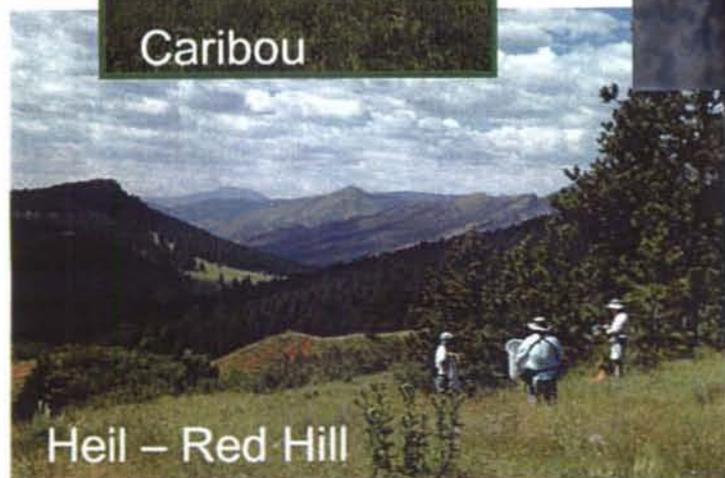
Heil -  
Plumely



Caribou



A Closer  
Look



Heil - Red Hill



Photos by: Jan Chu and Cathy Cook

Meyers Gulch and Reynolds Ranch are in the Montane zone with meadows and forests. A colony of hoary elfins (*Callophrys polios*) lived in the dense kinnikinnick undergrowth at Meyers. Reynolds Ranch road was long and sloping, leading to a vast meadow, which begs to be explored further next season. Within these various habitats, we found that undisturbed lands produce a greater variety of food plants and offer a multiplicity of butterfly species.

**IV. Results** (See survey spreadsheets and photographs on the following pages)

<b>A. 2005 Data -</b>	<b>Table #</b>
<b>1. Dates and Locations of Surveys</b>	1
<b>2. Heil Valley Butterfly Surveys</b>	
a. Plumely Canyon and Roadway	2
b. Geer Canyon / Red Hill Road	3
c. Field Notes	4
d. Photographs – Heil Butterflies	4a
<b>3. Caribou Ranch Surveys</b>	5
a. Field Notes	6
b. Photographs – Caribou Butterflies	6a
<b>4. Other Open Space Surveys</b>	
a. Plains Habitat– Pella Crossing, Rabbit Mountain, Carolyn Holmberg Preserve at Rock Creek	7
b. Foothills Habitat– Anne U. White, Steamboat; Montane Habitat – Meyers Gulch, Reynolds Ranch	8
c. Field Notes	9
d. Photographs – Life Cycle and Behaviors	9a

2005 Butterfly Survey  
Boulder County Parks and Open Space  
Survey Dates and Locations

Month	HEIL VALLEY		CARIBOU RANCH		OTHER BCPOS	
	Survey Dates	Location	Survey Dates	Location	Survey Dates	Location
March	4-Mar-05	Lichen TH-Creek	XXX	XXX	XXX	XXX
April	4-Apr-05	Heil-Roadway to Plumely Canyon	XXX	XXX	4-Apr-05	Anne U. White
	16-Apr-05	Geer Canyon	XXX	XXX	7-Apr-05	Rabbit Mountain
	18-Apr-05	Plumely Canyon	XXX	XXX	23-Apr-05	Pella Ponds
May	16-May-05	Plumely Canyon	XXX	XXX	9-May-05	Steamboat Rock Carolyn Holmberg Preserve at Rock Creek Farm
	26-May-05	Geer Canyon	XXX	XXX	18-May-05	Carolyn Holmberg Preserve at Rock Creek Farm
June	27-May-05	Plumely Canyon	XXX	XXX	30-May-05	Carolyn Holmberg Preserve at Rock Creek Farm
	1-Jun-05	Geer Canyon	7-Jun-05	Inside locked gate, meadow toward NE; roadway toward W	2-Jun-05	Meyers Gulch
	14-Jun-05	Upper Geer Canyon	21-Jun-05	Inside locked gate along roadway to fork in road	3-Jun-05	Meyers Gulch
	25-Jun-05	Roadway-parking toward Lichen Trail	22-Jun-05	Inside locked gate, begin at fork in road (Bluebell Loop) left road, and adjacent meadows	8-Jun-05	Steamboat Rock
	28-Jun-05	Red Hill Lower Plumely Canyon	30-Jun-05	Parking lot along trail to main road; then left along main road to creek crossing	13-Jun-05	Anne U. White
	29-Jun-05		XXX	XXX	17-Jun-05	Anne U. White Carolyn Holmberg Preserve at Rock Creek Farm
	30-Jun-05	Upper Geer Canyon	XXX	XXX	20-Jun-05	Creek Farm
	XXX	XXX	XXX	XXX	21-Jun-05	Reynolds Ranch
	XXX	XXX	XXX	XXX	24-Jun-05	Anne U. White
	XXX	XXX	XXX	XXX	27-Jun-05	Rabbit Mountain
XXX	XXX	XXX	XXX	XXX	XXX	
July						
August	5-Jul-05	Plumely Canyon	7-Jul-05	Road from gate to ponds	6-Jul-05	Anne U. White
	29-Aug-05	Plumely Canyon	26-Aug-05	Parking lot - DeLonde homestead - mine - trail to parking lot.	24-Aug-05	Anne U. White
	30-Aug	Upper Geer Canyon	XXX	XXX	XXX	XXX

2005 Butterfly Survey  
Heil Valley Ranch Open Space  
Plumely Canyon

Species observed in 2002-2005		Location:	Lichen TH-Creek	Roadway to Plumely Canyon	Plumely Canyon	Plumely Canyon	Plumely Canyon	Plumely Canyon	Roadway from parking toward Lichen Trail	Lower Plumely Canyon	Plumely Canyon	Plumely Canyon
X = 2005	# = 2004	Survey Dates:	4-Mar-05	4-Apr-05	18-Apr-05	16-May-05	27-May-05	25-Jun-05	29-Jun-05	5-Jul-05	29-Aug-05	
		Scientific Name	Common Name	Number of individuals observed								
			Rocky Mountain									
		<i>Parnassius smintheus</i>	Parnassian									
X		<i>Papilio polyxenes</i>	Black Swallowtail									
X	1	<i>P. zelicaon</i>	Anise Swallowtail									
			Short-tailed Black									
X	2	<i>P. indra</i>	Swallowtail					1				
			'black' swallowtail									
			Western Tiger									
X	3	<i>P. rutulus</i>	Swallowtail			1	4	2	8	10		
X	4	<i>P. eurymedon</i>	Pale Swallowtail				5	3	5			
X	5	<i>P. multicaudata</i>	Two-tailed Swallowtail						1			5
		swallowtail sp.										
	6	<i>Neophasia menapia</i>	Pine White									
X	7	<i>Pontia protodice</i>	Checkered White						1	7		
	8	<i>P. occidentalis</i>	Western White									
	9	<i>P. sisymbrii</i>	Spring White									
X	10	<i>Pieris rapae</i>	Cabbage White	11	47	5	5	2	9	12	77	
X	11	<i>P. marginalis</i>	Mustard White							6		
X	12	<i>Euchloe ausonides</i>	Large Marble		1	1	6					
X	13	<i>E. olympia</i>	Olympia Marble			1						
			Southern Rocky Mountain									
X	14	<i>Anthocharis julia</i>	Orangetip			10			18			
X		white sp.		2		31	16		2		3	
X	15	<i>Colias philodice</i>	Clouded Sulphur	1	1	1	1				4	
X	16	<i>C. eurytheme</i>	Orange Sulphur				3	1		3	34	
X		<i>C. alexandria</i>	Queen Alexander					1	2			
X		<i>Eurema mexicana</i>	Mexican sulphur						1			
X		<i>Nathalis iole</i>	Dainty Sulphur		1			2	1	1		
X		sulphur sp.							6			
		<i>Lycaena heteronea</i>	Blue Copper									
			Canyon									
X	17	<i>Callophrys affinis</i>	Bramble Hairstreak					1				
			Sheridan's Hairstreak									
X	18	<i>C. sheridani</i>	(White-lined Green)	2	2							
X	19	<i>C. gyrneus</i>	Siva' Juniper Hairstreak									
X	20	<i>C. eryphon</i>	Western Pine Elfin		24	13	15					
		<i>Satyrium titus</i>	Coral Hairstreak									
		<i>S. behrii</i>	Behr's Hairstreak									
X	21	<i>Strymon melinus</i>	Gray Hairstreak								3	

2005 Butterfly Survey  
Heil Valley Ranch Open Space  
Plumely Canyon

2

Species observed in 2002-2005		Location:	Lichen TH-Creek	Roadway to Plumely Canyon	Plumely Canyon	Plumely Canyon	Plumely Canyon	Roadway from parking toward Lichen Trail	Lower Plumely Canyon	Plumely Canyon	Plumely Canyon
		Survey Dates:	4-Mar-05	4-Apr-05	18-Apr-05	16-May-05	27-May-05	25-Jun-05	29-Jun-05	5-Jul-05	29-Aug-05
X = 2005	# = 2004	Scientific Name	Common Name	Number of individuals observed							
X		<i>Leptotes marina</i>	Marine Blue								2
X	22	<i>Cupido amyntula</i>	Western Tailed-Blue				1			1	
X	23	<i>Celastrina ladon sidara</i>	Spring Azure		8	19	1				
X		<i>C. humulus</i>	Hops Azure						13		
X	24	<i>Glaucopsyche piasus</i>	Arrowhead Blue								
X	25	<i>G. lygdamus</i>	Silvery Blue			5	12				
			Rocky Mountain								
X	26	<i>Euphilotes ancilla</i>	Dotted-Blue					4	2		
X	27	<i>Echinargus isola</i>	Reakirt's Blue						3	1	
X	28	<i>Plebejus melissa</i>	Melissa Blue				2		1	4	3
		<i>P. saepiolus</i>	Greenish Blue								
X	29	<i>P. icarioides</i>	Boisduval's Blue				2	4	4	1	
X	30	<i>P. lupini lutzi</i>	Lupine Blue								5
X	31	<i>P. glandon rustica</i>	Arctic Blue							2	
		blue sp.				23					1
X	32	<i>Danaus plexippus</i>	Monarch								
X	33	<i>Euptoieta claudia</i>	Variegated Fritillary			1	14				1
X	34	<i>Speyeria aphrodite</i>	Aphrodite Fritillary					1	3	2	53
X	35	<i>S. edwardsii</i>	Edwards' Fritillary								1
X	36	<i>S. coronis</i>	Coronis Fritillary							1	
X		<i>S. callippe</i>	Callippe Fritillary								
X		<i>S. atlantis</i>	Atlantis Fritillary							1	
X	37	<i>S. hesperis</i>	Northwestern Fritillary								
		<i>S. mormonia</i>	Mormon Fritillary								
X		fritillary sp.					2	3	10	3	71
X	38	<i>Chlosyne gorgone</i>	Gorgone Checkerspot				8				
	39	<i>C. nycteis</i>	Silvery Checkerspot								
		<i>C. palla</i>	Northern Checkerspot								
		checkerspot sp.									
X		<i>Phyciodes mylitta</i>	Mylitta Crescent	new BC record							
X	40	<i>P. tharos</i>	Pearl Crescent		3		2	5	12		
X	41	<i>P. cocyta</i>	Northern Crescent					1	6	7	2
X	42	<i>P. pulchella</i>	Field Crescent			23	32+	1	2	5	6
		<i>Euphydryas anicia</i>	Variable Checkerspot								
		crescent sp.							8		
X		<i>Polygonia satyrus</i>	Satyr Comma								
X	43	<i>P. gracilis</i>	Hoary Comma	1	8	5		1	2	5	
		anglewing sp.									

2005 Butterfly Survey  
Heil Valley Ranch Open Space  
Plumely Canyon

Species observed in 2002-2005		Location:	Lichen TH-Creek	Roadway to Plumely Canyon	Plumely Canyon	Plumely Canyon	Plumely Canyon	Plumely Canyon	Roadway from parking toward Lichen Trail	Lower Plumely Canyon	Plumely Canyon	Plumely Canyon
X = 2005	# = 2004	Survey Dates:	4-Mar-05	4-Apr-05	18-Apr-05	16-May-05	27-May-05	25-Jun-05	29-Jun-05	5-Jul-05	29-Aug-05	
		Scientific Name	Common Name	Number of individuals observed								
	44	<i>Aglais milberti</i>	Milbert's Tortoiseshell									
X	45	<i>Nymphalis antiopa</i>	Mourning Cloak	1	7	7	2				2	
X	46	<i>Vanessa atalanta</i>	Red Admiral			4		14	1	3	2	
X	47	<i>V. cardui</i>	Painted Lady		4	337+	2	6	4	9	11	9
		<i>V. virginiensis</i>	American Lady									
X	48	<i>Limenitis weidemeyerii</i>	Weidemeyer's Admiral						2	1	3	
X		<i>Asterocampa celtis</i>	Hackberry Emperor									1
		<i>Coenonympha tullia ochracea</i>	Ochre (Common) Ringlet					2	1	3	3	
X	50	<i>Cercyonis pegala</i>	Common Wood-Nymph								13	2
X	51	<i>C. oetus</i>	Small Wood-Nymph								1	
		<i>Erebia epipsodea</i>	Common Alpine									
		<i>Oeneis chryxus</i>	Chryxus Arctic									
		<i>O. uhleri</i>	Uhler's Arctic									
X		<i>Epargyreus clarus</i>	Silver-spotted Skipper									
X		<i>Thorybes pylades</i>	Northern Cloudywing					2				
	52	<i>Erynnis icelus</i>	Dreamy Duskywing									
X		<i>E. pacuvius</i>	Pacuvius Duskywing					2	2			
X	53	<i>E. persius</i>	Persius Duskywing				1		1			
			Common Checkered-skipper									
X	54	<i>Pyrgus communis</i>	Common Checkered-skipper						1			5
X		<i>Piruna pirus</i>	Russet Skipperling						1	2	2	
X		<i>Oarisma garita</i>	Garita Skipperling						1			
X		<i>Hesperia colorado</i>	Common Branded Skipper									56
X		<i>H. pahaska</i>	Pahaska Skipper									
	55	<i>H. viridis</i>	Green Skipper									
X		<i>Polites themistocles</i>	Tawny-edged Skipper									
X		<i>P. mystic</i>	Long Dash									
X	56	<i>Ochlodes sylvanoides</i>	Woodland Skipper									7
X	57	<i>Poanes taxiles</i>	Taxiles Skipper								9	
X	58	<i>Euphyes vestris</i>	Dun Skipper						3	4	51	
X		<i>Atrytonopsis hianna</i>	Dusted Skipper					1				
X	59	<i>Amblyscirtes aenus</i>	Bronze Roadside-skipper							1?		
	60	<i>A. vialis</i>	Common Roadside-Skipper									
		skipper sp.										1

2005 Butterfly Survey  
Heil Valley Ranch Open Space  
Geer / Red Hill

1

Species observed in 2002-2005		Location:	Geer Canyon	Geer Canyon	Geer Canyon	Upper Geer Canyon	Upper Geer Canyon	Upper Geer Canyon	Red Hill
X =	# =	Survey Dates:	16-Apr-05	26-May-05	1-Jun-05	14-Jun-05	30-Jun-05	30-Aug-05	28-Jun-05
2005	2004	Scientific Name	Common Name						
		<i>Parnassius smintheus</i>							
X		<i>Papilio polyxenes</i>				1			
X	1	<i>P. zelicaon</i>		1 (n)					
		<i>P. indra</i>							
X	2	<i>P. indra</i>							
		<i>P. rutulus</i>			3	6	3		2
X	3	<i>P. rutulus</i>							
X	4	<i>P. curymedon</i>		1	4	9	4		1
X	5	<i>P. multicaudata</i>							1
		swallowtail sp.							
	6	<i>Neophasia menapia</i>						1	
X	7	<i>Pontia protodice</i>		2	1	2	2		3
	8	<i>P. occidentalis</i>							
	9	<i>P. sisymbrii</i>							
X	10	<i>Pieris rapae</i>	21	21	6	12	16	34	2
X	11	<i>P. marginalis</i>					1		
X	12	<i>Euchloe ausonides</i>		2					
X	13	<i>E. olympia</i>			6				
		<i>Anthocharis julia</i>							
X	14	<i>Anthocharis julia</i>							
		white sp.	8			21	2		5
X	15	<i>Colias philodice</i>		1+albino		1		2	1
X	16	<i>C. eurytheme</i>				2		4	8
X		<i>C. alexandria</i>							
X		<i>Eurema mexicana</i>							
X		<i>Nathalis iole</i>				1	1		
X		sulphur sp.	1		3	4			
		<i>Lycæna heteronea</i>							
X	17	<i>Callophrys affinis</i>				1			1
		<i>C. sheridani</i>							
X	18	<i>C. sheridani</i>							
X	19	<i>C. gyrneus</i>							1
X	20	<i>C. eryphon</i>	4		6	1			
		<i>Satyrrium titus</i>							
		<i>S. behrii</i>							
X	21	<i>Strymon melinus</i>						1	1
X		<i>Leptotes marina</i>							
X	22	<i>Cupido amyntula</i>		1	3	1			1
X	23	<i>Celastrina ladon sidara</i>			1				
X		<i>C. humulus</i>							
X	24	<i>Glaucopsyche piasus</i>			1	1	1		
X	25	<i>G. hydamus</i>		1	4	4			
		Rocky Mountain							
X	26	<i>Euphilotes ancilla</i>				4			
X	27	<i>Echinargus isola</i>					3		9
X	28	<i>Plebejus melissa</i>		6	3	2			3
		<i>P. saepiolus</i>							
X	29	<i>P. icarioides</i>		1	4	9	9		5
X	30	<i>P. lupini luzzi</i>							
		<i>P. glandon rustica</i>							
X		blue sp.				1		2	1
X	32	<i>Danais plexippus</i>				1			
X	33	<i>Euptoieta claudia</i>		1	3	5			13
X	34	<i>Speyeria aphrodite</i>				1	13	30+	14
X	35	<i>S. edwardsii</i>				2			1
X	36	<i>S. coronis</i>							10
X		<i>S. callippe</i>			1	1			1
X		<i>S. atlantis</i>							
X	37	<i>S. hesperis</i>							
X		<i>S. mormonia</i>						1	2
X		fritillary sp.			2	7	13		28++

2005 Butterfly Survey  
Heil Valley Ranch Open Space  
Geer / Red Hill

Species observed in 2002-2005		Location:	Geer Canyon	Geer Canyon	Geer Canyon	Upper Geer Canyon	Upper Geer Canyon	Upper Geer Canyon	Red Hill
		Survey Dates:	16-Apr-05	26-May-05	1-Jun-05	14-Jun-05	30-Jun-05	30-Aug-05	28-Jun-05
X = 2005	# = 2004	Scientific Name	Common Name						
X	38	<i>Chlosyne gorgone</i>	Gorgone Checkerspot						
	39	<i>C. nycteis</i>	Silvery Checkerspot						
		<i>C. palla</i>	Northern Checkerspot						
		checkerspot sp.							
X		<i>Phyciodes mylitta</i>	Mylitta Crescent		1	5			
X	40	<i>P. tharos</i>	Pearl Crescent		1				
X	41	<i>P. cocyta</i>	Northern Crescent		2	1	3		
X	42	<i>P. pulchella</i>	Field Crescent		9	18	49	6	7
		<i>Euphydryas anicia</i>	Variable Checkerspot						
		crescent sp.							
X		<i>Polygonia satyrus</i>	Satyr Comma						
X	43	<i>P. gracilis</i>	Hoary Comma		4	1			
		anglewing sp.							
	44	<i>Aglais milberti</i>	Milbert's Tortoiseshell						
X	45	<i>Nymphalis antiopa</i>	Mourning Cloak		2	1	3	1	
X	46	<i>Vanessa atalanta</i>	Red Admiral		2	6			
X	47	<i>V. cardui</i>	Painted Lady		146	1	8	8	6
		<i>V. virginiensis</i>	American Lady						
X	48	<i>Limenitis weidemeyerii</i>	Weidemeyer's Admiral		2		2	1	
X		<i>Asterocampa celtis</i>	Hackberry Emperor						
		<i>Coenonympha tullia</i>							
X	49	<i>ochracea</i>	Ochre (Common) Ringlet		5	2	35		
X	50	<i>Cercyonis pegala</i>	Common Wood-Nymph						
X	51	<i>C. oetus</i>	Small Wood-Nymph						
		<i>Erebia epipsodea</i>	Common Alpine						
		<i>Oeneis chryxus</i>	Chryxus Arctic						
		<i>O. uhleri</i>	Uhler's Arctic						
X		<i>Epargyreus clarus</i>	Silver-spotted Skipper						3
X		<i>Thorybes pylades</i>	Northern Cloudywing						1
	52	<i>Erynnis icelus</i>	Dreamy Duskywing						1
X		<i>E. pacuvius</i>	Pacuvius Duskywing						1
X	53	<i>E. persius</i>	Persius Duskywing						1
			Common Checkered-skipper						3
X	54	<i>Pyrgus communis</i>	Russet Skipperling						1
X		<i>Piruna pirus</i>	Garita Skipperling						4
X		<i>Oarisma garita</i>	Common Branded Skipper						1
		<i>Hesperia colorado</i>	Skipper						
X		<i>H. pahaska</i>	Pahaska Skipper						
	55	<i>H. viridis</i>	Green Skipper						
X		<i>Polites themistocles</i>	Tawny-edged Skipper						1
X		<i>P. mystic</i>	Long Dash						6
X	56	<i>Ochlodes sylvanoides</i>	Woodland Skipper						
X	57	<i>Poanes taxiles</i>	Taxiles Skipper						
X	58	<i>Euphyes vestris</i>	Dun Skipper						7
X		<i>Atrytonopsis hianna</i>	Dusted Skipper						4
	59	<i>Amblyscirtes aenus</i>	Bronze Roadside-skipper						2
			Common Roadside-Skipper						
	60	<i>A. vialis</i>	Skipper						1
		skipper sp.							6

**2005 Butterfly Survey**  
**BCPOS / Heil Valley - NOTES**

NOTES:	COMMENTS:	FIELD OBSERVERS:
<p><b>March 4, 2005</b>  <b>Lichen TH-Creek</b>                      12:00 - 1:30 pm                      10 - 15 deg C                      Ptly Cloudy  <i>Walked lower Lichen Trail along road and creek back to parking lot.</i></p>	<p>Both mourning cloak (<i>N. antiopa</i>) and hoary comma (<i>P. gracilis</i>) found basking on rock</p>	<p>Cathy and Donn Cook</p>
<p><b>April 4, 2005</b>  <b>Roadway to Plumely Canyon opening</b>                      1:00 - 1:40 pm                      cloudy; 18 - 19.5 deg C</p>	<p>Cabbage white (<i>P. rapae</i>) extremely fresh spring form - white clear dorsal, chartreuse ventral; geometrid moth, probably <i>Hydriomena</i></p>	<p>Cathy and Donn Cook, Jan Chu</p>
<p><b>April 16, 2005</b>  <b>Geer Canyon</b>                      11:30am - 1:30pm                      1:50pm - 2:30pm                      11 - 19 deg C                      Full sun  <i>Streamside at Manager's residence; south at 2nd culvert, up gulley; crossed hill to Geer Stream to picnic area.</i></p>	<p>Very few blossoms - Western pine elfin (<i>C. eryphon</i>) on ponderosa pine saplings in stream. <i>Rapae</i> oviposting on water cress (<i>Nasturtium officinale</i>).</p>	<p>Jan Chu</p>
<p><b>April 18, 2005</b>  <b>Plumely Canyon</b>                      10:10am-12:20 pm                      -- to 22 deg C                      clear to partly cloudy</p>	<p>Plumely to meadow; counted only on the way up. Large sphinx moth (white-lined); greasy bear fur on trail. Oregon grape (<i>Mahonia repens</i>) in full bloom.</p>	<p>Cathy and Donn Cook, Jan Chu, Jean Morgan</p>
<p><b>May 16, 2005</b>  <b>Plumely Canyon</b>                      9:00am - 12:30pm                      19-20 deg C @ noon                      overcast sky  <i>Plumely Canyon to meadow.</i></p>	<p>Many pearl crescents and blues appeared between noon and 12:30 p.m. on our return trip. Signs of hail yesterday-mullein leaves with holes, juniper branches and 'berries' on ground. Stream was deep and had to be forded many times. Wild plums, winter cress, golden banner in bloom.</p>	<p>Jan Chu, Joe Krieg, June Joerns</p>

**2005 Butterfly Survey**  
**BCPOS / Heil Valley - NOTES**

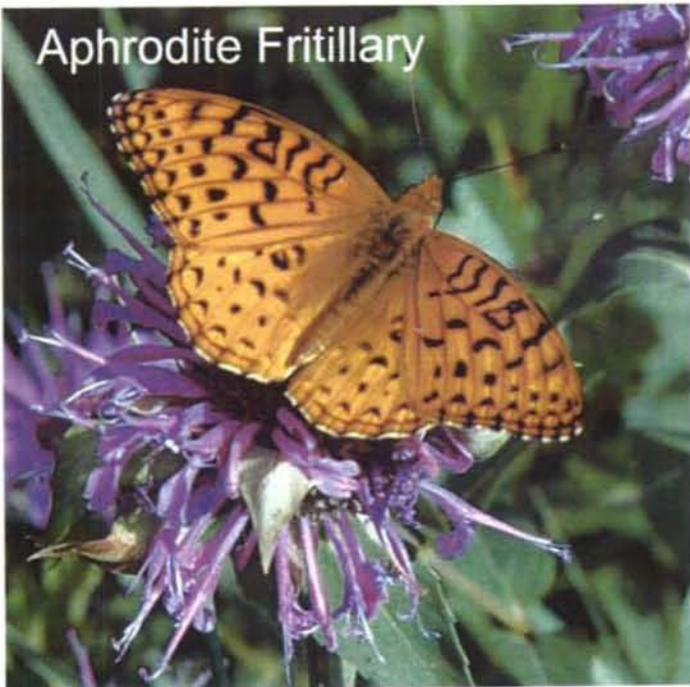
NOTES:	COMMENTS:	FIELD OBSERVERS:
<b>May 26, 2005</b>		
<b>Geer Canyon</b>		
13. deg C @ 11:15 a.m.		
13.5 deg C @ 12:50 p.m.		
- 3:00 p.m.	Butterflies flew only when	
95% overcast	a few moments of sun	
<i>Geer from public parking</i>	shone. Massive clouds of	Jean Morgan, Susan Harris,
<i>to 2nd culvert above</i>	pollen from ponderosa	Jan Chu
<i>Manager's cabin</i>	pine. Rock squirrel.	
<b>May 27, 2005</b>		
<b>Road from TH to top of Plumely Canyon</b>		
9:30am - 2:30pm	Water in creek along road;	
12 deg C @ 9:30am	BFs puddling on road;	
16 deg C @ 1:00pm	water in Plumely Canyon;	
18 deg C @ 2:30 pm	BFs nectaring on yellow	
100% clear skies;	clover, lupine, western	
gentle breeze	wallflower and many other	
Walked from parking lot	plants. Chokecherry,	
along road to Plumely	lupine, golden banner,	
Canyon, then up Plumely	penstemon in full bloom.	
Canyon to meadow.	<b>37 species by this date in</b>	
	<b>2005!</b>	Cathy and Donn Cook
<b>June 1, 2005</b>		
<b>Geer Canyon Road</b>		
10:00am - 1:00pm		
18 deg C		Jan Chu, Cathy and Donn
ptly cldy - no wind	Water in creek along road;	Cook, (training Ecosystem
<i>Walked from parking lot</i>	BFs puddling on road; BFs	Stewards) Linda Andes-
<i>along road part way up</i>	flew during moments of	George, Mary Jane Howell,
<i>Geer Canyon</i>	sunshine	Karen Holwig
<b>June 14, 2005</b>		
<b>Upper Geer Canyon</b>		
10:00 a.m. - 2:30 pm		
16 deg C at 10:00 am		
19.5 deg C at 12:30 pm		
clear sky, no wind		
<i>Walked from Och's</i>	Black Swallowtail	
<i>barn/fence across</i>	( <i>P.polyxenes</i> ) ovipositing	
<i>meadows, ravines, burned</i>	on poison hemlock, in	
<i>area, stream, roadside</i>	burned area. Hummingbird	Cathy and Donn Cook, Jan
<i>puddles</i>	taking dandelion fluff.	Chu
<b>June 25, 2005</b>		
<b>Roadway from parking lot toward Wapiti TH</b>		
9:00am-12:00noon		
17 deg C		
12:50-3:00pm		Cathy and Donn Cook, Jan
24 deg C		Chu for BOCO Parks &
Mostly cloudy, slight wind		Open Space Discover
<i>Afternoon walked from</i>		Program, Joe Kreig -
<i>Manager's residence on</i>		Jan Chu and Mike
<i>roadway 200 yards</i>		Sportiello (afternoon)

**2005 Butterfly Survey**  
**BCPOS / Heil Valley - NOTES**

NOTES:	COMMENTS:	FIELD OBSERVERS:
<b>June 28, 2005</b>		
<b>Red Hill</b>		
9:00am-12:00noon		
22 deg C	Two female albino sulphurs.	
95% sun		
12:20-1:00pm	Fritillary species too numerous to count.	Jan Chu, Cathy and Donn Cook, Mike Sportiello
cloudy		
<b>June 29, 2005</b>		
<b>Lower Plumely Canyon</b>		
8:30am-1:00pm	Mexican sulphur (photo) - hops azure ( <i>C. humulus</i> ) (photos). Species of butterflies puddling in road - streamside	Jan Chu, Larry Crowley
20.5 deg C at 8:50am		
Partly cloudy, breezy		
<b>June 30, 2005</b>		
<b>Upper Geer</b>		
8:30am - 1:20pm	Scat moistened, Fritillaries returned in 4 minutes (photos). Taxiles skipper fanning phermones repeatedly touching leaftip of wax current (5 min.)	Jan Chu, Jean Morgan
17 deg C - 19 deg C		
clear sky		
<b>July 5, 2005</b>		
<b>Plumely Canyon</b>		
8:45am-11:00am		
16 deg C at 8:45		Cathy and Donn Cook, Jan Chu, Herb and Olga Clarke, Randy Emmitt
total overcast;		
2% clear sky		
<b>August 29, 2005</b>		
<b>Plumely Canyon</b>		
10:10am - 1:40pm	Few flowers; Aphrodite Fritillary nectaring on catnip. Abert's squirrel; old deer carcass between lower Plumely stream and roadway.	Cathy and Donn Cook, Jan Chu, Larry Crowley, Mike Sportiello
26 deg C		
100% clear sky		
<b>August 30, 2005</b>		
<b>Upper Geer Canyon</b>		
8:30 a.m. - 12:00	Catnip, Canada thistles, blue asters used for nectar. Identified Mormon fritillary nectaring on blue aster.	Jan Chu and Mike Sportiello
30 deg C - 32 deg C		
100% clear sky		

# Butterflies of Heil Valley

Aphrodite Fritillary



Gorgone Checkerspot



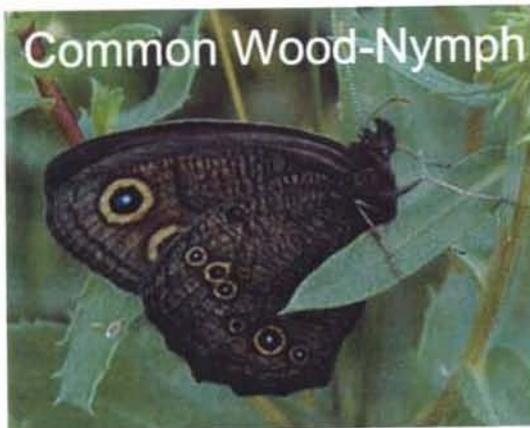
Dotted Blue



Hops Azure



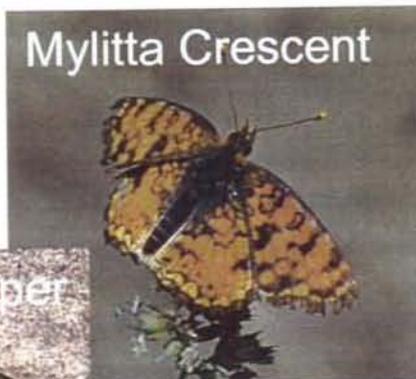
Common Wood-Nymph



Hoary Comma



Mylitta Crescent



Sheridan's Hairstreak



Bramble  
Hairstreak



Taxiles Skipper



Photos by: Jan Chu  
and Cathy Cook

2005 Butterfly Survey  
Caribou Ranch Open Space

Species observed in 2004-		Survey Dates: 7-Jun-05 21-Jun-05 22-Jun-05 30-Jun-05 7-Jul-05 26-Aug-05								
X = 2005	# = 2004	Scientific Name	Common Name	Number of individuals observed						
		<i>Parnassius</i>	Rocky Mountain							
X	1	<i>smintheus</i>	Parnassian			4	13	12		
X	2	<i>Papilio zelicaon</i>	Anise Swallowtail			1				
			Western Tiger							
X	3	<i>P. rutulus</i>	Swallowtail				3	4		
X		<i>P. eurymedon</i>	Pale Swallowtail	1				1		
X		<i>Neophasia menapia</i>	Pine White							2
X	4	<i>Pontia protodice</i>	Checkered White		3	21	9	5		
X	5	<i>Pieris rapae</i>	Cabbage White					1		5
X	6	<i>P. marginalis</i>	Mustard White	1		3	1	2		
X	7	<i>Euchloe ausonides</i>	Large Marble	9		1				
			Southern Rocky							
X		<i>Anthocharis julia</i>	Mountain Orangetip	2	1	2				
X		white sp.		10		1		3		
X		<i>Colias philodice</i>	Clouded Sulphur			1	3			1
X	8	<i>C. eurytheme</i>	Orange Sulphur				3	1		4
			Queen Alexandra's							
X	9	<i>C. alexandra</i>	Sulphur					10		1
X		<i>Eurema mexicana</i>	Mexican Sulphur	1						
X	10	<i>Nathalis iole</i>	Dainty Sulphur			1	1			
X		sulphur sp.				1		7		
	11	<i>Lycaena rubidus</i>	Ruddy Copper							
	12	<i>L. helloides</i>	Purplish Copper							
			Canyon							
X		<i>Callophrys affinis</i>	Bramble Hairstreak			1	2			
X		<i>C. spinetorum</i>	Thicket Hairstreak	1	1		2	1		
	13	<i>C. eryphon</i>	Western Pine Elfin							
	14	<i>Strymon melinus</i>	Gray Hairstreak							
X	15	<i>Cupido amyntula</i>	Western Tailed-Blue			1		1		1
X	16	<i>Celastrina ladon sidara</i>	Spring Azure	7		9				
X	17	<i>Glaucopsyche lygdamus</i>	Silvery Blue	3		2				
			Rocky Mountain Dotted-							
X	18	<i>Euphilotes ancilla</i>	Blue				3	3		
X	19	<i>Echinargus isola</i>	Reakirt's Blue			1	3	3		
X		<i>Plebejus melissa</i>	Melissa Blue				1			
	20	<i>P. saepiolus</i>	Greenish Blue							
X	21	<i>P. icarioides</i>	Boisduval's Blue		3	12	8	6		
X	22	<i>P. lupini lutzii</i>	Lupine Blue					2		
X		<i>P. glandon rustica</i>	Arctic Blue					3		
X		blue sp.		2		4				

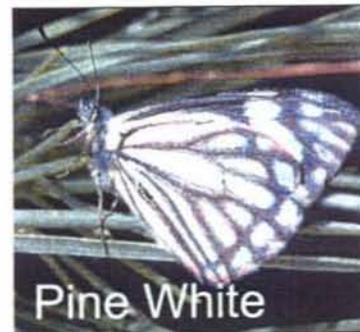
2005 Butterfly Survey  
Caribou Ranch Open Space

Species observed in 2004-2005		Survey Dates: 7-Jun-05 21-Jun-05 22-Jun-05 30-Jun-05 7-Jul-05 26-Aug-05							
X = 2005	# = 2004	Scientific Name	Common Name	Number of individuals observed					
X	23	<i>Euptoieta claudia</i>	Variegated Fritillary	1	2	2		5	
	24	<i>Speyeria aphrodite</i>	Aphrodite Fritillary						
	25	<i>S. hesperis</i>	Northwestern Fritillary						
		fritillary sp.						1	
	26	<i>Poladryas arachne</i>	Arachne Checkerspot						
	27	<i>Chlosyne nycteis</i>	Silvery Checkerspot						
X	28	<i>C. palla</i>	Northern Checkerspot			3	3	2	
		checkerspot sp.							
	29	<i>Phyciodes tharos</i>	Pearl Crescent						
X	30	<i>P. cocyta</i>	Northern Crescent					2	
X	31	<i>P. pulchella</i>	Field Crescent			3	1		
X	32	<i>Polygonia gracilis</i>	Hoary Comma			1	1		
X		<i>Nymphalis antiopa</i>	Mourning Cloak	1					
X		<i>Vanessa cardui</i>	Painted Lady	16	1	52	18	7	4
X		<i>V. virginiensis</i>	American Lady					1	
	33	<i>Limenitis weidemeyerii</i>	Weidemeyer's Admiral						
		<i>Coenonympha tullia</i>	Ochre (Common)						
X	34	<i>ochracea</i>	Ringlet		1	42	21	12	
X		<i>Cercyonis pegala</i>	Common Wood-Nymph						3
	35	<i>C. oetus</i>	Small Wood-Nymph						1
X		<i>Erebia epipsodea</i>	Common Alpine			32	6		
	36	<i>Oeneis chryxus</i>	Chryxus Arctic						
X		<i>Thorybes pylades</i>	Northern Cloudywing				2	1	
X		<i>Erynnis icelus</i>	Dreamy Duskywing			1		1	
X		<i>E. pacuvius</i>	Pacuvius Duskywing			1		4	
X	37	<i>E. persius</i>	Persius Duskywing	4	2	8	8		
		duskywing sp.				2		1	
			Common Checkered-skipper					1	
X		<i>Pyrgus communis</i>							
	38	<i>Piruna pirus</i>	Russet Skipperling						
			Common Branded						
	39	<i>Hesperia colorado</i>	Skipper						
	40	<i>H. pahaska</i>	Pahaska Skipper						
X		<i>H. nevada</i>	Nevada Skipper			3	10	7	
X		<i>Polites draco</i>	Draco Skipper			3	4		
		skipper sp.							

2005 Butterfly Survey  
BCPOS / Caribou Ranch - NOTES

NOTES:	COMMENTS:	FIELD OBSERVERS:	NOTES:	COMMENTS:	FIELD OBSERVERS:
<b>June 7, 2005</b>					
10:20am - 4:00pm 53 deg F at 10:20am; 13 deg C at noon; 68 deg F at 4:00pm clear sky to stormy dark, then clearing and warmer	photos: <i>E. mexicana</i> , <i>A. julia</i> ; Painted ladies very tattered	Larry Crowley, Carol Cushman, Jean Morgan, Jan Chu		Two pine squirrels; W. Tiger Swallowtail ( <i>P. rutulus</i> ) nectaring on Lambert's loco	Cathy and Donn Cook, Jan Chu, Jean Morgan, Joe Krieg, Lynn and Gene Monroe, Ro and Betty Wauer, Herb and Olga Clarke
<b>June 21, 2005</b>					
9:25-11:00am B: 96% sun - E: rain 23.5 deg C Inside locked gate along roadway to fork in road		Cathy and Donn Cook, Jan Chu	<b>July 7, 2005</b> <b>Road from gate to ponds</b> 8:45am-12:15pm 22 deg C 100% sun		
<b>June 22, 2005</b>					
8:25-11:00am 20 deg C 8:25am - 65% sun 9:30am - 100% sun 12 noon - clouds, thunder Inside locked gate, beg. At fork in road (Bluebell Loop) left road, and adjacent meadows. Public trail 11:40-12noon	Draco Skipper (photo)	Cathy and Donn Cook, Jan Chu	<b>August 26, 2005*</b> 9:00am - 1:00pm 22.5 deg C (10:45am) 96% clear Parking lot - Delonde homestead - mine - trail to parking lot.	*This was an advanced training event. Butterflies were casually observed and recorded during the training	Cathy and Donn Cook
<b>June 30, 2005</b>					
9:30am-1:30pm 16 deg C 100% sun Parking lot along trail to main road; then left along main road to creek crossing	Mating Draco Skippers (photo)	Cathy and Donn Cook			

# Butterflies of Caribou



Photos by: Jan Chu and Cathy Cook



## Boulder County Parks and Open Space - PLAINS

Sightings P-F-M	Scientific Name	Common Name	P	P	P	P	P	P
			Pella Crossing	Rabbit Mountain	Rabbit Mountain	Rock Creek Farm	Rock Creek Farm	Rock Creek Farm
			23-Apr-05	7-Apr-05	27-Jun-05	18-May-05	30-May-05	20-Jun-05
X	<i>Phyciodes mylitta</i>	Mylitta Crescent						
X	<i>P. tharos</i>	Pearl Crescent				10		
X	<i>P. cocyta</i>	Northern Crescent						
X	<i>P. pulchella</i>	Field Crescent			11	12		
X	<i>P. pulchella camillus</i>	Field Crescent						
	<i>Euphydryas anicia</i> crescent sp.	Variable Checkerspot						
X	<i>Junonia coenia</i>	Common Buckeye						
X	<i>Polygonia satyrus</i>	Satyr Comma						
X	<i>P. gracilis</i> anglewing sp.	Hoary Comma				1		
	<i>Aglaia milberti</i>	Milbert's Tortoiseshell						
X	<i>Nymphalis antiopa</i>	Mourning Cloak						
X	<i>N. californica</i>	California Tortoiseshell						
X	<i>Vanessa atalanta</i>	Red Admiral	1		2			
X	<i>V. cardui</i>	Painted Lady	14	4	2	6	1	4
X	<i>V. virginensis</i>	American Lady					1	
X	<i>Limenitis weidemeyerii</i>	Weidemeyer's Admiral						
	<i>Asterocampa celtis</i>	Hackberry Emperor						
	<i>Coenonympha tullia</i> <i>ochracea</i>	Ochre (Common) Ringlet						
X	<i>Cercyonis pegala</i>	Common Wood-Nymph						
	<i>C. oetus</i>	Small Wood-Nymph						
	<i>Erebia epistodea</i>	Common Alpine						
	<i>Oeneis chryxus</i>	Chryxus Arctic						
X	<i>O. uhleri</i>	Uhler's Arctic						
X	<i>Epargyreus clarus</i>	Silver-spotted Skipper						
	<i>Thorybes pylades</i>	Northern Cloudywing						
	<i>Erynnis icelus</i>	Dreamy Duskywing						
X	<i>E. pacuvius</i>	Pacuvius Duskywing						
X	<i>E. persius</i>	Persius Duskywing						
	<i>Pyrgus communis</i>	Common Checkered-skipper			1			5
X	<i>Piruna pirus</i>	Russet Skipperling						
	<i>Oarisma garita</i>	Garita Skipperling						
X	<i>Hesperia colorado</i>	Common Branded Skipper						
	<i>H. pahaska</i>	Pahaska Skipper						
	<i>H. viridis</i>	Green Skipper						
	<i>Polites themistocles</i>	Tawny-edged Skipper						
X	<i>P. mystic</i>	Long Dash						
X	<i>Ochlodes sylvanoides</i>	Woodland Skipper						
X	<i>Poanes taxiles</i>	Taxiles Skipper						
X	<i>Euphyes vestris</i>	Dun Skipper						
	<i>A. aenus</i>	Bronze Roadside-skipper						
	<i>Amblyscirtes vialis</i> skipper sp.	Common Roadside-skipper						

## Boulder County Parks and Open Space - FOOTHILLS / MONTANE

	F	F	F	F	F	F	F	F	M	M	M
P = Plains											
F = Foothills	Anne U.	Anne U.	Anne U.	Anne U.	Anne U.	Anne U.	Steamboat	Steamboat	Meyers	Meyers	Reynolds
M = Montane	White	White	White	White	White	White	Rock	Rock	Gulch	Gulch	Ranch
	4-Apr-05	13-Jun-05	17-Jun-05	24-Jun-05	6-Jul-05	24-Aug-05	9-May-05	8-Jun-05	2-Jun-05	3-Jun-05	21-Jun-05
Common Name											
Rocky Mountain											
Parnassian					2						
Black Swallowtail											
Anise Swallowtail							4				
Short-tailed Black Swallowtail			1?								
'black' swallowtail											
Western Tiger Swallowtail		4	14	6	8	2				2	1
Pale Swallowtail		8			3					4	
Two-tailed Swallowtail				1?	3						
Pine White											
Checkered White			2	7			2	3	1	3	9
Western White								1			
Spring White											
Cabbage White		6	2	7	8	21					
Mustard White											
Large Marble		16	4	4			2			3	2
Olympia Marble							10	1			
Southern Rocky Mountain Orangetip		7									1
Clouded Sulphur	1	3	6	5			25	8	2	5	
Orange Sulphur		1			5						
Dainty Sulphur		1									
		1		1							
Blue Copper											
Purplish Copper Canyon											
Bramble Hairstreak		1			1				1	1	
Sheridan's Hairstreak (White-lined Green)											
Siva' Juniper Hairstreak											
Hoary Elfin									1	7	
Western Pine Elfin		5		1			4				
Coral Hairstreak					1						
Behr's Hairstreak								1			
Gray Hairstreak							1				
Western Tailed-Blue		2								1	
Spring Azure		1	2							7	
Hops Azure											
Arrowhead Blue											
Silvery Blue		5								3	
Rocky Mountain Dotted-Blue		8	2	8	2						
Reakirt's Blue				2		1					
Melissa Blue		2		3						1	
Greenish Blue											
Boisduval's Blue										1	
Lupine Blue		1						1			
Arctic Blue											
		3				1				5	
Monarch											
Variagated Fritillary			1	2							2
Aphrodite Fritillary			1		8			2			
Edwards' Fritillary						1					
Coronis Fritillary								2			
Callippe Fritillary					1						
Northwestern Fritillary				1		1					
Mormon Fritillary											
		1			3	27		6	1	3	
Gorgone Checkerspot		1	1					1		3	
Silvery Checkerspot							9				
Northern Checkerspot											

## Boulder County Parks and Open Space - FOOTHILLS / MONTANE

	F	F	F	F	F	F	F	F	F	M	M	M
P = Plains												
F = Foothills	Anne U.	Anne U.	Anne U.	Anne U.	Anne U.	Anne U.	Steamboat	Steamboat		Meyers	Meyers	Reynolds
M = Montane	White	White	White	White	White	White	Rock	Rock		Gulch	Gulch	Ranch
	4-Apr-05	13-Jun-05	17-Jun-05	24-Jun-05	6-Jul-05	24-Aug-05	9-May-05	8-Jun-05		2-Jun-05	3-Jun-05	21-Jun-05
Common Name												
Mylitta Crescent		2	3	6	3							
Pearl Crescent			1		2							
Northern Crescent		4	10	11	2							
Field Crescent		24	12	7	1			23			6	
Field Crescent ssp.		1										
Variable Checkerspot												
Common Buckeye		2				2						
Satyr Comma				1?								
Hoary Comma							4				1	
							2					
Milbert's Tortoiseshell												
Mourning Cloak	1	1		5								
California Tortoiseshell												
Red Admiral		4	3	3	5		2					
Painted Lady		2	7	16	5	17	15	3			7	
American Lady					1							
Weidemeyer's Admiral		2	7	2	9			1				
Hackberry Emperor												
Ochre (Common) Ringlet		1		12	9							4
Common Wood-Nymph						4						
Small Wood-Nymph												
Common Alpine												
Chryxus Arctic												
Uhler's Arctic		10									2	
Silver-spotted Skipper				3	15							
Northern Cloudywing												
Dreamy Duskywing												
Pacuvius Duskywing											1	
Persius Duskywing										1	1	3
Common Checkered-skipper		1		1		1						
Russet Skipperling		1										
Garita Skipperling												
Common Branded Skipper						6						
Pahaska Skipper												
Green Skipper												
Tawny-edged Skipper												
Long Dash					1							
Woodland Skipper						23						
Taxiles Skipper				2	22							
Dun Skipper			13	20	38							
Bronze Roadside-skipper												
Common Roadside-Skipper												

**2005 Butterfly Survey**  
**Boulder County Parks and Open Space Properties - NOTES**

1

NOTES:	COMMENTS:	FIELD OBSERVERS:
<b>April 4, 2005</b> <b>Anne U. White</b> 11:30 - 12:30 18 - 19.5 deg. C	Painted lady ( <i>V. cardui</i> ) nectaring on <i>Mahonia</i> ; plants - daisy, salt and pepper, spring beauties; <i>Hydriomena</i> geometrid moth; canyon wren	Cathy and Donn Cook, Jan Chu, Jean Morgan
<b>April 7, 2005</b> <b>Rabbit Mountain</b> 11:00am - 2:00pm 13 - 23 deg C High cirrus to partly cloudy	Very few actual blossoms. Met Sheriff Troy Wolf and Lynette Anderson on Trail	Jean Morgan, Jan Chu
<b>April 23, 2005</b> <b>Pella Crossing</b> 12:07pm-1:05pm 13-14.5 deg C clear sky	Burned irrigation ditches, only 1' tall yellow mustards with some willows and cottonwoods in bloom. Two dozen Yellow-headed blackbirds.	Jan Chu
<b>May 9, 2005</b> <b>Steamboat Rock</b> 10:00am-1:45pm 13-17 deg C nearly clear sky no wind - windy on top of mesa	Elevation from about 6,000 to 6,167 ft. Two cottontails; 100+ sandhill cranes overhead; W. fence lizard ( <i>Sceloperus undulatus</i> ) (photo); chorus of frogs. Authors have flower and bird lists, many photos - available upon request.	Donn and Cathy Cook, R. Carol Cushman, Jan Chu
<b>May 18, 2005</b> <b>Rock Creek Farm</b> Stearns Lake 2:48pm - 4:30pm 25-23 deg C	Yellow mustards (cress) in water attracted the pearl crescents (photo); willow, wild plum, hawthorn, choke cherry. Great horned owl fledgling (photo)	Jan Chu
<b>May 30, 2005</b> <b>Rock Creek Farm</b> 3:00 - 4:15 pm 20.5 deg. C	Cradle Board Trail toward the south. Crab spider caught Purplish Copper ( <i>L. helloides</i> ) (photo). Great horned owl fledgling with short tail, two ear feathers	Jan Chu, Jean Morgan
<b>June 2, 2005</b> <b>Meyers Gulch</b> 11:45 - 12:45 pm 19.5 deg C windy, partly cloudy	Chased out by storm; canyon bramble hairstreak ( <i>C. affinis</i> ) (photo)	Cathy Cook, Jan Chu
<b>June 3, 2005</b> <b>Meyers Gulch</b> 9:30am - 12:30pm 14.5 - 15 deg C ptly cldy-30% clouds (begin) mostly cldy-95% clouds (end)	Hoary elfin colony on kinnikinnick; Pacuvius duskywing ( <i>E. pacuvius</i> ) (photo)	Donn and Cathy Cook, Jan Chu

**2005 Butterfly Survey**  
**Boulder County Parks and Open Space Properties - NOTES**

2

NOTES:	COMMENTS:	FIELD OBSERVERS:
<p><b>June 8, 2005</b>  <b>Steamboat Rock</b>                      11:00 - 2:40 p.m.                      17 deg C - 73 deg F                      clear sky</p>	<p>Parked at gravel road junction inside locked green gate.                      Walked uphill to lake, to peak, past old homestead site.                      Behr's hairstreak (<i>S. behrii</i>) and Coronis Fritillary (<i>S. coronis</i>) (photos)</p>	<p>Jan Chu, Jean Morgan</p>
<p><b>June 13, 2005</b>  <b>Anne U. White</b>                      1:20- 3:40 p.m.                      20.5 deg. C                      clear sky, 40 mph wind</p>	<p><i>Jamesia</i> in bloom.</p>	<p>Jan Chu, Cathy and Donn Cook, Susan Harris</p>
<p><b>June 17, 2005</b>  <b>Anne U White</b>                      9am - 12:30 p.m.                      17 - 20 deg C</p>	<p>Painted ladies (<i>V. cardui</i>) are all very small</p>	<p>Cathy and Donn Cook</p>
<p><b>June 20, 2005</b>  <b>Rock Creek Farm,</b>  <b>Mary Miller Trail</b>                      10:00 - 11:15 am                      Cirrus clouds, sunny;                      gentle breeze                      26.5 - 28 deg C</p>	<p>Checkered whites (<i>P. protodice</i>) nectaring on Canada thistle, bindweed; ovipositing on peppergrass-shepherd's purse; Painted ladies (<i>V. cardui</i>) ovipositing on Canada thistle. Five white pelicans, cormorant.</p>	<p>Jan Chu</p>
<p><b>June 21, 2005</b>  <b>Reynolds Ranch</b>                      12:05pm - _____                      50% sun</p>	<p>Chased out by clouds</p>	<p>Cathy and Donn Cook</p>
<p><b>June 24, 2005</b>  <b>Anne U. White</b>                      11:30am - 1:30pm                      65%-85% sun</p>	<p>Walked only a short distance up the trail. Did not even get to the first stream crossing. This was primarily a photo outing. There were more butterflies than we could count. The numbers listed are minimums. Red clover seemed to be an important nectar plant.</p>	<p>Cathy and Donn Cook</p>
<p><b>June 27, 2005</b>  <b>Rabbit Mountain</b>                      9:00 - 12:00 noon                      20.5 - 30 deg C                      clear sky</p>	<p>Followed irrigation ditch (inside fence, along old ditches, to fence corner); then uphill to mountain mahogany; then down to road. Variegated Fritillary (<i>E. claudia</i>) nectaring on <i>Gaillardia</i>, bindweed.</p>	<p>Jan Chu, Jean Morgan</p>
<p><b>July 6, 2005</b>  <b>Anne U. White</b>                      8:30am -                      19 deg C</p>	<p>Outing for out-of-state photographers.</p>	<p>Jan Chu, Cathy and Donn Cook, Herb and Olga Clark, Randy Emmitt, Ro and Betty Wauer</p>
<p><b>August 24, 2005</b>  <b>Anne U. White</b>                      10:00am - 1:00pm                      clear sky</p>	<p>Walked to the first stream crossing. Catnip was important nectar source.</p>	<p>Jan Chu</p>

# ● Butterfly Life Cycle and Behaviors

Eggs



Caterpillar



Oviposting



Pupa



Adult



Nectaring



Puddling



Basking



Mating



Mating



Prey



Old Age



Life cycle begins again

Photos by: Jan Chu & Cathy Cook

## **B. Detailed Analysis**

### **1. Weather**

Weather patterns during 2005 were generally good and are briefly summarized below.

April had eleven days above 16 degrees C, facilitating the early butterflies, for example, Sheridan's hairstreak (*C. sheridanii*), which is Boulder County's first butterfly to emerge from its chrysalis in the early spring; gray and canyon bramble hairstreaks (*Strymon melinus* and *C. affinis*); and western pine elfin (*C. eryphon*). The adult mourning cloak (*Nymphalis antiopa*) and hoary comma (*Polygonia gracilis*) came out of winter's hibernation. The cabbage white (*Pieris rapae*) flashed a brilliant white, in great numbers and produced three or four broods over the season, appearing every month in our counts.

May was a difficult month because of snow, moisture and cool days.

June was 1.5 degrees cooler than normal, which made it pleasant for field work. The last two weeks were without moisture except for a few thunderstorms followed by drying winds.

July had 22 days in the 90's and was 2.6 degrees warmer and 1.10 inches drier than normal.

August left the summer with low relative humidity and about average low rainfall (Callahan). Butterflies began disappearing into their over-wintering forms, pausing in their life cycles until the next season of activity.

### **2. Overland Fire Burn Area**

The burn area parallel to the road toward the Manager's Residence, was explored on June 14. A small number of butterflies were flying through - ochre ringlets (*Ceononympha tullia ochracea*), cabbage whites, as well as a single field crescent (*Phyciodes pulchella*), pale swallowtail (*Papilio eurymedon*), western pine elfin, dotted blue (*Euphilotes ancilla*), Boisduval blue (*Plebejus icarioides*), Melissa blue (*Plebejus melissa*), W. tailed blue (*Cupido amyntula*) and painted lady (*Vanessa cardui*). Only a black swallowtail (*Papilio polyxenes*) remained for a time ovipositing on poison hemlock, which was a surprise at first, until we remembered the plant is in the parsley family, a favorite host. The number of each species was very small. On August 30, only cabbage whites (*P. rapae*) were observed in this area, nectaring on the invasive Canada thistle. Many more butterflies were flying below these burn areas near Geer Creek. Fire severely affects butterflies and their life cycles, for instance fritillary eggs or early caterpillars over-winter in violet stems and leaf litter; the Sheridan's hairstreak (*C. sheridanii*) in sulphur flower litter (*Erigonium umbellatum*).

### 3. Butterfly Populations

The greatest surprise and pleasure this summer was the astonishing flight of the abundant painted ladies (*V. cardui*). During late March, the authors participated in a national butterfly count in Borrego Springs State Park in the southern California desert and observed the beginning of the ladies' population explosion and dispersal toward Colorado. Reviewing the count, Leader Lynn Monroe wrote in an e-mail, "Monday, March 21, a fellow bird watcher saw 50 per second with his binoculars, for a total of 3,000 per minute. I saw and even drove into that flight for more than ten minutes, a total of about 30,000 for a minimum!! And we were in the middle of the flight with more flying behind us." Later she wrote, still trying to get a justifiable number to report, "On March 21, the morning of our count, Paul Jorgensen, ecologist with the Colorado Desert District, and Hal Cohen, Director of the Swainson Hawk Project, were at the hawk counting site, two miles north and west of Borrego Springs. Paul wrote that he and Hal made several counts of the painted ladies per minute as they crossed over an estimated 50 ft. wide transect. During peak flights, numbers were 600-900 per minute." (Monroe – e-mails). The final report added all of these indicators leaving the numbers in excess of 121,000+ per minute when the masses flew past. Painted ladies were dispersing northward following one of the wettest spring seasons in the southern California desert and the finest bloom in many years.

On April 4, four painted ladies (*V. cardui*) were the first immigrant generation we saw at Heil Valley; then on April 7 the ladies were observed flying over Rabbit Mountain. On April 16 the number grew to 49 per hour in Geer Canyon and on April 18 reached a peak of 112+ per hour in Plumely Canyon. There were too many to accurately record, and no count was included on the return trip, so the numbers could have easily doubled! It was fascinating to see the flight patterns follow a parallel path as the ladies reached the old Ochs homestead ruin in the Plumely meadow. The butterflies came in from the south, only to be stalled by the high ridge to the north. They turned eastward and took the easier route down Plumely Canyon. Of all the butterflies counted in 2005 the single highest population was painted ladies. On June 17 at Anne U. White Trail the painted ladies were exceptionally small (1-13/16" wingspread). Those found during the following 4 weeks (late June, early July) were all small, indicating a second generation that emerged locally. Perhaps during the wet, cold month of May, the caterpillars feeding on thistles had less available food or had to hurry to form their chrysalids. In August we saw normal sized ladies (closer to 2-1/2" wingspread), which indicated a second generation locally or additional *cardui* newly immigrating from the south.

One butterfly mylitta crescent (*P. mylitta*) was a new record for Boulder County, meaning it had not been reported in this county before. In fact we found five at Heil on June 14, and 14 individuals from June 13 to July 6 on Anne U. White trail showing this species had become established in Boulder County. It's interesting to compare Opler's book, 1999, and Kaufman's book, 2003, and notice the range extended from extreme southeastern Colorado toward the eastern mid-section of the state. Their host plants are several kinds of thistles, which are quite available.

Cabbage white (*P. rapae*) butterflies were found in every location except Reynolds Ranch, Steamboat Rock and Meyers Gulch. These were first observed on April 4 with continued sightings into September. It's an example of an exotic becoming so successful and competing with mankind, feeding on cabbages, radishes and other crucifers (Brassicaceae).

"After its unintentional introduction to Quebec in 1860, it has spread through all of North America south of Canadian Taiga, including Hawaii. It wanders everywhere from the latest frost in the spring to the earliest frost in the fall." (Pyle, 1981)

We experienced at least three broods of cabbage whites. The earliest adults were a different form – white on the dorsal (upper surface of the wing), with almost no visible blackish spots; lighter yellow-chartreuse on the ventral (underside). Later adults have the black spots prominent on the dorsal surface and are deeper chartreuse on the ventral. On April 13 we observed new cabbage whites just emerging from their chrysalids; all 32 cabbages were males except for the last individual (near noon) which was female, illustrating that males emerge sooner and prepare for the mating of females.

At Red Hill on June 28 two female albino sulphurs (*Colias* sp.) were netted simultaneously, indicating that a colony in this area carries many albino recessive genes. On June 11, Anne U. White Trail, a noticeably different butterfly was caught. When this happens we must turn to the professionals for help in the identification. We showed photos to Ray Stanford and Jim Scott. An e-mail from Scott said,

"The *Phyciodes* is probably *P. pulchella camillus* male, based on the pointier forewing shape. It is aberrant and has a black area on unf near costa near apex which is normally russet on *pulchella* and blackish on *tharos/cocytia*, but this one is aberrant. I assume it has a totally black antenna club, if it is orange on scaleless area of club then it might be *P. cocytia*. Location and time fits *camillus*, and *cocytia* should be hatching there about now too." (Scott)

If we had not been fortunate enough to photograph this butterfly and refer to the professionals, we would never have been able to ID and record this unusual subspecies.

This season there were 30 butterflies seen for the first time on our inventories at Heil Valley Ranch and Caribou Ranch. This is indicative of good butterfly weather, the greater number of field trips taken into these two areas, and the observers becoming more experienced. The first-time observations are listed below:

**Heil Valley:**

<i>Nathalis iole</i>	Dainty sulphur
<i>Eurema mexicana</i>	Mexican sulphur
<i>Leptotes marina</i>	Marine blue
<i>Speyeria callippe</i>	Callippe fritillary
<i>S. mormonia</i>	Mormon fritillary
<i>Phyciodes mylitta</i>	Mylitta crescent
<i>Polygonia satyrus</i>	Satyr comma
<i>Asterocampa celtis</i>	Hackberry emperor
<i>Atrytonopsis hianna</i>	Dusted skipper

**Caribou:**

<i>Pontia protodice</i>	Checkered white
<i>Euchloe ausonides</i>	Large marble
<i>Papilio eurymedon</i>	Pale Swallowtail
<i>Anthocharis julia</i>	So. R.Mtn. Orangetip
<i>Colias philodice</i>	Clouded sulphur
<i>Eurema mexicana</i>	Mexican sulphur
<i>Callophrys affinis</i>	Canyon bramble hairstreak
<i>C. spinetorum</i>	Thicket hairstreak
<i>Plebejus melissa</i>	Melissa blue
<i>P. glandon rustica</i>	Arctic blue
<i>Nymphalis antiopa</i>	Mourning cloak
<i>Vanessa cardui</i>	Painted lady
<i>V. virginiensis</i>	American lady
<i>Cercyonis pegala</i>	Common wood nymph
<i>Erebia epipsodea</i>	Common alpine
<i>Thorybes pylades</i>	Northern cloudywing
<i>Erynnis icelus</i>	Dreamy duskywing
<i>E. pacuvius</i>	Pacuvius duskywing
<i>Pyrgus communis</i>	Com. Checkered-skipper
<i>Hesperia nevada</i>	Nevada skipper
<i>Polites draco</i>	Draco skipper

The most numerous butterflies referring to one site at a time were as follows:

- a. Heil Valley Ranch - cabbage whites (*C. rapae*), painted ladies (*V. cardui*), Aphrodite fritillaries (*Speyeria aphrodite*) and field crescents (*P. pulchella*). The Red Hill / Plumely map shows local concentrations and locations of three colonies: Garita skipperling (*Oarisma garita*), pine whites (*Neophasia menapia*), and hops azure (*C. humulus*).
- b. Caribou Ranch- the highest numbers were the painted ladies (*V. cardui*), ochre ringlets, (*C. tullia ochracea*), common alpine (*E. epipsodea*), and checkered white (*P. protodice*).
- c. Anne U. White - cabbage whites (*C. rapae*), field crescents (*P. pulchella*), painted ladies (*V. cardui*) and dun skippers (*Euphyes vestris*).
- d. Carolyn Holmberg Preserve at Rock Creek - cabbage whites (*C. rapae*), field crescents (*P. pulchella*), painted ladies (*V. cardui*) and dun skippers (*E. vestris*).

Too few observations on the other areas have been made at this time to designate "most numerous."

#### **4. Rare Butterflies**

The hops azure species, found only in the Front Range, resides on the trailing vines of wild hops (*Humulus lupulus americanus*) at bases of talus slopes. The males dart into the air and return to the leaves without straying, keeping their colony where the host plants grow. Our presence at the right time and place found this distinct colony; whereas the following week there was a sighting of only one hops azure at the same bramble, so their adult flight time is quite short. This rare butterfly is completely dependent upon the wild hops which should be preserved where possible. Increasing construction in the Foothills has often treated the bramble as weeds.

The Ottoe skipper (*Hesperia ottoe*), and Arogos skipper (*Atrytone arogos*) continue to evade us. Voucher specimens were found on the Heil Ranch in 1995, but our team has not seen these yet. We continue to look for other new species which may be extending their ranges northward into Boulder County. The addition of the mylitta crescent (*P. mylitta*) brings the total number of species recorded in Boulder County to 198. There is only one other county El Paso, in Colorado, which has recorded over 200 species. Only U.S. counties bordering Mexico have over 200 species.

#### **5. Protocol for Ecosystem Stewardship Initiative (ESI) / BCNA**

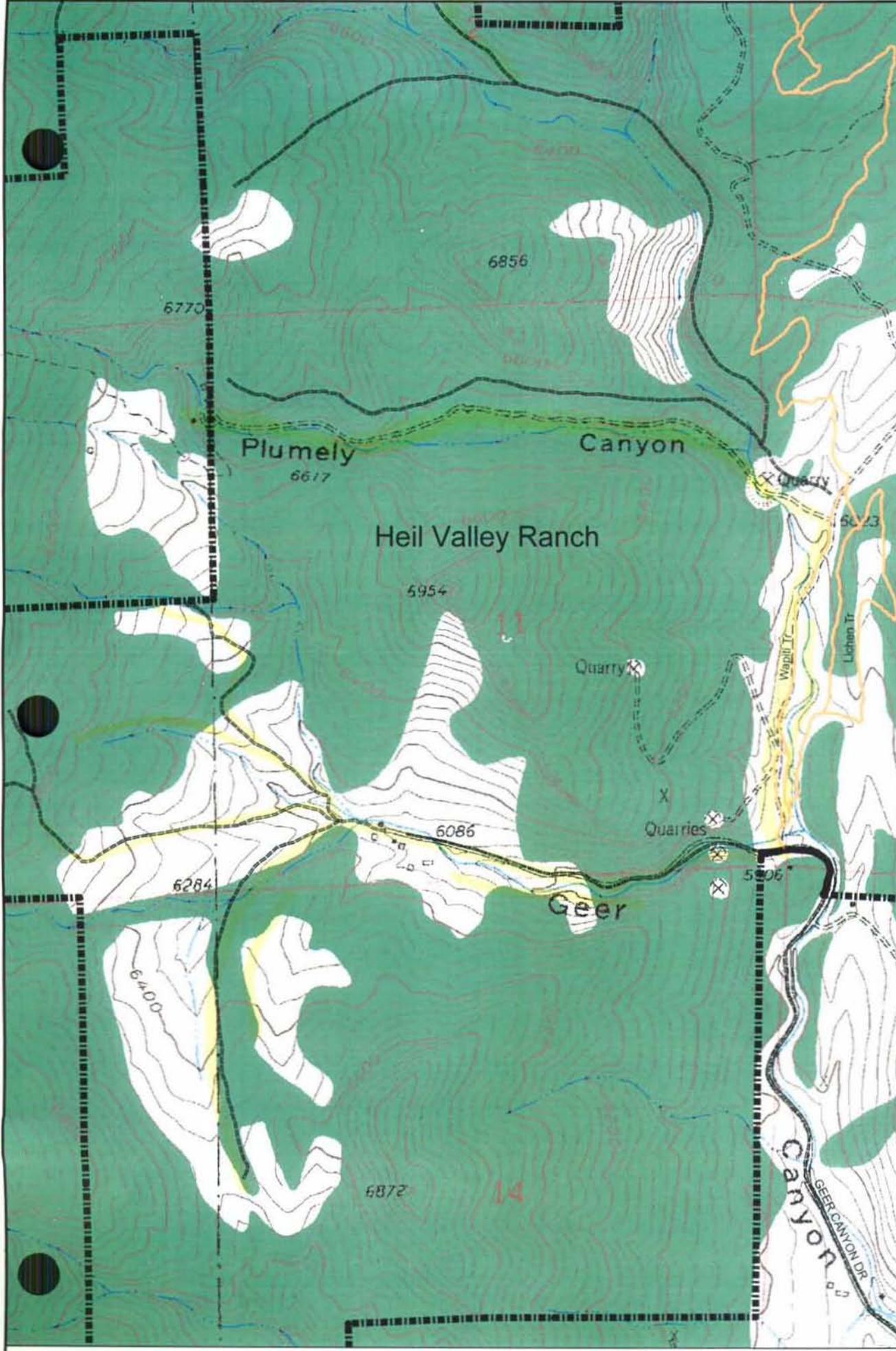
The survey protocol described in IIIA Sampling Methods and Materials, of this paper was used to introduce volunteers to butterfly and food plant surveys. In the future the butterfly surveys will continue to cover a wide range, wherever the water sources and butterflies are found, rather than a prescribed 500 meter or 1,000 meter distances. For years to come, we may continue to inventory species. In the future, if questions are asked about trends and sustainability of habitats, there will need to be a more specific protocol. To assist these new volunteers we prepared Table 10 "Butterfly List by Season - 2002-2005," which verifies the months this team has observed adult butterflies, and Table 11 "Food Plants, Butterfly Seasons, Population Status and Life Zone Occurrences." Both tables are located at the end of this report. This information was requested by the ESI volunteers to assist with identification of species. To simplify the data, butterflies which are rarely observed in the county intentionally have no details listed in Table 11. The seasons of flight and population status are based on observations of the authors of this report; therefore may be modified as future years of research are added.

#### **C. Maps Showing Location of Research Activities (See maps on following pages.)**

##### **1. Heil Valley Ranch– Geer Stream / Plumely Canyon**

##### **2. Heil Valley Ranch – Red Hill / Plumely - Three Butterfly Colonies**

##### **3. Caribou Ranch**



**DISCLAIMER:**  
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 scientific research or mapping. The precise location of any features  
 shown on this map should not be relied upon for any scientific purpose.

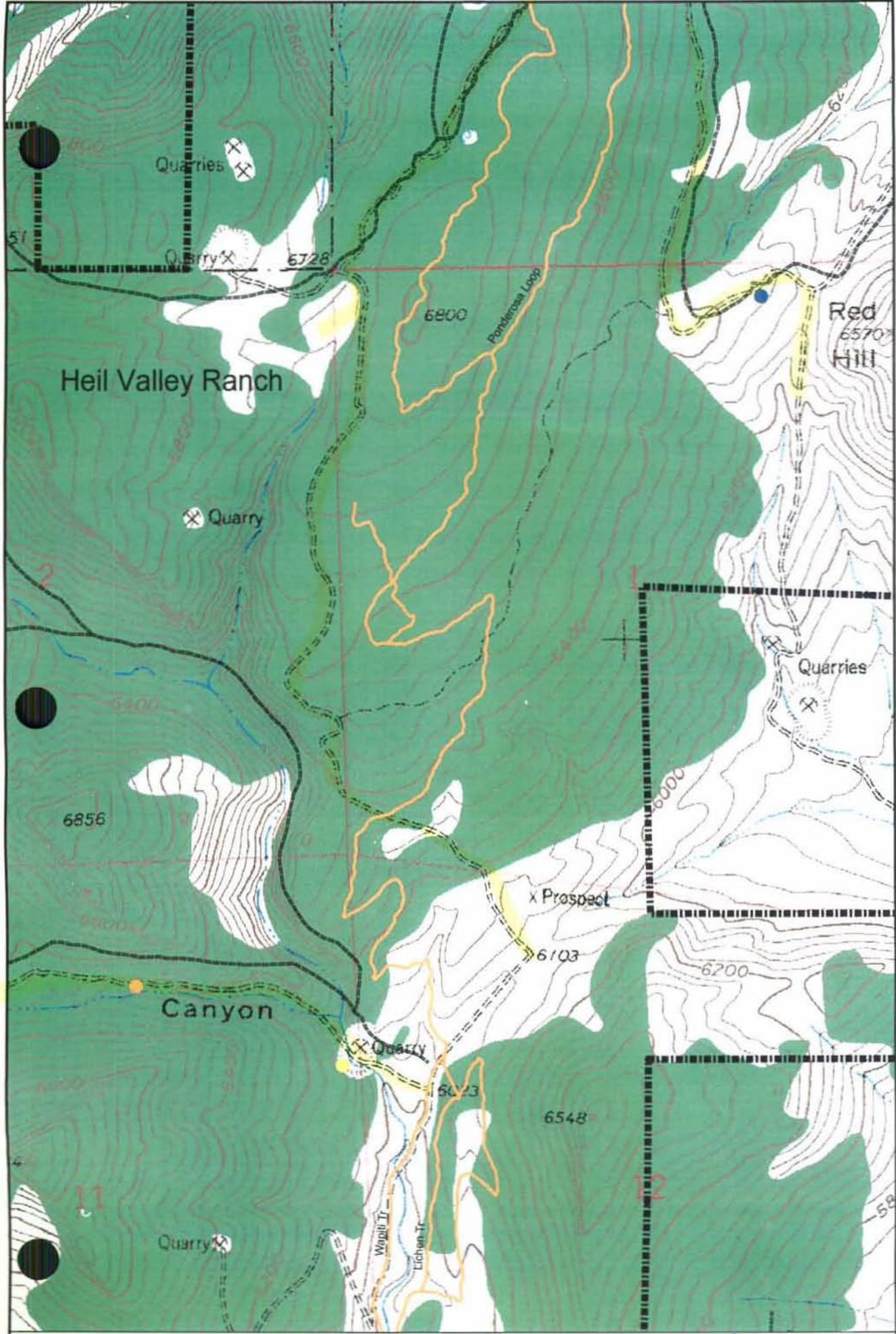
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CONTOUR INTERVAL 40 FEET

- Roads
- Trails
- County Open Space





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CONTOUR INTERVAL 40 FEET

**Colonies**

- 0.25 Miles
- Roads
- Trails
- County Open Space
- Gorilla Skipping
- Pine White
- Hops Blue



#### **D. Application to Natural Resource and/or Visitor Management**

The first step in any management policy is to know what butterflies exist in these Open Space areas, and then plans can be designed effectively. This Small Grant has provided an opportunity to take this first step by supporting a number of inventories. As far as we aware, this is only the second time that anyone has studied butterflies on these lands, because much of the acreage was privately owned with no records kept about butterflies or other invertebrates. Also County Open Spaces are relatively new as public lands. The first study on Heil Valley Ranch was supported by the Natural Heritage Program in 1995. (Simonson, Pineda) However credit must be given to early collectors such as J.Donald Eff, Ray Stanford, Jim Scott, Charles Slater, and Mike Fisher who preserved vouchers in museums, which began the listing of known butterflies in Boulder County.

Application of this information to Open Space management was best stated by Stephen Armstead -

“The Colorado Front Range, including the foothills, is well known and documented for its biological diversity including that of numerous species of butterflies (Opler 1994). Approximately 176 resident or regular colonist skippers and butterflies have been documented in this region representing the fourth richest butterfly region in the United States (CNHP 1998, Opler 1994). Butterflies are excellent invertebrates to include in grassland monitoring programs. They are well studied, easily observed, and can be sensitive to changes in vegetation and management practices (Murphy and Wilcox 1986, New 1997). Many of the butterflies of special interest on Open Space and Mountain Parks include grassland specialist butterflies such as the Ottoe skipper (*Hesperia ottoe*), Arogos skipper (*Atrytone arogos*), and the Regal fritillary (*Speyeria idalia*).” (Armstead, 2004)

Butterfly existences are so ephemeral, that it is difficult for this team to show practical application to natural resource or visitor management. It will require years of study before trends appear, but if there are sudden radical changes (fires or newly cut roadways) we may be able to assess losses. Multiple factors affect populations; that is weather affecting plant growth changes from season to season; weekly temperatures fluctuate and the emergence of adults could vary a couple of weeks early or late; rampant parasitism may occur if the population is large, destroying numbers. What this team has accomplished is to establish baseline inventories on Boulder County Open Space lands. Our field work also introduced and raised the awareness of volunteer naturalists and the general public toward butterflies and their habitat requirements.

We find that if host plants are numerous and varied, and the microcosm is complex, then a greater number of butterfly species exist in an area. Monocultures similar to agricultural crops

support little variety; for example, thinned ponderosa pine stands at Heil along the Red Hill Road, and prairie dog towns devastate the plant life leaving bindweeds and mullein to survive. Agricultural lands purchased by BCPOS and left to lie fallow are invitations to invasive weeds and need revegetation with natives, where possible. Of course, the Canada thistle is a favorite food and nectar plant for painted ladies, but that's not sufficient reason for allowing them to take over.

Finally, butterflies often fly over warm trails making their sighting fairly easy facilitating increased understanding to be shared by BCPOS staff and volunteers during public walks. As we have pointed out, the butterflies have a dependence on plants and moisture which makes for interesting stories to share with visitors. We hope that greater knowledge will lead staff, volunteers and public to further respect and help preserve critical habitat areas on Open Space properties.

## **V. Conclusion**

Heil Valley Ranch – A total of 88 species have been recorded at Heil Valley during four seasons; 77 species were observed on sixteen field days during the summer of 2005.

Caribou Ranch – Sixty-six species of butterflies have been recorded in two years of observation; with 45 species documented at Caribou this summer during six field days.

Anne U. White - During six field days, 53 species were recorded. On one single day, June 13, a high count of 29 was observed. In 2004 an informal one-day count resulted in 36 species.

Carolyn Holmberg Preserve at Rock Creek – During three visits 15 species were counted with only the checkered white (*P. protodice*) in great numbers.

In addition first time inventories on *Other* Open Space lands were completed in 2005.

“Patterns in butterfly species composition, richness, abundance, uniqueness, and diversity are compared across sites and contribute to the development of a butterfly species list and phenology for the Boulder Valley.” (Armstead, 2004)

The continuation of this study will provide an ongoing view of butterfly diversity and provide guidance for the long-term conservation needs of local butterfly populations. The vitality of the BCPOS butterfly habitats is currently good to excellent - the best existing near moisture and mixed vegetation. It will be important to carefully consider the maintenance of these habitats to preserve the diversity of butterfly species and host plants.

## VI. Recommendations

1. Continue to promote awareness of butterflies to BCPOS naturalists, staff and the public.
2. Grant access to Caribou Ranch earlier in the season for study of the early season butterflies.
3. Allow voucher specimens when individuals are unidentifiable in the field. Grant that a single butterfly of a species may be removed, given to a professional for identification, and then placed in the permanent collection of the C. P. Gillette Museum, Colorado State University, Ft. Collins.
4. Use G.P.S. to verify locations of butterfly colonies and findings of particular interest. It is important that this specific information remain confidential.
5. Search for rare and new county butterflies. Opler invites awareness that, "Although not applied yet to other counties, the following should be considered for addition on the watch list: *Celastrina lucia*, *Plebejus "acmon" texana*, *Plebejus "lupini" spangelatus* (not the same species as "lutzi"). There is also the *P. lupini* species that feeds on *Eriogonum effusum* and is found with *Euphilotes rita*."
6. Study meadows and woodlands adjoining the new Caribou trail to highlight any changes resulting from public use.
7. Continue introduction of butterflies to volunteers for the BCNA Ecosystem Stewardship Initiative (ESI) with 1) evening presentations, 2) field experiences, 3) assistance with surveys on sites chosen by the ESI volunteers, 4) permission given by BCPOS for net and release procedures on the Open Space properties during inventory work.
8. Continue to issue permits for volunteer naturalists and their associates to observe, identify and record the butterflies.
9. Consult with invertebrate specialists prior to prescribed burns, so that critical habitat is protected.
10. New public trails should be marked for the public by use of parallel rows of logs or rocks, and not cut, graded, and graveled. In the early years of use, the ground cover will continue to be present to prevent erosion and provide more blossoms. The north end of Heil, between the locked gate on Pyrite Road and the silo, or the horse trail through the north of Heil toward Hall Ranch would be good places for trials for procedural trials. In these areas grasses are thick, and local flowers are well established. Erosion will occur less rapidly.
11. Work with botanists to locate food plants, including tall and short bluestem grass to find the rare butterflies.
12. Maintain policy of no dogs at Heil Valley and Caribou Ranch trails.
13. Print and distribute "Heil Valley Butterflies" checklist produced in 2004.

## VII. References Cited

- Armstead, Steve. "A Butterfly Monitoring Program for Assessing the Composition and Distribution of Butterfly Communities in the City of Boulder Open Space and Mountain Parks" (City of Boulder Open Space & Mountain Parks Dept., and CU). Paper presented at Boulder County Nature Association Symposium, 2004.
- Beidleman, Linda H., R. Beidleman, B. Willard. *Plants of Rocky Mountain National Park*, 2000. Rocky Mountain Nature Association and Falcon Publishing, Inc.
- Brock, Jim and K. Kaufman. *Butterflies of North America*, 2003. Houghton Mifflin Company. New York, New York.
- Brown, F. Martin. 1957. Colorado Butterflies. Denver Museum of Natural History, Denver, CO.
- Callahan, Bill. Weather Review, *Daily Camera*. April Weather Review. May 3, 2005. Ibid. June 2, 2005. Ibid. July 5, 2005. Ibid. September 6, 2005.
- Chu, Janet, C. Cook, D. Cook. "An Inventory of Butterflies at Heil Valley Ranch Open Space 2003". Unpublished. Boulder County Parks and Open Space, Boulder, Colorado
- Chu, Janet, C. Cook, D. Cook. "An Inventory of Butterflies at Heil Valley Ranch Open Space, 2002-2004; Caribou Ranch Open Space 2004." Unpublished, Small Grants Program, Boulder County Parks and Open Space, Boulder, Colorado
- CNHP, Pineda, P. M. and A. R. Ellingson. 1998. "A Systematic Inventory of Rare and Imperiled Butterflies on the city of Boulder Open Space and Mountain Parks". February 1998. A report by the Colorado Natural Heritage Foundation. Fort Collins, Colorado.
- Ferris, Clifford and F. Martin Brown. 1980. Butterflies of the Rocky Mountain States. University of Oklahoma Press, Norman, OK.
- Glassberg, Jeffrey. *Butterflies through Binoculars, the West*. 2001. Oxford University Press, Inc. New York, New York.
- Guennel, G.K. 1995. Guide to Colorado Wildflowers. Volumes 1 and 2. Westcliff Publishers, Englewood, Colorado.
- Kershaw, Linda, A. MacKinnon, and J. Pojar. Plants of the Rocky Mountains. Lone Pine Publishers, Edmonton, Alberta, Canada. 1998.
- Monroe, Lynn. E-mail messages, April 5 and 7, 10, 2005
- Murphy, D.D., and B. A. Wilcox. 1986. "Butterfly diversity in natural habitat fragments: A test of the validity of vertebrate-based management". Pages 287-292 in J. Verner, M. L. Morrison, and C. J. Ralph, editors. *Wildlife 2000: Modeling Habitat Relationships of Terrestrial Vertebrates*. University of Wisconsin Press, Madison, Wisconsin.
- New, T. R. 1997. Are Lepidoptera an effective 'umbrella group' for biodiversity conservation? Journal of Insect Conservation 1:5-12
- "North Foothills Open Space Management Plan, Draft." Boulder County Parks and Open Space. 1996.
- Opler, P.A. 1994. "Conservation and management of butterfly diversity in the United States." Office of Information Transfer. U.S. Fish and Wildlife Service, Fort Collins, Colorado.
- Opler, P.A., A.D. Warren. *Scientific Names for Butterfly Species of North America, north of Mexico*, as updated on February 14, 2003.
- Opler, Paul A., R. Stanford, H. Pavulaan, coordinators and editors. "Boulder County Butterflies." 2004. NorthernPrairieWildlifeResearchCenter, <http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/checklist>
- Pesman, M. Walter. *Meet the Natives*, Tenth Edition. 1992. Denver Botanical Gardens, Inc. Roberts Rinehart Publishers. Lanham, Maryland.

- Pyle, Robert Michel. 1981. *Audubon Society Field Guide to North American Butterflies*. Alfred A. Knopf, New York.
- Robertson, Leigh. *Southern Rocky Mountain Wildflowers*. 1999. Falcon Publishing, Inc. Helena, Montana.
- Scott, James. E-mail messages. June 19, 20, 2005.
- Simonson, Sara and P. Pineda. "Field Survey of Boulder County Open Space, Hall and Heil Ranches." 1995. Research sponsored by Natural Heritage Program.
- Weber, William A. and R.C. Wittmann. 2001. *Colorado Flora, Eastern Slope*. Third Edition. University Press of Colorado, Boulder, Colorado.

### **VIII. Acknowledgment**

We wish to thank Boulder County Parks and Open Space Department, the Resource Management Division, and especially Therese Glowacki, for providing this rewarding opportunity. Kevin Grady, Mark Brennan and Dave Hoerath with their enthusiasm and experience, assisted our choice of areas to explore. We met many employees of the County Parks and Open Space Department on the trails who were interested, friendly and available for up-to-date information. Denny Morris provided the excellent maps of Heil Valley and Caribou.

Photographs were by Jan Chu and Cathy Cook.

We appreciate the associates who repeatedly shared their expertise during the 2005 season, including Lawrence Crowley, R. Carol Cushman, Susan Harris, Lynn and Gene Monroe, Jean Morgan, and Mike Sportiello.

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Visitor-photographers Herb and Olga Clarke, Randy Emmit, Ro and Betty Wauer came from out-of-state especially to view and photograph local butterflies.

Mentors Drs. Ray Stanford, Paul Opler and Jim Scott offered valuable insight and sources of pertinent information.

### **IX. Attachments**

**A. Table 10 -"BCPOS Butterfly List by Season – 2002-2005"**

**B. Table 11 -"Boulder County Butterflies – Season – Life Zone – Status"**

This chart will be useful to help determine the 'season' that each species lives as adults:

Butterflies found in  
BCPOS are listed below:

Heil Valley 2002-2005

Caribou Ranch 2004-2005

Other BCPOS 2005

**KEY - HEIL:**

H2=2002

H3=2003

H4=2004

H5=2005

(e.g. H2-3-4-5)

**KEY - CARIBOU**

C4=2004

C5=2005

(e.g. C4-5)

**KEY - OTHER BCPOS**

O5=2005

Scientific Name:	Common Name:	Months butterflies observed:							
		March	April	May	June	July	August	Sep.	
<b>PAPILIONIDAE</b>									
1 <i>Parnassius smintheus</i>	Rocky Mountain Parnassian				C4-5	C4-5; O5			
2 <i>Papilio polyxenes</i>	Black Swallowtail			H2	H2-3-5; O5				
3 <i>P. zelicaon</i>	Anise Swallowtail		H5	H4; O5	H2-4; C4-5				
4 <i>P. indra</i>	Short-tailed Black Swallowtail				H2-4-5; O5				
	'black' swallowtail			H4	H4				
5 <i>P. rutulus</i>	Western Tiger Swallowtail		H4	H2-4-5	H2-3-4-5; C4-5; O5	H2-4-5; C4-5; O5	O5	O5	
6 <i>P. eurymedon</i>	Pale Swallowtail			H5	O5	C5; O5			
7 <i>P. multicaudata</i>	Two-tailed Swallowtail				H5; O5	H2; O5	H4-5		
<b>PIERIDAE</b>									
8 <i>Neophasia menapia</i>	Pine White							H4	
9 <i>Pontia protodice</i>	Checkered White		O5	H5; O5	H2-5; C5; O5	H2-5; C5			
10 <i>P. occidentalis</i>	Western White				H4; O5				
11 <i>P. sisymbrii</i>	Spring White		H4	H2-4					
12 <i>Pieris rapae</i>	Cabbage White	H4	H4-5; O5	H2-4-5; O5	H2-4-5; O5	H2-5; C4-5; O5	H4-5; C5; O5		
13 <i>P. marginalis</i>	Mustard White			H4	H5; C4-5	H5; C4-5			
14 <i>Euchloe ausonides</i>	Large Marble		H4-5	H2-4-5; O5	H3-4; C5; O5		H4; C4		
15 <i>E. olympia</i>	Olympia Marble		H4	H2-4-5	H2-5				
16 <i>Anthocharis julia</i>	Southern Rocky Mountain Orangetip		H4-5	H2-5	H4-5; C5; O5				
	white sp.		H5	H4-5	H4-5	H5	H5; C4		

Scientific Name:	Common Name:	Months butterflies observed:						
		March	April	May	June	July	August	Sep.
17 <i>Colias philodice</i>	Clouded Sulphur		H5; O5	H4-5; O5	H2-4-5; C5;			
18 <i>C. eurytheme</i>	Orange Sulphur			H2-5	O5		H5; C5	
19 <i>C. alexandra</i>	Queen Alexander				H3-5; C5; O5	H5; C4-5; O5	H4-5; C5	
20 <i>Eurema mexicana</i>	Mexican Sulphur				H2-5; C4	C4-5	C4-5	
21 <i>Nathalis iole</i>	Dainty Sulphur		H5		H5; C5			
	sulphur sp.		H5		H5; C5; O5	H5; C4	C4	
	<b>LYCAENIDAE</b>				H5	C4	H4	
22 <i>Lycaena rubidus</i>	Ruddy Copper					C4	C4	
23 <i>L. heteronea</i>	Blue Copper					H2		
24 <i>L. helloides</i>	Purplish Copper			O5		C4	C4	
25 <i>Callophrys affinis</i>	Canyon Bramble Hairstreak			H2-5	H2-4-5; C5;	O5		
	Sheridan's Hairstreak (White-lined Green)				O5			
26 <i>C. sheridanii</i>			H4-5; O5					
27 <i>C. gyrneus</i>	Siva' Juniper Hairstreak			H4	H5			
28 <i>C. spinetorum</i>	Thicket Hairstreak				C5	C5		
29 <i>C. polios</i>	Hoary Elfin				O5			
30 <i>C. eryphon</i>	Western Pine Elfin		H4-5	H2-4-5; O5	H5; C4; O5			
31 <i>Satyrrium titus</i>	Coral Hairstreak						H2; O5	
32 <i>S. behrii</i>	Behr's Hairstreak				H2; O5			
33 <i>Strymon melinus</i>	Gray Hairstreak		O5	H4; O5	H5; O5	H2; C4	H5	
34 <i>Leptotes marina</i>	Marine Blue						H5	
35 <i>Cupido amyntula</i>	Western Tailed-Blue			H4-5	H5; C4-5; O5	H2-5; C5	C5	
36 <i>Celastrina ladon sidara</i>	Spring Azure		H4-5	H4-5	H4-5; C4-5;			
37 <i>C. humulus</i>	Hops Azure				O5			
38 <i>Glaucopsyche piasus</i>	Arrowhead Blue			H4	H2-5			
					H2-3-4-5;			
39 <i>G. lygdamus</i>	Silvery Blue		H4	H2-4; O5	C4-5; O5	H5		
	Rocky Mountain							
40 <i>Euphilotes ancilla</i>	Dotted-Blue				H4-5; C5; O5	C4-5; O5		
41 <i>Echinargus isola</i>	Reakirt's Blue			O5	H5; C5; O5	H5; C4-5	H4; O5	C5
					H2-4-5; C5;			
42 <i>Plebejus melissa</i>	Melissa Blue			H2-4-5	O5	H5	H4-5	
43 <i>P. saepiolus</i>	Greenish Blue			H2		C4		
					H2-3-4-5;			
44 <i>P. icarioides</i>	Boisduval's Blue			H2-4-5	C4-5	H2-5; C4-5	C4	
45 <i>P. lupini</i>	Lupine Blue							
					H2-4; C4; O5	C4-5	H5; C4	

Scientific Name:	Common Name:	Months butterflies observed:						
		March	April	May	June	July	August	Sep.
46 <i>P. glandon</i> blue sp.	Arctic Blue				H4 H4-5	H5; C5 H5	H4	
<b>NYMPHALIDAE</b>								
47 <i>Danaus plexippus</i>	Monarch				H5; O5		H4	
48 <i>Euptoieta claudia</i>	Variegated Fritillary			H5; O5	H3-5; C5; O5	H2-5; C4-5		
49 <i>Speyeria aphrodite</i>	Aphrodite Fritillary				H2-3-4-5; O5	H2-5; C4; O5	H4-5	
50 <i>S. edwardsii</i>	Edwards' Fritillary			H2	H2-3-5	H2	H4-5; O5	
51 <i>S. coronis</i>	Coronis Fritillary			H4	H5; O5	H5		
52 <i>S. callippe</i>	Callippe Fritillary				H2-5	H2		
53 <i>S. atlantis</i>	Atlantis Fritillary					H5; O5		
54 <i>S. hesperis</i>	Northwestern Fritillary				O5	H2	H4; C4; O5	
55 <i>S. mormonia</i> fritillary sp.	Mormon Fritillary				H4-5	H5 H4-5	H5 H4-5	
56 <i>Poladryas arachne</i>	Arachne Checkerspot					C4		
57 <i>Chlosyne gorgone</i>	Gorgone Checkerspot			H4-5	H2-4-5; O5			
58 <i>C. nycteis</i>	Silvery Checkerspot			O5	H2-4; C4-5	H2		
59 <i>C. palla</i>	Northern Checkerspot				H2; C4-5	C4-5		
60 <i>Phyciodes mylitta</i>	Mylitta Crescent	H5			H5; O5	O5		
61 <i>P. tharos</i>	Pearl Crescent		H5	H2-5; O5	H3-5; C4; O5	O5		
62 <i>P. cocyta</i>	Northern Crescent				H2-5; C4; O5 H2-4-5; C4-5;	H5; C4-5; O5	H4-5	
63 <i>P. pulchella</i>	Field Crescent		H4	H2-4-5; O5	O5	H5; O5	H4-5	
<i>P. pulchella camilla</i>	Field Crescent				O5			
64 <i>Euphydryas anicia</i> crescent species	Variable Checkerspot				H2 H5			
65 <i>Junonia coenia</i>	Common Buckeye						O5	
66 <i>Polygonia satyrus</i>	Satyr Comma				H5; O5			
67 <i>P. gracilis</i> anglewing sp.	Hoary Comma	H4-5	H4-5	H2-4-5; O5 H4-5	H2-5; C5	H2-5; C4		
68 <i>Aglais milberti</i>	Milbert's Tortoiseshell	H4						
69 <i>Nymphalis antiopa</i>	Mourning Cloak	H4	H2-3-4-5; O5	H2-5; O5	H2-5; C5	H5		
70 <i>Vanessa atalanta</i>	Red Admiral		H5	H2-5	H3-5 H3-4-5; C5;	H5	H4	
71 <i>V. cardui</i>	Painted Lady		H5; O5	H4-5; O5	O5	H5; C5; O5	H5; C5	
72 <i>V. virginianensis</i>	American Lady			O5		H2; C5; O5		
73 <i>Limenitis weidemeyerii</i>	Weidemeyer's Admiral				H2-3-4-5; O5	H2-5; C4; O5	H4-5; C5; O5	

## BCPOS - Butterfly List by Season / 2002 - 2005

4

Scientific Name:	Common Name:	Months butterflies observed:						
		March	April	May	June	July	August	Sep.
74 <i>Asterocampa celtis</i>	Hackberry Emperor						H5	
75 <i>Coenonympha tullia ochracea</i>	Ochre (Common) Ringlet			H4-5	H4-5; C4-5; O5	H5; C4-5; O5		H4-5; C5;
76 <i>Cercyonis pegala</i>	Common Wood Nymph					H2-5	O5	
77 <i>C. oetus</i>	Small Wood Nymph					H2-5; C4; O5	H4; C4-5	
78 <i>Erebia epipsodea</i>	Common Alpine				C5			
79 <i>Oeneis chryxus</i>	Chryxus Arctic			H2	C4	C4		
80 <i>O. uhleri</i>	Uhler's Arctic			H2	H3; O5			
<b>HESPERIIDAE</b>								
81 <i>Epargyreus clarus</i>	Silver-spotted Skipper				H2-5; O5	H2; O5		
82 <i>Thorybes pylades</i>	Northern Cloudywing			H2-5	H2-5; C5	C5		
83 <i>Erynnis icelus</i>	Dreamy Duskywing			H2	H3-4; C5	C5		
84 <i>E. pacuvius</i>	Pacuvius Duskywing			H4-5	H4-5; C5; O5	C5		
85 <i>E. persius</i>	Persius Duskywing			H2-5	H2-3-5; C4-5; O5	C4		
86 <i>Pyrgus communis</i>	Common Checkered-skipper			H5	H2-5; O5	C5	H4-5; O5	
87 <i>Piruna pirus</i>	Russet Skipperling				H2-5; O5	H5; C4	C4	
88 <i>Oarisma garita</i>	Garita Skipperling				H2-5			
89 <i>Hesperia colorado</i>	Common Branded Skipper						H5; O5	
90 <i>H. pahaska</i>	Pahaska Skipper				H2-5; C4			
91 <i>H. viridis</i>	Green Skipper			H4	H2-4			
92 <i>H. nevada</i>	Nevada Skipper				C5	C5		
93 <i>Polites draco</i>	Draco Skipper				C5			
94 <i>P. themistocles</i>	Tawny-edged Skipper				H2-5			
95 <i>P. mystic</i>	Long Dash				H2-5	O5		
96 <i>Ochlodes sylvanoides</i>	Woodland Skipper				H4	H2	H4-5; O5	
97 <i>Poanes taxiles</i>	Taxiles Skipper				H2-4-5; O5	H2-5; O5		
98 <i>Euphyes vestris</i>	Dun Skipper				H2-5; O5	H2-5; O5	H4	
99 <i>Atrytonopsis hianna</i>	Dusted Skipper	H5		H5				
100 <i>Amblyscirtes aenus</i>	Bronze Roadside-skipper			H4				
101 <i>A. vialis</i>	Common Roadside-Skipper		H4					
	skipper sp.						H4-5	

This list is in the order and using genera found in Lepidoptera of North America 4. Scientific Names List for Butterfly Species of North America, north of Mexico, 2004

Butterfly Field Reference List  
Season-Life Zone-Status

Butterflies of Boulder County, Colorado

THIS REFERENCE SHEET IS IN DRAFT FORM:

Season, life zone, and status listed for each species are based on butterfly field guide information, field study and the authors' interpretation of abundance of species observed.

For butterfly images and additional information check out the following website:

<http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/bflyusa.htm>

<b>Seasons:</b> E = early (April-May, June-1st week) M = mid-summer (2nd wk June-July) L = late (August-September)	<b>Life Zones:</b> P = Plains F = Foothills M = Montane S = Subalpine A = Alpine	<b>Status:</b> C = Common U = Uncommon R = Rare L = Local, depends on specific food plant
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Common Name - Scientific Name	Seasons:	Life Zone:	Status:	Larval Food Plant(s)	Comments
<b>Swallowtails Family Papilionidae</b>					
<b>Parnassians Subfamily Parnassiinae</b>					
Rocky Mountain Parnassian -- <i>Parnassius smintheus</i>	M	M,S,A	C, L	Stonecrop ( <i>Sedum lanceolatum</i> )	
<b>Swallowtails Subfamily Papilioninae</b>					
Pipeline Swallowtail -- <i>Battus philenor</i>	M, L	P	U	Pipevines ( <i>Aristolochia</i> )	
Black Swallowtail -- <i>Papilio polyxenes</i>	M	P, F	C	Parsley Family ( <i>Apiaceae</i> ) Parsley, dill, fennel, Q.A. lace	
Anise Swallowtail -- <i>Papilio zelicaon</i> incl. <i>nitra</i>	M	F	C	Parsley Family ( <i>Apiaceae</i> ); anise, carrots	
Indra Swallowtail -- <i>Papilio indra</i>	M	F	U	Wild members of Parsley Family	
Giant Swallowtail -- <i>Papilio cressphontes</i>			R	Citrus ( <i>Citrus</i> )	
Eastern Tiger Swallowtail -- <i>Papilio glaucus</i>			R	Leaves of trees and shrubs: cherry, cottonwood, tulip tree, sweet bay	
Western Tiger Swallowtail -- <i>Papilio rutulus</i>	M	P, F, M	C	Willows, aspens, other trees	
Two-tailed Swallowtail -- <i>Papilio multicaudata</i>	L	P, F, M	U	Cherries, ashes and others	
Pale Swallowtail -- <i>Papilio eurymedon</i>	M	F, M	U	Buckthorn, alder, wild plum & others	
Spicebush Swallowtail -- <i>Papilio troilus</i>	M	P	R	Spicebush, sassafras, other laurels	
<b>Whites and Sulphurs Family Pieridae</b>					
<b>Whites Subfamily Pierinae</b>					
Pine White -- <i>Neophasia menapia</i>	L	M	U	Ponderosa & pinyon pine, Douglas fir	
Becker's White -- <i>Pontia beckeri</i>			R	Bladderpod, prince's plume, mustards	
Spring White -- <i>Pontia sisymbri</i>	E	F, M	U	Rock cress, lace pod, other mustards	
Checkered White -- <i>Pontia protodice</i>	M	P, F	C	Native and exotic mustards	
Western White -- <i>Pontia occidentalis</i>	M	P, F	U	Many native mustards	
Margined White -- <i>Pieris marginalis</i>	M	F, M	U	Mustards, rock cress and others	
Cabbage White -- <i>Pieris rapae</i>	E-L	P, F, M	C	Cabbage, nasturtium, capers, mustards	
Great Southern White -- <i>Ascia monuste</i>			R	Nasturtiums, mustards	
Large Marble -- <i>Euchloe ausonides</i>	E-M	F	C	Tower mustard, rock cresses	
Olympia Marble -- <i>Euchloe olympia</i>	E	F	U	Rock cress	
Southern Rocky Mountain Orange-tip -- <i>Anthocharis julia</i>	E	F, M	U	Rock cress, native & exotic mustards	
<b>Sulphurs Subfamily Coliadinae</b>					
Clouded Sulphur -- <i>Colias philodice</i>	M	P, F, M	C	Clovers, alfalfa, other legumes	
Orange Sulphur -- <i>Colias eurytheme</i>	M	P, F, M	C	Alfalfa, native & exotic clovers, legumes	
Queen Alexandra's Sulphur -- <i>Colias alexandra</i>	M	F, M	C	Golden banner, vetches, legumes	
Mead's Sulphur -- <i>Colias meadii</i>	M	A	U	Clovers	
Scudder's Sulphur -- <i>Colias scudderi</i>	M	S	U	Willows	
Southern Dogface -- <i>Zerene cesonia</i>	M	F	R	Indigo bush, clovers, legumes	
White Angled-Sulphur -- <i>Anteos clorinde</i>			R	Senna	
Cloudless Sulphur -- <i>Phoebis sennae</i>			R	Senna	
Orange-barred Sulphur -- <i>Phoebis philea</i>			R	Senna	
Large Orange Sulphur -- <i>Phoebis agarithe</i>			R	Blackbead, wild tamarind, Texas ebony	
Lyside Sulphur -- <i>Kricogonia lyside</i>			R	Lignum vitae	
Mexican Yellow -- <i>Eurema mexicana</i>	M		R	Fern acacia, locust, legumes	
Sleepy Orange -- <i>Abaeis nicippe</i>			R	Senna	
Dainty Sulphur -- <i>Nathalis iole</i>	M, L	P, F	U	Dogweed, marigold, other asters	
<b>Gossamer-wing Butterflies Family Lycaenidae</b>					
<b>Coppers Subfamily Lycaeninae</b>					
Lustrous Copper -- <i>Lycaena cupreus</i>	M	P	U	Dock and sorrel	
Gray Copper -- <i>Lycaena dione</i>	M	P	U	Docks, native & exotic	
Bronze Copper -- <i>Lycaena hylus</i>	M	P	U	Water dock & curled dock	
Ruddy Copper -- <i>Lycaena rubidus</i>	M	P	U	Dock, sorrel & knotweed	
Blue Copper -- <i>Lycaena heteronea</i>	M	M	C-L	Buckwheats	
Purplish Copper -- <i>Lycaena helleoides</i>	M	P, F, M	U	Docks, knotweed, cinquefoil	
Lilac-bordered Copper -- <i>Lycaena nivalis</i>			R	Knotweed	

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<b>Hairstreaks Subfamily Theclinae</b>					
Colorado Hairstreak -- <i>Hypaurotis crysalus</i>	L	P-F	R	Gambel's oak	
Coral Hairstreak -- <i>Satyrus titus</i>	M	P-M	U-L	Wild cherries, wild plums	
Behr's Hairstreak -- <i>Satyrus behrii</i>	M	P-M	U-L	Bitterbrush, mountain mahogany	
Acadian Hairstreak -- <i>Satyrus acadica</i>	M	P-F	U-L	Willows	
California Hairstreak -- <i>Satyrus californica</i>	M	P-F	R-L	Oaks, mountain mahogany	
Striped Hairstreak -- <i>Satyrus liparops</i>	M	P-F	R	Wild plums, wild cherries, oak, others	
Hedgerow Hairstreak -- <i>Satyrus saepulum</i>	M	P-F	U-L	Buckbrushes - <i>Ceanothus</i>	
Western Green Hairstreak -- <i>Callophrys affinis</i>					
(previously <i>C. apama</i> , <i>C. affinis</i> , and <i>C. dumetorum</i> )	E	F-S	C-L	Fendler's Buckbrush, wild buckwheat	
Sheridan's Green Hairstreak -- <i>Callophrys sheridanii</i>	E	P-M	C-L	Wild buckwheat, sulphur flower	
Brown Elfin -- <i>Callophrys [Incisalia] augustinus</i>	E-M	F-M	U-L	Heath Family	
Moss' Elfin -- <i>Callophrys [Incisalia] mossii</i>	E	F-M	U-L	Stonecrop	
Hoary Elfin -- <i>Callophrys [Incisalia] polios</i>	E	F-M	U	Bearberry/Kinnikinnik (trailing arbutus)	
Western Pine Elfin -- <i>Callophrys [Incisalia] eryphon</i>	E	F-M	C-L	Ponderosa & Lodgepole (young pines)	
Thicket Hairstreak -- <i>Callophrys [Oranthomitra] spinetorum</i>	M	F-M	R	Conifer mistletoe ( <i>Arceuthabium</i> )	
Juniper Hairstreak -- <i>Callophrys [Mitoura] gryneus</i>	M	P-M	C-L	Junipers, E. Red Cedar	
Gray Hairstreak -- <i>Strymon melinus</i>	M	P-M	U	Pea & Mallow Family (flower & fruits)	
Leda Ministreak -- <i>Ministrymon leda</i>	M		R	Mesquite	
Gray Ministreak -- <i>Ministrymon [Tmolus] azia</i>	M		R	Mimosa Family	
<b>Blues Subfamily Polyommatae</b>					
Western Pygmy-Blue -- <i>Brephidium exilis</i>	L	P-F	R	Russian Thistle, pigweeds, salicornia	
Marine Blue -- <i>Leptotes marina</i>	M	M	R	Blue Jasmine, leadwort, legumes, milk vetch)	
Reakirt's Blue -- <i>Echinargus isola</i>	M	P-A		Pea & Mimosa Families	
Eastern Tailed-Blue -- <i>Cupido comyntas</i>	M	P-M	U-L	Legumes (alfalfa, clover, lotises)	
Western Tailed-Blue -- <i>Cupido amyntula</i>	M	P-A	L	Legumes, vetches, milk vetches	
Spring Azure -- <i>Celastrina "tadon"</i>	E-M	P-S	C	Dogwoods, CA Buckeye, waxflower, viburnum	
Hops Azure -- <i>Celastrina humulus</i>	M	F-M	R	Hops, <i>Lupinus argenteus</i>	
Rocky Mountain Dotted-Blue -- <i>Euphilotes ancilla</i>	M	P-M	U-L	Wild buckwheats, Sulphur Flower	
Arrowhead Blue -- <i>Glaucopsyche piasus</i>	M	P-M	U-L	Lupines, milk vetch	
Silvery Blue -- <i>Glaucopsyche lydamus</i>	M	P-M	C	Lupines, vetches, milk vetch, legumes	
Melissa Blue -- <i>Lycæides melissa</i>	M	P-A	C	Legumes (alfalfa, clover, lupines)	
Greenish Blue -- <i>Plebeius saepiolus</i>	M	P-A	U-L	clovers, milk vetches (flowering parts)	
Boisduval's Blue -- <i>Plebeius [Icaricia] icarioides</i>	M	P-M	U-L	Lupines (hairiest leaves)	
Shasta Blue -- <i>Plebeius [Icaricia] shasta</i>	M	M-A	U-L	Legumes (locoweed, milk vetch, lupines, clover)	
Lupine Blue -- <i>Plebeius [Icaricia] lupini</i>	M	P-M	U-L	Wild buckwheats	
Arctic Blue -- <i>Agriades glandon</i>	M	F-A	U-L	Rock Primrose	
<b>Metalmarks Family Riodinidae</b>					
Mormon Metalmark -- <i>Apodemia mormo</i>	M	P-F	R	Wild buckwheats	
Nais Metalmark -- <i>Apodemia nais</i>	M	F	U	Mountain snowbush	
<b>Brush-footed Butterflies Family Nymphalidae</b>					
<b>Snouts Subfamily Libytheinae</b>					
American Snout -- <i>Libytheana carinenta</i>	M	P-F	R-L	Hackberries, sugar berry	
<b>Heliconians and Fritillaries Subfamily Heliconiinae</b>					
Gulf Fritillary -- <i>Agraulis vanillae</i>	M	P-M	R	Passion Vines	
Zebra -- <i>Heliconius charithonius</i>	M	P-F	R	Passion Vines	
Variogated Fritillary -- <i>Euptoieta claudia</i>	M	P-A	C	Wild flax, violets, others	
Aphrodite Fritillary -- <i>Speyeria aphrodite</i>	M	P-A	C	Violets	
Regal Fritillary -- <i>Speyeria idalia</i>	M	P	R	Violets - tallgrass	
Edwards' Fritillary -- <i>Speyeria edwardsii</i>	M	P-M	U	Violets	
Coronis Fritillary -- <i>Speyeria coronis</i>	M	P-A	U-L	Violets	
Zerene Fritillary -- <i>Speyeria zerene</i>	M	F-A	R	Violets	
Callippe Fritillary -- <i>Speyeria callippe</i>	M	F-M	U	Violets	
Atlantis Fritillary -- <i>Speyeria atlantis</i>	M		R	Violets	
Northwestern Fritillary -- <i>Speyeria hesperis</i>	M	P-S	C	Violets	
Mormon Fritillary -- <i>Speyeria mormonia</i>	M	S	U	Violets	
Bog Fritillary -- <i>Boloria eunomia</i>	M-L	A	R-L	Scrubby willows, bistorts, violets	
Silver-bordered Fritillary -- <i>Boloria selene</i>	M	P-A	R	Violets	
Frigga Fritillary -- <i>Boloria frigga</i>	M	A	R	Shrub willows	
Freija Fritillary -- <i>Boloria freija</i>	M	S, A	R-L	Heath Family (bilberries)	
Arctic Fritillary -- <i>Boloria chariclea</i>	M	S, A	R	Scrubby willows, violets	

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<b>True Brush-foots Subfamily Nymphalinae</b>						
<u>Dotted Checkerspot -- Poladyras arachne</u>	M	M	U		Beardtongues	
<u>Gorgone Checkerspot -- Chlosyne gorgone</u>	M	P-F	C		Sunflowers	
<u>Silvery Checkerspot -- Chlosyne nycteis</u>	M	P	C-L		Goldenglow (Rudbeckia-only)	
<u>Northern Checkerspot -- Chlosyne palla</u>	E-M	P-F-M	U		Asters, rabbitbrush, fleabane, goldenrod	
<u>Rockslide Checkerspot -- Chlosyne whitneyi</u>	M-L	A	U		Fleabane	
<u>Texan Crescent -- Anthanassa texana</u>			R		Low Acanthus Family (seep willow)	
<u>Vesta Crescent -- Phyciodes graphica?</u>			R		Hairy tube-tongue & Dyschoriste (Acanthus)	
<u>Pearl Crescent -- Phyciodes tharos</u>	E-M-L	P	C		Asters	
<u>Northern Crescent -- Phyciodes cocyta</u>	M	M	C		Asters w/ large stem-clasping leaves	
<u>Field Crescent -- Phyciodes pratensis</u>	E-M-L	F-M	C		Asters, tansy asters, fleabane	
<u>Pale Crescent -- Phyciodes pallida</u>	M	F-M	U		Thistles (Cirsium)	
<u>Variable Checkerspot -- Euphydryas anicia</u>		F-M	U		Besseyia, Indian paintbrush, beeplant, penstamons	
<u>Question Mark -- Polygonia interrogationis</u>			R		Nettles, elms, hackberry	
<u>Eastern Comma -- Polygonia comma</u>			R		Nettles, elms, hackberry	
<u>Satyr Comma -- Polygonia satyrus</u>	M	F-M	U		Nettles	
<u>Green Comma -- Polygonia faunus</u>	M-L	F-M	U		Willows, aspens, birches, alders	
<u>Hoary Comma -- Polygonia gracilis</u>	E-M-L	F-M	C		Currants	
<u>Gray Comma -- Polygonia progne</u>			R		Gooseberries, currants	
<u>California Tortoiseshell -- Nymphalis californica</u>			R		Wild lilacs (ceanothus)	
<u>Mourning Cloak -- Nymphalis antiopa</u>	E-M-L	F-M	C		Willow, birch, cottonwood, elm, hackberry	
<u>Milbert's Tortoiseshell -- Aglais milberti</u>	E-M	F-M-S-A	C		Nettles	
<u>American Lady -- Vanessa virginiensis</u>			R		Everlasting pussytoes	
<u>Painted Lady -- Vanessa cardui</u>	E-M-L	P-F	C		100+ plants - thistle, mallow, legumes	
<u>West Coast Lady -- Vanessa annabella</u>			R		Mallow, hollyhock, nettles	
<u>Red Admiral -- Vanessa atalanta</u>	M	F, M	C		Nettles, pellitory, false nettles, (hops?)	tree sap
					Snapdragon, pliantain, owlslover,	
<u>Common Buckeye -- Junonia coenia</u>	M-L	P	U		toadflax, monkey flower	
<b>Admirals and Relatives Subfamily Limenitidinae</b>						
<u>Viceroy -- Limenitis archippus</u>	M	P	U		Willow leaves	
<u>Weidemeyer's Admiral -- Limenitis weidemeyeri</u>	M	P-F	C		Willow, aspen, cottonwood, chokecherry, serviceberry	
<u>Common Mestra -- Mestra amymone</u>			R-L		Noseburn	
<b>Leafwings Subfamily Charaxinae</b>						
<u>Goatweed Leafwing -- Anaea andria</u>	M		R		Goatweed, prairie tea, Texas croton	
<b>Emperors Subfamily Apaturinae</b>						
<u>Hackberry Emperor -- Asterocampa celtis</u>	M	P-F	U		Netleaf hackberry, hackberry, sugar berry	
<b>Satyrs Subfamily Satyrinae</b>						
<u>Canyonland Satyr -- Cyllopsis pertepida</u>	M	M	R		Grasses	
<u>Common Ringlet -- Coenonympha tullia</u>	M-L	F-M	C		Grasses	
<u>Common Wood Nymph -- Cercyonis pegala</u>	L	P-F-M	C		Grasses	
<u>Small Wood Nymph -- Cercyonis oetus</u>	L	P-F-M	C		Grasses	
<u>Magdalena Alpine -- Erebia magdalena</u>	M	A	U		Alpine grasses	
<u>Yellow-dotted Alpine -- Erebia pawlowskii [formerly "Erebia theano"]</u>		A	R			
<u>Colorado Alpine -- Erebia callias</u>	M	A	U		Grasses or sedges, likely fleabanes	
<u>Common Alpine -- Erebia epipsodea</u>	M	F	C		Blue grasses	
<u>Ridings' Satyr -- Neominois ridingsii</u>	M-L	M	U		Blue grama	
<u>Chryxus Arctic -- Oeneis chryxus</u>	M	F-M	C		Sedges	biennial, even years
<u>Uhler's Arctic -- Oeneis uhleri</u>	M	F-M-S	U		Grasses & sedges	
<u>Jutta Arctic -- Oeneis jutta</u>	M	A	U		Sedges, cottongrass	
<u>Melissa Arctic -- Oeneis melissa</u>	M	A	C		Sedges (Carex rupestris drummondiana)	
<b>Monarchs Subfamily Danaeinae</b>						
<u>Monarch -- Danaus plexippus</u>	E-L	P	U		Milkweeds	
<u>Queen -- Danaus gilippus</u>	P	P	U		Milkweeds	

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<b>Skippers Family HesperIIDae</b>					
<b>Spread-wing Skippers Subfamily Pyrginae</b>					
<u>Silver-spotted Skipper -- Epargyreus clarus (incl. huachuca)</u>	M	P-F	C	Locust, wild licorice, wisteria, legumes	
<u>Northern Cloudywing -- Thorybes pylades</u>	M	F	R	Vetch, beggar's ticks, bush clover, milk vetch	
<u>Mexican Cloudywing -- Thorybes mexicana</u>	M	F	R	clover, vetches	
<u>Dreamy Duskywing -- Erynnis icelus</u>	E, M	F, M	U	Willows, poplars, aspen, birch occasionally	
<u>Sleepy Duskywing -- Erynnis brizo</u>	M	F	R, L	oaks	
<u>Rocky Mountain Duskywing -- Erynnis telemachus</u>	M	P, F	R, L	Oaks, Gambel oak	
<u>Horace's Duskywing -- Erynnis horatius</u>			R	Oaks	
<u>Mottled Duskywing -- Erynnis martialis</u>	M	F, M	U	Ceanothus sp. Buckbrush	
<u>Pacuvius Duskywing -- Erynnis pacuvius</u>	M	F, M	U	Ceanothus sp. Buckbrush	
<u>Funereal Duskywing -- Erynnis funerals</u>	M	F	R	Legumes, N. MX. Locust, bush lotus	
<u>Afranius Duskywing -- Erynnis afranius</u>	M	P, F	R	Lupines, golden banner, lotuses	
<u>Persius Duskywing -- Erynnis persius</u>	M	F, M	C	Lupines, golden banner, milk vetch	
<u>Grizzled Skipper -- Pyrgus centaureae</u>	M	S, A	U	Wild strawberry, cinquefoil	
<u>Two-banded Checkered-Skipper -- Pyrgus ruralis</u>	M	M, S	R	cinquefoil, horkelias	
<u>Small Checkered-Skipper -- Pyrgus scriptura</u>	P	M, S	R	native mallow, alkali mallow	
<u>Common Checkered-Skipper -- Pyrgus communis</u>	M	M, L	C	mallow, hollyhock	
<u>Common Sootywing -- Pholisora catullus</u>	M	P	U	Lamb's-quarters, amaranth, cockscomb	
<b>Grass Skippers Subfamily Hesperinae</b>					
<u>Russet Skipperling -- Piruna pirus</u>	M	P, F	C	Wide-leaved grasses	
<u>Garita Skipperling -- Oarisma garita</u>	M	F	U	Grasses	
<u>Morrison's Skipper -- Stinga morrisoni</u>	M	M	U	<i>Stipa scribneri</i> , other grasses	
<u>Uncas Skipper -- Hesperia uncas</u>	M	P	R	Blue grama, other grasses	
<u>Juba Skipper -- Hesperia juba</u>	E, L	P	R	Blue grama, smooth brome	
<u>Western Branded Skipper -- Hesperia colorado</u>	L	F, M	C	Grasses, sedges	
<u>Ottoo Skipper -- Hesperia ottoe</u>	M	P, F	R	Big bluestem, little bluestem, fall witch grass	
<u>Leonard's Skipper -- Hesperia leonardus (incl. pawnee)</u>	L	F, M	R	Blue grama, little bluestem, sedge	
<u>Pahaska Skipper -- Hesperia pahaska</u>	M	F	U	Blue grama	
<u>Green Skipper -- Hesperia viridis</u>	M	F	U	Native grasses, esp. blue grama	
<u>Nevada Skipper -- Hesperia nevada</u>	M	P	U	Native grasses, fescues	
<u>Peck's Skipper -- Polites peckius (=coras)</u>			R	Salt grass, Kentucky blue grass, smooth brome	
<u>Rhesus Skipper -- Polites rhesus</u>			R	Blue grama grass	
<u>Sandhill Skipper -- Polites sabuleti</u>			R	Salt grass, Bermuda grass	
<u>Draco Skipper -- Polites draco</u>	M	F, M	U	Grasses	
<u>Tawny-edged Skipper -- Polites themistocles</u>	M	P	U	Kentucky blue grass	
<u>Crossline Skipper -- Polites origenes</u>			R	Big bluestem, other grasses	
<u>Long Dash -- Polites mystic</u>	M	P, F	U	Grasses	
<u>Sonora Skipper -- Polites sonora</u>			R	Grasses	
<u>Sachem -- Atalopedes campestris</u>	M, L	P, F	U	Grasses, Bermuda grass	
<u>Arogo Skipper -- Atrytone arogo</u>	M	P	R	Big bluestem	
<u>Delaware Skipper -- Atrytone logan (=delaware)</u>	M	P	U	Grasses	
<u>Woodland Skipper -- Ochlodes sylvanoides</u>	L	F, M	C	Tall, broad-leaved grasses	
<u>Snow's Skipper -- Paratrytone snowi</u>	M	F, M	R	Poa, Pine dropseed	
<u>Taxiles Skipper -- Poanes taxiles</u>	M	P, F, M	C	Tall, broad-leaved grasses	
<u>Two-spotted Skipper -- Euphyes bimacula</u>			R	Sedges	
<u>Dun Skipper -- Euphyes vestris (=ruricola)</u>	M	F	C	Sedges	
<u>Dusted Skipper -- Atrytonopsis hianna (incl. loammi)</u>			R	Big and little bluestem	
<u>Bronze Roadside-Skipper -- Amblyscirtes aenus (incl. ema)</u>	M	F	U	Grasses	
<u>Oslar's Roadside-Skipper -- Amblyscirtes oslari</u>			U	Side oats, grama, few grasses	
<u>Common Roadside-Skipper -- Amblyscirtes vialis</u>	M	F	U	Tall, broad-leaved grasses	
<u>Orange-headed Roadside-Skipper -- Amblyscirtes phylace</u>			R	Big bluestem	