QUINO CHECKERSPOT BUTTERFLY
(*Euphydryas editha quino*)
FOCUSED SURVEY REPORT
FOR THE SAN DIEGO GAS & ELECTRIC
CLEVELAND NATIONAL FOREST PROJECT
SAN DIEGO COUNTY, CALIFORNIA

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September 2010

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LIST OF ACRONYMS

BA/BE:	Biological Assessment/Biological Evaluation
CNF:	Cleveland National Forest
DEV:	Developed
EIS:	Environmental Impact Statement
GIS:	Geographic Information System
GPS:	Global Positioning System
Project:	San Diego Gas & Electric Cleveland National Forest Project
QCB:	Quino Checkerspot Butterfly
ROW:	Right-of-Way
SDG&E:	San Diego Gas and Electric
SMC:	Southern Mixed Chaparral
TL:	Tie Line
USFS:	United States Forest Service
USFWS:	United States Fish and Wildlife Service

SECTION 1.0 – INTRODUCTION

1.1. PROJECT DESCRIPTION

The Cleveland National Forest (CNF) is requesting an Environmental Impact Statement (EIS) for a Master Special Use Permit to be issued to the San Diego Gas & Electric Company (SDG&E) to assist the CNF in making necessary findings with regard to fire and public safety to cover operation and maintenance of existing electric distribution and transmission lines, appropriate access roads, and facilities. The Master Use Permit would include conditions necessary for resource protection. The CNF is contemplating moving forward with an Increased Fire Prevention Plan that would involve operational and equipment upgrades and improvements to the existing lines traversing the CNF. The Action Area is based on the elements of the Fire Prevention Plan Proposed Action that would result in physical ground disturbing impacts or that could have secondary impacts to sensitive species. In addition to the data gathered from the surveys, the United States Forest Service (USFS) Biological Assessment/Biological Evaluation (BA/BE) for the CNF will be used to support this effort and report analysis.

The objective of this study was to determine the presence or absence of Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) and suitable QCB habitat along the proposed Project transmission line right-of-way (ROW).

1.2. SURVEY AREA

The Action Area is located within the Trabuco, Palomar, and Descanso Ranger Districts, in the CNF, California. Maintenance and repairs of the facilities within the Action Area are necessary because the existing SDG&E authorizations are expired and the existing power lines are needed to supply power to local communities, residents, and government owned facilities located within and adjacent to the CNF. The Action Area for the proposed project includes three types of power lines: overhead transmission lines, overhead distribution lines, and underground distribution lines. To adequately cover the Action Area for the focused biological survey effort, the Survey Area is based on 1) a 250-ft radius around each pole having an angle greater than 2 degrees and 2) within 150-ft of the pole line centerline along both sides of the pole line, continuously, for all other poles for the entire length of each project. **Appendix E** contains maps showing the host plant locations within the Project survey areas.

1.3. QCB BACKROUND INFORMATION

The following QCB background information was written by QCB-permitted biologist Ken Osborne (Chambers Group 2010).

The QCB, a subspecies of Edith's checkerspot, is a small brush-footed butterfly (family Nymphalidae) that flies once a year. Like most *Euphydryas* sp., it has a small, approximately 2.5 to 4 cm wingspan and is checkered with black, red, and yellowish markings. This species is distributed in local colonies over much of western North America (Scott 1986, Parmesan 1996). Many subspecies have been described including at least 18 from California (Garth and Tilden 1986, Emmel et al. 1998).

QCB colonies are primarily associated with low elevation (sea level to 3,000 feet) open grasslands, vernal pools, and sunny openings within chaparral, coastal-sage scrub, and juniper woodlands. Colonies are found frequently near clay soils and soils that possess cryptogamic crusts (soil infused with algae and

lichen in the soil surface) (Osborne 1998). QCB distributions closely approximate the distributions of the primary larval host plant, dot-seed plantain (*Plantago erecta*, Plantaginaceae) also known as dwarf plantain. Recently discovered, higher elevation QCB populations (Pratt et al. 2001) have been found to use woolly plantain (*Plantago patagonica*, Plantaginaceae), Coulter's snapdragon (*Antirrhinum coulterianum*, Plantaginaceae), bird's beak (*Cordylanthus rigidus*, Orobanchaceae), and *Collinsia concolor* (southern Chinese houses, Plantaginaceae) (Pratt and Pierce 2010). Purple owls' clover (*Castilleja exserta*, Orobanchaceae) is also known to be used by larvae occasionally and may also represent an ovipositional substrate. Larvae may use other plantain (*Plantago*) species (e.g. *P. ovata,* and *P. insularis*) as well. Introduced Mediterranean plantain species such as *P. lanceolata* and *P. major* - common weeds of residential lawns and city lots - although suitable in the laboratory (Osborne 2009), and used by some wild *E. editha* populations in Oregon, are not likely used where they occur in habitats not frequented by QCB. Nevertheless, these exotic host plants may be of potential use to QCB where they occur in wild habitats proximal to QCB populations. Although QCB are oligophagous (feed upon a limited range of plant species) and feed primarily upon plants contained within the Orobanchaceae (formerly Scrophulariaceae) and Plantaginaceae families, most local populations tend to be monophagous (feed on only one plant species) (White 1974, Scott 1986).

QCB mating activity occurs in or near the meadows, clearings, and open areas on slopes and ridgelines inhabited by the host plants, where the larvae previously developed, and on open or sparsely vegetated hilltops, ridgelines, and occasionally rocky hilltops (with or without the host plant being present nearby). Inordinately large numbers of adult males are found on hilltops (usually only one or two per hilltop), where they exhibit "territorial behavior" – flying sorties from various perches to chase other butterflies, including conspecifics. QCB males often chase each other high into the air, only to return to different parts of the hilltop. Hilltopping, where male butterflies await the arrival of unmated females in order to secure mates, is common in many species of butterflies and the behavior in QCB is well known among experienced southern California lepidopterists (Shields 1967). When QCB adult densities are relatively low, mating success derived from facultative hilltopping behavior may be critical to long term viability.

Females lay egg masses that contain approximately 20-75 eggs and may produce up to 1,200 eggs in several batches during their lifetime. The eggs hatch in about ten days under favorable conditions and the larvae immediately begin to feed. In coastal California, the early larval stages undergo an obligatory aestival diapause (dormant period from late spring through winter), which is broken after fall or winter rains (Murphy and White 1984, Osborne 1998). The larvae then quickly complete their development, usually on the native annual plant dot-seed plantain, and emerge as adults during the same spring (Emmel and Emmel 1973, White 1974, Orsak 1977, Murphy and White 1984, Mattoni et al. 1997). Adult flight typically occurs between late January and mid-May, with peak activity generally in March and April. The flight period varies from year to year, depending upon the annual rainfall and other weather conditions. The timing and abundance of rainfall are important factors affecting the timing of host seed germination, growth, maturity, and senescence of the host plant (Murphy and White 1984, Dobkin et al. 1987), which in turn affects the survivorship of the larvae (Singer 1972, Ehrlich et al. 1980). Solar insolation on hillsides (determined in part by topography), where the larvae live, affects both the rate of host development and that of the larvae (White 1974, Weiss et al. 1988). In the race against host senescence, post-diapause larvae seek microclimates with high solar insolation in order to bask (Osborne 1998, Osborne and Redak 1999). This behavior increases their rate of development (Weiss et al. 1987). During periods of extended drought, the butterfly's populations decline and individual butterflies may become difficult to find. It is hypothesized that extended periods of diapause, lasting up to five or six years, occur during these droughts.

Populations of QCB, which were once distributed through much of lowland coastal southern California from northern Baja California, Mexico to Point Dume, Los Angeles County, have been declining since the late 1960's (Thorne 1970, Emmel and Emmel 1973, Orsak 1977, 1988). It has been hypothesized that this decline is primarily due to habitat loss by urban and agricultural expansion (Thorne 1970, Emmel and Emmel 1973, Orsak 1988), and possibly because of global warming and drought (Parmeasan 1996), fire and overgrazing (Orsak 1977, 1988). After an extended drought in the late 1980's and early 1990's, only one known population of QCB remained. Populations are now known to exist only at a few sites, in small isolated colonies, in southwestern Riverside and southern San Diego Counties. The decline of QCB may have started long before these modern observations after the early Spanish explorers and settlers introduced exotic grasses and forbs. These plants are highly competitive with the native QCB host plants (Proctor and Woodwell 1975). QCB received federal protection under the Endangered Species Act in 1997 (United States Federal Register, January 17, 1997) and is currently federal-listed as endangered.

SECTION 2.0 – METHODOLOGY

2.1. HABITAT ASSESSMENT

The purpose of the QCB habitat assessment was to determine the degree and nature of gross vegetation cover in order to assess potential for QCB occurrence on the Project site.

Prior to QCB focused surveys in 2010, permitted biologist Michael Klein (TE-837760-6) conducted a QCB habitat assessment in accordance with the United States Fish and Wildlife Service (*USFWS*) *Quino Checkerspot Survey Protocol Information* (USFWS, 2002). Mr. Klein surveyed the Project route by helicopter, which allowed for an efficient and comprehensive aerial search of the Project landscape. The helicopter flew low enough over the Project site to allow for visual determination of the ground cover type and vegetation density. The helicopter was determined by USFWS to be a suitable method of conducting a protocol habitat assessment except within Peninsular bighorn sheep habitat (Anderson and Sirchia 2009). The helicopter QCB habitat assessment was ground-truthed by each QCB survey biologist (**Table 1**) on foot within each biologist's assigned survey segment. In order to minimize disturbance to Peninsular bighorn sheep, the habitat assessment was conducted entirely on foot within habitat for this species.

Handheld Global Positioning System (GPS) units and aerial maps were used to outline portions of the Project route that would be surveyed during the 2010 QCB focused surveys. Information characteristic of QCB-occupied habitat, including locations of breaks in vegetation, rocky outcrops, and hilltops, were noted and mapped. Areas that were DEV, contained closed-canopy, general agricultural (AG-G), or non-native vegetation (NNV), or were unsafe to access were mapped and excluded from focused surveys. The remaining habitat along the Project route was deemed appropriate to survey. Section 2.2 describes methods used for conducting the focused surveys.

2.2. FOCUSED SURVEYS

The QCB focused surveys were conducted in accordance with protocol set forth by the *USFWS Quino Checkerspot Survey Protocol Information* (USFWS, 2002) and the USFWS *Year 2005 Quino Survey Areas*. In addition, USFWS reference material concerning reference sites, recommended survey areas, critical habitat designations, and conservation plans (USFWS 2002-2009) was reviewed before performing the surveys. Each survey segment was surveyed weekly at a minimum of five times during the QCB flight season. Certain segments were surveyed more than five times depending on QCB host plant conditions, nectar source availability, and whether QCB were still seen flying at nearby reference sites beyond the fifth survey. If a QCB was detected at a site during the first five surveys, additional surveys were not required. If a QCB was not detected during the first five surveys but the QCB flight season continued (as determined by conditions listed above), then additional surveys were conducted through the end of the flight season.

Surveys were conducted at an approximate rate of 10 to 15 acres per hour when temperatures were above 60 degrees Fahrenheit on a clear, sunny day or 70 degrees Fahrenheit on an overcast or cloudy day. In the field, temperatures were measured in the shade and warmer conditions prevailed under sunlight where butterflies are active. In addition, surveys were generally conducted between the hours of 0900 and 1600. If weather conditions were unsuitable for a survey, two surveys on non-consecutive days were conducted during the following week. If weather conditions were unsuitable for two weeks in a row, two surveys were conducted on non-consecutive days during each of the following two weeks.

Experienced biologists identified QCB, sometimes using binoculars, cameras, and butterfly nets for butterfly identification. QCB locations were taken using handheld GPS units and mapped on aerial photographs by Geographic Information System (GIS). Plant communities and QCB host plants were also mapped. Photographs were taken of suitable QCB habitat and observed QCB. All butterfly species were recorded on standardized field data sheets.

Potential QCB habitat for the protocol focused surveys was divided up amongst 20 USFWS permitted QCB biologists (**Table 1**).

Table 1: USFWS-Permitted QCB Biologists

USFWS-Permitted QCB Biologists	
Biologist	***USFWS Permit Number***
Adam Behl	TE-797999-7.1
Andrew McGinn Forde	TE-062907-4
Andy Pigniolo	TE-053020-1
Antonette Gutierrez	TE-797999-7.1
Chet McGaugh	TE-836517-5
David King	TE-785148-7
Diana Jensen	TE-797999-7.1
Frank Dittmer	TE-225939-0
Greg Chatman	TE-075112-1
Jane Higginson	TE-797999-7.1
John Green	TE-054011-4
Kyle Ince	TE-797999-7.1
Laurie Gorman	TE-233367-0
Martha Heath	TE-099005-1
Maya Mazon	TE-233332-0
Melissa Booker	TE-797999-7.1
Melissa Busby	TE-080779-1
Michael Klein	TE-837760-6
Michael Wilcox	TE-836491-5
Natalie Brodie	TE-135948-0
Nathan Moorhatch	TE-029414-2
Nicole Kimball	TE-053598-3
Rob Fletcher	TE-231425-0
Sarah Farmer	TE-192708-1
Steve Meyers	TE-804203-9
Stephen Rink	TE-797999-7.1

SECTION 3.0 – RESULTS

During the 2010 QCB focused surveys for the SDG&E CNF Project, no QCB were observed on the Project ROW, and two (2) QCB were observed on a hilltop adjacent to an access road for tie line (TL) 6923. Three (3) additional QCB were observed on the same hilltop during the 2010 QCB focused surveys for the Sunrise Powerlink Project (Chambers Group 2010) in areas where there was overlap in the survey area for both projects. Note that QCB had been found in this same location during the 2009 Chambers Group focused surveys for the Sunrise Powerlink Project as well (Chambers Group 2009). **Section 3.1** below includes GPS locations (**Table 2**) and a habitat description for the area where QCB were observed.

Appendix A contains aerial images of the project site with the location of QCB observations labeled. **Appendix B** contains a list of all butterfly species observed on the Project route during the focused surveys. Species nomenclature follows that of *Systematics of Western North American Butterflies* (Emmel 1998). Photographs of QCB and their habitat observed onsite are provided in **Appendix C**. A data table of survey locations and results is provided in **Appendix D**. QCB host plant patches found during focused surveys are mapped on aerial photographs provided in **Appendix E**. **Appendix F** contains field observation data sheets. **Appendix G** contains signature pages from each permitted QCB biologist to certify that the results and conclusions discussed in this report are complete and accurate.

3.1. GPS LOCATIONS AND HABITAT DESCRIPTION FOR QCB OBSERVED

Table 2: GPS Locations of QCB Observed

Observation Number	Date of Observation	GPS Location (NAD 83, UTM)	
		Easting	Northing
1	3/18/2010	534095	3613393
2	3/26/2010	534111	3613365
3	3/30/2010	534101	3613392
4	3/30/2010	534101	3613392
5	4/9/2010	534103	3613393

All five QCB observed near the project site were located on a hilltop adjacent to an access road for TL 6923. The general habitat in this area is southern mixed chaparral (SMC). Dominant shrubs within this community include chamise (*Adenostoma fasciculatum*), hairy ceanothus (*Ceanothus oliganthus*), scrub oak (*Quercus berberidifolia*), and sugarbush (*Rhus ovata*). Dominant understory plants include filaree (*Erodium botrys*), forget-me-nots (*Cryptantha* sp.), and morning glory (*Calystegia macrostegia*). Flowering plants observed in the area are dominated by goldfields (*Lasthenia californica*), black mustard (*Brassica nigra*), blue dicks (*Dichelostemma capitatum*), buckwheat (*Eriogonum fasciculatum*), deerweed (*Lotus scoparius*), filaree, and forget-me-nots. QCB host plants observed in the area consist of dot-seed plantain and purple owl's clover.

SECTION 4.0 – CONCLUSIONS AND RECOMMENDATIONS

No QCB were observed on the Project ROW, and a total of five (5) QCB were observed on a hilltop adjacent to an access road for TL 6923 (two were seen during the 2010 SDG&E CNF Project focused surveys, and three were seen during the Sunrise Powerlink Project focused surveys where the survey areas overlapped). **Appendix E** contains aerial figures of the Project ROW and buffer and shows the locations of QCB host plant observations. **Table 3** provides an acreage breakdown of the QCB survey area according to whether the area fell inside the Project ROW, CNF land, and USFWS occupied habitat.

Table 3: Acreage Breakdown of QCB Survey by ROW, CNF, and USFWS Occupied Habitat

Survey Area In Project ROW?	Survey Area Within CNF?	Survey Area Within USFWS Occupied Habitat?	Survey Acreage
Yes	Yes	Yes	18.40
		No	94.18
	CNF Total		112.58
	No	Yes	19.52
		No	153.95
	Outside CNF Total		173.47
Within ROW Total			286.05
No	Yes	Yes	27.38
		No	17.27
	CNF Total		44.66
	No	Yes	12.32
		No	27.37
	Outside CNF Total		39.69
Outside ROW Total			84.35
Grand Total			370.40

QCB focused surveys were conducted on a total of approximately 370 acres of QCB suitable habitat with host plants present along the proposed Project ROW and buffer; of these 370, acres, approximately 286 acres were within the ROW, approximately 157 acres were within CNF land, and approximately 78 acres were within USFWS occupied habitat; approximately 18 acres surveyed were within the ROW, CNF and USFWS occupied habitat.

The Master Service Use Permit will contain measures to protect QCB during Project-related activities. These measures should be followed to the greatest extent practicable to minimize impacts to QCB and their habitat. The following are measures that are directly pertinent to protection of QCB:

- QCB occupied and QCB suitable habitat shall be avoided to the greatest extent feasible.
- If construction occurs in QCB occupied and/or QCB suitable habitat, construction shall occur between June 1 and Oct. 15 (outside of the QCB flight season) OR 10 meters (33-feet) away from all host plant locations).
- If there is a known or newly discovered QCB occurrence during the QCB flight season, construction shall be prohibited within 1-kilometer of the occurrence.

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APPENDIX A – QCB LOCATION MAPS

QUINO CHECKERSPOT BUTTERFLY LOCATIONS

- Distribution Pole
- Transmission Structures
- Survey Area
- USFS Managed Lands
- Cleveland National Forest Congressional District Boundary
- USFWS Occupied Habitat
- QCB_Observed
- QCB 1-Kilometer Buffer
- QCB Host Plant

0 400 800 1,200

Feet

Chambers Group Inc.

SDGE A Sempra Energy utility

972798 972799 972800 972801 972802 972803 972804 972805 972806 972807 972810

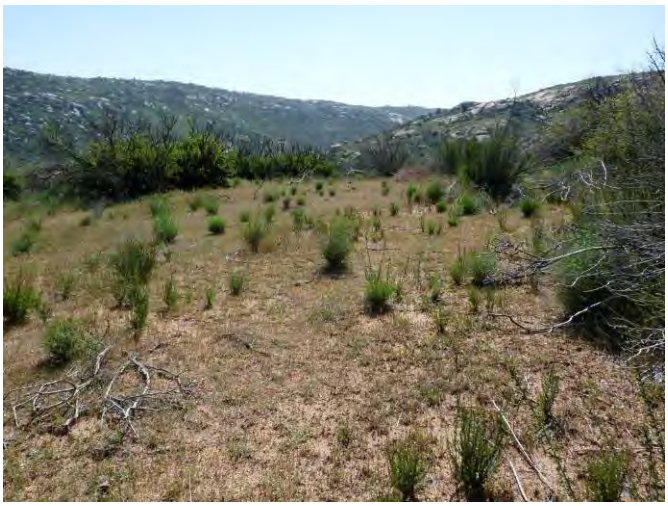
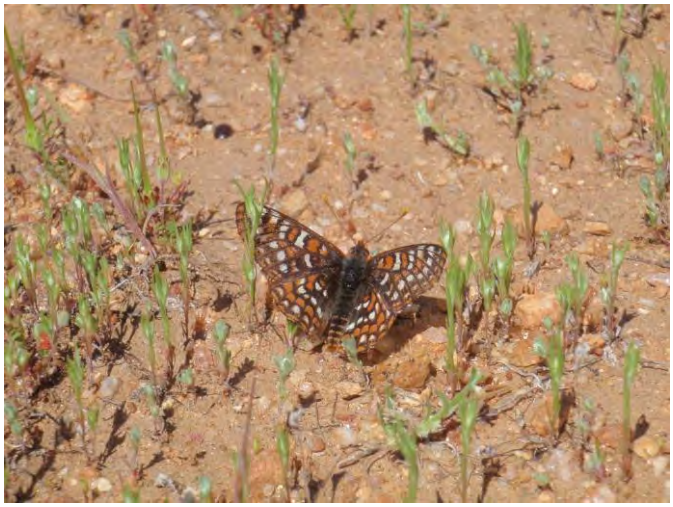
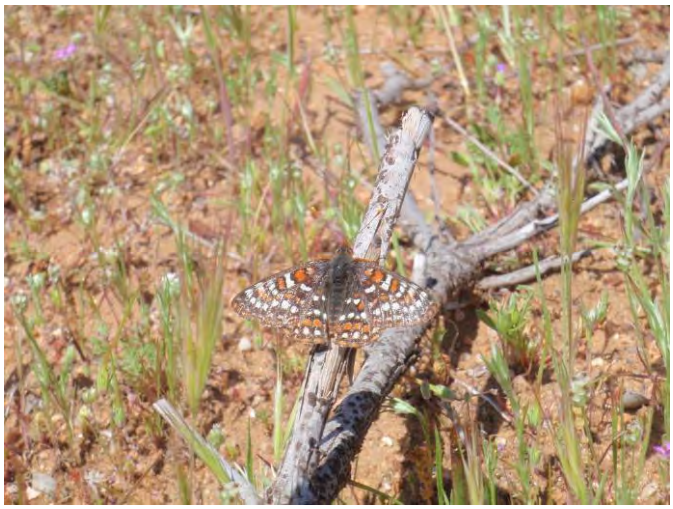
APPENDIX B – BUTTERFLY SPECIES OBSERVED

Butterfly Species Observed on the Project Site During 2010 QCB Focused Surveys
Nymphalidae
Euphydryas editha quino
Euphydryas chalcedona
Chlosyne gabbii
Adelpha bredowii
Adelpha californica
Agraulis vanillae
Limenitis lorquini
Junonia coenia
Nymphalis antiopa
Nymphalis californica
Phyciodes mylitta
Speyeria coronus
Vanessa annabella
Vanessa atalanta
Vanessa cardui
Vanessa virginiensis
Vanessa sp.
Danaidae
Danaus gilippus
Danaus plexippus
Papilionidae
Papilio zelicaon
Papilio indra
Papilio rutulus
Papilio eurymedon
Pieridae
Pontia protodice
Pontia beckerii
Pontia sp.
Pieris rapae
Euchloe hyantis
Anthocharis cethura
Anthocharis sara
Colias eurytheme
Colias harfordii
Zerene eurydice
Phoebis sennae
Eurema nicippe

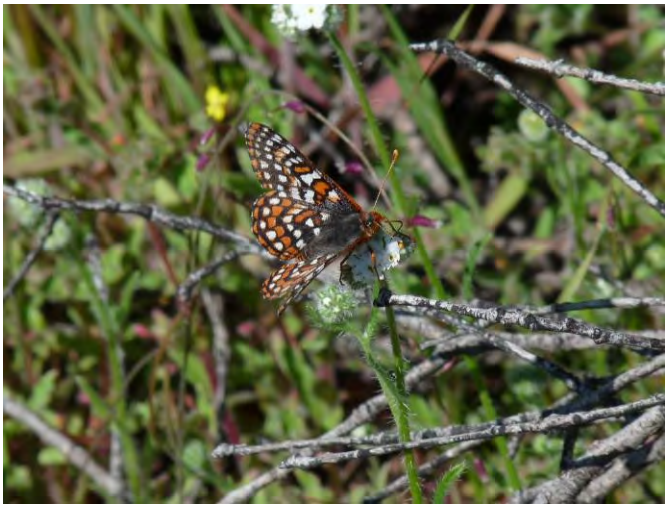
Butterfly Species Observed on the Project Site During 2010 QCB Focused Surveys
Nathalis iole
Riodinidae
Apodemia mormo
Apodemia virgulti
Lycaenidae
Incisalia augustinus
Callophrys perplexa
Strymon melinus
Satyrium saepium
Lycaena gorgon
Lycaena xanthoides
Leptotes marina
Everes amyntula
Celastrina ladon
Glaucopsyche lygdamus
Glaucopsyche piasus
Philotes sonorensis
Plebejus melissa
Plebejus lupini
Plebejus icarioides
Icaricia acmon
Icaricia (Plebejus) lupini
Hemiargus ceraunus
Hesperidae
Copaeodes aurantiaca
Hylephila phyleus
Hesperia juba
Erynnis brizo
Erynnis funeralis
Erynnis pacuvius
Erynnis propertius
Erynnis tristis
Pyrgus albescens
Pyrgus scriptura
Heliopetes ericetorum
Pholisora catallus
Unidentified skipper sp.

APPENDIX C – PHOTO PAGES

APPENDIX C – PHOTO PAGES

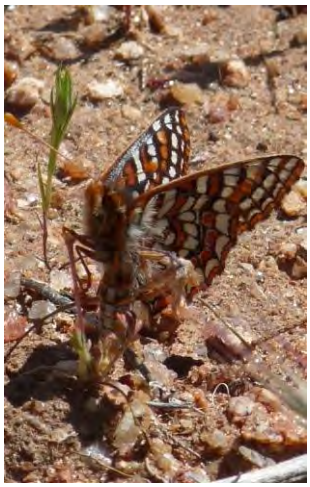
	Photo 1. Photo shows knoll covered in dwarf plantain adjacent to an access road for TL 6923, where two QCB were found by Rob Fletcher during the 2010 SDG&E CNF Project focused surveys, and three QCB were found by Laurie Gorman during the 2010 Sunrise Powerlink Project focused surveys.
	Photo 2. Photo of first QCB seen by Rob Fletcher on March 30, 2010 on the knoll described in Photo 1.
	Photo 3. Photo of second QCB seen by Rob Fletcher on March 30, 2010 on the knoll described in Photo 1. Note worn appearance compared to first QCB seen, shown in Photo 2.

APPENDIX C – PHOTO PAGES



Photos 4.

Photos show male QCB found on March 18, 2010 by Laurie Gorman foraging on forget-me-nots on the knoll described in Photo 1.



Photos 5 and 6.

Photos show male QCB found on April 9, 2010 by Laurie Gorman actively hilltopping on the knoll described in Photo 1.

Photo 7.

Photo taken of dot-seed plantain found on knoll shown in Photo 1. This was the dominant host plant of the area where QCB were observed.

APPENDIX D – QCB SURVEY DATA TABLE

QCB Survey Data Table				
Date	**Biologist (Company)**	**Time (Military)**	**Weather Conditions**	**Survey Location**
22-May-2010	Natalie Brodie (Forde)	1415-1545	Temp: 66-68 °F Wind: 0-8 mph Cloud Cover: 0-5%	Map 095
22-May-2010	Natalie Brodie (Forde)	1045-1245	Temp: 61-66 °F Wind: 0-6 mph Cloud Cover: 0-30%	Map 094
21-May-2010	Natalie Brodie (Forde)	1245-1415	Temp: 66-67 °F Wind: 0-6 mph Cloud Cover: 0-5%	Map 093
21-May-2010	Andy Forde (Forde)	0800-1700	Temp: 65-70 °F Wind: 0-2 mph Cloud Cover: 0%	Maps 091, 092, 095
20-May-2010	Andy Forde (Forde)	0900-1300	Temp: 70-75 °F Wind: 0-15 mph Cloud Cover: 0%	Maps 091, 092
16-May-2010	Andrew Pigniolo (Forde)	1300-1400	Temp: 75-78 °F Wind: 0-6 mph Cloud Cover 0-1%	Map 095
14-May-2010	Michael Klein	0900-1515	Temp: 68-78 °F Wind: 2-7 mph Cloud Cover: sunny	Maps 096, 097
14-May-2010	Natalie Brodie (Forde)	1430-1515	Temp: 80 °F Wind: 2-6 mph Cloud Cover: 10%	Map 095
14-May-2010	Natalie Brodie (Forde)	1100-1300	Temp: 74-77 °F Wind: 2-5 mph Cloud Cover: 0-25%	Map 094
14-May-2010	Natalie Brodie (Forde)	1300-1430	Temp: 76-77 °F	Map 093

			Wind: 2-5 mph Cloud Cover: 10-20%	
13-May-2010	Andy Forde (Forde)	0600-1730	Temp: 62-70 °F Wind: 0-5 mph Cloud Cover: 0%	Maps 091, 092, 095
11-May-2010	Jane Higginson (Forde)	1115-1300	Temp: 67-73 °F Wind: 1-7 mph Cloud Cover: 80%	Map 092
11-May-2010	Jane Higginson (Forde)	1530-1640	Temp: 62-73 °F Wind: 0-7 mph Cloud Cover: 75-80%	Map 091
8-May-2010	Jane Higginson (Forde)	1120-1355	Temp: 78-79 °F Wind: 1-3 mph Cloud Cover: 0%	Map 095
8-May-2010	Jane Higginson (Forde)	0945-1030	Temp: 68-75 °F Wind: 0-2 mph Cloud Cover: 0%	Map 092
8-May-2010	Jane Higginson (Forde)	1500-1640	Temp: 80-86 °F Wind: 1-4 mph Cloud Cover: 0%	Map 091
7-May-2010	Michael Klein	0845-1500	Temp: 68-82 °F Wind: 2-5 mph Cloud Cover: sunny	Maps 096, 097
7-May-2010	Natalie Brodie (Forde)	1420-1550	Temp: 76-77 °F Wind: 0-3 mph Cloud Cover: 0%	Map 095
7-May-2010	Natalie Brodie (Forde)	1030-1230	Temp: 70-77 °F Wind: 0-3 mph Cloud Cover: 0%	Map 094
7-May-2010	Natalie Brodie (Forde)	1245-1415	Temp: 75-76 °F Wind: 0-4 mph	Map 093

			Cloud Cover: 0%	
6-May-2010	Andy Forde (Forde)	0900-1430	Temp: 65-70 °F Wind: 0-5 mph Cloud Cover: 0-10%	Map 091, 092
2-May-2010	Andrew Pigniolo (Forde)	1400-1530	Temp: 69-70 °F Wind: 0-4 mph Cloud Cover: 2%	Map 095
2-May-2010	Andrew Pigniolo (Forde)	1030-1130	Temp: 60-64 °F Wind: 0-4 mph Cloud Cover: 0%	Map 094
2-May-2010	Andrew Pigniolo (Forde)	1230-1400	Temp: 64-69 °F Wind: 0-4 mph Cloud Cover: 0%	Map 093
1- May-2010	Michael Klein	0845-1530	Temp: 59-63 °F Wind: 2-10 mph Cloud Cover: sunny	Maps 096, 097
1-May-2010	Jane Higginson (Forde)	1150-1420	Temp: 70-75 °F Wind: 2-6 mph Cloud Cover: 0-10%	Map 095
1-May-2010	Jane Higginson (Forde)	1604-1640	Temp: 68-71 °F Wind: 1-7 mph Cloud Cover: 40-50%	Map 092
1-May-2010	Andrew Pigniolo (Forde)	1330-1500	Temp: 67-69 °F Wind: 0-2 mph Cloud Cover: 0-5%	Map 092
1-May-2010	Jane Higginson (Forde)	0940-1100	Temp: 60-64 °F Wind: 1-4 mph Cloud Cover: 0%	Map 091
1-May-2010	Andrew Pigniolo (Forde)	1500-1630	Temp: 66-69 °F Wind: 0-4 mph Cloud Cover: 5-10%	Map 091

25 Apr-2010	Michael Klein	0845-1530	Temp: 65-73 °F Wind: 0-4 mph Cloud Cover: sunny	Maps 096, 097
25-Apr-2010	Jane Higginson (Forde)	1430-1730	Temp: 72-75°F Wind: 2 mph Cloud Cover: 0%	Map 095
25-Apr-2010	Jane Higginson (Forde)	1300-1400	Temp: 72°F Wind: 2 mph Cloud Cover: 0%	Map 092
25-Apr-2010	Jane Higginson (Forde)	0935-1200	Temp: 69°F Wind: 2 mph Cloud Cover: 0%	Map 091
24-Apr-2010	Andrew Pigniolo (Forde)	1430-1600	Temp: 67-69 °F Wind: 0-4 mph Cloud Cover: 0%	Map 095
24-Apr-2010	Andrew Pigniolo (Forde)	1100-1300	Temp: 65-69 °F Wind: 0-4 mph Cloud Cover: 0%	Map 094
24-Apr-2010	Andrew Pigniolo (Forde)	1300-1430	Temp: 69°F Wind: 0-4 mph Cloud Cover: 0%	Map 093
23-Apr-2010	Andrew Pigniolo (Forde)	1330-1500	Temp: 60 °F Wind: 0-4 mph Cloud Cover: 2-15%	Map 092
23-Apr-2010	Andrew Pigniolo (Forde)	1200-1330	Temp: 60-61 °F Wind: 0-6 mph Cloud Cover: 0-1%	Map 091
18-Apr-2010	Michael Klein	0915-1600	Temp: 66-74 °F Wind: 2-4 mph Cloud Cover: 20%	Maps 096, 097
10-Apr-2010	Michael Klein	0900-1615	Temp: 60-63 °F	Maps 096, 097, 098, 099, 100

			Wind: 2-9 mph Cloud Cover: sunny	
30-Mar-2010	Michael Klein	1000-1515	Temp: 58-69°F Wind: 2-10 mph Cloud Cover: 50%	Maps 096, 97
20-May-2010	Martha Heath	0800-1200	Temp: 65-76 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 080, 081
12-May-2010	Martha Heath	0830-1630	Temp: 60-63 °F Wind: 1-8 mph Cloud Cover: 0%	Maps 080, 081, 082
9-May-2010	Martha Heath	0920-1500	Temp: 59-66 °F Wind: 1-16 mph Cloud Cover: 0-45%	Maps 076, 080, 081
5-May-2010	Martha Heath	0830-1600	Temp: 69-79 °F Wind: 0-6 mph Cloud Cover: 0-10%	Maps 080, 082
4-May-2010	Martha Heath	0830-1430	Temp: 61-73 °F Wind: 0-10 mph Cloud Cover: 0%	Maps 080, 081, 082
3-May-2010	Martha Heath	1530-1630	Temp: 65-67 °F Wind: 2-8 mph Cloud Cover: 0%	Map 082
26-Apr-2010	Martha Heath	0815-1615	Temp: 60-76 °F Wind: 1-10 mph Cloud Cover: 0-20%	Maps 080, 081, 082
20-Apr-2010	Martha Heath	0830-1530	Temp: 56-62 °F Wind: 1-10 mph Cloud Cover: 10-45%	Maps 080, 082
19-Apr-2010	Martha Heath	1530-1700	Temp: 64-69 °F	Map 082

			Wind: 3-8 mph Cloud Cover: 0-15%	
15-Apr-2010	Martha Heath	1000-1700	Temp: 63-76 °F Wind: 0-5 mph Cloud Cover: 0-100%	Maps 080, 081, 082
3-Apr-2010	Martha Heath	1130-1600	Temp: 56-66 °F Wind: 0-3 mph Cloud Cover: 50%	Map 082
2-Apr-2010	Martha Heath	1400-1630	Temp: 58-62 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 081, 082
28-March-2010	Martha Heath	1000-1600	Temp: 66-71 °F Wind: 2-10 mph Cloud Cover: 0%	Maps 080, 081
30-May-2010	Nicole Kimball, Martha Heath (AMEC)	0800-1345	Temp: 71-88 °F Wind: 1-12 mph Cloud Cover: 0%	Maps 071, 072, 073, 074
30-May-2010	Martha Heath (AMEC)	0800-1345	Temp: 71-88 °F Wind: 1-12 mph Cloud Cover: 0%	Maps 071, 072, 073, 074
24-May-2010	Nicole Kimball (AMEC)	1030-1602	Temp: 69-79 °F Wind: 0-14 mph Cloud Cover: 0-1%	Maps 070, 071, 072, 073, 074, 075, 076, 077
21-May-2010	Martha Heath	0815-1500	Temp: 62-75 °F Wind: 1-7 mph Cloud Cover: 0%	Map 076
20-May-2010	Martha Heath	1300-1700	Temp: 75-79 °F Wind: 1-8 mph Cloud Cover: 0%	Maps 066, 067, 068
19-May-2010	Nicole Kimball (AMEC)	0818-1419	Temp: 67-86 °F	Maps 071, 072, 073, 074

			Wind: 0-8 mph Cloud Cover: 0%	
19-May-2010	Laurie Gorman, Nicole Kimball (AMEC)	0900-1419	Temp: 64-86 °F Wind: 0-8 mph Cloud Cover: 0%	Maps 071,072, 073, 074
17-May-2010	Nicole Kimball (AMEC)	1022-1355	Temp: 70-83 °F Wind: 0-7 mph Cloud Cover: 85-100%	Maps 070, 071, 072, 073, 074 075, 076, 077
17-May-2010	M. Wilcox, Nicole Kimball (AMEC)	1030-1355	Temp: 62-81 °F Wind: 1-4 mph Cloud Cover: 80-100%	Maps 069, 070, 071, 072, 073, 074, 075
17-May-2010	Martha Heath	1400-1630	Temp: 64-71 °F Wind: 1-6 mph Cloud Cover: 0-70%	Map 066
14-May-2010	Nicole Kimball (AMEC)	0900-1511	Temp: 61-85 °F Wind: 1-11 mph Cloud Cover: 0-25%	Maps 070, 075, 077
13-May-2010	Maya Mazon (Chambers)	1345-1530	Temp: 77 °F Wind: 6-9 mph Cloud Cover: 40%	Maps 063, 064, 065, 069
12-May-2010	Laurie Gorman, John Green (AMEC)	0930-1500	Temp: 66-74 °F Wind: 0-10 mph Cloud Cover: 0-3%	Maps 071, 072, 073, 074
12-May-2010	Maya Mazon (Chambers)	1339-1530	Temp: 77 °F Wind: 2-9 mph Cloud Cover: 0%	Maps 063, 064, 065, 069
10-May-2010	Martha Heath	0900-1500	Temp: 59-63 °F Wind: 1-9 mph Cloud Cover: 0-20%	Maps 067, 068
7-May-2010	Laurie Gorman, Steve Meyers (AMEC)	0940-1540	Temp: 70-84 °F Wind: 0-8 mph	Maps 071, 072, 073, 074

			Cloud Cover: 0%	
6-May-2010	Martha Heath	0800-1530	Temp: 63-72 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 067, 068
6-May-2010	Maya Mazon (Chambers)	1030	Temp: 74 °F Wind: 1-3 mph Cloud Cover: 0%	Maps 063, 064, 065, 069
5-May-2010	Martha Heath	0830-1600	Temp: 69-79 °F Wind: 0-6 mph Cloud Cover: 0-10%	Maps 066, 068
3-May-2010	Martha Heath	0830-1530	Temp: 65-77 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 068, 076
3-May-2010	Maya Mazon (Chambers)	0900-1340	Temp: 62-66 °F Wind: 1-3 mph Cloud Cover: 0%	Maps 063, 064, 065, 069
2-May-2010	Laurie Gorman (AMEC)	0930-1510	Temp: 61-74 °F Wind: 0-7 mph Cloud Cover: 0%	Maps 071, 072, 073, 074
27-Apr-2010	Martha Heath	0800-1600	Temp: 65-75 °F Wind: 1-7 mph Cloud Cover: 0-35%	Maps 066, 067, 068
27-Apr-2010	Maya Mazon (Chambers)	0900-1345	Temp: 73-80 °F Wind: 1-3 mph Cloud Cover: 0%	Maps 063, 064, 065, 069
26-Apr-2010	Nicole Kimball (AMEC)	1108-1703	Temp: 78-84 °F Wind: 0-6 mph Cloud Cover: 15% haze	Maps 075, 077
26-Apr-2010	Maya Mazon (Chambers)	0930-1440	Temp: 71-77 °F Wind: 0-9 mph Cloud Cover: 0-15%	Maps 063, 064, 065, 069

23-Apr-2010	Maya Mazon (Chambers)	0952-1600	Temp: 60-67 °F Wind: 0-10 mph Cloud Cover: 0-25%	Maps 063, 064, 065, 069
19-Apr-2010	Martha Heath	0830-1500	Temp: 61-71 °F Wind: 0-7 mph Cloud Cover: 0-5%	Maps 066, 076, 080
17-Apr-2010	Martha Heath	1600-1730	Temp: 67-70 °F Wind: 2-5 mph Cloud Cover: 100%	Map 066
16-Apr-2010	Steve Meyers, Chet McGaugh (AMEC)	1050-1630	Temp: 55-65 °F Wind: 0-9 mph Cloud Cover: 0%	Maps 071, 072, 073, 074
16-Apr-2010	Martha Heath	1630-1730	Temp: 65-66 °F Wind: 1-3 mph Cloud Cover: 0%	Map 066
15-Apr-2010	Maya Mazon (Chambers)	0952-1230	Temp: 65-67 °F Wind: 4-5 mph Cloud Cover: 1%	Maps 063, 064, 065, 069
14-Apr-2010	Martha Heath	1045-1800	Temp: 61-69 °F Wind: 1-8 mph Cloud Cover: 0-100%	Maps 067, 068
14-Apr-2010	Maya Mazon (Chambers)	1120-1530	Temp: 62-73 °F Wind: 1-3 mph Cloud Cover: 10-25%	Maps 063, 064, 065, 069
9-Apr-2010	Nicole Kimball, David King (AMEC)	1014-1345	Temp: 71-80 °F Wind: 0-11 mph Cloud Cover: 0%	Maps 069, 070
8-Apr-2010	Martha Heath	0900-1700	Temp: 60-76 °F Wind: 0-8 mph Cloud Cover: 0%	Maps 066, 076
8-Apr-2010	Maya Mazon (Chambers)	1320-1421	Temp: 76 °F	Maps 063, 064, 065, 069

			Wind: 1-3 mph Cloud Cover: 0%	
7-Apr-2010	Martha Heath	1100-1700	Temp: 60-69 °F Wind: 1-10 mph Cloud Cover: 0%	Maps 068, 076
6-Apr-2010	Maya Mazon (Chambers)	1111-1557	Temp: 60-65 °F Wind: 3-8 mph Cloud Cover: 0%	Maps 063, 064, 065, 069
4-Apr-2010	Martha Heath	1400-1700	Temp: 60-64 °F Wind: 1-7 mph Cloud Cover: 0%	Maps 067, 068
30-Mar-2010	Maya Mazon (Chambers)	1002-1400	Temp: 63-70 °F Wind: 3-9 mph Cloud Cover: 2-5%	Maps 063, 064, 065, 069
29-Mar-2010	Maya Mazon (Chambers)	0830-1600	Temp: 61-80 °F Wind: 0-3 mph Cloud Cover: 0-20%	Maps 063, 064, 065, 069
20-Apr-2010	Rob Fletcher (Chambers)	1000-1500	Temp: 65-76 °F Wind: 2-12 mph Cloud Cover: 25-75%	Maps 058, 059, 060, 061, 062
19-Apr-2010	Rob Fletcher (Chambers)	1000-1400	Temp: 65-71 °F Wind: 2-9 mph Cloud Cover: 10-20%	Maps 058, 059, 060, 061, 062
15-Apr-2010	Rob Fletcher (Chambers)	1000-1500	Temp: 65-74 °F Wind: 1-7 mph Cloud Cover: 10-60%	Maps 058, 059, 060, 061, 062
14-Apr-2010	Rob Fletcher (Chambers)	1100-1500	Temp: 61-64 °F Wind: 1-6 mph Cloud Cover: 10-20%	Maps 058, 059, 060, 061, 062
10-Apr-2010	Rob Fletcher (Chambers)	0900-1315	Temp: 63-69 °F	Maps 058, 059, 060, 061, 062

			Wind: 0-6 mph Cloud Cover: 10-30%	
8-Apr-2010	Rob Fletcher (Chambers)	1000-1500	Temp: 69-83 °F Wind: 2-4 mph Cloud Cover: 0%	Maps 058, 059, 060,061, 062
30-Mar-2010	Rob Fletcher (Chambers)	1030-1530	Temp: 61-72 °F Wind: 3-9 mph Cloud Cover: 0-20%	Maps 058, 059, 060, 061, 062
29-Mar-2010	Rob Fletcher (Chambers)	1115-1400	Temp: 66-71 °F Wind: 2-7 mph Cloud Cover: 0-30%	Maps 058, 059, 060, 061, 062
25-Mar-2010	Rob Fletcher, Seth Reimers (Chambers)	1030-1540	Temp: 64-72 °F Wind: 3-6 mph Cloud Cover: 0%	Maps 058, 059, 060, 061, 062
24-Mar-2010	Rob Fletcher, Seth Reimers (Chambers)	1130-1600	Temp: 72-75 °F Wind: 3-6 mph Cloud Cover: 0-10%	Maps 058, 059, 060, 061, 062
26-May-2010	Rob Fletcher, Maya Mazon (AMEC)	1000-1311	Temp: 66-74 °F Wind: 1-4 mph Cloud Cover: 0%	Maps 042, 043, 044
25-May-2010	Rob Fletcher (AMEC)	1000-1400	Temp: 65-67 °F Wind: 2-4 mph Cloud Cover: 0%	Maps 039, 040, 041
21-May-2010	Nate Moorhatch, Nicole Kimball (AMEC)	0903-1337	Temp: 64-81 °F Wind: 0-12 mph Cloud Cover: 0%	Maps 040, 041, 042, 043, 044
14-May-2010	Laurie Gorman, Mike Wilcox (AMEC)	0900-1350	Temp: 68-73 °F Wind: 0-12 mph Cloud Cover: 0-15%	Maps 041, 042, 043
12-May-2010	Nicole Kimball (AMEC)	0858-1345	Temp: 61-83 °F	Map 040

			Wind: 0-9 mph Cloud Cover: 0-15%	
10-May-2010	Rob Fletcher (AMEC)	1115-1430	Temp: 64-78 °F Wind: 4-10 mph Cloud Cover: 25-50%	Maps 051, 052 (west)
10-May-2010	Nicole Kimball, Rob Fletcher (AMEC)	1105-1430	Temp: 66-73 °F Wind: 3-6 mph Cloud Cover 30-40 %	Maps 049, 050, 052 (west)
6-May-2010	Rob Fletcher (AMEC)	0830-1330	Temp: 65-78 °F Wind: 0-6 mph Cloud Cover: 0-5% haze	Map 054
6-May-2010	Nicole Kimball (AMEC)	0840-1325	Temp: 60-80 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 041, 051
6-May-2010	Chet McGaugh (AMEC)	0925-1130	Temp: ? Wind: ? Cloud Cover: 0%	Maps 049, 050
6-May-2010	Nate Moorhatch, Laurie Gorman (AMEC)	0832-1430	Temp: 65-80 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 043, 044, 052
5-May-2010	John Green (AMEC)	1130-1440	Temp: 74-77 °F Wind: 0-5 mph Cloud Cover: <5%	Maps 039, 040
5-May-2010	Nicole Kimball, John Green (AMEC)	0850-1440	Temp: 63-77 °F Wind: 1-7 mph Cloud Cover: 0%	Maps 033, 040, 041
3-May-2010	Laurie Gorman, Nicole Kimball (AMEC)	0910-1307	Temp: 65-85 °F Wind: 0-12 mph Cloud Cover: 0%	Maps 052, 056, 057
3-May-2010	Nicole Kimball (AMEC)	0910-1307	Temp: 65-85 °F Wind: 0-9 mph	Map 052 (west), 055

			Cloud Cover: clear	
30-Apr-2010	Nicole Kimball (AMEC)	1025-1311	Temp: 61-77 °F Wind: 2-9 mph Cloud Cover: 10-25%	Map 054
30-Apr-2010	Rob Fletcher, Nicole Kimball (AMEC)	1018-1215	Temp: 58-66 °F Wind: 2-8 mph Cloud Cover: 20-25%	Map 051
30-Apr-2010	Nate Moorhatch, Laurie Gorman (AMEC)	1145-1345	Temp: 64-71 °F Wind: 0-11 mph Cloud Cover: 15-20%	Maps 049, 050
30-Apr-2010	Sarah Farmer, Frank Dittmer (Forde)	1200-1415	Temp: 62-65 °F Wind: 0-12 mph Cloud Cover: 50%	Map 045, 049
27-Apr-2010	John Green, Chet McGaugh, Steve Meyers (AMEC)	1000-1520	Temp: 70-74 °F Wind: 0-6 mph Cloud Cover: 0-50%	Maps 049, 050, 051, 054, 055, 056
27-Apr-2010	Nicole Kimball, Laurie Gorman (AMEC)	1117-1631	Temp: 67-88 °F Wind: 1-8 mph Cloud Cover: 7-50%	Maps 052, 053
27-Apr-2010	Rob Fletcher, David King (AMEC)	1030-1615	Temp: 75-78 °F Wind: 3-6 mph Cloud Cover: 20-50%	Maps 042, 043, 044
23-Apr-2010	Nicole Kimball, David King (AMEC)	1200-1520	Temp: 66-75 °F Wind: 0-8 mph Cloud Cover: 2-20%	Maps 055, 056
23-Apr-2010	David King, Nicole Kimball (AMEC)	1205-1520	Temp: 58-65 °F Wind: 2-15 mph Cloud Cover: 0-30%	Map 055 (north from Manzanita Bay)
23-Apr-2010	Frank Dittmer (Forde)	1315-1500	Temp: 62-68 °F Wind: 5-10 mph Cloud Cover: 0-30%	Maps 045, 046, 049

20-Apr-2010	David King, Steve Myers (AMEC)	1006-1550	Temp: 61-72 °F Wind: 2-9 mph Cloud Cover: 10-50%	Maps 040, 041
15-Apr-2010	Sarah Farmer, Frank Dittmer (Forde)	1400-1600	Temp: 63 °F Wind: 2-5 mph Cloud Cover: 20%	Map 049
15-Apr-2010	Sarah Farmer (Forde)	1130-1400	Temp: 62-63 °F Wind: 2-5 mph Cloud Cover: 0%	Maps 046, 047, 048
13-Apr-2010	John Green (AMEC)	1200-1500	Temp: 59-63 °F Wind: 0-8 mph Cloud Cover: 20-45%	Maps 055, 056, 057
13-Apr-2010	David King (AMEC)	1155-1445	Temp:56-66 °F Wind: 0-14 mph Cloud Cover: 15-30%	Map 055
13-Apr-2010	Nicole Kimball (AMEC)	1102-1700	Temp: 60-71 °F Wind: 0-13 mph Cloud Cover 15-30%	Maps 050 (south tip), 051, 054
13-Apr-2010	John Green (AMEC)	1545-1700	Temp: 58-62 °F Wind: 0-9 mph Cloud Cover: 25-30%	Map 050
13-Apr-2010	David King, Nicole Kimball (AMEC)	1535-1714	Temp: 54-64 °F Wind: 0-9 mph Cloud Cover: 50%	Map 050
9-Apr-2010	Sarah Farmer (Forde)	1430-1645	Temp: 70-72 °F Wind: 2-5 mph Cloud Cover: 0%	Maps 045, 049
8-Apr-2010	Nicole Kimball, David King (AMEC)	1205-1625	Temp: 72-78 °F Wind: 1-7 mph Cloud Cover: 0%	Maps 041, 042, 043, 044, 052 (west end)
7-Apr-2010	Steve Meyers, Chet McGaugh	1045-1515	Temp: 65-78 °F	Maps 054, 056, 057

	(AMEC)		Wind: 2-8 mph Cloud Cover: 0%	
7-Apr-2010	David King, John Green, Nicole Kimball (AMEC)	1137-1511	Temp: 72-81 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 055, 056
7-Apr-2010	Sarah Farmer, Frank Dittmer (Forde)	1230-1630	Temp: 72-74 °F Wind: 2-5 mph Cloud Cover: 0%	Maps 046, 047, 048
6-Apr-2010	Nicole Kimball (AMEC)	1048-1433	Temp: 62-73 °F Wind: 0-10 mph Cloud Cover: 0%	Map 051
6-Apr-2010	Chet McGaugh (AMEC)	1115-1435	Temp: 60-71 °F Wind: 0-8 mph Cloud Cover: 0%	Map 050
6-Apr-2010	Steve Meyers, Chet McGaugh, Nicole Kimball (AMEC)	1115-1435	Temp: 60 °F Wind: 0-8 mph Cloud Cover: 0%	Map 050
6-Apr-2010	Sarah Farmer, Frank Dittmer (Forde)	1145-1615	Temp: 60 °F Wind: 2-5 mph Cloud Cover: 0%	Maps 045, 049
3-Apr-2010	Sarah Farmer, Frank Dittmer (Forde)	1030-1400	Temp: 60-70 °F Wind: 2-5 mph Cloud Cover: 0-5%	Maps 047, 048
2-Apr-2010	Sarah Farmer, Frank Dittmer (Forde)	1345-1545	Temp: 63-67 °F Wind: 2-5 mph Cloud Cover: 0%	Maps 045, 046, 047
26-Mar-2010	Sarah Famer, Frank Dittmer (Forde)	1100-1230	Temp: 63-66 °F Wind: 0-2 mph Cloud Cover: 0%	Map 045
25-Mar-2010	Sarah Farmer, Frank Dittmer (Forde)	1030-1615	Temp: 60 °F Wind: 2-6 mph	Maps 046, 047, 048

			Cloud Cover: 0%	
22-Mar-2010	Sarah Farmer, Frank Dittmer (Forde)	1015-1500	Temp: 62-64 °F Wind: 2-6 mph Cloud Cover: 5-20%	Map 047
17-Mar-2010	Sarah Farmer, Frank Dittmer (Forde)	0900-1445	Temp: 60-80°F Wind: 2-5 mph Cloud Cover: 0%	Maps 047, 048
25-May-2010	Laurie Gorman, Greg Chatman (AMEC)	0950-1402	Temp: 60-62 °F Wind: 1-5 mph Cloud Cover: 0%	Maps 030, 031, 032, 033
25-May-2010	Nate Moorhatch, Nicole Kimball (AMEC)	1021-1539	Temp: 60-77 °F Wind: 0-4 mph Cloud Cover: 0-40%	Maps 028, 029, 030, 031, 032, 033, 034, 035, 036
25-May-2010	Kyle Ince (Merkel)	1000-1330	Temp: 60-66 °F Wind: 0-2 mph Cloud Cover: 0%	Maps 027, 028
25-May-2010	Antonette Gutierrez, Adam Behle, Kyle Ince (Merkel)	1130-1420	Temp: 65-71 °F Wind: 1 mph Cloud Cover: 0-25%	Map 026
25-May-2010	Adam Behle (Merkel)	1030-1420	Temp: 60-66 °F Wind: 0-2 mph Cloud Cover: 0-30%	Map 025, 027
25-May-2010	Antonette Gutierrez (Merkel)	1030-1130	Temp: 65 °F Wind: 1 mph Cloud Cover: 0%	Map 025
20-May-2010	Nicole Kimball (AMEC)	0910-1450	Temp: 67-85 °F Wind: 1-10 mph Cloud Cover: 0%	Maps 028, 029, 030, 031, 032, 033, 034, 035, 036
20-May-2010	Rob Fletcher, Laurie Gorman (AMEC)	0920-1330	Temp: 68-72 °F Wind: 3-9 mph	Maps 030, 031, 032, 033

			Cloud Cover: 0%	
20-May-2010	Kyle Ince (Merkel)	1145-1400	Temp: 72 °F Wind: 0-2 mph Cloud Cover: 0%	Map 028
20-May-2010	Steve Rink (Merkel)	1200-1340	Temp: 71-72 °F Wind: 2-5 mph Cloud Cover: 0%	Map 027
20-May-2010	Antonette Gutierrez (Merkel)	0945	Temp: 70-72°F Wind: 1-2 mph Cloud Cover: 0%	Map 026
20-May-2010	Kyle Ince (Merkel)	0950-1055	Temp: 70 °F Wind: 0-5 mph Cloud Cover: 0%	Map 025
20-May-2010	Steve Rink (Merkel)	1000-1045	Temp: 70°F Wind: 1-5 mph Cloud Cover: 0%	Map 025
13-May-2010	M. Wilcox, Chet McGaugh (AMEC)	1040-1445	Temp: 71-80 °F Wind: 0-3 mph Cloud Cover: 0-10%	Maps 037, 038
13-May-2010	Laurie Gorman, Nate Moorhatch (AMEC)	0930-1500	Temp: 62-75 °F Wind: 0-8 mph Cloud Cover: 0-15%	Maps 030, 031, 032, 033
13-May-2010	Kyle Ince (Merkel)	1125-1430	Temp: 69-80 °F Wind: 0-5 mph Cloud Cover: 5%	Maps 027, 028
13-May-2010	Antonette Gutierrez (Merkel)	1145-1430	Temp: 78-80 °F Wind: 0-4 mph Cloud Cover: 5-10%	Map 027
13-May-2010	Adam Behle (Merkel)	0900-1425	Temp: 70-80 °F Wind: 1-2 mph Cloud Cover: 5%	Map 026

13-May-2010	Kyle Ince (Merkel)	1000-1045	Temp: 67-69 °F Wind: 1-2 mph Cloud Cover: 0-5%	Map 025
13-May-2010	Antonette Gutierrez, Kyle Ince (Merkel)	1000-1030	Temp: 67-69 °F Wind: 1-2 mph Cloud Cover: 5%	Map 025
12-May-2010	Nicole Kimball, Nate Moorhatch (AMEC)	0955-1505	Temp: 64-87 °F Wind: 2-7 mph Cloud Cover: 0%	Maps 028, 029, 030, 034, 035, 036
7-May-2010	Nicole Kimball, M. Busby (AMEC)	0850-1405	Temp: 61-87 °F Wind: 0-5 mph Cloud Cover: 0%	Maps 037, 038
7-May-2010	Adam Behle (Merkel)	1100-1320	Temp: 70-78 °F Wind: 1-2 mph Cloud Cover: 0%	Map 028
7-May-2010	Steve Rink (Merkel)	1130-1330	Temp: 70-75 °F Wind: 2-3 mph Cloud Cover: 0%	Map 027
7-May-2010	Antonette Gutierrez, Adam Behle, Steve Rink (Merkel)	0915-1300	Temp: 75-80 °F Wind: 0-2 mph Cloud Cover: 0%	Map 026
7-May-2010	Adam Behle, Steve Rink (Merkel)	0935-1025	Temp: 65-66 °F Wind: 2 mph Cloud Cover: 0%	Map 025
5-May-2010	Laurie Gorman, Nate Moorhatch (AMEC)	0836-1350	Temp: 68-84 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 030, 034, 035, 036
4-May-2010	Nicole Kimball, M. Wilcox (AMEC)	0915-1450	Temp: 66-83 °F Wind: 1-5 mph Cloud Cover: 0%	Maps 037, 038
4-May-2010	Rob Fletcher, Laurie Gorman	0840-1310	Temp: 71-80 °F	Maps 030, 031, 032, 034

	(AMEC)		Wind: 0-8 mph Cloud Cover: 0%	
3-May-2010	Chet McGaugh, Steve Meyers (AMEC)	1100-1600	Temp: 70-74 °F Wind: 1-8 mph Cloud Cover: 0%	Maps 028, 029, 030, 031, 032, 033, 034
2-May-2010	Antonette Gutierrez, Steve Rink (Merkel)	0945-1040	Temp: 60-61 °F Wind: light breeze Cloud Cover: 5%	Map 025
2-May-2010	Antonette Gutierrez, Steve Rink, Adam Behle (Merkel)	1130-1400	Temp: 64-67 °F Wind: 1-2 mph Cloud Cover: 2%	Map 027
2-May-2010	Steve Rink (Merkel)	1000-1400	Temp: 60-67 °F Wind: 1-2 mph Cloud Cover: 2-10%	Maps 025, 028
1-May-2010	Adam Behle (Merkel)	1000-1345	Temp: 60-67 °F Wind: 1 mph Cloud Cover: 2-5%	Map 026
25-Apr-2010	Antonette Gutierrez (Merkel)	1200-1500	Temp: 70-75 °F Wind: 0-1 mph Cloud Cover: 0%	Map 028
23-Apr-2010	Antonette Gutierrez, Steve Rink, Adam Behle (Merkel)	1200-1600	Temp: 60-62 °F Wind: 2 mph Cloud Cover: 2-10%	Maps 026, 027
23-Apr-2010	Steve Rink (Merkel)	1328-1539	Temp: 58-60 °F Wind: 2-3 mph Cloud Cover: 30%	Maps 025, 027
23-Apr-2010	Adam Behle, Steve Rink, Antonette Gutierrez (Merkel)	1345-1530	Temp: 59-60 °F Wind: 1-2 mph Cloud Cover: 30-50%	Maps 025, 027
20-Apr-2010	M. Busby, Nicole Kimball (AMEC)	1000-1600	Temp: 64-86 °F Wind: 2-11 mph	Maps 037, 038

			Cloud Cover: 10-80% haze	
19-Apr-2010	Nicole Kimball (AMEC)	1122-1548	Temp: 71-79 °F Wind: 0-8 mph Cloud Cover: 1-10%	Maps 035, 036
19-Apr-2010	David King (AMEC)	1150-1530	Temp: 72-78 °F Wind: 0-8 mph Cloud Cover: 0%	Map 035
16-Apr-2010	John Green (AMEC)	1040-1535	Temp: 60-76 °F Wind: 0-5 mph Cloud Cover: clear-hazy	Maps 030, 034
16-Apr-2010	Nicole Kimball (AMEC)	1037-1535	Temp: 60-76 °F Wind: 0-5 mph Cloud Cover: 0%	Maps 030, 034
15-Apr-2010	M. Busby, Nicole Kimball (AMEC)	1030-1530	Temp: 64-76 °F Wind: 2-8 mph Cloud Cover: hazy (5-100%)	Maps 030, 031, 032
14-Apr-2010	Nicole Kimball (AMEC)	1409-1600	Temp: 57-69 °F Wind: 1-12 mph Cloud Cover: 25-80%	Map 029
14-Apr-2010	David King, Nicole Kimball (AMEC)	1109-1600	Temp: 53-76 °F Wind: 0-12 mph Cloud Cover: 5-80%	Maps 028, 029
14-Apr-2010	Diane Jensen (Merkel)	1030-1430	Temp: 62-65 °F Wind: 0-1 mph Cloud Cover: 0-40%	Map 028
14-Apr-2010	Adam Behle (Merkel)	1100-1445	Temp: 66-68 °F Wind: 0-1 mph Cloud Cover: 5-40%	Map 027
14-Apr-2010	Steve Rink, Melissa Booker (Merkel)	1000-1330	Temp: 60-64 °F Wind: 0-2 mph Cloud Cover: 20-40%	Map 026

10-Apr-2010	Nicole Kimball, David King (AMEC)	1045-1200	Temp: 61-65 °F Wind: 2-9 mph Cloud Cover: 15%	Map 033
9-Apr-2010	Steve RInk, Adam Behle (Merkel)	1016-1435	Temp: 68-72 °F Wind: 1-6 mph Cloud Cover: 0%	Map 025
28-May-2010	Nicole Kimball (AMEC)	0915-1350	Temp: 59-77 °F Wind: 0-14 mph Cloud Cover: 5-20%	Maps 009, 010
26-May-2010	Greg Chatman (AMEC)	1030-1320	Temp: 70-75 °F Wind: 3-9 mph Cloud Cover: 0%	Maps 009, 010
26-May-2010	Nicole Kimball (AMEC)	1114-1316	Temp: 70-80 °F Wind: 4-13 mph Cloud Cover: 2-5%	Maps 009, 010
26-May-2010	Steve Meyers, Nate Moorhatch (AMEC)	1050-1440	Temp: 63-70 °F Wind: 1-16 mph Cloud Cover: 0-10%	Maps 002, 003, 004, 005, 006, 007, 008
21-May-2010	M. Wilcox (AMEC)	1020-1530	Temp: 60-77 °F Wind: 0-5 mph Cloud Cover: 0-5%	Maps 002, 003, 004
19-May-2010	Chet McGaugh (AMEC)	0930-1430	Temp: 60-80 °F Wind: 0-8 mph Cloud Cover: 0%	Maps 005, 006, 007, 008
15-May-2010	Greg Chatman (Chambers)	1030-1630	Temp: 70-82 °F Wind: 3-8 mph Cloud Cover: 0%	Maps 019, 020
14-May-2010	Greg Chatman (Chambers)	1000-1600	Temp: 68-78 °F Wind: 1-7 mph Cloud Cover: 0%	Maps 015, 016

13-May-2010	Greg Chatman (Chambers)	1200-1500	Temp: 75-78 °F Wind: 1-4 mph Cloud Cover: 0%	Maps 021, 022
12-May-2010	Greg Chatman (Chambers)	1000-1600	Temp: 70-76 °F Wind: 2-6 mph Cloud Cover: 0%	Maps 017, 018
12-May-2010	Chet McGaugh, Steve Meyers (AMEC)	0940-1200	Temp: 61-69 °F Wind: 0-8 mph Cloud Cover: 0%	Maps 009, 010
10-May-2010	Chet McGaugh (AMEC)	1110-1530	Temp: 51-64 °F Wind: 1-15 mph Cloud Cover: 70%	Maps 005, 006, 007, 008
10-May-2010	Stephen Meyers (AMEC)	1010-1450	Temp: 60-64 °F Wind: 0-10 mph Cloud Cover: 30-70%	Maps 002, 003, 004
8-May-2010	Greg Chatman (Chambers)	0930-1530	Temp: 74-82 °F Wind: 1-4 mph Cloud Cover: 0%	Maps 016, 017
7-May-2010	Greg Chatman (Chambers)	1000-1600	Temp: 79-88 °F Wind: 2-6 mph Cloud Cover: 0%	Maps 017, 018
5-May-2010	Greg Chatman (Chambers)	1100-1700	Temp: 77-83 °F Wind: 2-6 mph Cloud Cover: 0%	Maps 015, 016
5-May-2010	Chet McGaugh (AMEC)	0930-1610	Temp: 68-70 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 005, 006, 007, 008
5-May-2010	M. Wilcox (AMEC)	1030-1500	Temp: 60-84 °F Wind: 0-5 mph Cloud Cover: 0-5%	Maps 002, 003, 004
4-May-2010	Greg Chatman (Chambers)	1000-1600	Temp: 75-85 °F	Maps 019, 020

			Wind: 2-9 mph Cloud Cover: 0%	
4-May-2010	Steve Meyers, Chet McGaugh (AMEC)	1000-1445	Temp: 67-74 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 009, 010
3-May-2010	Greg Chatman (Chambers)	1100-1400	Temp: 71-78 °F Wind: 1-5 mph Cloud Cover: 0%	Maps 021, 022
2-May-2010	Greg Chatman (Chambers)	1000-1600	Temp: 64-75 °F Wind: 2-6 mph Cloud Cover: 5-10%	Maps 017, 018
1-May-2010	Greg Chatman (Chambers)	1000-1600	Temp: 60-70 °F Wind: 4-9 mph Cloud Cover: 0%	Maps 016, 017
30-Apr-2010	Greg Chatman (Chambers)	1100-1700	Temp: 65-74 °F Wind: 2-7 mph Cloud Cover: 0%	Maps 013, 014, 015
27-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 70-73 °F Wind: 0-3 mph Cloud Cover: 5-30%	Maps 015, 016
26-Apr-2010	Greg Chatman (Chambers)	1200-1500	Temp: 72-77 °F Wind: 2-6 mph Cloud Cover: 5%	Maps 021, 022
26-Apr-2010	Chet McGaugh (AMEC)	0950-1600	Temp: 72-84 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 004, 005, 006, 007, 008
26-Apr-2010	John Green (AMEC)	0930-1625	Temp: 70-79 °F Wind: 0-9 mph Cloud Cover: <5%	Maps 001, 002, 003, 004
25-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 70-77 °F Wind: 1-9 mph	Maps 019, 020

			Cloud Cover: 0%	
24-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 66-74 °F Wind: 0-4 mph Cloud Cover: 0%	Maps 017, 018
23-Apr-2010	Greg Chatman (Chambers)	0930-1530	Temp: 60-67 °F Wind: 0-8 mph Cloud Cover: 0-20%	Maps 015, 016
19-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 67-75 °F Wind: 0-7 mph Cloud Cover: 0%	Maps 013, 014
17-Apr-2010	Greg Chatman (Chambers)	1200-1500	Temp: 73-78 °F Wind: 2-7 mph Cloud Cover: 0%	Maps 021, 022
16-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 67-76 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 015, 016
15-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 62-76 °F Wind: 0-4 mph Cloud Cover: 0%	Maps 019, 020
15-Apr-2010	Chet McGaugh, John Green (AMEC)	1100-1600	Temp: 68-70°F Wind: 2-10 mph Cloud Cover: high clouds-overcast	Maps 005, 006, 007
15-Apr-2010	John Green (AMEC)	1045-1630	Temp: 63-71 °F Wind: 0-9 mph Cloud Cover: hazy-overcast	Maps 004, 005
14-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 63-72 °F Wind: 0-7 mph Cloud Cover: 0-10%	Maps 017, 018
14-Apr-2010	John Green, Chet McGaugh (AMEC)	1105-1700	Temp: 59-64 °F Wind: 1-7 mph	Maps 008, 009, 010, 012

			Cloud Cover: 0%	
13-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 61-70 °F Wind: 0-8 mph Cloud Cover: 20%	Maps 016, 017
10-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 69-81 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 013, 014
9-Apr-2010	Greg Chatman (Chambers)	1300-1600	Temp: 77-82 °F Wind: 2-8 mph Cloud Cover: 0%	Maps 021, 022
8-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 68-83 °F Wind: 1-6 mph Cloud Cover: 0%	Maps 015, 016
8-Apr-2010	Steve Myers, Chet McGaugh, John Green (AMEC)	0940-1330	Temp: 69-72 °F Wind: 0-6 mph Cloud Cover: 0%	Maps 001, 002, 003
6-Apr-2010	Greg Chatman (Chambers)	1000-1600	Temp: 60-73 °F Wind: 0-7 mph Cloud Cover: 0%	Maps 019, 020
4-Apr-2010	Greg Chatman (Chambers)	0930-1530	Temp: 62-71 °F Wind: 1-7 mph Cloud Cover: 0-15%	Maps 017, 018
3-Apr-2010	Greg Chatman (Chambers)	0930-1530	Temp: 60-67 °F Wind: 0-10 mph Cloud Cover: 0%	Maps 016, 017
2-Apr-2010	Greg Chatman (Chambers)	0900-1500	Temp: 62-73 °F Wind: 0-5 mph Cloud Cover: 0%	Maps 013, 014, 015
30-Mar-2010	Greg Chatman (Chambers)	1200-1500	Temp: 72-74 °F Wind: 2-6 mph Cloud Cover: 0%	Maps 021, 022

29-Mar-2010	Greg Chatman (Chambers)	0930-1530	Temp: 69-86 °F Wind: 0-5 mph Cloud Cover: 0%	Maps 015, 016
28-Mar-2010	Greg Chatman (Chambers)	1000-1600	Temp: 67-70 °F Wind: 3-12 mph Cloud Cover: 0%	Maps 019, 020
26- Mar-2010	Greg Chatman (Chambers)	0930-1530	Temp: 61-71 °F Wind: 0-8 mph Cloud Cover: 0%	Maps 017, 018
25-Mar-2010	Greg Chatman (Chambers)	0900-1500	Temp: 63-70 °F Wind: 1-9 mph Cloud Cover: 0%	Maps 015, 016
24-Mar-2010	Greg Chatman (Chambers)	0900-1500	Temp: 66-80 °F Wind: 0-8 mph Cloud Cover: 0%	Maps 013, 014