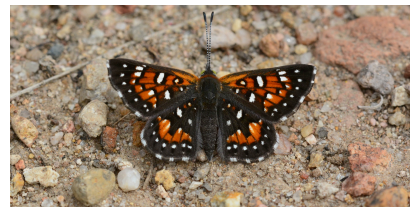


ATTACHMENT D: QUINO CHECKERSPOT BUTTERFLY SURVEY REPORT

Pipeline Safety & Reliability
Project U.S. Fish and Wildlife
Service Protocol Presence/
Absence 2015 Survey Report for
the Quino Checkerspot Butterfly
(*Euphydryas editha quino*)

Prepared for:
Insignia Environmental
904 Second Street
Encinitas, CA 92024

Prepared by:
Rocks Biological Consulting
5101 September Street
San Diego, CA 92110
(619) 843-6560



June 8, 2015

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1. SUMMARY

This report summarizes the surveys conducted by Rocks Biological Consulting (RBC) and Insignia Environmental (Insignia) for the federally-listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) for the San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) Pipeline Safety & Reliability Project (Proposed Project). Surveys were conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) 2014 QCB survey guidelines (USFWS 2014; QCB survey guidelines) within the recommended Quino Survey Area identified in the QCB survey guidelines between February 15 and May 6, 2015. The QCB host plants dot-seed plantain (*Plantago erecta*) and purple owl's clover (*Castilleja exserta* ssp. *exserta*) were documented within the Quino Survey Area. Survey results were negative for QCB.

2. INTRODUCTION

2.1. PROJECT DESCRIPTION

The Proposed Project involves construction, operation, and maintenance of an approximately 47-mile-long, 36-inch-diameter natural gas transmission pipeline that will carry natural gas from SDG&E's existing Rainbow Metering Station to the pipeline's terminus on Marine Corps Air Station (MCAS) Miramar. The Proposed Project is located in San Diego County, California, and crosses the cities of Escondido, Poway, and San Diego. U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps (quads) that cross the Proposed Project include: the Temecula, Bonsall, San Marcos, Valley Center, Escondido, Poway and La Mesa quads.

2.2. SURVEY LOCATION AND BACKGROUND

Surveys for QCB were conducted exclusively within MCAS Miramar, which is land administered by the U.S. Marine Corps within the La Mesa and Poway U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps (Figure 1).

The portion of the Proposed Project that occurs within the USFWS-recommended Quino Survey Area is 179 acres. The majority of this area is on MCAS Miramar (160 acres) and was surveyed in 2015. The remaining 19 acres occur on the University of California Elliot Field Station, a component of the Eliot Chaparral Reserve; this area was not surveyed during the 2015 surveys due to access restrictions.

There is no QCB USFWS-designated critical habitat within five miles of the Proposed Project. There are four recent California Natural Diversity Database (CNDDB) locations for QCB within five miles of the Proposed Project area. According to the MCAS Miramar Integrated Natural Resources Management Plan (INRMP 2014), no confirmed QCB sightings have been reported on MCAS Miramar. MCAS Miramar commissioned a protocol-level survey for QCB in 2011 within 1,400 acres of suitable habitat in East Miramar. No QCB were detected during the surveys (USMC 2014).

2.3. QUINO CHECKERSPOT BUTTERFLY NATURAL HISTORY

Quino checkerspot butterfly, a member of the brush-footed butterfly family (Nymphalidae), was listed as federally endangered in January 1997. QCB is one of 12 subspecies of the *Euphydryas editha* checkerspot and was formerly known as *E. e. wrightii* (USFWS 2003).

Historically, QCB ranged from Los Angeles and western San Bernardino counties south through Orange, western Riverside, and San Diego counties into northern Baja California, Mexico. Currently, QCB are known to occur in portions of southwestern Riverside County, San Diego County, and northern Baja California (Mattoni et al. 1997). Habitat loss and degradation are considered primary causes of the dramatic decline of the species. Both the larval and adult stages have specific habitat requirements that have been impacted due to development, invasive non-native vegetation, overgrazing, poorly planned fire management practices, drought conditions, overcollection by butterfly collectors, and off-road vehicles (USFWS 1997).

QCB's distribution is defined primarily by location of its most common primary larval food plant, dot-seed plantain. Other potential larval food plants include purple owl's clover, desert plantain (*Plantago patagonica*), Parish's owl clover (*Castilleja densiflora* ssp. *gracilis*), Southern Chinese houses (*Collinsia concolor*), Chinese houses (*Collinsia heterophylla*), Coulter's snapdragon (*Antirrhinum coulterianum*), and stiff-branched bird's-beak (*Cordylanthus rigidus*) (USFWS 2014).

QCB use a variety of sparsely vegetated habitats including open coastal sage scrub and chaparral, vernal pool complexes, oak woodland, and desert pinyon-juniper woodland. Densely vegetated areas and extensive open grasslands are not known to support QCB (Mattoni et al. 1997, USFWS 2014).

QCB primarily feed on the nectar of small annuals that flower concurrently with the adult flight season. Although most perennials are not in flower during the flight period, some may be used for nectar sources later in the season (Mattoni et al. 1997). QCB have a short tongue and therefore cannot feed on flowers with deep corolla tubes. In addition, they prefer to nectar on flowers that have a platform-like surface, which they use to remain upright while feeding (USFWS 2003). Species that have been documented as nectar sources include goldfields (*Lasthenia* spp.), gilia (*Gilia* spp.), farinose ground pink (*Linanthus dianthiflorus*), chia (*Salvia columbariae*), annual lotus (*Acmispon* spp.), yerba santa (*Eriodictyon* spp.), lomatium (*Lomatium* spp.), common muilla (*Muilla* spp.), popcorn flowers (*Plagiobothrys* spp. and *Cryptantha* spp.), yellow pincushion (*Chaenactis glabriuscula* var. *glabriuscula*), phacelia (*Phacelia* spp.), redmaids (*Calandrinia menziesii*), fiddleneck (*Amsinckia* spp.), yarrow (*Achillea millefolium*), California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), onion (*Allium* spp.), blue dicks (*Dichelostemma capitatum*), tidy tips (*Layia* spp.), gumplant (*Grindelia* spp.), tarplants (*Deinandra* spp.), goldenbush (*Isocoma* spp. and *Ericameria* spp.), sugar bush (*Rhus ovata*), and long-stem golden yarrow (*Eriophyllum* spp.) (Mattoni et al. 1997, USFWS 2003, Pratt and Emmel 2009, Preston et al. 2012).

Typically, there is one adult generation of QCB per year, with a four- to six-week flight period beginning in late February and continuing through May (Emmel and Emmel 1973), although the timing of the flight period can vary considerably from year to year depending on rainfall and temperature patterns. Adult life span averages from 10 to 14 days, and emergence is staggered

(USFWS 2002). The full life cycle of a QCB butterfly includes egg, larva, pupa, and adult with larval stages divided into five to seven instars. Adult QCB spend their time searching for mates, feeding on nectar, defending territories, basking in the sun, and, in the case of females, searching for sites to deposit eggs (USFWS 2002).

3. METHODS

3.1. VEGETATION COMMUNITY MAPPING

Insignia biologists mapped vegetation communities within the Quino Survey Area as identified in the QCB survey guidelines (USFWS 2014) during the fall of 2014. Biologists noted vegetation communities and boundaries on a hard-copy field map printed at a 1:200' scale. These boundaries and vegetation community names were later recorded as a Geographic Information System (GIS) shapefile using ArcMap software. Minimum mapping units for upland vegetation communities was generally an acre or less. For wetland/riparian communities, no minimum mapping unit was established so as to ensure that even very small wetland areas were documented. Vegetation classifications conform to Oberbauer et al. (2008).

3.2. HABITAT ASSESSMENT

A habitat assessment was conducted within the Proposed Project areas within the USFWS recommended Quino Survey Area plus a 150-foot buffer on both sides of Proposed Project components (Figure 2). The habitat assessment was conducted by Shirley Innecken (TE-82480A-0) of Insignia in September of 2014 and Lee Ripma (TE-221290-3.1) on February 11, 2015.

Due to access restrictions on the Elliot Field Station, 19 acres that are within the USFWS Survey Area were not included in the habitat assessment or focused surveys. Additional QCB surveys will be conducted within the 19 acres on the Elliot Field Station prior to construction of the Proposed Project. The area comprising the 2015 habitat assessment was 160 acres. Out of the 160 acres within the habitat assessment area for 2015, 19 acres were determined to be "excluded areas". Excluded areas can include orchards, developed areas, in-fill parcels less than one acre dominated by non-native vegetation, active agriculture, and closed-canopy woody vegetation (USFWS 2014). Approximately 141 acres of land exclusively within MCAS Miramar not meeting the excluded areas definition comprise the 2015 Quino Survey Area.

3.3. BUTTERFLY SURVEYS

On January 30, 2015 a 15-day pre-survey notification letter was sent to the USFWS stating the intent to conduct QCB surveys for the Proposed Project. Butterfly surveys were conducted by walking slowly through non-excluded habitat within the Quino Survey Area and identifying butterflies with the aid of close-focus binoculars. Butterfly taxonomy follows Butterflies and Moths of North America (www.butterfliesandmoths.org 2015). The 2015 Quino Survey Areas were visited weekly beginning the third week of February and ending the second Saturday in May in accordance with QCB survey guidelines (USFWS 2014). Surveys were conducted from February 15 to May 6, 2015 by RBC biologists Jim Rocks (TE-063230-4), Melanie Rocks (TE-082908-1), Lee Ripma (TE-221290-3.1), Monica Alfaro (TE-05124-2), Melanie Dicus (TE-049175-3), Garrett

Huffman (TE-20168A-0), and Brian Lohstroh (TE-063608-5). Surveys were conducted on 27 separate days. During the surveys, each biologist surveyed an average of eight acres per hour. The 19 acres that were determined to be excluded areas (as described above) were also surveyed because these areas occur were between areas included in the Quino Survey Area. Survey dates, conditions, and personnel are presented in Table 1, below.

Table 1. Quino Checkerspot Butterfly Survey Dates/Conditions

Survey	Date	Surveyor(s)	Time (Start-End)	Temp F (Start-End)	Cloud Cover (Start-End)	Wind Range in mph (Start-End)
#1a	2/15/15	LR, MA, MR	930-1145	73-84	0-0	0-2; 1-5
#1b	2/16/15	BL, JR	1030-1605	70-66	5-5	1-6; 0-3
#1c	2/18/15	LR, JR	955-1350	67-74	10-100	0-1; 1-6
#2a	2/22/15	LA, MA	1107-1250	70-68	90	3-5; 2-7
#2b	2/24/15	LR	1405-1615	75-71	0	4-7; 1-4
#2c	2/25/15	LR, BL, MD	1010-1330	63-75	0	0-1 to
#3a	3/4/15	GH, MD, BL	0900-1330	62-67	0-0	0-2; 3-7
#3b	3/6/15	GH	0850-1200	66-80	0-0	0-2; 2-4
#4a	3/8/15	GH, MA	0930-1330	68-77	0-0	2-6; 2-4
#4b	3/10/15	GH, MD	0900-1600	61-80	0-25	2-4; 1-5
#5a	3/15/15	GH	0900-1300	78-91	30-30	4-8;4-7
#5b	3/17/15	GH, MD	0830-1545	68-80	40-75	2-7; 2-8
#6a	3/22/15	GH	0930-1245	64-72	25-40	3-7; 1-4
#6b	3/25/15	GH, MD	1000-1630	70-78	0-0	0-1 to 1-7
#7a	3/29/15	GH	0830-1130	66-81	30-40	3-6, 3-5
#7	4/1/15	GH, MD	0845-1630	66-71	0	0-1, 3-7
#8a	4/5/15	GH	0930-1330	70-72	40-30	2-5, 4-6
#8b	4/6/15	GH, MD	0915-1630	64-65	40-10	3-7, 7-10
#9a	4/12/15	GH	1215-1515	77-81	0-0	2-4, 2-5
#9b	4/15/15	GH	0830-1600	67-80	0-0	0-2;4-10
#9c	4/16/15	GH	1100-1830	84-76	0-0	5-7, 5-8
#10a	4/19/15	GH	0900-1245	76-82	0-10	1-3, 2-7
#10b	4/21/15	GH, BL	0830-1445	71-80	100-60	0-2, 3-8
#11a	4/26/15	GH	1145-1445	76-74	30-10	2-5, 3-7
#11b	4/30/15	GH, MR	0830-1500	78-87	5-1	2-4, 4-8
#12a	5/3/15	GH	1200-1445	75-79	30-15	3-6; 4-8
#12b	5/6/15	GH, LR	1000-1630	70-68	100-90	1-4, 3-8
<i>Italics:</i> Indicates surveys of pistol range area, which could only be accessed on Sundays and altered the overall survey schedule. Surveyors: BL= Brian Lohstroh, GH= Garrett Huffman, LR= Lee Ripma, JR = Jim Rocks, MA= Monica Alfaro, MD= Melanie Dicus, MR = Melanie Rocks						

3.4. LARVAL HOST PLANTS AND NECTAR SOURCES

Surveyors recorded the locations of QCB host plants using handheld Geographic Position System (GPS) devices. For each occurrence, surveyors noted the larval host plant species, the diameter of the patch, and the density of the patch. Low density is defined as less than 20% cover (less than 40 plants per square meter), medium density is defined as 20-50% cover (40 to 100 plants per square meter), and high is defined as greater than 50% cover (greater than 100 plants per square meter). Each surveyor noted nectar sources present during the surveys on QCB survey forms. Taxonomy follows Rebman and Simpson (2014).

4. RESULTS

4.1. SUITABLE HABITAT AND VEGETATION COMMUNITIES

As described above, the total area included in the 2015 Quino Survey Area was 141 acres. Dominant vegetation communities within the 2015 Quino Survey Area included three primary vegetation communities:

- 1) Chamise chaparral dominated by chamise (*Adenostoma fasciculatum*);
- 2) Southern mixed chaparral dominated by Ramona-lilac (*Ceanothus tomentosus*), San Diego mountain-mahogany (*Cercocarpus minutiflorus*) and felt-leaf yerba santa (*Eriodictyon crassifolium* var. *crassifolium*); and
- 3) Coastal sage scrub dominated by California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*) and deerweed (*Acmispon glaber* var. *glaber*).

Within many of these shrub-dominated habitats, RBC biologists noted the presence of open patches ashy spike-moss (*Selaginella cinerascens*) and a variety of annual plants including common goldfields (*Lasthenia gracilis*), small-flower soap-plant (*Chlorogalum parviflorum*), pygmyweed (*Crassula connata*), dot-seed plantain, and long-beak filaree (*Erodium botrys*). Many of the annuals in these openings are potential QCB nectar sources and have the potential to support QCB.

4.2. BUTTERFLY SURVEYS

No Quino checkerspot butterflies were observed during focused surveys. The 141-acre Quino Survey Area supported a relatively high diversity of butterfly species in 2015 with a total of 32 butterfly species observed during the twelve surveys (Attachment A). Butterflies observed during focused surveys represent 26% of the documented butterflies in San Diego County (Shiraiwa 2010). The number of butterfly species observed during each survey varied widely with a high of 13 species (survey one, seven, and ten) and low of four (survey two). Only one butterfly was observed on all 27 survey days, Behr's metalmark (*Apodemia virgulti*). Other commonly observed species include orange sulphur (*Colias eurytheme*), funereal duskywing (*Erynnis funeralis*) (24 of 27 days), painted lady (*Vanessa cardui*) (20 of 27 days), marine blue (*Leptotes marina*) (19 of 27 days), common buckeye (*Junonia coenia*) (17 of 27 days), and checkered white (*Pontia protodice*) (16 of 27 days). A complete list of butterflies observed during each survey is presented in Attachment A and field notes are included in Attachment B.

4.3. LARVAL HOST PLANTS AND NECTAR SOURCES

Two larval host plants were detected in the Quino Survey Area, dot-seed plantain and purple owl's clover. There were 82 total dot-seed plantain occurrences, 76 with low density and six with medium density. There were 12 total owl's clover occurrences, 10 with low density and two with medium density. These were scattered throughout the Quino Survey Area and tended to be concentrated in the more open areas of shrub-dominated communities.

Nectar sources for butterflies were present throughout the survey duration. In February and March QCB larval host plants and nectar sources were abundant and observed throughout the Quino Survey Area. By late April and May their numbers declined precipitously due to seasonal senescence brought on by dry, warm conditions.

Documented QCB nectar sources observed during the surveys are detailed in Table 2, below.

Table 2. Quino Checkerspot Butterfly Nectar Sources, February-May, 2015

Scientific Name	Common Name	QCB Larval Host Plant	Documented QCB Nectar Source	General Nectar Source
<i>Acmispon glaber</i> var. <i>glaber</i>	deerweed			X
<i>Allium praecox</i>	early onion		X	
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	rancher's fiddleneck		X	
* <i>Anagallis arvensis</i>	scarlet pimpernel			X
<i>Antirrhinum nuttallianum</i> ssp. <i>subsessile</i>	big-gland Nuttall's snapdragon			X
<i>Bloomeria crocea</i> var. <i>crocea</i>	common goldenstar			X
<i>Bloomeria clevelandii</i>	san diego goldenstar			X
<i>Brassica nigra</i>	black mustard			X
<i>Brodiaea orcuttii</i>	orcutt's brodiaea			X
<i>Calandrinia breweri</i>	brewer's redmaids			X
<i>Calandrinia ciliata</i>	red maids		X	
<i>Calochortus splendens</i>	splendid mariposa lily			X
<i>Calochortus weedii</i> var. <i>weedii</i>	weed's mariposa lily			X
<i>Calystegia macrostegia</i> ssp. <i>tenuifolia</i>	san diego morning-glory			X
<i>Castilleja exserta</i> ssp. <i>exserta</i>	owl's-clover	X		
<i>Ceanothus tomentosus</i>	Ramona-lilac			X
<i>Chaenactis glabriuscula</i> var. <i>glabriuscula</i>	yellow pincushion			X
<i>Chlorogalum parviflorum</i>	small-flower soap-plant			X
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	four-spot clarkia			X
<i>Corethrogyne filaginifolia</i> var. <i>filaginifolia</i>	sand-aster			X
<i>Crocanthemum scoparium</i>	rockrose			X
<i>Cryptantha intermedia</i> var. <i>intermedia</i>	Nievita's cryptantha		X	
<i>Deinandra fasciculata</i>	fascicled tarweed		X	
<i>Dichelostemma capitatum</i> ssp.	blue dicks		X	

<i>capitatum</i>				
<i>Encelia californica</i>	California encelia			X
<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	whispering bells			X
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i>	felt-leaf yerba santa		X	
<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	coast California buckwheat		X	
* <i>Erodium botrys</i>	long-beak filaree			X
* <i>Erodium cicutarium</i>	red-stem filaree			X
* <i>Erodium moschatum</i>	white-stem filaree			X
<i>Eschscholzia californica</i>	California poppy			X
<i>Gilia diegensis</i>	gilia		X	
* <i>Hedypnois cretica</i>	Crete hedypnois			X
* <i>Hypochaeris glabra</i>	smooth cat's ear			X
<i>Isocoma menziesii</i> var. <i>menziesii</i>	spreading goldenbush		X	
<i>Lasthenia gracilis</i>	common goldfields		X	
<i>Lathyrus vestitus</i> var. <i>alefeldii</i>	san diego sweet pea			X
<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	woolly-fruited lomatium		X	
<i>Lupinus bicolor</i>	miniature lupine			
<i>Marah macrocarpa</i>	chilicothe			X
* <i>Medicago polymorpha</i>	California burclover			X
* <i>Melilotus indicus</i>	indian sweetclover			X
<i>Mimulus aurantiacus</i>	monkey flower bush			X
<i>Muilla maritima</i>	common muilla		X	
<i>Navarretia hamata</i> ssp. <i>hamata</i>	hooked skunkweed			X
<i>Nuttallanthus texanus</i>	blue toadflax			X
<i>Osmadenia tenella</i>	osmadenia			X
* <i>Oxalis pes-caprae</i>	Bermuda-buttercup			X
<i>Pectocarya linearis</i> var. <i>ferocula</i>	slender pectocarya			X
<i>Plagiobothrys collinus</i> var. <i>gracilis</i>	San Diego popcornflower		X	
<i>Plantago erecta</i>	dot-seed plantain	X		
<i>Primula clevelandii</i>	padre's shooting star			X
<i>Pseudognaphalium californicum</i>	California everlasting			
<i>Reseda luteola</i>	dye's rocket			X
<i>Rhus integrifolia</i>	lemonadeberry			X
<i>Sidalcea malviflora</i> ssp. <i>sparsifolia</i>	checker-bloom			X
* <i>Silene gallica</i>	common catchfly			
<i>Sisyrinchium bellum</i>	blue-eyed-grass			X
* <i>Sisymbrium orientale</i>	eastern rocket			X
<i>Solanum parishii</i>	Parish's nightshade			X

* <i>Sonchus asper</i> ssp. <i>asper</i>	prickly sow-thistle			X
* <i>Vicia villosa</i> ssp. <i>varia</i>	hairy vetch			X
* Non-native species				

5. CERTIFICATION

We certify that the information in this survey report and attached figures fully and accurately represent our work.



Jim Rocks
TE-063230-4



Melanie Rocks
TE-082908-2



Lee Ripma
TE-221290-3.1



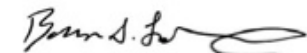
Monica Alfaro
TE-05124-2



Melanie Dicus
TE-049175-3



Garrett Huffman
TE-20168A-0



Brian Lohstroh
TE-063608-5

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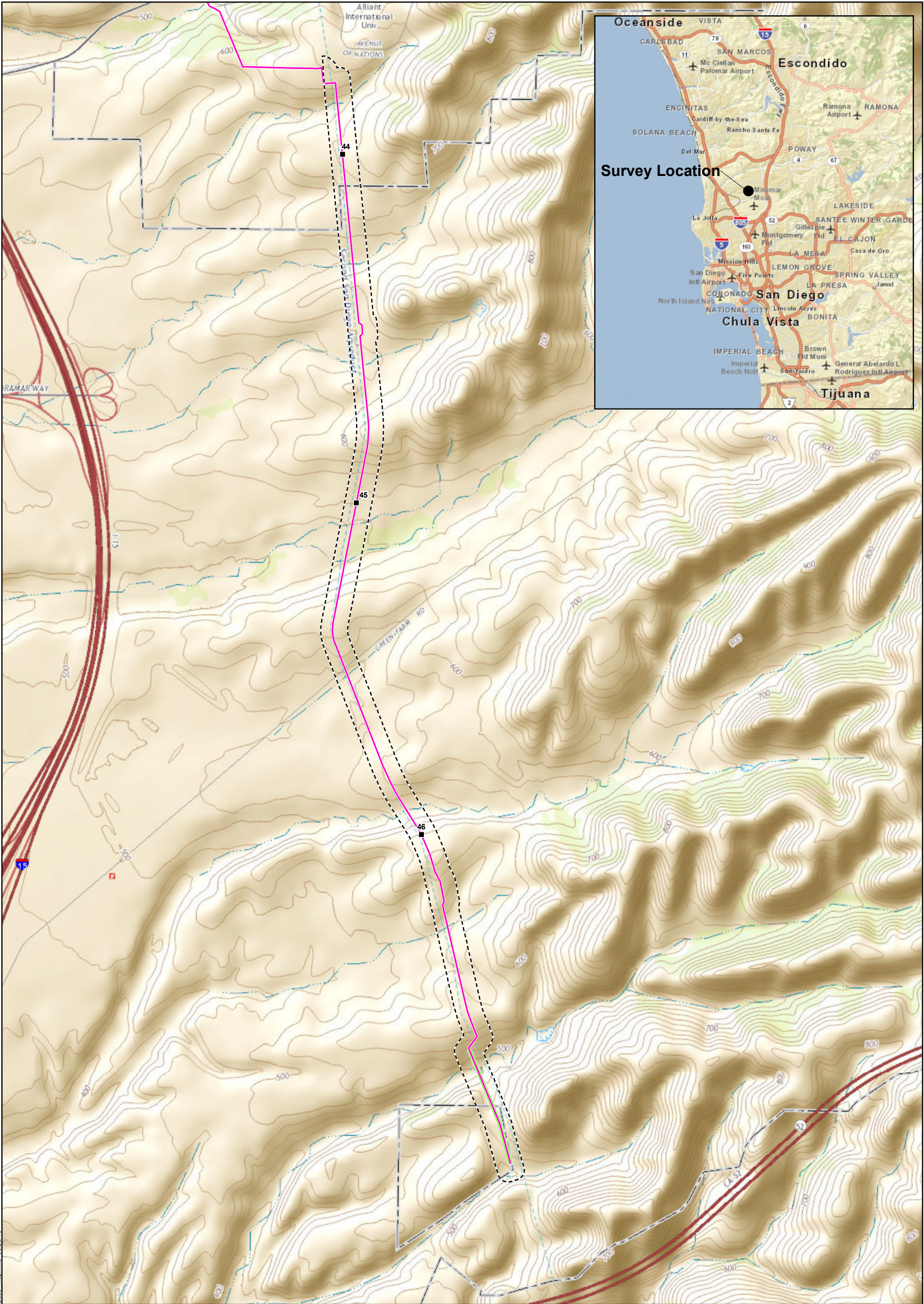
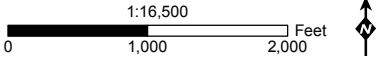


Figure 1: USGS Quadrangle Map

Pipeline Safety & Reliability Project

- Milepost
- Proposed Project Route
- Cross-Tie Connector Line
- - - Survey Area

U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps: La Mesa, Poway



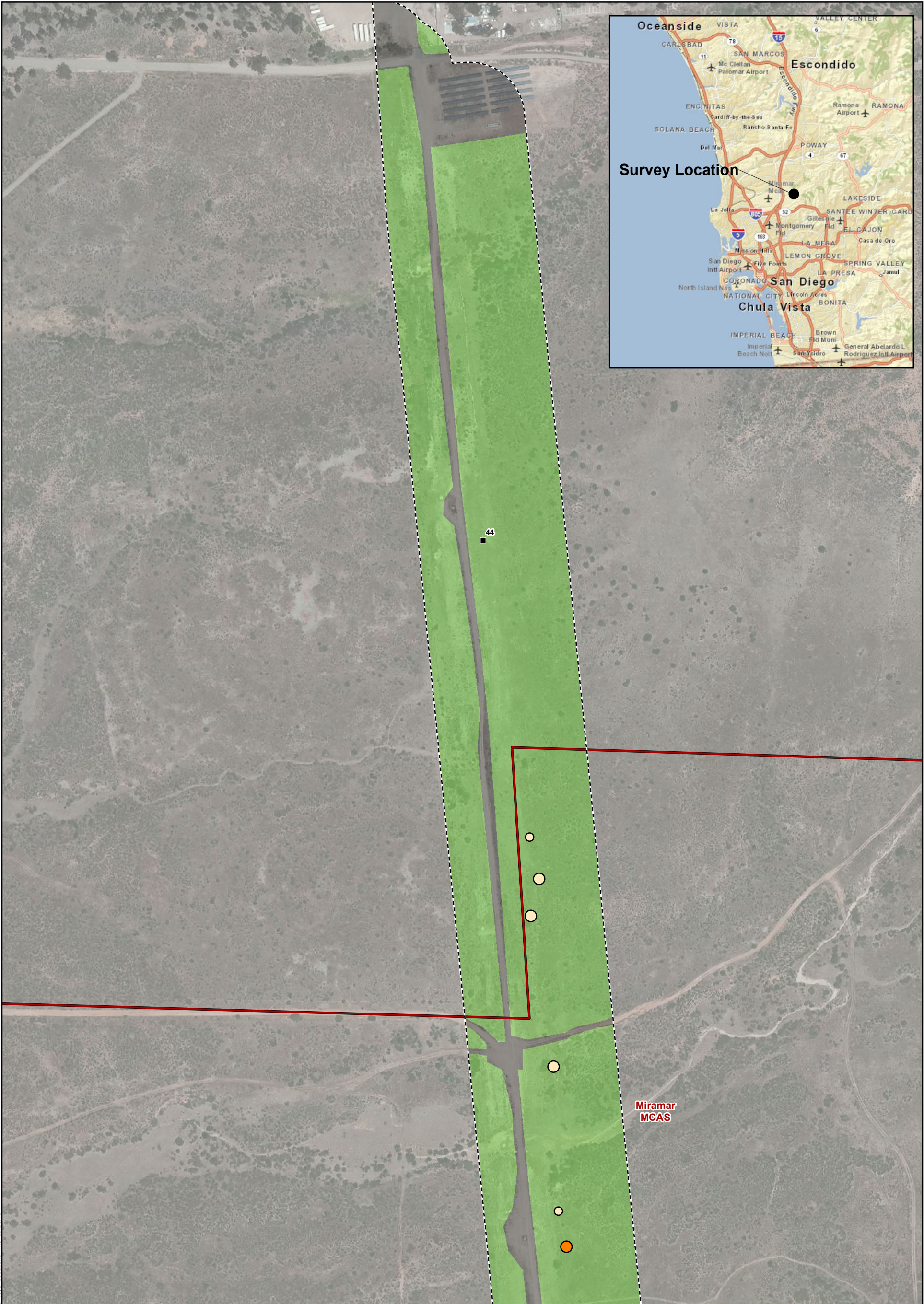


Figure 2: 2015 QCB Survey Area and Host Plant Locations Map 1 of 5 Pipeline Safety & Reliability Project

■ Milepost

Survey Area

MCAS Miramar

QCB Survey Area

Excluded from QCB Survey Area

QCB larval host plants

○ dot-seed plantain (*Plantago erecta*) [Low Density]

○ dot-seed plantain (*Plantago erecta*) [Medium Density]

○ owl's clover (*Castilleja exserta* ssp. *exserta*) [Low Density]

○ owl's clover (*Castilleja exserta* ssp. *exserta*) [Medium Density]

QCB larval host plant patch diameter

○ <3m

○ 3 - 10m

○ >10m

U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps: La Mesa, Poway

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys

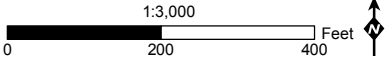




Figure 2: 2015 QCB Survey Area and Host Plant Locations Map 2 of 5 Pipeline Safety & Reliability Project

■ Milepost

Survey Area

MCAS Miramar

QCB Survey Area

Excluded from QCB Survey Area

QCB larval host plants

○ dot-seed plantain (*Plantago erecta*) [Low Density]

○ dot-seed plantain (*Plantago erecta*) [Medium Density]

○ owl's clover (*Castilleja exserta* ssp. *exserta*) [Low Density]

○ owl's clover (*Castilleja exserta* ssp. *exserta*) [Medium Density]

QCB larval host plant patch diameter

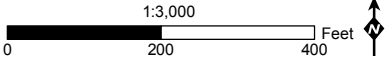
○ <3m

○ 3 - 10m

○ >10m

U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps: La Mesa, Poway

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys



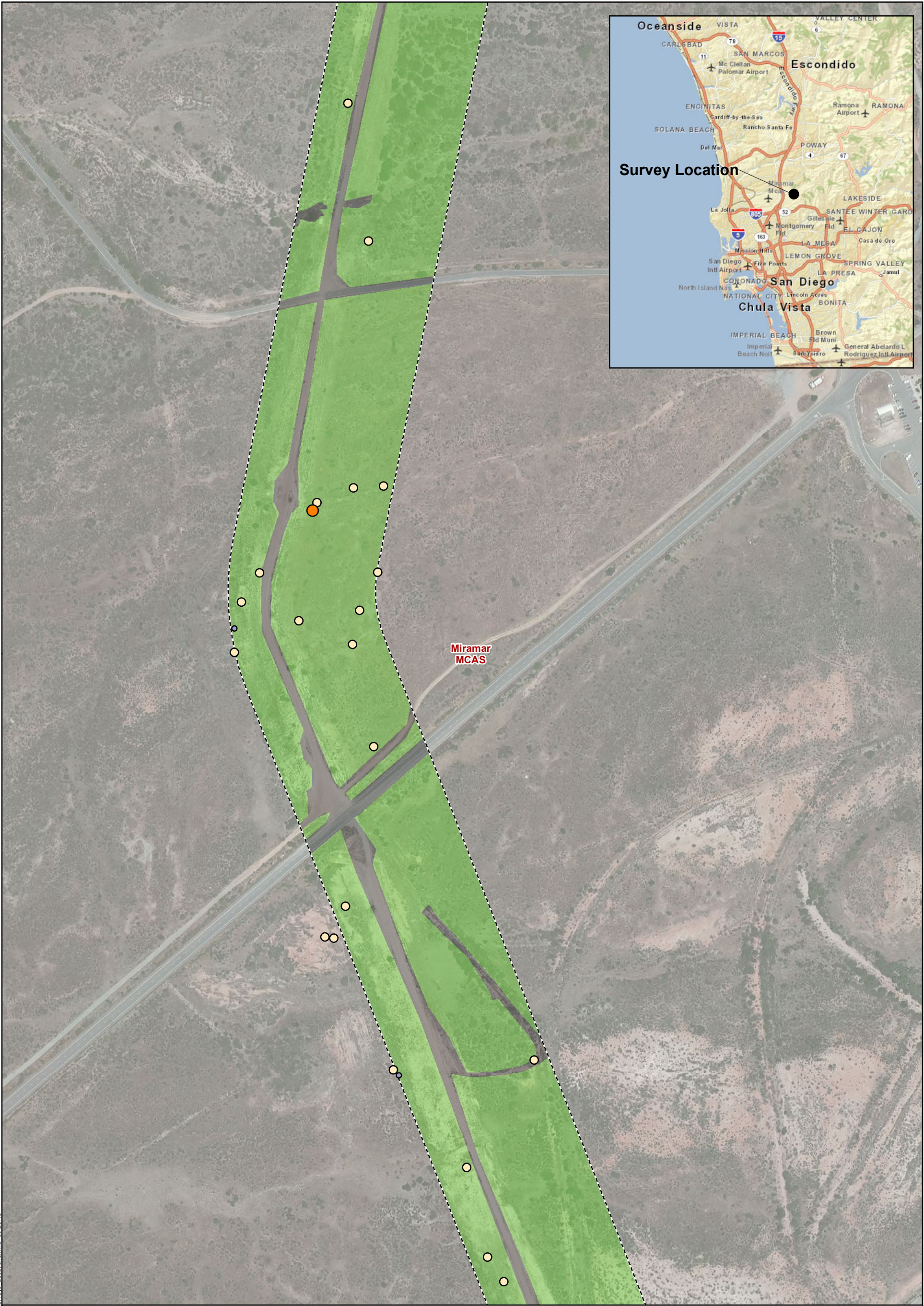


Figure 2: 2015 QCB Survey Area and Host Plant Locations Map 3 of 5 Pipeline Safety & Reliability Project

■ Milepost

▬ Survey Area

▭ MCAS Miramar

■ QCB Survey Area

■ Excluded from QCB Survey Area

○ dot-seed plantain (*Plantago erecta*) [Low Density]

● dot-seed plantain (*Plantago erecta*) [Medium Density]

● owl's clover (*Castilleja exserta* ssp. *exserta*) [Low Density]

● owl's clover (*Castilleja exserta* ssp. *exserta*) [Medium Density]

○ <3m

○ 3 - 10m

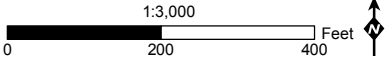
○ >10m

QCB larval host plants

QCB larval host plant patch diameter

U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps: La Mesa, Poway

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys



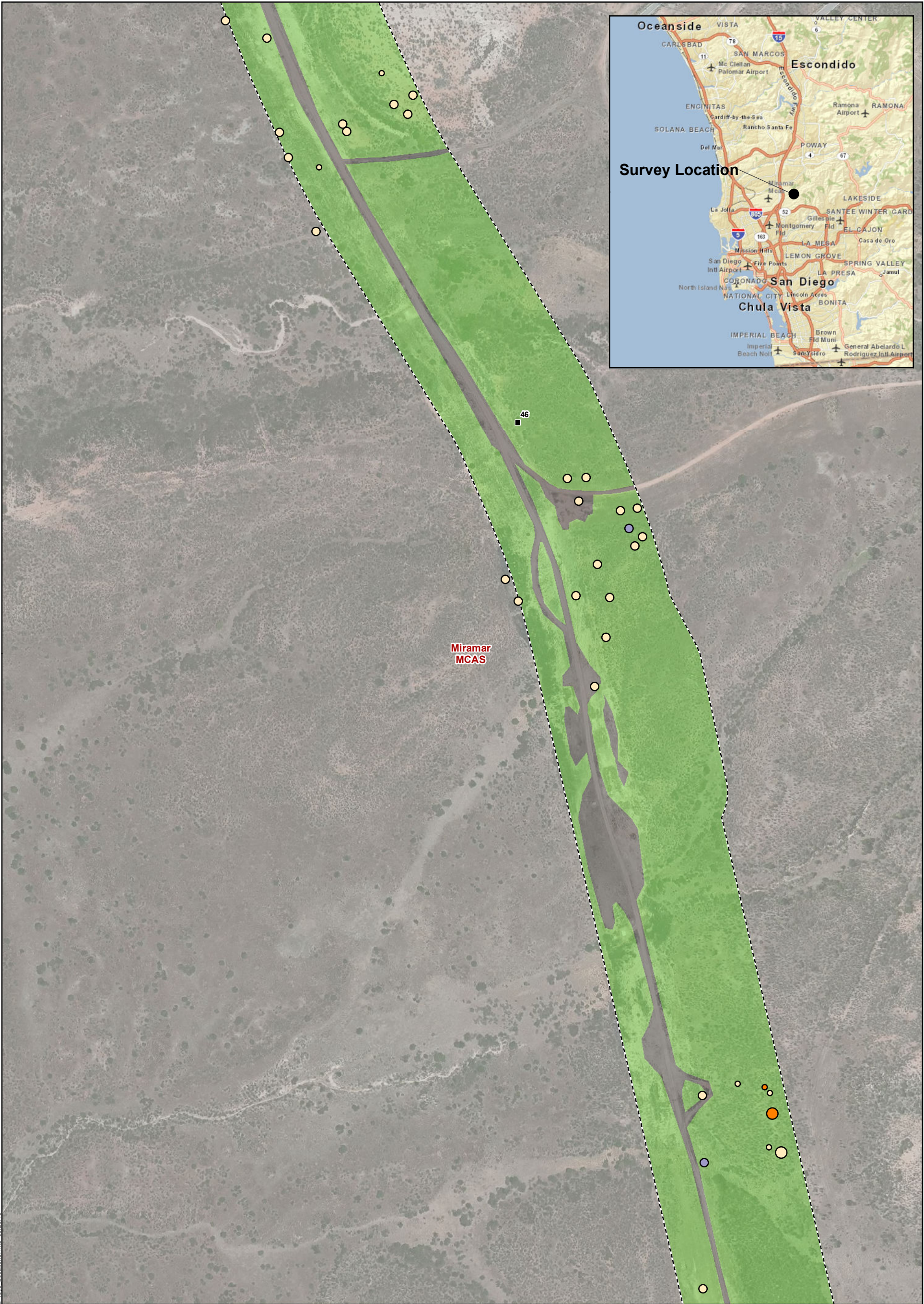


Figure 2: 2015 QCB Survey Area and Host Plant Locations Map 4 of 5 Pipeline Safety & Reliability Project

■ Milepost

Survey Area

MCAS Miramar

QCB Survey Area

Excluded from QCB Survey Area

QCB larval host plants

○ dot-seed plantain (*Plantago erecta*) [Low Density]

● dot-seed plantain (*Plantago erecta*) [Medium Density]

● owl's clover (*Castilleja exserta* ssp. *exserta*) [Low Density]

● owl's clover (*Castilleja exserta* ssp. *exserta*) [Medium Density]

QCB larval host plant patch diameter

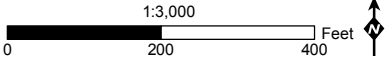
○ <3m

○ 3 - 10m

○ >10m

U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps: La Mesa, Poway

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys



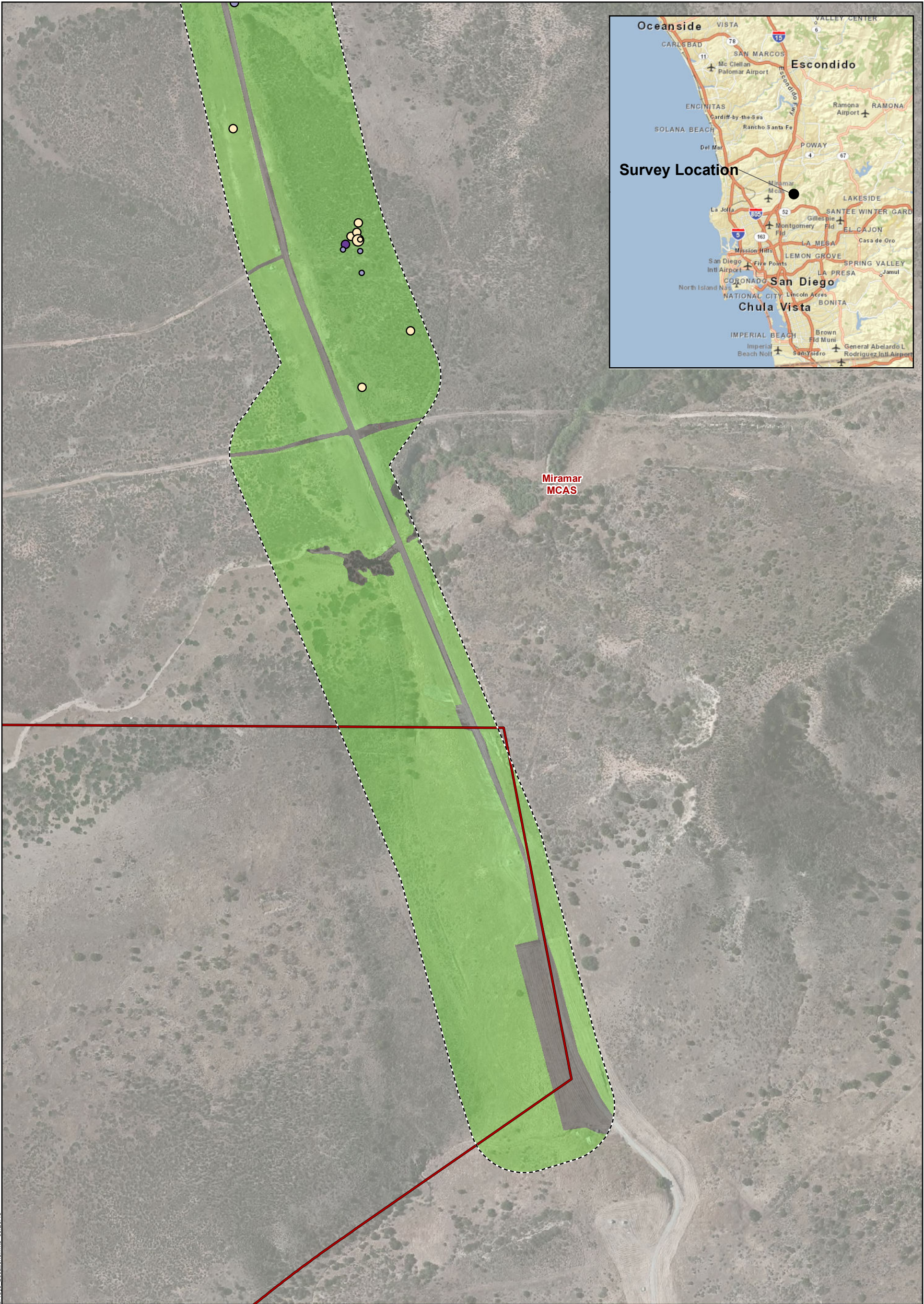


Figure 2: 2015 QCB Survey Area and Host Plant Locations Map 5 of 5 Pipeline Safety & Reliability Project

■ Milepost

Survey Area

MCAS Miramar

QCB Survey Area

Excluded from QCB Survey Area

QCB larval host plants

○ dot-seed plantain (*Plantago erecta*) [Low Density]

○ dot-seed plantain (*Plantago erecta*) [Medium Density]

○ owl's clover (*Castilleja exserta* ssp. *exserta*) [Low Density]

○ owl's clover (*Castilleja exserta* ssp. *exserta*) [Medium Density]

QCB larval host plant patch diameter

○ <3m

○ 3 - 10m

○ >10m

U.S. Geological Survey (USGS) 7.5-minute series quadrangle maps: La Mesa, Poway

- Please note survey route not shown due to large map scale, meandering transects were walked within suitable habitat during protocol surveys

Attachment A:

All Butterflies Observed

	Survey Number	#1 PR	#1	#1	#2 PR	#2	#2	#3	#3 PR	#4 PR	#4	#5 PR	#5	#6 PR	#6	#7 PR
	Date	2/15/15	2/16/15	2/18/15	2/22/15	2/24/15	2/25/15	3/4/15	3/6/15	3/8/15	3/10/15	3/15/15	3/17/15	3/22/15	3/25/15	3/29/15
	Surveyor(s)	LR, MA, MR	BL, JR	LR, JR	LA, MA	LR	LR, BL, MD	GH, MD, BL	GH	GH, MA	GH, MD	GH	GH, MD	GH	GH, MD	GH
Nymphalidae (Brush Footed Butterflies)																
	<i>Adelpha californica</i> (California Sister)															
	<i>Chlosyne gabbii</i> (Gabb's Checkerspot)								X			X		X		X
	<i>Junonia coenia</i> (Common Buckeye)		X	X			X	X	X				X		X	X
	<i>Speyeria callippe comstocki</i> (Comstock's Fritillary)															
	<i>Vanessa annabella</i> (West Coast Lady)		X				X								X	
	<i>Vanessa cardui</i> (Painted Lady)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Vanessa atalanta</i> (Red Admiral)		X					X				X				
Danaidae																
	<i>Danaus gilippus</i> (Queen)														X	
	<i>Danaus plexippus</i> (Monarch)						X									
Hesperiidae																
	<i>Erynnis funeralis</i> (Funereal Duskywing)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	<i>Hylephila phyleus</i> (Fiery Skipper)															
	<i>Pyrgus albescens</i> (White Checkered-Skipper)															
Lycaenidae (Hairstreaks)																
	<i>Brephidium exilis</i> (Western Pygmy-Blue)															
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)		X				X				X					
	<i>Euphilotes bernardino</i> (Bernardino Dotted-Blue)															
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)	X	X	X	X	X	X	X	X	X	X	X	X	X		
	<i>Hemiargus ceraunus</i> (Ceraunus Edward's) Blue)		X													
	<i>Leptotes marina</i> (Marine Blue)	X	X	X			X	X			X		X	X	X	X
	<i>Plebejus acmon</i> (Acmon Blue)															
	<i>Strymon melinus</i> (Gray Hairstreak)		X	X									X			X
	<i>Satyrium saepium</i> (Hedgerow Hairstreak)															
Riodinidae (Metalmarks)																
	<i>Apodemia virgulti</i> (Behr's Metalmark)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Papilionidae (Swallowtails)																
	<i>Papilio zelicaon</i> (Anise Swallowtail)															
Pieridae (Whites and Orangetips)																
	<i>Anthocharis sara</i> (Sara's Orangetip)								X	X	X	X	X	X	X	X
	<i>Colias eurytheme</i> (Orange Sulphur)		X	X			X	X	X	X	X	X	X	X	X	X
	<i>Colias harfordii</i> (Harford's Sulphur)	X									X	X	X			
	<i>Pieris rapae</i> (Cabbage White)													X	X	
	<i>Phoebis sennae marcellina</i> (Southwest Cloudless Sulphur)		X	X												
	<i>Pontia protodice</i> (Checkered White)											X	X	X	X	X
	<i>Zerene cesonia</i> (Southern Dogface)									X						
	Unidentified Sulphur	X														
Satyridae (Satyrids)																
	<i>Coenonympha tullia californica</i> (Common California Ringlet)															
	Total Butterfly Species Observed	7	13	9	4	4	10	8	8	6	10	10	11	10	11	9

	Survey Number	#7	#8 PR	#8	#9 PR	#9	#9	#10 PR	#10	#11 PR	#11	#12 PR	#12
	Date	4/1/15	4/5/15	4/6/15	4/12/15	4/15/15	4/16/15	4/19/15	4/21/15	4/26/15	4/30/15	5/3/15	5/6/15
	Surveyor(s)	GH, MD	GH	GH, MD	GH	GH	GH	GH	GH, BL	GH	GH, MR	GH	GH, LR
	Nymphalidae (Brush Footed Butterflies)												
	<i>Adelpha californica</i> (California Sister)										X		
	<i>Chlosyne gabbii</i> (Gabb's Checkerspot)	X	X		X					X	X		
	<i>Junonia coenia</i> (Common Buckeye)	X		X	X	X	X	X	X	X	X		
	<i>Speyeria callippe comstocki</i> (Comstock's Fritillary)	X		X					X	X	X	X	
	<i>Vanessa annabella</i> (West Coast Lady)					X			X				
	<i>Vanessa cardui</i> (Painted Lady)	X		X					X	X			X
	<i>Vanessa atalanta</i> (Red Admiral)												X
	Danaidae												
	<i>Danaus gilippus</i> (Queen)												
	<i>Danaus plexippus</i> (Monarch)												
	Hesperiidae												
	<i>Erynnis funeralis</i> (Funereal Duskywing)	X		X		X	X	X	X	X	X	X	X
	<i>Hylephila phyleus</i> (Fiery Skipper)		X		X		X	X	X	X	X		
	<i>Pyrgus albescens</i> (White Checkered-Skipper)			X									
	Lycaenidae (Hairstreaks)												
	<i>Brephidium exilis</i> (Western Pygmy-Blue)						X			X		X	
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)												
	<i>Euphilotes bernardino</i> (Bernardino Dotted-Blue)								X		X	X	X
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)												
	<i>Hemiargus ceraunus</i> (Ceraunus (Edward's) Blue)												
	<i>Leptotes marina</i> (Marine Blue)	X		X		X	X		X	X	X	X	X
	<i>Plebejus acmon</i> (Acmon Blue)							X	X				
	<i>Strymon melinus</i> (Gray Hairstreak)	X		X	X		X	X	X				
	<i>Satyrus saepium</i> (Hedgerow Hairstreak)	X		X									
	Riodinidae (Metalmarks)												
	<i>Apodemia virgulti</i> (Behr's Metalmark)	X	X	X	X	X	X	X	X	X	X	X	X
	Papilionidae (Swallowtails)												
	<i>Papilio zelicaon</i> (Anise Swallowtail)						X						
	Pieridae (Whites and Orangetips)												
	<i>Anthocharis sara</i> (Sara's Orangetip)	X		X	X								
	<i>Colias eurytheme</i> (Orange Sulphur)	X	X	X	X	X	X	X	X	X	X	X	X
	<i>Colias harfordii</i> (Harford's Sulphur)												
	<i>Pieris rapae</i> (Cabbage White)	X											
	<i>Phoebis sennae marcellina</i> (Southwest Cloudless Sulphur)												
	<i>Pontia protodice</i> (Checkered White)	X		X	X	X	X	X	X	X	X	X	X
	<i>Zerene cesonia</i> (Southern Dogface)												
	Unidentified Sulphur												
	Satyridae (Satyrids)												
	<i>Coenonympha tullia californica</i> (Common California Ringlet)										X		
	Total Butterfly Species Observed	13	4	12	8	7	10	8	13	11	12	8	8

Attachment B:

All Surveyor Field Notes

22- Lee work. 21 Monica
1- Monica & Grant
8- Monica



→ suspected rarer
n29 seeds

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Lee R. J. [unclear] Monica Alfaro

Date 2/15/15 Survey # 1 of 2

Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start 9:30	73.1	0%	0-1
End 11:44	64.5	0%	0-4

Nymphalidae (Brush Footed Butterflies)	
<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
<input type="checkbox"/>	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycoides mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input type="checkbox"/>	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input checked="" type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)

Danaidae	
<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)

Hesperiidae	
<input type="checkbox"/>	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hyalephila phyleus</i> (Fiery Skipper)
<input checked="" type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input type="checkbox"/>	<i>Erynnis funeralis</i> (Funereal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mournful Duskywing)
<input type="checkbox"/>	<i>Erynnis propertius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Atilides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input type="checkbox"/>	<i>Strymon melinus</i> (Gray Hairstreak)
<input checked="" type="checkbox"/>	<i>Glaucopteryx lydamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaria acmon</i> (Acmon Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Leptotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotis sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input checked="" type="checkbox"/>	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orange-tip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orange-tip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyritids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	<i>Silvery blue</i>
<input type="checkbox"/>	<i>Sulfur</i> (unknown from area)

List nectar sources and plant communities observed	
<i>Lactunia cal.</i>	NW
<i>Acacia glabra</i>	Chamise Chap
<i>Ceanothus</i>	Spice Dess
<i>Plagio collinsii</i>	<i>Eucalyptus</i>
<i>Solanum elaeagnifolium</i>	<i>Nautilanthus texensis</i>
<i>Marah</i>	<i>Erodium botrys</i>
<i>Coronilla</i> (yellow fls, div leaves)	<i>Lathyrus</i>
	<i>Dicentra</i>
	<i>Dasycarpus</i>

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low, medium, high)_date_observer

low 4-10 per sq foot, in 20% cover per square foot
med 20-50% cover, 10 per sq. foot
high > 50%



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Monica Alfaro

Date 2/15/15 Survey # 1

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	9:31	73.4	0%	0-2
End	11:41	81.5	0%	1-5

Nymphalidae (Brush Footed Butterflies)	
<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
<input type="checkbox"/>	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycoides mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input type="checkbox"/>	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input checked="" type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)
Danalidae	
<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
<input type="checkbox"/>	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hylephila phyleus</i> (Fiery Skipper)
<input type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input checked="" type="checkbox"/>	<i>Erynnis funeralis</i> (Funereal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mournful Duskywing)
<input type="checkbox"/>	<i>Erynnis propertius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Atides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input type="checkbox"/>	<i>Strymon melinus</i> (Gray Hairstreak)
<input type="checkbox"/>	<i>Glaucopteryx lygdamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaria acron</i> (Acron Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Leptotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotis sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input type="checkbox"/>	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orange-tip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orange-tip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input checked="" type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

List nectar sources and plant communities observed Wild hyscynth, Deerweed
Alison hys?

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low, medium, high)_date_observer

32.85595 117.08922
2 ft diam (Low)
32.85571 117.08929
15 ft diam Low
32.85532 -117.08901
Med 35 ft
32.85515 -117.08913
60 ft Low -> Med



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Melanie Rocks

Date 2/15/2015 Survey # 1

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0930	73.1	0	0-1
End	1145	84.5	0	1-5

Nymphalidae (Brush Footed Butterflies)	
<i>Euphydryas editha quino</i> (Quino Checkerspot)	
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)	
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Thessalia leanira</i> (Leanira Checkerspot)	
<i>Nymphalis antiopa</i> (Mourning Cloak)	
<i>Basilaria lorquini</i> (Lorquin's Admiral)	
<i>Junonia coenia</i> (Common Buckeye)	
<i>Vanessa annabella</i> (West Coast Lady)	
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (American Lady)	
<i>Vanessa atalanta</i> (Red Admiral)	
Danaidae	
<i>Danaus gilippus</i> (Queen)	
<i>Danaus plexippus</i> (Monarch)	
Hesperiidae	
<i>Heliopterus ericetorum</i> (Northern White-Skipper)	
<i>Hylephila phyleus</i> (Fiery Skipper)	
<i>Pyrgus albescens</i> (White Checkered-Skipper)	
<i>Erynnis funeralis</i> (Funereal Duskywing)	
<i>Erynnis tristis</i> (Mournful Duskywing)	
<i>Erynnis propertius</i> (Properius Duskywing)	
<i>Ochlodes agricola</i> (Rural Skipper)	

Lycaenidae (Hairstreaks)	
<i>Atides halesus</i> (Great Purple Hairstreak)	
<i>Incisalia augustinus</i> (Western Brown Elfin)	
<i>Callophrys perplexa</i> (Perplexing Hairstreak)	
<i>Strymon melinus</i> (Gray Hairstreak)	
<i>Glaucopsyche lygdamus</i> (Silvery Blue)	
<i>Icaria acmon</i> (Acmon Blue)	
<i>Celastrina ladon</i> (Echo Blue)	
<i>Leptotes marina</i> (Marine Blue)	
<i>Philotis sonorensis</i> (Sonoran Blue)	
<i>Plebejus melissa</i> (Melissa Blue)	
<i>Everes amyntula</i> (Western Tailed-Blue)	
<i>Brephidium exilis</i> (Western Pygmy-Blue)	
Riodinidae (Metalmarks)	
<i>Apodemia mormo virgultii</i> (Behr's Metalmark)	
Papilionidae (Swallowtails)	
<i>Papilio eurymedon</i> (Pale Swallowtail)	
<i>Papilio rutulus</i> (Western Tiger Swallowtail)	
<i>Papilio zelicaon</i> (Anise Swallowtail)	
Pieridae (Whites and Orangetips)	
<i>Anthocharis cethura</i> (Desert Orangetip)	
<i>Anthocharis sara</i> (Sara's Orangetip)	
<i>Pieris rapae</i> (Cabbage White)	
<i>Pontia protodice</i> (Checkered White)	
<i>Colias eurytheme</i> (Orange Sulphur)	
<i>Colias harfordii</i> (Harford's Sulphur)	
<i>Eurema nicippe</i> (Sleepy Orange)	
<i>Nathalis iole</i> (Dainty Sulphur)	
Satyridae (Satyrids)	
<i>Coenonympha californica</i> (Common California Ringlet)	
Others	

List nectar sources and plant communities observed

Acemion glaber, *Eri fasc*
Pla ere, *Dick cap*

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
 GPS all QCB occurrences
 GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
 Format: plant_name_diameter of occurrence_density (low, medium, high)_date_observer

Pla ere - low dens (point)
 just so of gate
 on small hilltop
 W of access rd.



Project Name: ~~3602~~ 3602 Project

Surveyor Name: B. Lokstrol

Date 2/6/15 Survey # 1
Dismal Forge grate → Red Bank (mid section)

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1030	70	5	1-4 (4)
End	1605	66	5	0-3

Nectar Sources Present: *Asplenium* *Intermedia*
Acropora *Scap* *Leathery* *perceps*
corium *Scap* *P.*
calendula *byl.* *Silenceli*
spicy *Dic cap* *Heliconium* *Scap*
calendula *Yelba Santa*
Pinaria *Caradonia* *Can. rom.* *Rhus* *Int.*
Leucanthus *anth.* *Chrysanthemum* *anth.* *P-c*
mentha *cat.*

Nymphalidae (Brush Foted Butterflies)	
Euphydras editha quino (Quino Checkerspot)	
Euphydras chalcedona (Chalcedon Checkerspot)	
Charidryas gabbi (Gabb's Checkerspot)	
Phycoides mylitta (Mylitta Crescent)	
Thessalia leanira (Leanira Checkerspot)	
Nymphalis antiopa (Mourning Cloak)	
Basilarchia lorquini (Lorquin's Admiral)	
Junonia coenia (Common Buckeye)	
Vanessa annabella (West Coast Lady)	
Vanessa cardui (Painted Lady)	
Vanessa virginiensis (American Lady)	
Vanessa atalanta (Red Admiral)	
Danaidae	
Danaus gilippus (Queen)	
Danaus plexippus (Monarch)	

Hesperidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis propretius</i> (Propretius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)
Lycaenidae (Hairstreaks)	
	<i>Atlides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Erephidium exilis</i> (Western Pygmy-Blue)
Rhodinidae (Metalmarks)	
	<i>Apodemia mormo</i> (Mormon Metalmark)
	<i>Apodemia virgulti</i> (Behn's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
	<i>Calisto lydia</i>
	<i>Swallowtail</i>
	<i>Adelpha</i>

Notes (host plant locations, QCB occurrences, etc):



Project Name: 3602
 Surveyor Name: J. Rocks
 Date 2/16/15 Survey #

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1050	70	0	1-6
End	1605	66	0	

Nectar Sources Present: *Acacia*, *Cal Cyl*, *Eriogonum*, *Die Cap*, *Sprig box*, *Cal Mac*, *Cal Brew*, *Re Lin*, *Crypt*, *Eriod*, *Cass*, *Sil Gal*, *Mim Aur*, *Cor Fil*, *All prae*, *Pod Cle*, *Hel Sc*, *Rhulnt*, *Lin Dia*, *Oxal*, *Pas Cap*

Nymphalidae (Brush Footed Butterflies)	
<i>Euphydryas editha</i> quino (Quino Checkerspot)	
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)	
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Thessalia leanira</i> (Leanira Checkerspot)	
<i>Nymphalis antiopa</i> (Mourning Cloak)	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	
<i>Junonia coenia</i> (Common Buckeye)	
<i>Vanessa annabella</i> (West Coast Lady)	
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (American Lady)	
<i>Vanessa atalanta</i> (Red Admiral) (nettle feeder)	
Danaidae	
<i>Danaus gilippus</i> (Queen)	
<i>Danaus plexippus</i> (Monarch)	

Hesperiidae	
<i>Heliopterus erictorum</i> (Northern White-Skipper)	
<i>Hylephila phyleus</i> (Fiery Skipper)	
<i>Pyrgus albescens</i> (White Checkered-Skipper)	
<i>Erynnis funeralis</i> (Funereal Duskywing)	
<i>Erynnis tristis</i> (Mournful Duskywing)	
<i>Erynnis proterpius</i> (Proterpius Duskywing)	
<i>Ochlodes agricola</i> (Rural Skipper)	
Lycaenidae (Hairstreaks)	
<i>Atides halesus</i> (Great Purple Hairstreak)	
<i>Incisalia augustinus</i> (Western Brown Elfin)	
<i>Callophrys perplexa</i> (Perplexing Hairstreak)	
<i>Strymon melinus</i> (Gray Hairstreak)	
<i>Glaucopteryx lydamus</i> (Silvery Blue)	
<i>Icaria acmon</i> (Acmon Blue)	
<i>Celastrina ladon</i> (Echo Blue)	
<i>Leptotes marina</i> (Marine Blue)	
<i>Philotis sonorensis</i> (Sonoran Blue)	
<i>Plebejus melissa</i> (Melissa Blue)	
<i>Everes amyntula</i> (Western Tailed-Blue)	
<i>Brephidium exilis</i> (Western Pygmy-Blue)	
Riodinidae (Metalmarks)	
<i>Apodemia mormo</i> (Mormon Metalmark)	
<i>Apodemia virgulti</i> (Behr's Metalmark)	
Papilionidae (Swallowtails)	
<i>Papilio eurymedon</i> (Pale Swallowtail)	
<i>Papilio rutulus</i> (Western Tiger Swallowtail)	
<i>Papilio zelicaon</i> (Anise Swallowtail)	
Pieridae (Whites and Orange-tips)	
<i>Anthocharis cethura</i> (Desert Orange-tip)	
<i>Anthocharis sara</i> (Sara's Orange-tip)	
<i>Pieris rapae</i> (Cabbage White)	
<i>Pontia protodice</i> (Checkered White)	
<i>Colias eurytheme</i> (Orange Sulphur)	
<i>Colias harfordii</i> (Harford's Sulphur)	
<i>Eurema nicippe</i> (Sleepy Orange)	
Satyridae (Satyrids)	
<i>Coenonympha californica</i> (Common California Ringlet)	
Others	
<i>SW Cloudless Sulphur</i>	
<i>Edward's (ceruleus) Blue</i>	

Notes (host plant locations, QCB occurrences, etc):
Plantago erecta

Castilleja exserta



Project 3602

Surveyor Name: J. Rocks

Date 2/18/15 Survey # 1

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0950	67	0	1-3
End	1350	74	100 thin	1-6

Nymphalidae (Brush Footed Butterflies)				
	<i>Euphydryas editha</i>	quino	(Quino Checkerspot)	
	<i>Euphydryas chalcedona</i>	(Chalcedon Checkerspot)		
	<i>Charidryas gabbi</i>	(Gabb's Checkerspot)		
	<i>Phycoides mylitta</i>	(Mylitta Crescent)		
	<i>Thessalia leanira</i>	(Leanira Checkerspot)		
	<i>Nymphalis antiopa</i>	(Mourning Cloak)		
	<i>Basilarchia lorquini</i>	(Lorquin's Admiral)		
/	<i>Junonia coenia</i>	(Common Buckeye)		
	<i>Vanessa annabella</i>	(West Coast Lady)		
	<i>Vanessa cardui</i>	(Painted Lady)		
	<i>Vanessa virginiensis</i>	(American Lady)		
	<i>Vanessa atalanta</i>	(Red Admiral)		
Danaidae				
	<i>Danaus gilippus</i>	(Queen)		
	<i>Danaus plexippus</i>	(Monarch)		
Hesperiidae				
	<i>Heliopterus ericetorum</i>	(Northern White-Skipper)		
	<i>Hylephila phyleus</i>	(Fiery Skipper)		
	<i>Pyrgus albescens</i>	(White Checkered-Skipper)		
	<i>Erynnis funeralis</i>	(Funereal Duskywing)		
	<i>Erynnis tristis</i>	(Mournful Duskywing)		
	<i>Erynnis proterius</i>	(Proterius Duskywing)		
	<i>Ochlodes agricola</i>	(Rural Skipper)		

Starting at north end near VC reserve, walking south

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
I	<i>Stymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lydamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
	<i>Apodemia mormo virgultii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
I	SW Cloudless Sulphur

List nectar sources and plant communities

observed

Fro. Mos, Acum Gls, Bra Nig, Vicia sp., Eri Fas
Mulinan, Cal C:1, Dic Cap

082908-1 221290-3.1

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:

GPS all QCB occurrences

GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Anthriscum coulterianum*,

Cordylanthus rigidus, *Castilleja exserta*, and *Collinsia heterophylla*)

Format: plant name, diameter of

occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

Plantago erecta - found numerous patches, same in the 1000s but spread out & low density

Castilleja exserta - found 1 individual w/ only a couple of fls. Looking dry.

Pentacheta area - small, multitrunked w/ plantago
(Calindrum venen - fire follower vs broader)



Project SDG&E

Surveyor Name: Lee P. J. mg

Date 2/18/15 Survey # 1

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	9:55	87.1	100% ^{Sunny} _{Clouds}	0-1
End	13:50	74.0	100%	1-6

Nymphalidae (Brush Footed Butterflies)	
<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
<input type="checkbox"/>	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycoides mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input checked="" type="checkbox"/>	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input checked="" type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
<input type="checkbox"/>	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hylephila phyleus</i> (Fiery Skipper)
<input checked="" type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input type="checkbox"/>	<i>Erynnis funeralis</i> (Funereal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mournful Duskywing)
<input type="checkbox"/>	<i>Erynnis properius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Allides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input checked="" type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input checked="" type="checkbox"/>	<i>Strymon melinus</i> (Gray Hairstreak)
<input type="checkbox"/>	<i>Glaucopteryx lydamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaricia acmon</i> (Acmon Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Leptotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotes sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input checked="" type="checkbox"/>	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutilus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orangetip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orangetip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input checked="" type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

List nectar sources and plant communities observed	
<i>Artemisia tridentata</i>	Chamise Chaparral
<i>Echinops californicus</i>	Disrupted Chamise Chaparral
<i>Calindrum venen</i>	
<i>Alium pulegioides</i>	
<i>Diplotaxis californica</i>	
<i>Munila maritima</i>	

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

FE 22100-5-1



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Lee Pippa

Date 2/22/15 Survey # 2

Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1107	70.5	90%
End	1250	68.0	90%

→ survey conditions favorable in morning, slightly cooler for the survey, slightly better.

Nymphalidae (Brush Footed Butterflies)

<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
<input type="checkbox"/>	<i>Charidryas gabrii</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycoides mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input type="checkbox"/>	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input checked="" type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input checked="" type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)

Danaidae

<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)

Hesperiidae

<input type="checkbox"/>	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hylephila phyleus</i> (Fiery Skipper)
<input checked="" type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input type="checkbox"/>	<i>Erynnis funeralis</i> (Funereal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mourning Duskywing)
<input type="checkbox"/>	<i>Erynnis propertius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Atides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input checked="" type="checkbox"/>	<i>Strymon melinus</i> (Gray Hairstreak)
<input type="checkbox"/>	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaricia acmon</i> (Acmon Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Leptotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotis sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input checked="" type="checkbox"/>	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orangetip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orangetip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

List nectar sources and plant communities

observed

Cynoptera

Antennarius nubilum

Penachectea aurea (marked, list 4)

Nuttallanthus fegans

Lathyrus cal.

Glennia xanti

Monica - QCB SD vineyard Eri. fas, Lathyrus

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low, medium, high)_date_observer



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Monica Alfaro

Date 2/22/15 Survey # 2

Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	11:07	70.5	90%
End	12:50	68.0	90%

Survey weather conditions favorable throughout day with below average wind

Nymphalidae (Brush Footed Butterflies)	
<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
<input type="checkbox"/>	<i>Charidryas gabbi</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycodes mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input type="checkbox"/>	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input checked="" type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
<input type="checkbox"/>	<i>Heliopterus erictorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hylephila phyleus</i> (Fiery Skipper)
<input type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input checked="" type="checkbox"/>	<i>Erynnis funealis</i> (Funeal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mournful Duskywing)
<input type="checkbox"/>	<i>Erynnis propertius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Atides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input type="checkbox"/>	<i>Strymon melinus</i> (Gray Hairstreak)
<input type="checkbox"/>	<i>Glaucopteryx lydamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaricia acmon</i> (Acmon Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Leptotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotis sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input type="checkbox"/>	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orange-tip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orange-tip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

List nectar sources and plant communities

observed wild *hyacinth*

Allium

Lotus

filaree

popcorn flower

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:

GPS all QCB occurrences

GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*,

Cordylanthus rigidus, *Castilleja exserta*, and *Collinsia heterophylla*)

Format: plant_name_diameter of

occurrence_density (low, medium,

high)_date_observer

115 0491635 3635316 2 ft diam low

0491666 4 ft diam low

3635259



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Lee Pippard

Date 2/24/15 Survey # 2 main area

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	4405	75.5	0%	4-7
End	1615	71.3	0%	1-4

Nymphalidae (Brush Footed Butterflies)	
<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
<input type="checkbox"/>	<i>Charidryas gabrii</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycoides mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input type="checkbox"/>	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input checked="" type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input checked="" type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
<input type="checkbox"/>	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hylephila phyleus</i> (Fiery Skipper)
<input checked="" type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input type="checkbox"/>	<i>Erynnis funeralis</i> (Funereal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mournful Duskywing)
<input type="checkbox"/>	<i>Erynnis propertius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Atides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input checked="" type="checkbox"/>	<i>Stymon melinus</i> (Gray Hairstreak)
<input checked="" type="checkbox"/>	<i>Glaucopteryx lydamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaria acmon</i> (Acmon Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Leptotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotis sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input checked="" type="checkbox"/>	<i>Apodemia mormo virgultii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orange-tip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orange-tip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

List nectar sources and plant communities observed	
Eri-fas.	Allium procerum
Dicholostema cap.	Allium heterophyllum
Acemipm glabra	Escholtzia cal.
Pegadotus cal.	
E. Notus	

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
 GPS all QCB occurrences
 GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum coulterianum, Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)
 Format: plant_name_diameter of occurrence_density (low, medium, high)_date_observer
 One additional pt. of Castilleja exserta mapped, all other ~~host~~ host plants mapped already



Project PIPELINE 3602

Surveyor Name: MELANIE DICUS

Date 02-25-2015 Survey # 2

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	10:10	63.9	5	0-1
End	13:30	75	0	2-4

Nymphalidae (Brush Footed Butterflies)				
	<i>Euphydryas editha quino</i> (Quino Checkerspot)			
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			
	<i>Charidryas gabbi</i> (Gabb's Checkerspot)			
	<i>Phycoides mylitta</i> (Mylitta Crescent)			
	<i>Thessalia leanira</i> (Leanira Checkerspot)			
	<i>Nymphalis antiopa</i> (Mourning Cloak)			
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)			
	<i>Junonia coenia</i> (Common Buckeye)			
	<i>Vanessa annabella</i> (West Coast Lady)			
X	<i>Vanessa cardui</i> (Painted Lady)			
	<i>Vanessa virginiensis</i> (American Lady)			
	<i>Vanessa atalanta</i> (Red Admiral)			
Danaidae				
	<i>Danaus gilippus</i> (Queen)			
X	<i>Danaus plexippus</i> (Monarch)			
Hesperiidae				
	<i>Heliopterus erictorum</i> (Northern White-Skipper)			
	<i>Hylephila phyleus</i> (Fiery Skipper)			
	<i>Pyrgus albescens</i> (White Checkered-Skipper)			
X	<i>Erynnis funeralis</i> (Funereal Duskywing)			
	<i>Erynnis tristis</i> (Mournful Duskywing)			
	<i>Erynnis propertius</i> (Properlius Duskywing)			
	<i>Ochlodes agricola</i> (Rural Skipper)			

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
X	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Stymon melinus</i> (Gray Hairstreak)
X	<i>Glaucopteryx lydamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes mynitula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
X	<i>Apodemia mormo virgultii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
X	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed

CHAMISE CHAPARRAL, CSS
 CEYPTANTHA SP, ANISINCEA SP,
 DICELOSTEMMA CAPITATA, ACHILLES
 BRABER, CROTONA FASCICULARIS
 LANTHIA GAUGUIS, ERUODICTION CRASSIF,
 ISOCONA MENZIESII, SISTRANTHUS BELLUS
 PLANTAGINIS SP, HELIANTHUS

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
 GPS all QCB occurrences
 GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*,
Cordylanthus rigidus, *Castilleja exserta*, and *Collinsia heterophylla*)
 Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer



Project SDGE 3602 pipeline
 Surveyor Name: B. Johnston
 Date 2/25/15 Survey # 2

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1010	63.9	CLR	0-9
End	1330	75	CLR	2-4 mph

Nymphalidae (Brush Footed Butterflies)	
<input type="checkbox"/>	<i>Euphydryas editha quino</i> (Quino Checkerspot)
<input type="checkbox"/>	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
<input type="checkbox"/>	<i>Charidryas gabriellae</i> (Gabb's Checkerspot)
<input type="checkbox"/>	<i>Phycodes mylitta</i> (Mylitta Crescent)
<input type="checkbox"/>	<i>Thessalia leanira</i> (Leanira Checkerspot)
<input type="checkbox"/>	<i>Nymphalis antiopa</i> (Mourning Cloak)
<input type="checkbox"/>	<i>Basilaria lorquini</i> (Lorquin's Admiral)
<input type="checkbox"/>	<i>Junonia coenia</i> (Common Buckeye)
<input type="checkbox"/>	<i>Vanessa annabella</i> (West Coast Lady)
<input type="checkbox"/>	<i>Vanessa cardui</i> (Painted Lady)
<input type="checkbox"/>	<i>Vanessa virginiensis</i> (American Lady)
<input type="checkbox"/>	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
<input type="checkbox"/>	<i>Danaus gilippus</i> (Queen)
<input type="checkbox"/>	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
<input type="checkbox"/>	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
<input type="checkbox"/>	<i>Hylephila phyleus</i> (Fiery Skipper)
<input type="checkbox"/>	<i>Pyrgus albescens</i> (White Checkered-Skipper)
<input type="checkbox"/>	<i>Erynnis funeralis</i> (Funereal Duskywing)
<input type="checkbox"/>	<i>Erynnis tristis</i> (Mournful Duskywing)
<input type="checkbox"/>	<i>Erynnis propertius</i> (Properius Duskywing)
<input type="checkbox"/>	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
<input type="checkbox"/>	<i>Atides halesus</i> (Great Purple Hairstreak)
<input type="checkbox"/>	<i>Incisalia augustinus</i> (Western Brown Elfin)
<input type="checkbox"/>	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
<input type="checkbox"/>	<i>Strymon melinus</i> (Gray Hairstreak)
<input type="checkbox"/>	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
<input type="checkbox"/>	<i>Icaricia acmon</i> (Acmon Blue)
<input type="checkbox"/>	<i>Celastrina ladon</i> (Echo Blue)
<input type="checkbox"/>	<i>Lepidotes marina</i> (Marine Blue)
<input type="checkbox"/>	<i>Philotis sonorensis</i> (Sonoran Blue)
<input type="checkbox"/>	<i>Plebejus melissa</i> (Melissa Blue)
<input type="checkbox"/>	<i>Everes amyntula</i> (Western Tailed-Blue)
<input type="checkbox"/>	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
<input type="checkbox"/>	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
<input type="checkbox"/>	<i>Papilio eurymedon</i> (Pale Swallowtail)
<input type="checkbox"/>	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<input type="checkbox"/>	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
<input type="checkbox"/>	<i>Anthocharis cethura</i> (Desert Orange-tip)
<input type="checkbox"/>	<i>Anthocharis sara</i> (Sara's Orange-tip)
<input type="checkbox"/>	<i>Pieris rapae</i> (Cabbage White)
<input type="checkbox"/>	<i>Pontia protodice</i> (Checkered White)
<input type="checkbox"/>	<i>Colias eurytheme</i> (Orange Sulphur)
<input type="checkbox"/>	<i>Colias harfordii</i> (Harford's Sulphur)
<input type="checkbox"/>	<i>Eurema nicippe</i> (Sleepy Orange)
<input type="checkbox"/>	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
<input type="checkbox"/>	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

List nectar sources and observed	plant communities
<i>Acacia</i>	creosote
<i>Eriogonum</i>	creosote
<i>Yucca</i>	creosote
<i>Prosopis</i>	creosote
<i>Quercus</i>	creosote
<i>Juniperus</i>	creosote
<i>Artemisia</i>	creosote
<i>Chrysothamnus</i>	creosote
<i>Encelia</i>	creosote
<i>Opuntia</i>	creosote
<i>Sarcobatus</i>	creosote
<i>Artemisia</i>	creosote
<i>Chrysothamnus</i>	creosote
<i>Encelia</i>	creosote
<i>Opuntia</i>	creosote
<i>Sarcobatus</i>	creosote

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
 GPS all QCB occurrences
 GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
 Format: plant name diameter of occurrence density (low >20% cover per sq foot, medium 20-50%, high >50%) date observer
 CF = *Castilleja exserta*



Project Pipeline 3602

Surveyor Name: Lee Pigma

Date 2/25/15 Survey # 2

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1010	63.9	0	0-1
End	1330	75	0	2-4

Nymphalidae (Brush Footed Butterflies)	
<i>Euphydryas editha quino</i> (Quino Checkerspot)	
<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)	
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Thessalia leanira</i> (Leanira Checkerspot)	
<i>Nymphalis antiopa</i> (Mourning Cloak)	
<i>Basiliarchia lorquini</i> (Lorquin's Admiral)	
<i>Junonia coenia</i> (Common Buckeye)	
<i>Vanessa annabella</i> (West Coast Lady)	
<i>Vanessa cardui</i> (Painted Lady)	✓
<i>Vanessa virginianensis</i> (American Lady)	✓✓✓
<i>Vanessa atalanta</i> (Red Admiral)	
Danaidae	
<i>Danaus gilippus</i> (Queen)	
<i>Danaus plexippus</i> (Monarch)	✓
Hesperiidae	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	
<i>Hylephila phyleus</i> (Fiery Skipper)	
<i>Pyrgus albescentis</i> (White Checkered-Skipper)	
<i>Erynnis funeralis</i> (Funereal Duskywing)	✓✓✓✓✓
<i>Erynnis tristis</i> (Mourntail Duskywing)	✓✓✓✓✓
<i>Erynnis propertius</i> (Properitus Duskywing)	
<i>Ochlodes agricola</i> (Rural Skipper)	

	Lycaenidae (Hairstreaks)	
	<i>Allides halesus</i> (Great Purple Hairstreak)	
✓	<i>Incisalia augustinus</i> (Western Brown Elfyn)	
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)	
✓	<i>Strymon melinus</i> (Gray Hairstreak)	
	<i>Glaucopsyche lygdamus</i> (Silvery Blue) A+ N	
	<i>Icaricia acmon</i> (Acmon Blue)	
✓	<i>Celastrina ladon</i> (Echo Blue)	
	<i>Leptotes marina</i> (Marine Blue)	
	<i>Philotes sonorensis</i> (Sonoran Blue)	
	<i>Plebejus melissa</i> (Melissa Blue)	
	<i>Everses amyntula</i> (Western Tailed-Blue)	
	<i>Brephidium exilis</i> (Western Pygmy-Blue)	
	Riodinidae (Metamarks)	
✓	<i>Apodemia mormo virgulti</i> (Behr's Metalmark) X	
	Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)	
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)	
	<i>Papilio zelicaon</i> (Anise Swallowtail)	
	Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)	
	<i>Anthocharis sara</i> (Sara's Orangetip)	
	<i>Pieris rapae</i> (Cabbage White)	
✓	<i>Pontia protodice</i> (Checkered White)	
	<i>Colias eurytheme</i> (Orange Sulphur) H	
	<i>Colias harfordii</i> (Harford's Sulphur)	
	<i>Eurema nicippe</i> (Sleepy Orange)	
	<i>Nathalis iole</i> (Dainty Sulphur)	
	Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)	
	Others	
	<i>Melicope zephyrus</i> , <i>Lobelia mariae</i>	

List nectar sources and plant communities observed	
<i>Lespedeza cal</i>	<i>Pentstemon aurea</i>
<i>Dicholostema cory</i>	
<i>Thlaspi perfoliatum</i>	
<i>Corydalis</i>	
<i>Griffith</i>	

List notes and GPS point names here, please
write UTMs or Lat/Longs as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago*
erecta, *Plantago patagonica*, *Antirrhinum*
coulterianum,
Cordylanthus rigidus, *Castilleja exserta*, and
Collinsia heterophylla)
Format: plant_name_diameter of
occurrence_density (low >20% cover per sq foot,
medium 20-50%, high >50%)_date_observer
marked Chas. Poly Aug 13 2000
pg 1 of 200

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: CARLETT HUFFMAN

Date 3/4/15 Survey # 3

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0900	02	0	0-2
End	1330	67	0	3-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabii</i> (Gabb's Checkerspot)
	<i>Phycodes mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynis funeralis</i> (Funereal Duskywing)
	<i>Erynis tristis</i> (Mourning Duskywing)
	<i>Erynis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Ailodes halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
10	<i>Glaucopteryx jugoslavica</i> (Slivery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philyra sonchensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes mynula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
5	<i>Apodemia mormo virgulta</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
30	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harrfordii</i> (Harrford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed (Name, CNA, PRA, CSS):

Eriogonum fasciculatum, *Dichrostenosma capitata*, *Alum.*, *Adonis vernalis*, *Calochortus*, *Lathyrus vestitus*, *Urtica*, *Canadensis*, *Minimus*, *Aurantia*, *Californica*.

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer



Project Mar Mar 3602
Surveyor Name: B. Johnston
Date 3/4/15 Survey # 3

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0905	62	0	0-2 mph
End	1330	67	0	3-7

Nymphalidae (Brush Footed Butterflies)	
Euphydryas editha <i>quino</i> (Quino Checkerspot)	
Euphydryas chalcedona (Chalcedon Checkspot)	
Charidryas gabbii (Gabb's Checkerspot)	
Phycoides mylitta (Mylitta Crescent)	
Thessalia leanira (Leanira Checkerspot)	
Nymphalis antiopa (Mourning Cloak)	
Basilarchia lorquini (Lorquin's Admiral)	
Junonia coenia (Common Buckeye)	
Vanessa annabella (West Coast Lady)	
Vanessa cardui (Painted Lady)	
Vanessa virginiensis (American Lady)	
Vanessa atalanta (Red Admiral)	
Danaidae	
Danaus gilippus (Queen)	
Danaus plexippus (Monarch)	
Hesperiidae	
Heliopterus erictorum (Northern White-Skipper)	
Hylephila phyleus (Fiery Skipper)	
Pyrgus albescens (White Checkered-Skipper)	
Erynnis funeralis (Funereal Duskywing)	
Erynnis tristis (Mournful Duskywing)	
Erynnis propertius (Properius Duskywing)	
Ochlodes agricola (Rural Skipper)	

Lycaenidae (Hairstreaks)

Atides halesus (Great Purple Hairstreak)
Incisalia augustinus (Western Brown Elf)
Callophrys perplexa (Perplexing Hairstreak)
Strymon melinus (Gray Hairstreak)
Glaucopsyche lygdamus (Silvery Blue)
Icaricia acmon (Acmon Blue)
Celastrina ladon (Echo Blue)
Leptotes marina (Marine Blue)
Philotas sonorensis (Sonoran Blue)
Plebejus melissa (Melissa Blue)
Evers amytula (Western Tailed-Blue)
Brephidium exilis (Western Pygmy-Blue)

Riodinidae (Metalmarks)

Apodemia mormo <i>virgulti</i> (Behr's Metalmark)
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Papilionidae (Swallowtails)

Papilio eurymedon (Pale Swallowtail)
Papilio rutulus (Western Tiger Swallowtail)
Papilio zelicaon (Anise Swallowtail)

Pieridae (Whites and Orangetips)

Anthocharis cethura (Desert Orangetip)
Anthocharis sara (Sara's Orangetip)
Pieris rapae (Cabbage White)
Pontia protodice (Checkered White)
Colias eurytheme (Orange Sulphur)
Colias harfordii (Harford's Sulphur)
Eurema nicippe (Sleepy Orange)
Nathalis iole (Dainty Sulphur)

Satyridae (Satyrids)

Coenonympha californica (Common California Ringlet)
--

Others

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum coulterianum, Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

List nectar sources and plant communities observed
~~erodium~~ *achillea*, *solivamp*, *dicap*, *vicia*, *er. fac.*, *don. de*, *med. poly*, *ang.*, *arg.*, *specularia*, *pen. cal.*, *5. tent. gl.*, *lupinus*, *succ.*, *mint. aut.*, *er. ad. cass.*, *allium*, *plu.*, *th. p. glab.*, *col. nuc.*, *las. cal.*, *clarkii*, *pen. autem.*, *castilleja*, *da. d. n. m.*, *graptis*, *d. b. s. s. s. s.*, *hel. cretation*, *esch. s. cal.*, *pen. s. cal.*, *oxalis p. c.*, *craptation*, *pen. s. cal.*

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: MELANIE DUCUS

Date 03-04-2015 Survey # 3

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0900	62	0	0-2
End	1330	67	0	3-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
11	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
1	<i>Vanessa atalanta</i> (Red Admiral)
Danaiidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
HD	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis propertius</i> (Properthus Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Alloes halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Efin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
15	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
2	<i>Lepidotes marina</i> (Marine Blue)
	<i>Philytes sonorenensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
10	<i>Apodemia mormo virgulti</i> (Ehr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cephura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
6	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

List nectar sources and plant communities observed
ESS, CATAMISE CHAP
ACRISPAN GLABER ESCOCHOLEIA EA
DICHLOSTENNA CAPITATA LASTHEDIA GARGULUS
ALLIUM SP. DEINANDRA FASCICULATA
ERIOGONUM FASCICULATUM GRASSICA NIGRA
CRYPTANTHA SP. SISYRINCHIUM BUNUM
AMSNICKIA SP. NYMPHAEUS SP.
SILVENE BRILLICA HEDYPNOIS OLETHIUS
PLAGIOBOTHRUS SP. SISYMBRIUM BRILLICALE



Project MIRAMAR PISTOL RANGE

Surveyor Name: CARREN HUBBARD

Date 3/6/15 Survey #

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0850	66	0	0-2
End	1200	80	0	2-4

Nymphalidae (Brush Footed Butterflies)				
	<i>Euphydryas editha quino</i> (Quino Checkerspot)			
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			
1	<i>Charidryas gabrii</i> (Gabb's Checkerspot)			
	<i>Phycodryas mylitta</i> (Mylitta Crescent)			
	<i>Thessalia leanira</i> (Leanira Checkerspot)			
	<i>Nymphalis antiopa</i> (Mourning Cloak)			
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)			
2	<i>Junonia coenia</i> (Common Buckeye)			
	<i>Vanessa annabella</i> (West Coast Lady)			
10	<i>Vanessa cardui</i> (Painted Lady)			
	<i>Vanessa virginiensis</i> (American Lady)			
	<i>Vanessa atalanta</i> (Red Admiral)			
Danaidae				
	<i>Danaus gilippus</i> (Queen)			
	<i>Danaus plexippus</i> (Monarch)			
Hesperiidae				
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)			
	<i>Hylephila phyleus</i> (Fiery Skipper)			
	<i>Pyrgus albescens</i> (White Checkered-Skipper)			
10	<i>Erynnis funeralis</i> (Funereal Duskywing)			
	<i>Erynnis tristis</i> (Mournful Duskywing)			
	<i>Erynnis propretius</i> (Propretius Duskywing)			
	<i>Ochlodes agricola</i> (Rural Skipper)			

Lycaenidae (Hairstreaks)

	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
15	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philothes sororensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
30	<i>Apoxemia normo virgultii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
5	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
2	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%),_date_observer

AULAN SPECIES OBSERVED:
SAPH, CORA, WREN, HOLA,
CATO, BEAR, SAGS, BLOW,
WTSW, ANTHU, COYE, LASH,
NOMO, RUSE, CAQUA, GULO

List nectar sources and plant communities observed

CHAMISE (HAPPAEAL, CSS, GENSUANO)
DICTYOSPERMA CAPRITUM, PSEUDOCNATHALUM
CALIFORNICUM, EXCH SCHOENIZIA CALIFORNICA,
ADONIS CALASEL, CRIPARIUM X, BRADILUM,
ALLIUM SP, LATHYRUS VESTRUS,
GRILLOLUM FASCICULATUM, MINIMUM
ABRAJITLAGUS



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GAREN HUFFMAN
AND MONICA HUFFMAN

Date: 3/8/15 Survey # 4

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0930	68	0	2-6
End	1230	76	0	2-6
END	1330	77	0	2-4

MA
GH

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Cheridryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycodes mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
5	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus abescens</i> (White Checkered-Skipper)
15	<i>Erynnis funerals</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown EMin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
10	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Eversmannia</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
15	<i>Apodemia mormo virgultii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
10	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
5	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
CHAMISE CHAPARRAL, CSS
NON-NATIVE GRASSLAND
DICHLOSTEMMA CAPITATUM
ESCHSCHOLZIA CALIFORNICA, ALLIUM SA
MIMULUS AUENTIANUS, LATHRAEUS
VESTITUS, PUNISOPH GRABER,
ANAGALLIS ARVENSIS, LUPINUS
BICOLOR.

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum coultarianum,
Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

AVIAN LIST: RUP, CORA,
CATO, WEME, CASE, SEPTO,
MODO, YRWA, ANHU,
HOLA, WTSW, SAGS, CAKI,
LOVE, WREN, BUSH
CASTILLEJA - 5ft - 10w -
03082015 - GH
32.85713 - 117.08996
CASTILLEJA - 10ft - med -
03082015 - GH
32.85533 - 117.08896



NUN-PISTOL RANGE
SDG&E Natural Gas System Potential Upgrades

Surveyor Name: TAREK HUFFMAN

Date 3/10/15 Survey # 4

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0900	61	0	2-4
End	1600	80	25	1-5

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
14	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaiidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
45	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Ailides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
16	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
5	<i>Lepidotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Erephidum exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
17	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis calthura</i> (Desert Orange-tip)
5	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
10	<i>Colias eurytheme</i> (Orange Sulphur)
2	<i>Colias harteoidii</i> (Harford's Sulphur)
	<i>Eurema nioippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed CHAMISE CHAPARRAL, CSS
AUMISON GRABER, ALLIUM SP.,
DICTYLOSTEMMA CRISTATA,
VICIA, CLARKEA, ECHINOGONUM
FASCICULATUM, PSEUDOCAPITATUM
CALIFORNICUM, CORYTHOCLADUS
FLAUMINIFOLIA, ERADIAN,
ESCHSCHOLZIA CALIFORNICUM

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:

GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum ocularianum*,

Cordylanthus rigidus, *Castilleja exserta*, and *Collinsia heterophylla*)

Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

AVIAN SPECIES: HOLA,
LASE, YRWA, SAGS, WCSE,
SPTO, CATO, COFA, ANTH,
WREN, COVE, CAQU, BEWR,
RLSE, WENE, HOF, WTSW,
LEU, NANO, MOO, WBL,
RTTA.



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: MELANIE DUCUS

Date 03-10-2015 Survey # 4

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0900	61	0	2-4
End	1600	80	25	1-5

Nymphalidae (Brush Footed Butterflies)	
<i>Euphydryas editha quino</i> (Quino Checkerspot)	
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)	
<i>Charidryas gabrii</i> (Gabb's Checkerspot)	
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Thessalia leanira</i> (Leanira Checkerspot)	
<i>Nymphalis antiopa</i> (Mourning Cloak)	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	
<i>Junonia coenia</i> (Common Buckeye)	
<i>Vanessa annabella</i> (West Coast Lady)	
<i>Vanessa cardui</i> (Painted Lady)	14
<i>Vanessa virginiensis</i> (American Lady)	
<i>Vanessa atalanta</i> (Red Admiral)	
Danaiidae	
<i>Danaus gilippus</i> (Queen)	
<i>Danaus plexippus</i> (Monarch)	
Hesperiidae	
<i>Heliopterus ericetorum</i> (Northern White-Skipper)	
<i>Hylephila phyleus</i> (Fiery Skipper)	
<i>Pyrgus albescens</i> (White Checkered-Skipper)	
<i>Erynnis funeralis</i> (Funereal Duskywing)	65
<i>Erynnis tristis</i> (Mourntful Duskywing)	
<i>Erynnis propertius</i> (Properius Duskywing)	
<i>Ochlodes agnola</i> (Rural Skipper)	

Lycaenidae (Hairstreaks)	
<i>Atilides halesus</i> (Great Purple Hairstreak)	
<i>Incisalia augustinus</i> (Western Brown Elf)	
3 <i>Callophrys perplexa</i> (Perplexing Hairstreak)	
<i>Stymon melinus</i> (Gray Hairstreak)	
25 <i>Glaucopsyche lygdamus</i> (Silvery Blue)	
<i>Icaricia acmon</i> (Acmon Blue)	
<i>Celastrina ladon</i> (Echo Blue)	
11 <i>Lepidotes marina</i> (Marine Blue)	
<i>Philotis sonorensis</i> (Sonoran Blue)	
<i>Plebejus melissa</i> (Melissa Blue)	
<i>Evers amyntula</i> (Western Tailed-Blue)	
<i>Erephidium exilis</i> (Western Pygmy-Blue)	
Riodinidae (Metalmarks)	
25 <i>Apodemia mormo virgulti</i> (Behr's Metalmark)	
Papilionidae (Swallowtails)	
<i>Papilio eurymedon</i> (Pale Swallowtail)	
<i>Papilio rutulus</i> (Western Tiger Swallowtail)	
<i>Papilio zelicaon</i> (Anise Swallowtail)	
Pieridae (Whites and Orangetips)	
<i>Anthocharis celthura</i> (Desert Orangetip)	
4 <i>Anthocharis sara</i> (Sara's Orangetip)	
<i>Pieris rapae</i> (Cabbage White)	
<i>Pontia protodice</i> (Checkered White)	
9 <i>Colias eurytheme</i> (Orange Sulphur)	
3 <i>Colias harteolii</i> (Harford's Sulphur)	
<i>Eurema nicippe</i> (Sleepy Orange)	
<i>Nathalis iole</i> (Dainty Sulphur)	
Satyridae (Satyrids)	
<i>Coenonympha californica</i> (Common California Ringlet)	
Others	
1 <i>Colias eurytheme</i> (Orange Sulphur)	

List nectar sources and plant communities observed	
CSS, CHANISE CHAPARRAL, BUCKLEBERRY	
ANISACIA HELIANTHUS VICIA	
PUGIONOPUS DENANDRA	
CERYPHIA ALLIUM	
PHACELIA SILENE	
LYNCHUS PENTACANTHA	
LASTIGIA HEDYPNOS	
ERODIUM HYPOCHERES	
ACNISPON ERODIUM	
BUSSICA	

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: CARLETT HUGMAN

Date 3/15/15 Survey # 5

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0900	78°	30%	4-8
End	1300	91°	30%	4-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
2	<i>Charitryas gabbi</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
9	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Heperidae	
	<i>Heliopterus erictorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
15	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis propertius</i> (Properitius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Efin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
3	<i>Glaucopteryx lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
8	<i>Apodernia mormo virgultii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
10	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
7	<i>Colias eurytheme</i> (Orange Sulphur)
2	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed (HAMISE CHAPARRAL, CSS NON-NATIVE GRASSLAND, AMERICAN GRASSLAND, ERIOGONUM FASCICULATUM, OREGONOSTEMMA CAPRATUM, VESTITUM, LUPINUS BICOLOR, RESCHAEULZIA CALIFORNICUS, ANAGALLIS ALVENSIS)

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer
AVILA SPECIES: RNA, CORA, BUSH, WENE, HO LA, BULF, CAGN, SOTO, CATO, WLSR, RLSR, MODO, ANHU, SALS, WREN.



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARET HUFFMAN

Date 03/17/15 Survey # 5

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	68	40	2-7
End	1545	80	75	2-8

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
1	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus erictorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
22	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis proterius</i> (Proterius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

List nectar sources and plant communities observed
CSS, CHAMISE CARRIZAL, AMYGDALUS, ELADIVUM, BLOOMING FASCICULARUM, DICHOPELISMA CALIFORNICA, VICIA sp., NEIMANARA fascicularia, MELICUS INDIANUS, LAGRTIANA, ALUM, NAVARRETO HANANO, HELIANTHEMUM SIOBAGIUM, GLOMERIA CROCEA, SCHISMOLEIA CALIFORNICA, OXALIS

List notes and GPS point names here, please write UTMs or Lat/Longs as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coullerianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer
AVIAN SPECIES: HOVA, RISP, SALS, WACH, CADA, LASP, HOVA, WESP, LALO, CATO, BEUR, CATO, BLOW, SOTO, BUSH, NOFL, COPE, ANATA, HAFI, CALI, LOSA, WESL

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Strymon melinus</i> (Gray Hairstreak)
6	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
6	<i>Leptotes marina</i> (Marine Blue)
	<i>Philetes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Erephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
17	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis celhura</i> (Desert Orangetip)
10	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
10	<i>Colias eurytheme</i> (Orange Sulphur)
1	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: MCLANIE DUCS

Date 03-17-2015 Survey # 5

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	68	40	2-7
End	1545	80	75	2-8

Nymphalidae (Brush Footed Butterflies)				
	<i>Euphydryas editha quino</i> (Quino Checkerspot)			
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)			
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)			
	<i>Phycoides mylitta</i> (Mylitta Crescent)			
	<i>Thessalia leanira</i> (Leanira Checkerspot)			
	<i>Nymphalis antiopa</i> (Mourning Cloak)			
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)			
1	<i>Junonia coenia</i> (Common Buckeye)			
	<i>Vanessa annabella</i> (West Coast Lady)			
8	<i>Vanessa cardui</i> (Painted Lady)			
	<i>Vanessa virginiensis</i> (American Lady)			
	<i>Vanessa atalanta</i> (Red Admiral)			
Danailidae				
	<i>Danaus gilippus</i> (Queen)			
	<i>Danaus plexippus</i> (Monarch)			
Hesperiidae				
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)			
	<i>Hylephila phyleus</i> (Fiery Skipper)			
	<i>Pyrgus albescens</i> (White Checkered-Skipper)			
27	<i>Erynnis funeralis</i> (Funereal Duskywing)			
	<i>Erynnis tristis</i> (Mourntful Duskywing)			
	<i>Erynnis propertius</i> (Properius Duskywing)			
	<i>Ochlodes agricola</i> (Rural Skipper)			

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
3	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
14	<i>Leptotes marina</i> (Marine Blue)
	<i>Philetes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
40	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
6	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
9	<i>Colias eurytheme</i> (Orange Sulphur)
1	<i>Colias harteoidii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
observed
Palo Verde, Canyon, Mesquite, Acacia, Limnium, Erigeron fasciculatus, Lonicera, Hesperis, Helianthemum, Yucca, Agave, Hypochaeris, Adiantum, Agrostis, Gnaphalium, Baccharis, Sisymbrium, Eschscholzia, Navarretia, Bromelia, Oxalis, Eriogonum, Crandallia

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Carrie Huffman

Date 03/22/15 Survey # 0

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0930	64	25	3-7
End	1245	72	40	1-4

Nymphalidae (Brush Footed Butterflies)

	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
3	<i>Chandryas gabbi</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leania</i> (Leania Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
3	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Helikoptes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
7	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycenidae (Hairstreaks)

	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Efin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Stymon melinus</i> (Gray Hairstreak)
2	<i>Glaucopteryx lydamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
1	<i>Leptotes marina</i> (Marine Blue)
	<i>Philoetes sonoriensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
4	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
9	<i>Anthocharis sara</i> (Sara's Orangetip)
1	<i>Pieris rapae</i> (Cabbage White)
3	<i>Pontia protodice</i> (Checkered White)
	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities

observed CSS, Chamise Chaparral
Amaranth, Eriogonum, Ceanothus
Dichelostemma, Vestitus,
Lewins, Viola, Eriogonum

List notes and GPS point names here, please write UTM or Lat/Long as backup:

GPS all QCB occurrences

GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum

oculiterianum,

Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)

Format: plant name, diameter of

occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

AVIAN US - CAT, WORE

YTO, WSP, ALI, AMU,

ORA, WELI, GRS, BOUN

WAW, ULOO, RTHA, HOVA



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUTCHINSON

Date: 3/25/15 Survey # 6

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1000	70	0	8-1
End	1630	78	0	1-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
5	<i>Junonia coenia</i> (Common Buckeye)
1	<i>Vanessa annabella</i> (West Coast Lady)
5	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
1	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
27	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properitius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Stymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
32	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
19	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pteridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
4	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
2	<i>Pontia protodice</i> (Checkered White)
	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
CSS, CHAMISE CHAP
ALMOSPON, GRASSLAND
DELIANAPA, RABBITMINT
DILICHOLOSTEMA, YUCCA
LANTANA, ARIZONIAN, ALUM

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

AVIAN USE: BGLN,
CATO, HUA, DUSE, SPO,
MUOO, SAGS, WREN, LEOO,
SAGS, WREN, LEOO, WEA,
CATH, SOSE, BUSH, NOMO,
WEME, LASE, WEX



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: MELANIE DICUS

Date 03-25-2015 Survey # 6

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1000	70	0	0-1
End	1630	78	0	1-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
10	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
5	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
1	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
18	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
25	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
26	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
4	<i>Anthocharis sara</i> (Sara's Orange-tip)
1	<i>Pieris rapae</i> (Cabbage White)
3	<i>Pontia protodice</i> (Checkered White)
17	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
 CSS, CHANCE CAMP
 PLANTAINS, CRYPTANTHA,
 LUNATHUS, HELIANTHUS, LASTINIA,
 DEMANDRA, BLOOMERIA, PENTACHAETA,
 AICHALOSTOMA, AURISPA, EUDORON,
 NAGARDEA, PACTEA, DEPENDON,
 VERAPPUS

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
 GPS all QCB occurrences
 GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
 Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%),_date_observer

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	66	30	3-4
End	1130	81	40	3-5

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
1	<i>Chandryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycodes mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiastrachia lorquini</i> (Lorquin's Admiral)
2	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
1	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danalidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourning Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycanidae (Hairstreaks)	
	<i>Atides hariesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Styrion melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lydamus</i> (Sliver Blue)
	<i>Icaria acron</i> (Acron Blue)
	<i>Celastria ladon</i> (Echo Blue)
3	<i>Leptotes marina</i> (Marine Blue)
	<i>Philothes sonoriensis</i> (Sonoran Blue)
	<i>Phlebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
5	<i>Apodemia mormo virguli</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
10	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
1	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed	
SS	Delaware
	Vicia, Eriogonum, Erodium
	Saxa, Dicotyledonae
	Cedrantha, Mulla

List notes and GPS point names here, please write UTMs or Lat/Longs as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium: 20-50%, high >50%)_date_observer
AYAN LIST; LASE,
CATO, HOLA, SOSO, WEN,
WSP, RATA, WTSW, XTO,
MOP, WENE, YAH, SANS,
COTI, RUSE



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN
Date 4/1/15 SHARON WALSH Survey # 7

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0845	66	0	0-1
End	1630	71	0	3-6

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia torquini</i> (Lorquin's Admiral)
5	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
2	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
17	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycenidae (Hairstreaks)	
	<i>Atides haiesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
2	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
17	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
13	<i>Apodemia mormo virgilioi</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
3	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
21	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
observed CSS, CHAMISE CHAPARRAL
CHOROGALUM, CASTHAMIA, SILENE
PENARORA, ERIOGONUM, ACHILLES,
DICTYLOSTEMMA, CRYPTANTHA,
SALVIA, ESCHSCHOLZIA.

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Anilrrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

AVIAN LIST: WREN, HUA.
COHU, WEGO, LAS, NOMO,
CATO, BGUN, SOTO, SACS,
COBA, CAPU, WCSP, WEST,
BEUR, RCSP, COVE, AMCE,
WEME, BUSH, CATM



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: MELANIE DUCUS

Date 04-01-2015 Survey # 7

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0845	66	0	0-1
End	1630	71	0	3-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
1	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia torquini</i> (Torquin's Admiral)
3	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
2	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
11	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Propertius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycenidae (Hairstreaks)

	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Inisaila augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lygdamus</i> (Silvery Blue)
	<i>Icaricia acron</i> (Acron Blue)
	<i>Celastrina ladon</i> (Echo Blue)
30	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonoriensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)

Riodinidae (Metalmarks)

15	<i>Apodemia mormo virgult</i> (Behr's Metalmark)
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Papilionidae (Swallowtails)

	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)

Pieridae (Whites and Orangetips)

	<i>Anthocharis cethura</i> (Desert Orangetip)
2	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)

Others

3	<i>Pontia protodice</i> (Checkered White)
21	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)

Satyridae (Satyrids)

	<i>Coenonympha californica</i> (Common California Ringlet)
--	--

Others

3	<i>SPERIDIA CALLIPPE COMSTOCKI</i>
1	<i>SATYRIUM SAEPIUM</i>

List nectar sources and plant communities

observed *PS, CHANSE CHAP*
ELIOBLAND FASCICULATA, ADONIS STOMA FASCICULATA,
DEINANDRA FASCICULATA, SWIRIA MELIFERA,
CHAPTALIA, ADONIS STOMA FASCICULATA,
BRASSICA NIGRA, DESCHODIA CALIFORNICA,
ANTHRANUS NUTALLIANUS, EUPHYDRAS
CONFERTIFLORUS, GLOBULARIA OCCIDENTALIS,
CELEBRANDIA, GONCHUS ASPER, SILVESTRIELLA,
HELIANTHUS SCOPARIUM, SCOPARIA MONTANA

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

ROCKS

BIOLOGICAL CONSULTING

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Garrett Hageman

Date 4/5/15 Survey #

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0930	70	40	2-5
End	1330	72	30	4-6

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
1	<i>Charidryas gabbi</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaiidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
1	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philoetes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
1	<i>Apodemia mormo virguli</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis celthura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
3	<i>Pontia eurytheme</i> (Orange Sulphur)
	<i>Colias harrfordii</i> (Harford's Sulphur)
	<i>Eureria nicippe</i> (Sleepy Orange)
	<i>Nathalis icile</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
 CSS, CHAMISE CARPACAC
 DELANORA, RELACION
 AMISON, CRYPTANTHUS
 CALVIA, VICIA, CALOCHEUS

List notes and GPS point names here, please write UTM's or LatLongs as backup:
 GPS all QCB occurrences
 GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum coulterianum, Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)
 Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

AVIARY LIST: WASH, SAND, HOTA ANAN, RATA, SAND, CUSU, COCA, CAXI, WASH, WASH, SAND, GASE, WASH, CATO, BLON.



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: MELANIE DUCUS

Date 04-06-2015 Survey # 8

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0915	64	40%	3-7
End	16	65	10%	7-10

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
2	<i>Junonia coenia</i> (Common Buckeye)
1	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
1	<i>Pyrgus albescens</i> (White Checkered-Skipper)
5	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourning Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)

	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
7	<i>Leptotes marina</i> (Marine Blue)
	<i>Philoetes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)

Rhodinidae (Metalmarks)

2	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
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Papilionidae (Swallowtails)

	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)

Pieridae (Whites and Orangetips)

	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
21	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias hartebecki</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)

Satyridae (Satyrids)

	<i>Coenonympha californica</i> (Common California Ringlet)
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Others

1	<i>SABERELLA CALLIPAE COMESTRUCU</i>
1	<i>SATYRIUM SABIAN</i>

List nectar sources and plant communities

observed *CSS, CHAPARRAL*
DEWARORA, ERodium, SILENE, SALVIA,
ELAEAGNUS, ACNISPON, SONCHUS,
CENTAUREA, JICHELLOSTEMMA, CALACTHOLUS,
MMULUS, OSNADENIA, NAVARRETTIA,
HELIANTHEMUM, CRYPTANTHA, SIMILEA,
SISYRINCHUM, ERIOHYMUS, HYBOCHERUS,
HEPHYROUS, ANTIRRHINUM

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer



NON PISTOL

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Gregory Hufman

Date 4/6/15 Survey # 8

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0915	64	40	3-7
End	1030	65	10	7-10

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia torquini</i> (Lorquin's Admiral)
2	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
1	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourning Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)

	<i>Atides haiesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
3	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lydamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
15	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
20	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
1	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
25	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
25	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities

observed CSS, CHAMISE CHAPARRAL

YULIA, ERIOGONUM, AMISPON
DEINANEA, SODIUM, DICKENSONIA,
ERIOPHYLLUM, LYCAENA, CRYPTANTHUS,
CALOCHORTUS, SALVIA, MINUUS

List notes and GPS point names here, please write UTMs or Lat/Longs as backup:

GPS all QCB occurrences

GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*,

Cordylanthus rigidus, *Castilleja exserta*, and *Collinsia heterophylla*)

Format: plant name, diameter of

occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

*AVIAN LIST: CATO, SOTO, RISP,

WREN, SAGS, ZELW, HOLA,

CUSW, WEME, NOMO, SAPA,

CORA, WTSW, CAQU, CACK,

BAWR, HOFI, CATH, ANHU,

JUVU, RTHA, BUSH



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: CAROL HUFFMAN

Date 04/12/15 Survey # 9

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1215	77	0	2-4
End	1515	81	0	2-5

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
2	<i>Charidryas gabii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia torquini</i> (Lorquin's Admiral)
1	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Helopetes ericetorum</i> (Northern White-Skipper)
1	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properthus Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia angustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Slivery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastria ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
4	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
1	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
3	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Euremia nicippe</i> (Sleepy Orange)
	<i>Nathalis icle</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
observed CSS, CHAMISE CARRIZAL
DEJANA NORA, HYALONUM, DICHOTOMENNA,
AMISON, CHASCOCETUS, DICHOTOMENNA,
PSYCHOGRAPHUM, EROD, CROTANTIA,
SAVANA VILCA, MINUMUS, BLOOMER

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum coulterianum, Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer
AVIAN SPECIES: HOLA, SOTO, CATO, SAGS, UEME, UEN, CATH, NOMO, SOSE, UEGO, CLSW, CORA, LOVE, WICK



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HURMAN

Date 4/15/15 Survey # 9

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	67	Ø	0-2
End	1600	80°	Ø	4-10

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
2	<i>Junonia coenia</i> (Common Buckeye)
1	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
9	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourning Duskywing)
	<i>Erynnis propretius</i> (Propretius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

List notes and GPS point name write UTM's or Lat/Longs as base
GPS all QCB occurrences
GPS all potential host plant localities
erecta, *Plantago patagonica*, *Artemisia tridentata*, *Coultarianum*, *Cordylanthus rigidus*, *Castilleja*, *Collinsia heterophylla*
Format: plant name, diameter of occurrence, density (low >20%, medium 20-50%, high >50%), data

AVIAN LIST:
SAGS, HUEI, BGLM, CARO, HOLA, SOSP, COZA, WREN, VEGO, MOON, LASE, RTHA,

Lycaenidae (Hairstreaks)	
	<i>Atides haiesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acron</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
5	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Graphidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
5	<i>Apodemia mormo virgulti</i> (Bahr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
4	<i>Pontia protodice</i> (Checkered White)
17	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
CSS; CHAMISE CHAPARRAL
DRAINAGE, FRIEDLAND, GARDEN, AGASSIZ, DICHLOSTEMMA, NIDA, CALCHORUS



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Robert Huffman

Date 9/16/15 Survey # 9

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1100	84	0	5-7
End	1830	76	0	5-8

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
6	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
1	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
9	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynnis funealis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Efin)
	<i>Callophrys perplexa</i> (Perplexing Hairs:reak)
3	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lygdamus</i> (Silvery Blue)
	<i>Icaria acron</i> (Acron Blue)
	<i>Celastrina ladon</i> (Echo Blue)
3	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers anantula</i> (Western Tailed-Blue)
1	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
6	<i>Apodemia mormo virguli</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
1	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
6	<i>Pontia protodice</i> (Checkered White)
10	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis icile</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
CSS, CHAMISE CHAPARRAL
DEMANORA, ALMISON, ERIONOMUM,
ERODIUM, MINIMUMS, PSEUDO GARDIA
CALOCHARIS, BLOOMERIA,
SAULIA

List notes and GPS write UTM's or Lat/L
GPS all QCB occur
GPS all potential hc
erecta, *Plantago pa*
coulterianum,
Cordylanthus rigidu
Collinsia heterophy
Format: plant name
occurrence_density
medium 20-50%, hi

Asian
Spikes:
MOMO
MOOO
HOF1
LEGO
SPOT
SAGS
HOLA
CATO
BUN
LOSH
COKE
BUSH
WREN
WASO
LENI



ROCKS
BIOLOGICAL CONSULTING

21500 N. 10th Ave

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Garrett Huffman

Date 4/19/15 Survey # 10

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	76	0	1-3
End	1245	82	10	2-7

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia borquini</i> (Lorquin's Admiral)
1	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus erictorum</i> (Northern White-Skipper)
2	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
0	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
2	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philothes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
9	<i>Apodemia morio virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
11	<i>Pontia protodice</i> (Checkered White)
5	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	

List nectar sources and plant communities observed
CSS, Chamise Chaparral
Dianthus, Eriogonum, Eucalyptus, Salvia, Ceanothus, Vicia

List notes and GPS point names here, please write UTM's or LatLongs as backup:

GPS all QCB occurrences
GPS all potential host plant locations (Plantago erecta, Plantago patagonica, Antirrhinum

oculiterianum,

Cordylanthus rigidus, Castilleja exserta, and

Collinsia heterophylla)

Format: plant_name_diameter of

occurrence_density (low >20% cover per sq foot,

medium 20-50%, high >50%)_date_observer

Avar species: SAGS,

Apur, Bewe, Cora mooo,

Caro, Lelo, RCP, HOLA,

wene, wene, wtsu,

SAGS, nono, HOFI, CUSO,



SDG&E Natural Gas System Potential Upgrades 3602

Surveyor Name: B. Lohstroh

Date: April 24, 2015 Survey # 10

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	71	100	0-2
End	1445	80	60	3-8

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)
2	<i>Junonia coenia</i> (Common Buckeye)
1	<i>Vanessa annabella</i> (West Coast Lady)
3	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaldae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Helikoptes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
14	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourning Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Efin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
1	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Oelandia lada</i> (Echo Blue)
H	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
5	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
3	<i>Pontia protodice</i> (Checkered White)
12	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harrfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
11	Redwings Blue
1	Commonstock Fr. Hairy

List nectar sources and plant communities observed: *Eri. fac.*, *Dier. fac.*, *Erodium* spp., *Sed. mel.*, *Reseda*, *Mim. aur.*, *Cal. spl.*, *Redogon*, *Ac. misson glab.*, *Stephanomeria*, *Asm. ten.*, *Ant. Nut.*, *Cryp.*, *int.*, *Chimlogalum*, *Pav. Nam.*, *Bloomeria clare.*, *Cirsium* spp., *Vicia* (several), *Cal. Mac.*, *Solanum* sp., *Eriophorum*, *Bradiaca*, *occutia*, *sid. mal.*, *Hel. scia*, *cheimactis*, *Hyp. glob.*, *Eschola*, *cal. me.*, *Nad. com.*, *stachys*, *solanum*, *PE* observed, *serotum*.

List notes and GPS point names here, please write UTM's or LatLongs as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Anthriscum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer



ROCKS
BIOLOGICAL CONSULTING

PISTOL RANGE

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: CARLETT HUFFMAN

Date 4/20/15 Survey # 11

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	11:55	76	30	2-5
End	14:45	74	10	3-7

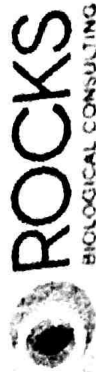
Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
2	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycodes mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
3	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
1	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
1	<i>Hyalephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
4	<i>Erynnis funerals</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycenidae (Hairystreaks)	
	<i>Alydus haiaesus</i> (Great Purple Hairystreak)
	<i>Lydisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairystreak)
	<i>Strymon melinus</i> (Gray Hairystreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Acraea acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
10	<i>Leptotes mariae</i> (Marine Blue)
	<i>Philotis sonoriensis</i> (Sonoran Blue)
	<i>Elebeus melissa</i> (Melissa Blue)
	<i>Eversmannia</i> (Western Tailed-Blue)
1	<i>Erephidulum exilis</i> (Western Pigmy-Blue)
Itiodiniidae (Metalmarks)	
2	<i>Apodemia mortoni</i> (Baird's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaen</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis calhouni</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
10	<i>Pontia protodice</i> (Checkered White)
6	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
	(<i>AMSTOCKS RELIANCE</i>)
	(<i>SAFERIA CALYPSO</i>)

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS: all QC's occurrences
GPS: all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cortylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

AVIAN SPECIES
CAL: MONO, PLOU,
BGGN: HOLA, ANTH,
GASS, RUSP, WARR,
LEGO, SALS, COTE

List nectar sources and plant communities observed: (SS, CHANSE CHABARRA)
OUR ANORA, BRADONUM
VICA



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Garrett Huffman

Date 4/21/16 Survey # 10

Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg mph)
Start	0900	71	100
End	1445	80	60

Mymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quercus</i> (Quercus Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charitodes gabrie</i> (Gabrie's Checkerspot)
	<i>Charitodes mylitta</i> (Mylitta Checkerspot)
	<i>Phycodonta leucura</i> (Leucura Checkerspot)
	<i>Myiophila antioquia</i> (Mantling Oar)
	<i>Basilearchia brizalis</i> (Longhorn Admiral)
	<i>Junonia oenone</i> (Common Buckeye)
3	<i>Vanessa annabensis</i> (West Coast Lady)
2	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa Atlanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Hylephes ecelorum</i> (Northern White Skipper)
	<i>Hylephila phytus</i> (Fey Skipper)
	<i>Pyrgus albescens</i> (White Checkered Skipper)
16	<i>Erynnis lunaris</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mountain Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochloides agnicola</i> (Rural Skipper)

Lycanidae (Hairstreaks)	
	<i>Atides haesus</i> (Great Purple Hairstreak)
	<i>Inisania agustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Pe'plexing Hairs reek)
	<i>Stymon nelinus</i> (Gray Hairstreak)
	<i>Glaucopteryx ijdamus</i> (Sivory Blue)
	<i>Caraca acron</i> (Acron Elve)
	<i>Celastina ladon</i> (Echo Blue)
9	<i>Leptotes marina</i> (Marine Blue)
	<i>Phibotes sonotensis</i> (Sonoran Blue)
	<i>Phibetes melissa</i> (Melissa Blue)
	<i>Everes arynitula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metamarks)	
9	<i>Apodemia mormo virgata</i> (Behr's Metamark)
Papilionidae (Swallowtails)	
	<i>Papilio eumydon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zerican</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cithura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
5	<i>Pontia protodice</i> (Checkered White)
15	<i>Colias eurhythme</i> (Orange Sulphur)
	<i>Colias harfordi</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis icie</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
5	<i>Euclyptotes beverdingi</i>

List notes and GPS point names here, please write UTM's or LatLongs as backup:
GPS all QCB occurrences
GPS all potential host plant local one (Plantago erecta, Plantago patagonica, Anilurthium coulerianum, Cordylanthus rigidus, Castilleja exserta, and Collinsia heterophylla)
Format: plant name, diameter of occurrence, density (low >20% cover, per sq foot, medium 20-50%, high >50%), date, observer
AVIAN: WEKI, WENE, RCLP, ANHU, CARO, SPTO, SLO, COCA, BULW, NOMO, TBLU, WKEN, WSW, ROMA, UGO, CARH, HOLA, BUSK, WAX, HOFI, MUDU

List nectar sources and plant communities observed
C.S.S. (HAMISE CHAPARRAL)
DEMANARA, FLEOBANUM, BASILICA, PSEUDO GONAPHALUM, JSAIDENA, CALOCOTYONS, SALINA, (RAPTARUM, VILVA



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Gregory Huxman

Date 4/30/15 Survey # 11

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	78	5	2-4
End	1500	87	1	4-8

Nymphalidae (Brush Footed Butterflies)				
	<i>Euphydryas editha quino</i> (Quino Checkerspot)			
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			
1	<i>Charidryas gabbi</i> (Gabb's Checkerspot)			
	<i>Phycoides mylitta</i> (Mylitta Crescent)			
	<i>Thessalia leanira</i> (Leanira Checkerspot)			
	<i>Nymphalis antiopa</i> (Mourning Cloak)			
	<i>Basiliarchia lorquini</i> (Lorquin's Admiral)			
2	<i>Junonia coenia</i> (Common Buckeye)			
	<i>Vanessa annabella</i> (West Coast Lady)			
	<i>Vanessa cardui</i> (Painted Lady)			
	<i>Vanessa virginiensis</i> (American Lady)			
	<i>Vanessa atalanta</i> (Red Admiral)			
Danaidae				
	<i>Danaus gilippus</i> (Queen)			
	<i>Danaus plexippus</i> (Monarch)			
Hesperiidae				
	<i>Heliopetes ericetorum</i> (Northern White-Skipper)			
1	<i>Hylephila phyleus</i> (Fiery Skipper)			
	<i>Pyrgus albescens</i> (White Checkered-Skipper)			
7	<i>Erynnis funeralis</i> (Funereal Duskywing)			
	<i>Erynnis tristis</i> (Mournful Duskywing)			
	<i>Erynnis propertius</i> (Properius Duskywing)			
	<i>Ochlodes agricola</i> (Rural Skipper)			

Lycenidae (Hairstreaks)

	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Calophrys perplexa</i> (Perplexing Hairstreak)
	<i>Styrmon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lygdamus</i> (Silvery Blue)
	<i>Icaria acron</i> (Acron Blue)
	<i>Celastrina ladon</i> (Echo Blue)
1	<i>Leptotes marina</i> (Marine Blue)
	<i>Philoetes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
2	<i>Apodemia normo virgulii</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
17	<i>Pontia protodice</i> (Checkered White)
12	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
3	<i>HEGARDIN'S BLUE</i>
1	<i>CA SISTER</i>
2	<i>COMMON PETERBURY</i>

List nectar sources and plant communities observed

CSS CHAMISE

CHAPARRAL

DRUNANITA, REDWOOD,

ERIOGONUM, AGRISPORE

SALVIA, CROCANthemum,

CALICIFLORES

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:

GPS all QCB occurrences

GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*,

Cordylanthus rigidus, *Castilleja exserta*, and *Collinsia heterophylla*)

Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer

AVIAN SPECIES:

CATO, COCA, HOLA, CAQUI, SPTO, MODO, COFE, WRECH, NOMO, SALUS, CATH, RTTA, SPTO, SAPH, ANOTA, BGRN, UEGO



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Melanie Rocks

Date 4/30/2015 Survey # 11

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	78	5%	2-4
End	1500	97	1%	4-8

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkspot)
11	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
1	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
12	<i>Erynnis funeralis</i> (Funereal Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Stymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lydamus</i> (Silvery Blue)
	<i>Icaria acron</i> (Acron Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philoetes scrorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
1	<i>Evers amynula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
2	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orangetips)	
	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
9	<i>Pontia protodice</i> (Checkered White)
14	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyritids)	
6	<i>Coenonympha calliorica</i> (Common California Ringlet)
Others	
10	Un-ID White
1	Mourning Cloak

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Anilirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

List nectar sources and plant communities observed

DCSS, Chanise Chaparral,
WNB, DIST/DEV
Dei base, osmodenia, Placera
Eri base, Crocanthum



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Carsten Hugman

Date 5/3/15 Survey # 12

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1200	75	30	3-6
End	1445	79	15	4-8

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabrii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Myitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heilopetes ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Pyrgus funealis</i> (Funereal Duskywing)
5	<i>Erynnis tristis</i> (Mourning Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalla augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lydamus</i> (Silvery Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
2	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotis sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
2	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
3	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
4	<i>Pontia protodice</i> (Checkered White)
3	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyritids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
3	<i>Consalix's</i> <u>fertuary</u>
2	<u>beeping blue</u>

List nectar sources and plant communities observed
CS, Chamise Chaparral
Deinandra, Erigonum

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
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GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant name, diameter of occurrence, density (low >20% cover per sq foot, medium 20-50%, high >50%), date, observer
Avian species; HOLA,
RCS, LSW, LOTO,
Seto, WOE, HOF,



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: Lee Kipma

Date 5/6/15 Survey # 12

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	10:00	70.4	100%	1-4
End	1320	70.1	100%	2-5

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbii</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericatorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
	<i>Erynnis funeralis</i> (Funereal Duskywing) <u>1</u>
	<i>Erynnis tristis</i> (Mourntful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)

	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elf)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopteryx lydamus</i> (Sivory Blue)
	<i>Icaricia acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Evers amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)

Riodinidae (Metalmarks)

	<i>Apodemia mormo virgult</i> (Behr's Metalmark)
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Papilionidae (Swallowtails)

	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)

Pieridae (Whites and Orangetips)

	<i>Anthocharis cethura</i> (Desert Orangetip)
	<i>Anthocharis sara</i> (Sara's Orangetip)
	<i>Pieris rapae</i> (Cabbage White)
	<i>Pontia protodice</i> (Checkered White)
	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)

Satyridae (Satyrids)

	<i>Coenonympha californica</i> (Common California Ringlet)
--	--

Others

List nectar sources and plant communities observed

Deinandra fasc.

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
GPS all QCB occurrences
GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer



SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN

Date 5/10/15 Survey # 12

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1000	70.4	100	1-4
End	1630	68	90	3-8

Nymphalidae (Brush Footed Butterflies)	
	<i>Euphydryas editha quino</i> (Quino Checkerspot)
	<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)
	<i>Charidryas gabbi</i> (Gabb's Checkerspot)
	<i>Phycoides mylitta</i> (Mylitta Crescent)
	<i>Thessalia leanira</i> (Leanira Checkerspot)
	<i>Nymphalis antiopa</i> (Mourning Cloak)
	<i>Basilarchia lorquini</i> (Lorquin's Admiral)
	<i>Junonia coenia</i> (Common Buckeye)
	<i>Vanessa annabella</i> (West Coast Lady)
1	<i>Vanessa cardui</i> (Painted Lady)
	<i>Vanessa virginiensis</i> (American Lady)
1	<i>Vanessa atalanta</i> (Red Admiral)
Danaidae	
	<i>Danaus gilippus</i> (Queen)
	<i>Danaus plexippus</i> (Monarch)
Hesperiidae	
	<i>Heliopterus ericetorum</i> (Northern White-Skipper)
	<i>Hylephila phyleus</i> (Fiery Skipper)
	<i>Pyrgus albescens</i> (White Checkered-Skipper)
5	<i>Erynnis funealis</i> (Funeral Duskywing)
	<i>Erynnis tristis</i> (Mournful Duskywing)
	<i>Erynnis propertius</i> (Properius Duskywing)
	<i>Ochlodes agricola</i> (Rural Skipper)

Lycaenidae (Hairstreaks)	
	<i>Atides halesus</i> (Great Purple Hairstreak)
	<i>Incisalia augustinus</i> (Western Brown Elfin)
	<i>Callophrys perplexa</i> (Perplexing Hairstreak)
	<i>Strymon melinus</i> (Gray Hairstreak)
	<i>Glaucopsyche lygdamus</i> (Silvery Blue)
	<i>Icaria acmon</i> (Acmon Blue)
	<i>Celastrina ladon</i> (Echo Blue)
4	<i>Leptotes marina</i> (Marine Blue)
	<i>Philotes sonorensis</i> (Sonoran Blue)
	<i>Plebejus melissa</i> (Melissa Blue)
	<i>Everes amyntula</i> (Western Tailed-Blue)
	<i>Brephidium exilis</i> (Western Pygmy-Blue)
Riodinidae (Metalmarks)	
1	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
Papilionidae (Swallowtails)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Pieridae (Whites and Orange-tips)	
	<i>Anthocharis cethura</i> (Desert Orange-tip)
	<i>Anthocharis sara</i> (Sara's Orange-tip)
	<i>Pieris rapae</i> (Cabbage White)
1	<i>Pontia protodice</i> (Checkered White)
3	<i>Colias eurytheme</i> (Orange Sulphur)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dainty Sulphur)
Satyridae (Satyrids)	
	<i>Coenonympha californica</i> (Common California Ringlet)
Others	
2	<i>BALDWINO RUE</i>

List nectar sources and plant communities observed CSS, CHAMISE CLIP

DEMANAPA, SEROTONUM,
ERODIUM

List notes and GPS point names here, please write UTM's or Lat/Long's as backup:
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GPS all potential host plant locations (*Plantago erecta*, *Plantago patagonica*, *Antirrhinum coulterianum*, *Cordylanthus rigidus*, *Castilleja exserta*, and *Collinsia heterophylla*)
Format: plant_name_diameter of occurrence_density (low >20% cover per sq foot, medium 20-50%, high >50%)_date_observer

AVIAN SPECIES:
SAGS, RCSE, CAPD, BGGW.
HWA, LEGO, WENI, SPO,
LASE, BUSH, WISSW, BLUE,
RTTA.