

APPENDIX D

2016 Focused Quino Checkerspot Butterfly Survey Report

August 22, 2016

9420-3

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
2177 Salk Avenue #250
Carlsbad, California 92008

Subject: 2016 Focused Quino Checkerspot Butterfly Survey Report for the Pure Water San Diego Program, County of San Diego, California

Dear Recovery Permit Coordinator:

This letter report documents the spring 2016 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino). This survey was conducted in support of the Pure Water San Diego Program project (Pure Water Program), located in the County of San Diego, California. The Pure Water Program is the City of San Diego's Public Utilities Department (PUD) proposed program to provide a safe, secure, and sustainable local drinking water supply for San Diego. The Pure Water Program consists of the design and construction of new advanced water treatment facilities, wastewater treatment facilities, pump stations, transmission lines, and pipelines. The Pure Water Program project site contains approximately 447 acres of potentially Quino-suitable habitat that were surveyed in 2016. This effort surveyed the current alignment, plus a 100-foot buffer where suitable habitat existed. However, buffer areas were not surveyed if intervening buildings or other large development occurred between the potential project area and the buffered habitat.

This report is intended to satisfy reporting requirements for the following Quino-permitted biologists:

- Brock Ortega, TE813545-6
- Greg Chatman, TE-075112-2
- Dale Powell, TE-006559-6
- Jun Powell, TE-006559-6

PROJECT LOCATION AND EXISTING CONDITIONS

Pure Water Program pipelines extend from the Cities of San Diego, Santee, and the community of Lakeside in unincorporated San Diego County, in addition to federal lands within MCAS Miramar (Figure 1, Regional Map), and meander in and out of U.S. Fish and Wildlife Service (USFWS)

required survey areas (USFWS 2014). The site occupies portions of Township 14 South, Range 1 East, unsectioned lands projected Sections 30, and 31; Township 14 South, Range 1 West, projected Sections 25, and 36; Township 14 South, Range 2 West, projected Sections 32, and 33; Township 15 South, Range 1 East, projected Sections 6, 7, and 18; Township 15 South, Range 1 West, projected Sections 1, 12, 13, 14, 21, 22, 23, 24, 28, 29, and 30; Township 15 South, Range 2 West, projected Sections 5, 6, 25, 29, 30, 31, 32, 33, 35, and 36; Township 15 South, Range 3 West, projected Sections 1, 8, 9, 10, 11, 12, 15, 16, 17, 20, 21, 22, 23, 25, 26, 28, 29, 32, 33, 35, and 36; and Township 16 South, Range 2 West, projected Sections 4, 5, 9, 19, 17, 20, 21, and 28 on the San Vicente Reservoir, El Cajon, La Mesa, Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).

Elevations range from about 2 feet above mean sea level in the southwestern portion of Pure Water Program area to approximately 1,230 feet above mean sea level.

Soils on site consist of acid igneous rock land; Altamont clay; Carlsbad gravelly loamy sand; Chestern fine sandy loam, Cieneba rocky and very rocky coarse sandy loam, Fallbrook sandy loam, loamy alluvial land-Hueruero complex; metamorphic rock land; Olivenhain cobbly loam; Redding cobbly and gravelly loam; riverwash; terrace escarpments; Tujunga sand; and Visalia sandy loam (SanGIS 2016).

SITE ASSESSMENT

The site assessment was completed in accordance with the USFWS December 2014 survey protocol. Protocol Quino surveys are recommended in suitable habitat areas, including sage scrub, open chaparral, grasslands, and communities that are observed in open or sparsely vegetated areas or hilltops and ridgelines. Excluded areas not recommended for Quino surveys include:

- Orchards, developed areas, or small in-fill parcels (plots smaller than an acre completely surrounded by urban development) largely dominated by non-native vegetation;
- Active/in-use agricultural fields without natural or remnant inclusions of native vegetation or that are completely without any fallowed or unplowed areas;
- Closed-canopy woody vegetation including forests, riparian areas, shrub-lands, and chaparral.

“Closed-canopy woody vegetation” describes shrubs or trees growing closely together in which the upper portions of the vegetation converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Closed canopy shrub-land and chaparral are defined as vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation (branches).

VEGETATION COMMUNITIES

Vegetation communities were mapped in spring 2016 by Dudek. Based on species composition and general physiognomy, 12 vegetation communities were identified on the Pure Water Program site and off-site mapping areas (Figure 3, Vegetation Communities). Their acreages are presented in Table 1. A total of approximately 450 acres were evaluated for focused Quino surveys; however, 429 acres were determined to be Quino-suitable habitat and were mapped on the Project site according to Holland (1986) and Oberbauer et al. (2008).

Table 1
Vegetation Communities and Land Cover Types on the Pure Water Program Site

Vegetation Community/Land Cover	Acres
<i>Suitable Quino Habitat</i>	
Southern Mixed Chaparral	88.7
Coast Live Oak Woodland	1.2
Coastal Sage Scrub ¹	164.1
Disturbed Coastal Sage Scrub ¹	31.0
Freshwater Marsh	1.7
Disturbed Habitat	63.6
Southern Arroyo Willow Riparian Forest	0.01
Southern Willow Scrub	0.2
Southern Sycamore–Alder Riparian Woodland	4.7
Non-Native Grassland	72.9
<i>Suitable Quino Habitat Total²</i>	429.3
<i>Excluded Quino Survey Areas</i>	
Agriculture	6.0
Open Water	1.1
Developed Land	13.7
<i>Excluded Quino Survey Area Total²</i>	20.8
Grand Total²	450.1

Notes:

¹ Coastal Sage Scrub subtotal is 195.1 acres.

² Numbers do not sum precisely due to rounding.

Agriculture

Agriculture refers to areas where irrigated row and field crops are being grown (i.e., intensive agriculture). This land has little biological resource value because it provides very limited habitat value for most native species. However, this area may supply grain and water for native and migratory birds. Approximately 6 acres supports agriculture, including fallow fields and non-

native vegetation. Agriculture was determined unsuitable Quino habitat during the site assessment due to being active, and therefore was not included in the focused Quino surveys.

Annual (Non-native) Grassland

Annual (non-native) grassland is characterized by a sparse to dense cover of annual grasses typically up to 2 feet tall, with many annual wildflowers also present in years with favorable rainfall. This vegetation community typically occurs on fine-textured soils that are moist or wet in the winter and very dry during summer and fall. Plant species present typically include wild oat (*Avena* spp.), bromes (*Bromus* spp.), tarweeds (*Centromadia* spp., *Deinandra* spp.), and filarees (*Erodium* spp.) (Holland 1986). In San Diego County, annual grassland often occurs where the native vegetation has been disturbed by grazing, fire, agriculture, or other activities.

A total of 72.9 acres of annual grassland communities was mapped on the project area. Where the disturbance has been frequent and/or intensive, the native vegetation community often does not recover. These areas are characterized by weedy, introduced annuals, primarily grasses, including especially slender wild oat (*Avena barbata*), bromes, mustards (*Brassica* spp. and *Sisymbrium* spp.), filarees, and Russian-thistle (*Salsola tragus*).

Small, open patches of annual (non-native) grassland communities on site were determined suitable for focused Quino surveys.

Coast Live Oak Woodland

Coast live oak woodland is a broad-leaved, sclerophyllous (stiff, firm-leaved) woodland dominated by coast live oak (*Quercus agrifolia*) trees that reach from 35 to 80 feet tall. The shrub layer is poorly developed but may contain native shrubs such as toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), and blue elderberry (*Sambucus nigra* ssp. *caerulea*). A continuous herb layer dominated by non-native grasses and herbs is typically present. In Southern California, coast live oak woodland typically occurs on north-facing slopes and in shaded ravines (Holland 1986).

Coast live oak woodland on site occurs as several scattered patches totaling 1.2 acres in the northern part of the Pure Water Program site. Coast live oaks form small homogeneous stands, with a disturbed understory that includes ripgut grass (*Bromus diandrus*), soft chess (*B. hordeaceus*), red brome (*B. madritensis* ssp. *rubens*), and slender wild oat. It is contiguous, or nearly so, with some areas of southern coast live oak riparian forest, but occurs slightly higher topographically and not in association with a drainage.

Coastal and Valley Freshwater Marsh

Coastal and valley freshwater marsh (freshwater marsh) typically is dominated by tall, perennial, emergent monocots, such as cattails and bulrushes. Freshwater marsh receives a more constant input of fresh water than cismontane alkali marsh, such as quiet, permanently flooded sites that develop deep, peaty soils (Holland 1986). These wetlands often develop where the water table is at or just above the ground surface, such as the margins of lakes, ponds, slow-moving streams, ditches, and seepages. Areas with greater than 50% non-native species are mapped as disturbed freshwater marsh.

On the Pure Water Program site, freshwater marsh occurs as several small patches in the southwest portion of the site near Interstate 5 (I-5). These areas are generally dominated by non-native or introduced hydrophytic species, including umbrella sedge (*Carex alternifolius*), rabbit's-foot grass (*Polypogon monspeliensis*), and Mexican fan-palm (*Washingtonia robusta*). One patch of freshwater marsh in a relatively natural area adjacent to the Santee Lakes access road is dominated by Mexican rush (*Juncus mexicanus*) and spiny cocklebur (*Xanthium strumarium*). In the central part of the site near sycamore alluvial woodland, freshwater marsh contains Mexican rush and yerba mansa (*Anemopsis californica*). Freshwater marsh was evaluated during the site assessment and included in the focused Quino surveys.

Coastal Sage Scrub Communities

The majority of the project area, approximately 195.1 acres, contains coastal sage scrub vegetation types. Large portions of the site that probably historically supported coastal sage scrub have been disturbed severely or repeatedly by fire or other activities, such as ranching and off-road vehicles. The history of human and natural disturbances, combined with varied environmental conditions such as slope and aspect, has resulted in sub-communities that are different variants of the presumed original Diegan coastal sage scrub vegetation.

Diegan coastal sage scrub (coastal sage scrub) is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac, and toyon. It typically develops on south-facing slopes and other xeric locations (Holland 1986).

Coastal sage scrub vegetation on site is dominated by California sagebrush and California buckwheat, with laurel sumac, spiny redberry (*Rhamnus crocea*), white sage (*Salvia apiana*),

black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*, a special-status plant), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, some patches are dominated by white sage; in the north, redberry is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitatum*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaureum venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat.

Disturbed coastal sage scrub communities contain relatively more non-native grasses and fewer native shrubs. Areas with native coastal sage scrub shrub cover greater than 20% are mapped as coastal sage scrub; areas with native shrub cover of 11% to 20% are mapped as disturbed coastal sage scrub; areas with native shrub cover of 5% to 10% are mapped as disturbed coastal sage scrub/annual grassland. In addition, transitional areas containing a mix of coastal sage scrub types and baccharis scrub, valley needlegrass grasslands, or southern mixed chaparral have been identified and mapped.

Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal wildlife agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75% to 80% of its historical coverage throughout Southern California. It is the focus of the current State of California Natural Community Conservation Planning program in Southern California.

Developed

Developed land refers to areas supporting man-made structures including buildings, yards, roadways, and other highly modified lands supporting structures associated with dwellings or other permanent structures. A total of 13.7 acres is mapped as developed land. However, since determined to be unsuitable Quino habitat during the site assessment, developed land was not included in focused Quino surveys.

Disturbed Habitat

Disturbed habitat refers to land that has little habitat value for native species due to lawful activities (San Diego County 2004). Disturbed habitat typically includes areas that lack vegetation entirely, generally as the result of severe or repeated mechanical perturbation, and areas dominated by invasive, broad-leaved (ruderal) species that typically develop on compacted soils following intense disturbance.

Approximately 63.6 acres on site is disturbed habitat. These areas would typically still satisfy USFWS-requirements as suitable habitat.

Open Water

Open water refers to areas that support standing water most or all of the year and do not contain any emergent vegetation. Open water totals 1.1 acres within the mapped project site. However, since determined to be unsuitable Quino habitat during the site assessment, open water was not included in focused Quino surveys.

Southern Arroyo Willow Riparian Woodland

Southern arroyo willow riparian woodland is described by Holland (1986) as a dense, low, closed-canopy broad-leaved, winter-deciduous woodland dominated by arroyo willow (*Salix lasiolepis*). Arroyo willow generally grows as a large, tree-like shrub. Characteristic species include white alder (*Alnus rhombifolia*), California wax myrtle (*Myrica californica*), and Pacific willow (*Salix lasiandra*). There is 0.01 acre of southern arroyo willow riparian woodland on site. Focused Quino surveys were conducted within open areas within southern arroyo willow riparian woodland.

Southern Sycamore–Alder Riparian Woodland

Southern sycamore–alder riparian woodland is described by Holland (1986) as a tall, open, broad-leaved, winter-deciduous streamside woodland dominated by well-spaced Western sycamore (*Platanus racemosa*) and often also white alder. Seldom forming closed canopy forests, these stands may appear as trees scattered in a shrubby thicket of sclerophyllous and deciduous species and are subject to seasonally high-intensity flooding. Characteristic species of this habitat type include California mugwort (*Artemisia douglasiana*), coast live oak, California blackberry (*Rubus ursinus*), California laurel (*Umbellularia californica*), and giant stinging nettle (*Urtica holosericea*). There are 4.7 acres of southern sycamore–alder riparian woodland on site.

Southern Mixed Chaparral

Southern mixed chaparral is a drought- and fire-adapted community of woody shrubs from 5 to 10 feet tall that often forms dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons and is characterized by crown- or stump-sprouting species that regenerate following fire. This association typically contains chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), wild lilac (*Ceanothus* spp.), California scrub oak (*Quercus berberidifolia*), and laurel sumac.

Southern mixed chaparral is the second most common vegetation type to coastal sage scrub in the project area, with approximately 88.7 acres in the project area. Due to its high-density cover, there is little or no understory in this community, except for in openings. The dominant species in the southern mixed chaparral on site are chamise, black sage, laurel sumac, coastal spicebush (*Cneoridium dumosum*), and mission manzanita. Understory species include rigid bird's beak (*Cordylanthus rigidus*), rock-rose (*Helianthemum scoparium*), and ashy spike-moss (*Selaginella cinerascens*). Focused Quino surveys were conducted within open areas within southern mixed chaparral.

Regionally, southern mixed chaparral is not considered a sensitive vegetation type; however, when it occurs in a mosaic distribution with other native communities, such as coastal sage scrub and oak woodland, it may be of high value for native wildlife, contributing to the overall habitat heterogeneity and patch size. Southern mixed chaparral that contains special-status plant species also may be considered sensitive.

Southern Willow Scrub

Southern willow scrub is a dense, broad-leaved, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.) that occurs on loose, large-grained alluvium along stream channels. The closed canopy inhibits the development of a diverse understory. It may contain scattered Fremont's cottonwood (*Populus fremontii*) and western sycamore trees emerging above the willow canopy and requires repeated flooding to avoid succession to a community dominated by these trees (Holland 1986).

On site, southern willow scrub occupies 0.2 acre in patches dominated by arroyo willow (*Salix lasiolepis*) and black willow, with an understory of mulefat (*Baccharis salicifolia*). Focused Quino surveys were conducted within open areas within southern willow scrub.

QUINO CHECKERSPOT BUTTERFLY SURVEY

Background Information

The Quino was added to the federal Endangered Species List by USFWS on January 16, 1997 (62 FR 2313–2322). The species (*E. editha*) has a range extending from British Columbia and Alberta, Canada, south through Colorado and Utah, and west along the coast to northern Baja California. It is divided into 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986). Three other subspecies of *E. editha* are currently known to occur in Southern California. The Quino is the southwestern most subspecies of *E. editha* (Mattoni et al. 1997).

The Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet). The plant communities include clay soil meadows, open grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodlands, and semi-desert scrub (Ballmer et al. 2001). The Quino is also associated with clay soils that possess cryptogamic crusts and vernal pools (USFWS 2002).

The Quino is a medium-sized butterfly (approximately 0.8-inch to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and have black markings on the dorsal wing surface. They are active primarily in March and April. This active period may vary depending on weather conditions (Ballmer et al. 2001). The adult butterfly feeds on nectar, which it obtains from spring annuals such as popcorn flower (*Cryptantha* spp.), Layia (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia intermedia*), chia (*Salvia columbariae*), and blue dicks, among others.

Adult males and virgin females sometimes “hilltop,” or travel to elevated locations to find mates. While waiting for females to arrive, the males will often exhibit “territorial behavior” and will chase other butterflies that approach them. Frequently, the butterflies are observed in meadows or clearings where their host plants occur (Ballmer et al. 2001).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. The eggs hatch in approximately 10 days under favorable weather conditions, and the young larvae will immediately begin to feed upon a host plant. The feeding larvae use the dotseed plantain (*Plantago erecta*), woolly plantain (*Plantago patagonica*), white snapdragon (*Antirrhinum coulterianum*), and Chinese houses (*Collinsia concolor*) as their host plants (Pratt 2009). Rigid bird’s beak and purple owl’s clover (*Castilleja exserta* ssp. *exserta*) are considered secondary hosts (USFWS 2002).

After feeding, the early larva enters an obligatory aestival diapause (dormant stage), which may be broken after fall or winter rains (Murphy and White 1984; Osborne 1998). If adverse weather conditions occur, the emergent larva may reenter a diapause stage repeatedly, for up to 5 or 6 years, until favorable weather conditions permit sufficient growth of the host plant to allow the larva to complete its development.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, and south into northern Baja California. Currently, it is known to occur only in a few, probably isolated, colonies in southwestern Riverside County, San Diego County, and northern Baja California.

Reasons for the butterfly's reduction in population are not well understood. Habitat loss due to degradation and fragmentation caused by urban and rural development, agricultural conversion, off-road-vehicular use, the invasion of non-native plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (62 FR 2313–2322).

Methods

Focused Quino Surveys

The surveys were conducted in accordance with the description in the most recent Quino checkerspot butterfly survey guidelines (December 15, 2014; USFWS 2014). According to the USFWS protocol, the first weekly survey shall begin during the third week of February, and the survey season will end the second Saturday in May. Surveys shall be conducted weekly and spaced no closer than 4 days apart (USFWS 2014).

Focused Quino surveys were conducted over 122 person days within a 13-week period between February 21, 2016, and May 23, 2016, per the USFWS protocol.

In accordance with current USFWS protocol, surveys were conducted by Quino-permitted biologists Brock Ortega (TE813545-6), Greg Chatman (TE075112-2), Dale Powell (TE006559-6), and Jun Powell (TE006559-6).

As noted, this effort surveyed the current alignment, plus a 100-foot buffer where suitable habitat occurs. However, buffer areas were not surveyed if intervening buildings or other large development occurred between the potential project area and the buffered habitat. Initially, there was more survey area, and then as the project was refined, less survey area was required. The ultimate survey areas are depicted on Figures 4 to 4G, Survey Areas). Defined "survey polygons" were not established as it was the intent that biologists would traverse through the linear alignment as daily weather and access allowed. In general, D. Powell and J. Powell surveyed from the west to the east while G. Chatman surveyed from the east to the west. At no time did the surveyors survey at a rate greater than 5 to 10 acres per hour (i.e., in accordance with USFWS protocol) resulting in 122 person days of effort. It should be noted that the survey area, alignments, and access were being refined during the first four survey passes, resulting in additional person days per pass when compared to the remaining eight passes. Due to the refinement, survey areas were modified and portions of the surveyed areas were eliminated (see Table 2, Schedule of Focused Quino Surveys). The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey area. These photographs were used for mapping host plant populations and Quino, if observed. Binoculars were used to aid in detecting

and identifying butterfly and other wildlife species. Global Positioning System (GPS) units also were available for recording locations of host plant populations.

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all suitable habitat (429-acres) within the approximately 450-acre survey area. Survey routes were arranged to thoroughly cover the survey area at a rate of approximately 5 to 10 acres per person hour. Data was collected using an electronic dataform.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 miles per hour measured 4 to 6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60° Fahrenheit (°F) on a clear, sunny day with less than 50% cloud cover; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day with 50% or more cloud cover. Survey times, personnel, and conditions during the Quino surveys are shown in Table 2, Schedule of Focused Quino Surveys, and Table 3, Schedule of Host Plant Mapping Surveys. Photocopies of the surveyor’s field notes are included as Appendix A.

Table 2
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Hours ¹	Conditions
<i>Survey Pass 1² – 80 Survey Hours Total</i>				
2/28/2016	10:00 AM–4:45 PM	DP, GC, JP	20:15	68°F–70°F; 0% cc; 1–3 mph to 4–6 mph wind
2/28/2016	1:10 PM–3:20 PM	BO	2	76°F–77°F; 20% cc–20% cc; 3–5 mph to 3 mph wind
2/29/2016	9:15 AM–3:15 PM	DP, GC, JP	18	63°F–64°F; 0% cc; 2–4 mph to 2–4 mph wind
3/1/2016	9:30 AM–3:00 PM	DP, GC, JP	16:30	68°F–80°F; 0% cc–20% cc; 2–4 mph to 4–6 mph wind
3/2/2016	9:30 AM–3:30 PM	GC	6	70°F–73°F; NR% cc; 1-2 mph to 3–5 mph wind
3/3/2016	9:00 AM–5:00 PM	GC	8	67°F–68°F; 0% cc; 2–4 mph wind
3/4/2016	9:30 AM–11:30 AM	GC	2	66°F–69°F; 0% cc; 2–4 mph wind
3/9/2016	9:15 AM–11:00 AM	DP, GC, JP	4:30	65°F–71°F; 0% cc; 1–2 mph wind
3/10/2016	2:30 PM–3:55 PM	DP	1:30	70°F; 80% cc–100% cc; 1–3 mph wind
3/10/2016	2:30 PM–3:55 PM	JP	1	70°F; 50% cc–100% cc; 1–4 mph wind
<i>Survey Pass 2 – 67 Survey Hours Total</i>				
3/8/2016	9:10 AM–4:30 PM	DP, GC, JP	22	60°F–68°F; 0% cc; 1–2 mph to 6–9 mph wind
3/9/2016	11:00 AM–4:30 PM	DP, GC, JP	16:30	67°F–71°F; 0% cc; 4–6 mph wind
3/10/2016	9:15 AM–4:45 PM	DP, GC, JP	22:30	70°F–74°F; 0% cc; 2–6 mph wind
3/11/2016	8:30 AM–2:30 PM	GC	6	NR°F; 0% cc; 1–2 mph to 4–8 mph wind
<i>Survey Pass 3 – 51 Survey Hours Total</i>				
3/5/2016	9:00 AM–10:00 AM	BO	1	65°F–67°F; 20% cc–30% cc; 3–5 mph to 3–5 mph wind
3/13/2016	9:30 AM–4:45 PM	DP, GC, JP	18:45	67°F–68°F; 0% cc–5% cc; 0–8 mph wind

Recovery Permit Coordinator

Subject: 2016 Focused Quino Checkerspot Butterfly Survey Report for the Pure Water San Diego Program, County of San Diego, California

Table 2
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Hours ¹	Conditions
3/13/2016	10:45 AM–3:20 PM	BO	4:30	71°F–73°F; 20% cc–30% cc; 3–5 mph to 5 mph wind
3/14/2016	1:15 PM–2:30 PM	DP, JP	2	70°F–72°F; 50% cc; 6 mph wind
3/15/2016	9:15 AM–3:30 PM	DP, GC, JP	18:45	64°F–71°F; 0% cc–15% cc; 1–6 mph wind
3/16/2016	10:30 AM–4:45 PM	GC	6	NR°F; 0% cc; 1–2 mph to 2–3 mph wind
<i>Survey Pass 4 – 55:30 Survey Hours Total</i>				
3/20/2016	10:00 AM–5:00 PM	DP, JP	21	61°F–75°F; 0% cc–70% cc; 1–3 mph wind
3/21/2016	12:00 PM–5:00 PM	DP, JP	10	67°F–68°F; 0% cc–65% cc; 3–6 mph wind
3/21/2016	10:00 AM–2:30 PM	GC	4:30	NR°F; 0% cc; 1–2 mph to 5–7 mph wind
3/22/2016	10:00 AM–4:00 PM	DP, GC, JP	18	61°F–70°F; 10% cc–60% cc; 4–6 mph wind
3/23/2016	10:00 AM–12:00 PM	GC	2	NR°F; 0% cc; 1–2 mph to 2–4 mph wind
<i>Survey Pass 5³ – 46:45 Survey Hours Total</i>				
3/27/2016	9:15 AM–5:15 PM	DP, JP	16	65°F–75°F; 0% cc–60% cc; 1–5 mph wind
3/29/2016	11:00 AM–3:30 PM	DP, JP	9	67°F–72°F; 10% cc–20% cc; 3–4 mph to 4–8 mph wind
3/30/2016	9:30 AM–3:45 PM	GC	6:15	61°F–67°F; 0% cc–25% cc; 2–5 mph wind
3/31/2016	9:00 AM–3:30 PM	GC	6:30	61°F–73°F; 0% cc; 1–7 mph wind
4/1/2016	10:30 AM–1:30 PM	DP, JP	6	66°F–72°F; 0% cc; 1–7 mph to 5–8 mph wind
4/2/2016	10:00 AM–1:00 PM	GC	3	71°F–81°F; 0% cc; 1–5 mph wind
<i>Survey Pass 6 – 47:15 Survey Hours Total</i>				
4/3/2016	10:00 AM–5:15 PM	DP, JP	15	68°F–79°F; 0% cc; 3–5 mph wind
4/4/2016	9:15 AM–4:30 PM	DP, JP	14:30	68°F–74°F; 0% cc; 0–4 mph wind
4/4/2016	10:00 AM–4:45 PM	GC	6:45	76°F–80°F; 0% cc; 3–6 mph wind
4/5/2016	10:00 AM–4:00 PM	GC	6	70°F–82°F; 0% cc; 0–4 mph wind
4/5/2016	9:30 AM–11:30 PM	DP	2	68°F–80°F; 10% cc–20% cc; 0–4 mph wind
4/6/2016	9:30 AM–12:30 PM	GC	3	75°F–85°F; 0% cc; 1–4 mph wind
<i>Survey Pass 7 – 46:15 Survey Hours Total</i>				
4/11/2016	11:15 AM–5:15 PM	DP, JP	12	68°F–72°F; 10% cc–60% cc; 3–5 mph wind
4/12/2016	9:45 AM–4:45 PM	DP, JP	14	67°F–68°F; 10% cc–20% cc; 0–8 mph wind
4/13/2016	10:00 AM–4:30 PM	JP	6	67°F–76°F; 0% cc–70% cc; 0–8 mph wind
4/13/2016	10:00 AM–4:00 PM	GC	6	67°F–77°F; 0% cc; 2–6 mph wind
4/14/2016	9:30 AM–3:45 PM	GC	6:15	69°F–72°F; 0% cc; 1–7 mph wind
4/15/2016	10:00 AM–12:00 PM	GC	2	72°F–79°F; 0% cc; 1–4 mph wind
<i>Survey Pass 8 – 47 Survey Hours Total</i>				
4/17/2016	10:00 AM–5:00 PM	DP, JP	14	86°F–90°F; 0% cc; 5–8 mph
4/18/2016	8:55 AM–4:00 PM	DP, JP	12	79°F–87°F; 0% cc; 1–9 mph
4/19/2016	9:00 AM–12:30 PM	DP, JP	7	82°F; 0% cc; 0 mph
4/20/2016	10:00 AM–4:00 PM	GC	6	77°F–88°F; 0% cc; 2–7 mph wind

Table 2
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Hours ¹	Conditions
4/21/2016	10:00 AM–4:00 PM	GC	6	74°F–79°F; 0% cc; 4–9 mph wind
4/22/2016	10:00 AM–12:00 PM	GC	2	69°F–73°F; 0% cc; 1–4 mph wind
<i>Survey Pass 9 – 46:45 Survey Hours Total</i>				
4/24/2016	10:30 AM–4:15 PM	DP, JP	11:15	70°F–76°F; 0% cc; 4–6 mph wind
4/25/2016	10:30 AM–4:30 PM	DP, JP	12	63°F–66°F; 50% cc–75% cc; 6–9 mph wind
4/26/2016	9:55 AM–2:30 PM	DP, JP	9	74°F; 0% cc–5% cc; 3–8 mph wind
4/26/2016	10:00 AM–3:30 PM	GC	5:30	66°F–68°F; 20% cc–40% cc; 4–6 mph wind
4/27/2016	10:00 AM–4:00 PM	GC	6	65°F–68°F; 25% cc; 6–8 mph wind
4/29/2016	10:00 AM–1:00 PM	GC	3	65°F–68°F; 10% cc; 6–8 mph wind
<i>Survey Pass 10 – 49 Survey Hours Total</i>				
5/1/2016	11:15 AM–5:25 PM	DP, JP	12	69°F–73°F; 10% cc–90% cc; 1–6 mph
5/2/2016	9:20 AM–4:20 PM	DP, JP	14	67°F–72°F; 0% cc–30% cc; 1–8 mph
5/2/2016	10:00 AM–4:00 PM	GC	6	67°F–71°F; 0% cc; 6–9 mph wind
5/3/2016	9:45 AM–1:45 PM	DP, JP	8	78°F; 0% cc; 3–5 mph wind
5/3/2016	10:00 AM–4:00 PM	GC	6	69°F–76°F; 0% cc; 4–8 mph wind
5/4/2016	10:00 AM–1:00 PM	GC	3	68°F–75°F; 0% cc; 2–6 mph wind
<i>Survey Pass 11 – 48:30 Survey Hours Total</i>				
5/8/2016	11:30 AM–5:55 PM	DP, JP	13	70°F; 25% cc–30% cc; 5–9 mph wind
5/8/2016	11:00 AM–2:00 PM	GC	3	70°F; 25% cc–30% cc; 5–9 mph wind
5/9/2016	10:00 AM–4:00 PM	GC	6	65°F–69°F; 20% cc–40% cc; 4–9 mph wind
5/9/2016	11:40 AM–4:50 PM	DP, JP	10	67°F–70°F; 10% cc–75% cc; 2–7 mph wind
5/10/2016	11:30 AM–5:15 PM	DP, JP	11:30	72°F; 10% cc; 6 mph wind
5/10/2016	11:00 AM–4:00 PM	GC	5	69°F–76°F; 10% cc–20% cc; 2–6 mph wind
<i>Survey Pass 12 – 56.5 Survey Hours Total</i>				
5/15/2016	12:05 PM –5:05 PM	DP, JP	14	69°F–72°F; 50% cc–55% cc; 5 mph wind
5/15/2016	11:00 AM–2:00 PM	GC	3	67°F–73°F; 10% cc–30% cc; 2–6 mph wind
5/16/2016	11:45 AM–3:00 PM	DP, JP	6:30	67°F–69°F; 60% cc–90% cc; 5–6 mph wind
5/16/2016	11:00 AM–4:00 PM	GC	5	64°F–67°F; 20% cc–30% cc; 3–8 mph wind
5/17/2016	1:45 PM–2:45 PM	DP, JP	2	69°F–70°F; 95% cc; 2–5 mph wind
5/18/2016	10:00 AM–4:00 PM	GC	6	66°F–70°F; 25% cc; 4–9 mph wind
5/21/2016	10:00 AM–1:00 PM	GC	6	69°F–71°F; 25% cc–50% cc; 4–7 mph wind
5/23/2016	11:30 AM–3:00 PM	GC	6	71°F–73°F; 20% cc–30% cc; 2–7 mph wind
5/23/2016	11:30 AM–3:30 PM	DP, JP	8	72°F–74°F; 5% cc–20% cc; 3–4 mph wind

Notes:

¹ In general D. Powell and J Powell performed surveys from the west to the east, while G. Chatman surveyed from the east to the west. Survey coverage per visit was variable dependent on weather, access and other factors. Specific survey areas could not be established do to this and surveyors simply started where they ended the day before until the entire study area was surveyed for that week's pass.

Recovery Permit Coordinator

Subject: 2016 Focused Quino Checkerspot Butterfly Survey Report for the Pure Water San Diego Program, County of San Diego, California

² Focused Quino survey areas were refined to reflect changes in survey buffers and exclusion areas. Areas excluded included the western transmission corridor and widened an existing pipeline to 100 feet centered on the midline.

³ Focused Quino survey areas were further reduced to account for reduced access to some military flight-line areas due to safety. BO = Brock Ortega (TE813545-6); DP = Dale Powell (TE006559-6); GC = Greg Chatman (TE075112-2); JP = Jun Powell (TE006559-6); cc = cloud cover; mph = miles per hour; NR = not recorded.

Host Plant Mapping

Quino host plant mapping surveys were conducted within a 4-week period between April 11, 2016, and May 11, 2016, in accordance with the schedule provided in Table 3. Botanical surveys were conducted by biologist Greg Chatman (TE075112-2). All surveys were conducted on foot. Approximately 15 person-days were spent conducting host plant mapping within the study area.

Biologists were able to observe reference populations of dotseed plantain and purple owl's clover to develop a search-image before conducting surveys of the site. Host plant mapping surveys focused on the identification and location of all seven recognized host plants for Quino: dotseed plantain, purple owl's clover, woolly plantain, Coulter's snapdragon, rigid bird's beak, Chinese houses, and purple Chinese houses (*Collinsia heterophylla*) (USFWS 2014). All host plants were included in the survey; however, woolly plantain and Chinese houses do not have a western San Diego County distribution.

Table 3
Schedule of Host Plant Mapping Surveys

Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
4/11/2016	10:00 AM–1:00 PM	GC	1	68°F–72°F; 10% cc–60% cc; 3–5 mph wind
4/12/2016	9:33 AM–5:30 PM	GC	2	67°F–68°F; 10% cc–20% cc; 0–8 mph wind
4/13/2016	10:00 AM–4:00 PM	GC	8	67°F–76°F; 0% cc–70% cc; 0–8 mph wind
4/14/2016	9:30 AM–3:45 PM	GC	5, 6	69°F–72°F; 0% cc; 1–7 mph wind
4/15/2016	1:00 PM–2:45 PM	GC	3	72°F–79°F; 0% cc; 1–4 mph wind
4/18/2016	9:00 AM–3:00 PM	GC	4	79°F–87°F; 0% cc; 1–9 mph wind
4/19/2016	9:00 AM–3:44 PM	GC	3	82°F–91°F; 0% cc–5% cc; 0–5 mph
4/22/2016	10:00 AM–12:00 PM	GC	7	69°F–73°F; 0% cc; 1–4 mph wind
4/22/2016	1:00 PM–2:54 PM	GC	4	69°F–73°F; 0% cc; 1–4 mph wind
4/24/2016	10:00 AM–4:00 PM	GC	3	68°F–75°F; 0% cc–60% cc; 4–12 mph wind
4/25/2016	10:30 AM–2:20 PM	GC	3	68°F; 50% cc–75% cc; 6–9 mph wind
4/28/2016	10:02 AM–5:45 PM	GC	4	65°F–68°F; 25% cc; 6–8 mph wind
5/3/2016	12:19 PM–5:00 PM	GC	4	72°F–78°F; 0% cc; 3–5 mph wind
5/4/2016	10:30 AM–12:00 PM	GC	3	68°F–75°F; 0% cc; 2–6 mph wind
5/5/2016	11:00 AM–3:00 PM	GC	4	68°F–75°F; 0% cc; 2–6 mph wind
5/9/2016	11:15 AM–1:00 PM	GC	3	65°F–69°F; 20% cc–40% cc; 4–9 mph wind

Notes: GC = Greg Chatman (TE075112-2); cc = cloud cover; mph = miles per hour.

Dudek biologists recorded locations of Quino host plants using a mobile application. Data collected included the surveyor(s), date, species of host plant, and density of the host plant at the point at which the host plant was found. All host plant occurrences were mapped as points. Density was assessed per square meter and was collected using the following classes:

- Very Low: 1–19 plants per square meter
- Low: 20–100 plants per square meter
- Medium: 100–1,000 plants per square meter
- High: 1,000–10,000+ plants per square meter

Points were collected within patches of host plant at least as close as every 3 meters (10 feet). In addition, all blooming nectar plants were recorded for the entire survey area.

At the conclusion of surveys, Dudek geographic information systems (GIS) analysts created a GIS coverage for host plants. After review by a biologist, a geodatabase was created to ensure these data are topologically correct and meet final quality control and assurance procedures.

Results

Focused Quino Surveys

No Quino were observed during the 2016 focused survey. Forty-two butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Table 4a, Butterflies Observed On Site during Survey Passes 1–7, and Table 4b, Butterflies Observed On Site during Survey Passes 8–12.

Table 4a
Butterflies Observed On Site during Survey Passes 1–7

Scientific Name	Common Name	Week						
		1	2	3	4	5	6	7
<i>Hesperiidae – Skippers</i>								
<i>Erynnis funeralis</i>	Funereal duskywing	X	X	X	X	X	X	X
<i>Heliopetes ericetorum</i>	Northern white-skipper	—	—	X	X	X	X	X
<i>Hylephila phyleus</i>	Fiery skipper	X	X	X	X	X	X	X
<i>Lerodea eufala</i>	Eufala skipper	—	—	—	—	—	X	—
<i>Pyrgus albescens</i>	White checkered-skipper	X	X	X	X	X	X	X

Table 4a
Butterflies Observed On Site during Survey Passes 1–7

Scientific Name	Common Name	Week						
		1	2	3	4	5	6	7
<i>Nymphalidae – Brush-Footed Butterflies</i>								
<i>Adelpha bredowii</i>	California sister	—	X	X	X	X	—	X
<i>Chlosyne californica</i>	California patch	—	—	X	—	—	—	—
<i>Limenitis lorquini</i>	Lorquin's admiral	—	—	—	—	X	X	X
<i>Coenonympha tullia</i> California	Common California ringlet	X	X	X	X	X	X	X
<i>Danaus gilippus</i>	Queen	X	X	—	—	—	—	—
<i>Danaus plexippus</i>	Monarch	X	X	X	—	—	X	X
<i>Junonia coenia</i>	Common buckeye	X	X	X	X	X	X	X
<i>Nymphalis antiopa</i>	Mourning cloak	—	—	—	—	X	X	X
<i>Vanessa annabella</i>	West coast lady	X	X	X	X	X	X	X
<i>Vanessa atalanta</i>	Red admiral	X	X	X	X	X	—	X
<i>Vanessa cardui</i>	Painted lady	X	X	X	—	—	—	X
<i>Vanessa virginiensis</i>	American lady	—	—	—	X	X	X	X
<i>Lycaenidae – Blues and Hairstreaks</i>								
<i>Brephidium exile</i>	Western pygmy blue	X	X	X	X	X	X	X
<i>Callophrys augustinus</i>	Brown elfin	—	X	—	—	X	X	—
<i>Euphilotes battoides bernardino</i>	Bernardino square-spotted blue	—	—	—	—	—	—	—
<i>Hemiargus ceraunus</i>	Ceraunus blue	—	—	—	—	—	—	—
<i>Plebejus lupini</i>	Lupine blue	—	—	—	—	—	—	—
<i>Glaucopsyche lygdamus australis</i>	Southern blue	X	X	X	X	X	X	—
<i>Hemiargus ceraunus gyas</i>	Edward's blue	—	X	—	—	—	—	—
<i>Leptotes marina</i>	Marine blue	—	—	—	—	X	X	X
<i>Plebejus acmon</i>	Acmon blue	X	X	X	—	—	—	X
<i>Strymon melinus</i>	Gray hairstreak	X	X	X	X	X	X	X
<i>Papilionidae – Swallowtails</i>								
<i>Papilio eurymedon</i>	Pale swallowtail	X	X	—	X	X	X	X
<i>Papilio rutulus</i>	Western tiger swallowtail	X	X	X	X	X	X	X
<i>Papilio zelicaon</i>	Anise swallowtail	X	X	X	X	X	X	X
<i>Pieridae – Whites and Sulfurs</i>								
<i>Anthocharis cethura</i>	Desert orangetip	—	—	—	—	—	—	—

Table 4a
Butterflies Observed On Site during Survey Passes 1–7

Scientific Name	Common Name	Week						
		1	2	3	4	5	6	7
<i>Anthocharis sara sara</i>	Pacific sara orangetip	X	X	X	X	X	X	X
<i>Colias eurytheme</i>	Orange sulphur	X	—	X	X	—	X	X
<i>Colias harfordii</i>	Harford's sulfur	—	—	—	—	—	—	—
<i>Eurema nicippe</i>	Sleepy orange	—	—	—	—	—	—	X
<i>Nathalis iole</i>	Dainty sulphur	—	—	X	—	—	X	X
<i>Phoebis sennae</i>	Cloudless sulphur	X	X	X	X	—	X	X
<i>Pieris rapae rapae</i>	Cabbage white	X	—	—	—	X	X	X
<i>Pontia protodice</i>	Checkered white	—	X	X	—	X	X	X
<i>Riodinidae – Metalmarks</i>								
<i>Apodemia virgulti</i>	Behr's metalmark	X	X	X	X	X	X	X
<i>Apodemia mormo</i>	Mormon Metalmark	X	X	X	X	X	X	X

Table 4b
Butterflies Observed On Site during Survey Passes 8–12

Scientific Name	Common Name	Week				
		8	9	10	11	12
<i>Hesperiidae – Skippers</i>						
<i>Erynnis funeralis</i>	Funereal duskywing	X	—	—	X	X
<i>Heliopetes ericetorum</i>	Northern white-skipper	X	X	X	—	—
<i>Hylephila phyleus</i>	Fiery skipper	—	—	X	X	X
<i>Lerodea eufala</i>	Eufala skipper	—	—	—	—	—
<i>Pyrgus albescens</i>	White checkered-skipper	X	X	X	X	X
<i>Nymphalidae – Brush-Footed Butterflies</i>						
<i>Adelpha bredowii</i>	California sister	—	—	X	X	X
<i>Chlosyne californica</i>	California patch	—	—	X	—	—
<i>Limenitis lorquini</i>	Lorquin's Admiral	—	—	—	—	—
<i>Coenonympha tullia californica</i>	Common California ringlet	—	—	—	—	—
<i>Danaus gilippus</i>	Queen	—	—	—	—	—
<i>Danaus plexippus</i>	Monarch	X	—	X	X	X
<i>Junonia coenia</i>	Common buckeye	X	X	X	X	X
<i>Nymphalis antiopa</i>	Mourning cloak	X	—	—	X	—
<i>Vanessa annabella</i>	West coast lady	—	X	—	X	X
<i>Vanessa atalanta</i>	Red admiral	—	—	—	X	X
<i>Vanessa cardui</i>	Painted lady	—	—	—	X	—

Table 4b
Butterflies Observed On Site during Survey Passes 8–12

Scientific Name	Common Name	Week				
		8	9	10	11	12
<i>Vanessa virginiensis</i>	American lady	X	—	X	X	X
<i>Lycaenidae – Blues and Hairstreaks</i>						
<i>Brephidium exile</i>	Western pygmy blue	—	X	—	X	X
<i>Callophrys augustinus</i>	Brown elfin	—	X	—	—	X
<i>Euphilotes battoides bernardino</i>	Bernardino square-spotted blue	—	—	X	—	X
<i>Hemiargus ceraunus</i>	Ceraunus blue	—	—	—	—	X
<i>Plebejus lupini</i>	Lupine blue	X	—	—	—	—
<i>Glaucopsyche lygdamus australis</i>	Southern blue	—	—	—	—	—
<i>Hemiargus ceraunus gyas</i>	Edward's blue	—	—	—	—	—
<i>Leptotes marina</i>	Marine blue	X	X	X	X	X
<i>Plebejus acmon</i>	Acmon blue	—	—	X	X	X
<i>Strymon melinus</i>	Gray hairstreak	X	X	X	X	X
<i>Papilionidae – Swallowtails</i>						
<i>Papilio eurymedon</i>	Pale swallowtail	—	—	—	X	X
<i>Papilio rutulus</i>	Western tiger swallowtail	—	—	—	X	—
<i>Papilio zelicaon</i>	Anise swallowtail	X	—	X	X	X
<i>Pieridae – Whites and Sulfurs</i>						
<i>Anthocharis cethura</i>	Desert orangetip	—	X	—	—	—
<i>Anthocharis sara sara</i>	Pacific sara orangetip	X	—	X	X	X
<i>Colias eurytheme</i>	Orange sulphur	—	X	—	X	X
<i>Colias harfordii</i>	Harford's sulfur	—	—	X	X	—
<i>Eurema nicippe</i>	Sleepy orange	—	—	—	—	—
<i>Nathalis iole</i>	Dainty sulphur	—	—	—	X	—
<i>Phoebis sennae</i>	Cloudless sulphur	X	—	—	X	X
<i>Pieris rapae rapae</i>	Cabbage white	—	—	—	X	X
<i>Pontia protodice</i>	Checkered white	X	X	X	X	X
<i>Riodinidae – Metalmarks</i>						
<i>Apodemia virgulti</i>	Behr's metalmark	—	—	—	X	X
<i>Apodemia mormo</i>	Mormon Metalmark	X	X	X	X	X

Host Plant Mapping

Three Quino larval host plants—dotseed plantain, purple owl's clover, and purple Chinese houses—were observed within the study area during focused surveys. Dotseed plantain and

purple owl's clover were recorded in the northwestern portion of the site (Figures 5 to 5D, Quino Host Plant Locations). Dotseed plantain is the dominant host plant observed and is commonly found in open patches and ridgetops. Exserted Indian paintbrush is densely populated on the northwestern portion of the site. Table 5, Quino Adult Nectar Plants, includes all adult Quino nectar plants observed in each focused survey area. No Quino larvae were observed during focused Quino and host plant mapping surveys.

Table 5
Quino Adult Nectar Plants

Survey Area	Nectar Plants
1	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp.
2	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp., <i>Eriophyllum confertiflorum</i>
3	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp., <i>Rhus</i> spp., <i>Acmispon glaber</i>
4	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp., <i>Eriogonum</i> spp., <i>Salvia</i> spp.
5	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp., <i>Rhus</i> spp., <i>Eriogonum</i> spp.
6	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp.
7	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp., <i>Rhus</i> spp., <i>Eriogonum</i> spp., <i>Salvia</i> spp.
8	<i>Cryptantha</i> spp., <i>Dichelostemma capitatum</i> , <i>Encelia</i> spp., <i>Lasthenia</i> spp., <i>Eriodictyon</i> spp., <i>Eriogonum</i> spp., <i>Salvia</i> spp.

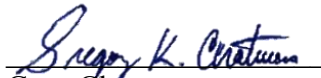
Forty-one wildlife species were recorded during this survey effort and are included in Appendix B, Wildlife Observed during the 2016 Pure Water Program Quino Survey.

Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey. Please feel free to contact Brock Ortega, bortega@dudek.com, if you have any questions regarding the contents of this report.

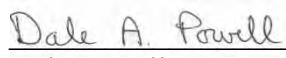
Sincerely,



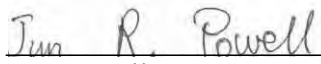
Brock Ortega
Permit #TE813545-6



Greg Chatman
Permit #TE075112-2



Dale Powell
Permit #TE006559-6



Jun Powell
Permit #TE006559-6

Recovery Permit Coordinator

Subject: 2016 Focused Quino Checkerspot Butterfly Survey Report for the Pure Water San Diego Program, County of San Diego, California.

Att: Figure 1, Regional Map
Figure 2, Vicinity Map
Figure 3, Vegetation Communities
Figures 4-4G, Survey Areas
Figures 5-5D, Quino Host Plant Locations
Appendix A, 2016 Pure Water Program Quino Survey Field Notes
Appendix B, Wildlife Species Observed during the 2016 Pure Water Program Quino Survey

cc: Paul Lemons, Dudek

REFERENCES CITED

- 62 FR 2313–2322. Final rule: “Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Laguna Mountains Skipper and Quino Checkerspot Butterfly.” January 16, 1997.
- Ballmer, G.R., D.C. Hawks, K.H. Osborne, and G.F. Pratt. 2001. “The Quino Checkerspot Butterfly (*Euphydryas editha quino*).” Year 2000 Quino Workshop.
- Garth, J.S., and J.W. Tilden. 1986. *California Butterflies*. Berkeley, California: University of California Press.
- Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Nongame-Heritage Program, California Department of Fish and Game. October 1986.
- Mattoni, R., G.F. Pratt, T.R. Longcore, J.F. Emmel, and J.N. George. 1997. “The Endangered Quino Checkerspot Butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae).” *Journal of Research on the Lepidoptera* 34:99–118.
- Murphy, D.D., and R.R. White. 1984. “Rainfall, Resources, and Dispersal in Southern Populations of *Euphydryas editha* (Lepidoptera: Nymphalidae).” *Pan-Pacific Entomologist* 60:350–354.
- Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. March 2008. http://www.sdcanyonlands.org/pdfs/veg_comm_sdcounty_2008_doc.pdf.
- Osborne, K.H. 1998. “Microhabitat Conditions Associated with the Distribution of Post-Diapause Larvae of *Euphydryas editha quino* and Its Host, *Plantago erecta*.” In *A Description of Arthropod Community Structure in Southern Californian Coastal Sage Scrub*. Master’s thesis; University of California, Riverside, California.

Recovery Permit Coordinator

Subject: 2016 Focused Quino Checkerspot Butterfly Survey Report for the Pure Water San Diego Program, County of San Diego, California.

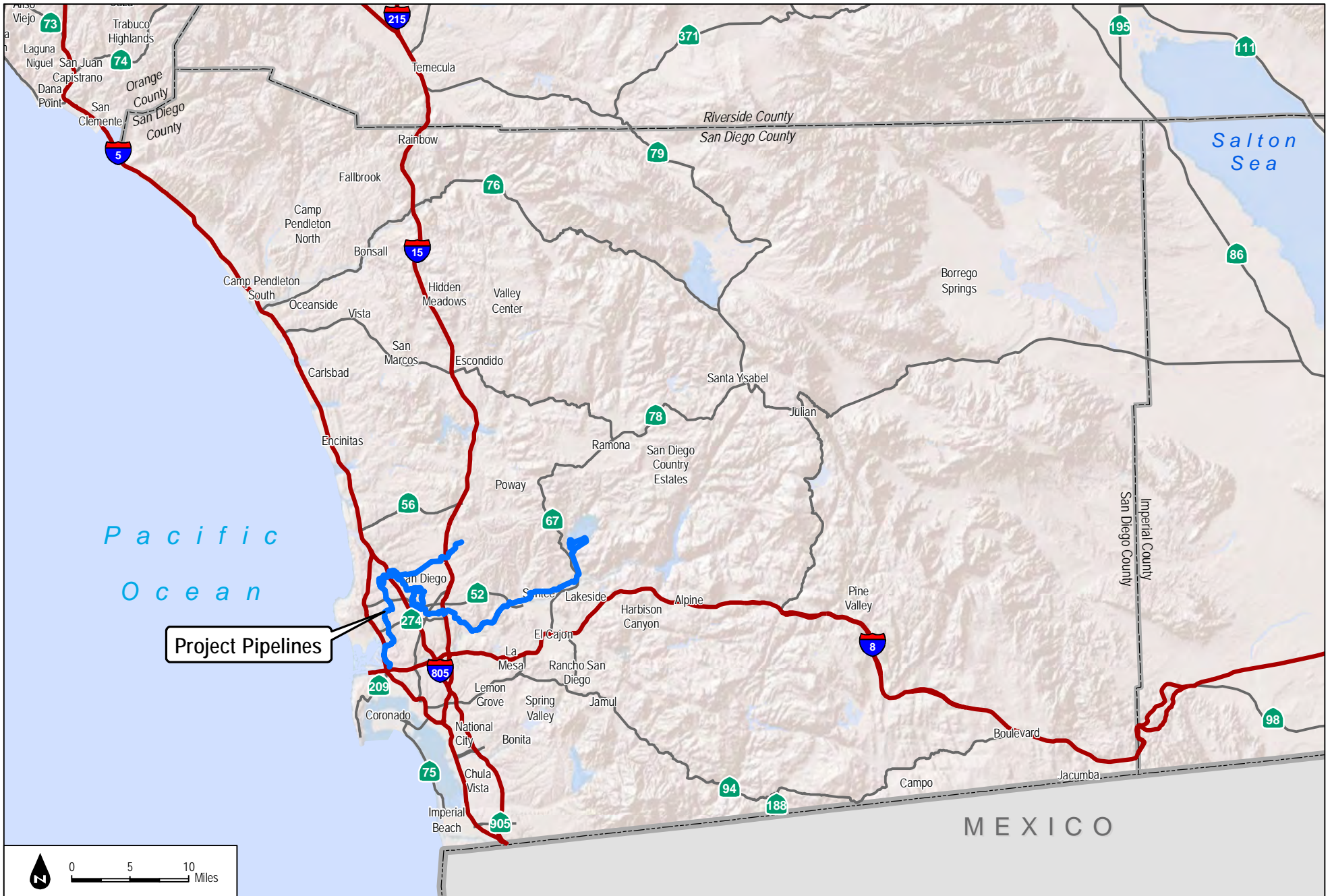
Pratt, G. F. 2009. "A New Larval Food Plant, *Collinsia concolor*." In *A Manual of California Vegetation*, 2nd edition, edited by J.O. Sawyer, T. Keeler-Wolf, and J. Evens. Sacramento, California: California Native Plant Society.

San Diego County. 2004. Biological Mitigation Ordinance. An Excerpt from the San Diego County Code of Regularity Ordinances. Effective April 23, 2004.
http://www.sandiegocounty.gov/content/dam/sdc/pds/mscp/docs/SCMSCP/BMO_Update_2010.pdf.

SanGIS. 2016. Soils. San Diego Geographic Information Source – JPA. Accessed June 28, 2016.
<http://www.sangis.org/download/index.html>.

USFWS (U.S. Fish and Wildlife Service). 2002. *Quino Checkerspot Butterfly (Euphydryas editha quino) Survey Protocol Information*. USFWS Carlsbad Field Office, Carlsbad, California. February 2002. https://www.fws.gov/ventura/docs/species/protocols/qcbf/qchkrsptbfly_survprotocols.pdf.

USFWS. 2014. Quino Checkerspot Butterfly Survey Guidelines. Carlsbad Field Office, Carlsbad, California. December 15, 2014. http://www.fws.gov/carlsbad/tespecies/Documents/QuinoDocs/Quino%20Survey%20Guidelines_version%2015DEC2014.pdf.



Project Pipelines

SOURCE: City San Diego 2016; ESRI 2016



Cultural and Paleontological Resources Constraints Analysis for Rancho Cucamonga North Eastern Sphere Annexation Area

FIGURE 1
Regional Map

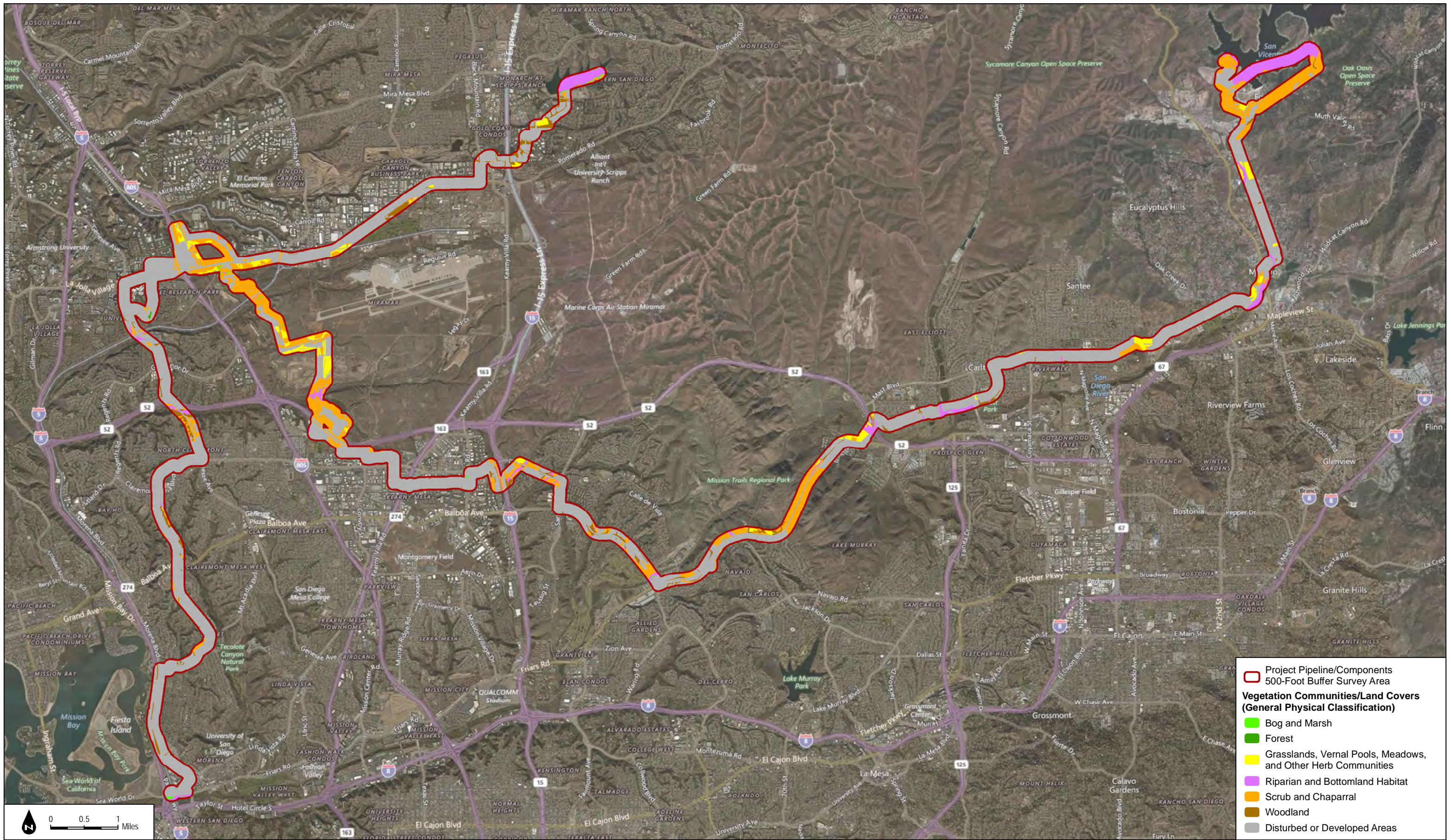


SOURCE: City San Diego 2016; USGS 7.5-Minute Series Del Mar, Poway, San Vicente Reservoir, La Jolla, La Mesa, El Cajon Quadrangles.

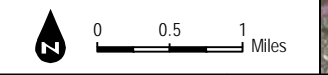


Pure Water San Diego Program North City Projects

FIGURE 2
Vicinity Map



Project Pipeline/Components
 500-Foot Buffer Survey Area
Vegetation Communities/Land Covers (General Physical Classification)
 Bog and Marsh
 Forest
 Grasslands, Vernal Pools, Meadows, and Other Herb Communities
 Riparian and Bottomland Habitat
 Scrub and Chaparral
 Woodland
 Disturbed or Developed Areas

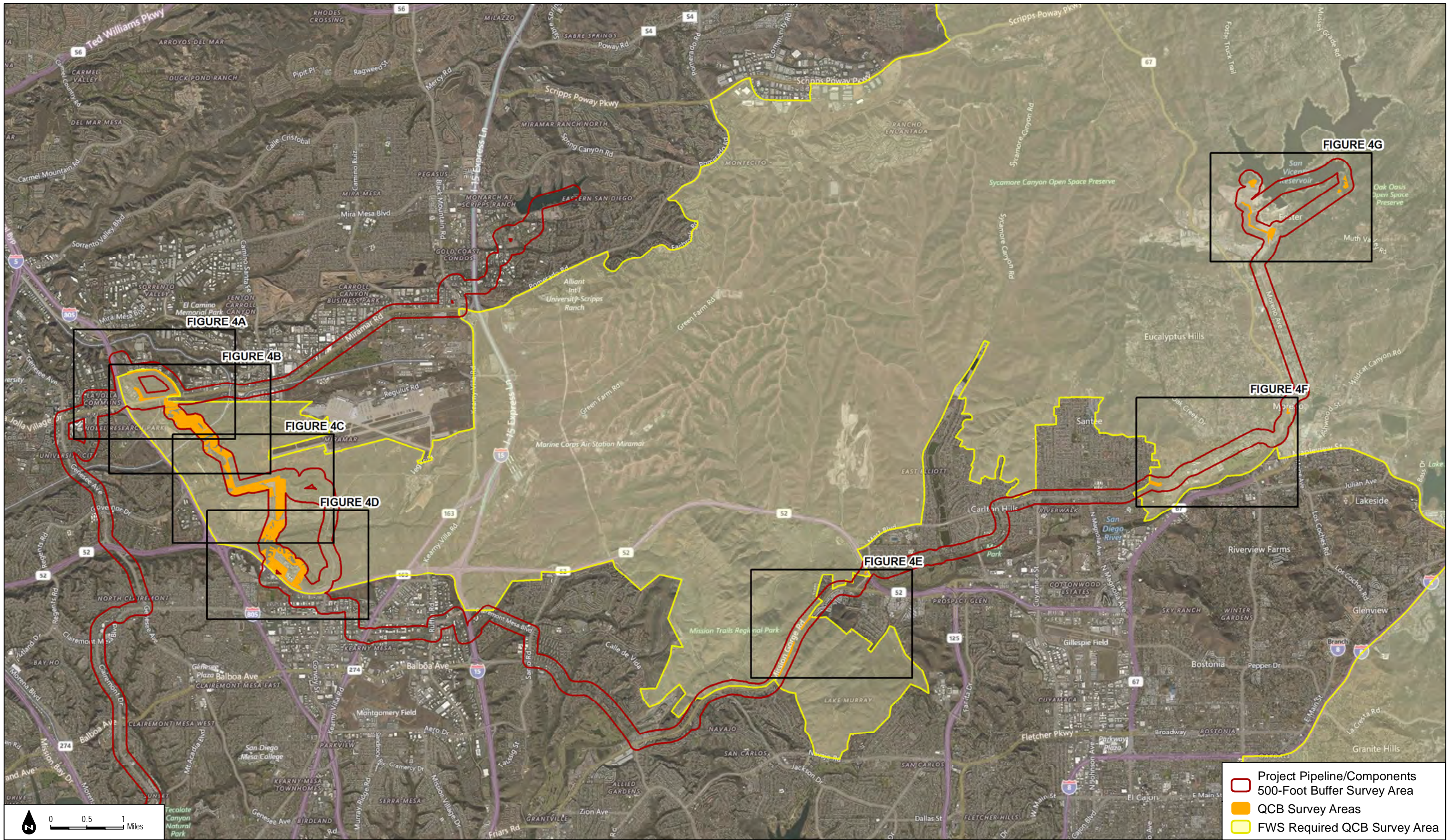


SOURCE: City San Diego 2016; Bing Maps 2016

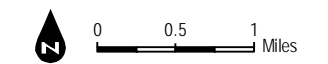
DUDEK

Pure Water San Diego Program North City Projects

FIGURE 3
Vegetation Communities



- Project Pipeline/Components
- 500-Foot Buffer Survey Area
- QCB Survey Areas
- FWS Required QCB Survey Area

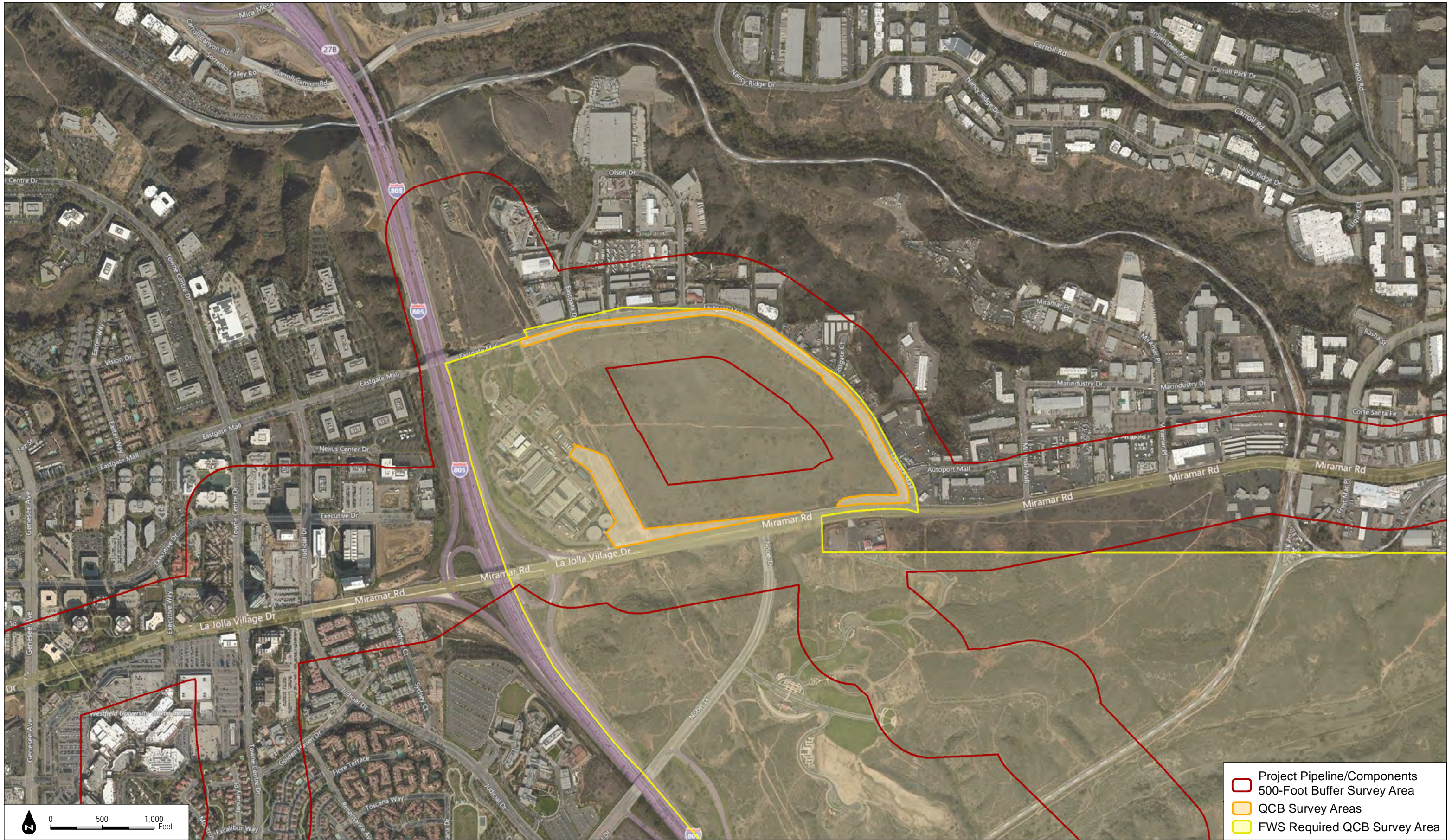


SOURCE: City San Diego 2016; Bing Maps 2016

DUDEK

Pure Water San Diego Program North City Projects

FIGURE 4
Survey Areas



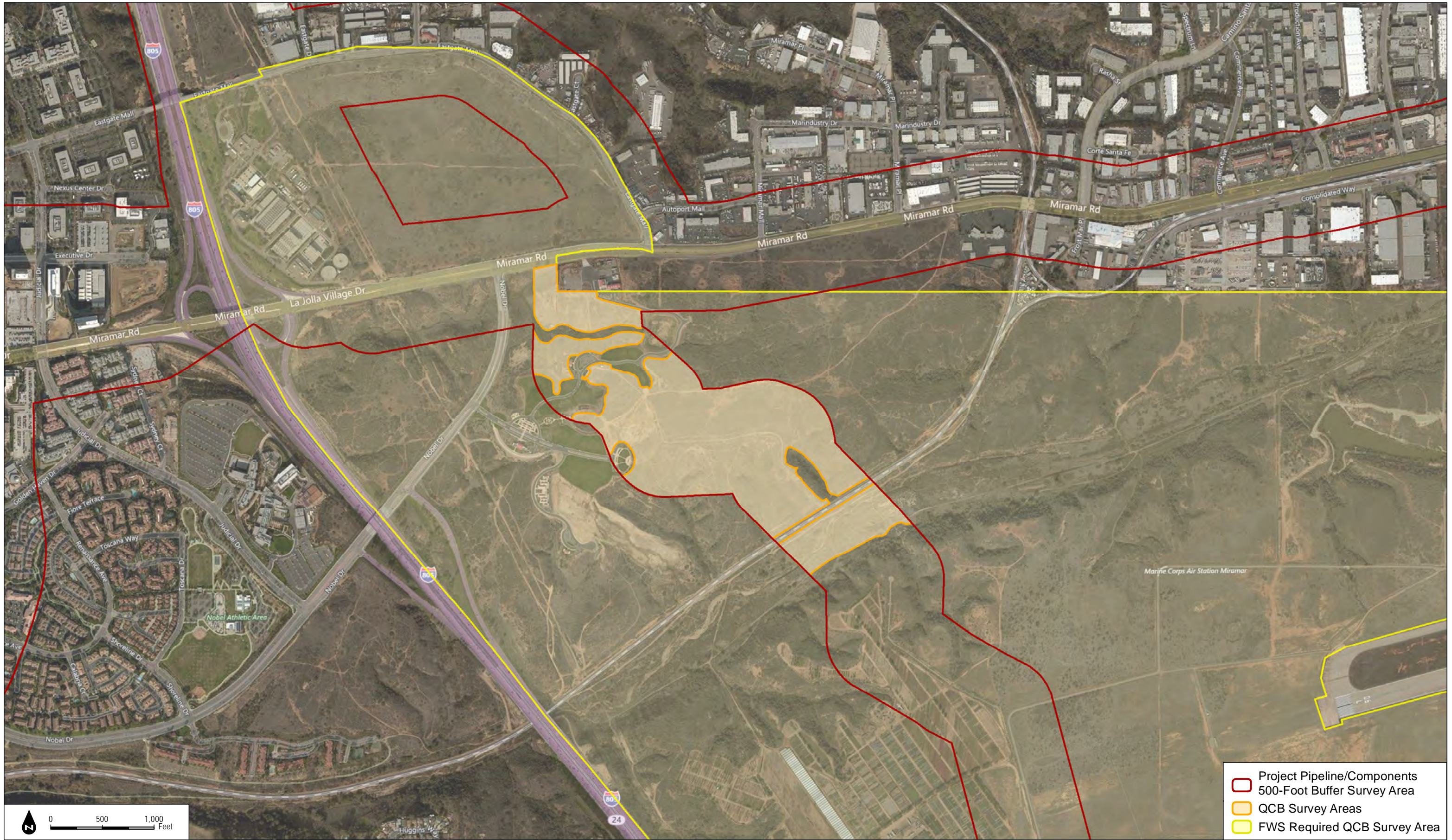
- ▭ Project Pipeline/Components
- ▭ 500-Foot Buffer Survey Area
- ▭ QCB Survey Areas
- ▭ FWS Required QCB Survey Area

FIGURE 4A
Survey Areas

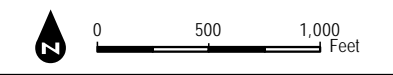
SOURCE: City San Diego 2016; Bing Maps 2016



Pure Water San Diego Program North City Projects



- ▭ Project Pipeline/Components
- ▭ 500-Foot Buffer Survey Area
- ▭ QCB Survey Areas
- ▭ FWS Required QCB Survey Area

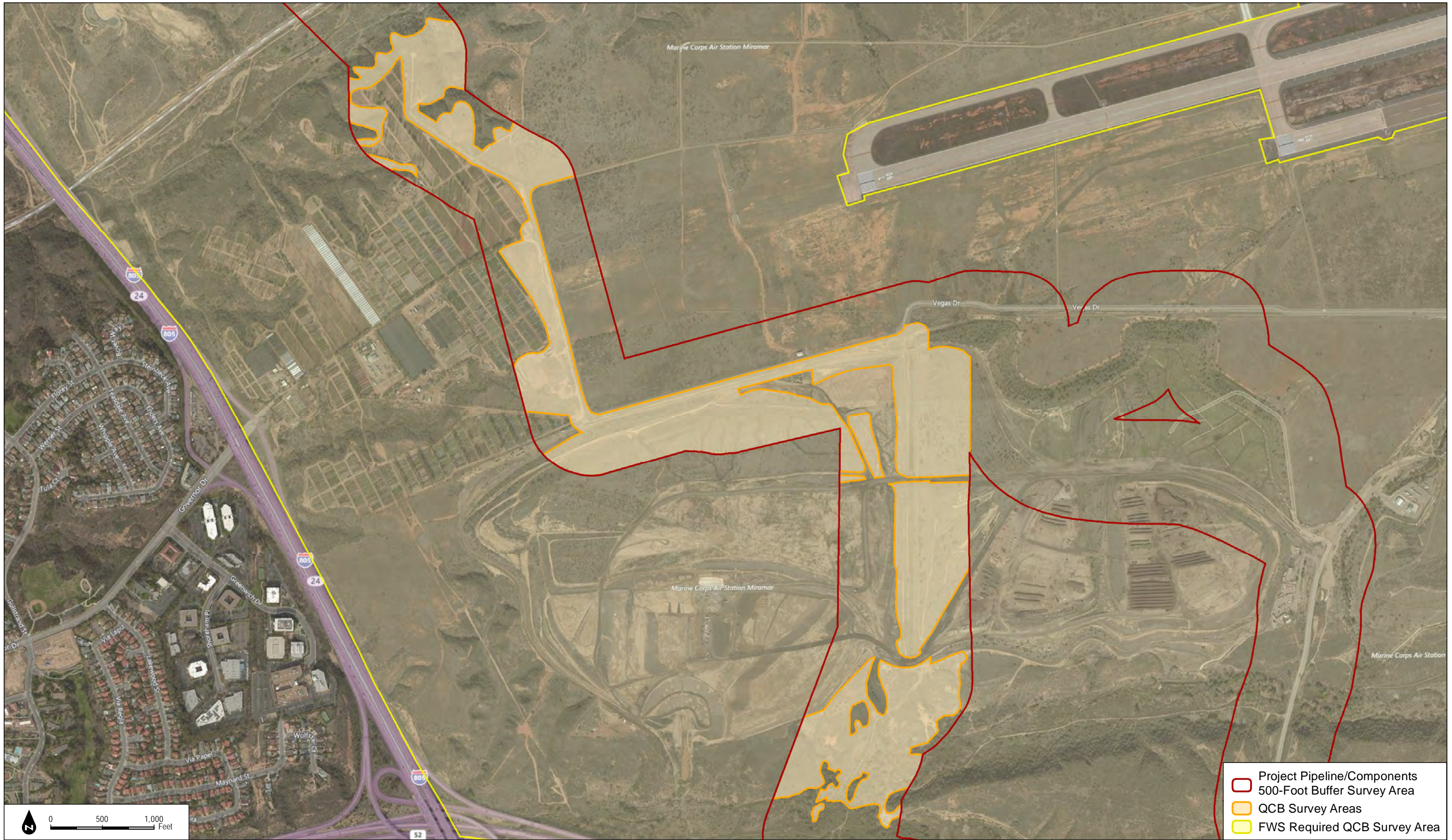


SOURCE: City San Diego 2016; Bing Maps 2016

DUDEK

Pure Water San Diego Program North City Projects

FIGURE 4B
Survey Areas



- Project Pipeline/Components 500-Foot Buffer Survey Area
- QCB Survey Areas
- FWS Required QCB Survey Area



SOURCE: City San Diego 2016; Bing Maps 2016

DUDEK

Pure Water San Diego Program North City Projects

FIGURE 4C
Survey Areas



- ▭ Project Pipeline/Components
- ▭ 500-Foot Buffer Survey Area
- ▭ QCB Survey Areas
- ▭ FWS Required QCB Survey Area

SOURCE: City San Diego 2016; Bing Maps 2016

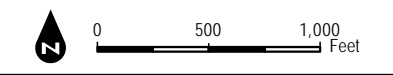
DUDEK

Pure Water San Diego Program North City Projects

FIGURE 4D
Survey Areas



- Project Pipeline/Components
- 500-Footer Survey Area
- QCB Survey Areas
- FWS Required QCB Survey Area



SOURCE: City San Diego 2016; Bing Maps 2016

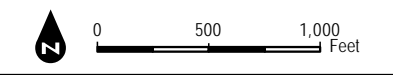
DUDEK

Pure Water San Diego Program North City Projects

FIGURE 4E
Survey Areas



- Project Pipeline/Components
- 500-Foot Buffer Survey Area
- QCB Survey Areas
- FWS Required QCB Survey Area



SOURCE: City San Diego 2016; Bing Maps 2016

DUDEK

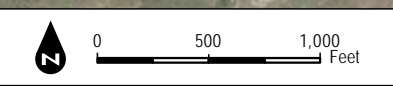
Pure Water San Diego Program North City Projects

FIGURE 4F
Survey Areas



- ▭ Project Pipeline/Components
- ▭ 500-Foot Buffer Survey Area
- ▭ QCB Survey Areas
- ▭ FWS Required QCB Survey Area

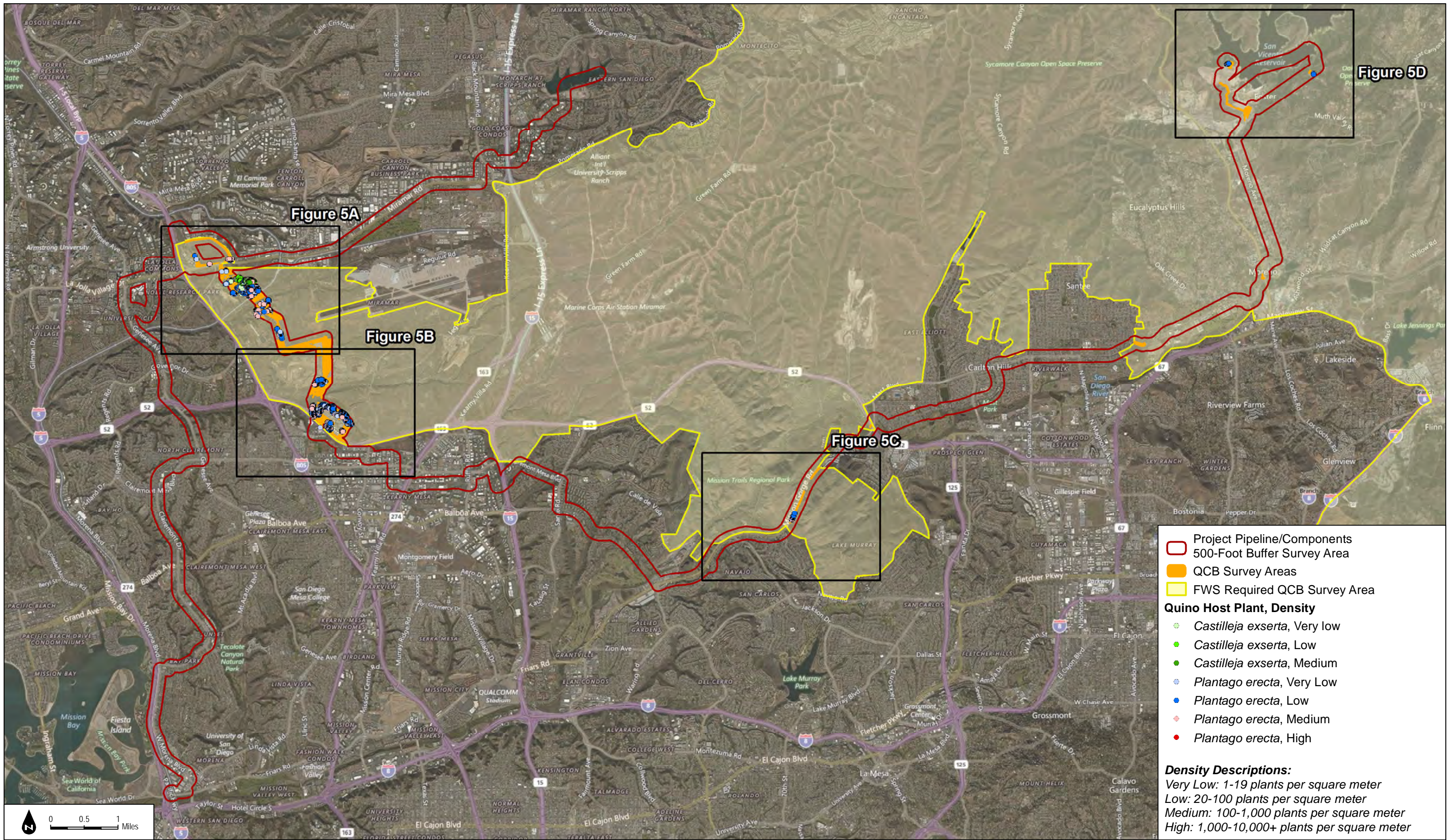
FIGURE 4G
Survey Areas



SOURCE: City San Diego 2016; Bing Maps 2016



Pure Water San Diego Program North City Projects



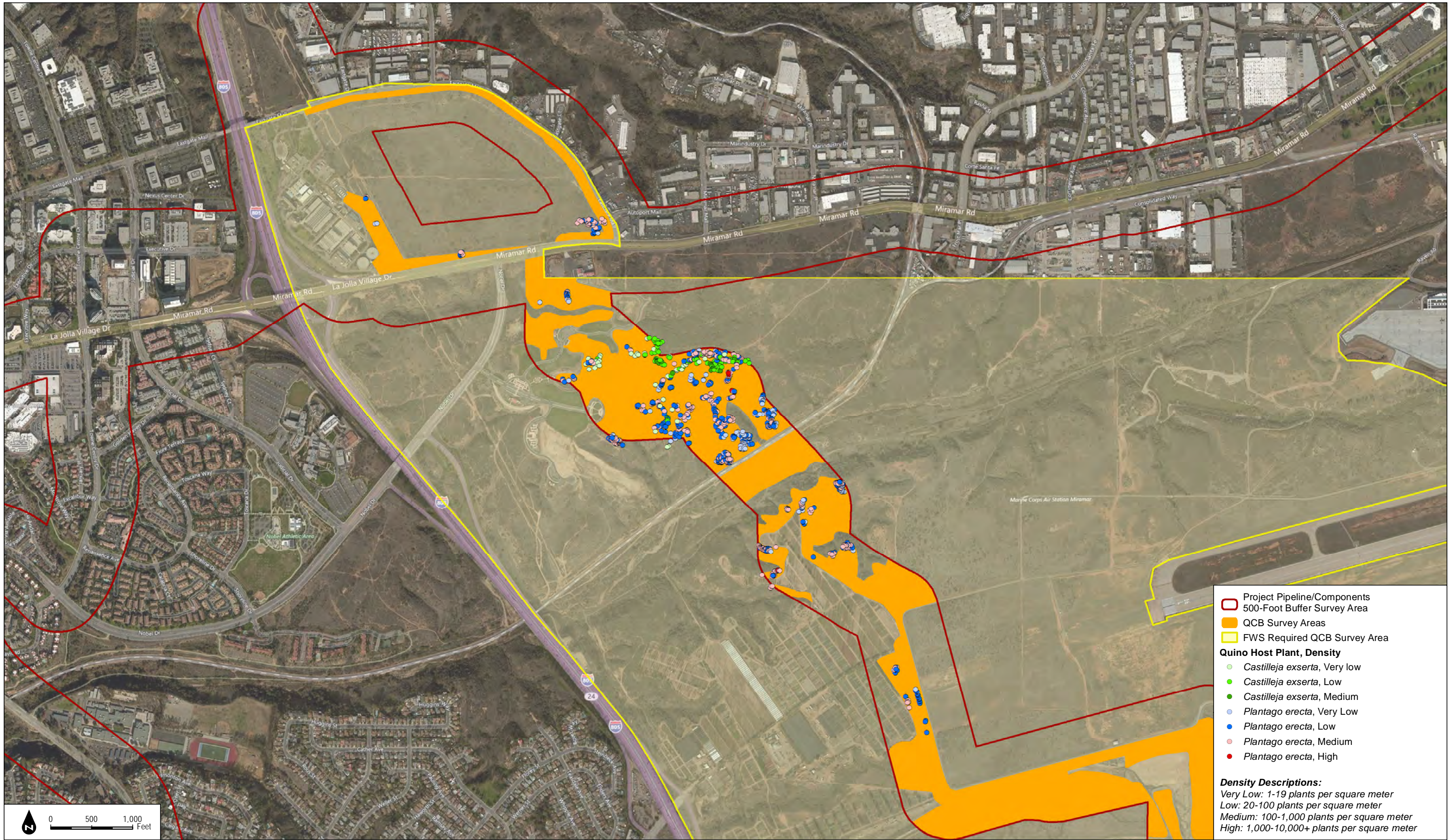
SOURCE: City San Diego 2016; Bing Maps 2016

DUDEK

Pure Water San Diego Program North City Projects

FIGURE 5

Quino Host Plant Locations



Project Pipeline/Components
 500-Foot Buffer Survey Area
 QCB Survey Areas
 FWS Required QCB Survey Area

Quino Host Plant, Density

- *Castilleja exserta*, Very low
- *Castilleja exserta*, Low
- *Castilleja exserta*, Medium
- *Plantago erecta*, Very Low
- *Plantago erecta*, Low
- *Plantago erecta*, Medium
- *Plantago erecta*, High

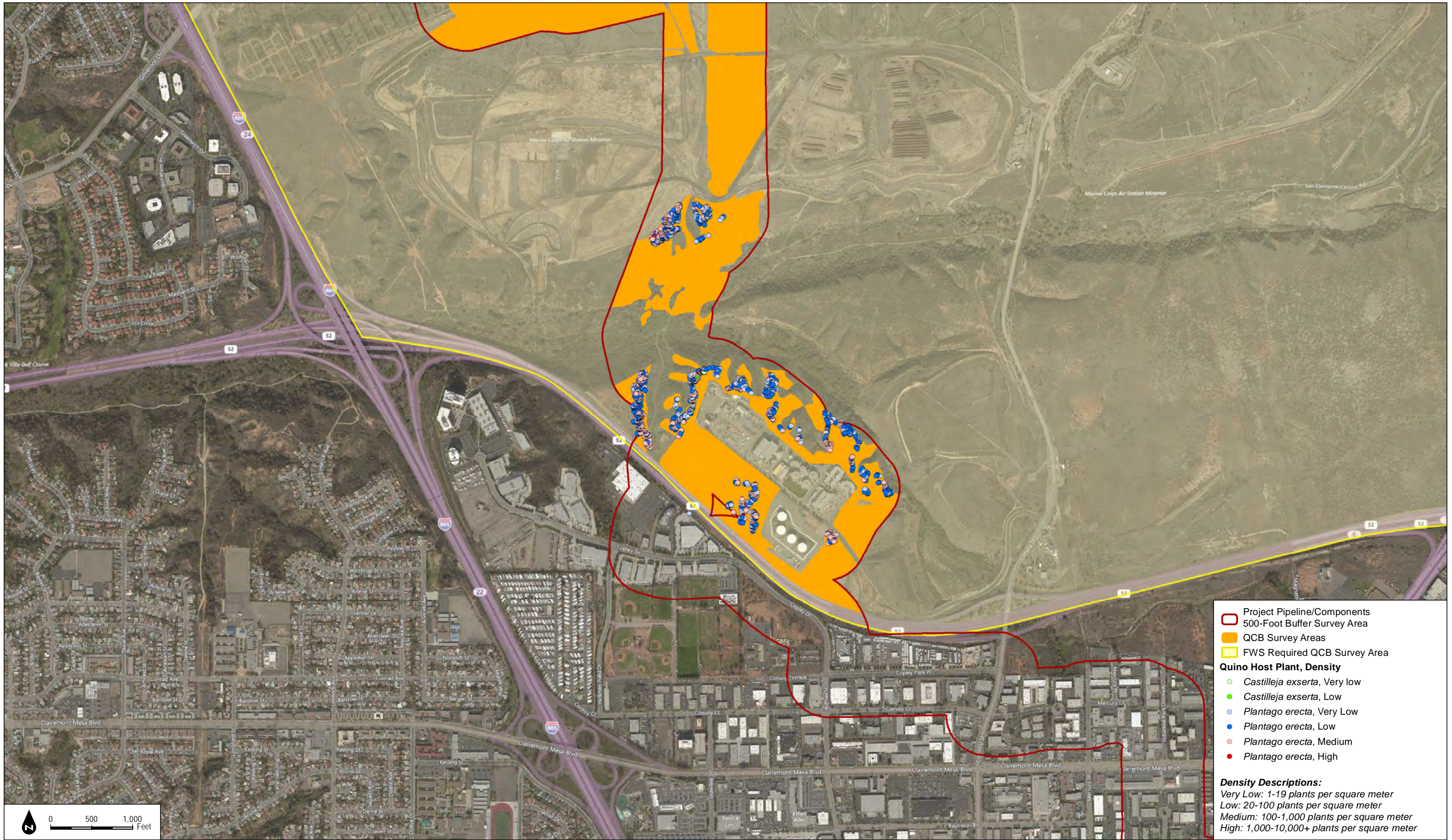
Density Descriptions:
 Very Low: 1-19 plants per square meter
 Low: 20-100 plants per square meter
 Medium: 100-1,000 plants per square meter
 High: 1,000-10,000+ plants per square meter

SOURCE: City San Diego 2016; Bing Maps 2016



Pure Water San Diego Program North City Projects

FIGURE 5A
Quino Host Plant Locations



- Project Pipeline/Components
- 500-Foot Buffer Survey Area
- QCB Survey Areas
- FWS Required QCB Survey Area

Quino Host Plant, Density

- Castilleja exserta*, Very low
- Castilleja exserta*, Low
- Plantago erecta*, Very Low
- Plantago erecta*, Low
- Plantago erecta*, Medium
- Plantago erecta*, High

Density Descriptions:
 Very Low: 1-19 plants per square meter
 Low: 20-100 plants per square meter
 Medium: 100-1,000 plants per square meter
 High: 1,000-10,000+ plants per square meter

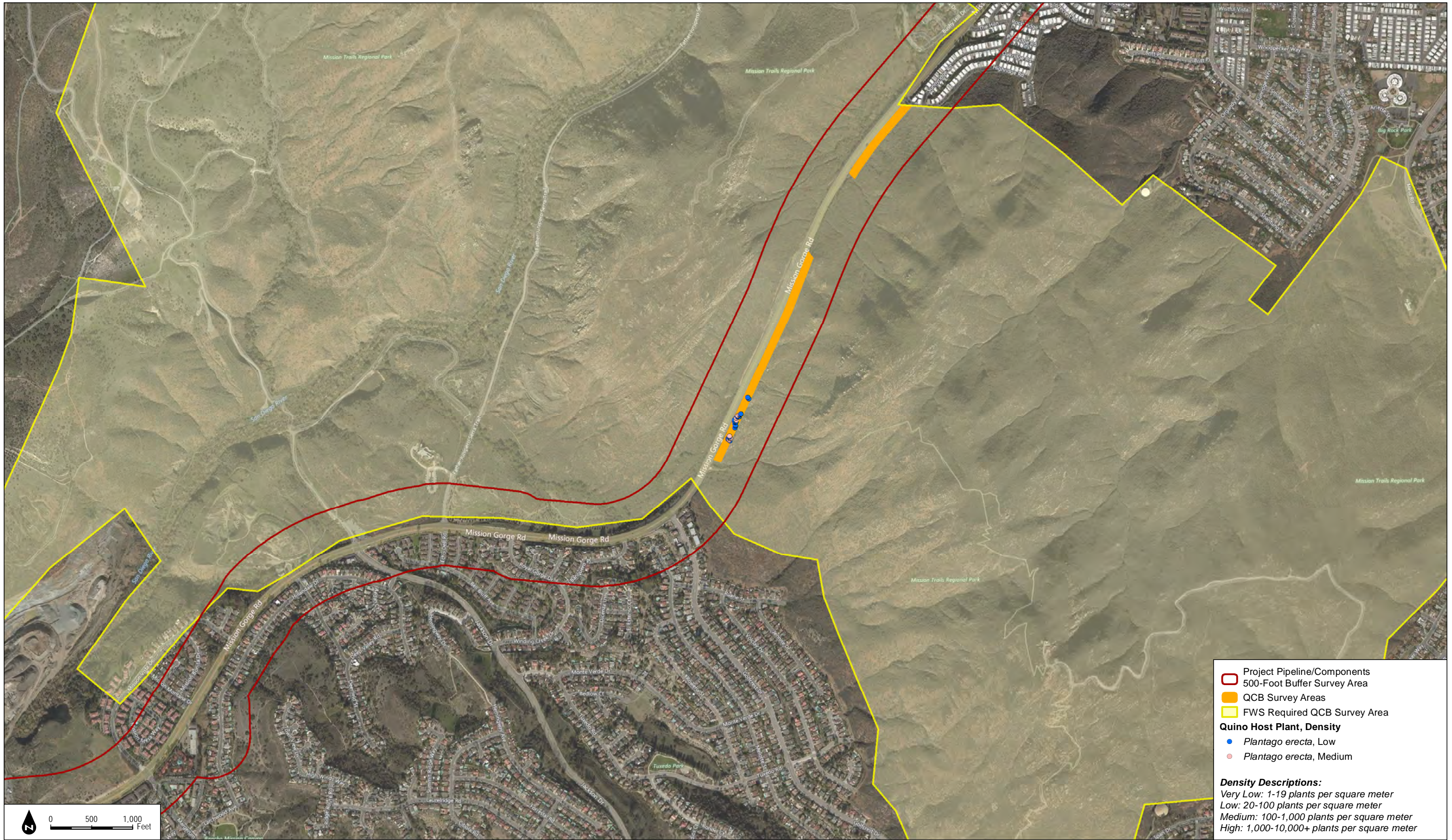


SOURCE: City San Diego 2016; Bing Maps 2016



Pure Water San Diego Program North City Projects

FIGURE 5B
 Quino Host Plant Locations



— Project Pipeline/Components
 500-Foot Buffer Survey Area
 QCB Survey Areas
 FWS Required QCB Survey Area
Quino Host Plant, Density
● *Plantago erecta*, Low
● *Plantago erecta*, Medium
Density Descriptions:
 Very Low: 1-19 plants per square meter
 Low: 20-100 plants per square meter
 Medium: 100-1,000 plants per square meter
 High: 1,000-10,000+ plants per square meter

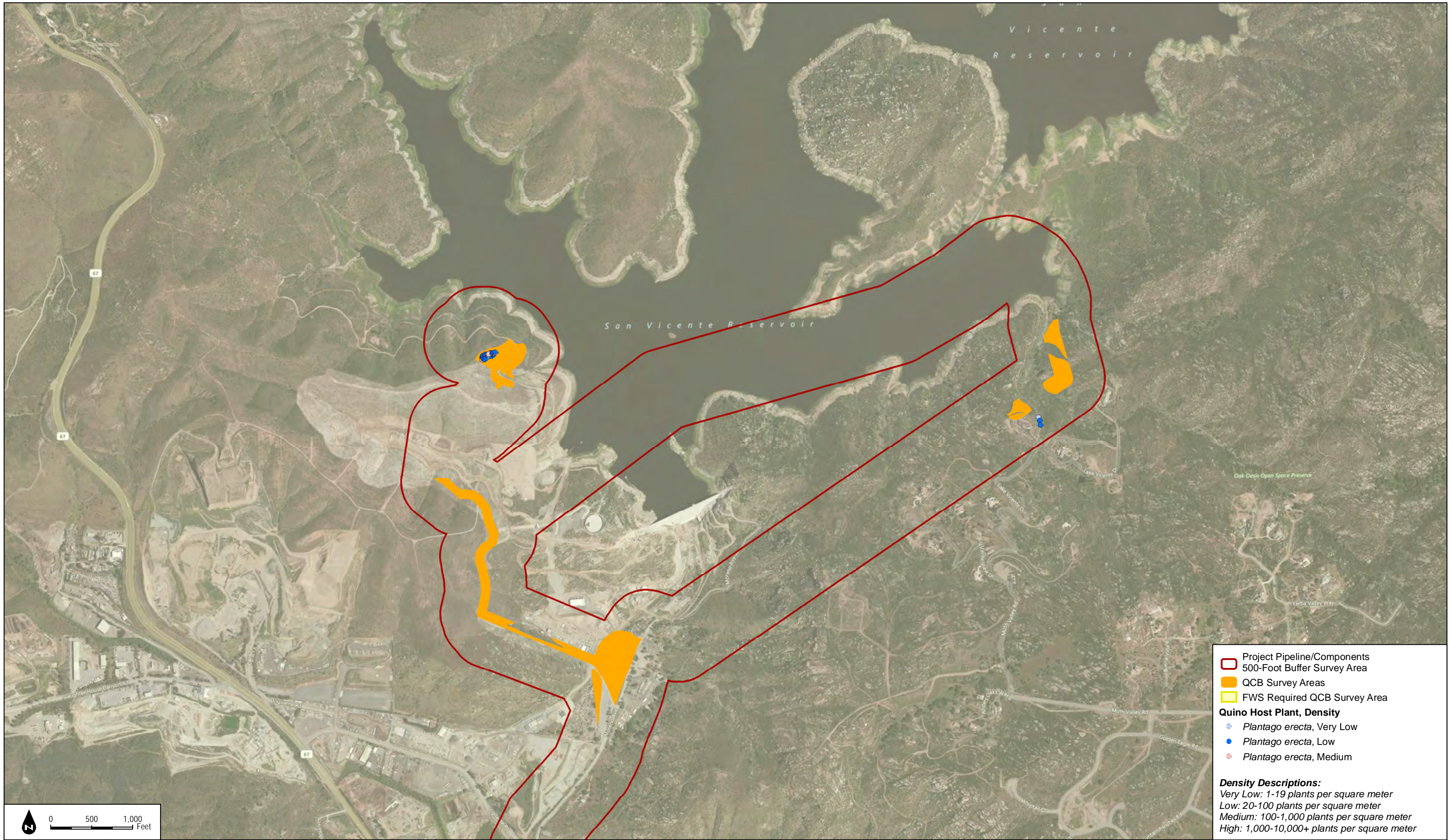


SOURCE: City San Diego 2016; Bing Maps 2016



Pure Water San Diego Program North City Projects

FIGURE 5C
Quino Host Plant Locations



SOURCE: City San Diego 2016; Bing Maps 2016

DUDEK

Pure Water San Diego Program North City Projects

FIGURE 5D

Quino Host Plant Locations

APPENDIX A

*2016 Pure Water Program
Quino Survey Field Notes*

Quino Checkerspot General Form

Adult Survey

Location PUREWATER/NURSERY AREA Survey Segment AREA 2
 Surveyor ARIEL CHATMAN Date 21 May 2016 Survey Week Number 112
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	50%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	69° F
11:00	40%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	70° F
12:00	30%	clear <u>patchy</u> overcast drizzle shower	5-6 mph	70° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 13:00	25%	clear <u>patchy</u> overcast drizzle shower	5-7 mph	71° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	3	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	2	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	5	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	6	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	2	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Hemiargus ceraunus</i> <i>gyas</i> 1		
<i>Erynnis propertius</i> (Propertius Duskywing)			(Ceraunus blue)		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycanidae (Hairstreaks)			<i>Euphilotes bernardino</i> 5		
<i>Allides halesus</i> (Great Purple Hairstreak)			(Bernardino blue)		
<i>Incisalia augustinus</i> (Western Brown Elfin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	4				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN

Segment #

AREA 2

Date: 21 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta

Nectar Plants Present:

BRASSICA, BUCKWHEAT, ASTERACEAE's

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location PURE WATER / NURSERY AREA Survey Segment AREA 2
 Surveyor GRET CHATMAN Date 23 May 2016 Survey Week Number (12)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 11:30	30%	clear <u>patchy</u> overcast drizzle shower	2-4 mph	71°F
12:00	25%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	73°F
13:00	20%	clear <u>patchy</u> overcast drizzle shower	3-6 mph	74°F
14:00	20%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	73°F
		clear <u>patchy</u> overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 15:00	20%	clear <u>patchy</u> overcast drizzle shower	4-7 mph	73°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	10	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	5	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	10	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	3		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourning Duskywing)			OTHERS: <i>Adelpha bredowii</i>	1	
<i>Erynnis propertius</i> (Propertius Duskywing)			(California sister)		
<i>Ochlodes agricola</i> (Rural Skipper)			<i>Euphilotes bernardino</i>	3	
Lycaenidae (Hairstreaks)			(Bernardino blue)		
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	6				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Chaiman

Segment # AREA (B) 2

Date: 23 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

~~Cacti~~ *Plantago erecta*

Nectar Plants Present:

Buckwheat, Asteraceae, cryptantha,

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-21
Biologist(s)	Brock Ortega
Survey Area	1
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:12:00	70		0	1-3	clear	
End	12:50:00	75		0	1-3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (4)	common buckeye (4)	painter lady (3)
Behr's metalmark (5)	Pacific sara orangetip (15)	queen (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-08
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	1
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:10:00	60		0	1-2	clear	
	10:00:00	60		0	1-2	clear	
End	10:45:00	63			2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (1)	Mormon metalmark (2)	western pygmy-blue (2)
monarch (1)	painted lady (1)	white checkered-skipper (3)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Encelia spp.</i>	<i>Plantago erecta</i>
<i>Cryptantha spp.</i>	<i>Lasthenia spp.</i>	<i>Yerba santa</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-13
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	1
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00		63	20	1-2	patchy	
	10:00:00		66	0	1-2	clear	
End	11:00:00		68	0	1-2	clear	
	12:00:00		68	0	1-2	clear	
	13:00:00		68	0	4-6	clear	
End	13:45:00		68	0	4-6	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
anise swallowtail (1+)	fiery skipper (2)	southern blue (6)
California sister (1+)	Mormon Metalmark (3)	western pygmy-blue (5)
common california ringlet (1)	Pacific sara orangetip (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-08
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	2
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:00:00	65		0	4-6	clear	
	12:00:00	65		0	4-6	clear	
End	13:00:00	66		0	6-9	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common california ringlet (1)	Mormon metalmark (3)	white checkered-skipper (2)
fiery skipper (2)	southern blue (5)	
funereal duskywing (1)	western pygmy-blue (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Encelia spp.</i>	<i>Yerba santa</i>
<i>Cryptantha spp.</i>	<i>Lasthenia spp.</i>	
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-13
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	2
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:15:00		68		4-6	clear	
	15:00:00		69		4-6	clear	
	16:00:00		67		4-6	clear	
End	16:45:00		66		4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
fiery skipper (2)	Pacific sara orangetip (6)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-08
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	3
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:40:00	64		0	6-9	clear	
	14:00:00	64		0	6-9	clear	
	15:00:00	71		0	2-4	clear	
	16:00:00	69		0	6-9	clear	
End	16:30:00	68		0	6-9	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common california ringlet (1)	Pacific sara orangetip (2)	western pygmy-blue (3)
Mormon metalmark (4)	southern blue (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Encelia spp.</i>	<i>Yerba santa</i>
<i>Cryptantha spp.</i>	<i>Lasthenia spp.</i>	
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-09
Biologist(s)	Greg Chatman
Survey Area	3
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:00:00		71	0	2-4	clear	
End	11:50:00		71	0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
anise swallowtail (1)	white checkered-skipper (2)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma capitatum</i>	<i>Yerba santa</i>
<i>Cryptantha sp.</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-09
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	3
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	15:00:00		68	10	4-8	clear	
	16:00:00		67	10	4-6	clear	
End	16:30:00		66	10	4-6	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
funereal duskywing (1)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma capitatum</i>	<i>Yerba santa</i>
<i>Chamise</i>	<i>Plantago erecta</i>	
<i>Cryptantha</i>	<i>Rhus</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-09
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	4
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:15:00		71	0	2-4	clear	
	13:00:00		71	0	2-4	clear	
	14:00:00		71	10	2-4	clear	
End	15:00:00		70	10	2-4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
California sister (1)	Pacific sara orangetip (2)	
Mormon Metalmark (3)	southern blue (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Encelia</i>	<i>Yerba santa</i>
<i>Cryptantha</i>	<i>Lasthenia</i>	
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-10
Biologist(s)	Greg Chatman
Survey Area	4
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	15:30:00		70	0	2-4	clear	
	16:00:00		68	0	2-4	clear	
End	16:45:00		67	0	2-4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
funereal duskywing (1)	Pacific sara orangetip (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-22
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	4
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:00:00		63	30	6-10	patchy	
	13:00:00		65	20	6-10	patchy	
	14:00:00		67	20	5-7	clear	
	15:00:00		67	20	4-8	clear	
End	16:00:00		65	10	4-8	clear	

BUTTERFLY LIST SPECIES (COUNT)		
California sister (2)	funereal duskywing (3)	southern blue (1)
common buckeye (2)	Mormon Metalmark (5)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>
<i>Cryptantha sp.</i>	<i>Lasthenia sp.</i>	<i>Yerba santa sp.</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-10
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	5
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00		68	0	1-2	clear	
	10:00:00		73	0	1-2	clear	
	11:00:00		75	0	4-6	clear	
End	11:30:00		75	0	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
cloudless sulphur (1)	funereal duskywing (1)	western pygmy-blue (6)
fiery skipper (2)	Pacific sara orangetip (2)	white checkered-skipper (5)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Buckwheat sp.</i>	<i>Dichelostemma capitatum</i>	<i>Rhus.</i>
<i>Chamise sp.</i>	<i>Encelia sp.</i>	<i>Yerba santa</i>
<i>Cryptantha sp.</i>	<i>Plantago ssp. (English plantago)</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-10
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	7
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:00:00		76	0	4-6	clear	
	13:00:00		72	0	2-4	clear	
End	14:00:00		70	0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Mormon Metalmark (2)	painted lady (1)	white checkered-skipper (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Buckwheat sp.</i>	<i>Cryptantha sp.</i>	<i>Rhus sp.</i>
<i>Castilleja exserta</i>	<i>Dichelostemma capitatum</i>	<i>Yerba santa</i>
<i>Chamise sp.</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-15
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	7
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00		65	0	1-2	clear	
	10:00:00		69	0	1-2	clear	
	11:00:00		73	0	2-3	clear	
End	11:30:00		75	0	2-4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
California sister (1)	orange sulphur (3)	southern blue (2)
fiery skipper (2)	Pacific sara orangetip (6)	
funereal duskywing (3)	red admiral (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-15
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	7
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00		65	0	1-2	clear	
	10:00:00		69	0	1-2	clear	
	11:00:00		73	0	2-3	clear	
End	11:30:00		75	0	2-4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
California sister (1)	orange sulphur (3)	southern blue (2)
fiery skipper (2)	Pacific sara orangetip (6)	
funereal duskywing (3)	red admiral (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-23
Biologist(s)	Greg Chatman
Survey Area	7
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00		63	0	1-2	clear	
	11:00:00		68	0	1-2	clear	
End	12:00:00		73	0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common buckeye (2)	Mormon Metalmark (10)	Pacific sara orangetip (20)
funereal duskywing (4)	northern white-skipper (10)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Buckwheat sp.</i>	<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>
<i>Castilleja exserta</i>	<i>Encelia sp.</i>	
<i>Cryptantha sp.</i>	<i>Lasthenia sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-11
Biologist(s)	Greg Chatman
Survey Area	8
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	08:30:00		64		1-2		
	09:00:00		65		1-2		
End	10:00:00		70	0	2-4	clear	
	12:00:00		70	0	2-4	clear	
	13:00:00		71	0	4-8	clear	
	14:00:00		72	0	4-8	clear	
End	14:30:00		71	0	4-8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
checkered white (3)	Pacific sara orangetip (15)	red admiral (1+)
funereal duskywing (4)	painted lady (1+)	
Mormon Metalmark (10)	pale swallowtail (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-15
Biologist(s)	Greg Chatman
Survey Area	8
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:30:00		74	0	2-4	clear	
	13:00:00		76	0	2-4	clear	
	14:00:00		78	0	4-6	clear	
	14:50:00		78	0	4-6	clear	
End	15:30:00		78	0	4-6	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	Mormon Metalmark (15)	western tiger swallowtail (1)
common buckeye (3)	northern white-skipper (5)	
fiery skipper (2)	Pacific sara orangetip (9)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-16
Biologist(s)	Greg Chatman
Survey Area	8
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:30:00		71	0	1-2	clear	
	11:00:00			0	1-2	clear	
	12:00:00			0	2-3	clear	
	13:00:00			0	2-4	clear	
	14:00:00			0	1-2	clear	
	15:00:00			0	1-2	clear	
End	16:45:00			0	2-3	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
checkered white (6)	Mormon Metalmark (20)	west coast lady (1)
dainty sulphur (1)	Pacific sara orangetip (20)	
funereal duskywing (4)	southern blue (2)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-21
Biologist(s)	Greg Chatman
Survey Area	8
Survey Pass	4

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00		62	0	1-2	clear	
	10:45:00		64	0	1-3	clear	
	11:15:00		76	0	4-6	clear	
	12:30:00		76	0	4-6	clear	
	13:00:00		78	0	4-7	clear	
	14:00:00		78	0	6-8	clear	
End	14:30:00		76	0	5-7	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
common buckeye (1)	Mormon Metalmark (12)	white checkered-skipper (1)
funereal duskywing (6)	Pacific sara orangetip (20)	
gray hairstreak (2)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma capitatum</i>	<i>Lasthenia sp.</i>
<i>Cryptantha sp.</i>	<i>Eriogonum sp.</i>	<i>Plantago erecta</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-28
Biologist(s)	Brock Ortega
Survey Area	Far eastern
Survey Pass	2

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	13:10:00	76		20	3-5	patchy	
End	15:20:00	77		20	3	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (3)	common california ringlet (1)	southern blue (2)
Behr's metalmark (8)	Pacific sara orangetip (7)	western tiger swallowtail (1)
common buckeye (2)	painted lady (1)	white checkered-skipper (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-05
Biologist(s)	Brock Ortega
Survey Area	Far eastern
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	65		20	3-5	patchy	
End	10:00:00	67		30	3-5	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (5)	checkered white (1)	painting lady (1)
anise swallowtail (1)	common buckeye (3)	southern blue (3)
Behr's metalmark (2)	Pacific sara orangetip (13)	Sulphur (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-13
Biologist(s)	Brock Ortega
Survey Area	Mission Gorge Rd, Far eastern
Survey Pass	3

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:45:00	71		20	3-5	patchy	
End	15:20:00	73		30	5	patchy	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (8)	common buckeye (7)	painting lady (7)
Behr's metalmark (24)	common california ringlet (1)	western tiger swallowtail (2)
California patch (1)	monarch (1)	white checkered-skipper (2)
checkered white (5)	Pacific sara orangetip (16)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-29
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NE Miramar Rd & I 805 intersection, 1
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	63		0	2-4	clear	
End	10:00:00	64		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
western pygmy-blue (2)		

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-29
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NE Miramar Rd & I805 intersection, 1
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	63		0	2-4	clear	
End	10:00:00	64		0	2-4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
western pygmy-blue (2)		

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
Cryptantha spp.		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NE of Landfill, 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	68		0	2-4	clear	
End	11:00:00	74		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
fiery skipper (1)	Pacific sara orangetip (3)	white checkered-skipper (2)
funereal duskywing (3)	southern blue (2)	
gray hairstreak (1)	western pygmy-blue (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Eriodictyon sp.</i>	<i>Plantago erecta</i>
<i>Dichelostemma sp.</i>	<i>Lasthenia sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-28
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NW Miramar Rd & I 805 intersection, 1
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	68		0	1-3	clear	
End	11:15:00	70		0	4-6	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
Acmon blue (1)	Mormon metalmark (3)	white checkered-skipper (2)
funereal duskywing (1)	western pygmy-blue (4)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Encelia sp.</i>	<i>Plantago erecta</i>
<i>Dichelostemma sp.</i>	<i>Eriodictyon sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-28
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NW Miramar Rd & I 805 intersection, 2
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:15:00	70		0	4-6	clear	
End	14:45:00	71		0	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common california ringlet (1)	fiery skipper (1)	southern blue (3)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Encelia sp.</i>	<i>Lasthenia sp.</i>
<i>Dichelostemma sp.</i>	<i>Eriodictyon sp.</i>	<i>Plantago erecta</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-28
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NW Miramar Rd & I805 intersection, 2
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:15:00	70		0	4-6	clear	
Temp check	12:00:00	70		0	4-6	clear	
Temp check	13:00:00	70		0	4-6	clear	
Temp check	14:00:00	71		0	4-6	clear	
End	14:45:00	71		0	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common california ringlet (1)	fiery skipper (1)	southern blue (3)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	<i>Golden yarrow</i>	<i>Yerba santa</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia</i> spp.	
<i>Encelia</i> spp.	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NW of MCAS runways, 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	16:00:00	72		20	4-6	clear	
End	17:00:00	69		20	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Pacific sara orangetip (1)	southern blue (2)	western pygmy-blue (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Eriodictyon sp.</i>	<i>Plantago erecta</i>
<i>Dichelostemma sp.</i>	<i>Lasthenia sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	NW of MCAS runways, 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	16:00:00	72		10	4-6	clear	
End	17:00:00	69		10	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
Pacific sara orangetip (1)	southern blue (2)	western pygmy-blue (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	<i>Lasthenia</i> spp.	<i>Yerba santa</i>
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	Near southern treatment plant, 7
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:30:00	80		20	4-6	clear	
End	15:00:00	75		20	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
fiery skipper (1)	orange sulphur (1)	southern blue (3)
funereal duskywing (2)	Pacific sara orangetip (5)	western pygmy-blue (2)
Mormon metalmark (3)	red admiral (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Eriodictyon sp.</i>	<i>Plantago erecta</i>
<i>Dichelostemma sp.</i>	<i>Lasthenia sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	Near southern treatment plant, 7
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:30:00	80		10	4-6	clear	
Temp check	13:00:00	77		10	4-6	clear	
Temp check	14:00:00	78		10	4-6	clear	
End	15:00:00	75		10	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
fiery skipper (1)	orange sulphur (1)	southern blue (3)
funereal duskywing (2)	Pacific sara orangetip (5)	western pygmy-blue (2)
Mormon metalmark (3)	red admiral (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	<i>Lasthenia</i> spp.	<i>Yerba santa</i>
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	Northeast of landfill, 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	68		0	2-4	clear	
Temp check	10:00:00	70		0	2-4	clear	
End	11:00:00	74		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
fiery skipper (1)	Pacific sara orangetip (3)	white checkered-skipper (2)
funereal duskywing (3)	southern blue (2)	
gray hairstreak (1)	western pygmy-blue (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha spp.</i>	<i>Goldfields</i>	<i>Yerba santa</i>
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-09
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	North of East Gate Mall Rd, 1
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:15:00	65		0	1-2	clear	
	10:00:00	67		0	1-2	clear	
End	11:00:00	71		0	1-2	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (1)	Pacific sara orangetip (1)	
monarch (1)	painted lady (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	<i>Dichelostemma capitatum</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-02
Biologist(s)	Greg Chatman
Survey Area	North of MCAS runway, 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	70			1-2	clear	
Temp check	10:00:00	72			1-2	clear	
Temp check	11:00:00	75			2-4	clear	
Temp check	12:00:00	78			2-4	clear	
Temp check	13:00:00	78			2-4	clear	
Temp check	14:00:00	77			3-5	clear	
End	15:30:00	73			3-5	clear	

BUTTERFLY LIST SPECIES (COUNT)		
cabbage white (1)	Mormon metalmark (5)	western pygmy-blue (2)
funereal duskywing (3)	Pacific sara orangetip (10)	western tiger swallowtail (1)
gray hairstreak (1)	southern blue (5)	white checkered-skipper (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>
<i>Cryptantha spp.</i>	<i>Goldfields</i>	<i>Yerba santa</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-02
Biologist(s)	Greg Chatman
Survey Area	North of MCAS runways, 4
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	70			1-2	clear	
End	15:30:00	73			3-5	clear	

BUTTERFLY LIST SPECIES (COUNT)		
cabbage white (1)	Mormon metalmark (5)	western pygmy-blue (2)
funereal duskywing (3)	Pacific sara orangetip (10)	western tiger swallowtail (1)
gray hairstreak (1)	southern blue (5)	white checkered-skipper (2)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma sp.</i>	<i>Lasthenia sp.</i>
<i>Cryptantha sp.</i>	<i>Eriodictyon sp.</i>	<i>Plantago erecta</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-28
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	SE Miramar Rd & I 805 intersection, 3
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	15:00:00	70		10	4-6	clear	
End	16:45:00	67		20	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (2)	Pacific sara orangetip (1)	white checkered-skipper (1)
gray hairstreak (1)	southern blue (4)	
Mormon metalmark (2)	western pygmy-blue (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Acmispon glaber</i>	<i>Dichelostemma sp.</i>	<i>Eriodictyon sp.</i>
<i>Cryptantha sp.</i>	<i>Encelia sp.</i>	<i>Plantago erecta</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-28
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	SE Miramar Rd & I805 intersection, 3
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	15:00:00	70		0	4-6	clear	
Temp check	16:00:00	69		10	4-6	clear	
End	16:45:00	67		10	4-6	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (2)	Pacific sara orangetip (1)	white checkered-skipper (1)
gray hairstreak (1)	southern blue (4)	
Mormon metalmark (2)	western pygmy-blue (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Acmispon glaber</i>	<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>
<i>Cryptantha spp.</i>	<i>Encelia spp.</i>	<i>Yerba santa</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-29
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	SE Miramar Rd & I 805 intersection, 3
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	69		0	4-6	clear	
End	14:15:00	72		10	6-8	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (3)	Mormon metalmark (3)	southern blue (4)
gray hairstreak (1)	Pacific sara orangetip (5)	western pygmy-blue (3)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Encelia sp.</i>	<i>Plantago erecta</i>
<i>Cryptantha sp.</i>	<i>Eriodictyon sp.</i>	
<i>Dichelostemma sp.</i>	<i>Lasthenia sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-29
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	SE Miramar Rd & I805 intersection, 3
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:00:00	69		0	4-6	clear	
Temp check	11:00:00	67		0	4-6	clear	
Temp check	12:00:00	71		0	6-8	clear	
Temp check	13:00:00	71		0	6-8	clear	
Temp check	14:00:00	72		0	6-8	clear	
End	14:15:00	72		0	6-8	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (3)	Mormon metalmark (3)	southern blue (4)
gray hairstreak (1)	Pacific sara orangetip (5)	western pygmy-blue (3)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Encelia spp.</i>	<i>Yerba santa</i>
<i>Cryptantha spp.</i>	<i>Lasthenia spp.</i>	
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-04
Biologist(s)	Greg Chatman
Survey Area	SE Miramar Rd & I805 intersection. Widened area., 3, 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	66		0	2-4	clear	
Temp check	10:00:00	67		0	2-4	clear	
Temp check	11:00:00	68		0	2-4	clear	
End	11:30:00	69		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
anise swallowtail (1)	Mormon metalmark (3)	
funereal duskywing (2)	southern blue (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	Goldfields	Yerba santa
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-04
Biologist(s)	Greg Chatman
Survey Area	Sae Miramar Rd & I 805 intersection, 3, 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	66		0	2-4	clear	
End	11:30:00	69		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
anise swallowtail (1)	Mormon metalmark (3)	
funereal duskywing (2)	southern blue (3)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> sp.	<i>Eriodictyon</i> sp.	<i>Plantago erecta</i>
<i>Dichelostemma</i> sp.	<i>Lasthenia</i> sp.	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-03
Biologist(s)	Greg Chatman
Survey Area	San Diego River/San Vicente Res., 8
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	67		0	2-4	clear	
End	17:00:00	68		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common buckeye (2)	Pacific sara orangetip (15)	southern blue (6)
Mormon metalmark (5)	pale swallowtail (1)	west coast lady (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Castilleja exserta</i>	<i>Dichelostemma sp.</i>	<i>Plantago erecta</i>
<i>Cryptantha sp.</i>	<i>Eriodictyon sp.</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-03
Biologist(s)	Greg Chatman
Survey Area	San Diego River/San Vincente Res., 8
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:00:00	67		0	2-4	clear	
Temp check	10:00:00	68		0	2-4	clear	
Temp check	11:00:00	72		0	2-4	clear	
Temp check	12:00:00	74		0	2-4	clear	
Temp check	13:00:00	73		0	4-6	clear	
Temp check	16:00:00	70		0	4-6	clear	
End	17:00:00	68		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common buckeye (2)	Pacific sara orangetip (15)	southern blue (6)
Mormon metalmark (5)	pale swallowtail (2)	west coast lady (1)

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	<i>Plantago erecta</i>	
<i>Dichelostemma capitatum</i>	<i>Yerba santa</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-29
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	Villace Nursery Area, 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:30:00	72		10	6-8	clear	
End	15:15:00	71		10	6-8	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
funereal duskywing (1)	Pacific sara orangetip (2)	western pygmy-blue (2)
Mormon metalmark (1)	southern blue (1)	

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> sp.	<i>Encelia</i> sp.	
<i>Dichelostemma</i> sp.	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-02-29
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	Villace nursery area, 5
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	14:30:00	72		10	6-8	clear	
Temp check	15:00:00	71		10	6-8	clear	
End	15:15:00	71		10	6-8	clear	

BUTTERFLY LIST SPECIES (COUNT)		
funereal duskywing (1)	Pacific sara orangetip (2)	western pygmy-blue (2)
Mormon metalmark (1)	southern blue (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha</i> spp.	<i>Encelia</i> spp.	
<i>Dichelostemma capitatum</i>	<i>Plantago erecta</i>	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	West & south of landfill, 6
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:00:00	71		0	2-4	clear	
Temp check	12:00:00	74		0	2-4	clear	
End	12:30:00	76		0	2-4	clear	

BUTTERFLY LIST <i>SPECIES (COUNT)</i>		
cloudless sulphur (2)	orange sulphur (1)	western pygmy-blue (3)
common buckeye (1)	southern blue (4)	western tiger swallowtail (1)

INCIDENTAL WILDLIFE LIST <i>SPECIES (COUNT)</i>		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha spp.</i>	<i>Encelia spp.</i>	<i>Plantago erecta</i>
<i>Dichelostemma capitatum</i>	<i>Lasthenia spp.</i>	<i>Yerba santa</i>

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Pure Water Program
Survey Date	2016-03-01
Biologist(s)	Dale Powell, Greg Chatman, June Powell
Survey Area	West and South of landfill, 6
Survey Pass	1

SURVEY CONDITIONS							
Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	11:00:00	71		0	2-4	clear	
End	12:30:00	76		0	2-4	clear	

BUTTERFLY LIST SPECIES (COUNT)		
common buckeye (1)	western pygmy-blue (3)	
southern blue (4)	western tiger swallowtail (1)	

INCIDENTAL WILDLIFE LIST SPECIES (COUNT)		
(none)		

INCIDENTAL PLANT LIST		
<i>Cryptantha sp.</i>	<i>Encelia sp.</i>	<i>Lasthenia sp.</i>
<i>Dichelostemma sp.</i>	<i>Eriodictyon sp.</i>	<i>Plantago erecta</i>

Quino Checkerspot General Form

Adult Survey

Location NOAH CEMETERY (MCAS) Survey Segment EUNOY AREA (3)
 Surveyor GOEL CHAMPAH Date 09 MAR 2016 Survey Week Number (2)
 Survey Partner(s) THE POWERS
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 11:50	☉	clear patchy overcast drizzle shower	2-4 mph	71° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 11:50	☉	clear patchy overcast drizzle shower	2-4 mph	71° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	1	
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GILBERT CHATMAN

Segment # SUNNY AREA (3)

Date: 09 MAR 2016

Comments:

Plant Communities and Habitat Information:

SEE SUNNY WEEK (1)

Host Plants Present:

Plantago erecta, Castilleja erecta

Nectar Plants Present:

cryptantha, GERANIUM, BLUE DICKS

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NEAR COMOTON (MCHS) Survey Segment SURVEY AREA (4)
 Surveyor ALBERT CHRISTMAN Date 09 MAR 2016 Survey Week Number (2)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	clear	patchy	overcast	drizzle	shower	Wind (range)	Temp. (F)
Start 12:15	0	clear	patchy	overcast	drizzle	shower	2-4 mph	71° F
13:00	0	clear	patchy	overcast	drizzle	shower	2-4 mph	71° F
14:00	10%	clear	patchy	overcast	drizzle	shower	2-4 mph	71° F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 15:00	10%	clear	patchy	overcast	drizzle	shower	2-4 mph	70° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	3	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	2	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: CALIFORNIA SISTER	1	
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)	2				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GRET CHITMAN

Segment # SURVEY AREA (4)

Date: 09 MAR 2016

Comments:

* GOOD PATCHES OF PLANTAGO IN OPEN AREAS
NORTHERN MCAS RUNWAYS

Plant Communities and Habitat Information:

SBS SURVEY WOOD (1)

Host Plants Present:

Plantago erecta, Castilleja erecta

Nectar Plants Present:

YERBA SANTA, GYPTISIDA, EUCLELIA, BLUEBELLS, LUSTRONIA

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NEAR VILLAGE NURSERY Survey Segment SULCA AREA (3)
 Surveyor COB-CHERMAN Date 09 MAR 2016 Survey Week Number (2)
 Survey Partner(s) THE POWERS
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	clear	patchy	overcast	drizzle	shower	Wind (range)	Temp (F)
Start 15:00	10%	clear	patchy	overcast	drizzle	shower	4-8 mph	68°F
16:00	10%	clear	patchy	overcast	drizzle	shower	4-6 mph	67°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 16:30	10%	clear	patchy	overcast	drizzle	shower	4-6 mph	66°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Sordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourning Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfín)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)					
<i>Glaucopteryx lydamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN Segment # SURVEY AREA (3) Date: 9 MAR 2016

Comments:

* GOOD PATCHES OF PLANTAGO IN OPEN AREAS EAST OF VILLAGE ROADSIDE.

Plant Communities and Habitat Information: YERBA SANTA, CHAMISE, RHUS

Host Plants Present: Plantago erecta, Castilleja exata

Nectar Plants Present: YERBA SANTA, CRYPTANTHUS, RUISECCIA,

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location EAST OF LAUD FILL Survey Segment SURVEY AREA (5)
 Surveyor GREG CHATMAN Date 10 MAR 2016 Survey Week Number (2)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start 9:15	0	clear patchy overcast drizzle shower	1-2 mph	68° F
10:00	0	clear patchy overcast drizzle shower	1-2 mph	73° F
11:00	0	clear patchy overcast drizzle shower	4-6 mph	75° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 11:30	0	clear patchy overcast drizzle shower	4-6 mph	75°

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	6	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	2	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopterus ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	2		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	5		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourning Duskywing)	1		OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)			<i>Phoebus sennae</i>		
<i>Ochlodes agricola</i> (Rural Skipper)			(cloudless sulphur)		
Lycaenidae (Hairstreaks)					
<i>Atalides haesus</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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN

Segment # SURVEY AREA (5)

Date: 10 MAR 2016

Comments:

Plant Communities and Habitat Information:

NON-NATIVE GRASSES + FORBES
CHAMISE, REEDS, GERBA SANTA, DUCKWEEDS

Host Plants Present:

Plantago spp. (English Plantago)

Nectar Plants Present:

CRYPTANTHA, GERBA SANTA, ENIGMA, BLUE DICKS

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NEAR SOUTHWEST TREATMENT PLANT Survey Segment SUNNY AREA (7)
 Surveyor GUEL CHAPMAN Date 10 MAR 2016 Survey Week Number (2)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 12:00		clear patchy overcast drizzle shower	4-6 mph	76° F
13:00		clear patchy overcast drizzle shower	7-11 mph	72° F
14:00		clear patchy overcast drizzle shower	2-4 mph	70° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 14:00		clear patchy overcast drizzle shower		

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Oryzanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	2	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)	1		Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN

Segment # SURVEY AREA (7)

Date: 10 MAR 2016

Comments:

Plant Communities and Habitat Information:

HERBA SANTA, CHAMISE, RIKUS, BUCKWHEATS

Host Plants Present:

Plantago erecta, Castilleja exalta

Nectar Plants Present:

HERBA SANTA, CRYPTANTHA, BLUE BUCKS

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NORTH OF (MCAS) RUNWAYS Survey Segment SURVEY AREA (4)
 Surveyor GREG CHATMAN Date 10 MAR 2016 Survey Week Number (2)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start 15:30	0	clear patchy overcast drizzle shower	2-4 mph	70° F
16:00	0	clear patchy overcast drizzle shower	2-4 mph	68° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 16:45	0	clear patchy overcast drizzle shower	2-4 mph	67° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Orydanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GABE CHATMAN Segment # SURVEY AREA (4) Date: 10 MAR 2016

Comments:
* GOOD PATCHES OF PLANTAGO NORTH OF
VALCROS MIRAMAR RUNWAYS.

Plant Communities and Habitat Information: CHAMISE, YERBA SANTA, RHUS

Host Plants Present: Plantago erecta, Castilleja erecta

Nectar Plants Present: CARDUANTHUS, LUCITHEMIA, YERBA SANTA, BLUE BUCKS

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RIVER / SAN VICENTE RES. Survey Segment SURVEY AREA (8)
 Surveyor ARIEL CHATMAN Date 11 MAR 2016 Survey Week Number (2)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp. (F)
Start 08:30	Hazy	clear	patchy	overcast	drizzle	shower	1-2 mph	64° F
09:00	Hazy	clear	patchy	overcast	drizzle	shower	1-2 mph	65° F
10:00	☉	clear	patchy	overcast	drizzle	shower	2-4 mph	70° F
12:00	☉	clear	patchy	overcast	drizzle	shower	2-4 mph	70° F
13:00	☉	clear	patchy	overcast	drizzle	shower	4-8 mph	70° F
14:00	☉	clear	patchy	overcast	drizzle	shower	4-8 mph	72° F
Stop 14:30	☉	clear	patchy	overcast	drizzle	shower	4-8 mph	71° F

Habitat onsite (circle as applicable): milltop, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)	2	
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)	1		<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)	1		Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	15	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	3	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	4		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourning Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)					
<i>Icaricia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN

Segment # SURVY AREA (R)

Date: 11 MAR 2016

Comments:

* GOOD HABITAT NEAR WEST SIDE OF SAN VICENTE RES.
Plantago erecta + good nectar sources

Plant Communities and Habitat Information: - NON-NATIVE GRASS + FORBES ALONG
SAN DIEGO RIVER COURSE AREAS.
- CHAMISE, RHUS, BUCKWHEATS NEAR
SAN VICENTE RES.

Host Plants Present:

Plantago erecta + *Castilleja exerta*

Nectar Plants Present:

Cryptantha, Bluebirds, *Lathenia*,

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location N.W. MIRAMAR RD + I805 JUNCTION Survey Segment SURVEY AREA 1
 Surveyor OREG CHATMAN Date 13 MAR 2016 Survey Week Number (3)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	clear	patchy	overcast	drizzle	shower	Wind (range)	Temp (F)
Start 09:30	20%	clear	patchy	overcast	drizzle	shower	1-2 mph	67°F
10:00	0	clear	patchy	overcast	drizzle	shower	1-2 mph	66°F
11:00	0	clear	patchy	overcast	drizzle	shower	1-2 mph	68°F
12:00	0	clear	patchy	overcast	drizzle	shower	1-2 mph	68°F
13:00	0	clear	patchy	overcast	drizzle	shower	4-6 mph	68°F
		clear	patchy	overcast	drizzle	shower		
Stop 13:45		clear	patchy	overcast	drizzle	shower	4-6 mph	68°F

Habitat onsite (circle as applicable): hiltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	6	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	3	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	1	
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	4	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	2		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)	1	
<i>Erynnis tristis</i> (Mourning Duskywing)			OTHERS: <i>Californis sister</i>	1	
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Ailides 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> (Southern Blue)	6				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Curran

Segment # SURVEY AREA 1

Date: 13 MAR 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta, Castilleja exaltata

Nectar Plants Present:

YERBA SANTA, CRYPTANTHA, BLUE DICKS, LASTHENIA, ENCELLA

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NEAR (MCAS) CEMETERY Survey Segment SURVEY AREA (2)
 Surveyor GREG CHAPMAN Date 13 MAR 2016 Survey Week Number (3)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start <u>14:15</u>		<u>clear</u> patchy overcast drizzle shower	<u>4-6 mph</u>	<u>68° F</u>
<u>15:00</u>		<u>clear</u> patchy overcast drizzle shower	<u>4-6 mph</u>	<u>69° F</u>
<u>16:00</u>		<u>clear</u> patchy overcast drizzle shower	<u>4-6 mph</u>	<u>67° F</u>
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop <u>16:45</u>		<u>clear</u> patchy overcast drizzle shower	<u>4-6 mph</u>	<u>66° F</u>

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	<u>6</u>	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	<u>2</u>		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CURTIS

Segment # SURVEY AREA (2)

Date: 13 MAR 2016

Comments:

* GOOD HABITAT IN OPEN AREAS S.E. OF MCAS COMPTON.
- Plantago + Castilleja in open area on bluff tops

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta, *Castilleja exserta*

Nectar Plants Present:

Cryptantha, *Lasthenis*, *Blue dicks*,

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NEAR SOUTHWEST TREATMENT PLANT Survey Segment SURVEY AREA (7)
 Surveyor GREG CHADMAN Date 15 MAR 2016 Survey Week Number (3)
 Survey Partner(s) THE POWELL'S
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start <u>09:15</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>1-2 mph</u>	<u>65°F</u>
<u>10:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>1-2 mph</u>	<u>69°F</u>
<u>11:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-3 mph</u>	<u>73°F</u>
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop <u>11:30</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>75°F</u>

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)	<u>1</u>		<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	<u>6</u>	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	<u>3</u>	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	<u>2</u>		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	<u>3</u>		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <u>California sifter</u> <u>1</u>		
<i>Erynnis propertius</i> (Propertius Duskywing)			<u>(Adelpha broadwii californica)</u>		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfín)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)					
<i>Glaucopsyche lygdamus</i> (Southern Blue)	<u>2</u>				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHAMMAN

Segment # SURVEY AREA (7)

Date: 15 MAR 2016

Comments:

[Empty lined area for handwritten comments]

Plant Communities and Habitat Information: * BLACK SAGE + HOLY-LIEMED SCRUB-OAK

[Empty lined area for handwritten notes]

Host Plants Present: Plantago erecta in openings on bluffs
Castilleja exata also sprinkled in

Nectar Plants Present: LASTHANIA, YERBA SANTA, CRYPTANTHA, BLUE-DICKS,
SUNJACK MELIFERA.

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION GARDEN RD. + RAIN TOWER Survey Segment SURVEY AREA (8)
 Surveyor ALAN CHAMMAN Date 15 MAR 2016 Survey Week Number (3)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 12:30	0	clear patchy overcast drizzle shower	2-4 mph	74°F
13:00	0	clear patchy overcast drizzle shower	2-4 mph	76°F
14:00	0	clear patchy overcast drizzle shower	4-6 mph	78°F
14:50	0	clear patchy overcast drizzle shower	4-6 mph	78°F
		clear patchy overcast drizzle shower		
15:00 - 15:30		clear patchy overcast drizzle shower		
Stop 15:50	0	clear patchy overcast drizzle shower	4-6 mph	78°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Lcanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	15	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	3		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)	1	
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	9	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	5		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	2		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)	1				
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor WRE CHATMAN Segment # SURVEY AREA (8) Date: 15 MAR 2016

Comments: * GOOD HILLTOPS (small) WITH POORLY OUTCROPS, CRYPTOGAMIC SOILS, HOST PLANTS + NECTAR SOURCES.

Plant Communities and Habitat Information: CHAMISE, RHUS, SYLVIA, BUCKWHEAT,

Host Plants Present: Plantago erecta + Castilleja exerta

Nectar Plants Present: Lasthenis, Cryptantha, Blue-dicks, BUCKWHEAT

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SANDIEGO RIVER / SAN VICENTE RES / Survey Segment SURVEY AREA (8)
 Surveyor GREG CHATMAN Date 16 MAR 2016 Survey Week Number (3)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start <u>10:30</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>1-2 mph</u>	<u>71° F</u>
<u>11:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>1-2 mph</u>	
<u>12:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-3 mph</u>	
<u>13:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	
<u>14:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>1-2 mph</u>	
<u>15:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>1-2 mph</u>	
Stop <u>16:45</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-3 mph</u>	

Habitat onsite (circle as applicable) hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodenia mormo</i> (Mormon Metalmark)	<u>20</u>	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)	<u>1</u>		<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	<u>20</u>	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	<u>6</u>	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	<u>4</u>		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourful Duskywing)			OTHERS: <u>Dainty</u>		
<i>Erynnis propertius</i> (Propertius Duskywing)			<u>From Dainty sulphur</u>	<u>1</u>	
<i>Ochlodes agricola</i> (Rural Skipper)			<u>(<i>Nathalis iole</i>)</u>		
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)	<u>2</u>				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN Segment # SURVEY AREA (8) Date: 16 MAR 2016

Comments:

SURVEYED PLANTAGO PATCHES MORE THOROUGHLY
NO QUINO OBSERVED

Plant Communities and Habitat Information: SEE PRIOR WEEKS

Host Plants Present: Plantago erecta
Castilleja erecta

Nectar Plants Present: Lactuca, Cryptantha, YERBA SANTA, BUCKWHEAT, BLUE-MOSS
ONCELA

Quino Sighting Date: _____ GPS Location: _____

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RES. / SAN DIEGO RIVER AREAS Survey Segment SURVEY AREA (8)
 Surveyor GREG CHERMAN Date 21 MAR 2016 Survey Week Number (4)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start 10:00	0	clear patchy overcast drizzle shower	1-2 mph	62°F
10:45	0	clear patchy overcast drizzle shower	1-3 mph	64°F
11:15	0	clear patchy overcast drizzle shower	4-6 mph	76°F
12:30	0	clear patchy overcast drizzle shower	4-6 mph	76°F
13:00	0	clear patchy overcast drizzle shower	4-7 mph	78°F
14:00	0	clear patchy overcast drizzle shower	6-8 mph	78°F
Stop 14:30	0	clear patchy overcast drizzle shower	5-7 mph	76°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	12	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	1		<i>Papilio eurymedon</i> (Pale Swallowtail)	1	
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	20+	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	6		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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)	2				
<i>Glaucopsyche hydamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GRET CHITMAN

Segment # SUNNY AREA (P)

Date: 21 MAR 2016

Comments:

Plantago doing better after week ago rain!

BUCKWHEAT COMING INTO BLOOM

BLACK SAGE BLOOMING

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta + Castilleja erecta

Nectar Plants Present:

Cryptantha, Lasthenia, Blue-dicks, Buckwheat

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location Southern Tanager Point Survey Segment SURVEY AREA (4)
 Surveyor GREG CHRISTMAN Date 22 MAR 2016 Survey Week Number (4)
 Survey Partner(s) THE POWERS
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	clear	patchy	overcast	drizzle	shower	Wind (range)	Temp. (F)
Start 12:00	25%	clear	patchy	overcast	drizzle	shower	6-10 mph	63°F
13:00	20%	clear	patchy	overcast	drizzle	shower	6-10 mph	65°F
14:00	15%	clear	patchy	overcast	drizzle	shower	5-7 mph	67°F
15:00	15%	clear	patchy	overcast	drizzle	shower	4-8 mph	67°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 16:00	10%	clear	patchy	overcast	drizzle	shower	4-8 mph	65°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	5	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Rcd Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	3		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)			<i>California Sister</i>	2	
<i>Ochlodes agricola</i> (Rural Skipper)			<i>(Adelpha bredawii californica)</i>		
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfín)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)					
<i>Glaucopsyche lygdamus</i> (Southern Blue)	1				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CURTMAN

Segment # SEARCH AREA (4)

Date: 22 MAR 2016

Comments:

* Plantago doing better after last week rain!
* Castilleja more obvious with blooms apparent.

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta & *Castilleja exata*

Nectar Plants Present:

Cryptantha, *Lasthenis*, Blue-dicks, *GOLBA SUMRA*

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION CROSBY AREA Survey Segment SURVY AREA (7)
 Surveyor GREG CHAFFMAN Date 23 MAR 16 Survey Week Number (4)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start 10:00	0	clear patchy overcast drizzle shower	1-2 mph	67°
11:00	0	clear patchy overcast drizzle shower	1-2 mph	68°
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 12:00	0	clear patchy overcast drizzle shower	2-4 mph	73°

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10+	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	20+	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopterus ericetorum</i> (Northern White-Skipper)	10+		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	4		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor WES CHAFFIN

Segment # SURVEY AREA (7)

Date: 23 MAR 2016

Comments:

Plantago + *Castilleja* in openings around hilltops
cryptogamic soils.

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta + *Castilleja exalt*

Nectar Plants Present:

Lasthenis, *Encelia*, *Cryptantha*, Buckwheat, Blue-decks

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NORTH OF MCAS RUNWAY

Survey Segment QCB SURVEY AREA (4)

Surveyor WEE CHAMBER

Date 02 FEB 2016 Survey Week Number (1)

Survey Partner(s)

Total Acres: 78 Portion Surveyed: _____ Elevation: Max 4004. Min 2804.

Time (24 hr)	% Cloud	Sky				Wind (range)	Temp (F)	
Start 09:30		<u>clear</u>	patchy	overcast	drizzle	shower	1-2 mph	70°F
10:00		<u>clear</u>	patchy	overcast	drizzle	shower	1-2 mph	72°F
11:00		<u>clear</u>	patchy	overcast	drizzle	shower	2-4 mph	75°F
12:00		<u>clear</u>	patchy	overcast	drizzle	shower	2-4 mph	78°F
13:00		<u>clear</u>	patchy	overcast	drizzle	shower	2-4 mph	78°F
14:00		<u>clear</u>	patchy	overcast	drizzle	shower	3-5 mph	77°F
Stop 15:30		<u>clear</u>	patchy	overcast	drizzle	shower	3-5 mph	73°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	2	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	5	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	1		<i>Papilio eurymedon</i> (Pale Swallowtail)	1	
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)	1	
<i>Vanessa atalanta</i> (Red Admiral)	5		<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	10	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)	1	
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	3		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Ailides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	1				
<i>Glaucopsyche lygdamus</i> (Southern Blue)	5				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHADMAN

Segment # SWAMPY AREA 4

Date: _____

Comments:

* GOOD PATCHES OF PLANTAGO NORTH WEST OF
MCAS MIRAMAR

* LOTS OF PLANTAGO IN OPEN AREAS

Plant Communities and Habitat Information:

CHAMISE, RHUS, BUCKWHEAT, RHAMNUS,
DEERWEED.

Host Plants Present:

Plantago erecta, Castilleja erecta

Nectar Plants Present:

CRYPTANTHA, YERBA SANTA, GOLDFIELDS, BLUE DICKS.

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SAN DIEGO RIVER / SAN VICENTE RES. Survey Segment QCB SWAMP AREA (8)
 Surveyor LOUI CHAFFIN Date 03 MAR 2016 Survey Week Number (1)
 Survey Partner(s) _____
 Total Acres: 49 Portion Surveyed: _____ Elevation: Max 880 ft Min 300 ft

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 09:00	0	clear patchy overcast drizzle shower	2-4 mph	67°
10:00	0	clear patchy overcast drizzle shower	2-4 mph	68°
11:00	0	clear patchy overcast drizzle shower	2-4 mph	72°
12:00	0	clear patchy overcast drizzle shower	2-4 mph	74°
13:00	0	clear patchy overcast drizzle shower	4-6 mph	73°
16:00	0	clear patchy overcast drizzle shower	4-6 mph	70°
Stop 17:00	0	clear patchy overcast drizzle shower	2-4 mph	68°

Habitat onsite (circle as applicable): hiltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides nylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	5	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)	2	
<i>Vanessa annabella</i> (West Coast Lady)	1		<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	15	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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>Glaucopsyche lygdamus</i> (Southern Blue)	6				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN Segment # SURVEY AREA (R) Date: 03 MAR 2016

Comments:

* GOOD PATCHES OF PLANTAGO WEST OF SAN VICENTE RESERVOIR.

* SMALL SURVEY AREAS ALONG SAN DIEGO RIVER POOR HABITAT

Plant Communities and Habitat Information: CHAMISE, BUCKWHEAT, YERBA SANTA,

* CRYPTOGAMIC SOILS w/ PLANTAGO

Host Plants Present:

Plantago erecta

Nectar Plants Present: CRYPTANTHA, YERBA SANTA, BLUE NICKS

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SE MIRAMAR RD + I-805 intersection Survey Segment QCB survey AREA (3)(5) *WINDY AREA*
 Surveyor GABE CHATMAN Date 04 MAR 2016 Survey Week Number (1)
 Survey Partner(s) _____
 Total Acres: 61 Portion Surveyed: _____ Elevation: Max 400ft Min 390ft.

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 09:30	0	clear patchy overcast drizzle shower	2-4 mph	66°F
10:00	0	clear patchy overcast drizzle shower	2-4 mph	67°F
11:00	0	clear patchy overcast drizzle shower	2-4 mph	68°F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 11:30	0	clear patchy overcast drizzle shower	2-4 mph	69°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	3	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	1	
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pteris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Atlides 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> (Southern Blue)	3				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

WIENED AREA

Surveyor GREG CHADMAN

Segment # SUNNY AREA (3) (5) Date: 04 MAR 2016

Comments:

* GOOD HABITAT EAST OF NURSERY - SEVERAL AREAS OF PLANTAGO IN DREW AREAS

Plant Communities and Habitat Information:

CHAMISE, YERBA SANTA, RHUS, BUCKWHEAT, DEERWEED, EUCALYPT

Host Plants Present:

Plantago erecta

Nectar Plants Present:

YERBA SANTA, CRYPTANTHA, GOLD-FIELD, BLUE DICKS

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NW MIRAMAR RD + I 805 intersection Survey Segment OCB SURVEY AREA (2)
 Surveyor GREG CHATMAN Date 28 FEB 2016 Survey Week Number (1)
 Survey Partner(s) DALE + SUNE POWELL
 Total Acres: 86 acres Portion Surveyed: _____ Elevation: Max 3804' Min 3204'

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 11:15	0	clear patchy overcast drizzle shower	4-6 mph	70°F
12:00	0	clear patchy overcast drizzle shower	4-6 mph	70°F
13:00	0	clear patchy overcast drizzle shower	4-6 mph	70°F
14:00	0	clear patchy overcast drizzle shower	4-6 mph	71°F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 14:45	0	clear patchy overcast drizzle shower	4-6 mph	71°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydras editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydras chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Lcanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)	1	
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfín)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)					
<i>Glaucopsyche lygdamus</i> (Southern Blue)	3				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN Segment # AREA 2 (WEEK 1) Date: 28 FEB 2016

Comments: TWO AREAS WITHIN AREA TWO(2) HAVE GOOD PATCHES OF PLANTAGO.
MOSTLY NON-NATIVE GRASSES + FORBES
* DESCENT PATCHES OF PLANTAGO BUT ISOLATED FROM OTHER HOST'S DUE TO HABITAT FRAGMENTATION.

Plant Communities and Habitat Information: NON-NATIVE GRASSES W/MIXED RHUS SPECIES, COMMON BUCKWHEAT, DEERWEED, CHAMISE,
* CRYPTOGAMIC SOILS WITH PLANTAGO.

Host Plants Present: PLANTAGO erecta

Nectar Plants Present: YERBA SANTA, LASTAENA, CRYPTANTHA, BRUCEA, BLUE DICKS, GOLDEN YARROW,

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SE MICAWAR RD + I 805 intersection Survey Segment QCB GRADING AREA (3)
 Surveyor GREG CHATMAN Date 28 FEB 2016 Survey Week Number (1)
 Survey Partner(s) DAVE + SUNG POWELL
 Total Acres: 85 Portion Surveyed: _____ Elevation: Max 390ft Min 260ft.

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)
Start 15:00	5%	clear	patchy	overcast	drizzle	shower	4-6 mph	70°F
16:00	10%	clear	patchy	overcast	drizzle	shower	4-6 mph	69°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 16:45	15%	clear	patchy	overcast	drizzle	shower	4-6 mph	67°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	1	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	2	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Ailides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	1				
<i>Glaucoopsyche lygdamus</i> (Southern Blue)	4				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor ANNE CHAMMAN

Segment # SURVEY AREA (3)

Date: 28 FEB 2016

Comments:

* *Plantago erecta* in open areas but not in abundance!
- a little here, a little there!

Plant Communities and Habitat Information:

NON-NATIVE GRASSES + FORBS
BUCKWHEAT, CHAMISE, LIME PINE, SYCAMORE,
RHUS SPECIES, DEERWEED

Host Plants Present:

Plantago erecta

Nectar Plants Present:

DEERWEED, BLUEGRASS, CRYPTANTHA, GERDA SANTA, ENCELIMA

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NE MICAMAR RD. & I-805 intersection Survey Segment QCB SURVEY AREA (1)
 Surveyor ARIEL CHAPMAN Date 29 MAR 2016 Survey Week Number (1)
 Survey Partner(s) DAVE & JUNG POWELL
 Total Acres: 85 Portion Surveyed: 1 ACRE Elevation: Max 3804 Min 3804

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start <u>9:15</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>63° F</u>
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop <u>10:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>64° F</u>

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, *Plantago*, *Castilleja*, *Cordylanthus*, *Antirrhinum*, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	<u>2</u>	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor WNE CHATMAN Segment # SURVEY AREA (1) Date: 29 FEB 2016

Comments:

~~1~~ 1 ACRE THAT COULD NOT BE ACCESSED ON PREVIOUS DAY.

Plant Communities and Habitat Information: ~~SAME AS~~ NON-NATIVE GRASSES & FORBES

Host Plants Present:

Nectar Plants Present: CRYPTANTHA

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SE mecamac rd + I-805 intersection Survey Segment QCB SURVEY AREA (3)
 Surveyor ALICE CHATMAN Date 29 FEB 2016 Survey Week Number (1)
 Survey Partner(s) DALE + JUNE POWELL
 Total Acres: 85 Portion Surveyed: _____ Elevation: Max 300 Ft. Min 700 Ft.

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	4-6 mph	69° F
11:00	0	clear patchy overcast drizzle shower	4-6 mph	67° F
12:00	0	clear patchy overcast drizzle shower	6-8 mph	71° F
13:00	0	clear patchy overcast drizzle shower	6-8 mph	71° F
14:00	5%	clear patchy overcast drizzle shower	6-8 mph	72° F
		clear patchy overcast drizzle shower		
Stop 14:15	5%	clear patchy overcast drizzle shower	6-8 mph	72° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	3	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)	3	
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	5	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	3		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Ailides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	1				
<i>Glaucopsyche lygdamus</i> (Southern Blue)	4				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CLIFMAN Segment # SURVEY AREA (3) Date: 29 FEB 2016

Comments: * NICE PATCHES OF PLANTAGO ALL ALONG ROAD SE OF MCHS Cemetery. GOOD NECTAR SOURCES NEARBY

Plant Communities and Habitat Information: CHAMISE, RHUS, BUCKWHEAT, RHAMNUS, NON-NATIVE GRASSES + FORBS

* CRYPTOGAMIC SOILS WITH PLANTAGO!

Host Plants Present: Plantago erecta, Castilleja erecta

Nectar Plants Present: Cryptantha, Encelia, YORBA SAZONA, BLUE DICKS, LASTHENIA

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location Village Nursery Area Survey Segment QCB Survey Area (5)
 Surveyor DAVE CHATMAN Date 29 Feb 2016 Survey Week Number (1)
 Survey Partner(s) THE POWELL'S
 Total Acres: 77 Portion Surveyed: _____ Elevation: Max 402ft Min 400ft

Time (24 hr)	% Cloud	Sky				Wind (range)	Temp (F)	
Start 14:30	10%	clear	patchy	overcast	drizzle	shower	6-8 mph	72°F
15:00	10%	clear	patchy	overcast	drizzle	shower	6-8 mph	71°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 15:15	15%	clear	patchy	overcast	drizzle	shower	6-8 mph	71°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	2	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	1	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	2	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Atlides 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> (Southern Blue)	1				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor WES CHATMAN Segment # SURVEY AREA (5) Date: 29 FEB 2016

Comments: - NOMINAL HABITAT ALONG THIS SECTION OF AREAS -
* VERY LITTLE PLANTAGO IN OPEN AREAS ALONG ROAD
NEAR VILLAGE NURSERY -

Plant Communities and Habitat Information: DEERWEED, CHAMISE, RHUS, BUCKWHEAT
NON-NATIVE GRASSES + FORBES

Host Plants Present: Plantago erecta

Nectar Plants Present: CYPTANTHA, EUCALYPTA, BLUE BIRDS

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NORTHEAST OF LANDFILL Survey Segment DCB SURVEY AREA (5)
 Surveyor GREG CHATMAN Date 01 MAR 2016 Survey Week Number (1)
 Survey Partner(s) THE POWELL'S
 Total Acres: 77 Portion Surveyed: _____ Elevation: Max 4004 Min 3804

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 9:30	0	clear patchy overcast drizzle shower	2-4 mph	68° F
10:00	0	clear patchy overcast drizzle shower	2-4 mph	70° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 11:00	0	clear patchy overcast drizzle shower	2-4 mph	74° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	1	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	3	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	3		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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)	1				
<i>Glaucopsyche lygdamus</i> (Southern Blue)	2				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHAMMAN Segment # SURVEY AREA (5) Date: 01 MARCH 2016

Comments:

~~* HABITAT ALONG ROAD WEST OF LANDFILL~~

* NOMINAL HABITAT ALONG EASTERN SIDE OF LANDFILL

Plant Communities and Habitat Information: CHAMISE, RHUS, BUCKWHEAT, YERBA SANTA, MEX WEED

Host Plants Present: PLANTAGO erecta - very little amount along roads

Nectar Plants Present: YERBA SANTA, CRYPTANTHA, GOLD FIELDS, BUCK PICKS

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location WEST & SOUTH OF LANDFILL Survey Segment QCB SURVEY AREA (6)
 Surveyor ALBERT CHAFFMAN Date 6/MAR 2016 Survey Week Number (1)
 Survey Partner(s) THE POWELL'S
 Total Acres: 70 Portion Surveyed: _____ Elevation: Max 390ft Min 260ft.

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start <u>11:00</u>	<u>5</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>71° F</u>
<u>12:00</u>	<u>5</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>74° F</u>
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop <u>12:30</u>	<u>5</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>76° F</u>

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	<u>3</u>	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	<u>1</u>		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)	<u>1</u>	
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	<u>1</u>	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)			<i>Phoebus sennae</i>	<u>2</u>	
<i>Ochlodes agricola</i> (Rural Skipper)			(Cloudless sulphur)		
Lycaenidae (Hairstreaks)					
<i>Ailides 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> (Southern Blue)	<u>4</u>				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor WREB CHAFFMAN Segment # SURVEY AREA (6) Date: 01 MAR 2016

Comments:
* GOOD HABITAT ALONG WESTERN SIDE OF LANDFILL
- OPEN AREAS AND ACCESS ROADS WITH ~~PLANTAGO~~
PLANTAGO

Plant Communities and Habitat Information: CHAMISE, YERBA SANTA, RHUS,
BUCKWHEAT, DEERWEED
* CRYPTOGAMIC SOILS w/ PLANTAGO

Host Plants Present: *Plantago erecta*

Nectar Plants Present: BLUE BUCKLE, CRYPTANTHA, LASTHENIA, YERBA SANTA
ENCCELIA

Quino Sighting Date: GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location NEAR SOUTHERN TREATMENT PLANT Survey Segment QCB SURVEY AREA (7)
 Surveyor GREG CHAFFMAN Date 01 MAR 2016 Survey Week Number (1)
 Survey Partner(s) THE POWELL'S
 Total Acres: 69 Portion Surveyed: _____ Elevation: Max 390ft Min 260ft

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 12:30	15%	clear patchy overcast drizzle shower	4-6 mph	80° F
13:00	15%	clear patchy overcast drizzle shower	4-6 mph	79° F
14:00	15%	clear patchy overcast drizzle shower	4-6 mph	78° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 15:00	15%	clear patchy overcast drizzle shower	4-6 mph	75° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	2	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	3	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)	1		<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	5	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	1	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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>Glaucopsyche lygdamus</i> (Southern Blue)	3				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHASMAN Segment # SURVEY AREA (7) Date: 01 MAR 2016

Comments:

* GOOD PATCHES OF PLANTAGO NORTH OF TREATMENT FACILITY.

Plant Communities and Habitat Information:

CHAMISE, GERBA SANTA, RHUS, BUCKWHEAT
DEERWEED

Host Plants Present:

Plantago erecta

Nectar Plants Present:

GERBA SANTA, CRYPTANTHA, BLUE DICIS, LASTHENIA

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location N.W. of MCBP's Preserve Survey Segment QCB Survey Area (4)
 Surveyor GREG CHAFFMAN Date 01 MAR 2016 Survey Week Number (1)
 Survey Partner(s) THE POWELL'S
 Total Acres: 78 ACRES Portion Surveyed: _____ Elevation: Max 4000ft Min 2800ft

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp. (F)
Start 16:00	15%	clear	patchy	overcast	drizzle	shower	4-6 mph	72° F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 17:00	15%	clear	patchy	overcast	drizzle	shower	4-6 mph	69° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	1	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)		
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Attilides 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> (Southern Blue)	2				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GOEL CHITMAN Segment # SURVEY AREA (4) Date: 01 MAR 2016

Comments:

* GOOD PATCHES OF PLANTAGO JUST SOUTH OF MIRAMAR RD.

Plant Communities and Habitat Information: CHAMISE, RHUS, BUCKWHEAT, DEERWEED

* CRYPTOGAMIC SOILS w/ PLANTAGO

Host Plants Present:

PLANTAGO erecta

Nectar Plants Present:

Lasthenia, cryptantha, YERBA SANTA, BLUE ALICES.

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

38

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 10/12 Site Visit Number 1
 Site Name Salpa 8 Site Location Paraguay
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.25

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1430	clear 100 % cloud cover hazy	1/3	70°
1555	clear 50 % cloud cover hazy	2/4	70°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Anthriscum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

(36)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 2/10/16 Site Visit Number 172
 Site Name Maif 5 Site Location Mica area
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:15

Time (24hr)	Sky		Wind (aver*/max)	Temp (F)	
0805	clear	% cloud cover	hazy	2/4	70°
0850	clear	% cloud cover	hazy	2/4	75°
1100	clear	% cloud cover	hazy	4/7	75°
1130	clear	% cloud cover	hazy	4/6	70°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

(37)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Juan Powell Date 10/1/12 Site Visit Number 42
 Site Name Map 6 Site Location Chaparral
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1^h50^m

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1200	<u>clear</u> % cloud cover hazy	5/8	78°
1300	<u>clear</u> % cloud cover hazy	2/4	73°
1350	<u>clear</u> % cloud cover hazy	5/7	74°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

37

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides myliitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Caltophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
✓ <i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis ioita</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Catephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

34

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dan Powell Date 3/9/16 Site Visit Number 1
 Site Name Map 3 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4511

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
11:10	clear % cloud cover hazy	3/5	75°
11:55	clear % cloud cover hazy	3/5	71°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources.
Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

27

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 2/10/16 Site Visit Number 1+2
 Site Name Map 5 Site Location Map 5
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:15

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
0900	clear	% cloud cover	hazy	7/7	50
	clear	% cloud cover	hazy	4/7	50
1100	clear	% cloud cover	hazy	4/7	50
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

~~Plantago erecta~~, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

27

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	III II <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	I <i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atliodes halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
I <i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	III <i>Anthocharis sara</i> (Sara Orangetip)
III III I <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	III <i>Pieris - sulfur</i> (Cloudless Sulfur)
	Riodinidae (Metalmarks)
	I <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

28

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/16/16 Site Visit Number 1+2
 Site Name Map 6 Site Location Map 6
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1'58"

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
<u>12:00</u>	<u>clear</u>	% cloud cover	<u>hazy</u>		
<u>12:30</u>	<u>clear</u>	% cloud cover	<u>hazy</u>	<u>2/4</u>	<u>23°</u>
<u>1:00</u>	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		
	<u>clear</u>	% cloud cover	<u>hazy</u>		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

(29)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/10/16 Site Visit Number 1
 Site Name 5742 Site Location Mud Lake
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.25

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1130	clear 100% cloud cover hazy	1/2	75°
1155	clear 100% cloud cover hazy	2"	75°
	clear % cloud cover hazy	-	
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources,

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

Nymphalidae (Brush Footed Butterflies)	Lycanidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche hygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Friillary)	Lycanidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atliades halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(24)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/9/16 Site Visit Number 1 (New)
 Site Name Miaf Site Location Mexico
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1:15"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
0915	clear % cloud cover hazy	1/3	67°
1000	clear % cloud cover hazy	3/5	70°
1100	clear % cloud cover hazy	1/4	75°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

25

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/16/12 Site Visit Number 1
 Site Name Map 2 Site Location Mission
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4.5

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
11:10	clear % cloud cover hazy	3/5	75°
11:55	clear % cloud cover hazy	3/5	71°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: ~~open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources~~

~~Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.~~

*20 second period, mph

COMMENT:

(25)

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus cernaunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia aamon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philoetes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Calophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfyn)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calaphelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

32

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Tom Powell Date 2/10/16 Site Visit Number 4 (New)
 Site Name Map 1 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.45

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
<u>0915</u>	clear % cloud cover hazy	<u>1/3</u>	<u>67°</u>
<u>1000</u>	clear % cloud cover hazy	<u>2/5</u>	<u>70°</u>
<u>1100</u>	clear % cloud cover hazy	<u>2/4</u>	<u>75°</u>
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources,

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:



Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 3/8/16 Site Visit Number 2
 Site Name Map 2 Site Location Mt. ...
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2'45"

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1645	clear	% cloud cover	hazy	1/3	65°
1200	clear	% cloud cover	hazy	3/5	66°
1340	clear	% cloud cover	hazy	4/6	66°
1430	clear	% cloud cover	hazy	5/8	67°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jun Powell Date 3/8/16 Site Visit Number 2
 Site Name Map 3 Site Location Miravalles
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:50"

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1340	clear	% cloud cover	hazy	6/9	64°
1400	clear	% cloud cover	hazy	4/6	70°
1500	clear	% cloud cover	hazy	2/4	70°
1630	clear	% cloud cover	hazy	3/6	62°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

(21)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 2/13/16 Site Visit Number 2
 Site Name Map 1 Site Location Miravilla
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1:30

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
<u>07:15</u>	<u>clear</u>	% cloud cover	<u>hazy</u>	<u>14</u>	<u>55</u>
<u>08:15</u>	<u>clear</u>	% cloud cover	<u>hazy</u>	<u>13</u>	<u>53</u>
<u>10:45</u>	<u>clear</u>	% cloud cover	<u>hazy</u>	<u>15</u>	<u>53</u>
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

(21)

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopteryx lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Catephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(22)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/8/16 Site Visit Number 2
 Site Name Map 2 Site Location Mission
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:45"

Time (24hr)	Sky		Wind (aver*/max)	Temp (F)	
1045	clear	% cloud cover	hazy	1/2	65°
1200	clear	% cloud cover	hazy	3/5	66°
1300	clear	% cloud cover	hazy	4/6	65°
1330	clear	% cloud cover	hazy	5/8	64°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

23

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/2/16 Site Visit Number 2
 Site Name Map 2 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2'50''

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
15:40	<u>clear</u> % cloud cover hazy	6/9	67°
15:50	clear % cloud cover hazy	4/6	70
16:00	clear % cloud cover hazy	2/6	67°
16:10	<u>clear</u> % cloud cover hazy	2/6	62°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

23

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basitarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche bygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfyn)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(26)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 2/20/06 Site Visit Number 2
 Site Name Mt 4 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3 1/4

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
<u>12:00</u>	clear	% cloud cover	<u>hazy</u>	<u>4/6</u>	<u>71°</u>
<u>13:00</u>	clear	% cloud cover	<u>hazy</u>	<u>4/6</u>	<u>71°</u>
<u>14:00</u>	clear	% cloud cover	<u>hazy</u>	<u>5/7</u>	<u>68°</u>
<u>15:00</u>	clear	% cloud cover	hazy	<u>3/6</u>	<u>67°</u>
<u>16:00</u>	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources.

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

(3)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 3/2/16 Site Visit Number 2
 Site Name Map 1 Site Location Mission
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1:30

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
0915	clear	% cloud cover	hazy	2/1	61°
1000	clear	% cloud cover	hazy	1/3	65°
1045	clear	% cloud cover	hazy	1/3	65°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

30

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha gulno</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia normo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	† <i>Coenonympha californica</i> (California Ringlet)
OTHER:	

35

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jim Powell Date 3/9/16 Site Visit Number 2
 Site Name Map 4 Site Location _____
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2.45

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1215	clear	% cloud cover	hazy	4/6	71°
1300	clear	% cloud cover	hazy	4/6	71°
1400	clear	% cloud cover	hazy	5/7	68°
1500	clear	% cloud cover	hazy	2/4	68°
1600	clear	% cloud cover	hazy	3/6	67°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

39

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 2/15/16 Site Visit Number 3
 Site Name Maf 1 Site Location Mina...
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:15

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
9:20	clear % cloud cover hazy	0/0	65.0
10:00	clear % cloud cover hazy	2/4	70.0
10:30	clear % cloud cover hazy	3/5	68.0
11:00	clear % cloud cover hazy		68.0
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

40

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/3/16 Site Visit Number 3
 Site Name Map 4 Site Location Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:30"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
	clear % cloud cover hazy	5/8	60
	clear % cloud cover hazy	7/10	60
	clear % cloud cover hazy	7/10	60
	clear % cloud cover hazy	6/10	60
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

40

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lota</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Dale Powell Date: 3/14/16 Site Visit Number: 3
 Site Name: Map 4 Site Location: M. W. County
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.15

Time (24h)	Cloud Cover	Visibility	Temperature
13:15	clear 50% cloud cover	hazy	70
14:00	clear 75% cloud cover	hazy	72
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:



Nymphalidae (Ground Squirrel Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarhia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceramius gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icaricia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe-Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Altides halesus</i> (Great Purple Hairstreak)
<i>Vanessa arnabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown-Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaiidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Papilionidae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	



Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Dale Powell Date: 3/15/16 Site Visit Number: 3
 Site Name: Map 3 Site Location: M. W. & W. R. V.
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.35

Time (2 hrs)	Sky	Wind	Temp (F)
1320	clear % cloud cover	hazy	75°
1400	clear % cloud cover	hazy	74°
1455	clear % cloud cover	hazy	70°
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

[Faint, mostly illegible handwritten notes and survey data in the lower half of the page.]

Nymphalidae (Browns and Checkerspots)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemitarucus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incaulnia augustinus</i> (Brown-Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaus (White and Black)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutubus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
	Pieridae (White and Orange)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virguliti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Saturniidae (Saturnids)
	<i>Coenonympha californica</i> (California Ringlet)

36

Nymphalidae (Buckeyes, Checkerspot, etc.)	
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarhina lorquini</i> (Lorquin's Admiral)	<i>Evers anyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiarctus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe-Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Calliphrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown-Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
Danaidae (Milkweed Butterflies)	
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae (Skippers)	
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis tole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
Gnathodonta (Metalmarks)	
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
Sargidae (Ringlets)	
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Juan Powell Date: 3/15/16 Site Visit Number: 3
 Site Name: Map Site Location: Miner's Bay
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:30

Time (Date)	Cloud Cover	Wind	Temp	Humidity	Relative Humidity
11:45	clear 15 % cloud cover	hazy	58	62	70
15:00	clear 15 % cloud cover	hazy	47	67	70
16:00	clear 15 % cloud cover	hazy	3/16	67	62
16:45	clear 15 % cloud cover	hazy	3/16	62	62
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			
	clear % cloud cover	hazy			

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

11

Nymphalidae (Battus)	Papilionidae (Battus)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus cearinus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marme Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown-Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
Danaidae	Papilionidae (Danaus)
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Papilionidae (Hesperiidae)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis celtura</i> (Felder's Orangetip)
<i>Heltopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis ioia</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Rhopalocera (Metalmark)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Siphonidae (Siphon)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

50

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Don Powell Date: 3/15/16 Site Visit Number: 3
 Site Name: Map 6 Site Location: M. W. ...
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3:15

Time	Cloud Cover	Visibility	Temp	Humidity
0915	clear 15% cloud cover	hazy	1/3	64°
1000	clear % cloud cover	hazy	3/5	67°
1100	clear % cloud cover	hazy	1/3	74°
1130	clear % cloud cover	hazy	4/6	71°
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		
	clear % cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

50

<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Angletwing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa amabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia angustinus</i> (Brown-Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericeorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordis</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)

51

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Juan Powell Date: 3/15/16 Site Visit Number: 3
 Site Name: Map 5 Site Location: Mirador
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1'00"

Time	Weather	% cloud cover	hazy	Temp	Wind
1200	clear		hazy	4/6	74°
1300	clear		hazy	5/7	77°
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Anarrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

(52)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dan Powell Date 3/15/16 Site Visit Number 3
 Site Name Map 3 Site Location Mud mark
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1'35"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1320	clear % cloud cover hazy	5/8	75°
1400	clear % cloud cover hazy	4/6	74°
1455	clear % cloud cover hazy	5/7	70°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Cassilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

49

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Dale Powell Date: 3/15/16 Site Visit Number: 3
 Site Name: Map 5 Site Location: Mine Run
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1'00"

Time (2 min)	Skv	% cloud cover	hazy	Temp (F)	Wind (mph)
15:00	clear		hazy	56	74°
15:05	clear		hazy	57	77°
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Dale Powell Date: 3/15/16 Site Visit Number: 3
 Site Name: Map 6 Site Location: MW 4 1/2
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3:15

Time	Cloud Cover	Visibility	Notes
09:55	clear 15 % cloud cover	hazy	
10:00	clear % cloud cover	hazy	
10:05	clear % cloud cover	hazy	
10:10	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

Nymphalidae (Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemitarucus cordatus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Ineialis augustinus</i> (Brown-Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Erycinidae (Skippers)	Pieridae (Whites)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Adalfia Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Lycaenidae (Metalmarks)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/14/06 Site Visit Number 3
 Site Name Map 6 Site Location LA...
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:30

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1430	clear 40 % cloud cover hazy	5/7	68°
1500	clear 40 % cloud cover hazy	4/6	70°
1600	clear 50 % cloud cover hazy	3/6	68°
1700	clear 30 % cloud cover hazy	3/5	68°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Paie Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo vireuli</i> (Behr's Metalmark)

Satyridae (Satyrids)

Commonynpha californica (California Fritillary)

49

Quino Checkerspot Survey Form

Adult Assessment

Surveyor: Dale Powell Date: 3/1/16 Site Visit Number: _____
 Site Name: Map Site Location: M. W. 4-4-87
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:30

Time	Cloud Cover	Visibility	Notes
1:00	clear 10% cloud cover	hazy	
1:15	clear 10% cloud cover	hazy	
1:30	clear 10% cloud cover	hazy	
1:45	clear 10% cloud cover	hazy	
2:00	clear % cloud cover	hazy	
2:15	clear % cloud cover	hazy	
2:30	clear % cloud cover	hazy	
2:45	clear % cloud cover	hazy	
3:00	clear % cloud cover	hazy	
3:15	clear % cloud cover	hazy	
3:30	clear % cloud cover	hazy	
3:45	clear % cloud cover	hazy	
4:00	clear % cloud cover	hazy	
4:15	clear % cloud cover	hazy	
4:30	clear % cloud cover	hazy	
4:45	clear % cloud cover	hazy	
5:00	clear % cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

Nymphalidae (Butterflies)	Lycaenidae (Butterflies)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	 <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntida</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiarctus cernuus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
Danaidae (Butterflies)	Papilionidae (Butterflies)
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutubus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae (Butterflies)	Pierisidae (Butterflies)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis celkura</i> (Felder's Orangetip)
<i>Heliopterus erictorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Rhodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

48

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 14/16 Site Visit Number 3
 Site Name Map 4 Site Location Map 4
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.5

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1315	clear	% cloud cover	hazy	3/6	70°
1400	clear	% cloud cover	hazy	3/6	72°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Anthriscum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

48

Nymphalidae (Brush Footed Butterflies)	Lycacnidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides myliuta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycacnidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfín)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

53

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jay Powell Date 3/20/16 Site Visit Number 4
 Site Name Map 3 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7'00"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1000	clear 70 % cloud cover hazy	1/3	61°
1030	clear 20 % cloud cover hazy	1/3	61°
1100	clear % cloud cover hazy	1/3	61°
1200	clear % cloud cover hazy	0/5	61°
1300	clear % cloud cover hazy	3/4	76°
1400	clear % cloud cover hazy	3/5	76°
1500	clear % cloud cover hazy	4/2	76°
1600	clear % cloud cover hazy	3/5	77°
1700	clear % cloud cover hazy	5/2	67°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

53

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia angustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

54

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dun Powell Date 3/21/16 Site Visit Number 4
 Site Name Map 3, 4, 5 Site Location Highway 1
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
15:00	clear 0 % cloud cover hazy	3/6	57°
15:30	clear 5 % cloud cover hazy	2/4	53°
16:00	clear 5 % cloud cover hazy	3/5	50°
16:30	clear 5 % cloud cover hazy	4/7	52°
17:00	clear 5 % cloud cover hazy	4/8	50°
	clear % cloud cover hazy	4/6	52°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

55

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jay Powell Date 3/22/16 Site Visit Number 4
 Site Name Maf 5 Site Location Micromer
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3.45

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1000	clear 60% cloud cover hazy	6/9	64°
1100	clear 35% cloud cover hazy	5/9	62°
1200	clear 40% cloud cover hazy	5/8	70°
1300	clear 15% cloud cover hazy	4/6	72°
1345	clear 10% cloud cover hazy	5/9	70°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

~~Plantago erecta~~, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

55

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	HT <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celustrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Ailides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
I <i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
III <i>Hylephila phyleus</i> (Fiery Skipper)	II <i>Anthocharis sara</i> (Sara Orangetip)
HT III <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurycle</i> (California Dogface)
	Riodinidae (Metalmarks)
	HT III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Catephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(56)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 3/22/16 Site Visit Number 4
 Site Name Map 6 Site Location Mirawap
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.5

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1400	clear 5 % cloud cover hazy	5/8	67°
1515	clear 15 % cloud cover hazy	6/9	68°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

56

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Ailides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydica</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(57)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/24/16 Site Visit Number 4
 Site Name flap + 2 Site Location Muir
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:45"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
	clear 70% cloud cover hazy		
	clear 80% cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
12:45	clear % cloud cover hazy		75
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

(57)

Nymphalidae (Brush Footed Butterflies)	Lycanidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	XXXXXX <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	III <i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycanidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
III <i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sicely Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III <i>Apodemia mormo virgulit</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(58)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 2/10/18 Site Visit Number 4
 Site Name Map 3 Site Location Mojave
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3'5''

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1255	clear % cloud cover hazy	3/4	75°
1400	clear % cloud cover hazy	3/5	76°
1500	clear % cloud cover hazy	4/6	75°
1600	clear % cloud cover hazy	3/5	72°
1700	clear % cloud cover hazy	5/8	67°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

58

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

59

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/27/16 Site Visit Number 4
 Site Name Maps 3, 4, 5 Site Location Mira
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: _____

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1200	clear 65 % cloud cover hazy	3/6	67°
1300	clear 10 % cloud cover hazy	2/4	67°
1400	clear 5 % cloud cover hazy	2/4	65°
	clear 15 % cloud cover hazy	2/4	65°
1500	clear 15 % cloud cover hazy	1/3	65°
1700	clear 5 % cloud cover hazy	4/6	62°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

99

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Myiitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodamia normo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

6

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/22/16 Site Visit Number 4
 Site Name Map 5 Site Location Myraue ar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
	clear 67% cloud cover hazy		
	clear 50% cloud cover hazy		58
	clear 40% cloud cover hazy	57-	70"
	clear 10% cloud cover hazy	4/6	75"
	clear 10% cloud cover hazy		200"
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

60

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hernei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	Lycaenidae (Hairstreaks)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa virginiensis</i> (Virginia Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

61

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/22/16 Site Visit Number 4
 Site Name Mag Site Location Mirador
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1.5

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
<u>1400</u>	clear 5 % cloud cover hazy	<u>5.77</u>	<u>52</u>
<u>1515</u>	clear % cloud cover hazy	<u>6.19</u>	<u>57</u>
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

51

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amvntuta</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucoopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Ariogea rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis semae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

16 05 02

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RES. / SAN DIEGO RIVER MANS Survey Segment SURVEY AREA (8)
 Surveyor GABE CHATMAN Date 30 MAR 2016 Survey Week Number (5)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 09:30	0	clear patchy overcast drizzle shower	2-4 mph	61°F
10:00	0	clear patchy overcast drizzle shower	2-4 mph	63°F
11:00	0	clear patchy overcast drizzle shower	3-5 mph	68°F
12:00	15%	clear patchy overcast drizzle shower	2-5 mph	67°F
13:00	20%	clear patchy overcast drizzle shower	2-6 mph	68°F
14:00	20%	clear patchy overcast drizzle shower	2-5 mph	67°F
Stop 16:45	25%	clear patchy overcast drizzle shower	3-5 mph	67°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)	1	
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	15	X
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	6	X
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	1	X			
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Chapman

Segment # SURVEY AREA (8)

Date: 30 MARCH 2016

Comments:

* *Apodemis mormo* in peak flight (Lots of fresh females)

* Possible start of 2nd brood of *Anthocharis sara*
(much larger individuals)

Plant Communities and Habitat Information:

Host Plants Present: *Plantago erecta* + *Castilleja exserta*

Nectar Plants Present: *Buckwheat* + *Black-sage* now blooming

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SOUTH TREATMENT FACILITY Survey Segment SURVEY AREA (4)
 Surveyor GREG CHAMMAN Date 31 MAR 2016 Survey Week Number (5)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	clear	Sky	Wind (range)	Temp (F)
Start 09:00	0	(clear)	patchy overcast drizzle shower	1-2 mph	61° F
10:00	0	(clear)	patchy overcast drizzle shower	1-2 mph	64° F
11:00	0	(clear)	patchy overcast drizzle shower	4-6 mph	67° F
12:00	0	(clear)	patchy overcast drizzle shower	4-6 mph	72° F
13:00	0	(clear)	patchy overcast drizzle shower	5-7 mph	74° F
14:00	0	(clear)	patchy overcast drizzle shower	4-6 mph	74° F
Stop 15:30	0	(clear)	patchy overcast drizzle shower	5-7 mph	73° F

Habitat onsite (circle as applicable): hilltop, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	1	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	8		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	1		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Adelpha bradovicii californica</i> (1)		
<i>Erynnis propertius</i> (Propertius Duskywing)			<i>(Californica sister)</i>		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Atilides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Ellin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)					
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Chaman Segment # SURVEY AREA (4) Date: 31 MARCH 2016

Comments:

* BUCKEYES IN PENIC FLIGHT

Plant Communities and Habitat Information:

Host Plants Present: Plantago erecta + Castilleja exerta

Nectar Plants Present: Buckwheat + Black-cage blooming now!

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION GORGE AREA Survey Segment SURVEY AREA (7)
 Surveyor LOREL CHAPMAN Date 02 APR 2016 Survey Week Number (5)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	1-2 mph	71°F
11:00	0	clear patchy overcast drizzle shower	2-4 mph	76°F
12:00	0	clear patchy overcast drizzle shower	2-4 mph	81°F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 13:00	0	clear patchy overcast drizzle shower	3-5 mph	83°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	3	
<i>Euphydras editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydras chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	3	+	<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	12	+
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	8		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	2		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHATMAN

Segment # SURVEY AREA (7)

Date: 02 APRIL 2016

Comments:

* *Apodemia mormo* in peak flight

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta + *Castilleja erecta*

Nectar Plants Present:

Buckwheat + Black sage now blooming!

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

(62)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/24/15 Site Visit Number 5
 Site Name 176 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:45

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
0915	clear 60% cloud cover hazy	5/15	65°
1000	clear % cloud cover hazy	5/15	63°
1030	clear % cloud cover hazy	5/15	70°
1100	clear % cloud cover hazy	5/15	55°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

62

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(63)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 3/27/16 Site Visit Number 5
 Site Name Mt P3 Site Location Mica maf
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
12:15	clear % cloud cover hazy	2/5	70°
1:05	clear 15 % cloud cover hazy	2/4	70°
1:50	clear % cloud cover hazy	2/4	70°
2:35	clear % cloud cover hazy	2/4	70°
3:20	clear % cloud cover hazy	3/5	70°
4:15	clear % cloud cover hazy	2/5	70°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar-sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

23

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes myntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucoopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(64)

Surveyor Dale Powell Date 2/27/16 Site Visit Number 5
 Site Name Map 3 Site Location Michigan
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1'25"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1100	clear 20 % cloud cover hazy	3/5	62
1225	clear 10 % cloud cover hazy	2/4	62
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

64

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopteryx lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(65)

Surveyor Dale Powell Date 2/24/16 Site Visit Number 5
 Site Name Mt. 4+5 Site Location 117
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:45

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1245	clear 15 % cloud cover hazy	46	72 ^d
1300	clear 20 % cloud cover hazy	47	71
1330	clear 25 % cloud cover hazy	47	69
1400	clear 35 % cloud cover hazy	51	67
1530	clear 40 % cloud cover hazy	51	67 ^d
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

(66)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/1/16 Site Visit Number 5
 Site Name Map 5 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3/00

Time (24hr)	Sky		Wind (aver*/max)	Temp (F)
1030	clear	% cloud cover	hazy	66°
1130	clear	% cloud cover	hazy	69°
1200	clear	% cloud cover	hazy	71°
	clear	% cloud cover	hazy	71°
1330	clear	% cloud cover	hazy	72°
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	
	clear	% cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

66

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	XXXX <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes anyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucoopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icaria acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfín)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
III III <i>Hylephila phyleus</i> (Fiery Skipper)	III <i>Anthocharis sara</i> (Sara Orangetip)
III <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(67)

Quino Checkerspot Survey Form**Adult Assessment**

Surveyor Dale Powell Date 4/1/16 Site Visit Number 5
 Site Name Map 6 Site Location Mesa Verde
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 45"

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
<u>1745</u>	clear	% cloud cover	<u>hazy</u>	<u>5/9</u>	<u>68°</u>
<u>1430</u>	clear	% cloud cover	<u>hazy</u>	<u>5/8</u>	<u>70°</u>
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		
	clear	% cloud cover	<u>hazy</u>		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

(7)

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erymnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 3/27/16 Site Visit Number 5
 Site Name Maf? Site Location Mira mar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 8/60'

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
08:15	clear 60 % cloud cover hazy	1/3-	65°
09:00	clear 25 % cloud cover hazy	0/0	68°
10:00	clear % cloud cover hazy	3/6	70°
11:00	clear % cloud cover hazy	3/5	70°
12:00	clear 15 % cloud cover hazy	2/4	74°
13:00	clear % cloud cover hazy	2/4	76°
14:00	clear % cloud cover hazy		
15:00	clear % cloud cover hazy		
16:15	clear % cloud cover hazy	3/5	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennel</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
III <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Calliphrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
III <i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
III <i>Hylephila phyleus</i> (Fiery Skipper)	III <i>Anthocharis sara</i> (Sara Orangetip)
III <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Ariogea rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

69

Surveyor Dale Powell Date 3/20/16 Site Visit Number 5
 Site Name Map 3 Site Location Miravaca
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 1'25"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1100	clear 20% cloud cover hazy	3/5	67°
1225	clear 10% cloud cover hazy	2/4	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

59

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucoopsyche tygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atides holesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(71)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Sue Powell Date 4/1/16 Site Visit Number 5
 Site Name MafS Site Location Maverick
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3'00"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
10:30	clear % cloud cover hazy	1/3	66°
11:00	clear % cloud cover hazy	2/4	68°
12:00	clear % cloud cover hazy	3/6	71°
12:30	clear % cloud cover hazy	5/7	71°
1:00	clear % cloud cover hazy	5/7	72°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

(7)

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funerals</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

72

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Don Powell Date 4/1/16 Site Visit Number 5
 Site Name Map 6 Site Location Micromat
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4.5^{hr}

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1345	<u>clear</u>	% cloud cover	hazy	<u>5/8</u>	<u>58</u>
1130	<u>clear</u>	% cloud cover	hazy	<u>5/8</u>	<u>58</u>
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

72

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucoopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erymis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

70

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jun Powell Date 3/29/16 Site Visit Number 5
 Site Name M.S.P. 4-8 Site Location Mina me
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2'45"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
<u>12:55</u>	clear 15% cloud cover hazy	<u>4/6</u>	<u>72°</u>
<u>1:00</u>	clear 20% cloud cover hazy	<u>5/8</u>	<u>70°</u>
<u>1:10</u>	clear 25% cloud cover hazy	<u>4/7</u>	<u>69°</u>
<u>1:20</u>	clear 25% cloud cover hazy	<u>5/8</u>	<u>68°</u>
<u>1:30</u>	clear 40% cloud cover hazy	<u>5/8</u>	<u>67°</u>
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla.

*20 second period, mph

COMMENT:

70

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anihoaeris cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anihoaeris lanceolata</i> (Grinnell's Marble)
111 <i>Hylephila phyleus</i> (Ficry Skipper)	<i>Anihoaeris sara</i> (Sara Orangetip)
111 <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RES. / SAN DIEGO RIVER AREA Survey Segment SURVEY AREA (B)
 Surveyor GAEL CHATTMAN Date 04 APR 2016 Survey Week Number (6)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	3-5 mph	76°F
11:00	0	clear patchy overcast drizzle shower	3-6 mph	79°F
12:00	0	clear patchy overcast drizzle shower	3-6 mph	81°F
13:00	0	clear patchy overcast drizzle shower	4-6 mph	83°F
14:00	0	clear patchy overcast drizzle shower	4-7 mph	84°F
15:00	0	clear patchy overcast drizzle shower	3-6 mph	83°F
Stop 16:45	0	clear patchy overcast drizzle shower	4-6 mph	80°F

Habitat onsite (circle as applicable): hilltop, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	2	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	1	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	2		<i>Apodemia mormo</i> (Mormon Metalmark)	8	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	3		<i>Papilio eurymedon</i> (Pale Swallowtail)	1	x
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	20	x
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	6	x
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	1	x
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Nathalis iole</i>	1	
<i>Erynnis propertius</i> (Propertius Duskywing)			(<i>Dainty sulphur</i>)		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycacnidae (Hairstreaks)			<i>Lerodrea utahla</i>	1	
<i>Allides halesus</i> (Great Purple Hairstreak)			(<i>Euphala skipper</i>)		
<i>Incisalia augustinus</i> (Western Brown Elfin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)					
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Lina Chapman

Segment # SURVEY AREA (R)

Date: 04 APRIL 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present: Plantago erecta + Castilleja exerta

Nectar Plants Present: Bluedicks, Cryptantha, Lathenia, Buckwheat, Black-sage, Eucelia

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SOUTHERN TREATMENT PLANT Survey Segment SURVEY AREA (4)
 Surveyor LURE CHATMAN Date 05 APR 2016 Survey Week Number (6)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)
Start 10:00	Hazy	clear	patchy	overcast	drizzle	shower	0	70°F
11:00	Hazy	clear	patchy	overcast	drizzle	shower	0	74°F
12:00	Hazy	clear	patchy	overcast	drizzle	shower	1-2 mph	79°F
13:00	Hazy	clear	patchy	overcast	drizzle	shower	2-3 mph	83°F
14:00	0	clear	patchy	overcast	drizzle	shower	2-4 mph	84°F
15:00	0	clear	patchy	overcast	drizzle	shower	2-4 mph	83°F
Stop 16:00	0	clear	patchy	overcast	drizzle	shower	2-4 mph	82°F

Habitat onsite (circle as applicable) hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	2	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	4		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	1	+	<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	8	+
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	1	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	3		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Ficry Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2	+	<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycacnidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	1				
<i>Glaucopsyche lygdamus</i> (Southern Blue)	1				
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GAB CHAFFMAN

Segment # SURVEY AREA (4)

Date: 05 APRIL 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present: Plantago erecta + Castilleja exerts

Nectar Plants Present: Cryptantha, Lasthenia, Encelia, Blue-dicks, Buckwheat, Salix melifera, YERBA SANTA

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION GORGE AREA Survey Segment SURVEY AREA (7)
 Surveyor GABRIEL CHAPMAN Date 06 APR 2016 Survey Week Number (6)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 09:30	0	clear patchy overcast drizzle shower	1-2 mph	75° F
10:00	0	clear patchy overcast drizzle shower	1-2 mph	78° F
11:00	0	clear patchy overcast drizzle shower	2-4 mph	80° F
12:00	0	clear patchy overcast drizzle shower	2-4 mph	83° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 12:30	0	clear patchy overcast drizzle shower	2-4 mph	85° F

Habitat onsite (circle as applicable) hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	2	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	1	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	12	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2	x	<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	12	x
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	4	x
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	1	
<i>Heliopterus ericetorum</i> (Northern White-Skipper)	8	x	<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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)	1	x			
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREY CHAFFMAN

Segment # SURVEY AREA (7)

Date: 06 APRIL 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

~~Host~~ *Plantago erecta* + *Castilleja exata*

Nectar Plants Present:

Buckwheat + *Black-seed* now blooming!

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

73

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/10/16 Site Visit Number 6
 Site Name Mp it 2 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: _____

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
0500	clear	% cloud cover	hazy	2/5	58
0600	clear	% cloud cover	hazy	2/5	70
0700	clear	% cloud cover	hazy	2/6	75
0800	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

74

Surveyor Dale Powell Date 4/3/16 Site Visit Number 6
 Site Name Map 3 Site Location Murphy
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:15

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
15	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

74

Nymphalidae (Brush Footed Butterflies)	Lycanidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceranus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycanidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

79

Surveyor Dale Powell Date 4/4/16 Site Visit Number 6
 Site Name Mesa #4 Site Location 1/1/1/1
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:15

Time (24hr)	Cloud	Sky	Wind (dir, max)	Temp (F)
0915	clear	% cloud cover	hazy	68°
1000	clear	% cloud cover	hazy	71°
1030	clear	% cloud cover	hazy	74°
1100	clear	% cloud cover	hazy	75°
1130	clear	% cloud cover	hazy	77°
1200	clear	% cloud cover	hazy	79°
1230	clear	% cloud cover	hazy	
1300	clear	% cloud cover	hazy	
1330	clear	% cloud cover	hazy	
1400	clear	% cloud cover	hazy	
1430	clear	% cloud cover	hazy	
1500	clear	% cloud cover	hazy	
1530	clear	% cloud cover	hazy	
1600	clear	% cloud cover	hazy	
1630	clear	% cloud cover	hazy	
1700	clear	% cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

75

Nymphalidae (Brush Footed Butterflies)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
Danaidae (Milkwed Butterflies)	Papilionidae (Swallowtails)
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orange-tips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orange-tip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Griannel's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orange-tip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

76

Surveyor D. A. Powell Date 4/5/16 Site Visit Number 6
 Site Name 1148 Site Location V. ...
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2/30

Time (24hr)	clear	% cloud cover	hazy	Wind (aver./max)	Temp (F)
0700	clear	10	hazy	2/7	67
1000	clear	10	hazy	2/6	71
	clear		hazy	2/6	77
	clear		hazy	2/6	80
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*.

*20 second period, mph

COMMENT:

76

Nymphalidae (Brush Footed Butterflies)	Lycenidae (Blues)
<i>Euphydryas editha catrix</i> (Queen Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceramus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icaricia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polyommia satyrus</i> (Satyr Angleming)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Eycanidae (Hairstreaks)</i>
<i>Vanessa annabella</i> (West Coast Lady)	<i>Atides haleus</i> (Great Purple Hairstreak)
	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	<i>Papilionidae (Swallowtails)</i>
<i>Danaidae (Milkweed Butterflies)</i>	<i>Papilio eurymedon</i> (Prick Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
<i>Hesperiidae</i>	<i>Pieridae (Whites and Orange-tips)</i>
<i>Erynnis funeralis</i> (Funicular Duskywing)	<i>Anthocharis cethura</i> (Felder's Orange-tip)
<i>Heilopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Gonzal's Marble)
<i>Hylephila phyleus</i> (Clery Skipper)	<i>Anthocharis sara</i> (Sara Orange-tip)
<i>Pyrgus albascens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulphur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	<i>Riciniidae (Metalmarks)</i>
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	<i>Satyridae (Satyrids)</i>
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(77)

Surveyor Tom Powell Date 4/2/16 Site Visit Number 6
 Site Name Map 3 Site Location Myra road
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:15

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1000	clear	% cloud cover	hazy	2/5	68°
1100	clear	% cloud cover	hazy	2/5	70°
1200	clear	% cloud cover	hazy	2/6	75°
1300	clear	% cloud cover	hazy	2/9	73°
1400	clear	% cloud cover	hazy	3/4	75°
1500	clear	% cloud cover	hazy	3/6	77°
1600	clear	% cloud cover	hazy	3/5	78°
1715	clear	% cloud cover	hazy	2/5	74°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

77

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfín)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funerals</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nioippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(78)

Surveyor Dale Powell Date _____ Site Visit Number _____
 Site Name Unlabeled Site Location La Grana
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:15

Time (24hr)	clear	% cloud cover	hazy	Wind (Ave./Max)	Temp (F)
7:15	clear	% cloud cover	hazy	0/0	62°
7:30	clear	% cloud cover	hazy	1/3	74°
7:45	clear	% cloud cover	hazy	2/3	77°
8:00	clear	% cloud cover	hazy	3/3	78°
8:15	clear	% cloud cover	hazy	2/4	80°
8:30	clear	% cloud cover	hazy	3/6	80°
8:45	clear	% cloud cover	hazy	4/6	78°
9:00	clear	% cloud cover	hazy	3/7	77°
9:15	clear	% cloud cover	hazy	3/4	77°
9:30	clear	% cloud cover	hazy		
9:45	clear	% cloud cover	hazy		
10:00	clear	% cloud cover	hazy		
10:15	clear	% cloud cover	hazy		
10:30	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

78

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceranus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona henrei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
III <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leantra wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
III <i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dometorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Folder's Orangetip)
<i>Heliopterus erictorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
III <i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
III <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

79

Surveyor Dale Powell Date 4/5/16 Site Visit Number 5
 Site Name Map 5 Site Location 47/10/16
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:30

Time (24hr)	Skc	Wind (AVG/ MAX)	Temp (F)
0900	clear 10 % cloud cover	hazy	70
1000	clear 10 % cloud cover	hazy	70
1100	clear % cloud cover	hazy	70
1200	clear % cloud cover	hazy	70
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	
	clear % cloud cover	hazy	

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

(79)

Nymphalidae (Brush-footed Butterflies)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Angewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Efin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkerod Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RES. / SAN DIEGO RIVER AREA Survey Segment SURVEY AREA (8)
 Surveyor GREG CHAMMAN Date 13 APR 2016 Survey Week Number (7)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start 10:00	0	clear patchy overcast drizzle shower	2-4 mph	67° F
11:00	0	clear patchy overcast drizzle shower	2-4 mph	71° F
12:00	0	clear patchy overcast drizzle shower	4-6 mph	75° F
13:00	0	clear patchy overcast drizzle shower	4-6 mph	76° F
14:00	0	clear patchy overcast drizzle shower	5-7 mph	76° F
15:00	0	clear patchy overcast drizzle shower	3-6 mph	78° F
Stop 16:00	0	clear patchy overcast drizzle shower	4-6 mph	77° F

Habitat onsite (circle as applicable): hilltop, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodenia mormo</i> (Mormon Metalmark)	10+	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)	1		Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	20+	X
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)	1	
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	10+	X
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	2	
<i>Heliopterus ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Ficry Skipper)	2		<i>Eurema nicippe</i> (Sleepy Orange)	1	
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycanidae (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)	2				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Amel Chapman

Segment # SURVEY AREA (8)

Date: 13 APR 2016

Comments:

[Empty lined area for comments]

Plant Communities and Habitat Information:

[Empty lined area for plant communities and habitat information]

Host Plants Present: Plantago erecta

[Empty lined area for host plants present]

Nectar Plants Present:

[Empty lined area for nectar plants present]

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SOUTH TREATMENT FACILITY Survey Segment SURVEY AREA (4)
 Surveyor ARIEL CHAMMAN Date 14 APR 2016 Survey Week Number (7)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 9:30	0	clear patchy overcast drizzle shower	1-2 mph	69°F
11:00	0	clear patchy overcast drizzle shower	1-2 mph	71°F
12:00	0	clear patchy overcast drizzle shower	2-4 mph	72°F
13:00	0	clear patchy overcast drizzle shower	2-4 mph	73°F
14:00	0	clear patchy overcast drizzle shower	3-5 mph	74°F
15:00	0	clear patchy overcast drizzle shower	4-6 mph	74°F
Stop 15:45	0	clear patchy overcast drizzle shower	4-7 mph	72°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	4	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	2		<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	8		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)	1	✗	<i>Papilio zelicaon</i> (Anise Swallowtail)	1	✗
<i>Vanessa cardui</i> (Painted Lady)	1		Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2	✗	<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	3	✗
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopterus ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Ficry Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: Cloudless sulphur	1	
<i>Erynnis propertius</i> (Propertius Duskywing)			(Phoebus senae)		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycanidae (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>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Chittenden

Segment # SUNNY AREA (4)

Date: 14 APR 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta + *Castilleja exerta*

Nectar Plants Present:

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION GORGE AREA Survey Segment SURVEY AREA (7)
 Surveyor WED CHAFMAN Date 15 APRIL 2016 Survey Week Number (7)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	1-2 mph	72° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
11:00	0	clear patchy overcast drizzle shower	2-4 mph	77° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 12:00	0	clear patchy overcast drizzle shower	2-4 mph	79° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Gordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	3	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	10	X
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	6	X
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	2		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	2		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Gabe Curran

Segment # SUNNY AREA (7)

Date: 15 APR 2016

Comments:

[Empty lined area for handwritten comments]

Plant Communities and Habitat Information:

[Empty lined area for handwritten plant community and habitat information]

Host Plants Present: Plantago erecta + Castilleja erecta

[Empty lined area for handwritten host plant details]

Nectar Plants Present:

[Empty lined area for handwritten nectar plant details]

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

80

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/1/16 Site Visit Number 7
 Site Name Map 1+2 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3:00"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
11:15	clear 50 % cloud cover hazy	2/5	74°
12:30	clear 40 % cloud cover hazy	3/6	73°
13:45	clear 40 % cloud cover hazy	3/6	74°
14:30	clear 40 % cloud cover hazy	3/6	69
15:15	clear 40 % cloud cover hazy	3/6	69
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(81)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/11/16 Site Visit Number 7
 Site Name Map 3 Site Location M. square
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2.45

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1430	clear	% cloud cover	hazy	3/6	67°
1500	clear	% cloud cover	hazy	4/6	69°
1530	clear	% cloud cover	hazy	2/4	72°
15	clear	% cloud cover	hazy	3/5	71°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

01

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina laodon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis tanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

82

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/12/16 Site Visit Number 7
 Site Name Map Site Location Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:00"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
9:45	clear 0% cloud cover hazy	0/0	70
10:00	clear 0% cloud cover hazy	0/0	70
10:15	clear 0% cloud cover hazy	0/0	70
10:30	clear 0% cloud cover hazy	0/0	70
10:45	clear 0% cloud cover hazy	0/0	70
11:00	clear 0% cloud cover hazy	0/0	70
11:15	clear 0% cloud cover hazy	0/0	70
11:30	clear 0% cloud cover hazy	0/0	70
11:45	clear 0% cloud cover hazy	0/0	70
12:00	clear 0% cloud cover hazy	0/0	70
12:15	clear 0% cloud cover hazy	0/0	70
12:30	clear 0% cloud cover hazy	0/0	70
12:45	clear 0% cloud cover hazy	0/0	70
13:00	clear 0% cloud cover hazy	0/0	70
13:15	clear 0% cloud cover hazy	0/0	70
13:30	clear 0% cloud cover hazy	0/0	70
13:45	clear 0% cloud cover hazy	0/0	70
14:00	clear 0% cloud cover hazy	0/0	70
14:15	clear 0% cloud cover hazy	0/0	70
14:30	clear 0% cloud cover hazy	0/0	70
14:45	clear 0% cloud cover hazy	0/0	70
15:00	clear 0% cloud cover hazy	0/0	70

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

82

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 4/11/16 Site Visit Number 7
 Site Name Moose Site Location Miramonte
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1115	clear 60 % cloud cover hazy	2/5	72°
1200	clear 70 % cloud cover hazy	3/6	70°
1300	clear 70 % cloud cover hazy	3/5	74°
1400	clear 70 % cloud cover hazy	3/6	67°
1500	clear 70 % cloud cover hazy	4/6	69°
1600	clear 60 % cloud cover hazy	2/5	70°
1715	clear 35 % cloud cover hazy	3/5	70°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

83

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
 <i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

54

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jun Powell Date 4/12/16 Site Visit Number 7
 Site Name May 3-4-5 Site Location Mira Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:00"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
9:45	clear 60 % cloud cover hazy	0/0	67°
11:00	clear 30 % cloud cover hazy	0/0	70°
12:00	clear 15 % cloud cover hazy	1/3	71°
13:00	clear 5 % cloud cover hazy	2/5	75°
14:00	clear 5 % cloud cover hazy	3/5	74°
15:00	clear 15 % cloud cover hazy	5/8	75°
16:00	clear 25 % cloud cover hazy	4/7	68°
16:45	clear 25 % cloud cover hazy	3/5	65°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open-soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

24

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quina</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus atbescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(65)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dan Powell Date 4/13/16 Site Visit Number 7
 Site Name Map 5 Site Location Mifanack
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6:30"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
10:27	clear 70 % cloud cover hazy	0/1	67°
11:20	clear 80 % cloud cover hazy		
12:00	clear % cloud cover hazy	2/4	77°
1:00	clear % cloud cover hazy	0/6	76°
11:27	clear % cloud cover hazy	2/4	74°
1:27	clear % cloud cover hazy	3/3	76°
16:30	clear % cloud cover hazy	2/2	75°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	Lycaenidae (Hairstreaks)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa virginiensis</i> (Virginia Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RES. / SAN DIEGO RIVER AREA Survey Segment SURVEY AREA (8)
 Surveyor GREG CHAMMAN Date 20 APRIL 2016 Survey Week Number (8)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start <u>10:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>77° F</u>
<u>11:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-3 mph</u>	<u>81° F</u>
<u>12:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>3-5 mph</u>	<u>85° F</u>
<u>13:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>87° F</u>
<u>14:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>2-4 mph</u>	<u>89° F</u>
<u>15:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>3-6 mph</u>	<u>92° F</u>
Stop <u>16:00</u>	<u>0</u>	<u>clear</u> patchy overcast drizzle shower	<u>4-7 mph</u>	<u>88° F</u>

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	<u>2</u>	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	<u>1</u>		<i>Apodemia mormo</i> (Mormon Metalmark)	<u>5</u>	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	<u>1</u>	
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pteris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	<u>10</u>	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor APOL CHAFFMAN

Segment # SURVEY ALONG (8)

Date: 20 APR 2016

Comments:

* SARA ORANGE TIP SECOND BLOOD WINDING DOWN

*

Plant Communities and Habitat Information:

Host Plants Present:

Castilleja exaltata

Nectar Plants Present:

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

Quino Checkerspot General Form

Adult Survey

Location SOUTH TREATMENT PLANT Survey Segment SURVEY AREA (4)
 Surveyor AREL CHATMAN Date 21 APR 2016 Survey Week Number (8)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	4-6 mph	74° F
11:00	0	clear patchy overcast drizzle shower	4-7 mph	77° F
12:00	0	clear patchy overcast drizzle shower	5-8 mph	79° F
13:00	0	clear patchy overcast drizzle shower	6-9 mph	81° F
14:00	0	clear patchy overcast drizzle shower	6-9 mph	83° F
15:00	0	clear patchy overcast drizzle shower	5-8 mph	81° F
Stop 16:00	0	clear patchy overcast drizzle shower	6-9 mph	79° F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	6	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	+10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)		
Hesperidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourning Duskywing)			OTHERS: <u>cloudless sulphur</u> <u>(Phoebus sennae)</u>	2	
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	8				
<i>Glaucopsyche lydamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GAB. CHRISTIAN

Segment # SURVEY AREA (4)

Date: 21 MAR 2016

Comments:

Handwritten notes area for comments, consisting of multiple horizontal lines.

Plant Communities and Habitat Information:

Handwritten notes area for plant communities and habitat information, consisting of multiple horizontal lines.

Host Plants Present: Plantago erecta, Castilleja exalta

Nectar Plants Present:

Handwritten notes area for nectar plants present, consisting of multiple horizontal lines.

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION GARDENS AREA Survey Segment SURVEY AREA (7)
 Surveyor LESLIE CHAMMAN Date 22 APRIL 2016 Survey Week Number (8)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)
Start 10:00	0	clear	patchy	overcast	drizzle	shower	1-2 mph	69°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
11:00	0	clear	patchy	overcast	drizzle	shower	2-4 mph	72°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 12:00	0	clear	patchy	overcast	drizzle	shower	2-4 mph	73°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	4	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	+20	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	2	✓
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	2	✓
Hesperiidae			<i>Colias eurymedon</i> (Orange Sulphur)		
<i>Heliopterus ericetorum</i> (Northern White-Skipper)	2		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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)	2				
<i>Glaucopteryx lydamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor ALBU CORTINA Segment # SUANO AREA (7) Date: 22 APRIL 2016

Comments:

* SECOND BLOOD OF MORMON METALMINE APPEARED

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta + *Castilleja exata*

Nectar Plants Present:

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

86

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/17/15 Site Visit Number 8
 Site Name M. C. 102 Site Location Victoria
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2.45

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
11:30	clear % cloud cover hazy	5/8	90°
12:00	clear % cloud cover hazy	3/4	90°
12:30	clear % cloud cover hazy	3/6	90°
12:45	clear % cloud cover hazy	5/9	90°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

86

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	Lycaenidae (Hairstreaks)
<i>Speyeria callippe</i> (Callippe Fritillary)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutilus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metamarks)
	<i>Apodemia mormo virguli</i> (Bchr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

87

Surveyor Dale Powell Date 4/17/16 Site Visit Number 3
 Site Name Map 3 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3/00

Time (24hr)	Sky	% cloud cover	hazy	Wind (mph)	Temp (F)
1400	clear	% cloud cover	hazy	5/8	90°
1500	clear	% cloud cover	hazy		90°
1600	clear	% cloud cover	hazy		89°
1700	clear	% cloud cover	hazy	6/9	85°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

37

Nymphalidae (Brush Footed Butterflies)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona heinei</i> (Heane's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	
<i>Vanessa annabella</i> (West Coast Lady)	
<i>Vanessa atalanta</i> (Red Admiral)	
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
Danaidae (Milkweed Butterflies)	Papilionidae (Swallowtails)
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orange-tips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orange-tip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	X <i>Anthocharis sara</i> (Sara Orange-tip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

93

Surveyor Dale Powell Date 4/17/16 Site Visit Number 8
 Site Name Map 35 Site Location Misour
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2.5

Time (2 hr)	clear	% cloud cover	hazy	Wind (aver-max)	Temp (F)
8:00	clear		hazy	1/2	70
10:00	clear		hazy	1/2	
11:00	clear		hazy	3/4	
12:00	clear		hazy	4/7	77
1:00	clear		hazy	3/6	90
2:00	clear		hazy	4/7	90
3:00	clear		hazy		
4:00	clear		hazy	4/2	
5:00	clear		hazy	7/7	87%
	clear		hazy		
	clear		hazy		
	clear		hazy		
	clear		hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilloja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

30 12

Nymphalidae (Brush Footed Butterflies)	Glyceriidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adepha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Angiwing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplecing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
Danaidae (Milkweed Butterflies)	Papilionidae (Swallowtails)
<i>Danaus gilippus</i> (Queen)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
	<i>Papilio cresphontes</i> (Great Juno Swallowtail)
Hesperiidae	Pieridae (Whites and Orange-tips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orange-tip)
<i>Heliopetes ericetorum</i> (Greys White Skipper)	<i>Anthocharis larceoiata</i> (Griecell's Marble)
<i>Ilyophtia phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orange-tip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

29

Surveyor Dale Powell Date 4/19/16 Site Visit Number 2
 Site Name Map 3 Site Location W. Wagon
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: _____

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
0600	clear	% cloud cover	hazy	0/0	82°
0700	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
1200	clear	% cloud cover	hazy		
1300	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Ptebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	



Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jay Powell Date 4/16 Site Visit Number 8
 Site Name Maps 3 Site Location Miravieja
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1100	clear % cloud cover hazy	5/7	86°
1200	clear % cloud cover hazy	4/7	89°
1300	clear % cloud cover hazy	3/6	90°
1400	clear % cloud cover hazy	5/8	90°
1500	clear % cloud cover hazy	4/7	89°
1600	clear % cloud cover hazy	3/5	85°
1700	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

~~Plantago erecta~~, ~~Plantago patagonica~~, ~~Castilleja exserta~~, ~~Cordylanthus rigidus~~,
~~Antirrhinum coulterianum~~, ~~Collinsia heterophylla~~

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona henei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

91

Surveyor Jun Powell II Date 4/2/16 Site Visit Number 8
 Site Name Mof 3, 4, 5 Site Location M. W. U. R.
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:30

Time (24hr)	Sky			Wind (aver / max)	Temp (F)
	clear	% cloud cover	hazy		
8:55	clear	% cloud cover	hazy	1/3	79°
10:00	clear	% cloud cover	hazy	3	85°
11:00	clear	% cloud cover	hazy	2/4	91°
12:00	clear	% cloud cover	hazy	4/7	89°
13:00	clear	% cloud cover	hazy	3/6	90°
14:00	clear	% cloud cover	hazy	4/7	90°
15:00	clear	% cloud cover	hazy	5/8	86°
16:00	clear	% cloud cover	hazy	4/7	83°
16:15	clear	% cloud cover	hazy	5/9	77%
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Ambrosia artemisiifolia, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

3

Papilionidae (Butterflies)	
<i>Euphydryas editha quino</i> (Quino Checkerspot)	III III <i>Brephidium exilis</i> (Pygmy Blue)
II <i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia forquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
III IV <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides myliitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Angletwing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Eucnemidae (Flamecreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
III III <i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	II <i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
	Pieridae (Whites)
II <i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	III V III <i>Anthocharis sara</i> (Sara Orangetip)
III <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	II <i>Colias eurythema</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	II <i>Nathalis iole</i> (Dwarf Yellow)
	II <i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

92

Surveyor Dale Powell Date 4/17/16 Site Visit Number 2
 Site Name Map 3 Site Location Murphy
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3:30

Time (24hr)	Sky			Wind (aver/max)	Temp (F)
	clear	% cloud cover	hazy		
0900	clear	% cloud cover	hazy	2/8	82°
1000	clear	% cloud cover	hazy	2/6	89°
1100	clear	5 % cloud cover	hazy	2/4	90°
1200	clear	3 % cloud cover	hazy	3/5	89°
1230	clear	3 % cloud cover	hazy	3/5	91°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

Nymphalidae (Basilid, Wood, and Damselflies)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	/// <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes anyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
 <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutilus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orange-tips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grimell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	 <i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	 <i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	 <i>Phoebis sennae</i> (Cloudless sulfur)
	 <i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	 <i>Apodonia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE RES. / SAN DIEGO RIVER AREAS Survey Segment QCB SURVEY AREA (8)
 Surveyor GRET CHATMAN Date 26 APRIL 2016 Survey Week Number (9)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)
Start 10:00	40%	clear	patchy	overcast	drizzle	shower	4-6 mph	66°F
11:00	20%	clear	patchy	overcast	drizzle	shower		67°F
12:00	10%	clear	patchy	overcast	drizzle	shower		68°F
13:00	10%	clear	patchy	overcast	drizzle	shower		69°F
14:00	10%	clear	patchy	overcast	drizzle	shower		70°F
15:00	10%	clear	patchy	overcast	drizzle	shower		70°F
Stop 15:30	20%	clear	patchy	overcast	drizzle	shower		68°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soil, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	1		<i>Apodemia mormo</i> (Mormon Metalmark)	15	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	6	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	20	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Lupine blue</i>	1	
<i>Erynnis propertius</i> (Propertius Duskywing)			(<i>Icaricia lupini</i>)		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	5				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icaricia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CHAFFMAN

Segment # DCB SURVEY AREA (8)

Date: 26 APR 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present: Plantago erecta

Nectar Plants Present: Cryptantha, Lathyrus, Buckwheats, Bluedicks,

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location TREATMENT PLANT Survey Segment SURVEY AREA (4)
 Surveyor GRET CHATMAN Date 27 APRIL 2016 Survey Week Number (9)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	clear	patchy	overcast	drizzle	shower	Wind (range)	Temp (F)
Start 10:00	25%	clear	patchy	overcast	drizzle	shower	6-8 mph	65°F
11:00	25%	clear	patchy	overcast	drizzle	shower	6-8 mph	66°F
12:00	25%	clear	patchy	overcast	drizzle	shower	↓	67°F
13:00	↓	clear	patchy	overcast	drizzle	shower		68°F
14:00		clear	patchy	overcast	drizzle	shower		68°F
15:00		clear	patchy	overcast	drizzle	shower		69°F
Stop 16:00		clear	patchy	overcast	drizzle	shower		68°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	6	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	8	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	5	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	1	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfin)	1				
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	6				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Quino Checkerspot General Form

Adult Survey

Location Mission Gorge AREA's Survey Segment SURVY AREA (7)
 Surveyor ARBE CHARTMAN Date 29 APRIL 2016 Survey Week Number (9)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp. (F)
Start 10:00	10%	clear	patchy	overcast	drizzle	shower	6-8 mph	65° F
11:00	10%	clear	patchy	overcast	drizzle	shower	6-8 mph	66° F
12:00	10%	clear	patchy	overcast	drizzle	shower	6-8 mph	66° F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 13:00	10%	clear	patchy	overcast	drizzle	shower	6-8 mph	68° F

Habitat onsite (circle as applicable): hills, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	7	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apolemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)	1		<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)	2	
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	5	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	2		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius 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)	2				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor LUKE CATTANI

Segment # SURVEY AREA (7)

Date: 29 APRIL 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present: Plantago erecta

Nectar Plants Present: Cryptantha, Blue-dicks, Larkspur, Buckwheat

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

93

Quino Checkerspot Survey Form

Adult Assessment

Surveyor S. [unclear] Date 4/10/12 Site Visit Number 10
 Site Name Ma... [unclear] Site Location [unclear]
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2 1/4

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
	clear	% cloud cover	hazy		70
11:00	clear	% cloud cover	hazy	4/6	72
12:00	clear	% cloud cover	hazy	5/7	76
13:00	clear	% cloud cover	hazy		
13:15	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

93

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa amabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lata</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

951

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 6/20/16 Site Visit Number 9
 Site Name Mojave Site Location Mojave
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6:00"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
10:30	clear 75 % cloud cover hazy	6/10	63°
11:00	clear 70 % cloud cover hazy	7	63°
12:00	clear 50 % cloud cover hazy	4/7	63°
13:00	clear 55 % cloud cover hazy	4/8	67°
14:00	clear 75 % cloud cover hazy	7	72°
15:00	clear 50 % cloud cover hazy	4/6	70°
16:00	clear 50 % cloud cover hazy	2/5	67°
16:30	clear 50 % cloud cover hazy	5/9	66°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

95

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia torquini</i> (Torquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	- <i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Angletwing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
	<i>Anthocharis leucolara</i> (Grinnell's Marble)

96

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/23/16 Site Visit Number 9
 Site Name Map 5 2,4 Site Location Mission
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 0.5

Time (24hr)	Sky	Wind (aver ² /max)	Temp (F)
	clear % cloud cover hazy		
10:00	clear % cloud cover hazy	2/5	75
11:00	clear % cloud cover hazy	3/6	72
12:00	clear 5 % cloud cover hazy	4/6	77
	clear % cloud cover hazy	4/6	76
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

96

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

97

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 4/27/16 Site Visit Number 9
 Site Name Map 3 Site Location Mitama
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6.5

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
10:15	clear % cloud cover hazy	3/5	70°
11:30	clear % cloud cover hazy	4/6	72°
12:30	clear % cloud cover hazy	5/7	76°
1:30	clear % cloud cover hazy	4/7	75°
2:30	clear % cloud cover hazy	6	75°
3:10	clear 10 % cloud cover hazy	3/4	70°
4:00	clear % cloud cover hazy	2/3	65°
5:00	clear % cloud cover hazy	2	
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

|

77

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	Lycaenidae (Hairstreaks)
<i>Speyeria callippe</i> (Callippe Fritillary)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Incisalia augustinus</i> (Brown Elfín)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Slippy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodonta mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

98

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/25/16 Site Visit Number 9
 Site Name Maps 3, 4, 5 Site Location Migayor
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6:05

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
10:30	clear 75 % cloud cover hazy	6/10	62°
11:00	clear 70 % cloud cover hazy	4/7	67°
12:00	clear 50 % cloud cover hazy	4/7	69°
13:00	clear 35 % cloud cover hazy	5/8	69°
14:00	clear 25 % cloud cover hazy	5/5	75°
15:00	clear 50 % cloud cover hazy	4/6	70°
16:00	clear 60 % cloud cover hazy	2/5	62°
16:50	clear 50 % cloud cover hazy	5/9	65°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	III <i>Brephidium exilis</i> (Pygmy Blue)
I <i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
II <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
III <i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa</i> = <i>dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfín)
<i>Vanessa cardui</i> (Painted Lady)	III <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	II <i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	III <i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erymnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	I <i>Anthocharis sara</i> (Sara Orangetip)
III <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	III <i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(99)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dan Powell Date 4/26/16 Site Visit Number 9
 Site Name Maps 3.4 Site Location M. Va. v. v. v.
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:30

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
0900	clear % cloud cover hazy	3/5	67°
1000	clear % cloud cover hazy	3/5	68°
1100	clear % cloud cover hazy	2/4	73°
1200	clear 5 % cloud cover hazy	4/6	77°
1300	clear 5 % cloud cover hazy	4/7	76°
1330	clear 5 % cloud cover hazy	3/5	74°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

19

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	HT <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabhii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hemei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	HT <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus erictorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	HT <i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis iotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	HT <i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	HT <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

94

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 4/24/16 Site Visit Number 9
 Site Name Map 3 Site Location Migamon
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2.5

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1350	clear % cloud cover hazy	4/7	75°
1400	clear % cloud cover hazy	5/11	76°
1500	clear 10 % cloud cover hazy	5/11	74°
1530	clear 45 % cloud cover hazy	5/11	68°
1615	clear 60 % cloud cover hazy	6/10	65°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources,

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE BAS. / SAN VICENTE RIVER AREA Survey Segment SURVY AREA (8)
 Surveyor GRET CHETMAN Date 2 May 2016 Survey Week Number (10)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	6-8 mph	67°F
11:00	0	clear patchy overcast drizzle shower	6-8 mph	69°F
12:00	0	clear patchy overcast drizzle shower	6-9 mph	71°F
13:00	0	clear patchy overcast drizzle shower	7-10 mph	72°F
14:00	0	clear patchy overcast drizzle shower	6-9 mph	73°F
15:00	0	clear patchy overcast drizzle shower	6-8 mph	73°F
Stop 16:00	0	clear patchy overcast drizzle shower	7-9 mph	71°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)		
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)			<i>Anthocharis cethura</i> (Desert Orangetip)		
Danailidae			<i>Anthocharis sara</i> (Sara's Orangetip)	6	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	10	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Bernardinia blue</i>		
<i>Erynnis propertius</i> (Propertius Duskywing)			(<i>Euphydryas bernardino</i>)		
<i>Ochlodes agricola</i> (Rural Skipper)				1	
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)	4				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Charnal

Segment # SURVEY AREA (8)

Date: 2 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present: Plantago erecta

Nectar Plants Present: Lasthenia, Cryptantha, Buckwheat, Blue-dicks

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SOUTH MOUNTAIN PLANT Survey Segment SURVEY AREA (4)
 Surveyor ALAN CHATMAN Date 3 May 2016 Survey Week Number (10)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp. (F)
Start 10:00	0	clear patchy overcast drizzle shower	4-6 mph	69°F
11:00	0	clear patchy overcast drizzle shower	↓	72°F
12:00	0	clear patchy overcast drizzle shower	↓	75°F
13:00	↓	clear patchy overcast drizzle shower	↓	76°F
14:00	↓	clear patchy overcast drizzle shower	6-8 mph	77°F
15:00	↓	clear patchy overcast drizzle shower	↓	77°F
Stop 16:00	↓	clear patchy overcast drizzle shower	↓	76°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	10	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	2	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	1	X
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	3	X	<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	10	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)	3	
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Californis Sister</i>	1	
<i>Erynnis propertius</i> (Propertius Duskywing)			<i>(Adelpha bradlowii californica)</i>		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycenidae (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)	8				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)	1				
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Gabe Chapman

Segment # swamp AREA (4)

Date: 03 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta, Castilleja exerta

Nectar Plants Present:

Cryptantha, Lastucaia, Buckwheat, Blue-dicks

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location MISSION GORGE AREA Survey Segment SURVEY AREA (7)
 Surveyor ALAN CHATMAN Date 4 May 2016 Survey Week Number (10)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	0	clear patchy overcast drizzle shower	2-4 mph	68° F
11:00	↓	clear patchy overcast drizzle shower	2-4 mph	71° F
12:00		clear patchy overcast drizzle shower	4-6 mph	74° F
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 13:00		clear patchy overcast drizzle shower	4-6 mph	75° F

Habitat onsite (circle as applicable): hillsides, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	5	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	+10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	1	✓	<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	3	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)	1		<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	1		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)			<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	2				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor ALAN CHAPMAN

Segment # SURVEY AREA (7)

Date: 4 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present: ~~est~~ Plantago erecta

Nectar Plants Present: Lasthenis, Crotalaria, Buckwheat, Blue-dicks

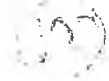
Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.



Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/1/16 Site Visit Number 10
 Site Name Mesa 1-2 Site Location Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1115	clear 70 % cloud cover hazy	1/3	67
1200	clear 80 % cloud cover hazy	2/4	70
1300	clear 40 % cloud cover hazy	4/7	72
1400	clear 10 % cloud cover hazy	1/6	73
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

133

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus atbescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Allalra Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Slippy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(10)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 6/1/16 Site Visit Number 10
 Site Name Maps 3 Site Location Miyama
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3/15"

Time (24hr)	Sky			Wind (aver*/max)	Temp (F)
1410	clear	% cloud cover	hazy	1/3	67°
1500	clear	% cloud cover	hazy	2/4	70°
1600	clear	% cloud cover	hazy	4/7	73°
1700	clear	% cloud cover	hazy	3/6	73°
1725	clear	% cloud cover	hazy	3/5	78°
	clear	% cloud cover	hazy	3/5	77°
	clear	% cloud cover	hazy	4/5	73°
	clear	% cloud cover	hazy	3/5	75°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops; soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

(10)

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglemwing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrightii</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrightii</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

102

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/2/16 Site Visit Number 10
 Site Name Maps 3, 4, 5 Site Location Muir
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
0720	clear % cloud cover hazy	1/3	67°
	clear % cloud cover hazy	3/4	72°
	clear % cloud cover hazy	5/7	74°
	clear % cloud cover hazy	5/6	72°
	clear % cloud cover hazy	4	72°
	clear % cloud cover hazy	5/7	72°
1000	clear 10% cloud cover hazy	5/7	72°
1200	clear 5% cloud cover hazy	3/4	72°
1400	clear 20% cloud cover hazy	2	72°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

102

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

103

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/2/16 Site Visit Number 10
 Site Name Map 3 Site Location Murphy
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
	clear % cloud cover hazy	2/5	72°
	clear % cloud cover hazy	4/7	70°
	clear % cloud cover hazy	3/6	70°
1300	clear % cloud cover hazy	5/7	71°
1300	clear % cloud cover hazy	3/5	78°
1300	clear % cloud cover hazy	2/5	79°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

103

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	III <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
III <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
III <i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	III <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	III <i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	II <i>Artogeia rapae</i> (Cabbage White)
SKipper?	II <i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	III <i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Catephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

104

Surveyor Dale Powell Date 5/1/16 Site Visit Number 10
 Site Name Map Site Location Mt. Nevada
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6'10"

Time (24hr)	Sky	Wind (aver / max)	Temp (F)
11:15	clear 90 % cloud cover hazy	1/3	67°
12:00	clear 90 % cloud cover hazy	2/4	70°
1:30	clear 40 % cloud cover hazy	4/7	73°
2:30	clear 75 % cloud cover hazy	3/6	77°
3:00	clear % cloud cover hazy		
4:00	clear % cloud cover hazy		
5:00	clear % cloud cover hazy		
17:00 17:25	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

(105)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dan Powell Date 5/2/16 Site Visit Number 10
 Site Name Mops 3,4,5 Site Location Miguon
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 7:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
0920	clear % cloud cover hazy	1/3	67°
1000	clear % cloud cover hazy	3/6	71°
1100	clear % cloud cover hazy	5/7	74°
1200	clear % cloud cover hazy	5/8	77°
1300	clear % cloud cover hazy	3/4	75°
1400	clear % cloud cover hazy	4/8	78°
1500	clear 10% cloud cover hazy	5/9	78°
1600	clear 25% cloud cover hazy	4/8	77°
1620	clear 30% cloud cover hazy	3/6	76°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

105

Nymphalidae (Brush Footed Butterflies)	Lycacnidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	 <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycacnidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	 <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	 <i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	 <i>Artogeia rapae</i> (Cabbage White)
	 <i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	 <i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	 <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(106)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jon Powell Date 5/3/16 Site Visit Number 10
 Site Name Map 3 Site Location Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
7:25	clear % cloud cover hazy	3/5	72°
7:50	clear % cloud cover hazy	4/7	74°
8:10	clear % cloud cover hazy	3/6	75°
8:30	clear % cloud cover hazy	5/7	75°
8:50	clear % cloud cover hazy	3/5	78°
9:05	clear % cloud cover hazy	3/5	78°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	✓ <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Ptebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Calliphrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	✓ <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotia</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	✓ <i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	✓ <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

Quino Checkerspot General Form

Adult Survey

Location MISSION GORGE AREA Survey Segment SURVEY AREA (7)
 Surveyor ALAN CHATMAN Date 8 May 2016 Survey Week Number (11)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 11:00	20% 20%	clear <u>patchy</u> overcast drizzle shower		
12:00	10%	clear <u>patchy</u> overcast drizzle shower		
13:00	20% 20%	clear <u>patchy</u> overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
		clear patchy overcast drizzle shower		
Stop 14:00	20% 20%	clear <u>patchy</u> overcast drizzle shower		

Habitat onsite (circle as applicable): hilltop, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	6	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	1		<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	1		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	4	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	1	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	1		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Allides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	2				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Quino Checkerspot General Form

Adult Survey

Location SOUTH TREATMENT PLANT Survey Segment SURVEY AREA (4)
 Surveyor GREG CHATMAN Date 9 May 2016 Survey Week Number (11)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)
Start 10:00 <u>10:00</u>	<u>40%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>4-7 mph</u>	<u>65°F</u>
<u>11:00</u>	<u>30%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>4-6 mph</u>	<u>66°F</u>
<u>12:00</u>	<u>20%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>5-8 mph</u>	<u>69°F</u>
<u>13:00</u>	<u>20%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>5-9 mph</u>	<u>71°F</u>
<u>14:00</u>	<u>20%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>4-7 mph</u>	<u>70°F</u>
<u>15:00</u>	<u>20%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>4-9 mph</u>	<u>70°F</u>
Stop <u>16:06</u>	<u>20%</u>	clear	<u>patchy</u>	overcast	drizzle	shower	<u>6-9 mph</u>	<u>69°F</u>

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	<u>+10</u>	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	<u>2</u>		<i>Apodemia mormo</i> (Mormon Metalmark)	<u>+10</u>	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)	<u>1</u>		<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	<u>2</u>	
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	<u>3</u>		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	<u>1</u>	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)	<u>1</u>		<i>Pontia protodice</i> (Checkered White)	<u>4</u>	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	<u>2</u>	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	<u>2</u>		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)	<u>1</u>		Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	<u>1</u>		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourful Duskywing)			OTHERS: <u>California sister</u>		
<i>Erynnis propertius</i> (Propertius Duskywing)			<u>(Adelpha bredowii californica)</u>		
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Atlides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfin)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	<u>+10</u>				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor GREG CURTMAN

Segment # SURVEY AREA (4)

Date: 09 May 2016

Comments:

Handwritten notes area for comments, consisting of multiple horizontal lines.

Plant Communities and Habitat Information:

Handwritten notes area for plant communities and habitat information, consisting of multiple horizontal lines.

Host Plants Present: Plantago erecta, Castilleja erecta

Handwritten notes area for host plants, consisting of multiple horizontal lines.

Nectar Plants Present: SAME AS LAST WEEK

Handwritten notes area for nectar plants, consisting of multiple horizontal lines.

Quino Sighting Date: GPS Location:

Handwritten notes area for quino sighting, consisting of multiple horizontal lines.

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location Smallwood Res. / SAN ALDO RIVER AREA'S Survey Segment SURVEY AREA (8)
 Surveyor GREG CLEAFMAN Date 10 May 2016 Survey Week Number (11)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)	
Start 11:00	25%	clear	clear patchy	overcast	drizzle	shower	2-4 mph	69°F	
12:00	20%	clear	clear patchy	overcast	drizzle	shower	2-5 mph	72°F	
13:00	20%	clear	clear patchy	overcast	drizzle	shower	3-7 mph	75°F	
14:00	10%	clear	clear	patchy	overcast	drizzle	shower	3-6 mph	76°F
15:00	10%	clear	clear	patchy	overcast	drizzle	shower	2-6 mph	77°F
		clear	patchy	overcast	drizzle	shower			
Stop 16:00	10%	clear	clear	patchy	overcast	drizzle	shower	4-6 mph	76°F

Habitat onsite (circle as applicable): hillsides, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	4	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)	1		<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	2		<i>Papilio eurymedon</i> (Pale Swallowtail)	1	
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	3		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	6	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)	2	
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Californica sister</i>		
<i>Erynnis propertius</i> (Propertius Duskywing)				1	
<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> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Cunniff

Segment # SUNNY AREA (8)

Date: 10 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

Plantago erecta

Nectar Plants Present:

SAME AS BEFORE!

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

107

Surveyor Dale Powell Date 5/11/07 Site Visit Number 11
 Site Name Mar 1, 2 Site Location Mar 1, 2
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:45

Time (2 hrs)	Cloud Cover	Sky	Wind (aver / max)	Temp (F)	
11:30	clear	0% cloud cover	hazy	5/9	75°
12:00	clear	0% cloud cover	hazy	5/9	70°
12:30	clear	10% cloud cover	hazy	5/9	70°
1:00	clear	25% cloud cover	hazy	5/9	70°
1:30	clear	25% cloud cover	hazy	5/9	70°
2:00	clear	% cloud cover	hazy		
2:30	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Anthriscum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

(107)

Nymphalidae (Brush-footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adeipha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia torquini</i> (Loiquin Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche bygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceramunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennel</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Allides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalpa augustinus</i> (Brown Elf)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	<i>Papilio eurymedon</i> (Pale Swallowtail)
	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (White and Orange)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurhytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

109

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/8/16 Site Visit Number 11
 Site Name Mip 3 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3:57

Time (24hr)	Sky			Wind (aver / max)	Temp (F)
	clear	% cloud cover	hazy		
1425	clear	25 % cloud cover	hazy	4/7	73°
1500	clear	25 % cloud cover	hazy	5/9	74°
1600	clear	15 % cloud cover	hazy	4/7	73.5
1700	clear	5 % cloud cover	hazy	5/9	71°
1800	clear	5 % cloud cover	hazy	5/9	71°
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		
	clear	% cloud cover	hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Anitrrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

108

Nymphalidae (Brush Footed Butterflies)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orange-tips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orange-tip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orange-tip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(109)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/9/16 Site Visit Number 11
 Site Name M+Ps 4.5 Site Location Micavinas
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5'10"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1100	clear 75 % cloud cover hazy	2/4	67°
1200	clear 80 % cloud cover hazy	3/6	58°
1300	clear 65 % cloud cover hazy	4/7	71°
1400	clear 40 % cloud cover hazy	5/8	73°
1500	clear 25 % cloud cover hazy	4/8	71°
1600	clear 15 % cloud cover hazy	5/8	73°
1650	clear 10 % cloud cover hazy	4/7	75°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

109

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	11 11 11 <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	Lycaenidae (Hairstreaks)
<i>Speyeria callippe</i> (Callippe Fritillary)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	11 11 11 <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
11 11 <i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	11 11 11 <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

110

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/2/16 Site Visit Number 11
 Site Name Mesa Site Location Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5:15"

Time (24hr)	Sky	Wind (aver./max)	Temp (F)
11:30	clear 75 % cloud cover hazy		
12:00	clear 75 % cloud cover hazy		
12:30	clear 70 % cloud cover hazy		70
14:00	clear 70 % cloud cover hazy		70
15:00	clear 70 % cloud cover hazy		70
16:00	clear 70 % cloud cover hazy		70
17:00	clear 70 % cloud cover hazy		70
18:00	clear 70 % cloud cover hazy		70
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilitops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

11:30

110

Nymphalidae (Brush Footed Butterflies)	Lycenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygona satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Bchr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

111

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/2/16 Site Visit Number 11
 Site Name Map 3 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 6:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1130	clear 30 % cloud cover hazy	5/9	72°
1200	clear 25 % cloud cover hazy	4/9	70°
1230	clear 40 % cloud cover hazy	4/9	70°
1300	clear 25 % cloud cover hazy	3/6	68°
1330	clear 25 % cloud cover hazy	5/9	74°
1400	clear 15 % cloud cover hazy	4/7	73°
1430	clear 5 % cloud cover hazy	5/9	69°
1500	clear 5 % cloud cover hazy	4/6	67°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	III I <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	II <i>Icarcia acmon</i> (Acmon Blue)
III II <i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
I <i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dametorum</i> (Perplexing Hairstreak)
	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa atalanta</i> (Red Admiral)	III III <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
II <i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
III <i>Pyrgus albescens</i> (Checkered Skipper)	I <i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	I <i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	III <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(112)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jane Powell Date 5/2/16 Site Visit Number 11
 Site Name Mapo 4.5 Site Location Mira Mar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5/10"

Time (24hr)	Sky	Wind (aver./max)	Temp (F)
1140	clear 25 % cloud cover hazy	2/4	67°
1200	clear 80 % cloud cover hazy	3/6	69°
1300	clear 65 % cloud cover hazy	4/7	71°
1400	clear 40 % cloud cover hazy	5/8	73°
1500	clear 25 % cloud cover hazy	4/8	71°
1600	clear 15 % cloud cover hazy	5/8	73°
1250	clear 10 % cloud cover hazy	4/7	70°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

112

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	✓ <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hermel</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	Lycaenidae (Hairstreaks)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa virgintensis</i> (Virginia Lady)	✓ <i>Strymon melinus</i> (Gray Hairstreak)
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Picridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
✓ <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	✓ <i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	✓ <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

113

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jay Powell Date 5/10/16 Site Visit Number 11
 Site Name M. p. 2115 Site Location Malheur
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5.45

Time (24hr)	Sky	Wind (aver./max)	Temp (F)
1100	clear 95 % cloud cover hazy	2/6	62°
1200	clear 85 % cloud cover hazy	2/4	65°
1300	clear 10 % cloud cover hazy	3/5	72°
1400	clear 5 % cloud cover hazy	4/6	72°
1500	clear 5 % cloud cover hazy	4/6	73°
1600	clear 35 % cloud cover hazy	2/5	73°
1700	clear 50 % cloud cover hazy	4/6	68°
1715	clear 50 % cloud cover hazy	4/6	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

Quino Checkerspot General Form

Adult Survey

Location MISSION LODGE AREA Survey Segment SURVEY AREA (7)
 Surveyor DAVE CHATMAN Date 15 May 2016 Survey Week Number (12)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky					Wind (range)	Temp (F)
Start 11:00	30%	clear	patchy	overcast	drizzle	shower	2-3 mph	67°F
12:00	20%	clear	patchy	overcast	drizzle	shower	2-5 mph	69°F
13:00	20%	clear	patchy	overcast	drizzle	shower	3-5 mph	70°F
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
		clear	patchy	overcast	drizzle	shower		
Stop 14:00	10%	clear	patchy	overcast	drizzle	shower	4-6 mph	73°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	10	
<i>Euphydras editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydras chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	1	X	<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)	1	
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)			<i>Pontia protodice</i> (Checkered White)	4	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)		
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Ficry Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mourful Duskywing)			OTHERS:		
<i>Erynnis propertius</i> (Propertius Duskywing)					
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Ailides halesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elfín)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	4				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor Greg Chapman

Segment # Swamp Area (7)

Date: 15 May 2016

Comments:

Lined area for handwritten comments.

Plant Communities and Habitat Information:

Lined area for handwritten plant community and habitat information.

Host Plants Present: Plantago erecta

Lined area for handwritten host plants.

Nectar Plants Present: same as before

Lined area for handwritten nectar plants.

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

Quino Checkerspot General Form

Adult Survey

Location SAN VICENTE DES. / SAN DIEGO RIVER AREA Survey Segment SUNNY MOUNTAIN (8)
 Surveyor ARIEL CHAMMAN Date 16 May 2016 Survey Week Number (12)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 11:00	30%	clear <u>patchy</u> overcast drizzle shower	3-6 mph	64° F
12:00	30%	clear <u>patchy</u> overcast drizzle shower	3-6 mph	66° F
13:00	20%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	67° F
14:00	20%	clear <u>patchy</u> overcast drizzle shower	5-7 mph	68° F
15:00	20%	clear <u>patchy</u> overcast drizzle shower	5-8 mph	68° F
		clear patchy overcast drizzle shower		
Stop 16:00	20%	clear <u>patchy</u> overcast drizzle shower	6-8 mph	67° F

Habitat onsite (circle as applicable) hilltop, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	7	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)		
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	+10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)			<i>Papilio eurymedon</i> (Pale Swallowtail)	1	*
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)		
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	2		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)		
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	+10	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	3	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)			<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	1		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Phoebus sennae</i> (cloudless sulphur)		
<i>Erynnis propertius</i> (Propertius Duskywing)				1	
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycaenidae (Hairstreaks)					
<i>Atides haesus</i> (Great Purple Hairstreak)					
<i>Incisalia augustinus</i> (Western Brown Elf)					
<i>Callophrys perplexa</i> (Perplexing Hairstreak)					
<i>Strymon melinus</i> (Gray Hairstreak)	5				
<i>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Quino Checkerspot General Form

Adult Survey

Location SOUTH TREATMENT PLANT Survey Segment SUNNY AREA (4)
 Surveyor LAUREL CHATTMAN Date 18 May 2016 Survey Week Number (12)
 Survey Partner(s) _____
 Total Acres: _____ Portion Surveyed: _____ Elevation: Max _____ Min _____

Time (24 hr)	% Cloud	Sky	Wind (range)	Temp (F)
Start 10:00	25%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	66°F
11:00	25%	clear <u>patchy</u> overcast drizzle shower	4-6 mph	68°F
12:00	15%	clear <u>patchy</u> overcast drizzle shower	7-9 mph	68°F
13:00	15%	clear <u>patchy</u> overcast drizzle shower	6-9 mph	70°F
14:00	15%	clear <u>patchy</u> overcast drizzle shower	5-8 mph	71°F
15:00	25%	clear <u>patchy</u> overcast drizzle shower	6-9 mph	71°F
Stop 16:00	25%	clear <u>patchy</u> overcast drizzle shower	6-9 mph	70°F

Habitat onsite (circle as applicable): hilltops, ridges, rock outcrops, open soils, soil crusts, clay soils, old roads, Plantago, Castilleja, Cordylanthus, Antirrhinum, nectar sources.

Butterfly Species	Count (Total)	Hill-topping	Butterfly Species	Count (Total)	Hill-topping
Nymphalidae (Brush Footed Butterflies)			<i>Leptotes marina</i> (Marine Blue)	10	
<i>Euphydryas editha quino</i> (Quino Checkerspot)			<i>Philotes sonorensis</i> (Sonoran Blue)		
<i>Euphydryas chalcedona</i> (Chalcedon Checkerspot)			<i>Plebejus melissa</i> (Melissa Blue)		
<i>Charidryas gabbii</i> (Gabb's Checkerspot)			<i>Everes amyntula</i> (Western Tailed-Blue)		
<i>Phycoides mylitta</i> (Mylitta Crescent)			<i>Brephidium exilis</i> (Western Pygmy-Blue)	2	
<i>Thessalia leanira</i> (Leanira Checkerspot)			Riodinidae (Metalmarks)		
<i>Nymphalis antiopa</i> (Mourning Cloak)			<i>Apodemia mormo</i> (Mormon Metalmark)	10	
<i>Basilarchia lorquini</i> (Lorquin's Admiral)			Papilionidae (Swallowtails)		
<i>Junonia coenia</i> (Common Buckeye)	1		<i>Papilio eurymedon</i> (Pale Swallowtail)		
<i>Vanessa annabella</i> (West Coast Lady)			<i>Papilio rutulus</i> (Western Tiger Swallowtail)		
<i>Vanessa atalanta</i> (Red Admiral)			<i>Papilio zelicaon</i> (Anise Swallowtail)	1	+
<i>Vanessa cardui</i> (Painted Lady)			Pieridae (Whites and Orangetips)		
<i>Vanessa virginiensis</i> (American Lady)	5		<i>Anthocharis cethura</i> (Desert Orangetip)		
Danaidae			<i>Anthocharis sara</i> (Sara's Orangetip)		
<i>Danaus gilippus</i> (Queen)			<i>Pieris rapae</i> (Cabbage White)	2	
<i>Danaus plexippus</i> (Monarch)	1		<i>Pontia protodice</i> (Checkered White)	6	
Hesperiidae			<i>Colias eurytheme</i> (Orange Sulphur)	2	
<i>Heliopetes ericetorum</i> (Northern White-Skipper)			<i>Colias harfordii</i> (Harford's Sulphur)		
<i>Hylephila phyleus</i> (Fiery Skipper)	3		<i>Eurema nicippe</i> (Sleepy Orange)		
<i>Pyrgus albescens</i> (White Checkered-Skipper)			Satyridae (Satyrids)		
<i>Erynnis funeralis</i> (Funereal Duskywing)	2		<i>Coenonympha californica</i> (Common California Ringlet)		
<i>Erynnis tristis</i> (Mournful Duskywing)			OTHERS: <i>Calceana Ginter</i>		
<i>Erynnis propertius</i> (Propertius Duskywing)			<i>(Adelpha bredowii californica)</i>	1	
<i>Ochlodes agricola</i> (Rural Skipper)					
Lycanidae (Hairstreaks)					
<i>Allides 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>Glaucopsyche lygdamus</i> (Southern Blue)					
<i>Icarcia acmon</i> (Acmon Blue)					
<i>Celastrina ladon</i> (Echo Blue)					

Surveyor WALTER CHARTMAN

Segment # SWAMPY AREA (4)

Date: 18 May 2016

Comments:

Plant Communities and Habitat Information:

Host Plants Present:

Nectar Plants Present:

Quino Sighting

Date:

GPS Location:

Photographs Taken:

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.

113

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	III <i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbi</i> (Gabb's Checkerspot)	<i>Glaucopteryx lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
II <i>Junonia coenia</i> (Buckeye)	III <i>Leptotes marina</i> (Marine Blue)
II <i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	II <i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	III <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
III <i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	II <i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	II <i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	II <i>Nathalis iole</i> (Dwarf Yellow)
	III <i>Phoebis senmae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	II <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

114

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/15/16 Site Visit Number 12
 Site Name Mopla Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 55

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
12:05	clear 75% cloud cover hazy	4/7	71°
	clear 75% cloud cover hazy	5/9	70°
	clear % cloud cover hazy	4/8	
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

(15)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/15/16 Site Visit Number 12
 Site Name Map 3 Site Location 11.1 av. 01
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 2:00

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1505	clear 50 % cloud cover hazy	5/9	72°
1600	clear 65 % cloud cover hazy	3/6	69°
1705	clear 55 % cloud cover hazy	3/5	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

115

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona henrei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiope</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Angletwing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Helopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis iotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

116

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/16/16 Site Visit Number 12
 Site Name Mesa 4.5 Site Location Mesa
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5:15

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1145	clear 90 % cloud cover hazy		67°
1200	clear 90 % cloud cover hazy	2/7	67°
1400	clear 85 % cloud cover hazy	3/6	70°
1500	clear 60 % cloud cover hazy	3/5	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

1015-1145 Spring following survey

116

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icaricia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	Lycaenidae (Hairstreaks)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Atlides halesus</i> (Great Purple Hairstreak)
	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gylippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopates ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

117

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/7/16 Site Visit Number 12
 Site Name Map 3/4 Site Location Miramar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 3.5

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
12:45	clear 0% cloud cover hazy	2/4	70°
1:45	clear 2% cloud cover hazy	2/5	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

12:00-12:45 Spring Antirrhinum
 1:45-1:00

117

Nymphalidae (Brush Footed Butterflies)	Lycanidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdomus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemitarucus ceranus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycanidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia angustinus</i> (Brown Elfyn)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

118

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jim Powell Date 5/15/16 Site Visit Number 12
 Site Name Map 2 Site Location Miramat
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 505"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
12:00	clear 70 % cloud cover hazy	4/7	71°
13:00	clear 75 % cloud cover hazy	5/9	70°
14:00	clear 60 % cloud cover hazy	4/8	71°
15:00	clear 50 % cloud cover hazy	5/8	72°
16:00	clear 40 % cloud cover hazy	3/5	67°
17:05	clear 55 % cloud cover hazy	2	65°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

118

Nymphalidae (Brush Footed Butterflies)	Lycanidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes anyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycanidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halosus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Cotias eurytheme</i> (Alfalfa Butterfly)
	<i>Cotias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Catephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

119

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jim Powell Date 5/16/16 Site Visit Number 12
 Site Name Map 315 Site Location M 100 m 20
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 5:15

Time (24hr)	Sky	Wind (aver*/max)	Temp (f)
1745	clear 90% cloud cover hazy	5/9	69°
1745	clear 70% cloud cover hazy	2/7	70°
1745	clear 80% cloud cover hazy	3/6	70°
1500	clear 60% cloud cover hazy	3/6	69°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus,
Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

1015-1145 Sp. 111 5/16/16 Survey

119

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	XHT HT <i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orange-cups)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orange-tip)
<i>Heliopterus ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orange-tip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	HT <i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

120

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Juan Powell Date 5/17/16 Site Visit Number 12
 Site Name Map 3,4 Site Location 1/1/1/1/1/1
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 100

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1245	clear 25 % cloud cover hazy	2/4	70
1345	clear 25 % cloud cover hazy	3/5	69
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

1280-1345 Spring Redberry survey
1445-1600

120

Nymphalidae (Brush Footed Butterflies)	Lycanidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	
<i>Polygonia satyrus</i> (Satyr Anglewing)	Lycanidae (Hairstreaks)
<i>Speyeria callippe</i> (Callippe Fritillary)	<i>Atides halesus</i> (Great Purple Hairstreak)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa cardui</i> (Painted Lady)	
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

(121)

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/22/16 Site Visit Number 12
 Site Name Map 3.4 Site Location Myanmar
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:30'

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
11:30	clear 20 % cloud cover hazy	3/5	78°
12:00	clear 10 % cloud cover hazy	3/4	79°
12:30	clear 10 % cloud cover hazy	2/4	78°
13:00	clear 10 % cloud cover hazy	3/6	78°
15:00	clear 10 % cloud cover hazy	3/6	77°
15:30	clear 5 % cloud cover hazy	2/4	72°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:

121

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Dale Powell Date 5/25/16 Site Visit Number 12
 Site Name Wasp 3.1 Site Location Mwanga
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: _____

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1130	clear 20% cloud cover hazy	3/5	70°
1200	clear 20% cloud cover hazy	3/5	74°
1260	clear 10% cloud cover hazy	2/4	75°
1300	clear 10% cloud cover hazy	2/3	75°
1330	clear 10% cloud cover hazy	2/3	77°
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

121

Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarctia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiops</i> (Mourning Cloak)	<i>Philotes sonorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	<i>Euphyllote hemedione</i> (S.B. Blue)
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atlides halesus</i> (Great Purple Hairstreak)
<i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elf)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
<i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
<i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	<i>Phoebis sennae</i> (Cloudless sulfur)
	<i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	<i>Apodemia mormo virgulii</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

122

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Jun Powell Date 5/23/16 Site Visit Number 12
 Site Name Map 3,4 Site Location Mirna
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: 4:30"

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1130	clear 20% cloud cover hazy	3/5	740
1200	clear 15% cloud cover hazy	3/6	740
1300	clear 10% cloud cover hazy	2/4	75
1400	clear 10% cloud cover hazy	3/6	76°
1500	clear 10% cloud cover hazy	3/6	75.0
1530	clear 5% cloud cover hazy	2/4	720
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, Plantago patagonica, Castilleja exserta, Cordylanthus rigidus, Antirrhinum coulterianum, Collinsia heterophylla

*20 second period, mph

COMMENT:

122

Quino Checkerspot Survey Form

Adult Assessment

Surveyor Juan Powell Date 5/23/16 Site Visit Number 12
 Site Name Map 3,4 Site Location Mivam
 Total Acres: _____ Total Acres Surveyed: _____ Elevation: Max _____ Min _____
 Hours Surveyed: _____

Time (24hr)	Sky	Wind (aver*/max)	Temp (F)
1130	clear 20 % cloud cover hazy	3/5	740
1200	clear 15 % cloud cover hazy	3/6	740
1300	clear 10 % cloud cover hazy	2/4	75
1400	clear 10 % cloud cover hazy	3/6	76°
1445	clear 10 % cloud cover hazy	3/6	750
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		
	clear % cloud cover hazy		

Habitat onsite: open soils, hilltops, ridges, rock outcrops, soil crusts, clay soils, old roads, nectar sources

Plantago erecta, *Plantago patagonica*, *Castilleja exserta*, *Cordylanthus rigidus*,
Antirrhinum coulterianum, *Collinsia heterophylla*

*20 second period, mph

COMMENT:



Nymphalidae (Brush Footed Butterflies)	Lycaenidae (Blues)
<i>Euphydryas editha quino</i> (Quino Checkerspot)	<i>Brephidium exilis</i> (Pygmy Blue)
<i>Adelpha bredowii californica</i> (California Sister)	<i>Celastrina ladon echo</i> (Echo Blue)
<i>Basilarchia lorquini</i> (Lorquin's Admiral)	<i>Everes amyntula</i> (Western Tailed Blue)
<i>Charidryas gabbii</i> (Gabb's Checkerspot)	<i>Glaucopsyche lygdamus australis</i> (Southern Blue)
<i>Euphydryas chalcedona chalcedona</i> (Chalcedon Checkerspot)	<i>Hemiargus ceraunus gyas</i> (Edward's Blue)
<i>Euphydryas chalcedona hennei</i> (Henne's Checkerspot)	<i>Icarcia acmon</i> (Acmon Blue)
<i>Junonia coenia</i> (Buckeye)	<i>Leptotes marina</i> (Marine Blue)
<i>Nymphalis antiopa</i> (Mourning Cloak)	<i>Philotes sanorensis</i> (Sonoran Blue)
<i>Nymphalis californica</i> (California Tortoiseshell)	<i>Plebejus melissa</i> (Melissa Blue)
<i>Phycoides mylitta</i> (Mylitta Crescent)	<i>Euphilotes bernardina</i> (S.B. Blue)
<i>Polygonia satyrus</i> (Satyr Anglewing)	
<i>Speyeria callippe</i> (Callippe Fritillary)	Lycaenidae (Hairstreaks)
<i>Thessalia leanira wrighti</i> (Leanira Checkerspot)	<i>Atides halesus</i> (Great Purple Hairstreak)
1 <i>Vanessa annabella</i> (West Coast Lady)	<i>Callophrys perplexa = dumetorum</i> (Perplexing Hairstreak)
<i>Vanessa atalanta</i> (Red Admiral)	<i>Incisalia augustinus</i> (Brown Elfin)
<i>Vanessa cardui</i> (Painted Lady)	<i>Strymon melinus</i> (Gray Hairstreak)
<i>Vanessa virginiensis</i> (Virginia Lady)	
	Papilionidae (Swallowtails)
Danaidae (Milkweed Butterflies)	<i>Papilio eurymedon</i> (Pale Swallowtail)
<i>Danaus gilippus</i> (Queen)	<i>Papilio rutulus</i> (Western Tiger Swallowtail)
1 <i>Danaus plexippus</i> (Monarch)	<i>Papilio zelicaon</i> (Anise Swallowtail)
Hesperiidae	Pieridae (Whites and Orangetips)
<i>Erynnis funeralis</i> (Funeral Dusky-wing)	<i>Anthocharis cethura</i> (Felder's Orangetip)
<i>Heliopetes ericetorum</i> (Great White Skipper)	<i>Anthocharis lanceolata</i> (Grinnell's Marble)
<i>Hylephila phyleus</i> (Fiery Skipper)	<i>Anthocharis sara</i> (Sara Orangetip)
1 <i>Pyrgus albescens</i> (Checkered Skipper)	<i>Artogeia rapae</i> (Cabbage White)
	<i>Colias eurytheme</i> (Alfalfa Butterfly)
	<i>Colias harfordii</i> (Harford's Sulfur)
	<i>Euchloe hyantis lotta</i> (Southern Marble)
	<i>Eurema nicippe</i> (Sleepy Orange)
	<i>Nathalis iole</i> (Dwarf Yellow)
	! <i>Phoebis sennae</i> (Cloudless sulfur)
	X 21 1b <i>Pontia protodice</i> (Common White)
	<i>Zerene eurydice</i> (California Dogface)
	Riodinidae (Metalmarks)
	1 <i>Apodemia mormo virgulti</i> (Behr's Metalmark)
	<i>Calephelis wrighti</i> (Wright's Metalmark)
	Satyridae (Satyrids)
	<i>Coenonympha californica</i> (California Ringlet)
OTHER:	

APPENDIX B

*Wildlife Species Observed during the
2016 Pure Water Program Quino Survey*

APPENDIX B
Wildlife Species Observed during the
2016 Pure Water Program Quino Survey

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Callophrys augustinus—brown elfin
Euphilotes battoides bernardino—Bernardino square-spotted blue
Glaucopsyche lygdamus australis—southern blue
Hemiargus ceraunus—Ceraunus blue
Hemiargus ceraunus gyas—Edward’s blue
Leptotes marina—marine blue
Plebejus acmon—Acmon blue
Plebejus lupini—lupine blue
Strymon melinus—gray hairstreak
Brephidium exile—western pygmy-blue

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister
Chlosyne californica—California patch
Coenonympha tullia californica—common californica ringlet
Danaus gilippus—queen
Junonia coenia—common buckeye
Limenitis lorquini—Lorquin’s admiral
Nymphalis antiopa—mourning cloak
Vanessa annabella—west coast lady
Vanessa atalanta—red admiral
Vanessa cardui—painted lady
Vanessa virginiensis—American lady
Danaus plexippus—monarch

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr’s metalmark
Apodemia mormo—Mormon Metalmark

HESPERIIDAE—SKIPPERS

Erynnis funeralis—funereal duskywing
Heliopetes ericetorum—northern white-skipper
Hylephila phyleus—fiery skipper

APPENDIX B (Continued)

Lerodea eufala—Eufala skipper

Pyrgus albescens—white checkered-skipper

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail

Papilio rutulus—western tiger swallowtail

Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—desert orangetip

Anthocharis sara sara—Pacific sara orangetip

Colias eurytheme—orange sulphur

Colias harfordii—Harford's sulphur

Eurema nicippe—sleepy orange

Nathalis iole—dainty sulphur

Phoebis sennae—cloudless sulphur

Pieris rapae—cabbage white

Pontia protodice—checkered white

APPENDIX E

2016 Focused Coastal California Gnatcatcher Survey Report

December 21, 2016

9420-03

Stacey Love
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2016 Focused Coastal California Gnatcatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Dear Ms. Love:

This report documents the results of protocol-level presence/absence surveys for the federally listed threatened coastal California gnatcatcher (*Poliophtila californica californica*) (CAGN). The surveys were conducted in support of the Pure Water San Diego Program North City Project (North City Project), located in the County of San Diego, California. The North City Project is the first phase of the City of San Diego's Public Utilities Department (PUD) proposed program to provide a safe, secure, and sustainable local drinking water supply for San Diego. The North City Project consists of the design and construction of a new advanced water treatment facility, expansion of a wastewater treatment facility, pump stations, transmission lines, and pipelines. The Project site contains approximately 575 acres of potentially CAGN-suitable habitat that were surveyed in 2016.

CAGN is a federally listed threatened species and a California Department of Fish and Wildlife (CDFW) Species of Special Concern. It is closely associated with coastal sage scrub habitat, and is thereby threatened primarily by loss, degradation, and fragmentation of this habitat. CAGN typically occurs below 820 feet above mean sea level (amsl) within 22 miles of the coast and 1,640 feet amsl for inland regions (Atwood and Bolsinger 1992). Studies have suggested that CAGN avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). CAGN is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

LOCATION AND EXISTING CONDITIONS

North City Project pipelines extend through the cities of San Diego, Santee, and the community of Lakeside in unincorporated San Diego County, in addition to federal lands within MCAS Miramar (Figure 1, Regional Map). CAGN surveys were being conducted on MCAS Miramar in

Ms. Stacey Love

Subject: 2016 Focused Coastal California Gnatcatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

2016 as part of their yearly monitoring. Following consultation with the U.S. Fish and Wildlife Service (USFWS), it was determined that additional surveys as part of this project were not required in suitable habitat areas of the project that overlapped with MCAS Miramar. Results of 2016 focused CAGN surveys on MCAS Miramar will be submitted to USFWS separately by MCAS Miramar biologists.

The Project site occupies portions of Township 14 South, Range 1 East, projected Sections 30 and 31; Township 14 South, Range 1 West, projected Sections 25 and 36; Township 14 South, Range 2 West, projected Sections 32, and 33; Township 15 South, Range 1 East, projected Sections 6 and 18; Township 15 South, Range 1 West, projected Sections 1, 23, and 30; Township 15 South, Range 2 West, projected Sections 6, 25, 29, 30, 31, 32, 33, 35, and 36; Township 15 South, Range 3 West, projected Sections 9, 10, 11, 16, 17, 20, 25, 26, and 28; Township 16 South, Range 2 West, projected Sections 1, 2, 3, and 4; and Township 16 South, Range 3 West, projected Section 9 on the San Vicente Reservoir, El Cajon, La Mesa, Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).

Elevations range from about 94 feet amsl in the southwestern portion of the Project site to approximately 688 feet amsl.

Soils within the Project site consist of acid igneous rock land; Altamont clay; Carlsbad-Urban Land complex, Chesterton fine sandy loam; Chesterton-Urban Land complex; Cieneba rocky and very rocky coarse sandy loam, Cieneba-Fallbrook rocky sandy loam; Diablo clay; Diablo-Olivenhain complex; Diablo-Urban land complex; Fallbrook sandy loam; Fallbrook-Vista sandy loam; Friant rocky fine sandy loam; Gaviota fine sandy loam; gravel pits; Huerhuero loam; metamorphic rock land; Olivenhain cobbly loam; Ramona sandy loam; Redding cobbly and gravelly loam; Redding-Urban land complex; riverwash; Salinas clay loam; stony land; terrace escarpments; Tujunga sand; and Visalia sandy loam (SanGIS 2016).

VEGETATION COMMUNITIES

Based on species composition and general physiognomy, three vegetation communities with primary constituent element habitats (included restored and disturbed communities) suitable for CAGN were identified on the Project site and off-site mapping areas. Their acreages are presented in Table 1.

The entire project alignment includes approximately 847 acres of CAGN-suitable habitat were mapped on the Project site according to Holland (1986) and Oberbauer (2008). Approximately 517 acres of the CAGN-suitable habitat was surveyed on the Project site (due to exclusions and inaccessible private property).

Vegetation acreages are presented in Table 1, and primary constituent element habitats suitable for CAGN are described following the table.

Table 1
Coastal California Gnatcatcher-Suitable Vegetation Communities on the North City Project Site

Total Vegetation Community/Land Cover	Total Acres*	Total Surveyed Acres*
Diegan Coastal Sage Scrub	638.4	422.3
Diegan Coastal Sage Scrub-Restored	16.0	13.6
Diegan Coastal Sage Scrub-Disturbed	155.8	78.0
Diegan Coastal Sage Scrub: Baccharis-Dominated	32.4	3.5
Diegan Coastal Sage Scrub: Baccharis-Dominated-Disturbed	4.7	0.0
Grand Total	847.3	517.4

Note:

* The difference in total acres and surveyed acres is due to restricted access to private property and MCAS Miramar lands.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.)—with scattered evergreen shrubs, including laurel sumac (*Malosma laurina*). Diegan coastal sage scrub occupies 638.4 acres in many patches within undisturbed areas, and an additional 16.0 acres of restored Diegan coastal sage is located in two portions on site, including south of the San Vicente Reservoir and a small patch south of Miramar Road. In addition, 155.8 acres of disturbed Diegan coastal sage scrub occur in several areas, with the majority located north of Miramar Road and east of Interstate 805 (I-805).

Diegan Coastal Sage Scrub—Baccharis-Dominated

Diegan coastal sage scrub—Baccharis-dominated is similar to Diegan coastal sage scrub but dominated by *Baccharis* species (desert broom (*B. sarothroides*) and/or coyotebrush (*B. pilularis*) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County. Approximately 32.4 acres of Diegan coastal sage scrub—Baccharis-dominated, and an additional 4.7 acres of disturbed Diegan coastal sage scrub—Baccharis-dominated vegetation throughout the study area.

METHODS

Dudek conducted a desktop CAGN-habitat suitability assessment of all coastal sage scrub habitat within the Project site. A number of areas were excluded from surveys due to the patch size being too small and/or isolated to support CAGN or the patch was buffered from the construction footprint by residential or commercial buildings. A number of areas were also excluded from the surveys as access permission was not provided by the landowner.

Focused surveys for CAGN were performed within the Project site between May 18 and July 7, 2016, by permitted biologists Jeff Priest, Tricia Wotipka, Kam Muri, Brenna Ogg, and Brian Lohstroh (Table 2). Non-permitted biologists Shelly Lawrence and Johanna Page accompanied CAGN-permitted biologists as passive observers, which included sitting quietly with little or no movement for prolonged periods while studying CAGN movements with binoculars and listening carefully to vocalizations. The surveys were conducted following the currently accepted USFWS *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol* (USFWS 1997), using the breeding season survey methods. The majority of the Project alignment overlaps with the City of San Diego’s Multiple Species Conservation Program Subarea Plan, with the exception of those portions of the alignment in the City of Santee and community of Lakeside, California. The survey included three visits at a minimum of 7-day intervals. Survey routes are shown in Figure 3.

Survey routes completely covered all accessible areas of suitable CAGN habitat on site. Appropriate birding binoculars (7 x 35 to 10 x 50 power) were used to aid in detecting and identifying bird species. The survey conditions were within protocol limits, as shown in Table 2. A recording of vocalizations was used frequently to elicit a response from the species. The recording was played approximately every 50 to 100 feet, and when a CAGN was detected, the playing of the recording ceased to avoid harassment. Two additional surveys were conducted in August and September to review habitat conditions for CAGN.

Table 2
Survey Conditions

Survey Pass	Survey Area	Date	Time	Personnel	Conditions
1	2	05/18/2016	6:00 AM–12:00 PM	JP	60°F–72°F; 20%–100% cc; 0 to 5 mph wind
1	7	05/19/2016	7:00 AM–12:00 PM	JP	62°F–78°F; 0%–100% cc; 0 to 8 mph wind
1	5	05/20/2016	6:10 AM–11:10 AM	BL	59°F–65°F; 50%–70% cc; 0 to 5 mph wind
1	6	05/20/2016	6:00 AM–12:00 PM	JP	60°F–72°F; 50%–90% cc; 0 to 6 mph wind
1	3	05/27/2016	6:30 AM–12:00 PM	TW	63°F–68°F; 100% cc; 0 to 2 mph wind

Table 2
Survey Conditions

Survey Pass	Survey Area	Date	Time	Personnel	Conditions
1	4	05/28/2016	6:00 AM–12:25 PM	BO	64°F–74°F; 90%–100% cc; 0 to 5 mph wind
1	8	05/30/2016	6:05 AM–11:30 AM	BO	61°F–72°F; 100% cc; 0 to 5 mph wind
1	1	06/01/2016	6:45 AM–12:00 PM	TW	62°F–69°F; 100% cc; 0 to 2 mph wind
2	2	05/25/2016	6:00 AM–12:00 PM	JP	56°F–68°F; 70%–50% cc; 0 to 6 mph wind
2	7	05/26/2016	6:10 AM–12:00 PM	JP	55°F–72°F; 90%–100% cc; 0 to 4 mph wind
2	5	05/27/2016	6:00 AM–11:44 AM	BL, SL	61°F–72°F; 70%–100% cc; 0 to 4 mph wind
2	4	06/04/2016	6:00 AM–12:00 PM	BO	60°F–85°F; 0%–100% cc; 0 to 11 mph wind
2	6	06/07/2016	6:00 AM–11:30 AM	JP	58°F–78°F; 10%–100% cc; 1 to 6 mph wind
2	1	06/09/2016	7:45 AM–11:45 AM	KM	64°F–68°F; 100% cc; 2 to 4 mph wind
2	8	06/12/2016	7:05 AM–12:00 PM	BO	61°F–70°F; 50%–100% cc; 0 to 5 mph wind
2	3	06/23/2016	7:40 AM–12:30 PM	KM	72°F–81°F; 10%–80% cc; 2 to 7 mph wind
3	5	06/03/2016	6:00 AM–11:00 AM	BL, JOP	59°F–82°F; 10%–100% cc; 0 to 5 mph wind
3	6	06/14/2016	7:45 AM–12:30 PM	KM	62°F–72°F; 0%–100% cc; 2 to 5 mph wind
3	4	06/18/2016	6:00 AM–12:00 PM	BO	53°F–89°F; 0%–50% cc; 0 to 12 mph wind
3	8	06/19/2016	6:35 AM–9:45 AM	BO	67°F–95°F; 0%–10% cc; 0 to 5 mph wind
3	2	06/20/2016	5:40 AM–11:45 AM	BL	68°F–92°F; 0% cc; 0/3 to 3 to 5 mph wind
3	6, 7	06/27/2016	6:10 AM–11:15 AM	JP	68°F–90°F; 10%–70% cc; 0 to 5 mph wind
3	3	06/30/2016	6:00 AM–12:00 PM	TW	64°F–79°F; 0%–100% cc; 0 to 4 mph wind
3	1	07/07/2016	7:45 AM–12:35 PM	KM	67°F–72°F; 0%–100% cc; 2 to 5 mph wind
3	2, 6	07/07/2016	6:00 AM–11:30 AM	JP	63°F–82°F; 0%–100% cc; 0 to 5 mph wind
3+	6, 7, 8	08/16/2016	9:30 AM–2:00 PM	BAO	73°F–98°F; 0% cc; 0 to 1 mph wind
3+	1, 2, 3, 4, 5	09/28/2016	8:40 AM– 4:10 PM	BAO	67°F–90°F; 30%–0% cc; 0 to 5 mph wind

Notes: BL = Brian Lohstroh; BO = Brenna Ogg; JP = Jeff Priest; JOP = Johanna Page; KM = Kamarul Muri; SL = Shelley Lawrence; TW = Tricia Wotipka; BAO = Brock Ortega; °F = Fahrenheit ; cc = cloud cover; mph = miles per hour.

RESULTS

Approximately 10 CAGN pairs and 45 individuals were observed in the survey area, including approximately 9 juveniles. Table 3 summarizes CAGN observations per survey area. Leg bands were not detected during these survey efforts.

Table 3
Coastal California Gnatcatcher 2016 Survey Observations

Survey Area	Survey Area Maps	Estimated Total CAGN Individuals In Survey Map	Summarized Observations
1 (79.2 acres)	1, 2, 3, 4, and 5	6	One male individual was observed immediately west of the survey area on Map 2 on 09/06/16. One female individual observed approximately 150 feet east of the survey area on Map 4 on 05/25/16. Two groups of two uncapped individuals were observed adjacent to the survey area on Map 4 on 07/07/16.
2 (66.3 acres)	5, 6, 7, 8, and 9	2	One male was observed within the survey area on 05/27/16 on Map 9, and a pair was observed in the same general area on 07/07/16.
3 (87.5 acres)	10, 11, and 12	8	One pair was observed within middle portion of the survey area on Map 11 on 06/22/16. One unknown uncapped individual was observed on the most eastern portion of Map 11 on 06/30/16. A pair and a male individual were observed on 06/30/16 in the middle portion of Map 11. In the same general area, an unknown individual was observed on 06/22/16 and a juvenile on 06/30/16.
4 (61.6 acres)	12 and 13	17	Two unknown individuals were observed at the southern extent of this survey area on two survey dates – 06/04/16 and 05/28/16. An additional territory was also identified north of this with two unknown individuals observed on 05/28/16 and 06/04/16 and a male observed on 06/16/16. A single unknown individual was observed north of this area on 06/04/16. Three additional territories were observed within this survey area. The most northern territory had observations from all three survey dates (05/28/16, 06/03/16 and 06/18/16) and an observation from a biologist surveying the adjacent survey area on 05/27/16. The next most northern territory also had observations from all three survey dates and had observations of a pair with juveniles and unknown individuals. The next territory also had observations from all three dates and included observations of a male, a pair with juveniles, and unknown individuals.
5 (55.4 acres)	12 and 13	5	One male was observed on 05/20/16 in the center of a large contiguous patch of suitable habitat on Map 12. A male individual was observed at the southern extent of this survey area on Map 12 on 05/20/16 and just outside the survey area on 05/27/16. A pair of was also observed in this vicinity on 06/03/16. A pair of was observed on 05/27/16 and 06/03/16 just north of the previous pair; the pair was observed with juveniles on the 05/27/16 survey date.
6 (77.5 acres)	14, 15, 16, and 17	6	A pair was observed on Map 14 of this survey area on 06/07/16 and 06/14/16. This pair was observed with juveniles (approximately two) on 06/14/16. A second pair was observed in the same patch on 06/07/16 and was confirmed as a separate pair.
7 (57.0 acres)	16 and 17	1	There was one juvenile observed on 06/27/16 on Map 17 within this survey area.
8 (25.7 acres)	17 and 18	0	There were no CAGN observations in this survey area.

Note: "Adult" is defined as an individual known to have hatched the year prior to 2016. Otherwise, exact age unknown.

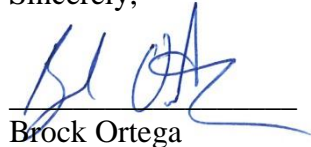
Ms. Stacey Love

Subject: 2016 Focused Coastal California Gnatcatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

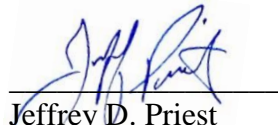
A total of 105 species of wildlife were observed or detected during the surveys: 72 bird species, 16 invertebrate species, 6 mammals, 1 amphibian species, and 10 reptile species (Attachment A).

We certify that the information in this survey report and attachments fully and accurately represent our work. Please contact Brock Ortega (bortega@dudek.com) with questions or if you require additional information.

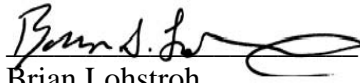
Sincerely,



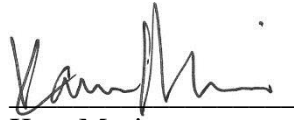
Brock Ortega
Permit #TE813545/6



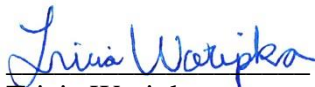
Jeffrey D. Priest
Permit #TE840619/5



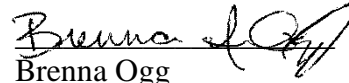
Brian Lohstroh
Permit #TE063608/5



Kam Muri
Permit #TE813545/6



Tricia Wotipka
Permit #TE840619/2



Brenna Ogg
Permit # TE134338/3

Att: Figures 1–3
Attachment A

cc: Brock Ortega

REFERENCES

Atwood, J.L., and J.S. Bolsinger. 1992. "Elevational Distribution of California Gnatcatchers in the United States." *Journal of Field Ornithology* 63:159–168.

Bontrager, D.R. 1991. *Habitat Requirements, Home Range Requirements, and Breeding Biology of the California Gnatcatcher (Poliopitila californica) in South Orange County, California*. Prepared for Santa Margarita Company, Ranch Santa Margarita, California. April 1991.

Braden, G.T., R.L. McKernan, and S.M. Powell. 1997. "Effects of Nest Parasitism by the Brown/Headed Cowbird on Nesting Success of the California Gnatcatcher." *Condor* 99:858–865.

Ms. Stacey Love

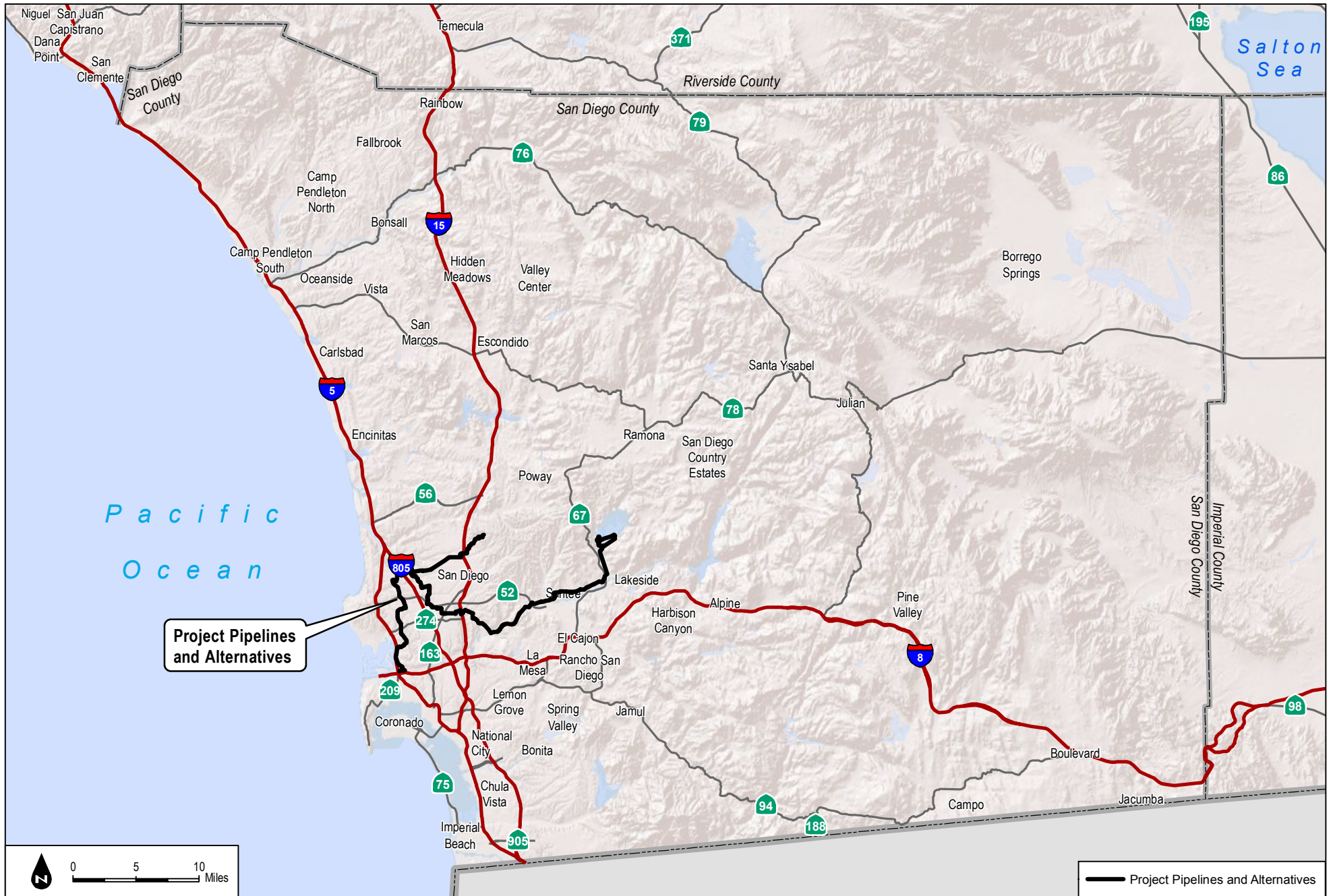
Subject: 2016 Focused Coastal California Gnatcatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Sacramento, California: Nongame-Heritage Program, California Department of Fish and Game. October 1986.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. March 2008. http://www.sdcanyonlands.org/pdfs/veg_comm_sdcounty_2008_doc.pdf.

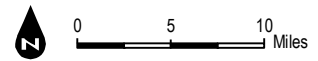
SanGIS. 2016. Soils. San Diego Geographic Information Source – JPA. Accessed June 28, 2016. <http://www.sangis.org/download/index.html>.

USFWS (U.S. Fish and Wildlife Service). 1997. *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol*. Carlsbad, California: USFWS. Revised July 28, 1997. Accessed June 2016. <http://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/CCalGnatcatcher.1997.protocol.pdf>.



Project Pipelines and Alternatives

— Project Pipelines and Alternatives



DUDEK

SOURCE: City San Diego 2016; ESRI 2016

2016 Coastal California Gnatcatcher Survey Report - Pure Water San Diego North City Project

FIGURE 1
Regional Map

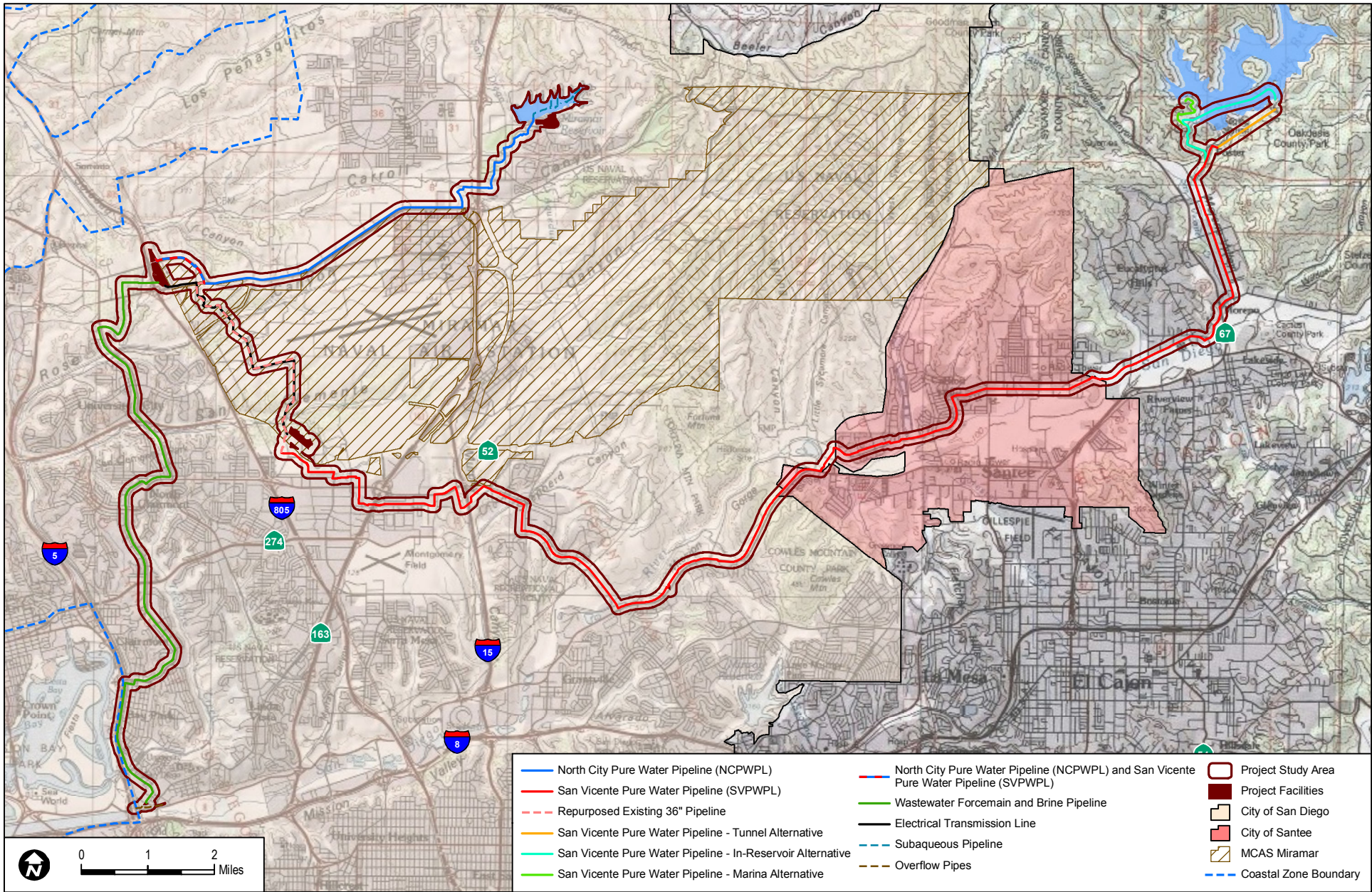
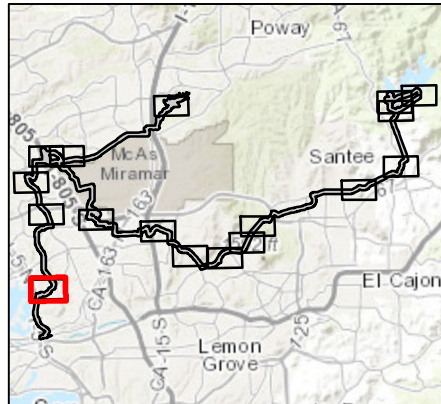
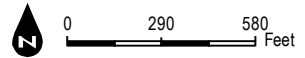


FIGURE 2
Vicinity Map



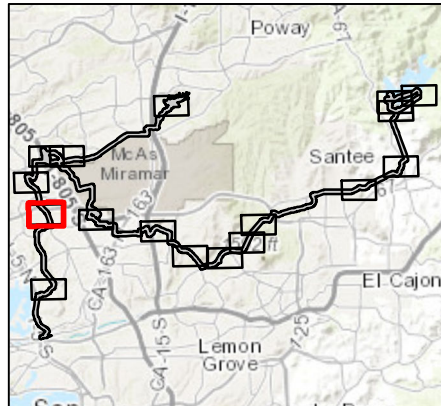
- Project Study Area
- ➔ CAGN Survey Routes
- Survey Areas**
- Survey Area 1
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub



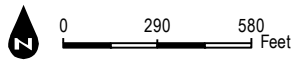
SOURCE: Bing Maps



FIGURE 3-1
2016 Coastal California Gnatcatcher Survey Results - Map 1



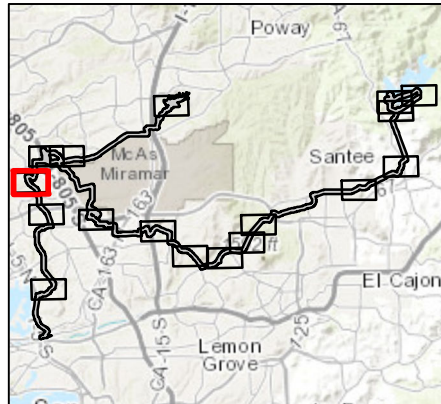
- Project Study Area
- Survey Results**
- + Male
- CAGN Survey Routes
- CAGN Territory
- Survey Areas**
- Survey Area 1
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSSB - Diegan Coastal Sage Scrub: Baccharis-dominated
- dCSS - disturbed Diegan Coastal Sage Scrub



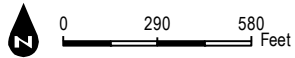
SOURCE: Bing Maps



FIGURE 3-2
2016 Coastal California Gnatcatcher Survey Results - Map 2



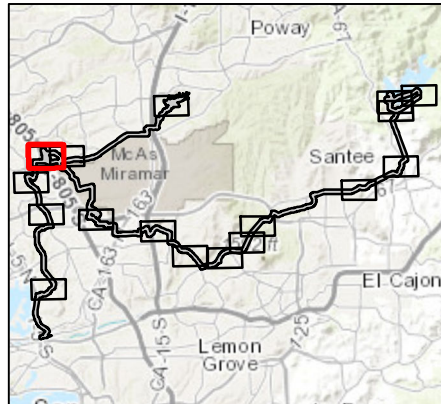
- Project Study Area
- CAGN Survey Routes
- Suitable CAGN Habitat- No Permission to Access
- Survey Areas**
- Survey Area 1
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub



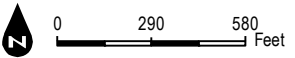
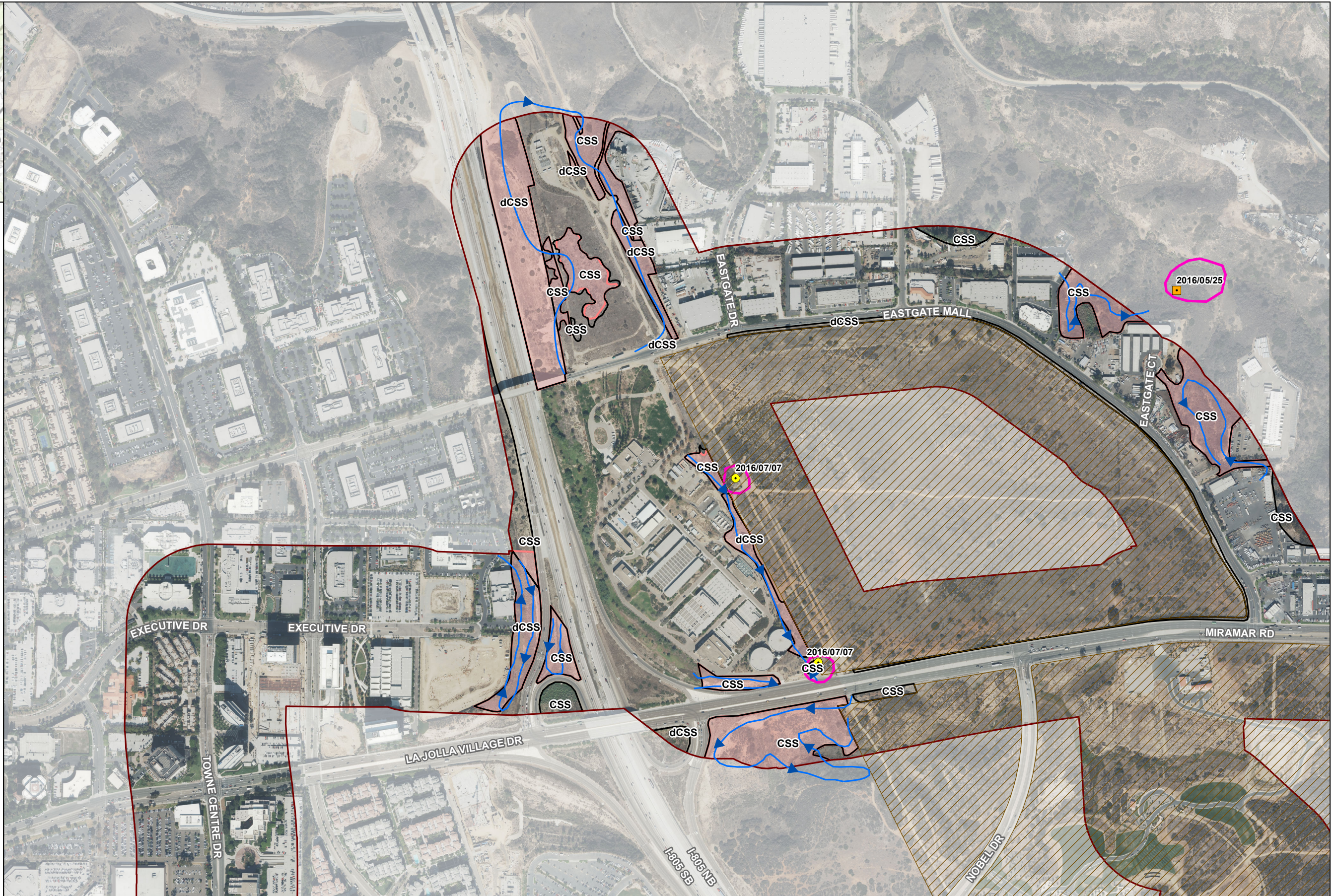
SOURCE: Bing Maps



FIGURE 3-3
2016 Coastal California Gnatcatcher Survey Results - Map 3



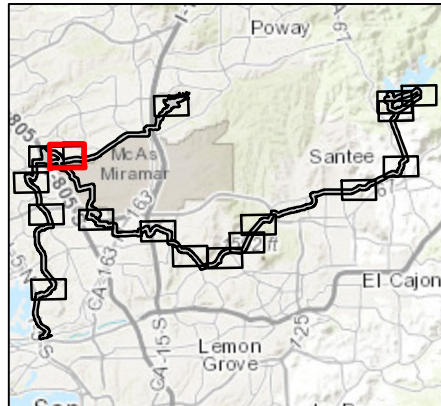
- Project Study Area
- Survey Results**
- Female
- Unknown
- CAGN Survey Routes
- CAGN Territory
- MCAS Miramar
- Survey Areas**
- Survey Area 1
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub



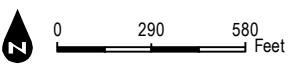
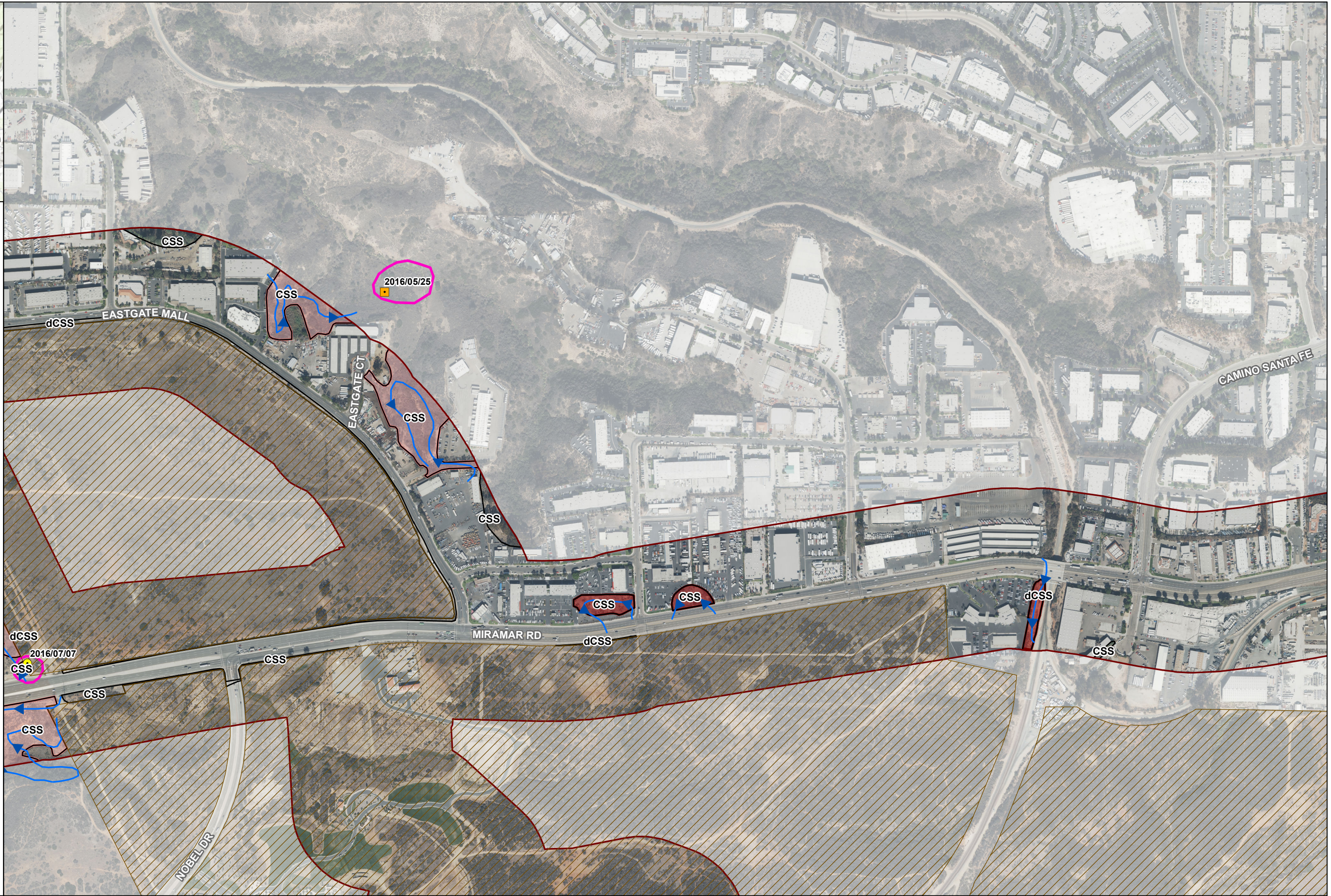
SOURCE: Bing Maps



FIGURE 3-4
2016 Coastal California Gnatcatcher Survey Results - Map 4



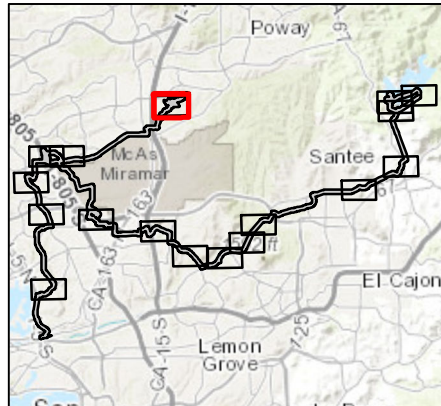
- Project Study
- Survey Results**
- Female
- Unknown
- CAGN Survey Routes
- CAGN Territory
- MCAS Miramar
- Survey Areas**
- Survey Area 1
- Survey Area 2
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub



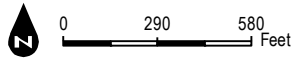
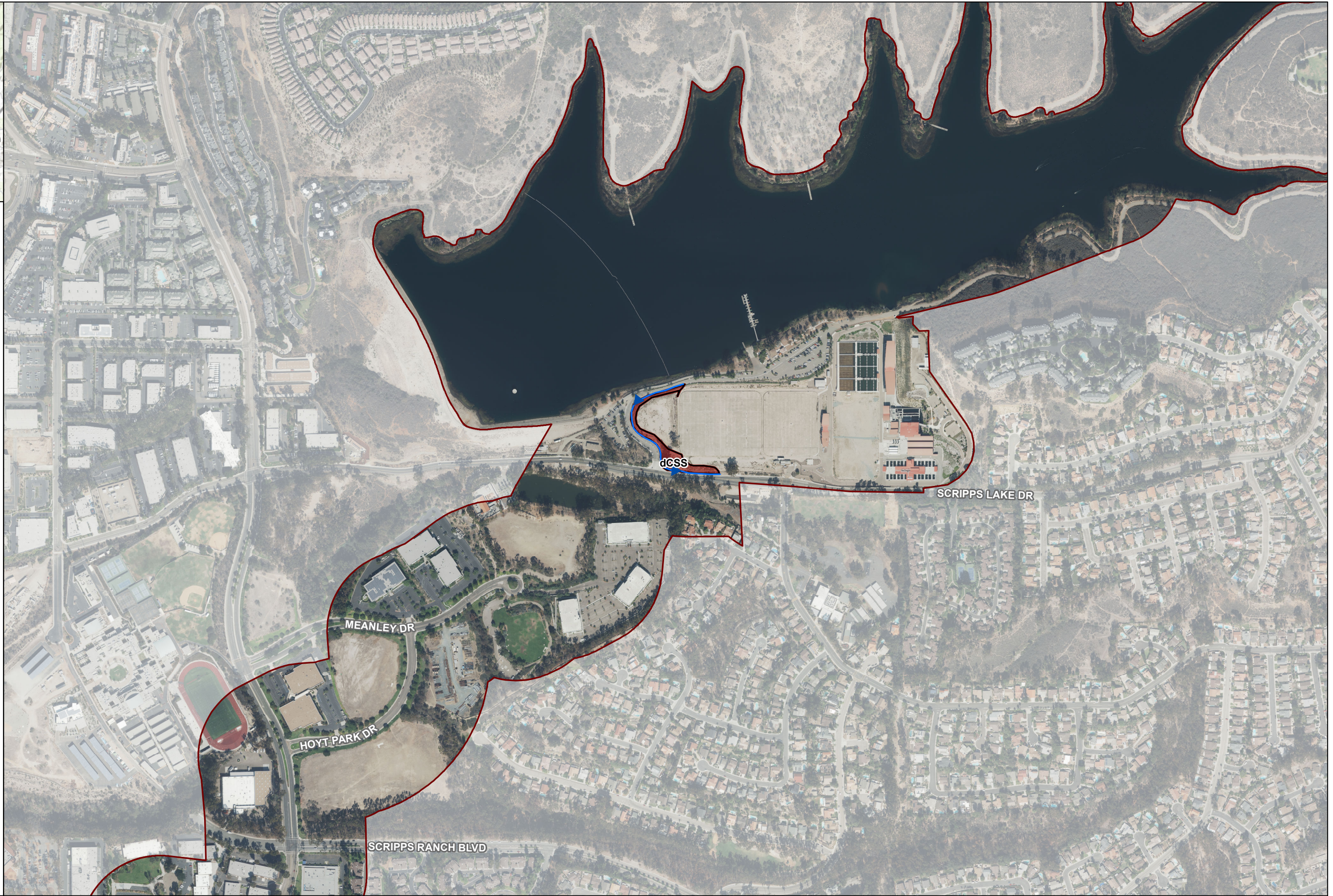
SOURCE: Bing Maps



FIGURE 3-5
2016 Coastal California Gnatcatcher Survey Results - Map 5



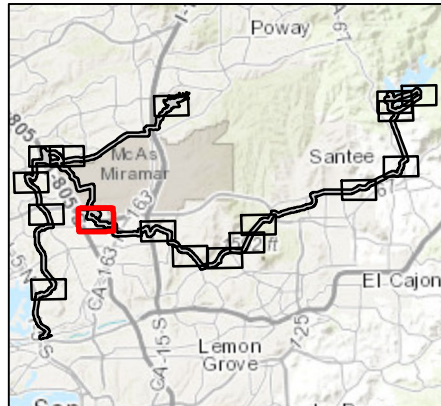
- Project Study
- CAGN Survey Routes
- Survey Areas**
- Survey Area 2
- Vegetation Communities
- dCSS - disturbed Diegan Coastal Sage Scrub



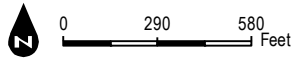
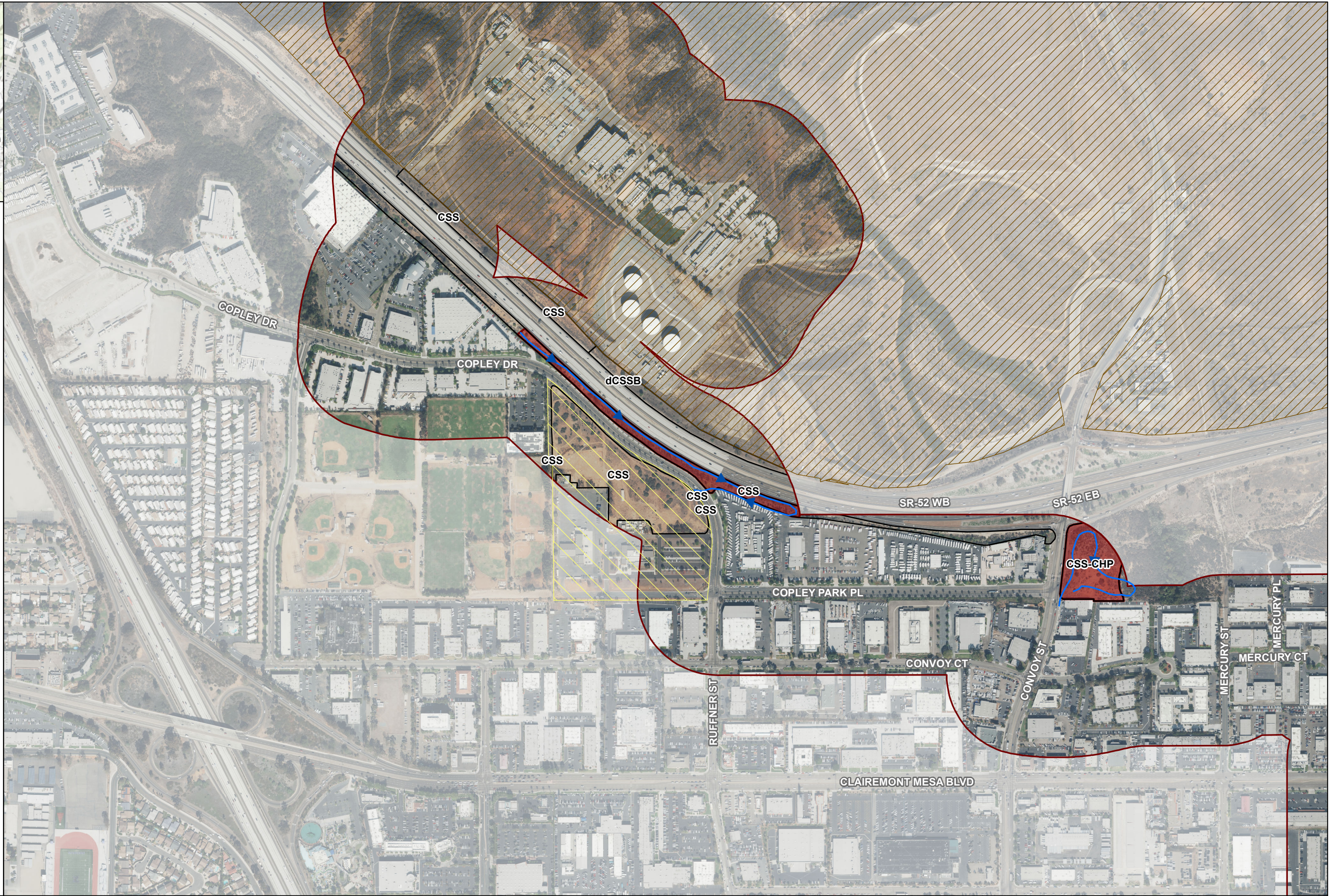
SOURCE: Bing Maps



FIGURE 3-6
2016 Coastal California Gnatcatcher Survey Results - Map 6



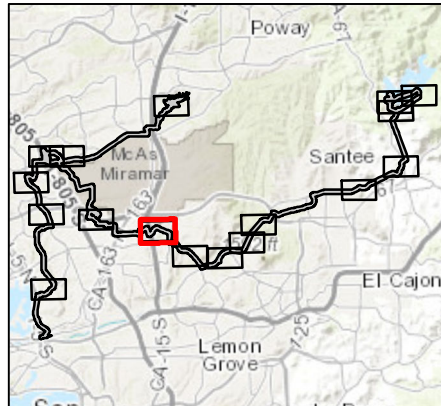
- Project Study Area
- CAGN Survey Routes
- MCAS Miramar
- Military Ownership - Air National Guard
- Survey Areas**
- Survey Area 2
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSS-CHP - Coastal Sage-Chaparral Transition
- dCSSB - disturbed Diegan Coastal Sage Scrub: Baccharis-dominated



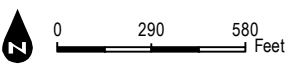
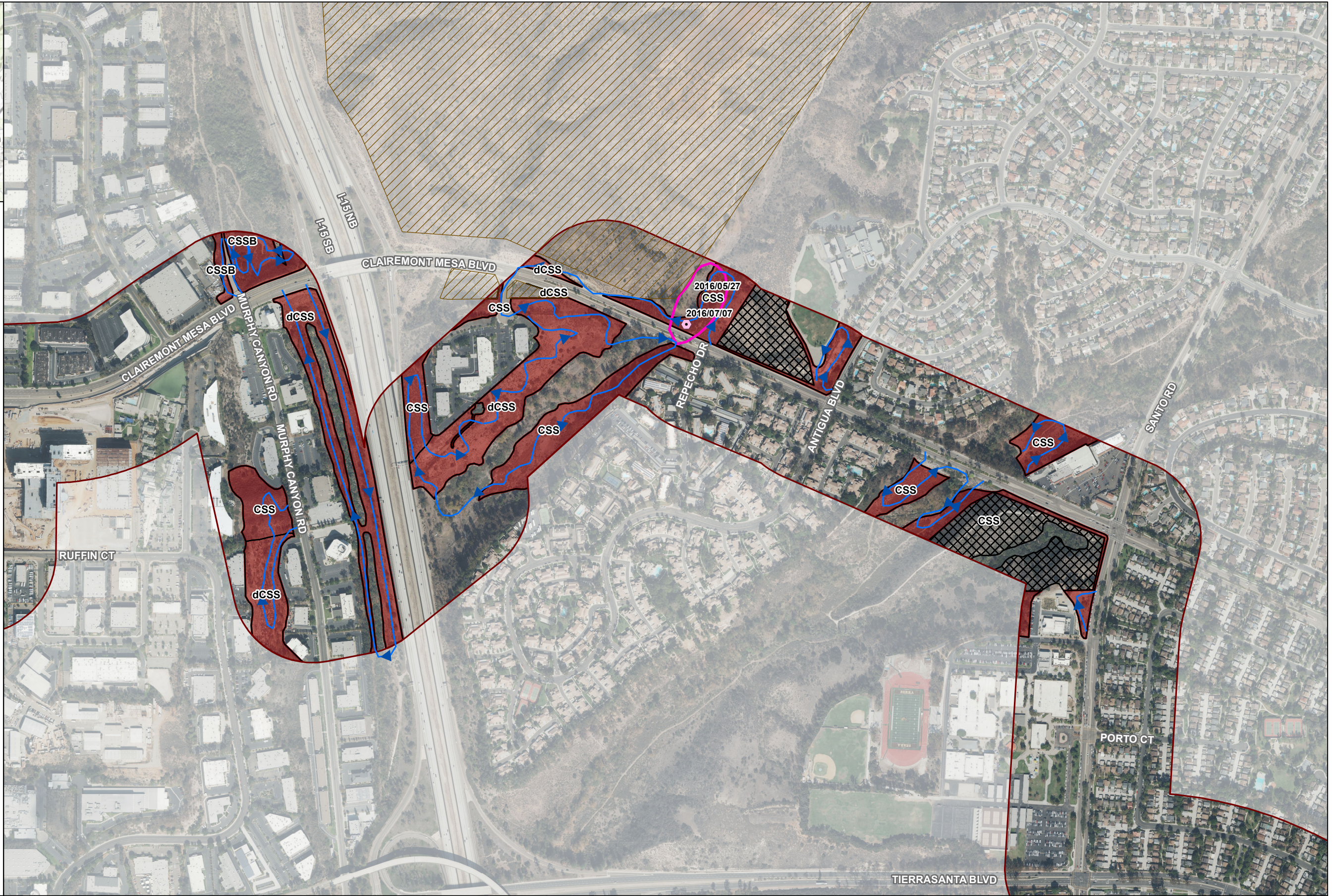
SOURCE: Bing Maps



FIGURE 3-7
2016 Coastal California Gnatcatcher Survey Results - Map 7



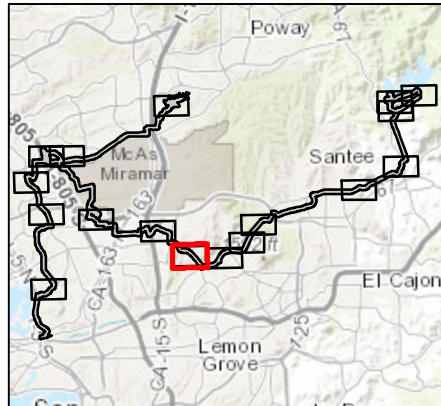
- Project Study Area
- Survey Results**
- Male
- Pair
- CAGN Survey Routes
- CAGN Territory
- Suitable CAGN Habitat- No Permission to Access
- MCAS Miramar
- Survey Areas**
- Survey Area 2
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSSB - Diegan Coastal Sage Scrub: Baccharis-dominated
- dCSS - disturbed Diegan Coastal Sage Scrub



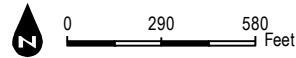
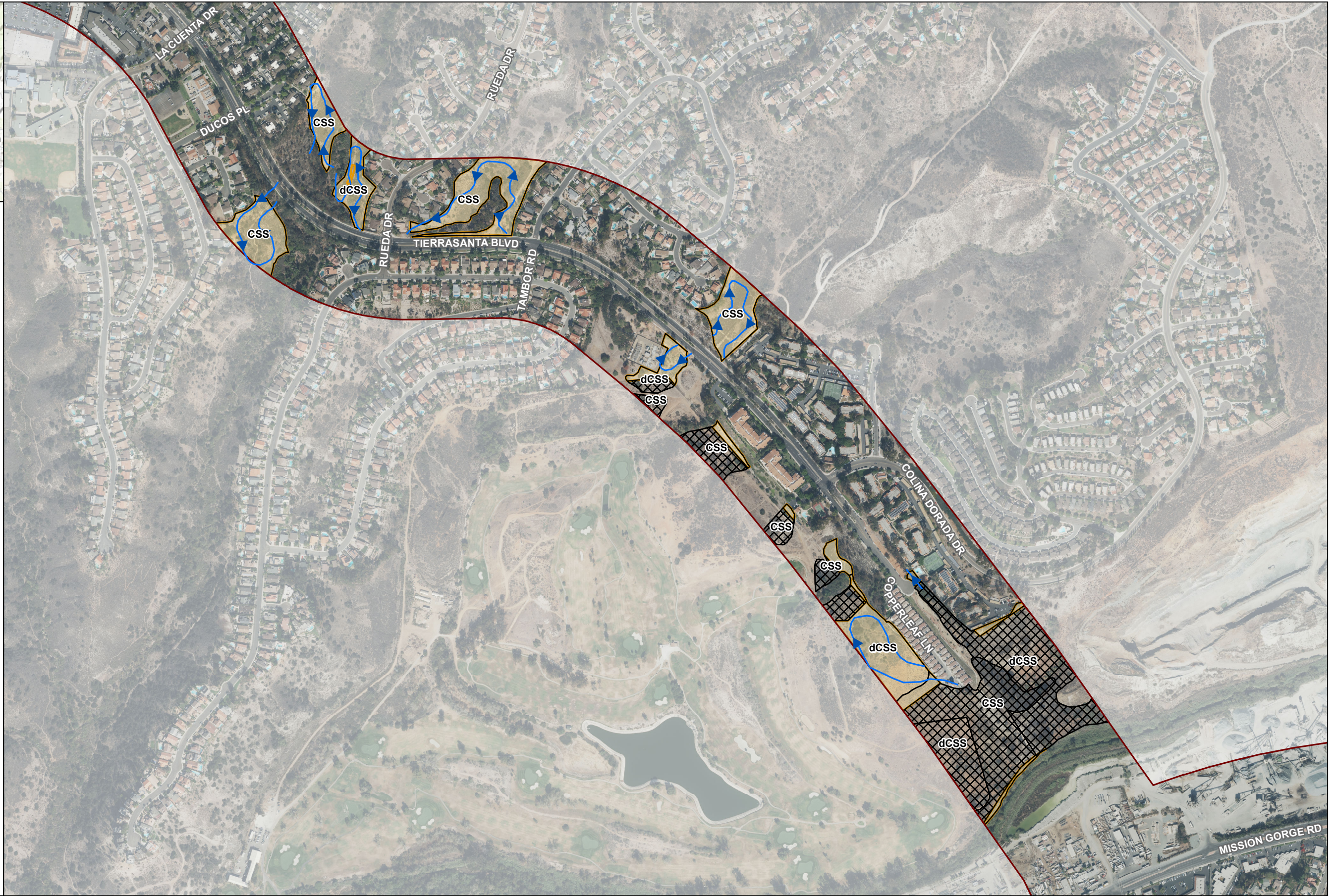
SOURCE: Bing Maps



FIGURE 3-8
2016 Coastal California Gnatcatcher Survey Results - Map 8



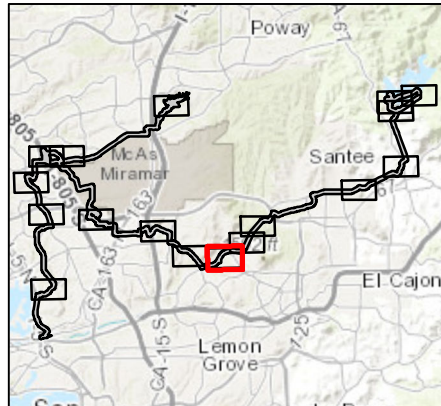
- Project Study
- CAGN Survey Routes
- Suitable CAGN Habitat- No Permission to Access
- Survey Areas**
- Survey Area 3
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub



SOURCE: Bing Maps



FIGURE 3-9
2016 Coastal California Gnatcatcher Survey Results - Map 9



- Project Study Area
- Survey Results**
- Female
- ◆ Pair
- + Juvenile
- Unknown
- CAGN Survey Routes
- CAGN Territory
- Survey Areas**
- Survey Area 3
- Survey Area 4
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub

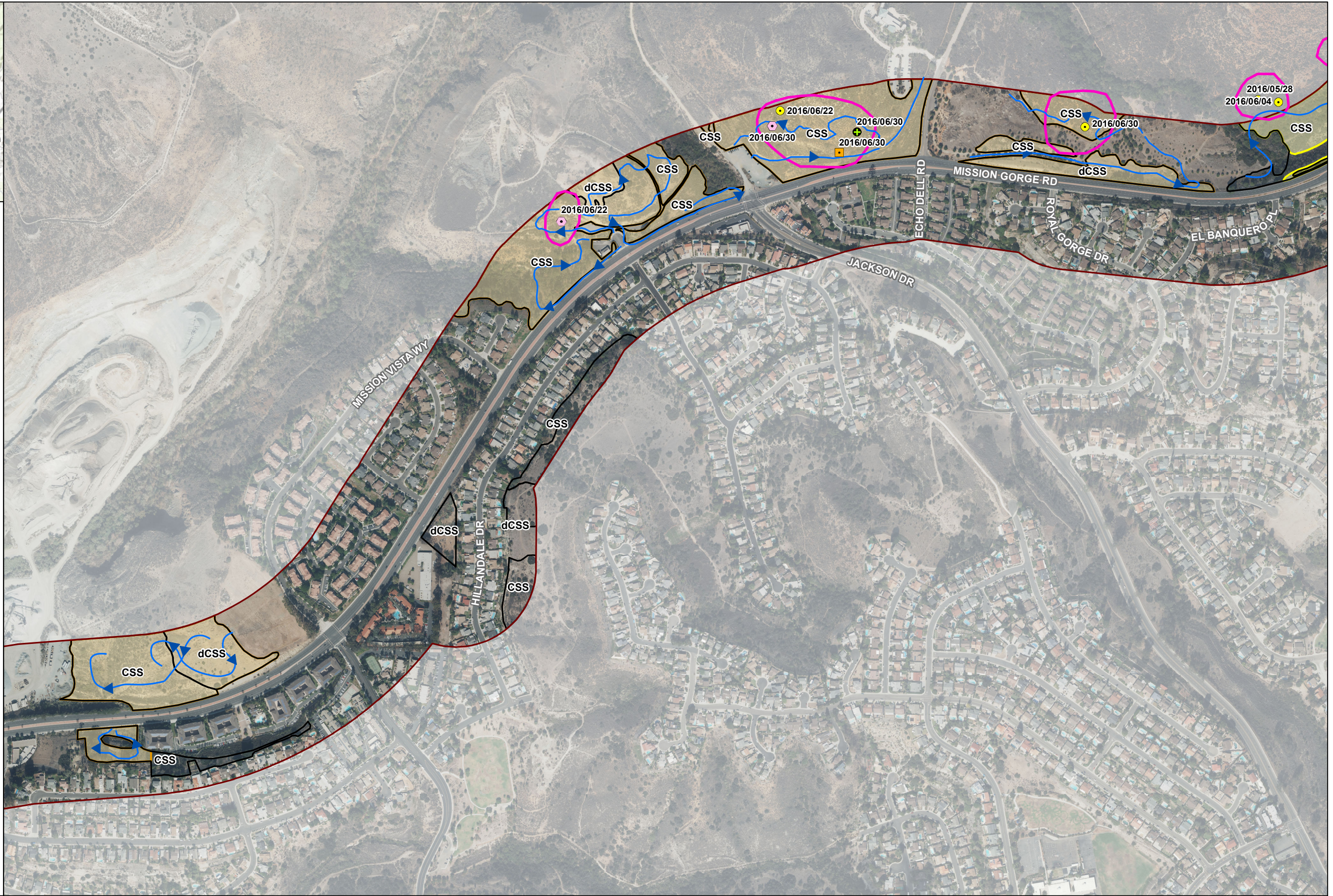
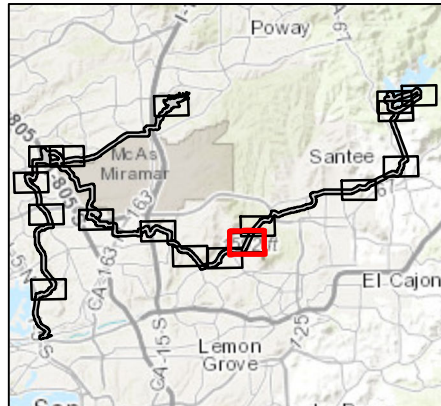


FIGURE 3-10

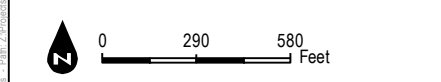
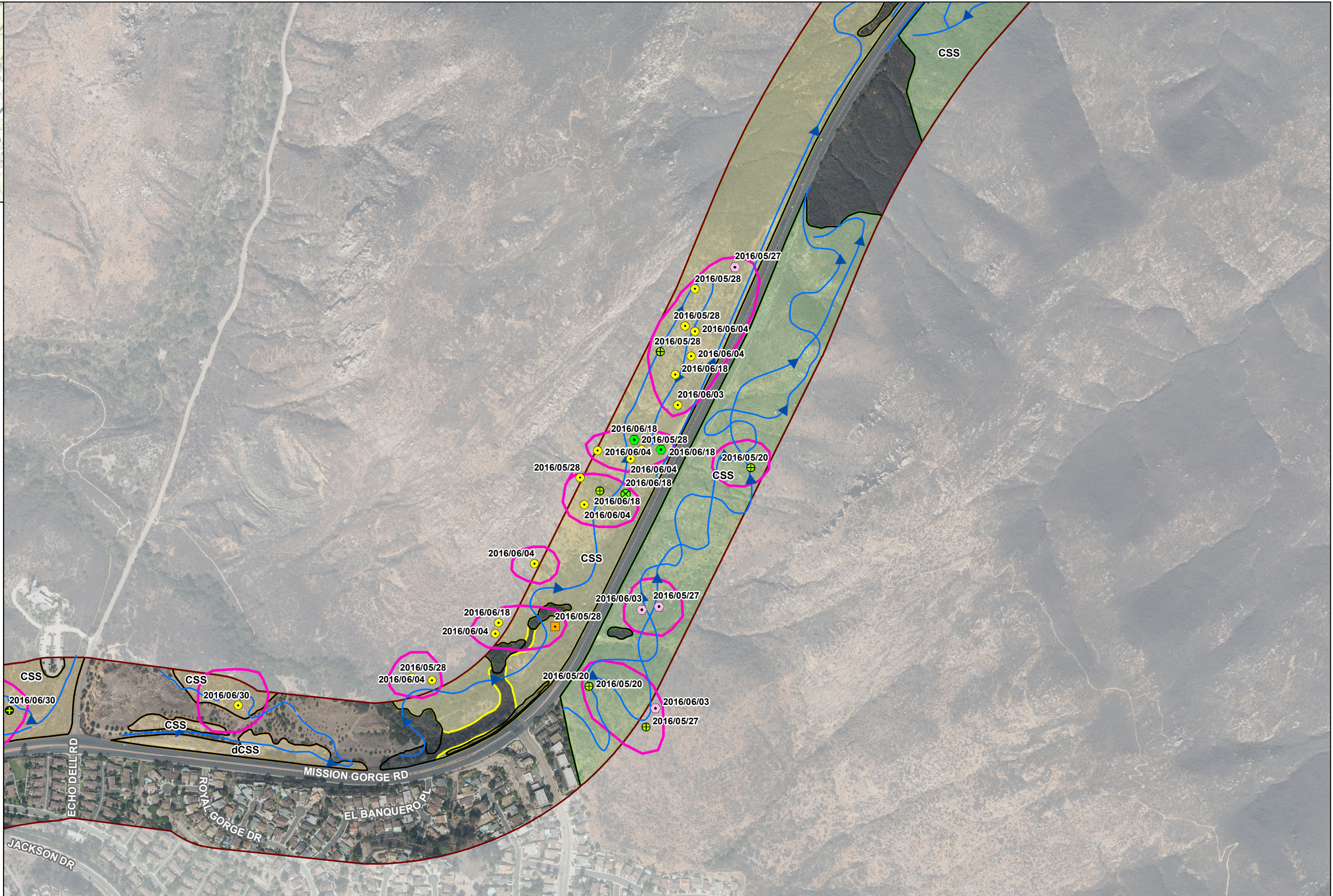
2016 Coastal California Gnatcatcher Survey Results - Map 10

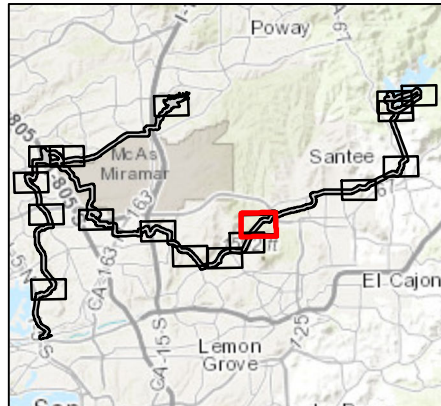


SOURCE: Bing Maps

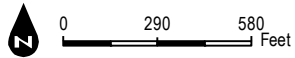
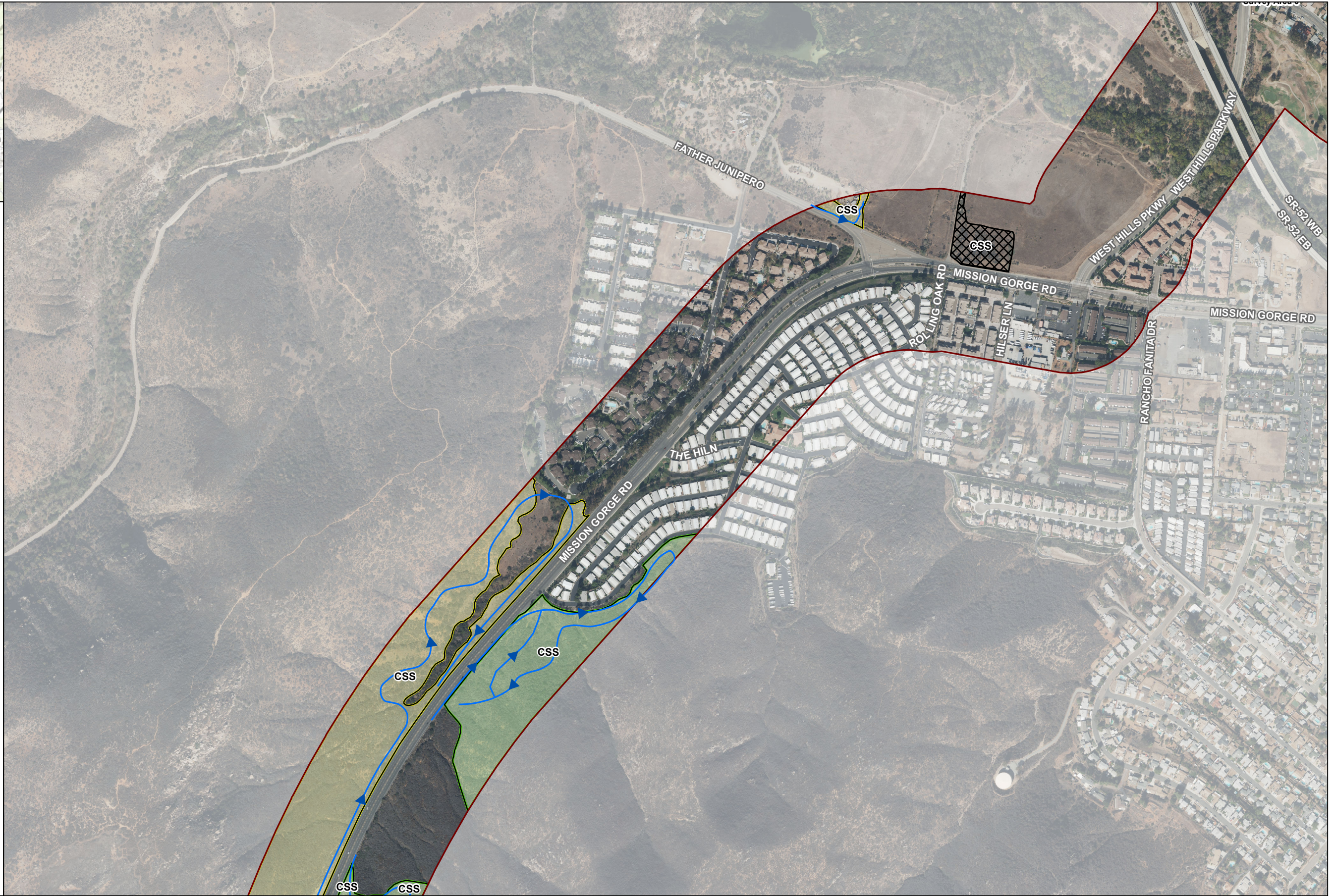


- Project Study Area
- Survey Results**
- Female
- ⊕ Male
- ⊕ Pair
- ⊕ Juvenile
- ⊕ Male with Juvenile
- ⊕ Pair with Juvenile
- Unknown
- CAGN Survey Routes
- CAGN Territory
- Survey Areas**
- Survey Area 3
- Survey Area 4
- Survey Area 5
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub





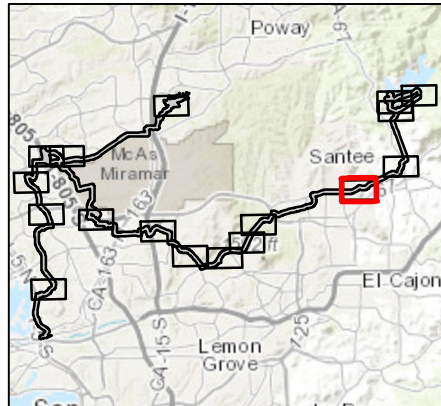
- Project Study
- CAGN Survey Routes
- Suitable CAGN Habitat- No Permission to Access
- Survey Areas**
- Survey Area 4
- Survey Area 5
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub



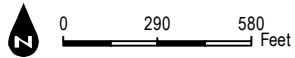
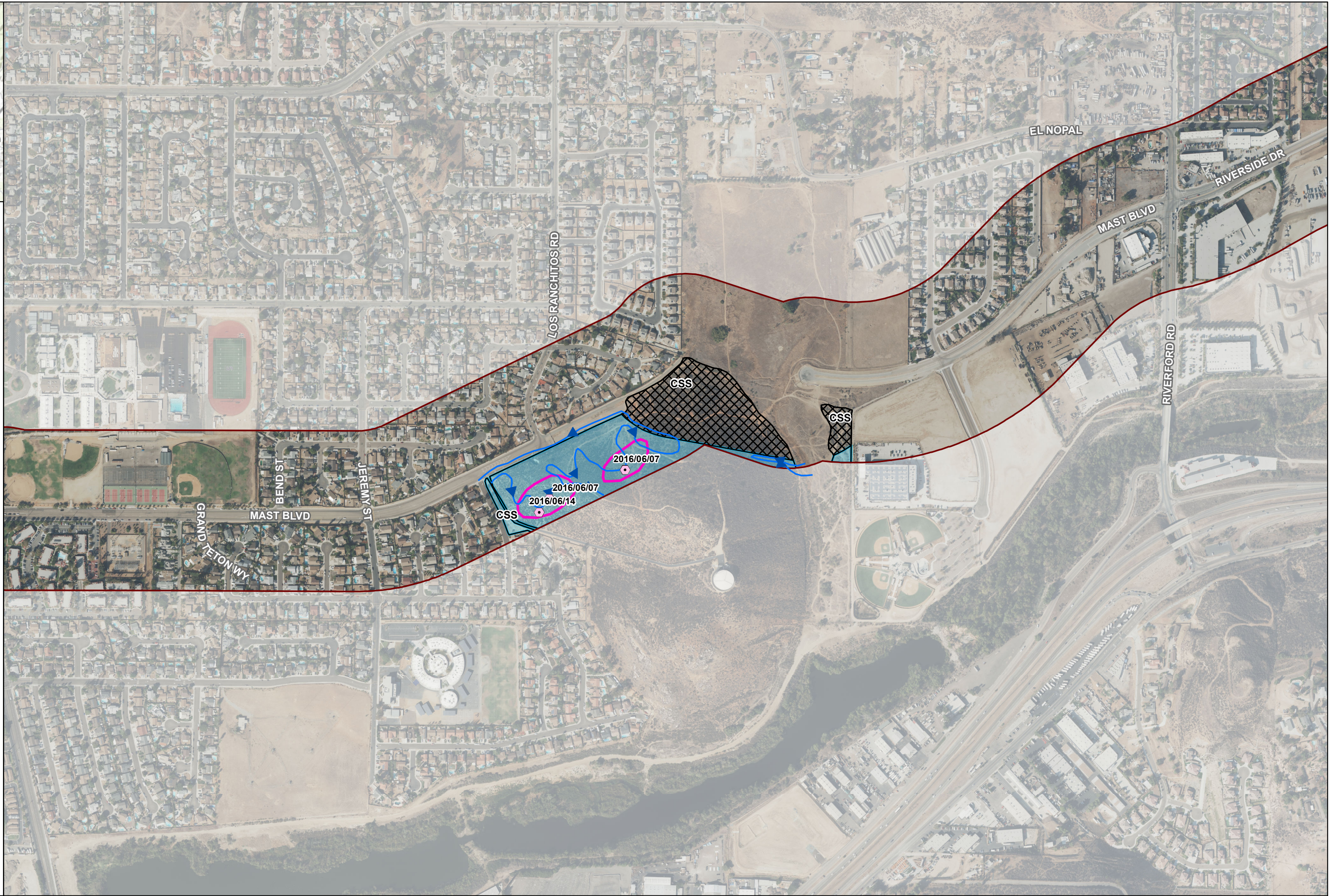
SOURCE: Bing Maps



FIGURE 3-12
2016 Coastal California Gnatcatcher Survey Results - Map 12



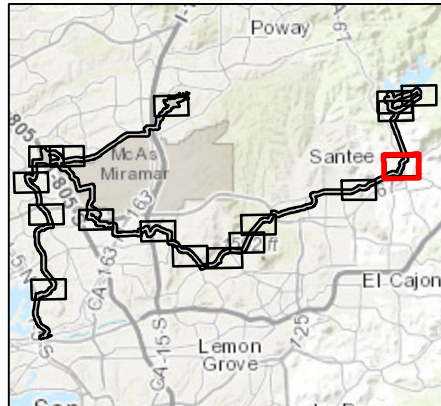
- Project Study
- Survey Results**
- ◆ Pair
- CAGN Survey Routes
- CAGN Territory
- Suitable CAGN Habitat- No Permission to Access
- Survey Areas**
- Survey Area 6
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub



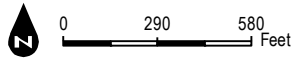
SOURCE: Bing Maps



FIGURE 3-13
2016 Coastal California Gnatcatcher Survey Results - Map 13

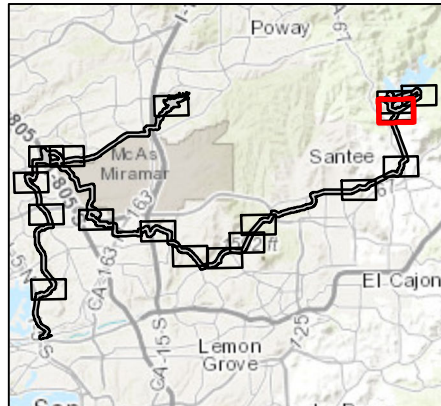


- Project Study
- CAGN Survey Routes
- Suitable CAGN Habitat- No Permission to Access
- Survey Areas**
- Survey Area 6
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub

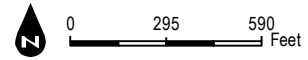
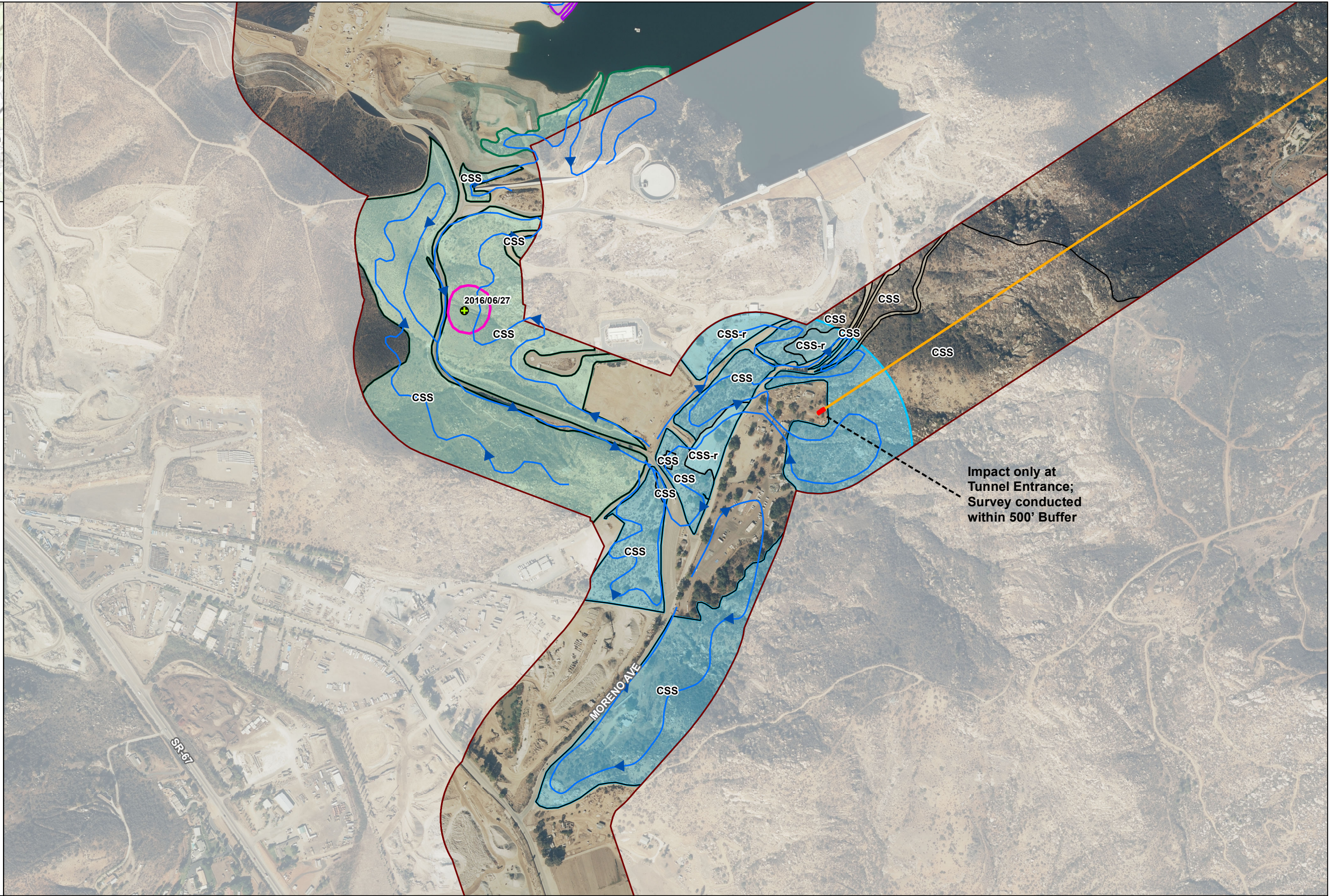


SOURCE: Bing Maps

FIGURE 3-14
2016 Coastal California Gnatcatcher Survey Results - Map 14



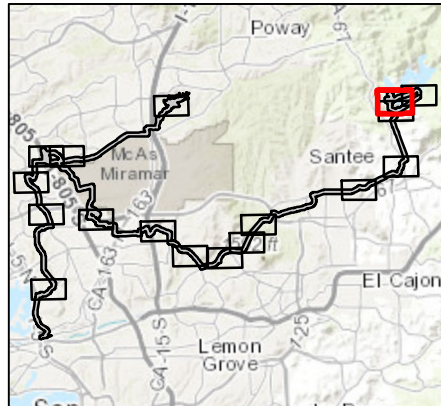
- Project Study Area
- San Vicente Pure Water Pipeline - Tunnel Alternative
- Tunnel Entrance (Impact only at Entrance location; Survey conducted within 500' Buffer)
- Survey Results**
- + Juvenile
- CAGN Survey Routes
- CAGN Territory
- Survey Areas**
- Survey Area 6
- Survey Area 7
- Survey Area 8
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSS-r - Diegan Coastal Sage Scrub-Restored



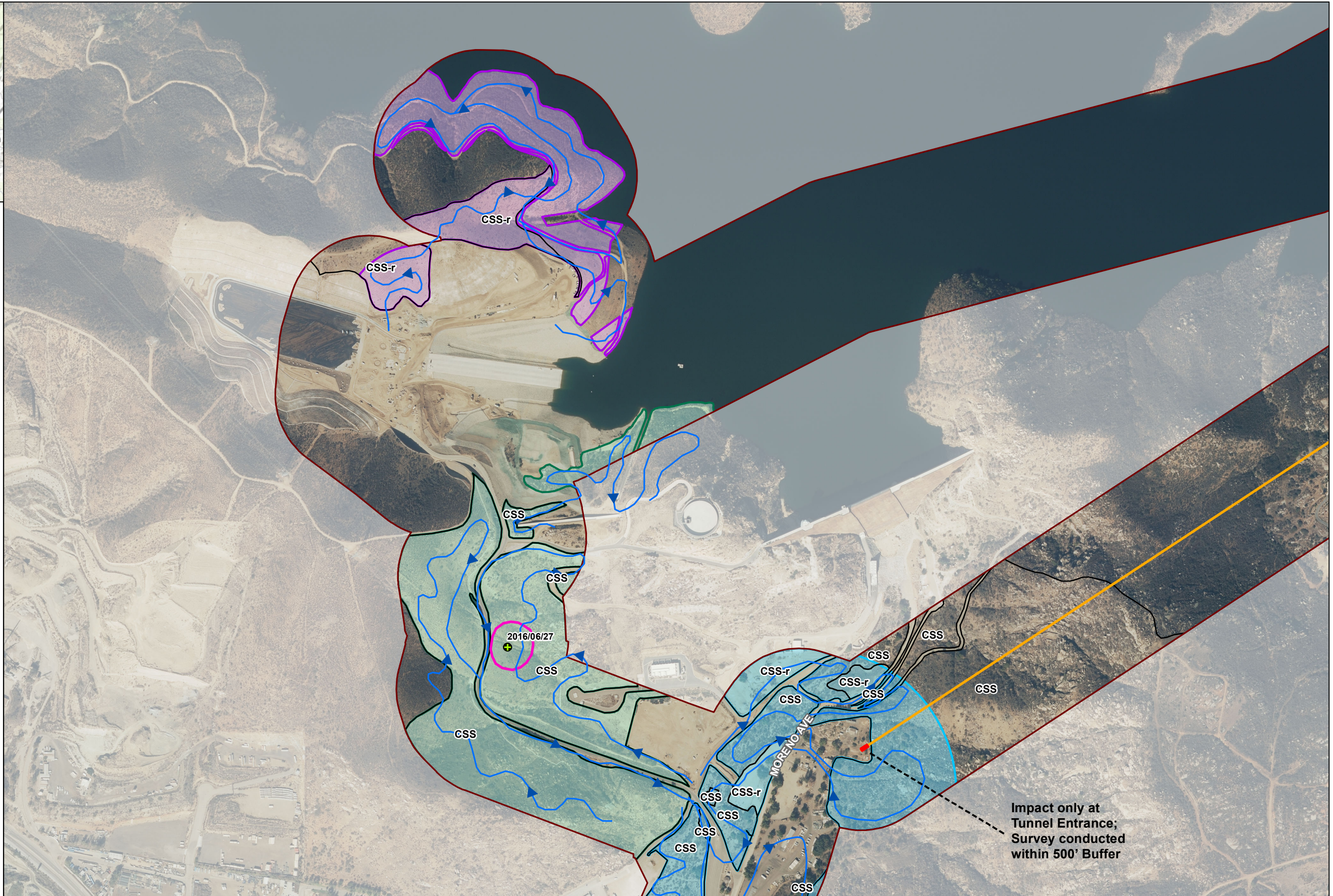
SOURCE: Bing Maps



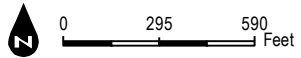
FIGURE 3-15
2016 Coastal California Gnatcatcher Survey Results - Map 15



- Project Study Area
- San Vicente Pure Water Pipeline - Tunnel Alternative
- Tunnel Entrance (Impact only at Entrance location; Survey conducted within 500' Buffer)
- Survey Results**
- + Juvenile
- CAGN Survey Routes
- CAGN Territory
- Survey Areas**
- Survey Area 6
- Survey Area 7
- Survey Area 8
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSS-r - Diegan Coastal Sage Scrub-Restored



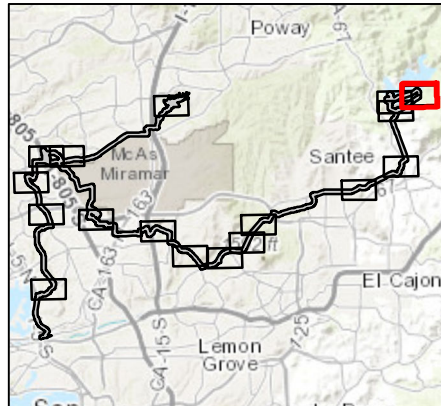
Impact only at Tunnel Entrance; Survey conducted within 500' Buffer



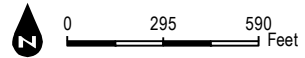
SOURCE: Bing Maps



FIGURE 3-16
2016 Coastal California Gnatcatcher Survey Results - Map 16



- Project Study Area
- San Vicente Pure Water Pipeline - Tunnel Alternative
- Tunnel Exit
- CAGN Survey Routes
- Survey Areas**
- Survey Area 8
- Vegetation Communities
- CSS - Diegan Coastal Sage Scrub



ATTACHMENT A

Wildlife Species Observed in Study Area

ATTACHMENT A
Wildlife Species Observed in Study Area

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Icterus bullockii—Bullock’s oriole

* *Molothrus ater*—brown/headed cowbird

BUSHTITS

AEGITHALIDAE—LONG/TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Pheucticus melanocephalus—black/headed grosbeak

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Melospiza melodia—song sparrow

Melospiza crissalis—California towhee

Pipilo maculatus—spotted towhee

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Spinus psaltria—lesser goldfinch

Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood/pewee

Myiarchus cinerascens—ash/throated flycatcher

ATTACHMENT A (Continued)

Sayornis nigricans—black phoebe
Sayornis saya—Say’s phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin’s kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red/tailed hawk
Buteo lineatus—red/shouldered hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna’s hummingbird
Selasphorus sasin—Allen’s hummingbird

JAYS, MAGPIES, AND CROWS

CORVIDAE—CROWS AND JAYS

Apelocoma californica—western scrub/jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

ATTACHMENT A (Continued)

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue/gray gnatcatcher

Polioptila californica californica—coastal California gnatcatcher

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Columba livia*—rock pigeon (rock dove)

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY/FLYCATCHERS

Phainopepla nitens—phainopepla

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow

Petrochelidon pyrrhonota—cliff swallow

Stelgidopteryx serripennis—northern rough-winged swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white/throated swift

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD/WARBLERS

Geothlypis trichas—common yellowthroat

Oreothlypis celata—orange/crowned warbler

ATTACHMENT A (Continued)

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Melanerpes formicivorus—Acorn woodpecker

Picoides nuttallii—Nuttall's woodpecker

Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS

Salpinctes obsoletus—rock wren

Thryomanes bewickii—Bewick's wren

Troglodytes aedon—house wren

Campylorhynchus brunneicapillus—cactus wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

INVERTEBRATE

BUTTERFLIES

NYMPHALIDAE—BRUSH/FOOTED BUTTERFLIES

Junonia coenia—common buckeye

Limenitis lorquini—Lorquin's admiral

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Erynnis funeralis—funereal duskywing

PAPILIONIDAE—SWALLOWTAILS

Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Pieris rapae—cabbage white

Pontia protodice—checkered white

ATTACHMENT A (Continued)

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus audubonii—desert cottontail

Sylvilagus bachmani—brush rabbit

RACCOONS

PROCYONIDAE—RACCOONS AND RELATIVES

Procyon lotor—raccoon

RATS AND MICE

MURIDAE—RATS AND MICE

Neotoma fuscipes—dusky/footed woodrat

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Uta stansburiana—common side/blotched lizard

ATTACHMENT A (Continued)

SNAKES

VIPERIDAE—VIPERS

Crotalus ruber—red diamondback rattlesnake

* signifies introduced (non/native) species

APPENDIX F

*2016 Focused Least Bell's Vireo
and Southwestern Willow Flycatcher*

October 25, 2016

9420-03

Recovery Permit Coordinator
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Dear Recovery Permit Coordinator:

This report documents the results of protocol-level presence/absence surveys for the state- and federally listed endangered least Bell's Vireo (*Vireo bellii pusillus*; vireo) and the state- and federally listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher). The surveys were conducted in support of the Pure Water San Diego Program North City project (North City Project), located in the County of San Diego, California. The North City Project is the first phase of the City of San Diego's Public Utilities Department (PUD) proposed program to provide a safe, secure, and sustainable local drinking water supply for San Diego. The North City Project consists of the design and construction of a new advanced water treatment facility, expansion of a wastewater treatment facility, pump stations, transmission lines, and pipelines. The North City Project site contains approximately 147.3 acres of potentially suitable vireo and flycatcher habitat that were surveyed in 2016.

The vireo and flycatcher are closely associated with riparian habitats, especially densely vegetated willow scrub and riparian forest vegetation. These species are threatened primarily by loss, degradation, and fragmentation of riparian habitats. They also are impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism.

LOCATION AND EXISTING CONDITIONS

North City Project pipelines extend from the Cities of San Diego, Santee, and the community of Lakeside in unincorporated San Diego County, in addition to federal lands within MCAS Miramar (Figure 1, Regional Map). The site occupies portions of Township 14 South, Range 1 East, projected Sections 30 and 31; Township 14 South, Range 1 West, projected Sections 25 and 36; Township 14 South, Range 2 West, projected Sections 32, and 33; Township 15 South, Range 1 East, projected Sections 6 and 18; Township 15 South, Range 1 West, projected

Sections 1, 23 and 30; Township 15 South, Range 2 West, projected Sections 6, 25, 29, 30, 31, 32, 33, 35 and 36; Township 15 South, Range 3 West, projected Sections 9, 10, 11, 16, 17, 20, 25, 26, and 28; Township 16 South, Range 2 West, projected Sections 1, 2, 3, and 4; and Township 16 South, Range 3 West, projected Section 9 on the San Vicente Reservoir, El Cajon, La Mesa, Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).

Elevations range from about 94 feet above mean sea level in the southwestern portion of Pure Water Program area to approximately 688-feet above mean sea level.

Soils on site consist of acid igneous rock land; Altamont clay; Carlsbad-Urban Land complex, Chesterton fine sandy loam; Chesterton-Urban Land complex; Cieneba rocky and very rocky coarse sandy loam, Cieneba-Fallbrook rocky sandy loam; Diablo clay; Diablo-Olivenhain complex; Diablo-Urban land complex; Fallbrook sandy loam; Fallbrook-Vista sandy loam; Friant rocky fine sandy loam; Gaviota fine sandy loam; gravel pits; Huerhuero loam; metamorphic rock land; Olivenhain cobbly loam; Ramona sandy loam; Redding cobbly and gravelly loam; Redding-Urban land complex; riverwash; Salinas clay loam; stony land; terrace escarpments; Tujunga sand; and Visalia sandy loam (USDA 2016).

VEGETATION COMMUNITIES

Based on species composition and general physiognomy, 13 vegetation communities were identified on the Pure Water Program site and off-site mapping areas (Figure 3, Vegetation Communities). Their acreages are presented in Table 1. Approximately 147.3 acres of vireo- and flycatcher-suitable habitat were mapped on the Project site according to Oberbauer et al. (2008).

Vegetation acreages are presented in Table 1, and primary constituent element habitats suitable for vireo and flycatcher are described following the table.

Table 1
Vireo and Flycatcher-Suitable Vegetation Communities on the
Pure Water Program Site

Vegetation Community	Acres
Arundo-Dominated Riparian	7.5
disturbed Mulefat Scrub	1.9
disturbed Southern Willow Scrub	4.1
Mulefat Scrub	6.5
Southern Arroyo Willow Riparian Forest	29.1
Southern Coast Live Oak Riparian Forest	3.6

Table 1
Vireo and Flycatcher-Suitable Vegetation Communities on the
Pure Water Program Site

Vegetation Community	Acres
Southern Cottonwood-Willow Riparian Forest	26.1
Southern Riparian Forest	6.8
Southern Sycamore-Alder Riparian Woodland	8.1
Southern Willow Scrub	53.6
Total	147.3

Arundo-Dominated Riparian

Arundo-dominated riparian is densely vegetated riparian thickets dominated by giant reed (*Arundo donax*) (Oberbauer et al. 2008). Arundo-dominated riparian primarily occurs along major rivers in coastal Southern California, including Otay River, Sweetwater River, San Diego River, San Dieguito River, and San Luis Rey River.

Mulefat Scrub (including Disturbed forms)

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub strongly dominated by mulefat (*Baccharis salicifolia*). This early seral community is maintained by frequent flooding. Site factors include intermittent stream channels with fairly coarse substrate and moderate depth to the water table (Oberbauer et al. 2008). This community type is widely scattered along intermittent streams and near larger rivers.

Areas mapped as mulefat scrub within the Project Area are dominated by mulefat and are typically found along drainages that receive intermittent water throughout the year.

Disturbed mulefat scrub was mapped where 50% or more of the vegetation cover was dominated by non-native vegetation.

Southern Arroyo Willow Riparian Woodland

Southern arroyo willow riparian woodland is described by Oberbauer et al. (2008) as a dense, low, closed-canopy broad-leaved, winter-deciduous woodland dominated by arroyo willow (*Salix lasiolepis*). Arroyo willow generally grows as a large, tree-like shrub. Characteristic species include white alder (*Alnus rhombifolia*), California wax myrtle (*Myrica californica*), and Pacific willow (*Salix lasiandra*).

Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is a dense riparian forest dominated by coast live oak (*Quercus agrifolia*), often with an herbaceous understory. This community occurs along the bottom or outer slopes of larger streams (Oberbauer et al. 2008). Areas mapped as oak riparian forest are dominated by coast live oak.

Southern Cottonwood-Willow Riparian Forest

Southern cottonwood-willow riparian forest is dominated by deciduous trees species: Fremont cottonwood (*Populus fremontii*) or balsam poplar (*Populus trichocarpa*), and various willow trees (*Salix* spp.) (Oberbauer et al. 2008). The shrub layer typically includes various willow species (Oberbauer et al. 2008).

Southern Riparian Forest

Southern riparian forest is a dense riparian forest dominated by western sycamore (*Platanus racemose*), *Populus* species, and other wetland plants (Oberbauer et al. 2008). Southern riparian forests are primarily found along streams and rivers.

Southern Sycamore–Alder Riparian Woodland

Southern sycamore–alder riparian woodland is described by Oberbauer et al. (2008) as a tall, open, broad-leaved, winter-deciduous streamside woodland dominated by well-spaced western sycamore and often also white alder. Seldom forming closed canopy forests, these stands may appear as trees scattered in a shrubby thicket of sclerophyllous (i.e., evergreen) and deciduous species and are subject to seasonally high-intensity flooding. Characteristic species of this habitat type include California mugwort (*Artemisia douglasiana*), coast live oak, California blackberry (*Rubus ursinus*), California laurel (*Umbellularia californica*), and giant stinging nettle (*Urtica holosericea*).

Southern Willow Scrub (including Disturbed forms)

Southern willow scrub is a dense, broad-leaved, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.) that occurs on loose, large-grained alluvium along stream channels. The closed canopy inhibits the development of a diverse understory. It may contain scattered Fremont's cottonwood and western sycamore trees emerging above the willow canopy and requires repeated flooding to avoid succession to a community dominated by these trees (Oberbauer et al. 2008).

On site, southern willow scrub occurs in patches dominated by arroyo willow (*Salix lasiolepis*) and black willow, with an understory of mulefat (*Baccharis salicifolia*).

Disturbed southern willow scrub was mapped where 50% or more of the vegetation cover was dominated by non-native vegetation.

METHODS

Suitable habitat areas within the study area were surveyed eight times for vireo and five times for flycatcher. Flycatcher-permitted Dudek wildlife biologists Paul M. Lemons (Permit #TE051248), Brock A. Ortega (Permit # TE813545-6), Jeff D. Priest (Permit # TE840619-3), and Anita M. Hayworth (Permit # TE781084-8) conducted all combined flycatcher/vireo surveys, while qualified Dudek biologists Callie J. Ford, Patricia Schuyler, Erin Bergman, and Marshall Paymard conducted vireo surveys on some visits (Table 2). Only flycatcher-permitted biologists used audio-playback techniques to elicit flycatcher responses. Focused surveys for these species were initiated on April 25, 2016, and continued through July 31, 2016.

Table 2
Vireo and Flycatcher Survey Schedule and Conditions

Survey Pass #/ Focus	Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
1-LBVI	2016-04-25	6:51 AM–9:52 AM	PS	3	57–61°F; 70–80% cc; 0-2 to 0-1 mph wind
1-LBVI	2016-04-27	6:02 AM–11:00 AM	KS	1A	55–62°F; 10–40% cc; 1-5 mph wind
1-LBVI	2016-04-28	6:02 AM–11:00 AM	KS	1B	55–58°F; 100% cc; 3-5 mph wind
1-LBVI	2016-05-04	6:28 AM–11:06 AM	CF	2	64–69°F; 0–100% cc; 0 mph wind
2-LBVI	2016-05-09	6:00 AM–10:59 AM	KS	1A	64–66°F; 90–100% cc; 2-3 mph wind
2-LBVI	2016-05-09	7:20 AM–10:16 AM	PS	3	63–68°F; 40–80% cc; 0-1 mph wind
2-LBVI	2016-05-10	6:04 AM–11:00 AM	KS	1B	64–70°F; 100% cc; 1 mph wind
2-LBVI 1-SWFL	2016-05-17	4:50 AM–10:35 AM	JP	2	57–65°F; 100% cc; 0-1 to 1-4 mph wind
3-LBVI 1-SWFL	2016-05-19	5:58 AM–10:31 AM	BO	1B	53–64°F; 100% cc; 0-1 mph wind
3-LBVI 1-SWFL	2016-05-19	5:40 AM–11:00 AM	PL	1A	56–67°F; 100% cc; 0 to 1-4 mph wind
1-SWFL	2016-05-19	5:54 AM–11:09 AM	AH	3	61–75°F; 30–100% cc; 2-3 mph wind
3-LBVI 2-SWFL	2016-06-01	5:00 AM–11:00 AM	JP	2	54–65°F; 100% cc; 0-1 to 1-4 mph wind
2-SWFL	2016-06-02	5:04 AM–10:08 AM	AH	3	57–75°F; 0% cc; 2-3 mph wind

Table 2
Vireo and Flycatcher Survey Schedule and Conditions

Survey Pass #/ Focus	Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
4-LBVI 2- SWFL	2016-06-03	5:50 AM–11:00 AM	PL	1A	58–76°F; 0–100% cc; 0-1 to 2-5 mph wind
4-LBVI 2- SWFL	2016-06-04	6:03 AM–10:50 AM	BO	1B	63–85°F; 70% cc; 0-1 mph wind
3-LBVI	2016-06-06	7:25 AM–10:15 AM	PS	3	64–72°F; 10–100% cc; 0-2 mph wind
5-LBVI 3- SWFL	2016-06-16	5:50 AM–11:00 AM	PL	1A	62–79°F; 0–10% cc; 0-1 to 1-4 mph wind
4-LBVI	2016-06-17	6:57 AM–10:05 AM	PS	3	64–79°F; 0–10% cc; 0-2 mph wind
5-LBVI 3- SWFL	2016-06-17	5:14 AM–10:32 AM	BO	1B	60–75°F; 20% cc; 0 mph wind
4-LBVI 3- SWFL	2016-06-17	5:00 AM–11:00 AM	JP	2	50–85°F; 0–10% cc; 0-2 to 1-3 mph wind
3- SWFL	2016-06-17	5:08 AM–10:09 AM	AH	3	64–75°F; 30–70% cc; 2-3 mph wind
6-LBVI	2016-06-26	6:08 AM–11:02 AM	MP	1A	66–80°F; 0–10% cc; 1-2 mph wind
6-LBVI	2016-06-27	6:00 AM–11:02 AM	MP	1B	67–78°F; 10% cc; 1-2 mph wind
5-LBVI	2016-06-27	6:05 AM–10:46 AM	PS	3	66–82°F; 0–50% cc; 0-2 mph wind
5-LBVI 4- SWFL	2016-06-30	5:00 AM–11:00 AM	JP	2	62–80°F; 0–100% cc; 0-1 to 3-6 mph wind
4- SWFL	2016-07-01	5:33 AM–10:10 AM	AH	3	65–73°F; 0–100% cc; 2 mph wind
7-LBVI 4- SWFL	2016-07-05	5:31 AM–10:48 AM	BO	1B	65–82°F; 0–100% cc; 5 mph wind
7-LBVI 4- SWFL	2016-07-07	5:50 AM–11:00 AM	PL	1A	63–74°F; 0–100% cc; 0 to 1-5 mph wind
6-LBVI	2016-07-08	6:05 AM–10:54 AM	PS	3	64–77°F; 0–100% cc; 0-2 mph wind
6-LBVI 5- SWFL	2016-07-11	5:00 AM–11:00 AM	JP	2	64–76°F; 0–100% cc; 1-4 to 1-5 mph wind
5- SWFL	2016-07-14	5:30 AM–10:15 AM	AH	3	66–70°F; 50–100% cc; 1 mph wind
8-LBVI 5- SWFL	2016-07-15	5:53 AM–11:05 AM	BO	1B	65–77°F; 0–100% cc; 0-3 mph wind
8-LBVI 5- SWFL	2016-07-17	6:00 AM–11:00 AM	PL	1A	64–77°F; 0–100% cc; 0-1 to 2-6 mph wind
7-LBVI	2016-07-20	6:12 AM–10:39 AM	PS	3	64–82°F; 10–100% cc; 0-2 mph wind
7-LBVI	2016-07-21	6:00 AM–11:03 AM	MP	2	65–86°F; 10% cc; 1-2 to 2-3 mph wind
8-LBVI	2016-07-31	5:57 AM–11:57 AM	EB	3	69.3–85.1°F; 0–100% cc; 0-0.6 mph wind
8-LBVI	2016-07-31	6:20 AM–11:25 AM	CF	2	68–86°F; 0–100% cc; 0 mph wind

Notes: LBVI = least Bell's vireo; SWFL = Southwestern willow flycatcher; AH = Anita Hayworth; BO = Brock Ortega; CF = Callie Ford; EB = Erin Bergman; JP = Jeff Priest; KS = Kevin Shaw; MP = Marshall Paynard; PL = Paul Lemons; PS = Patricia Schuyler; cc = cloud cover; mph = miles per hour; °F = degrees Fahrenheit.

As directed by Stacey Love, United States Fish & Wildlife Service (USFWS) Recovery Permit Coordinator (via email sent on April 27, 2016), surveys for vireo and flycatcher were not conducted concurrently. Due to differences in detectability, surveys were conducted sequentially, with surveys for the flycatcher first (i.e., first thing in the morning) and surveys for the vireo conducted afterwards. Additionally, for linear survey routes within a riparian corridor: flycatchers were surveyed from the starting point to the end, and vireos were surveyed on the way back. This route was arranged to cover all suitable habitat on site (depicted on Figure 3). A vegetation map (1:2,400 scale; 1 inch=200 feet) of the study area was available to record any detected vireo or flycatcher. Binoculars (7×50, 10×42, 10×50) were used to aid in detecting and identifying wildlife species.

The five surveys conducted for flycatcher followed the currently accepted protocol (*A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher* [Sogge et al. 2010]), which states that a minimum of five survey visits is needed to evaluate project effects on flycatchers. It is recommended that one survey is made between May 15 and 31, two surveys between June 1 and June 24, and two surveys between June 25 and July 17. Surveys during the final period (June 25 and July 17) were separated by at least five days. A tape of recorded flycatcher vocalizations was used, approximately every 50 to 100 feet within suitable habitat, to induce flycatcher responses. If a flycatcher had been detected, playing of the tape would have ceased to avoid harassment.

A Section 10(a)(1)(A) permit is not required to conduct presence/absence surveys for vireo. The eight surveys for vireo followed the currently accepted *Least Bell's Vireo Survey Guidelines* (USFWS, 2001), which states that a minimum of eight survey visits should be made to all riparian areas and any other potential vireo habitats between April 10 and July 31. The site visits are required to be conducted at least 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Taped playback of vireo vocalizations were not used during the surveys. Surveys were conducted between dawn and noon and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather.

Weather conditions, time of day, and season were appropriate for the detection of flycatcher and vireo (Table 2).

RESULTS

Ten (10) vireo Use Areas were observed on several occasions during the 2016 survey effort. Observed vireo use areas are defined as the specific areas of habitat that each vireo was observed

Recovery Permit Coordinator

Subject: 2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

utilizing throughout the 2016 survey effort. All vireos detected within the study area were adult males, either singing or directly observed, and are shown in Figures 3a through 3n. Due to the long linear project alignment and fragmented suitable habitat areas to be accessed throughout the alignment, long periods of time were not spent at each vireo location to determine behavior (i.e., paired, unpaired, breeding status) of each individual vireo.

A one-time observation of willow flycatcher (*Empidonax traillii*) was observed by biologist Brock Ortega on May 19, 2016 (Figure 3f). The flycatcher was vocal, responding to taped playback, with no breeding behavior observed during this observation. According to Sogge (2010), because this flycatcher was observed during Period 1 (May 15 to 31) was not observed again during all remaining survey visits, it is not expected to be a southwestern willow flycatcher breeding within the study area.

Sensitive species observed included coastal California gnatcatcher (*Polioptila californica californica*), a federally listed threatened species; yellow-breasted chat (*Icteria virens*), a California Department of Fish and Wildlife (CDFW) Species of Special Concern; yellow warbler (*Dendroica petechia*), a CDFW Species of Special Concern; southwestern pond turtle (*Actinemys marmorata pallida*), a CDFW Species of Special Concern; Cooper's hawk (*Accipiter cooperii*), a CDFW Watch List species; and Nuttall's woodpecker (*Picoides nuttallii*), a USFWS Bird of Conservation Concern. Sensitive species observation locations are shown in Figures 3a through 3n. Brown-headed cowbird was also detected within the study area (Figure 3m).

One hundred twenty-seven wildlife species were observed during the focused surveys. A full list of wildlife species observed during the survey is provided in Appendix A. Data forms (Sogge et al. 2010) for willow flycatcher are included as Appendix B.

Please feel free to contact me at 760.479.4238 with questions or if you require additional information.

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Sincerely,



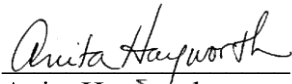
Paul Lemons
Wildlife Biologist



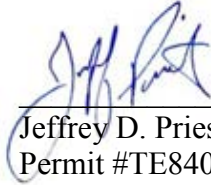
Brock Ortega
Permit #TE813545-6

Recovery Permit Coordinator

Subject: 2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California



Anita Hayworth
Permit #TE781084-8



Jeffrey D. Priest
Permit #TE840619

Att: Figures 1-3n
Appendix A and B

cc: Brock Ortega

REFERENCES

- Oberbauer, Thomas, Meghan Kelly, and Jeremy Buegge. March 2008. Draft Vegetation Communities of San Diego County. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California", Robert F. Holland, Ph.D., October 1986.
- Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010. *A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher*. U.S. Geological Survey Techniques and Methods 2A-10, 38 p.
- USDA (U.S. Department of Agriculture). 2016. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed August 2016.
<http://websoilsurvey.nrcs.usda.gov/>.
- USFWS. 2001. *Least Bell's Vireo Survey Guidelines*. January 19.

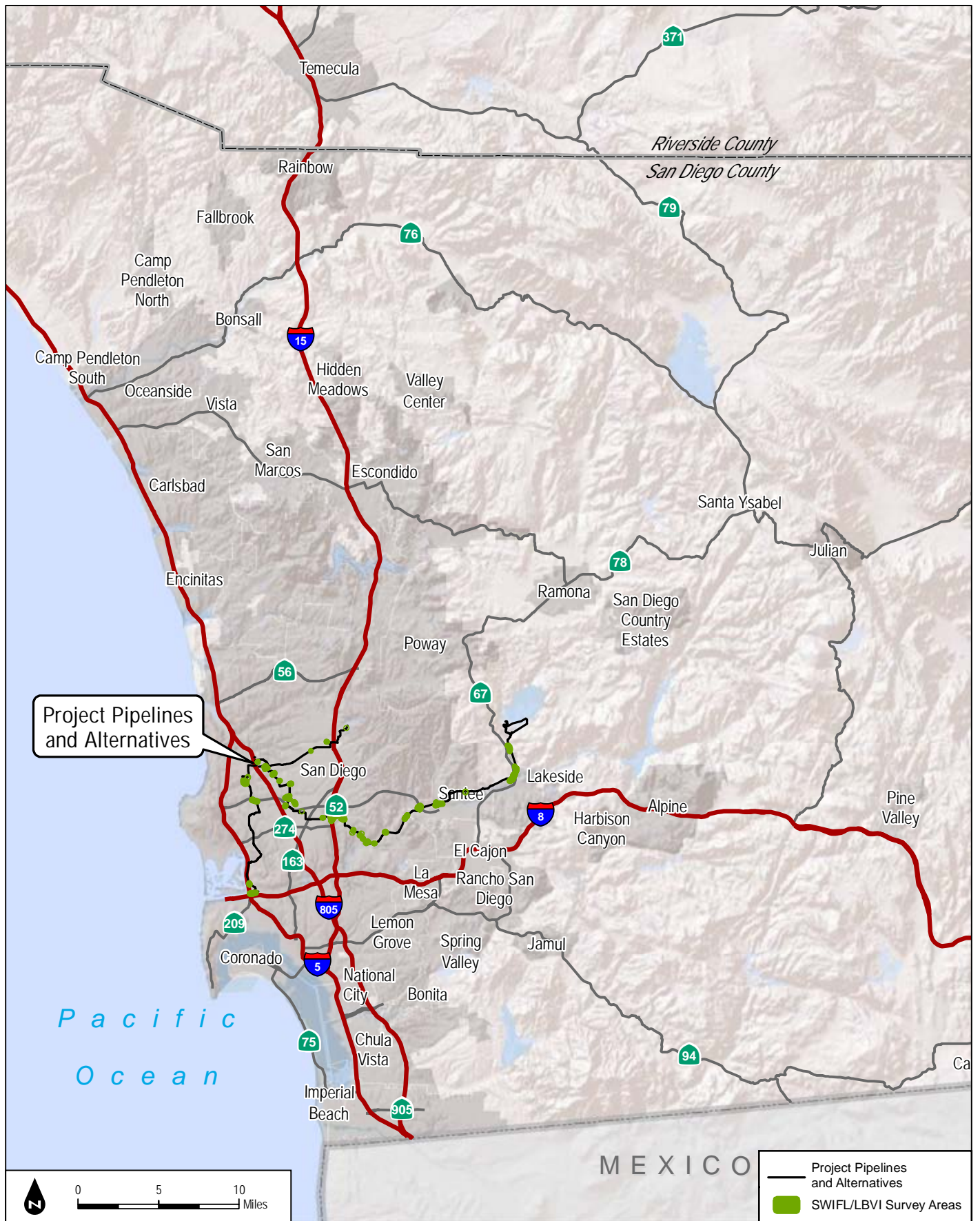
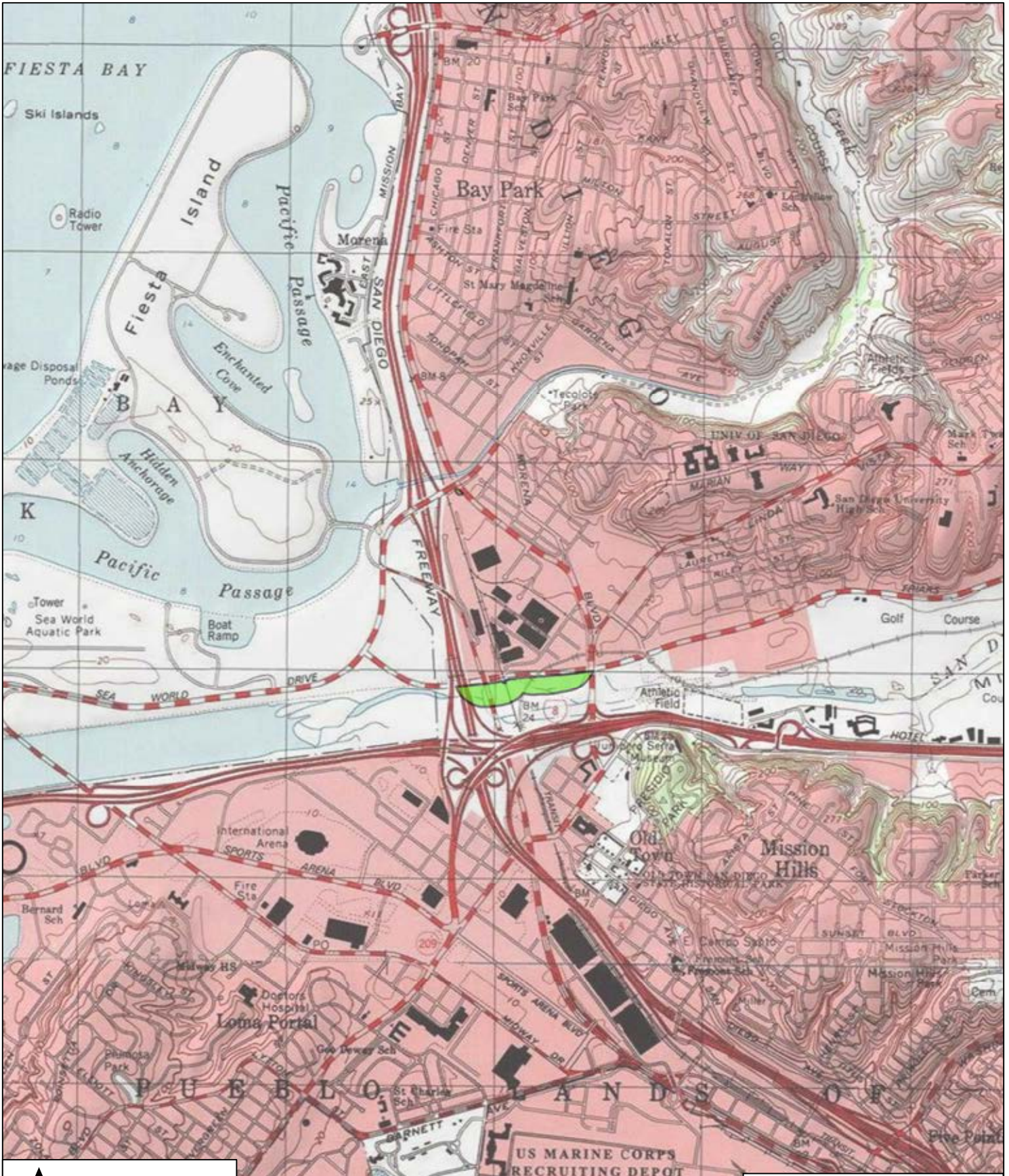


FIGURE 1
Regional Map

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California




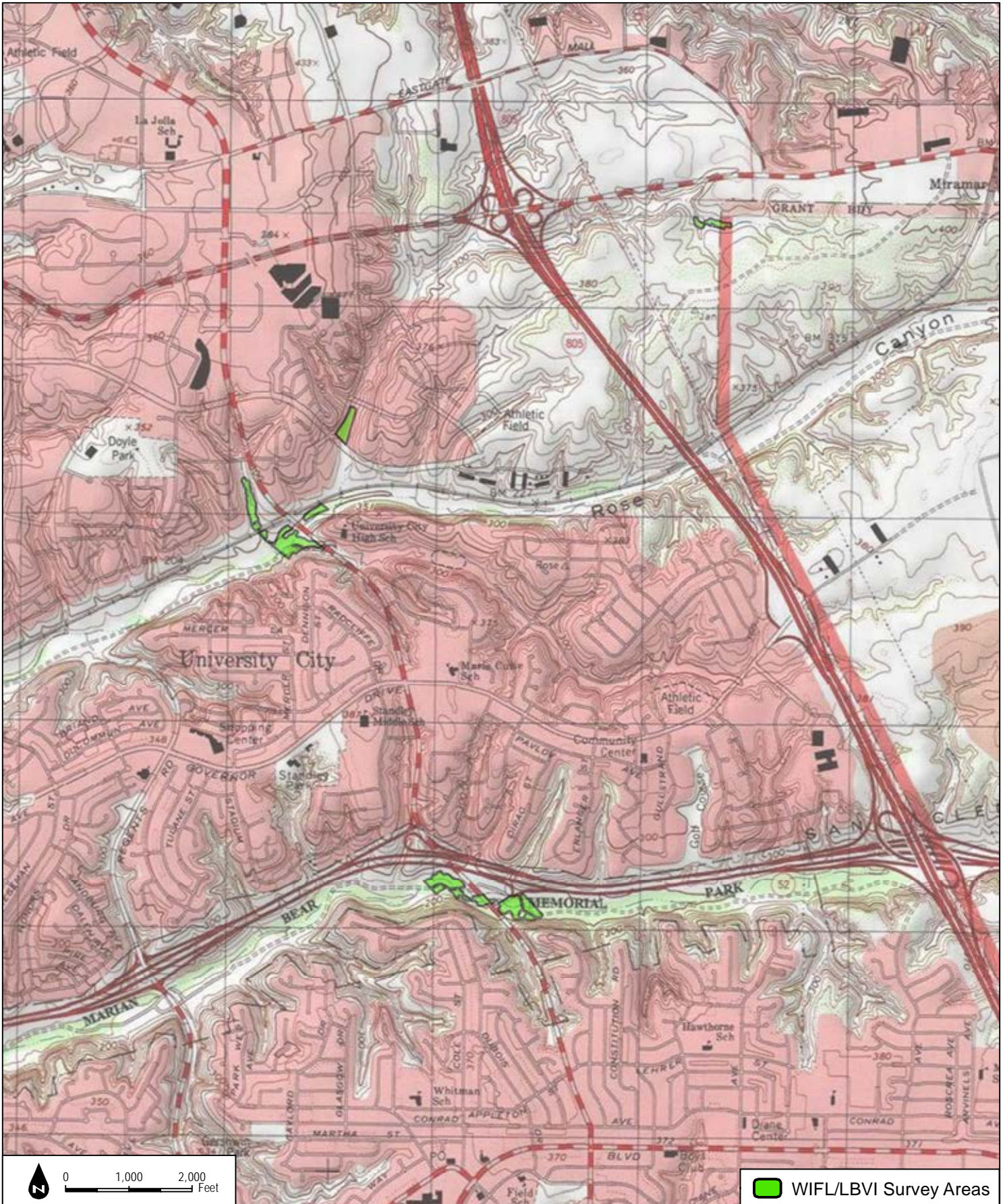
 WIFL/LBVI Survey Areas


Figure 2A
Vicinity Map

SOURCE: USGS 7.5-Minute Series La Jolla and Point Loma Quadrangles.



2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California



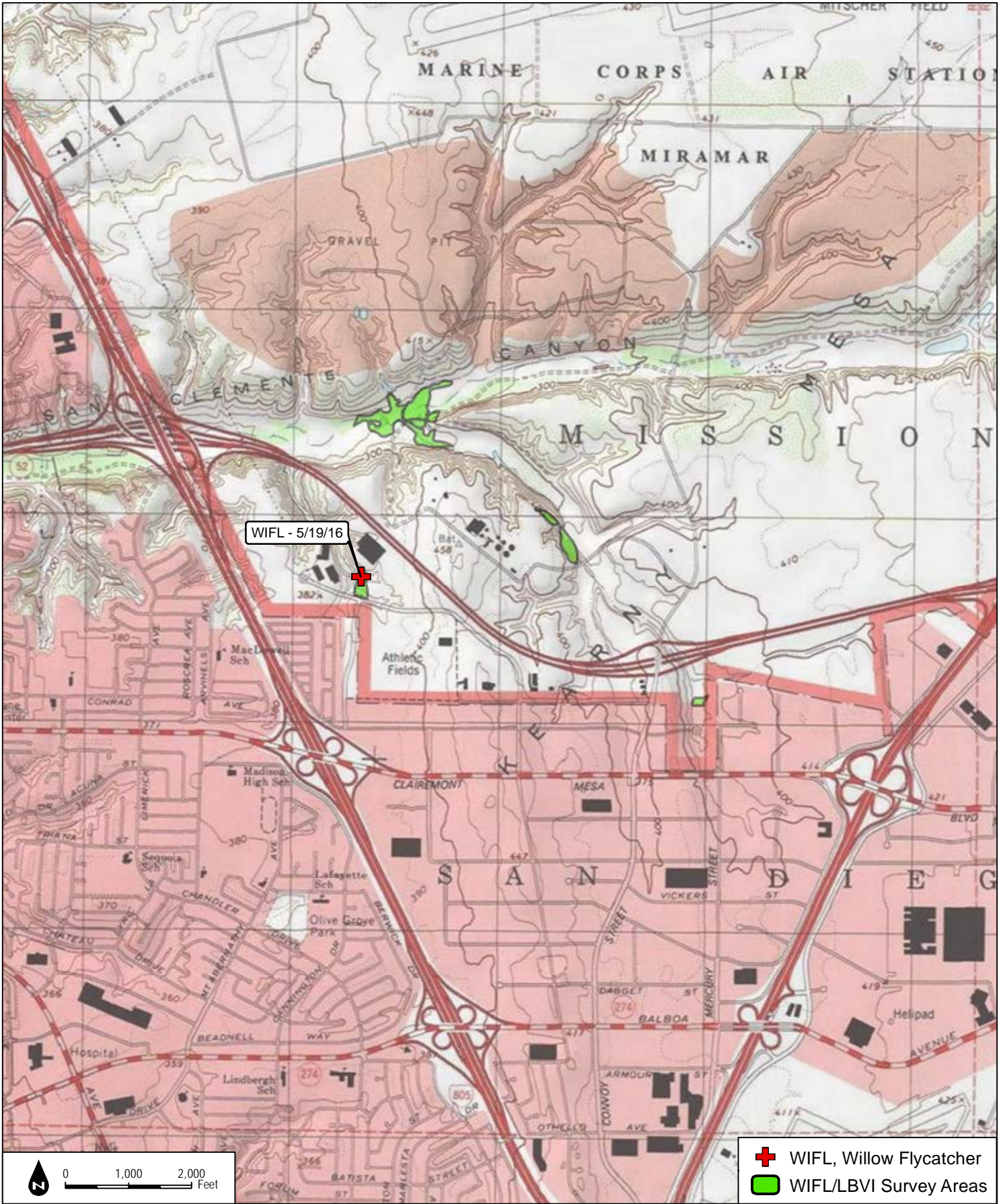
 WIFL/LBVI Survey Areas

SOURCE: USGS 7.5-Minute Series La Jolla and Del Mar Quadrangles.

Figure 2B
Vicinity Map

DUDEK

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

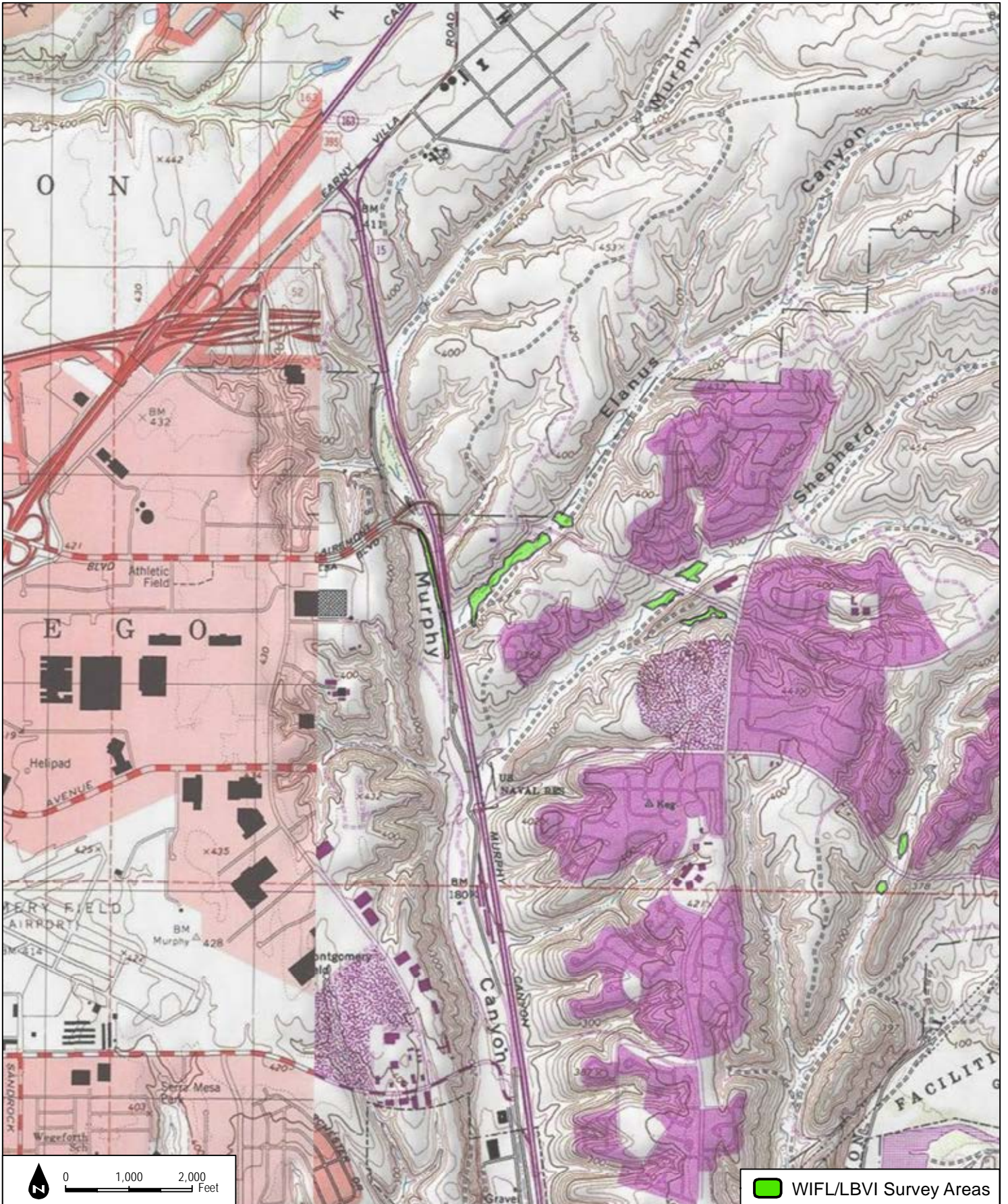


- + WIFL, Willow Flycatcher
- WIFL/LBVI Survey Areas

Figure 2C
Vicinity Map

SOURCE: USGS 7.5-Minute Series La Jolla Quadrangle.






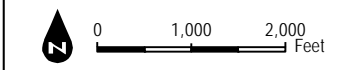
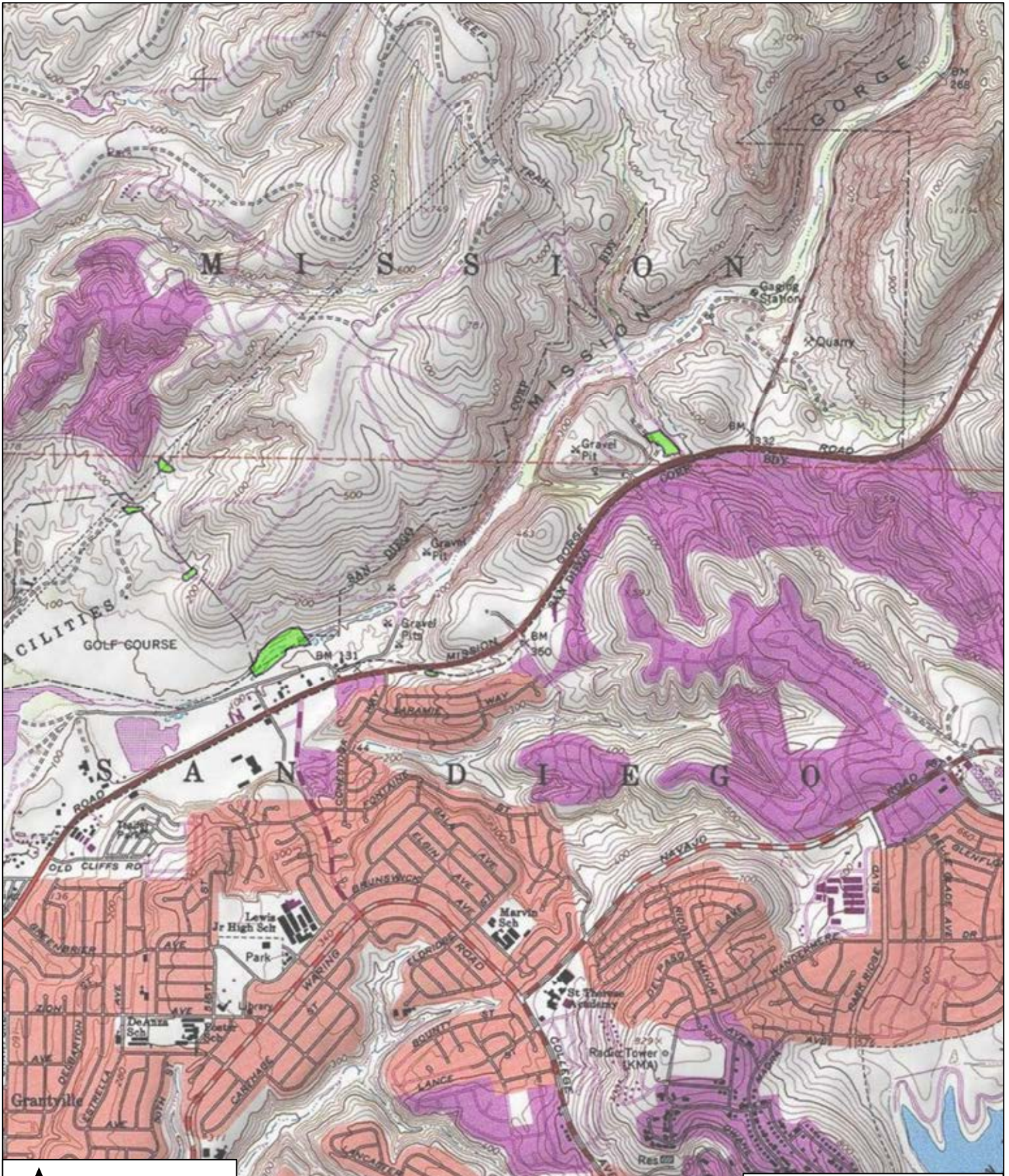
 WIFL/LBVI Survey Areas


Figure 2D
Vicinity Map

SOURCE: USGS 7.5-Minute Series La Jolla and La Mesa Quadrangles.



2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California



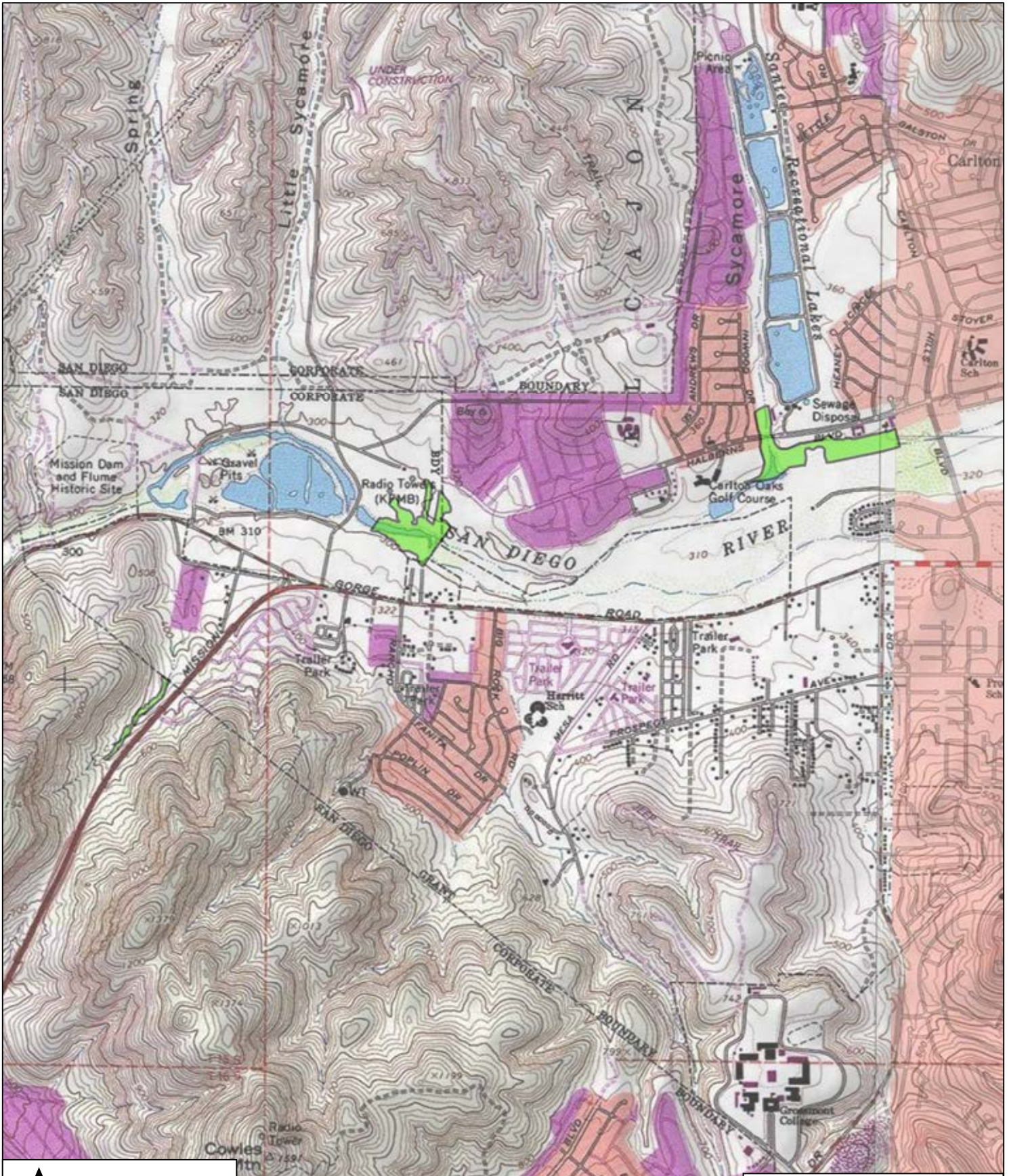
 WIFL/LBVI Survey Areas



SOURCE: USGS 7.5-Minute Series La Mesa Quadrangle.

Figure 2E
Vicinity Map

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

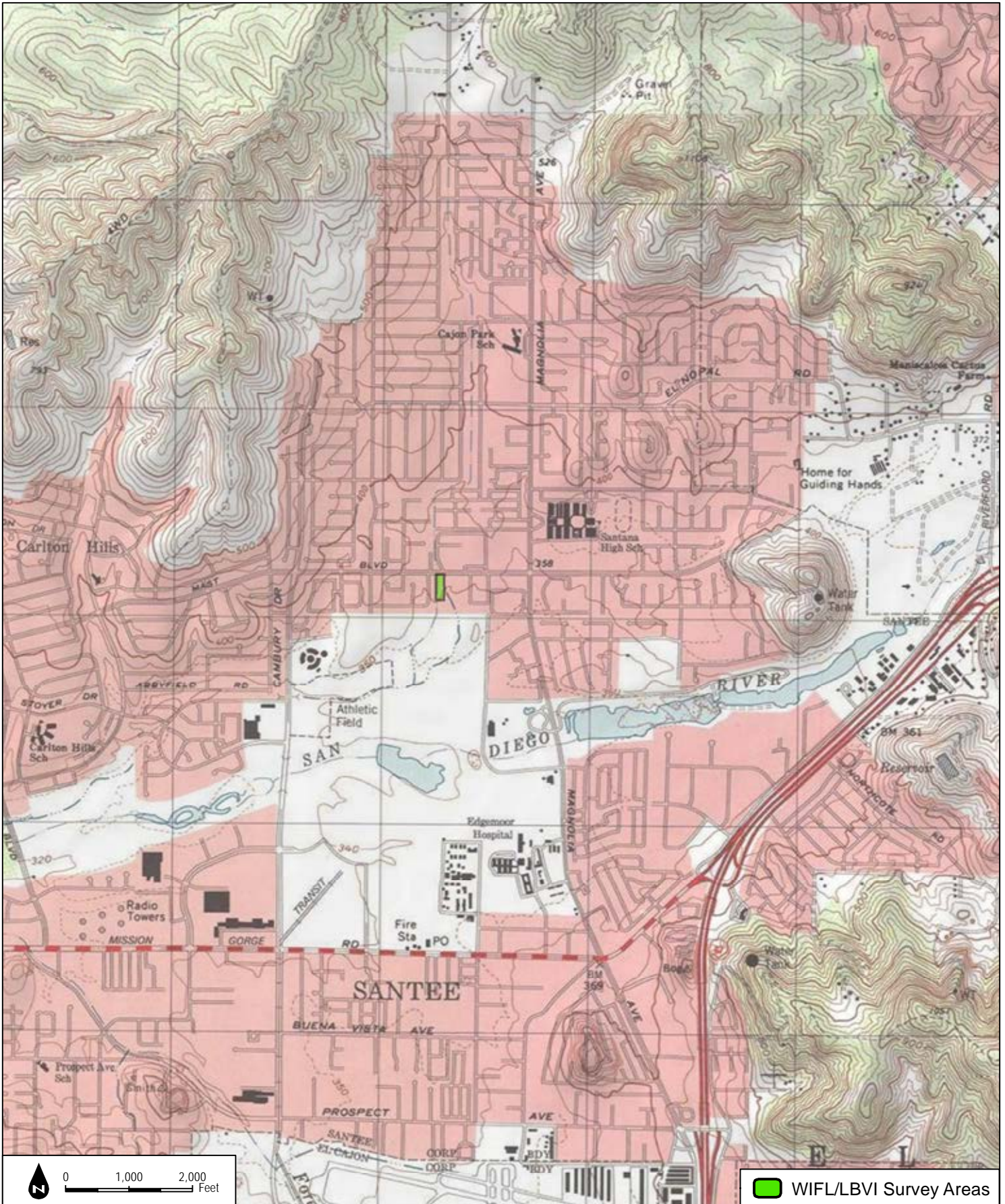


■ WIFL/LBVI Survey Areas

Figure 2F
Vicinity Map

SOURCE: USGS 7.5-Minute Series La Mesa and El Cajon Quadrangles.



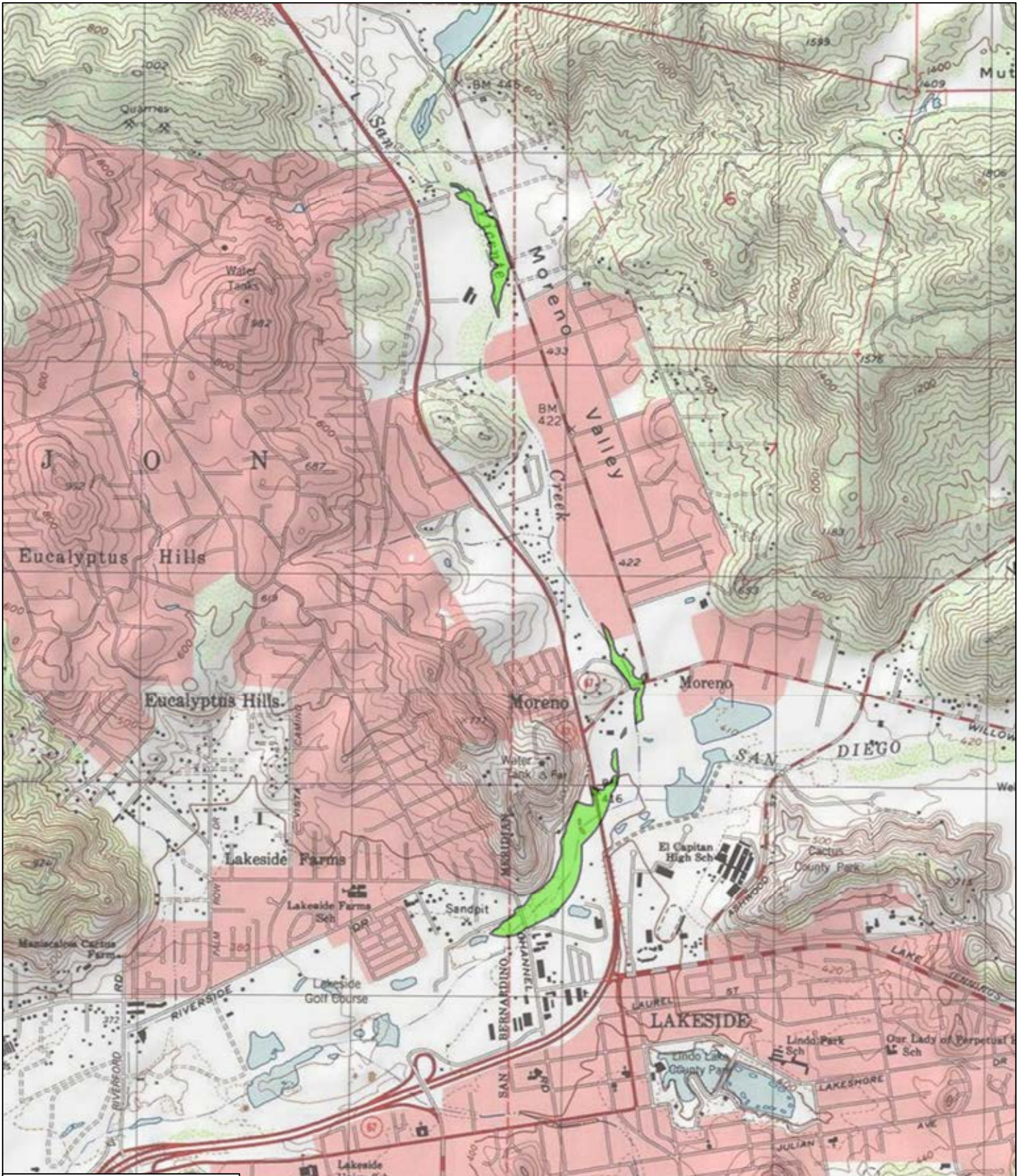


SOURCE: USGS 7.5-Minute Series San Vicente Reservoir and El Cajon Quadrangles.

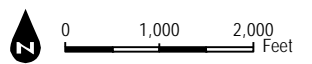
Figure 2G
Vicinity Map

DUDEK

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California



 WIFL/LBVI Survey Areas

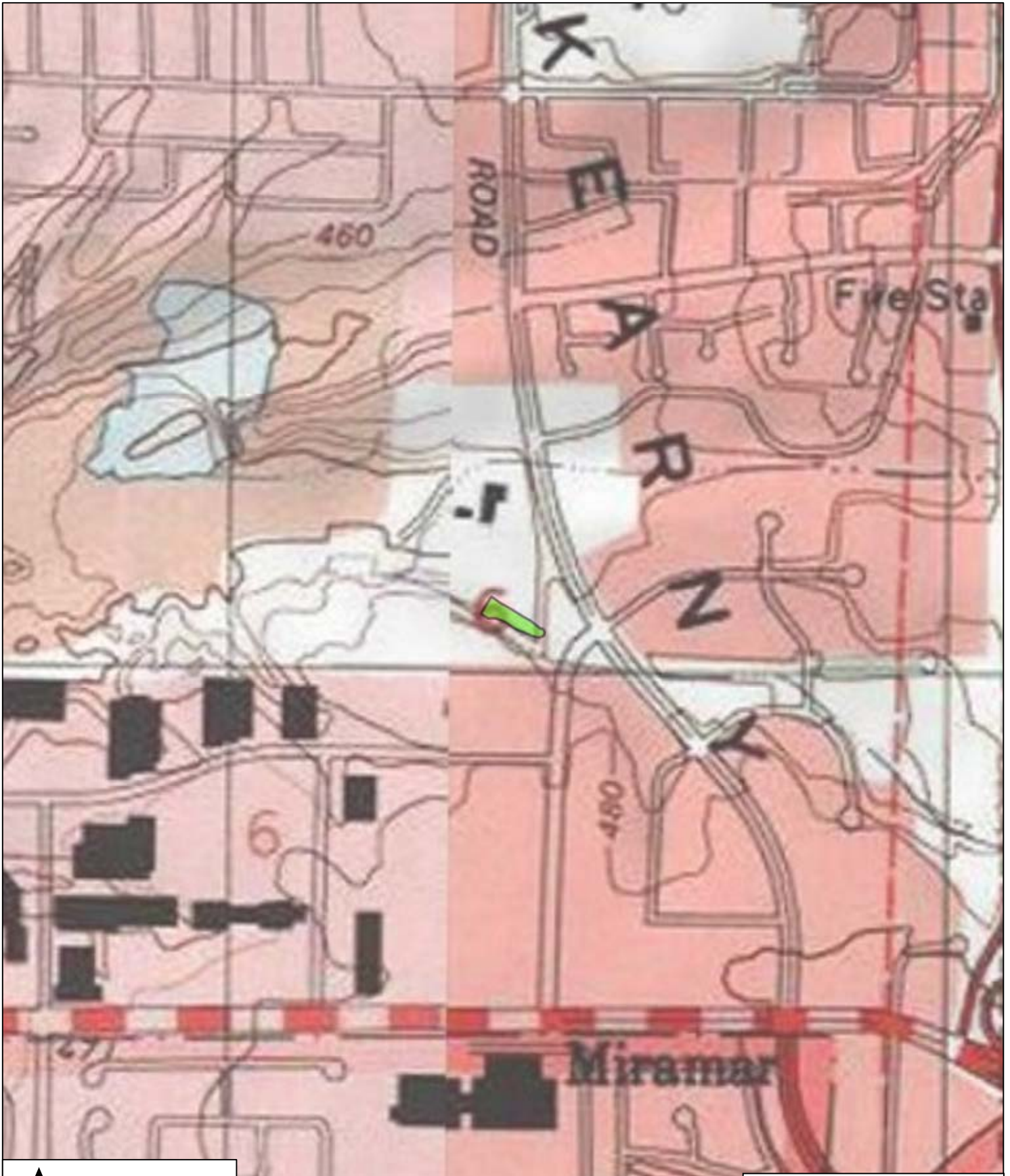


SOURCE: USGS 7.5-Minute Series San Vicente Reservoir and El Cajon Quadrangles.

Figure 2H
Vicinity Map

DUDEK

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California




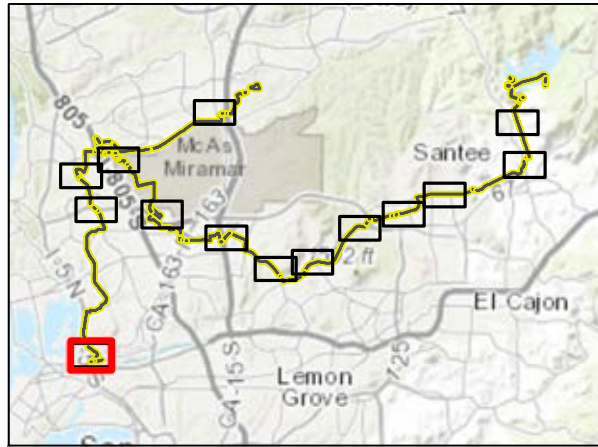
 WIFL/LBVI Survey Areas

Figure 21
Vicinity Map

SOURCE: USGS 7.5-Minute Series Del Mar, Poway, La Jolla and La Mesa Quadrangles.

DUDEK

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

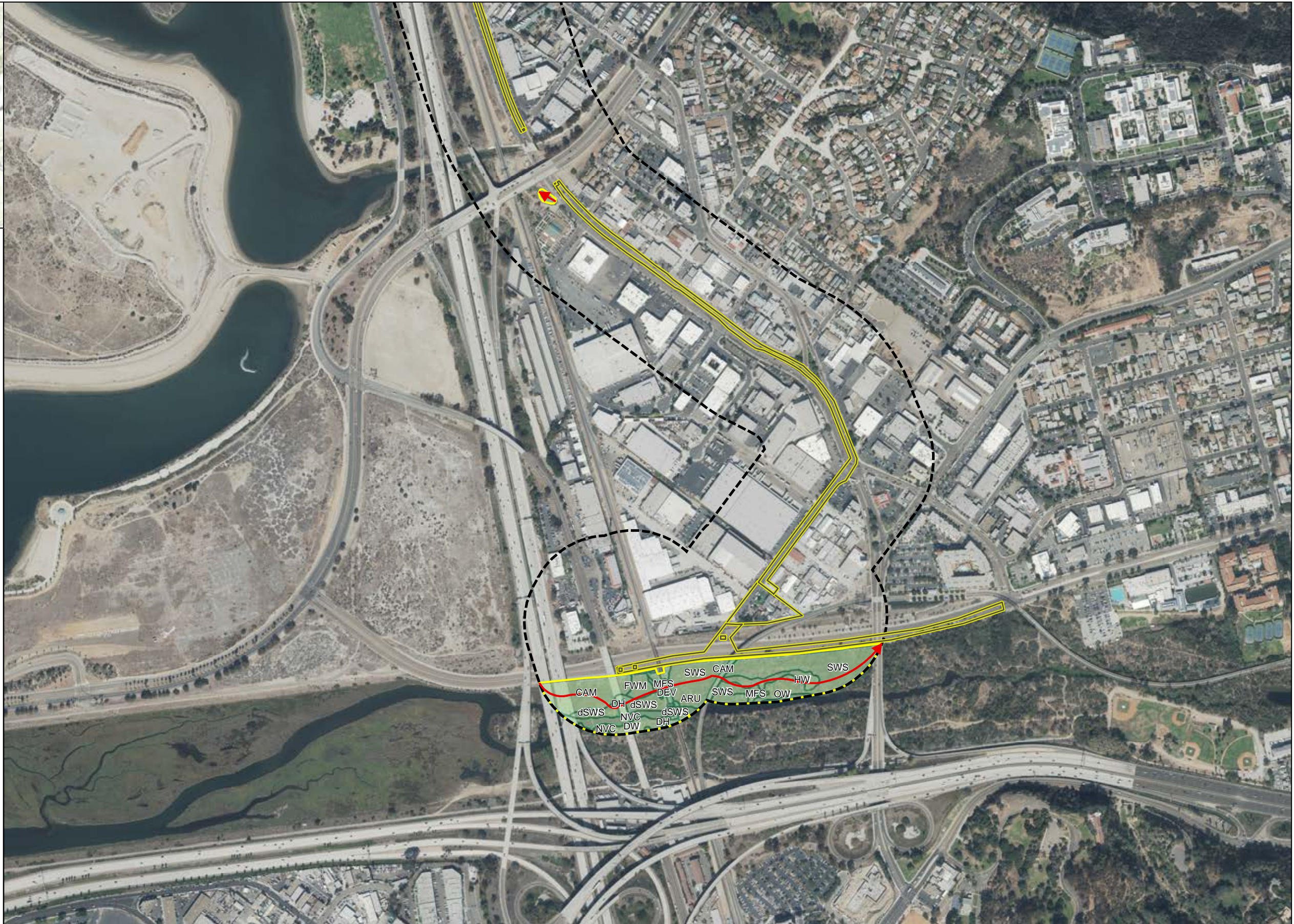
- ARU, Arundo-Dominated Riparian
- CAM, Cismontane Alkali Marsh
- DEV, Urban/Developed
- DH, Disturbed Habitat
- DW, Disturbed Wetland
- FWM, Coastal and Valley Freshwater Marsh
- HW, Herbaceous wetland
- MFS, Mule Fat Scrub
- NVC, Non-Vegetated Channel or Floodway
- OW, Open Water
- SWS, Southern Willow Scrub
- dSWS, disturbed Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

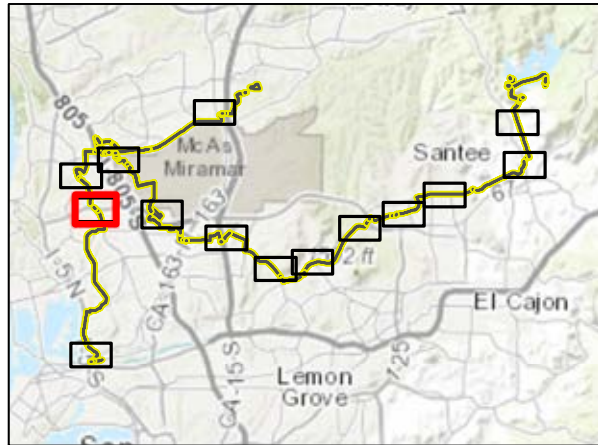
0 305 610 Feet



SOURCE: ESRI World Topographic Basemap, 2016



Figure 3a
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- POTU, Southwestern pond turtle
- Suitable SWFL/ LBVI Habitat

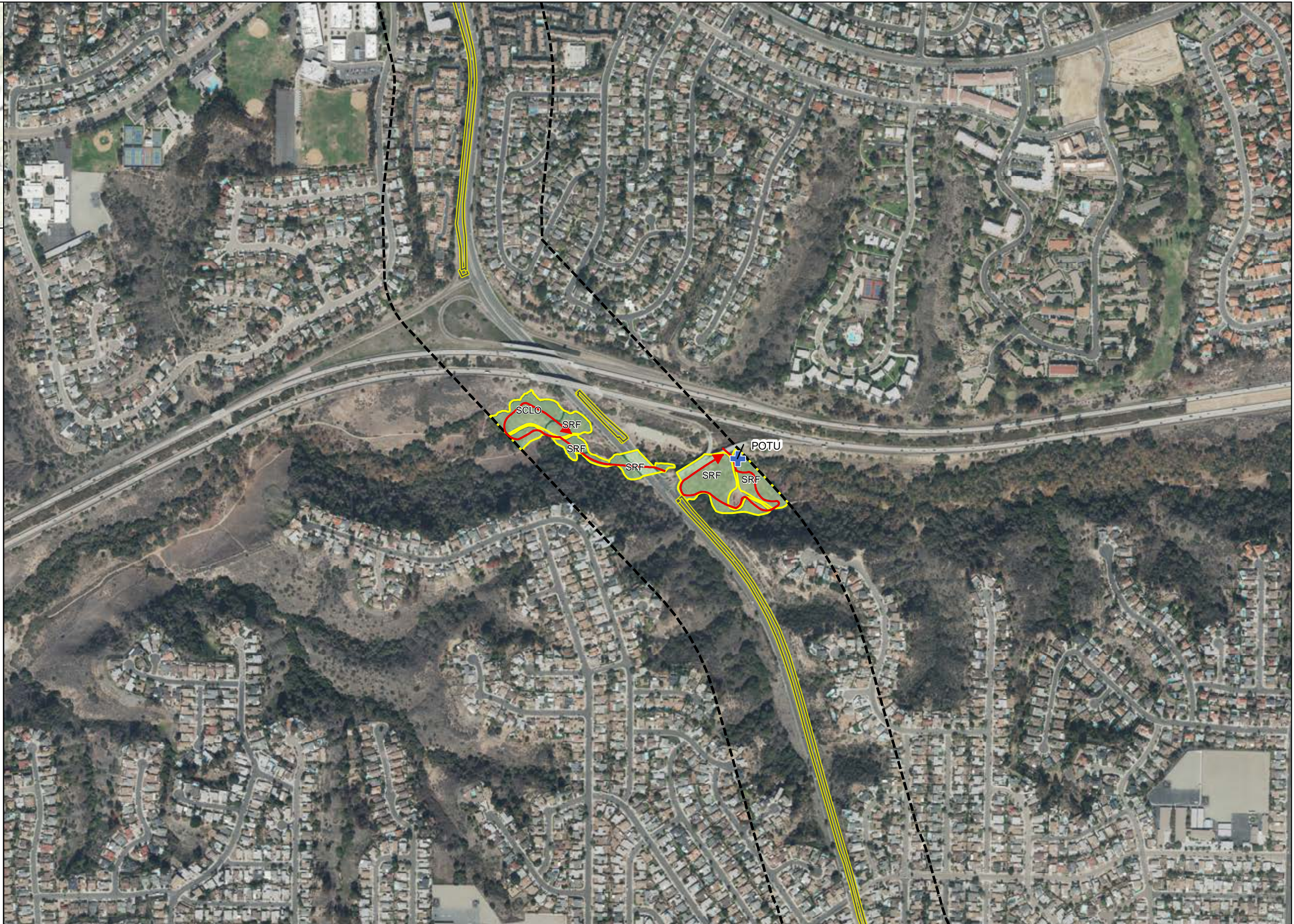
Code, Dudek_VegCom

- MFS, Mule Fat Scrub
- NVC, Non-Vegetated Channel or Floodway
- SCLO, Southern Coast Live Oak Riparian Forest
- SRF, Southern Riparian Forest
- SWRF, Southern Arroyo Willow Riparian Forest

Riparian Habitat

SWIFL/LBVI Survey Areas

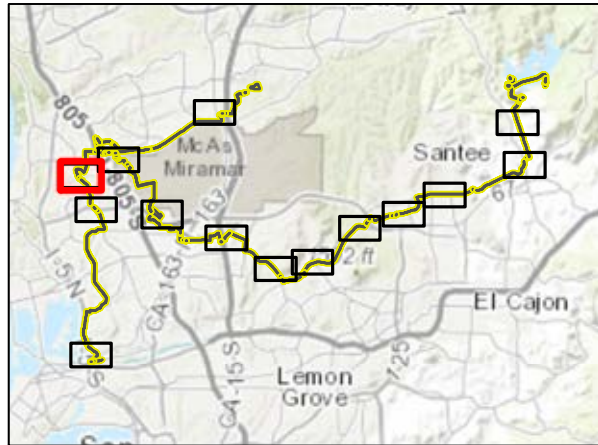
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3



SOURCE: ESRI World Topographic Basemap, 2016



Figure 3b
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- COHA, Cooper's Hawk
- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

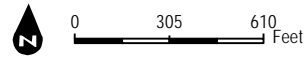
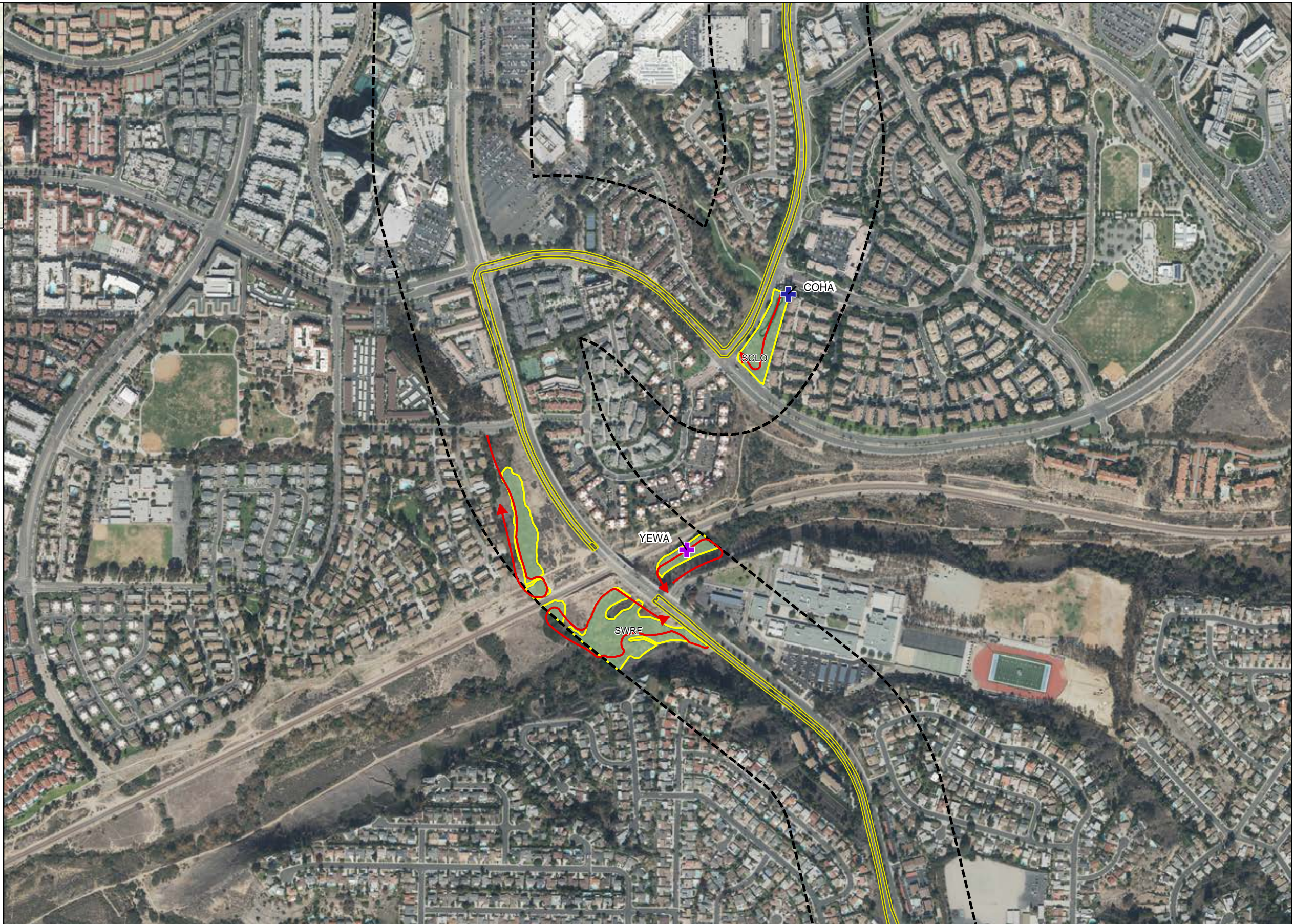
Code, Dudek_VegCom

- FWM, Coastal and Valley Freshwater Marsh
- SCLO, Southern Coast Live Oak Riparian Forest
- SWRF, Southern Arroyo Willow Riparian Forest
- SWS, Southern Willow Scrub

Riparian Habitat

SWFL/LBVI Survey Areas

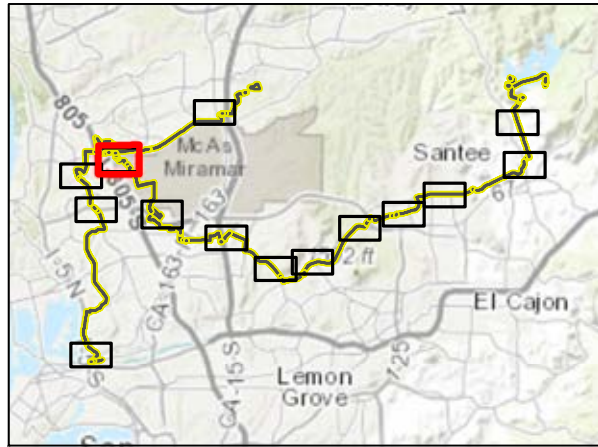
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3



SOURCE: ESRI World Topographic Basemap, 2016



Figure 3c
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

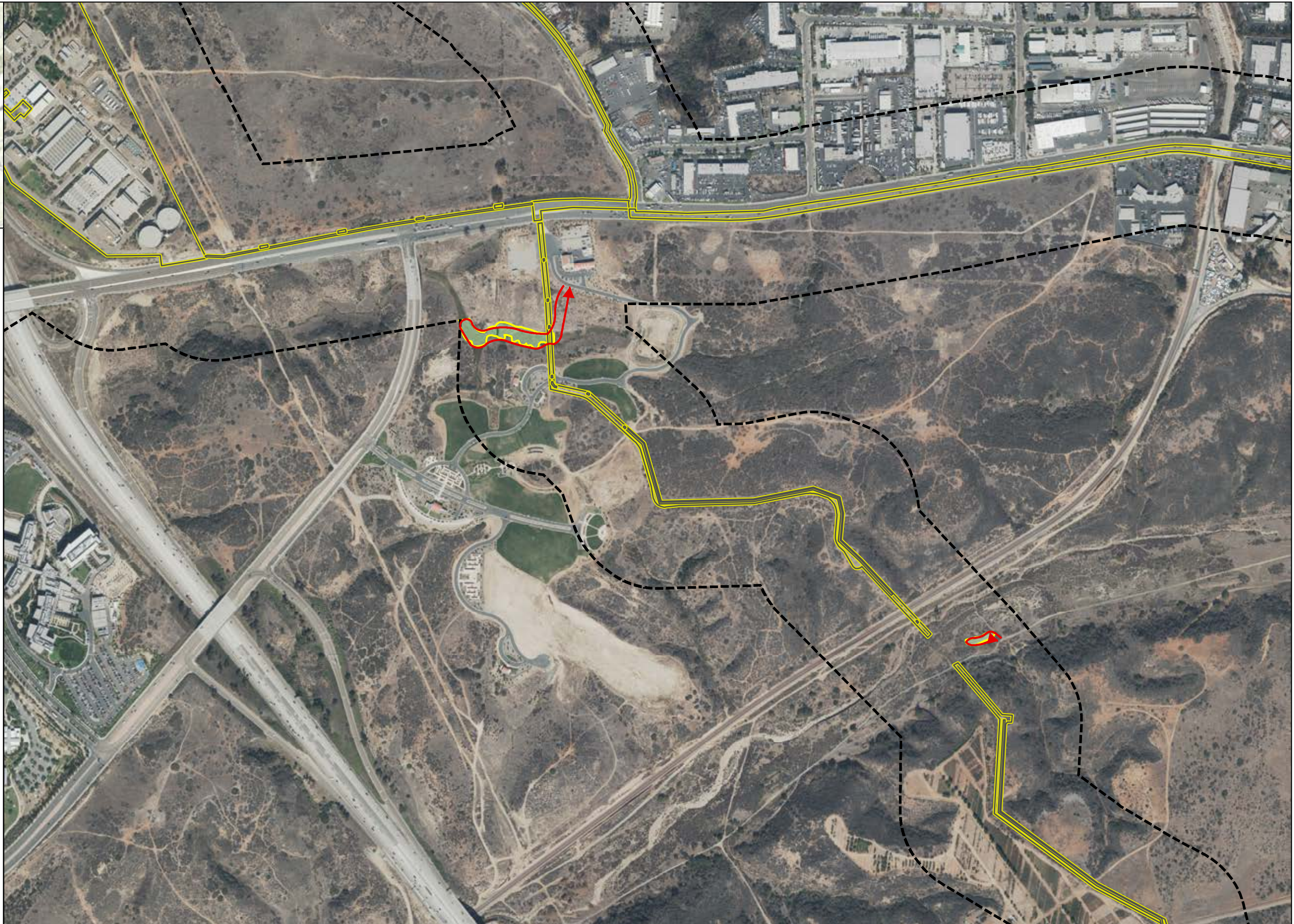
- FWM, Coastal and Valley Freshwater Marsh
- SWS, Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

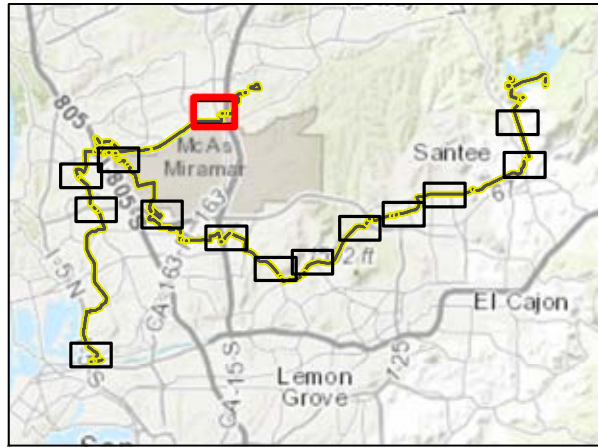
0 305 610 Feet



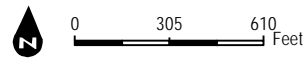
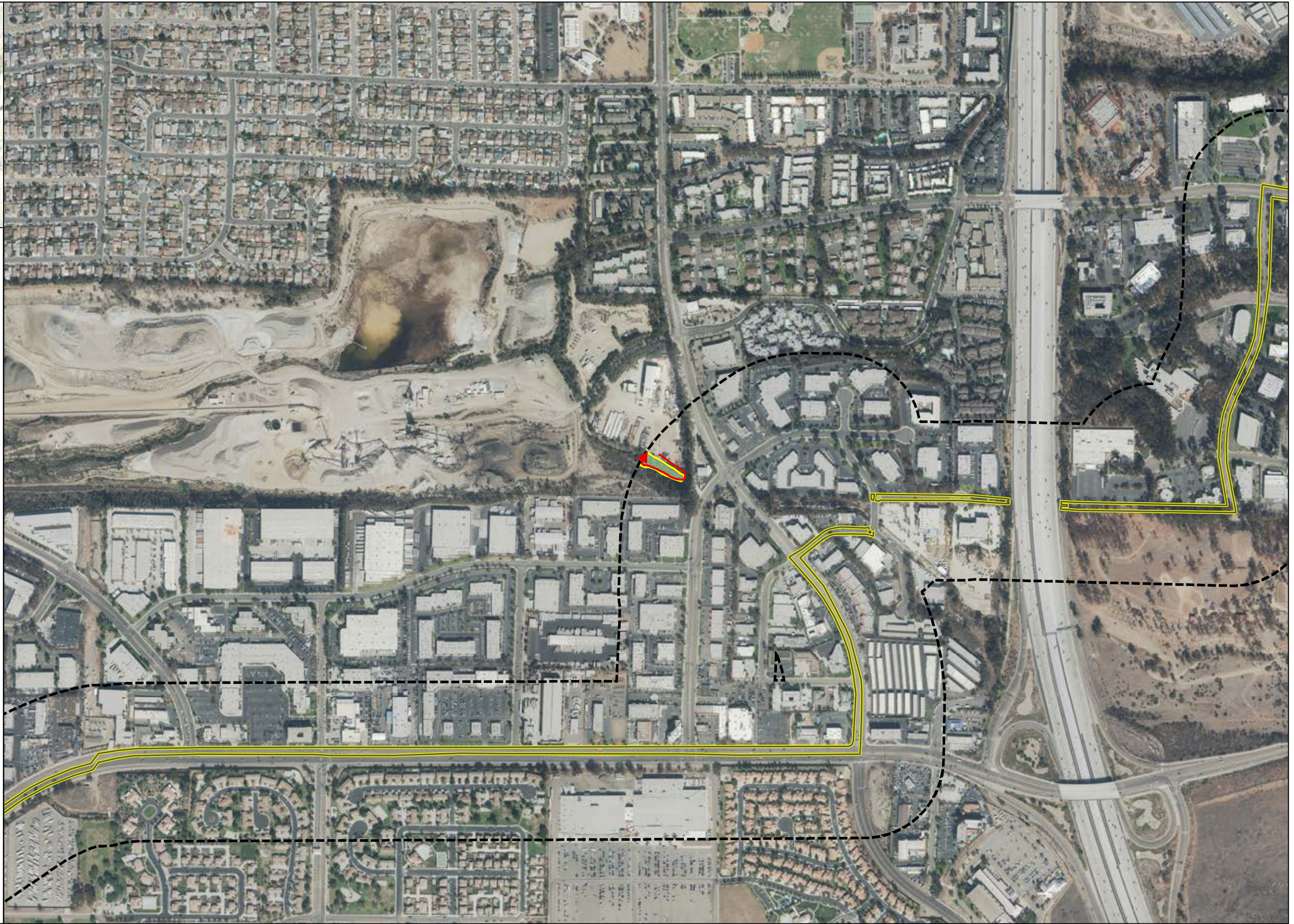
SOURCE: ESRI World Topographic Basemap, 2016



Figure 3d
Survey Results Map



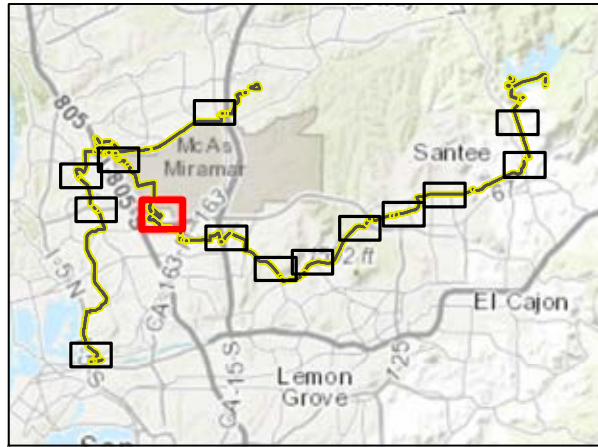
- LEGEND**
- Pipeline Study Area - 500 FT Buffer
 - Project Pipeline Impacts
 - SWFL/ LBVI Survey Route
 - Suitable SWFL/ LBVI Habitat
- Code, Dudek_VegCom**
- SWS, Southern Willow Scrub
- Riparian Habitat**
- SWFL/LBVI Survey Areas**
- Survey Area 1A
 - Survey Area 1B
 - Survey Area 2
 - Survey Area 3



SOURCE: ESRI World Topographic Basemap, 2016



Figure 3e
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- WIFL, Willow Flycatcher
- YBCH, Yellow-breasted chat
- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

- CSS-CHP, Coastal Sage-Chaparral Transition
- DH, Disturbed Habitat
- SARW, Southern Sycamore-Alder Riparian Woodland
- SMX, Southern Mixed Chaparral
- SRF, Southern Riparian Forest
- SWS, Southern Willow Scrub
- dSWS, disturbed Southern Willow Scrub

Riparian Habitat

SWFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

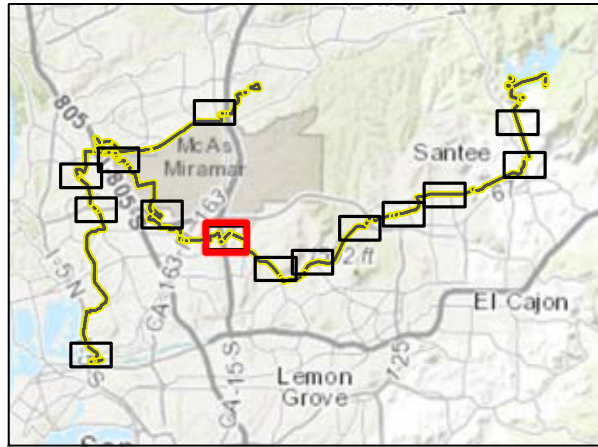
0 305 610 Feet



Figure 3f
Survey Results Map

SOURCE: ESRI World Topographic Basemap, 2016





LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

- FWM, Coastal and Valley Freshwater Marsh
- SCWRF, Southern Cottonwood-Willow Riparian Forest
- SWRF, Southern Arroyo Willow Riparian Forest
- SWS, Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

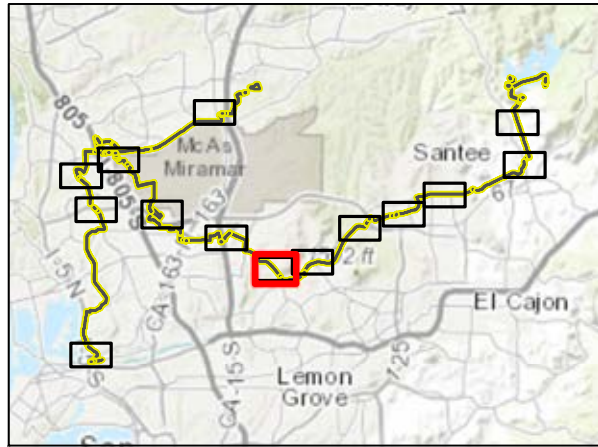
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3



SOURCE: ESRI World Topographic Basemap, 2016



Figure 3g
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

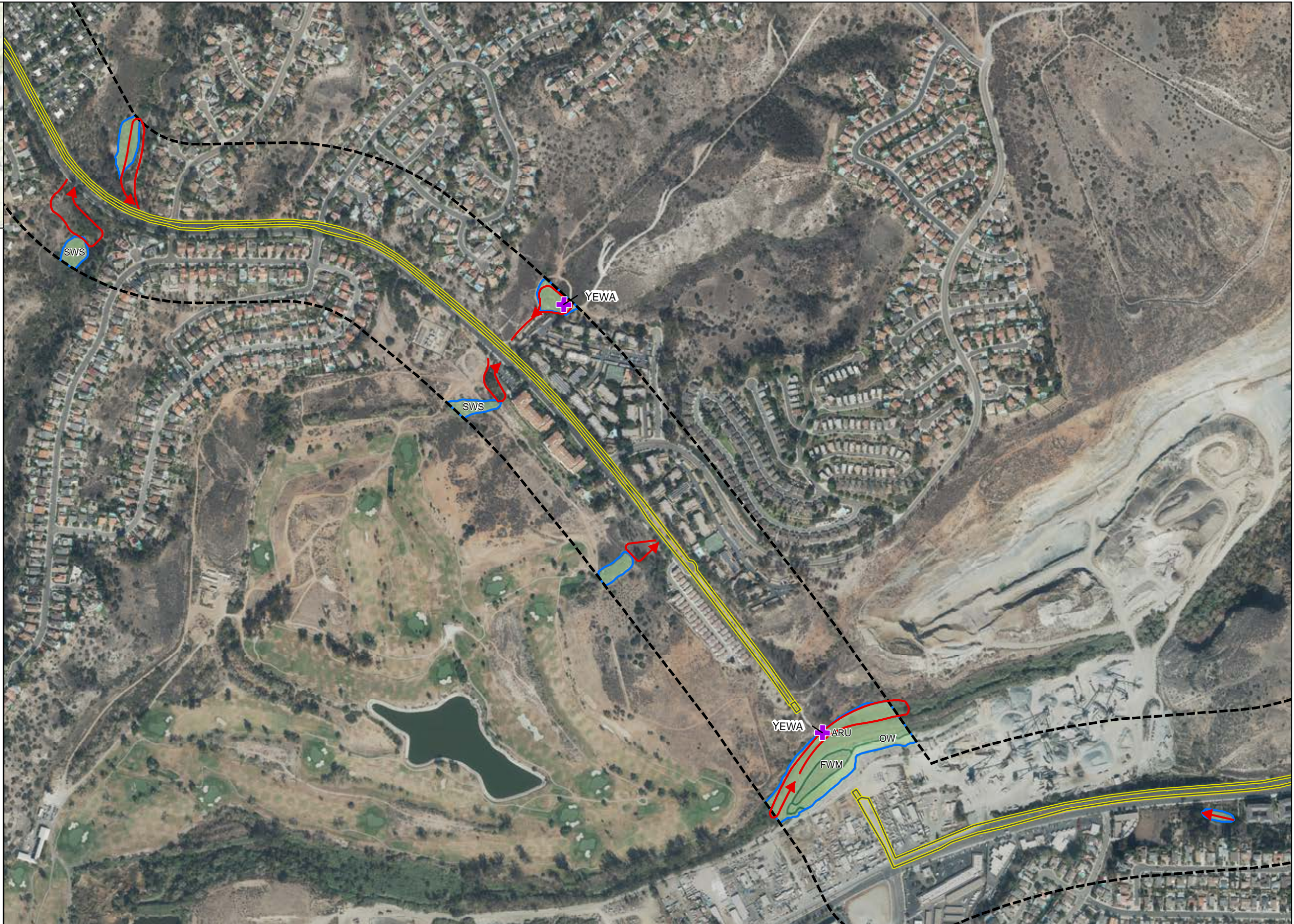
Code, Dudek_VegCom

- ARU, Arundo-Dominated Riparian
- FWM, Coastal and Valley Freshwater Marsh
- OW, Open Water
- SWS, Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

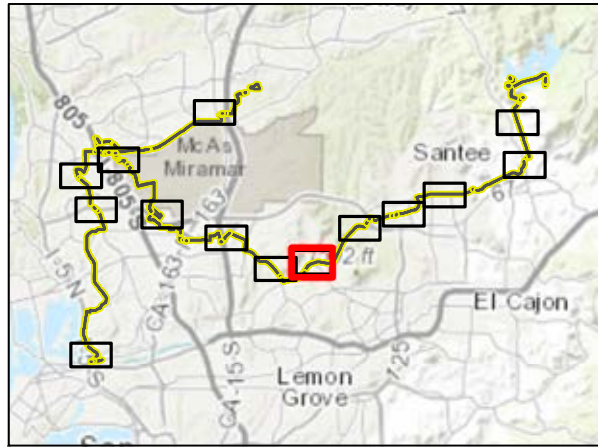
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3



SOURCE: ESRI World Topographic Basemap, 2016



Figure 3h
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- COHA, Cooper's Hawk
- Suitable SWFL/ LBVI Habitat

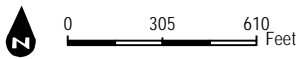
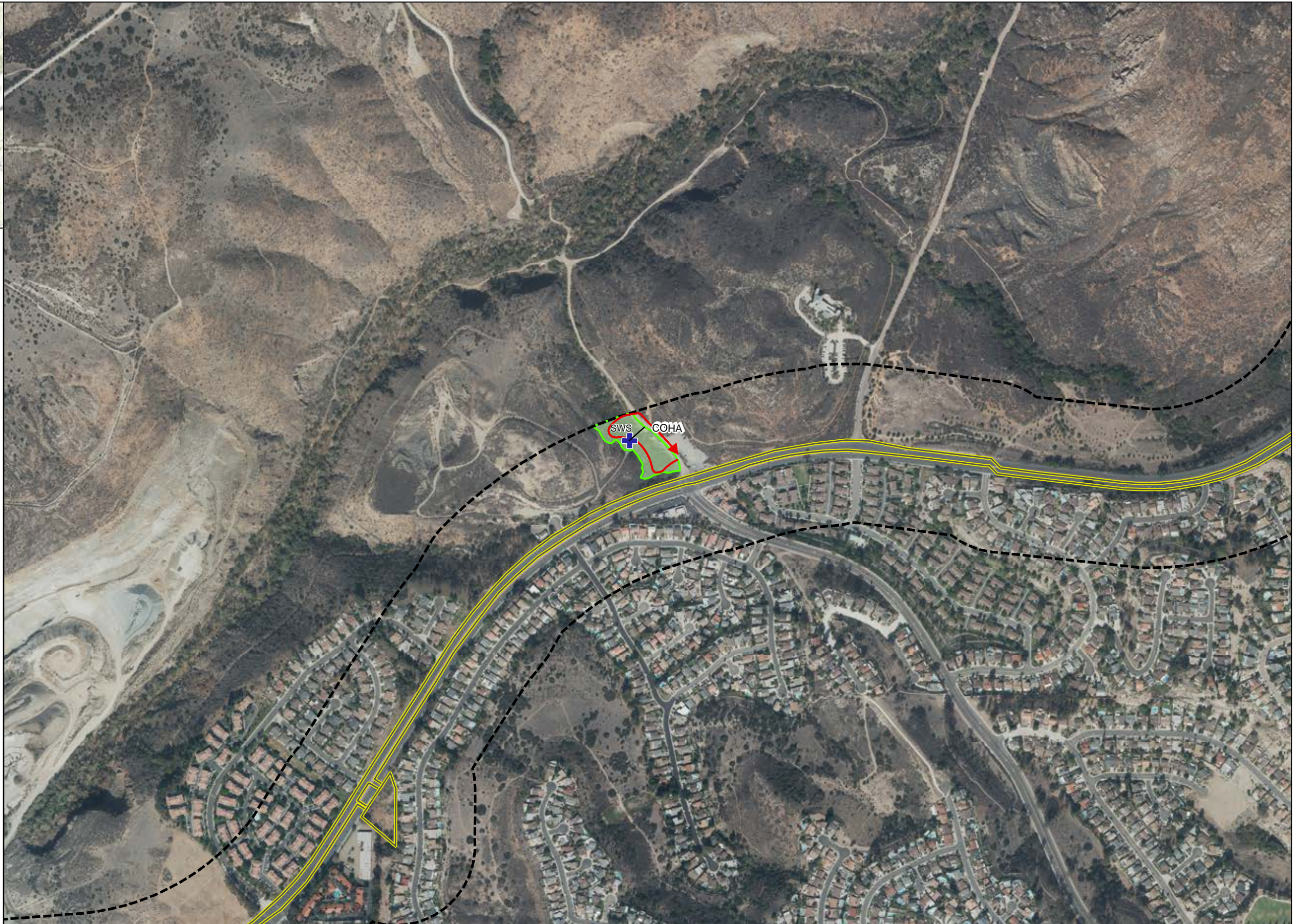
Code, Dudek_VegCom

- SWS, Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

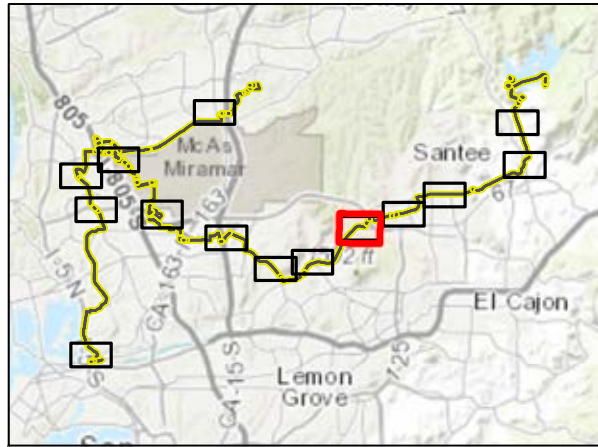


SOURCE: ESRI World Topographic Basemap, 2016



2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

Figure 3i
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- LBVI-adult male, Least Bell's Vireo
- NUWO, Nuttall's woodpecker
- YBCH, Yellow-breasted chat
- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

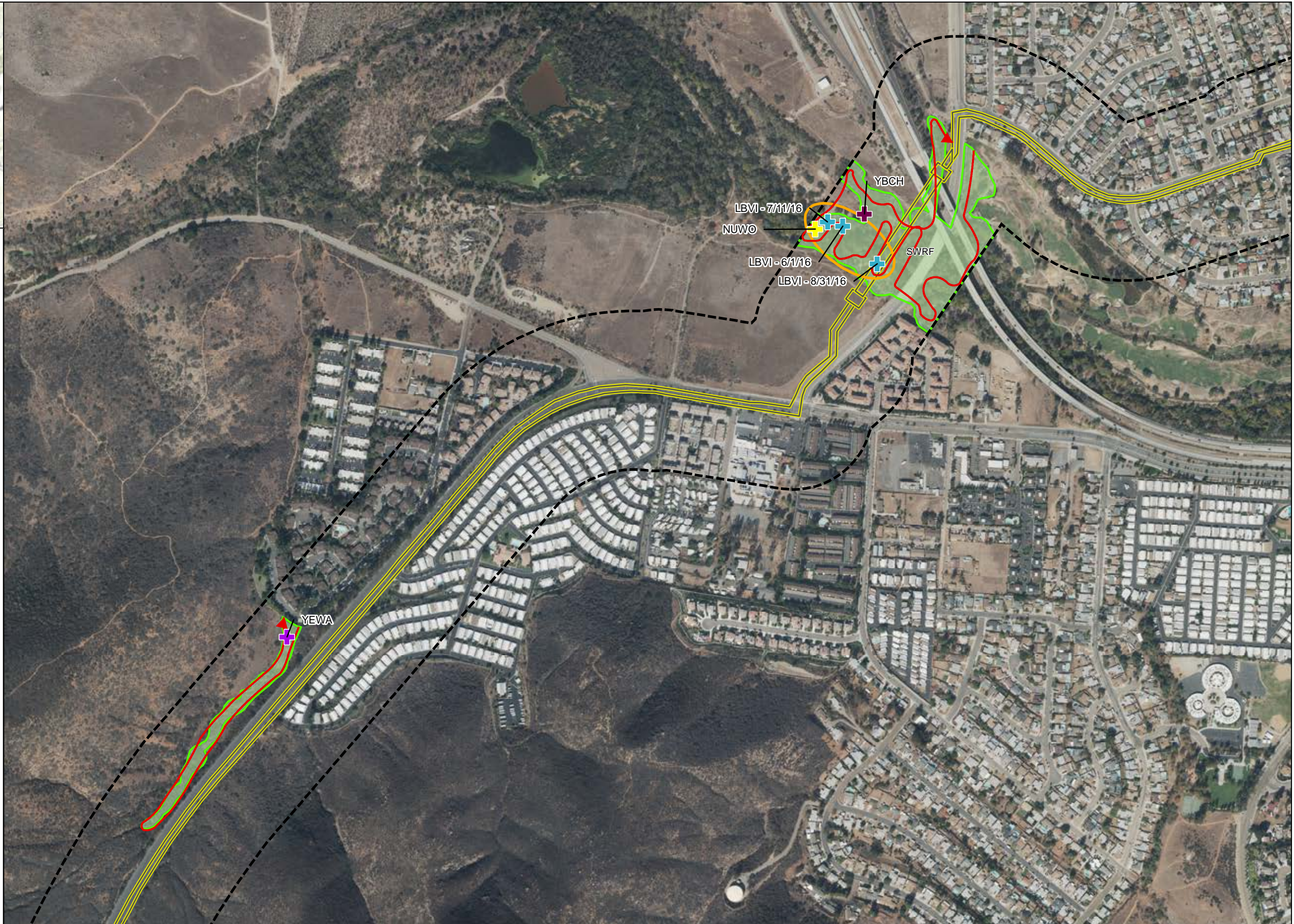
- SWRF, Southern Arroyo Willow Riparian Forest

Riparian Habitat

SWFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

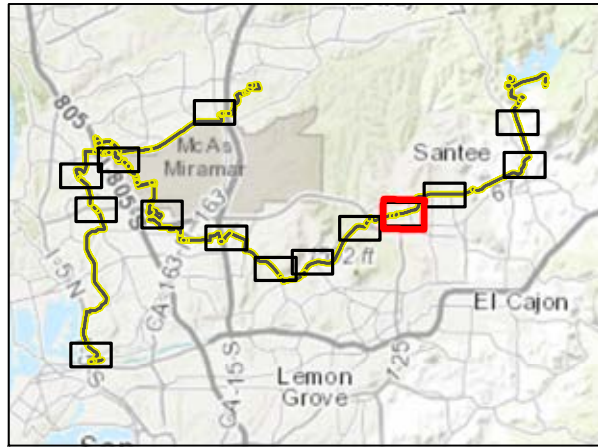
0 305 610 Feet



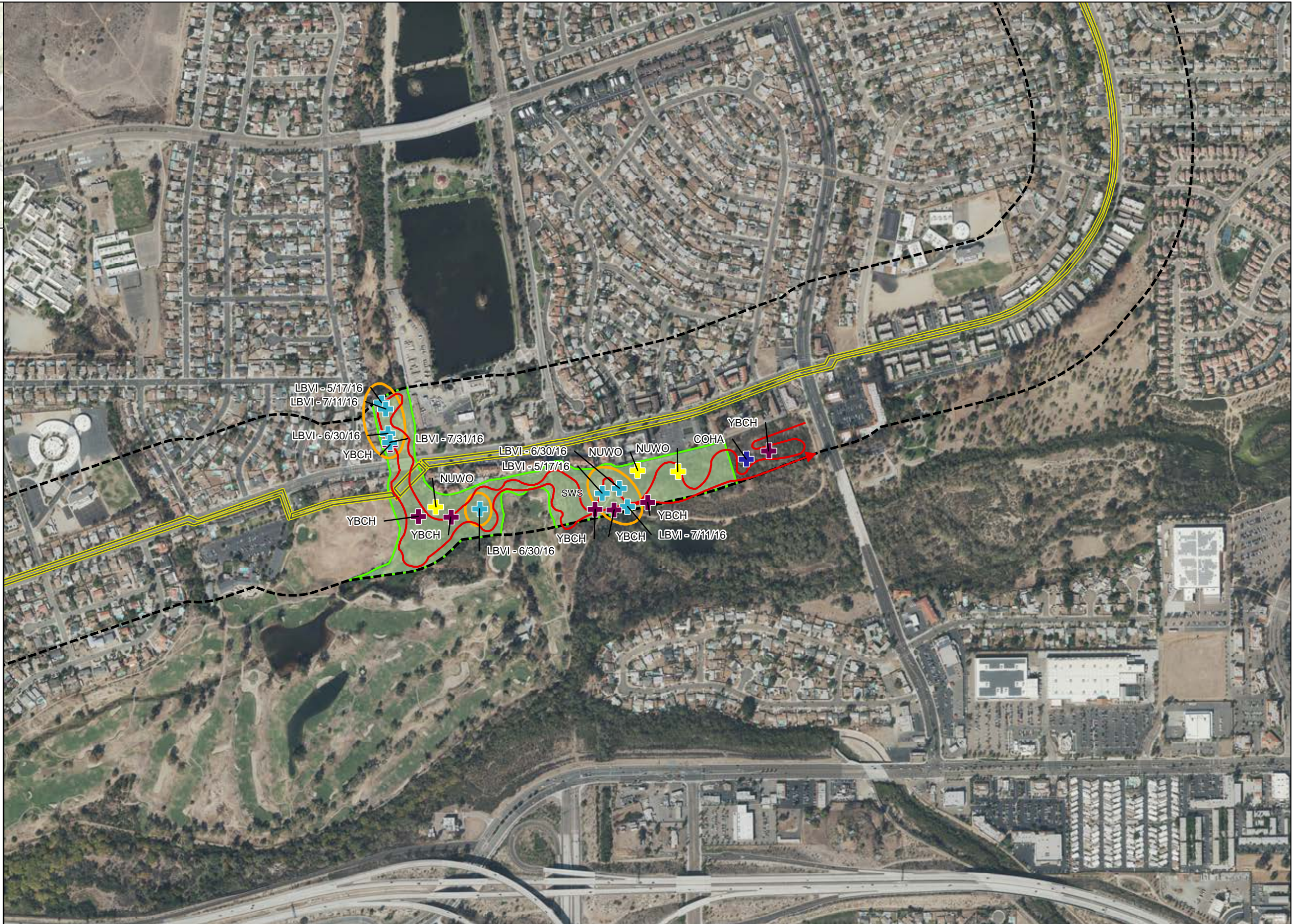
SOURCE: ESRI World Topographic Basemap, 2016



Figure 3j
Survey Results Map



- LEGEND**
- Pipeline Study Area - 500 FT Buffer
 - Project Pipeline Impacts
 - Observed LBVI Use Area
 - SWFL/ LBVI Survey Route
- Survey Results**
- Species Code, Common Name**
- COHA, Cooper's Hawk
 - LBVI-adult male, Least Bell's Vireo
 - NUWO, Nutall's woodpecker
 - YBCH, Yellow-breasted chat
 - Suitable SWFL/ LBVI Habitat
- Code, Dudek_VegCom**
- SWS, Southern Willow Scrub
- Riparian Habitat**
- SWIFL/LBVI Survey Areas**
- Survey Area 1A
 - Survey Area 1B
 - Survey Area 2
 - Survey Area 3



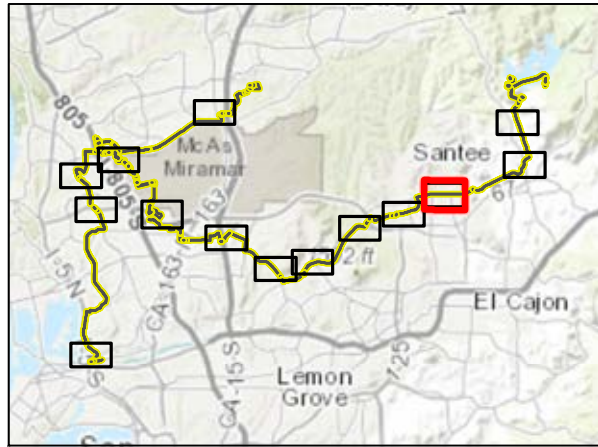
0 305 610 Feet

SOURCE: ESRI World Topographic Basemap, 2016

DUDEK

2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

Figure 3k
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- LBVI-adult male, Least Bell's Vireo
- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

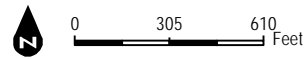
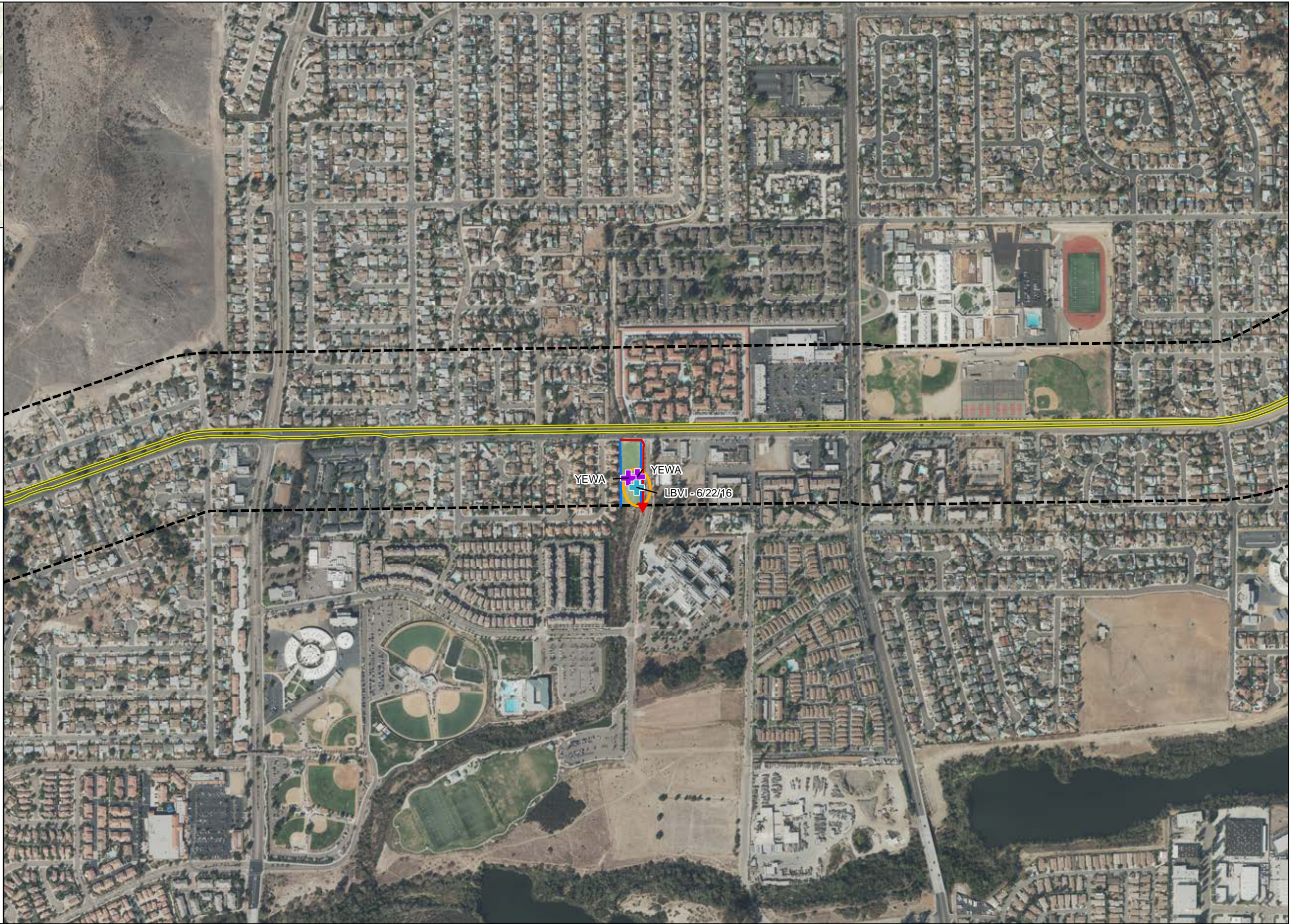
Code, Dudek_VegCom

- SWS, Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

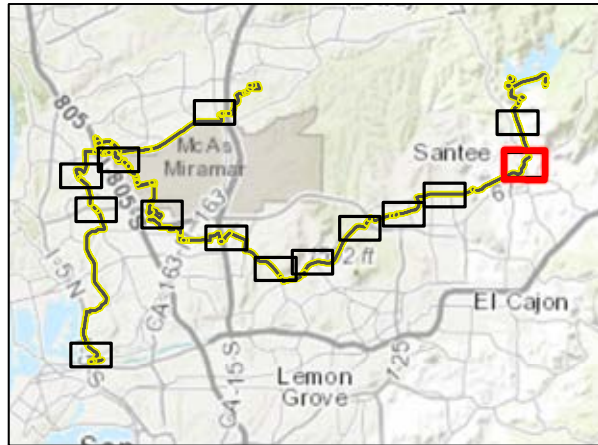
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3



SOURCE: ESRI World Topographic Basemap, 2016



Figure 31
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- BHCO, brown headed cowbird
- CAGN, California Gnatcatcher
- COHA, Cooper's Hawk
- LBVI-adult male, Least Bell's Vireo
- NUWO, Nuttall's woodpecker
- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

- CSS, Diegan Coastal Sage Scrub
- DEV, Urban/Developed
- NVC, Non-Vegetated Channel or Floodway
- OW, Open Water
- SCWRF, Southern Cottonwood-Willow Riparian Forest
- SWRF, Southern Arroyo Willow Riparian Forest
- SWS, Southern Willow Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

0 305 610 Feet

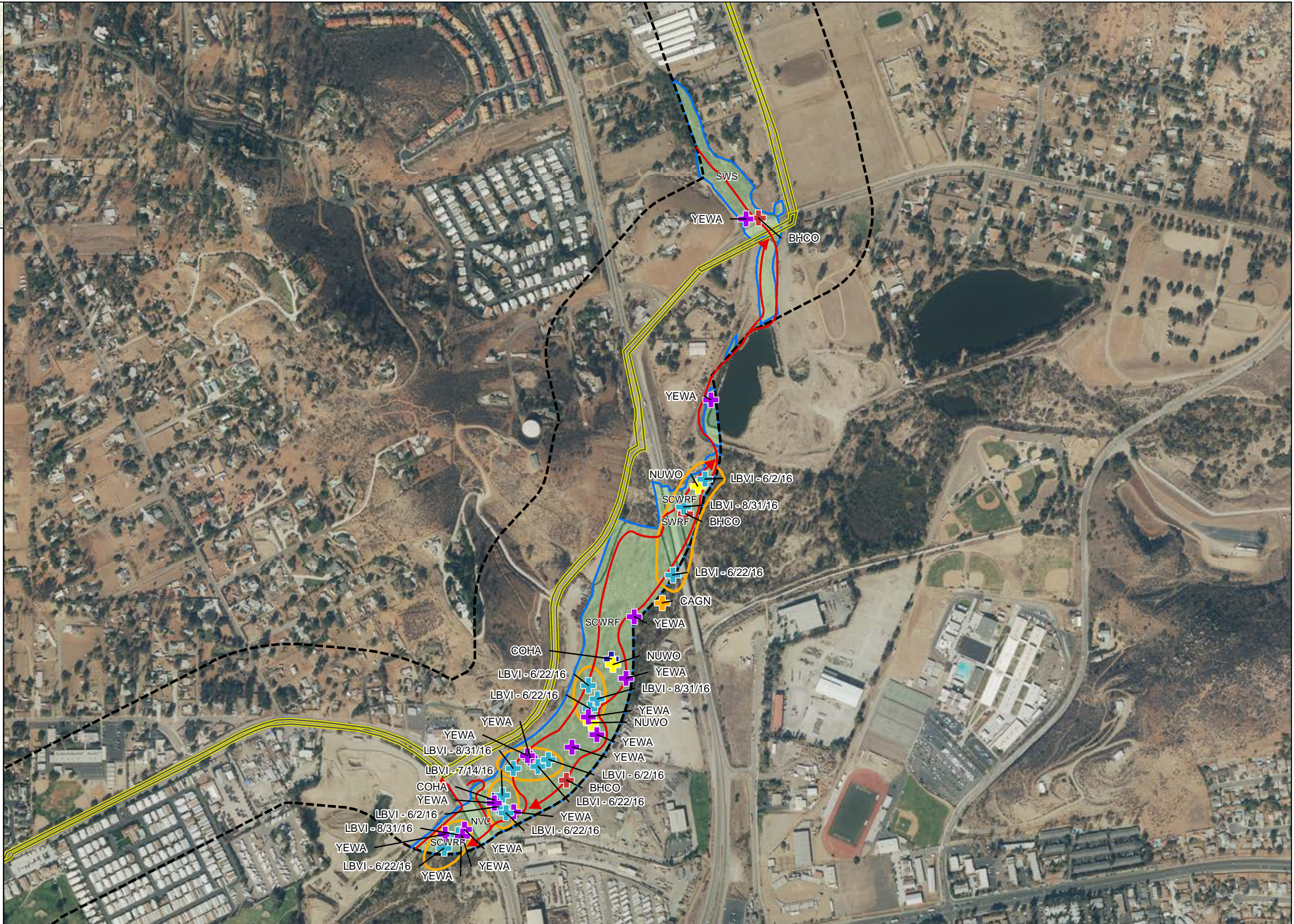
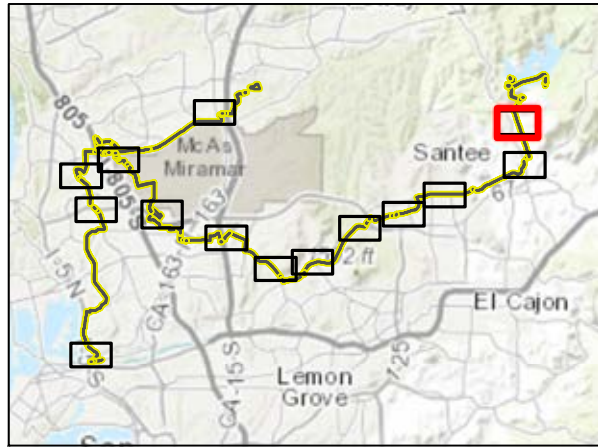


Figure 3m
Survey Results Map



LEGEND

- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results

Species Code, Common Name

- YEWA, Yellow warbler
- Suitable SWFL/ LBVI Habitat

Code, Dudek_VegCom

- ARU, Arundo-Dominated Riparian
- DEV, Urban/Developed
- MFS, Mule Fat Scrub
- dMFS, disturbed Mule Fat Scrub

Riparian Habitat

SWIFL/LBVI Survey Areas

- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

0 305 610 Feet

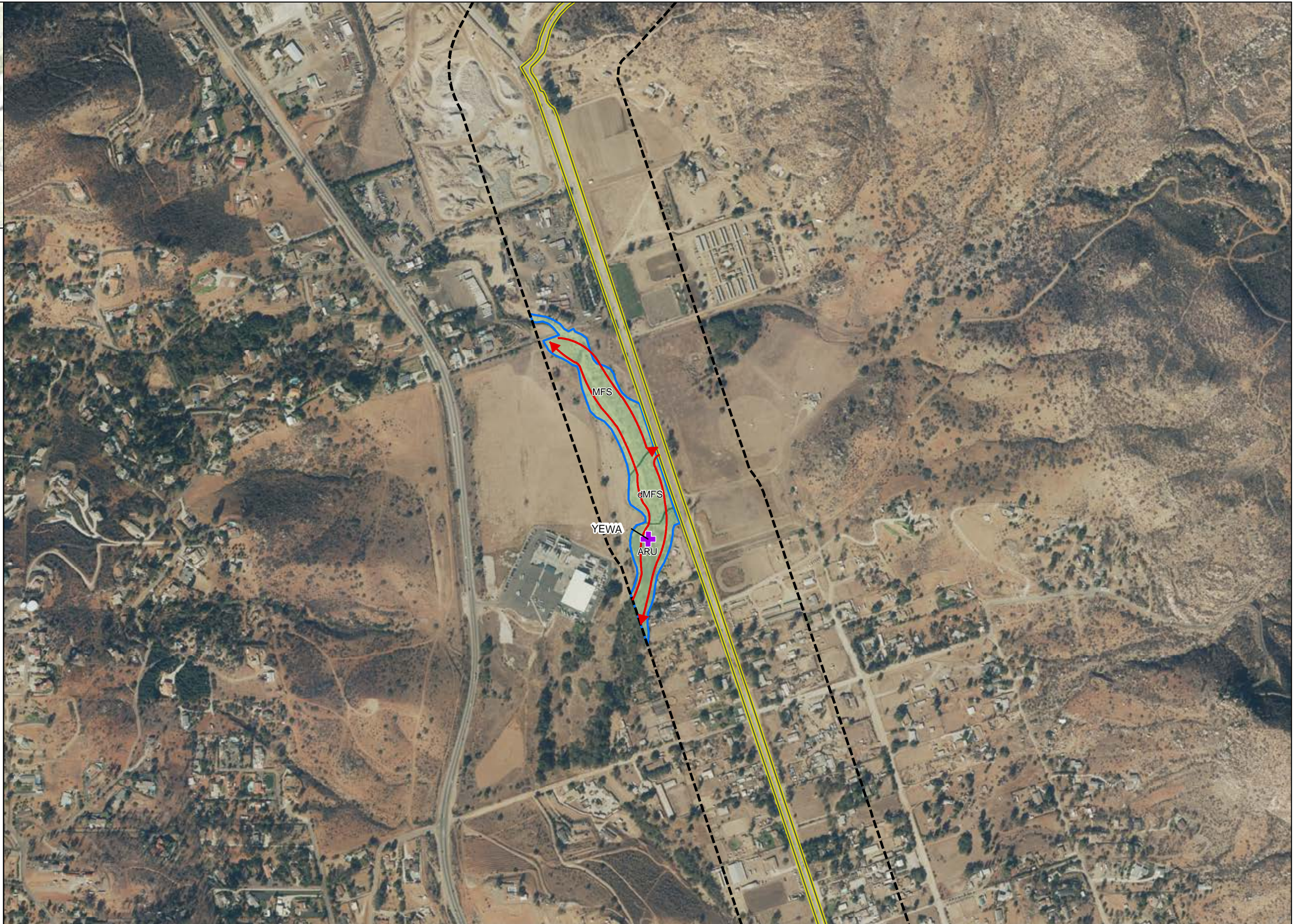


Figure 3n
Survey Results Map

APPENDIX A

Wildlife Species Observed in Study Area

ATTACHMENT A
Wildlife Species Observed in Study Area

AMPHIBIANS

FROGS

RANIDAE—TONGUELESS FROGS

- * *Lithobates catesbeianus*—American bullfrog

BIRDS

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

- Agelaius phoeniceus*—red-winged blackbird
- Euphagus cyanocephalus*—Brewer's blackbird
- Icterus bullockii*—Bullock's oriole
- Quiscalus mexicanus*—great-tailed grackle
- * *Molothrus ater*—brown-headed cowbird
- Icterus cucullatus*—hooded oriole

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

- Psaltriparus minimus*—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

- Passerina amoena*—Lazuli bunting
- Piranga ludoviciana*—western tanager
- Passerina caerulea*—blue grosbeak
- Pheucticus melanocephalus*—black-headed grosbeak

CORMORANTS

PHALACROCORACIDAE—CORMORANTS

- Phalacrocorax auritus*—double-crested cormorant

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

- Chondestes grammacus*—lark sparrow

ATTACHMENT A (Continued)

Melospiza lincolni—Lincoln's sparrow
Melospiza melodia—song sparrow
Melospiza crissalis—California towhee
Pipilo maculatus—spotted towhee
Zonotrichia leucophrys—white-crowned sparrow
Aimophila ruficeps—rufous-crowned sparrow
Junco hyemalis—dark-eyed junco

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Spinus psaltria—lesser goldfinch
Spinus tristis—American goldfinch
Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood-pewee
Empidonax traillii—willow flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird
Empidonax difficilis—Pacific-slope flycatcher

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS

Chordeiles acutipennis—lesser nighthawk

GREBES

PODICIPEDIDAE—GREBES

Podilymbus podiceps—pied-billed grebe

ATTACHMENT A (Continued)

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

- Accipiter cooperii*—Cooper’s hawk
- Buteo jamaicensis*—red-tailed hawk
- Buteo lineatus*—red-shouldered hawk
- Circus cyaneus*—northern harrier
- Elanus leucurus*—white-tailed kite

HERONS AND BITTERNS

ARDEIDAE—HERONS, BITTERNS, AND ALLIES

- Ardea alba*—great egret
- Ardea herodias*—great blue heron
- Butorides virescens*—green heron
- Egretta thula*—snowy egret
- Nycticorax nycticorax*—black-crowned night-heron

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

- Calypte anna*—Anna’s hummingbird
- Calypte costae*—Costa’s hummingbird
- Selasphorus sasin*—Allen’s hummingbird

JAYS, MAGPIES, AND CROWS

CORVIDAE—CROWS AND JAYS

- Phelocoma californica*—western scrub-jay
- Corvus brachyrhynchos*—American crow
- Corvus corax*—common raven

KINGLETS

REGULIDAE—KINGLETS

- Regulus calendula*—ruby-crowned kinglet

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

- Mimus polyglottos*—northern mockingbird
- Toxostoma redivivum*—California thrasher

ATTACHMENT A (Continued)

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

OLD WORLD SPARROWS

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Poliophtila caerulea—blue-gray gnatcatcher

Poliophtila californica californica—coastal California gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Columba livia*—rock pigeon (rock dove)

* *Streptopelia decaocto*—Eurasian collared-dove

RAILS, GALLINULES, AND COOTS

RALLIDAE—RAILS, GALLINULES, AND COOTS

Fulica americana—American coot

SHOREBIRDS

CHARADRIIDAE—LAPWINGS AND PLOVERS

Charadrius vociferus—killdeer

ATTACHMENT A (Continued)

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow

Petrochelidon pyrrhonota—cliff swallow

Stelgidopteryx serripennis—northern rough-winged swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

TERNS AND GULLS

LARIDAE—GULLS, TERNS, AND SKIMMERS

Larus occidentalis—western gull

Sterna hirundo—common tern

Hydroprogne caspia—Caspian tern

THRUSHES

TURDIDAE—THRUSHES

Catharus guttatus—hermit thrush

Sialia mexicana—western bluebird

Turdus migratorius—American robin

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

ATTACHMENT A (Continued)

VIREOS

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

Vireo gilvus—warbling vireo

Vireo huttoni—Hutton's vireo

WATERFOWL

ANATIDAE—DUCKS, GEESE, AND SWANS

Anas platyrhynchos—mallard

Anas strepera—gadwall

Lophodytes cucullatus—hooded merganser

WAXWINGS

BOMBYCILLIDAE—WAXWINGS

Bombycilla cedrorum—cedar waxwing

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat

Icteria virens—yellow-breasted chat

Oreothlypis celata—orange-crowned warbler

Cardellina pusilla—Wilson's warbler

Setophaga petechia—yellow warbler

Setophaga townsendi—Townsend's warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Melanerpes formicivorus—Acorn woodpecker

Picoides nuttallii—Nuttall's woodpecker

Picoides pubescens—downy woodpecker

Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

Troglodytes aedon—house wren

ATTACHMENT A (Continued)

INVERTEBRATES

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Leptotes marina—marine blue

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister

Danaus gilippus—queen

Junonia coenia—common buckeye

Nymphalis antiopa—mourning cloak

Vanessa annabella—west coast lady

Vanessa atalanta—red admiral

Vanessa cardui—painted lady

Danaus plexippus—monarch

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail

Papilio rutulus—western tiger swallowtail

Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Phoebis sennae—cloudless sulphur

Pieris rapae—cabbage white

Pontia protodice—checkered white

Pontia sisymbrii—spring white

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat

ATTACHMENT A (Continued)

DOMESTIC

CANIDAE—WOLVES AND FOXES

* *Canis lupus familiaris*—domestic dog

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus audubonii—desert cottontail

Sylvilagus bachmani—brush rabbit

MUSTELIDS

MEPHITIDAE—SKUNKS

Mephitis mephitis—striped skunk

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

RACCOONS

PROCYONIDAE—RACCOONS AND RELATIVES

Procyon lotor—raccoon

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

REPTILES

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Uta stansburiana—common side-blotched lizard

ATTACHMENT A (Continued)

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis hyperythra beldingi—Belding's orange-throated whiptail

SNAKES

VIPERIDAE—VIPERS

Crotalus ruber—red diamondback rattlesnake

TURTLES

EMYDIDAE—BOX AND WATER TURTLES

Actinemys marmorata—western pond turtle

* signifies introduced (non-native) species

ATTACHMENT A (Continued)

INTENTIONALLY LEFT BLANK

APPENDIX B

Willow Flycatcher Survey and Detection Forms

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (<http://www.fws.gov/southwest/es/arizona/>) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Pure Water State CA County San Diego
 USGS Quad Name Several - See report Elevation 29-310 (meters)
 Creek, River, Wetland, or Lake Name Several throughout San Diego County
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 481059.27 N 3624902.48 UTM Datum NAD27 (See instructions)
 Stop: E 508963.00 N 3642959.87 UTM Zone 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** Fill in additional site information on back of this page ****

Survey Area 1A

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bud behavior, evidence of pairs or breeding, potential threats (livestock, cowbirds, <i>Diochthys</i> spp.), <i>Diochthys</i> found, contact USFWS and State WIFL coordinator)	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey) Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) Paul Lemons (PL)	Date 5/19 Start 10:30 Stop 11:00 Total hrs 5.3	0	0	0	0					
Survey # 2 Observer(s) PL	Date 6/3 Start 05:50 Stop 11:00 Total hrs 5.1	0	0	0	0					
Survey # 3 Observer(s) PL	Date 6/16 Start 05:50 Stop 11:00 Total hrs 5.1	0	0	0	0					
Survey # 4 Observer(s) PL	Date 7/7 Start 05:50 Stop 11:00 Total hrs 5.1	0	0	0	0					
Survey # 5 Observer(s) PL	Date 7/17 Start 06:00 Stop 11:00 Total hrs 5	0	0	0	0					
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs <u>25.6</u>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes <input type="checkbox"/> No <input type="checkbox"/> [If yes, report color combination(s) in the comments section on back of form and report to USFWS. <u>N/A - No WIFL detected</u>				

Reporting Individual Paul Lemons Date Report Completed September 2010
 US Fish and Wildlife Service Permit # TE051248-5 State Wildlife Agency Permit # X-1680
Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Paul Lemons Phone # 760-942-5147
 Affiliation Consultant - Dudek E-mail plemons@dudek.com
 Site Name Pure Water San Diego Program Date Report Completed Sept 2016

Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable

If site name is different, what name(s) was used in the past? N/A

If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below. N/A

Did you survey the same general area during each visit to this site this year? Yes No ___ If no, summarize below.

Management Authority for Survey Area: Federal ___ Municipal/County State ___ Tribal ___ Private ___
 Name of Management Entity or Owner (e.g., Tonto National Forest) City of San Diego

Length of area surveyed: ~37,400 (meters) = Approximate length of Entire Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

- Native broadleaf plants (entirely or almost entirely, > 90% native. includes high-elevation willow)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.
Salix lasiolepis, Plantanus racemosa, Populus fremontii

Average height of canopy (Do not include a range): 25 (meters)

Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections.
 Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL nests detected.
 Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)
No WIFL detected

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM N	UTM E	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (<http://www.fws.gov/southwest/es/arizona/>) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Pure Water State CA County San Diego
 USGS Quad Name Severel - See report Elevation 28-210 (meters)
 Creek, River, Wetland, or Lake Name Severel throughout San Diego County
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 491059.27 N 3624902.48 UTM Datum NAD27 (See instructions)
 Stop: E 508963.00 N 3642959.87 UTM Zone 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** Fill in additional site information on back of this page ****

Survey Area 1B

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Line	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior, evidence of pairs or breeding; potential threats (livestock, cowbirds, <i>Thryothorus</i> spp.)). If <i>Thryothorus</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (This is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) <u>Brink Ortega (BO)</u>	Date <u>5/19</u> Start <u>0558</u> Stop <u>1031</u> Total hrs <u>4.5</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>N</u>	<u>Foraging; not SWFL</u>				
Survey # 2 Observer(s) <u>BO</u>	Date <u>6/4</u> Start <u>0603</u> Stop <u>1050</u> Total hrs <u>4.9</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>					
Survey # 3 Observer(s) <u>BO</u>	Date <u>6/17</u> Start <u>0514</u> Stop <u>1032</u> Total hrs <u>5.2</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>					
Survey # 4 Observer(s) <u>BO</u>	Date <u>7/5</u> Start <u>0531</u> Stop <u>1048</u> Total hrs <u>5.25</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>					
Survey # 5 Observer(s) <u>BO</u>	Date <u>7/15</u> Start <u>0533</u> Stop <u>1105</u> Total hrs <u>5.7</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>					
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs: <u>25.1</u>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes ___ No <input checked="" type="checkbox"/> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>					

Reporting Individual Brink Ortega Date Report Completed _____
 US Fish and Wildlife Service Permit # TC813545-0 State Wildlife Agency Permit # _____
 Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brak Ortega Phone # 760-942-5147
 Affiliation Consultant - Dudek E-mail brortega@dudek.com
 Site Name Pure Water San Diego Program Date Report Completed _____

Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable X

If site name is different, what name(s) was used in the past? N/A

If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below. N/A

Did you survey the same general area during each visit to this site this year? Yes X No ___ If no, summarize below.

Management Authority for Survey Area: Federal ___ Municipal/County X State ___ Tribal ___ Private ___

Name of Management Entity or Owner (e.g., Tonto National Forest) City of San Diego

Length of area surveyed: ~37,400 (meters) = Approximate length of Entire Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

___ Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)

✓ Mixed native and exotic plants (mostly native, 50 - 90% native)

___ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

___ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix sp., Baccharis salicifolia; Platanus sp.

Average height of canopy (Do not include a range): 20 (meters)

Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections.

Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL nests detected.

Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM N	UTM E	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

32 A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Jeff Priest Phone # 760-442-5147
 Affiliation Consultant - Dudek E-mail _____
 Site Name Pure Water San Diego Program Date Report Completed _____

Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable X
 If site name is different, what name(s) was used in the past? N/A
 If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below. N/A
 Did you survey the same general area during each visit to this site this year? Yes X No ___ If no, summarize below.

Management Authority for Survey Area: Federal ___ Municipal/County X State ___ Tribal ___ Private ___
 Name of Management Entity or Owner (e.g., Tonto National Forest) City of San Diego

Length of area surveyed: ~37,400 (meters) = Approximate length of Entire Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

- Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.
 (willow) Salix lasiolepis, (Sycamore) Platanus racemosa (Mule fat) Baccharis salicifolia

Average height of canopy (Do not include a range): 8m (meters)

Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections.
 Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL nests detected.
 Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)

No WIFL observed.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM N	UTM E	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (<http://www.fws.gov/southwest/es/arizona/>) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Pure Water State CA County San Diego
 USGS Quad Name Severel - Sea report Elevation 28-210 (meters)
 Creek, River, Wetland, or Lake Name Severel throughout San Diego County
 Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: E 491059.27 N 3624902.48 UTM Datum NAD27 (See instructions)
 Stop: E 508963.00 N 3642959.87 UTM Zone 11S

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.
**** Fill in additional site information on back of this page ****

Survey Area
3

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time 2016	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior, evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhobida</i> spp.]). If <i>Diorhobida</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) Anita Hayworth (AH)	Date 5/18 Start 0554 Stop 1109 Total hrs 5.25	0	0	0	N					
Survey # 2 Observer(s) AH	Date 6/2 Start 0504 Stop 1008 Total hrs 5	0	0	0	N					
Survey # 3 Observer(s) AH	Date 6/17 Start 0558 Stop 1009 Total hrs 5	0	0	0	N					
Survey # 4 Observer(s) AH	Date 7/1 Start 0533 Stop 1010 Total hrs 4.6	0	0	0	N					
Survey # 5 Observer(s) AH	Date 7/14 Start 0530 Stop 1005 Total hrs 4.75	0	0	0	N					
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs <u>24.6</u>		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes ___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
		0	0	0	0					

Reporting Individual Anita Hayworth Date Report Completed September 2016
 US Fish and Wildlife Service Permit # TE191034-8 State Wildlife Agency Permit # 10810

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Anita Hayward Phone # 760-942-5147
 Affiliation Consultant - Dudek E-mail ahayward@dudek.com
 Site Name Pure Water San Diego Program Date Report Completed Sept 2010

Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable

If site name is different, what name(s) was used in the past? N/A

If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below, N/A

Did you survey the same general area during each visit to this site this year? Yes No ___ If no, summarize below.

Management Authority for Survey Area: Federal ___ Municipal/County State ___ Tribal ___ Private ___
 Name of Management Entity or Owner (e.g., Tonto National Forest) City of San Diego

Length of area surveyed: ~37,400 (meters) = Approximate length of Entire Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

___ Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)

___ Mixed native and exotic plants (mostly native, 50 - 90% native)

Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

___ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Tamarisk sp.; Salix ~~nigra~~ goodingii; Baccharis salicifolia

Average height of canopy (Do not include a range): 6.1 (meters)

Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections.

Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL nests detected.

Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM N	UTM E	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary