Biological Technical Report for the Nichols Mine Project

June 8, 2016

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1.0 INTRODUCTION

This report describes the existing biological resources on the proposed Nichols Road Mine Expansion Project (Project) site and evaluates the potential impacts to those resources that may occur as a result of project implementation. This report is intended to provide the City of Lake Elsinore with information necessary to assess significant impacts to biological resources under the California Environmental Quality Act (CEQA). The Project is within an area excluded from the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) and therefore is not subject to its requirements.

1.1 PROJECT LOCATION

The Nichols Mine site comprises approximately 199 acres located east of and adjacent to Interstate 15 (I-15) and north and south of and adjacent to Nichols Road in the City of Lake Elsinore, California. The proposed expansion area is located within a 29.2 acre Study Area north of Nichols Road just east of the existing mine activity area (Figures 1 and 2). The Study Area extends 100 feet to the east of the proposed new mine limits. The Study Area does not include mine land south of Nichols Road because the Reclamation Plan for this area is not changing, and there would be no increase in biological resource impacts there.

The Study Area is bordered to the west by the existing Nichols Road Mine facilities, to the north and east by undeveloped lands, and to the south by Nichols Road, residential development, and Temescal Canyon High School.

1.2 PROJECT DESCRIPTION

The Nichols Road Mine is an active aggregate mining operation that produces construction sand and gravel under existing Reclamation Plan No. 20016-01 (RP 20016-01). The Nichols Road Mine includes an approximately 116 acre active mine site. The proposed Project would extend the limits of the approved mine area (Expanded Disturbance Area; EDA) approximately 600 feet to the east, increasing the size of the approved mining limits by 24.0 acres (Figure 3) within the Study Area. The proposed Project includes an application to amend RP 20016-01 (RP 20016-01A2) to allow for an EDA.

2.0 METHODS AND SURVEY LIMITATIONS

2.1 LITERATURE REVIEW

As part of preparation for biological resources surveys conducted for the Project and for preparation of this Biological Technical Report, Alden Environmental, Inc. (Alden) reviewed a General Biological Resources Assessment conducted by The Planning Associates for the Nichols Mine Site in 2005. This report was produced for a larger area which included the current Project site as well as the current Nichols Road mining facilities. Alden also performed a search of CDFW's California Natural Diversity Database (CDFG 2011 and 2012) and the California Native Plant Society ([CNPS] 2010) online database for information regarding sensitive species known to occur within the project vicinity.

2.2 BIOLOGICAL SURVEYS

The Planning Associates conducted a general biological resources assessment in 2005, as well as a jurisdictional delineation and protocol surveys for the burrowing owl (BUOW; *Athene cunicularia*). The results of these surveys are presented in the General Biological Resources Assessment: Nichols Mine Site (The Planning Associates).

Alden oversaw a full range of biological surveys in 2015. In all, 6 types of field surveys were conducted within the project limits: vegetation mapping, a spring rare plant survey, a jurisdictional delineation, as well as Quino checkerspot butterfly (QCB; *Euphydryas editha quino*), and coastal California gnatcatcher (CAGN; *Polioptila californica californica*) protocol surveys. A habitat assessment also was performed for the Stephens' kangaroo rat (SKR; *Dipodomys stephensi*) and the BUOW. During the surveys, incidental plant and animal observations were noted. During the spring rare plant survey, special attention was given to sensitive plant species potentially occurring on site. More detailed information about the surveys can be found in the protocol survey annual reports (Alden 2015). Table 1 lists the survey dates, types, personnel, and time/weather conditions (if applicable). The survey methods used are presented in the sections following the table.

Table 1
SURVEY INFORMATION

Survey Date	Survey Type	Personnel	Time/Weather Conditions
2/20/15	Quino Checkerspot Butterfly	Jim Rocks[1]	80%, 71°F, wind 0-1 mph/ 60%, 81°F, wind 1-7 mph
2/27/15	Quino Checkerspot Butterfly	Jim Rocks Garrett Huffman[2]	80%, 76°F, wind 0-2 mph/ 100%, 67°F, wind 1-8 mph
2/27/15	Wetland Delineation	Jim Rocks	N/A
3/4/15	Quino Checkerspot Butterfly	Lee Ripma[3]	0%, 66°F, wind 2-5 mph/ 0%, 75°F, wind 1-3 mph
3/11/15	Quino Checkerspot Butterfly	Garrett Huffman	75%, 70°F, wind 1-3 mph/ 10%, 83°F, wind 2-4 mph
3/18/15	Quino Checkerspot Butterfly	Garrett Huffman	40%, 71°F, wind 4-5 mph/ 30%, 74°F, wind 3-6 mph
3/28/15	Quino Checkerspot Butterfly	Garrett Huffman	0%, 65°F, wind 0-1 mph/ 0%, 91°F, wind 0-1 mph
4/2/15	Coastal California Gnatcatcher	Garrett Huffman	80% cloud cover, 60°F, wind 0-2 mph/ 5%, 70°F, wind 1-3 mph

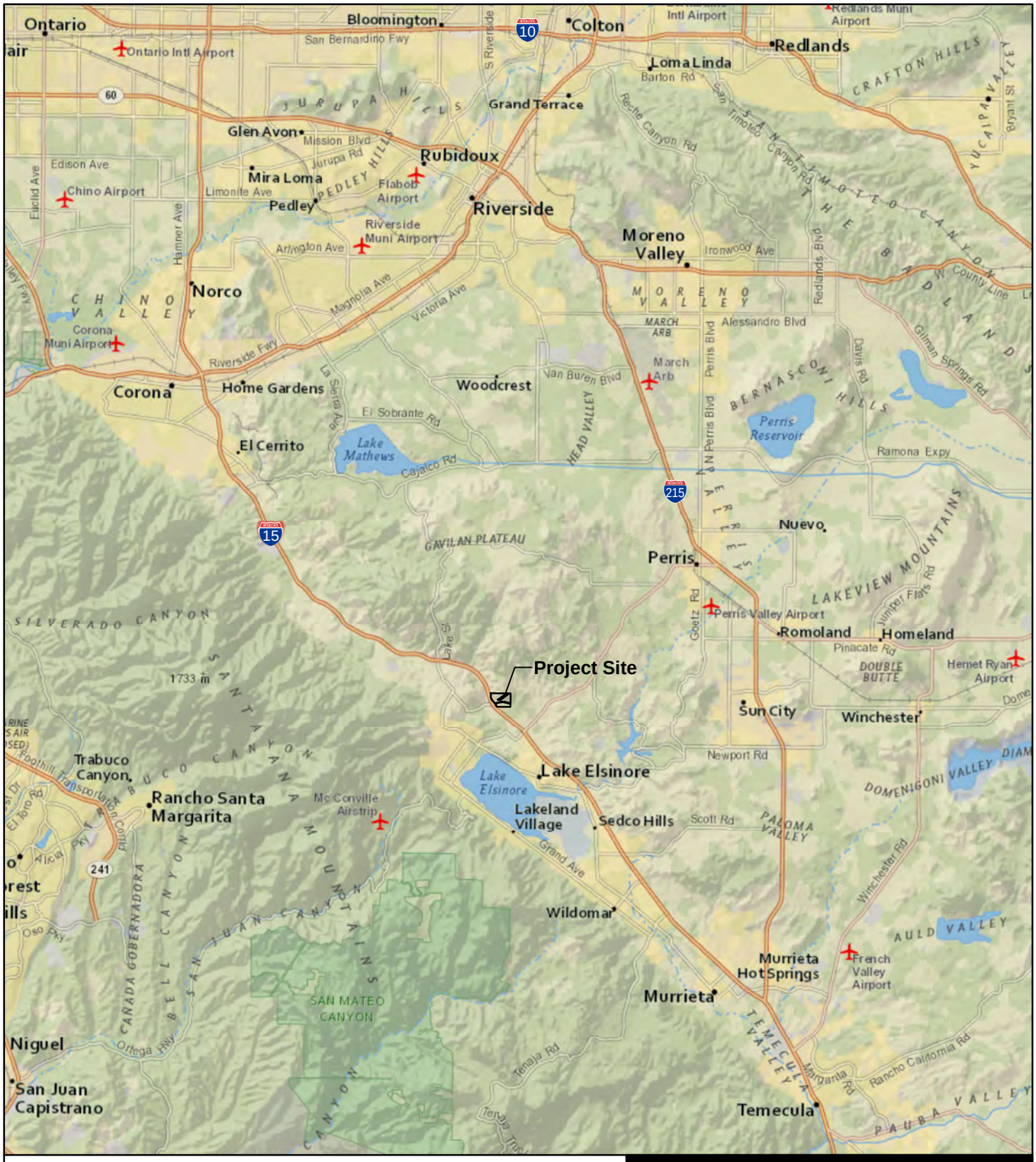

Figure 1

Regional Location

NICHOLS ROAD MINE PROJECT

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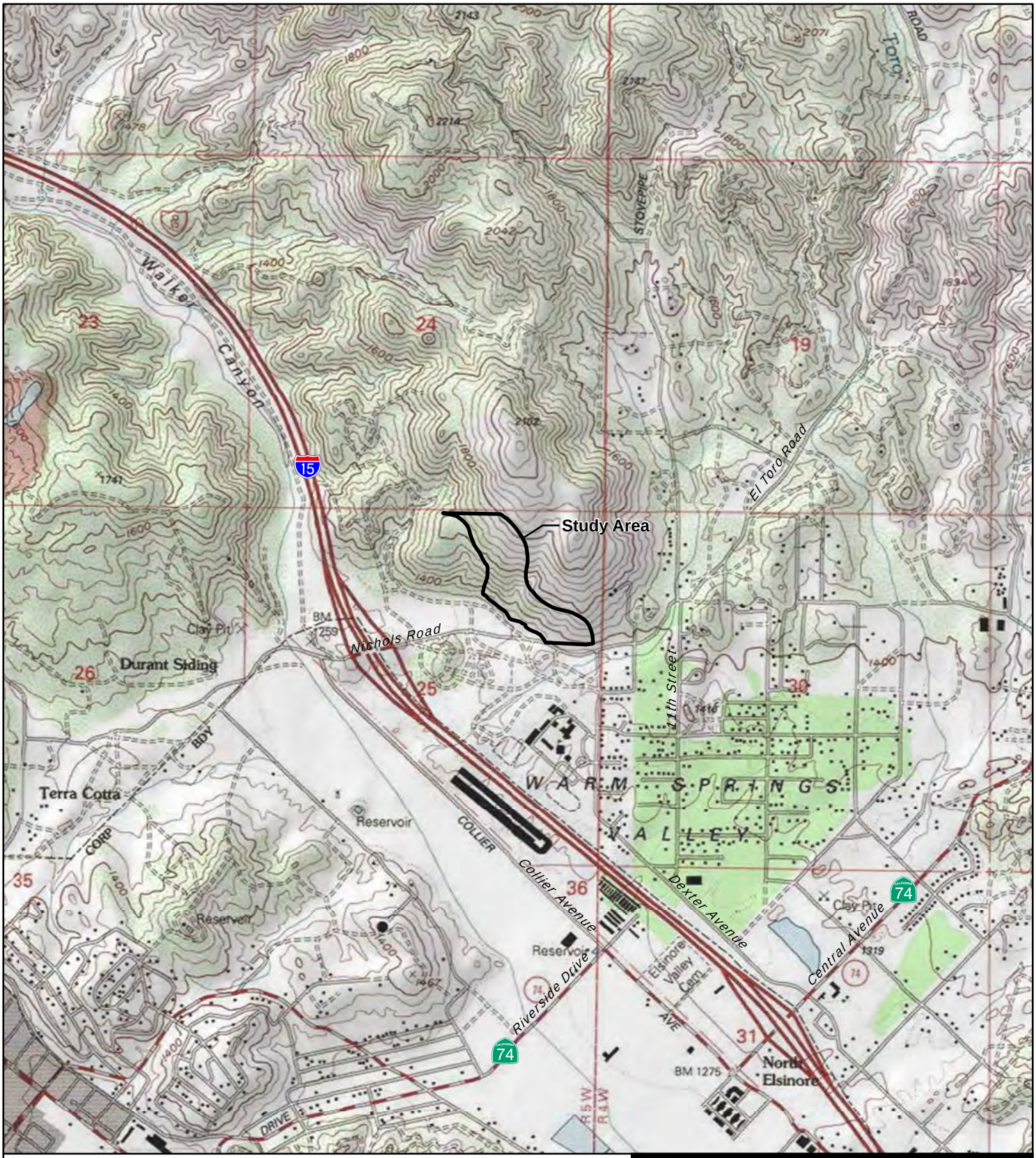

Source: USGS 7.5' Quads (Lake Elsinore); Copyright:© 2013 National Geographic Society, i-cubed

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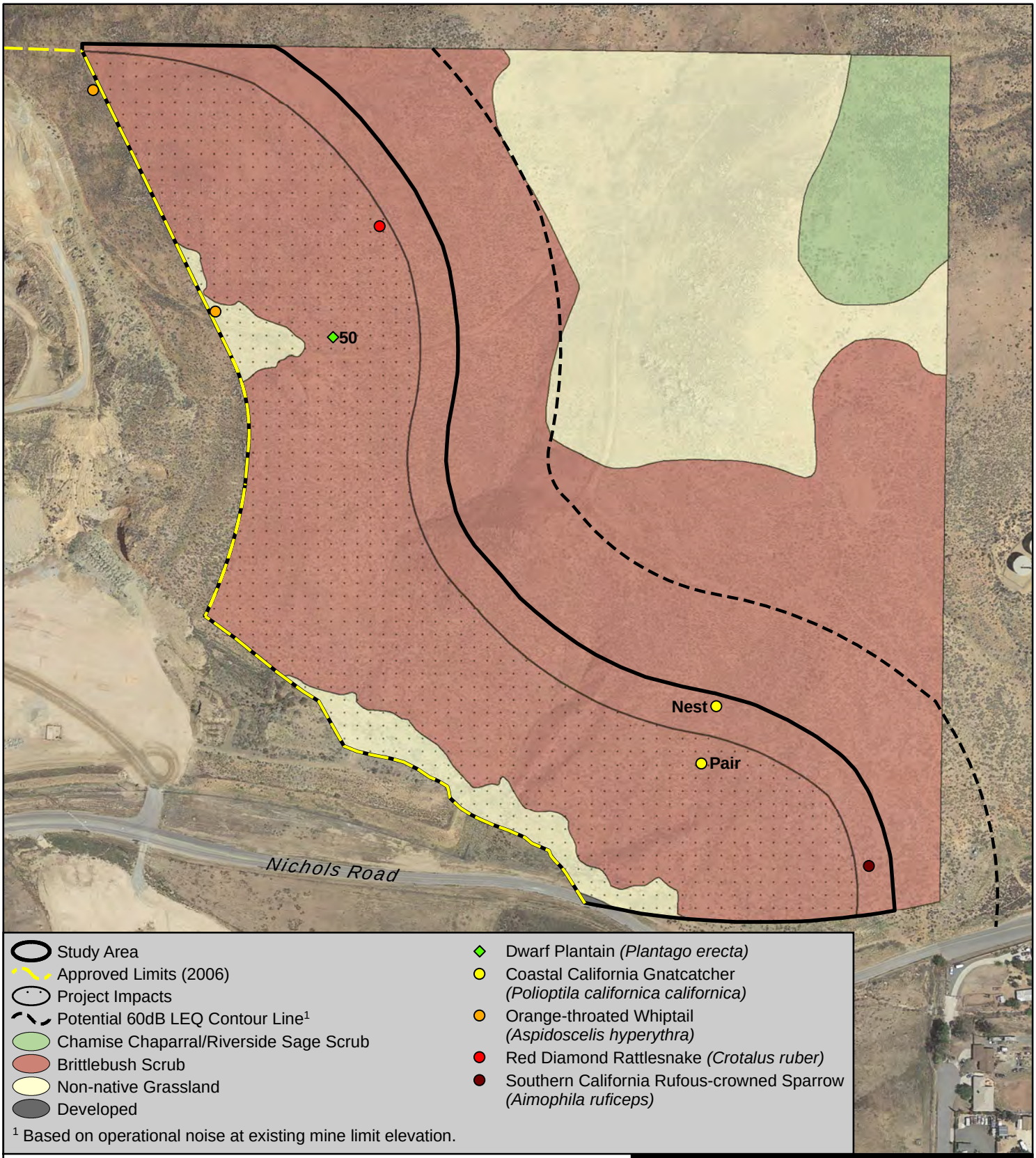
Figure 2

Project Location

NICHOLS ROAD MINE PROJECT



- Study Area
- Approved Limits (2006)
- Project Impacts
- Potential 60dB LEQ Contour Line[1]
- Chamise Chaparral/Riverside Sage Scrub
- Brittlebush Scrub
- Non-native Grassland
- Developed

[1] Based on operational noise at existing mine limit elevation.

- Dwarf Plantain *(Plantago erecta)*
- Coastal California Gnatcatcher *(Polioptila californica californica)*
- Orange-throated Whiptail *(Aspidoscelis hyperythra)*
- Red Diamond Rattlesnake *(Crotalus ruber)*
- Southern California Rufous-crowned Sparrow *(Aimophila ruficeps)*

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Figure 3

Biological Resources

NICHOLS ROAD MINE PROJECT

Table 1 **SURVEY INFORMATION** (continued)			
Survey Date	**Survey Type**	**Personnel**	**Time/Weather Conditions**
4/2/15	Quino Checkerspot Butterfly	Garrett Huffman	5%, 71°F, wind 1-3 mph/ 30%, 77°F, wind 3-7 mph
4/7/15	Spring Rare Plant Survey Vegetation Mapping Burrowing Owl Assessment	Lee Ripma	N/A
4/11/15	Coastal California Gnatcatcher	Garrett Huffman	0%, 51°F, wind 0-2 mph/ 0%, 69°F, wind 0-2 mph
4/11/15	Quino Checkerspot Butterfly	Garrett Huffman	0%, 70°F, wind 0-3 mph/ 0%, 86°F, wind 0-3 mph
4/15/15	Stephens' Kangaroo Rat Assessment	Philippe Vergne[4]	N/A
4/17/15	Quino Checkerspot Butterfly	Garrett Huffman	0%, 86°F, wind 2-8 mph/ 0%, 90°F, wind 4-9 mph
4/22/15	Coastal California Gnatcatcher	Garrett Huffman	100%, 67°F, wind 2-4 mph/ 50%, 72°F, wind 0-2 mph
4/22/15	Quino Checkerspot Butterfly	Garrett Huffman	50%, 72°F, wind 0-3 mph/ 40%, 78°F, wind 2-5 mph
5/1/15	Quino Checkerspot Butterfly	Jim Rocks	40%, 65°F, wind 0-2 mph/ 15%, 91°F, wind 2-4 mph
5/7/15	Quino Checkerspot Butterfly	Garrett Huffman	30%, 62°F, wind 2-6 mph/ 50%, 64°F, wind 4-8 mph
8/7/15	Jurisdictional Delineation	VCS	N/A

[1] Jim Rocks Permit TE# 063230-4
[2] Garrett Huffman Permit TE# 20168A-0
[3] Lee Ripma Permit TE# 221290-3.1
[4] Philippe Vergne Permit TE# 068072-3

2.2.1 Vegetation Mapping

General biological surveys and vegetation mapping were conducted for an approximately 205 acre area which encompasses the current Project site by The Planning Associates in 2005. Vegetation mapping was conducted for the current Project site in April, 2015 (Table 1). During each visit the Project study area was walked, and existing vegetation was mapped on a current aerial photograph with a scale of 1" = 200'. Vegetation communities were mapped according to Holland (1986) or Oberbauer (2008) classifications. Plant and animal species detected on site during site visits were recorded.

2.2.2 Jurisdictional Delineations of Waters of the U.S. and Waters of the State

A delineation of jurisdictional areas on the project site was performed on August 7, 2015 (Table 1) by VCS Environmental. Depressions and potential drainages were evaluated for the presence of U.S. Army Corps of Engineers (Corps) and CDFW jurisdictional wetlands as well as Waters of the U.S. and CDFW streambeds in accordance with current wetland delineation guidelines. Presence of Corps features was evaluated using the criteria described in the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Arid West Supplement (Corps 2008). Corps non-wetland waters of the U.S. (WUS; e.g., ephemeral streambeds) were determined by the presence of bed and bank within unvegetated drainage courses. CDFW jurisdiction (waters of the State; WS) was determined by the presence of streambeds, channels, and wetland/riparian vegetation.

2.2.3 Sensitive Species Surveys

Sensitive species are those that are considered federal, State, or California Native Plant Society (CNPS) rare, threatened, endangered, or regionally sensitive. For simplicity, "sensitive" may be used throughout this document to refer to any of these categories. A more detailed discussion of sensitive species is provided in Section 4.4, *Sensitive Resources*.

Plant Species

The results of previous surveys for sensitive plant species have been incorporated herein. A spring sensitive plant survey also was conducted for the Nichols Road Mine Project on April 7, 2015 (Table 1). Additional sensitive plant species observed were included on the project biological resource maps.

Coastal California Gnatcatcher

Protocol surveys for the CAGN were conducted in April 2015. Survey methods followed the USFWS presence/absence protocol (1997) including three site visits at least one week apart (Table 1). The survey area included suitable habitat within the study area. During each site visit, potential coastal CAGN habitat (i.e., Brittlebush scrub) was surveyed. Taped vocalizations were used to elicit a response and were ceased being played upon hearing or seeing a gnatcatcher. The CAGN survey report is included as Appendix A.

Quino Checkerspot Butterfly

Protocol surveys for the QCB were conducted from February and into May, 2015 (Table 1). All surveys were conducted in accordance with the Year 2014 Quino Checkerspot Butterfly Survey Protocol (USFWS 2014). The surveys were conducted by slowly walking (approximately 10 -12 acres per hour) transects across the entire site and noting any butterflies and/or potential QCB resources present. The 2014 QCB survey report is included as Appendix B.

Stephens' Kangaroo Rat

An SKR habitat assessment was conducted on April 15, 2015. No signs of the species were observed and the site was determined to be unsuitable the support the SKR; therefore, no protocol surveys were performed. The negative habitat assessment letter is included as Appendix C.

Burrowing Owl

Burrowing owl habitat assessment was conducted as part of the initial vegetation mapping. Per the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012), "A habitat assessment is the first step in the evaluation process and will assist investigators in determining whether or not occupancy surveys are needed." The habitat assessment followed the Staff Report requirements and included, for example, identifying potential habitat on site (vegetation type, structure, height, etc.) and looking for burrowing owls, potential burrowing owl burrows, and any recent or historic (within the last 3 years) sign of burrowing owls (e.g., pellets, prey remains, whitewash). No signs of owls were observed and the site was determined to be unsuitable to support the BUOW, therefore no protocol surveys were required.

2.2.4 Survey Limitations

Few survey limitations exist for the study area. Numerous site visits were performed and, during each visit, the total species list for the site was expanded if new species were observed. Since all surveys were conducted during daylight hours, the presence of nocturnal animals such as coyotes (*Canis latrans*), raccoons (*Procyon lotor*), and rodents were determined principally by indirect sign (tracks, scat, or burrows). A complete list of these species would require night surveys and trapping but is not warranted because potential to occur and the relative sensitivity of animals that might be detected are both low.

2.2.5 Nomenclature

Nomenclature used in this report is from the following sources and has been modified for Riverside County: Holland (1986); Oberbauer, et al. (2008); Hickman, ed. (1993); CNPS (2014); Jepson Flora Project (2014); Crother (2008); The American Ornithologists' Union (2013); Jones, et al. (1992); and CDFW Natural Diversity Database (2015).

3.0 REGULATORY CONTEXT

3.1 REGULATORY ISSUES

Biological resources in the Project study area are subject to regulatory administration by the federal government and State as follows.

3.1.1 Federal

Endangered Species Act

The federal Endangered Species Act (FESA) designates threatened and endangered animals and plants and provides measures for their protection and recovery. "Take" of listed animal species and of listed plant species in areas under federal jurisdiction is prohibited without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The FESA also generally requires determination of Critical Habitat for listed species. If a project would involve a federal action potentially affecting Critical Habitat, the federal agency would be required to consult with USFWS. Critical Habitat for the CAGN has been designated over the entire Study Area.

FESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species. Under Section 7 of the FESA, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its Critical Habitat must consult with USFWS. Under Section 10 of the FESA, private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S. Code Sections 703-711) includes provisions for protection of migratory birds, including the non-permitted take of migratory birds. The MBTA regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations Section 10.13. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others. Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

Clean Water Act

Under Section 404 of the Clean Water Act, the Corps is charged with regulating the discharge of dredge and fill materials into jurisdictional WUS. The terms "WUS" and "jurisdictional waters" have a broad meaning that includes special aquatic sites, such as wetlands. Corps wetland boundaries are determined using 3 criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Corps 2008).
WUS, as defined by regulation and refined by case law include: (1) the territorial seas; (2)

coastal and inland waters, lakes, rivers, and streams that are navigable WUS, including their adjacent wetlands; (3) tributaries to navigable WUS, including adjacent wetlands; and (4) interstate waters and their tributaries, including adjacent isolated wetlands and lakes, intermittent and ephemeral streams, prairie potholes, and other waters that are not a part of a tributary system to interstate waters or navigable WUS, the degradation or destruction of which could affect interstate commerce.

Section 401 of the Clean Water Act requires that any applicant for a federal license or permit to conduct any activity that may result in a discharge to WUS must obtain a Water Quality Certification, or a waiver thereof, from the state in which the discharge originates. In California, the Regional Water Quality Control Board issues Water Quality Certifications.

3.1.2 State of California

California Environmental Quality Act

Primary environmental legislation in California is found in the California Environmental Quality Act (CEQA) and its implementing guidelines (State CEQA Guidelines), requiring that projects with potential adverse effects or impacts on the environment undergo environmental review. Adverse impacts to the environment are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations. The City of Lake Elsinore is the CEQA Lead Agency for the Project.

California Endangered Species Act

The California Endangered Species Act (CESA) established that it is State policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the federal ESA and CESA, pursuant to a federal Incidental Take Permit if the CDFW certifies that the incidental take is consistent with the CESA (Fish & Game Code Section 2080.1[a]). For State-only listed species, Section 2081 of the CESA authorizes the CDFW to issue an Incidental Take Permit for a State listed threatened or endangered species if specific criteria are met.

Native Plant Protection Act

Sections 1900–1913 of the California Fish and Game Code (Native Plant Protection Act) direct the CDFW to carry out the Legislature's intent to "…preserve, protect and enhance endangered or rare native plants of this state." The Native Plant Protection Act gives the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take.

California Fish and Game Code

The California Fish and Game Code provides specific protection and listing for several types of biological resources. Section 1600 of California Fish and Game Code requires a Streambed Alteration Agreement for any activity that would alter the flow, change or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. Typical activities that require a Streambed Alteration Agreement include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Notification is required prior to any such activities, and CDFW will issue a Streambed Alteration Agreement with any necessary mitigation to ensure protection of the State's fish and wildlife resources.

Pursuant to California Fish and Game Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by California Fish and Game Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

Porter-Cologne Water Quality Control Act of 1970

The Porter-Cologne Water Quality Control Act of 1970 grants the State Water Resource Control Board and its regional offices power to protect water quality and is the primary vehicle for implementation of the State's responsibilities under Section 401 of the Clean Water Act. The Porter-Cologne Act grants the State Water Resource Control Board authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. Typically, the State Water Resource Control Board and Regional Water Quality Control Board act in concert with the Corps under Section 401 of the Clean Water Act in relation to permitting fill of WUS.

4.0 SURVEY RESULTS

4.1 PHYSICAL CHARACTERISTICS

The site consists of a large hill in the northeast that transitions down to lower, flatter areas to the west and south. Elevations on site range from approximately 1,320 to 1,840 feet above mean sea level. The soil types on site consist of Cieneba rocky sandy loam (15 to 50 percent slopes) and Hanford coarse sandy loam (2 to 8 percent slopes). Much of the western portion of the site north of Nichols Road is an active mine area. The remainder of the site is mostly undeveloped, with some scattered mining activity. Temescal Canyon High School borders the site to the south, residential areas to the east, undeveloped land to the north, and I-15 to the west.

4.2 VEGETATION COMMUNITIES

Three vegetation communities occur within the Project study area (Figure 3). The following sections describe each vegetation community and summarize the dominant plant species composition. Table 2 summarizes the vegetation communities that exist in the Project study area and their respective acreage totals.

Table 2
STUDY AREA
VEGETATION COMMUNITIES

Vegetation Communities	Total
Upland Vegetation Communities[1]	
Brittlebush scrub	**27.1**
Non-native grassland	**2.1**
Other Areas	
Developed	**< 0.1**
TOTAL	**29.2**

[1]Upland acreages rounded to 0.1 acre

4.2.1 Upland Vegetation Communities

Brittlebush Scrub

Brittlebush scrub occupies xeric (dry) sites characterized by shallow soils. This habitat is dominated by brittlebush. Brittlebush scrub occurs throughout the majority of the Study Area (Figure 3). In addition to brittlebush, California sagebrush (*Artemisia californica*) is common throughout this community on site. Approximately 27.1 acres of brittlebush scrub occurs within the Study Area.

Non-native Grassland

Non-native grassland occurs as a dense to sparse cover of non-native grasses, sometimes associated with species of showy-flowered, native, annual forbs. This community characteristically occurs on gradual slopes with deep, fine-textured, usually clay soils. Approximately 2.1 acres of non-native grassland occurs within the Study Area (Figure 3). Characteristic species within this vegetation community on site include wild oats (*Avena* spp.), foxtail chess (*Bromus madritensis* ssp. *Rubens*), ripgut grass (*B. diandrus*), filaree (*Erodium* spp.), and mustard (*Brassica* sp.). Most of the annual, introduced species that comprise the majority of species and biomass within non-native grassland originated from the Mediterranean region, an area with a long history of agriculture and a climate similar to California. These two factors, in addition to intensive grazing and agricultural practices in conjunction with severe droughts, contributed to the successful invasion and establishment of these species and the replacement of native grasses with an annual-dominated, non-native grassland (Jackson 1985). These grasslands serve as valuable raptor foraging habitat.

4.2.2 Other Uplands

Developed

Developed land is where permanent structures and/or pavement have been placed, which prevents the growth of vegetation. Developed area includes a portion of Nichols Road that in the southwestern corner of the study area. Less than 0.1 acre of developed area occurs within the Study Area.

4.3 WATERS OF THE U.S. AND WATERS OF THE STATE

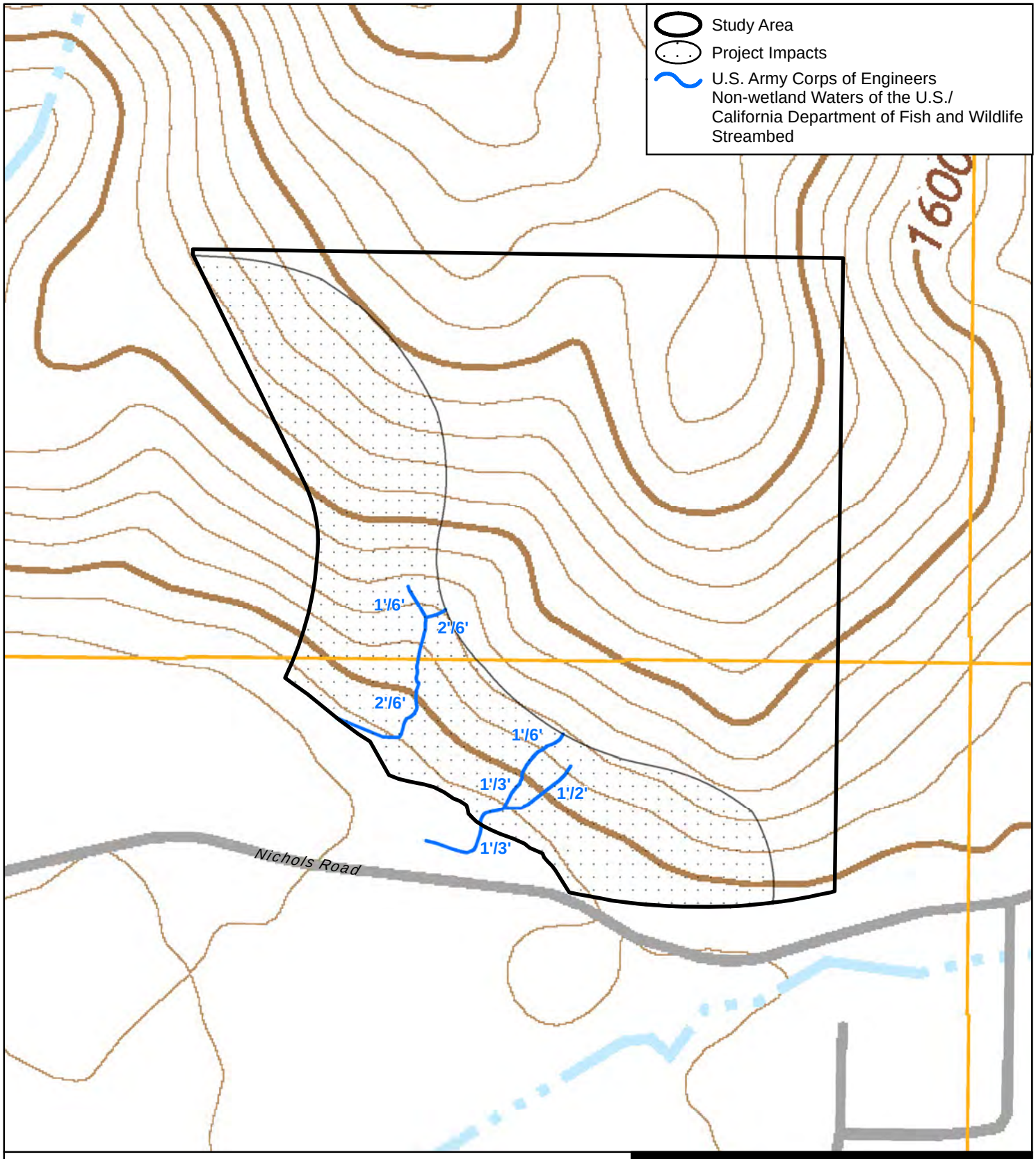
4.3.1 Waters of the U.S.

Non-wetland Waters of the U.S.

While not meeting the three criteria to be considered wetlands under the federal Clean Water Act, non-wetland WUS protect the chemical and physical functions of the nation's wetlands, and for those reasons, are considered sensitive. Non-wetland WUS in the Project study area include 0.05 acre of ephemeral drainage in the central portion of the study area (Figure 4).

4.3.2 Waters of the State

California Fish and Game Code provides specific protection for WS (both wetlands and non-wetlands) when an activity would alter the flow or change or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake as such an activity may substantially adversely affect fish and wildlife resources conserved, protected, and managed by CDFW. The Corps jurisdictional drainage in the center of the study area is also considered to be CDFW jurisdictional. A total of 0.17 acre of CDFW streambed occurs on the Project site.



Source: USGS 7.5' Quads (Lake Elsinore)

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Figure 4

Jurisdictional Features

NICHOLS ROAD MINE PROJECT

4.4 SENSITIVE RESOURCES

Sensitive species are those that are considered federal, State, or CNPS rare, threatened, or endangered. For simplicity, "sensitive" may be used throughout this document to refer to any of these categories.

4.4.1 Sensitive Vegetation Communities

Sensitive vegetation communities are considered rare within the region or sensitive by CDFW (Holland 1986) or the City (2011). These communities in any form are considered sensitive because they have been historically depleted, are naturally uncommon, or support sensitive species. The Project study area supports 2 sensitive vegetation communities: brittlebush scrub and non-native grassland.

Sensitive Plant Species Observed

Sensitive plant species are considered rare, a characteristic that may be based on three distributional traits: geographic range, habitat specificity, or population size (Rabinowitz, et al. 1986). A species that exhibits a small or restricted geographic range are geographically rare. A species may be more or less abundant but occur only in very specific habitats. Lastly, a species may be widespread but exist naturally in small populations.

The presence of any federally or state listed plant species within proposed project limits would pose a constraint to development. The presence of these species is determined through focused rare plant surveys conducted during the appropriate time of year. Typically, impacts to any listed plant species require species-specific mitigation, usually in the form of plant salvage and translocation to a suitable preserve area.

Fifty-six plant species were observed during the rare plant survey conducted in 2015. No sensitive plant species were observed within the study area and none are anticipated to occur. A list of plant species observed is included as Appendix D.

Sensitive Plant Species with Potential to Occur

Sensitive plant species not observed but with potential to occur are described below in Table 3.

Table 3 SENSITIVE PLANT SPECIES WITH THE POTENTIAL TO OCCUR			
SPECIES	**SENSITIVITY[1]**	**HABITAT**	**POTENTIAL TO OCCUR**
Chaparral sand-verbena (*Abronia villosa* var. *aurita*)	Federal: None State: None CNPS: 1B	Exposed sites with sandy soils, especially washes and dunes, in chaparral, sage scrub, and alluvial scrub.	Very Low. Suitable habitat/soils not present.
California Orcutt grass (*Orcuttia californica*)	Federal: E State: E CNPS: 1B	Vernal pools, alkaline soils, and southern basaltic claypan.	Very Low. Suitable habitat/soils not present.
Coulter's goldfields (*Lasthenia glabrata* ssp. *Coulteri*)	Federal: None State: None CNPS: 1B	Coastal salt marshes, playas, valley and foothill grassland, vernal pools. Alkaline soils in playas, sinks, and grasslands 1–1,400 meters in elevation.	Very Low. Suitable habitat/soils not present.
Davidson's saltscale (*Atriplex serenans* var. *davidsonii*)	Federal: None State: None CNPS: 1B	Alkali vernal pools, alkali annual grasslands, alkali playa, and alkali scrub components of alkali vernal plains.	Very Low. Suitable habitat/soils not present.
Hammitt's clay-cress (*Sibaropsis hammittii*)	Federal: None State: None CNPS: 1B	Chaparral and valley and foothill grassland at elevations of 700 to 1,100 meters.	Very Low. Suitable habitat/soils not present.
Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*)	Federal: None State: None CNPS: 1B	Rocky hill and valley landscapes with chaparral, sage scrub, or grasslands.	Low. Site somewhat suitable, would have been observed if present.
Little mousetail (*Myosurus minimus* ssp. *Apus*)	Federal: None State: None CNPS: 3	Vernal pools and poorly drained spots in moist grasslands, generally under alkaline conditions.	Very Low. Suitable habitat/soils not present.
Long-spined spineflower (*Chorizanthe polygonoides* var. *Longispina*)	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub, meadows, valley and foothill grassland; gabbroic clay; 30–1,450 meters in elevation.	Low. Site somewhat suitable, would have been observed if present.
Many-stemmed dudleya (*Dudleya multicaulis*)	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub, valley and foothill grassland; in heavy, often clayey soils or grassy slopes; 0–790 meters in elevation.	Low. Site somewhat suitable, would have been observed if present.
Munz's onion (*Allium munzii*)	Federal: E State: T CNPS: 1B	Heavy clay soils; grows in grasslands and openings within shrublands or woodlands; 300–1,035 meters in elevation.	Very Low. Suitable habitat/soils not present.

Table 3 (continued) **SENSITIVE PLANT SPECIES WITH THE POTENTIAL TO OCCUR**			
SPECIES	**SENSITIVITY[1]**	**HABITAT**	**POTENTIAL TO OCCUR**
Palmer's grapplinghook (*Harpagonella palmeri*)	Federal: None State: None CNPS: 4	Chaparral, coastal sage scrub, grasslands; clay soils.	Low. Site somewhat suitable, would have been observed if present.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	Federal: None State: None CNPS: 1B	Coastal scrub, chaparral; dry slopes and flats; sometimes at interface of two vegetation types, such as chaparral and oak woodland; dry, sandy soils; 40–1,705 meters in elevation.	Moderate. Site somewhat suitable, would have been observed if present.
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	Federal: None State: None CNPS: 1B	Chaparral, coastal scrub; dry soils, shrubland; 1–945 meters in elevation.	Moderate. Within brittlebush scrub habitat.
Round-leaved filaree (*Erodium macrophyllum*)	Federal: None State: None CNPS: 2	Cismontane woodland, valley and foothill grassland; clay soils; 15–1,200 meters in elevation.	Very Low. Suitable habitat/soils not present.
San Diego ambrosia (*Ambrosia pumila*)	Federal: E State: None CNPS: 1B	Associated with wetland, riparian, and mesic areas.	Very Low. Suitable habitat/soils not present.
San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)	Federal: E State: None CNPS: 1B	Floodplains (seasonal wetlands) dominated by alkali scrub, alkali playas, vernal pools, and, to a lesser extent, alkali grasslands.	Very Low. Suitable habitat/soils not present.
Slender-horned spineflower (*Dodecahema leptoceras*)	Federal: E State: E CNPS: 1B	Chaparral, coastal scrub (alluvial fan sage scrub), flood deposited terraces, and washes.	Very Low. Suitable habitat/soils not present.
Small-flowered microseris (*Microseris douglasii* var. *platycarpha*)	Federal: None State: None CNPS: 4	Clay soils in association with native grasslands or vernal pools.	Very Low. Suitable habitat/soils not present.
Smooth tarplant (*Centromadia pungens* ssp. *Laevis*)	Federal: None State: None CNPS: 1B	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland, alkali meadow, alkali scrub; also in disturbed places; 0-480 meters in elevation.	Very Low. Suitable habitat/soils not present.

[1]See Appendix F for an explanation of sensitivity codes.

4.4.2 Sensitive Animal Species

Forty-six species of animals have been observed or detected in the Project study area during the 2015 surveys. A list of these animal species is presented in Appendix E. Four of these species are considered sensitive and are described below.

Sensitive Animal Species Observed or Detected

Coastal California gnatcatcher (*Polioptila californica californica*)
Listing: FT/CSC
Distribution: Southern Los Angeles, Orange, western Riverside, and San Diego counties south into Baja
Habitat: Coastal sage scrub
Status on site: One pair of CAGN is present in the Study Area and was observed during each of the three site visits of the CAGN survey. The pair was observed with two juveniles (i.e., a family unit) during the first two site visits. During the third visit, the pair was observed feeding four nestlings in a nest. Two immature CAGN were also observed nearby during that third visit and were presumed to be the juveniles from the first two site visits.

Orange-throated Whiptail (*Aspidoscelis hyperythra*)
Listing: --/SSC
Distribution: Southern California into Baja
Habitat: Chaparral, sage scrub, and open edges of riparian areas; specialist to some degree on native termites.
Status on site: Two individuals were observed on separate occasions in the northwestern portion of the site.
Red Diamond Rattlesnake (***Crotalus ruber*)**
Listing: --/SSC
Distribution: Southwestern California into Baja
Habitat: Chaparral, woodland, grassland, and desert areas. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.
Status on site: An individual was spotted in the northwestern portion of the site.

Southern California Rufous-crowned Sparrow (***Aimophila ruficeps*)**
Listing: --/SWL
Distribution: Southern California into northern Baja
Habitat: Rocky slopes, especially where a relatively open shrub cover dominated by California sagebrush is interspersed with grassy areas.
Status on site: An individual was spotted near the southeastern corner of the site.

Sensitive Animal Species with Potential to Occur

Additional sensitive animal species that were not observed or detected but have potential to occur on site are listed in Table 4.

Table 4 SENSITIVE ANIMAL SPECIES WITH THE POTENTIAL TO OCCUR			
SPECIES	**SENSITIVITY[1]**	**HABITAT**	**POTENTIAL TO OCCUR**
Invertebrates			
Riverside fairy shrimp (*Streptocephalus woottoni*)	Federal: E State: None	Areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	Very Low. Suitable habitat/soils not present.
Quino checkerspot butterfly (*Euphydryas editha quino*)	Federal: E State: None	Open areas in grasslands, forb lands, coastal sage scrub, and chaparral, usually with low disturbance and a well-developed biological soil crust. Primary larval host plant is Plantago erecta.	Low. Site somewhat suitable; however, species not observed during focused surveys.
Amphibians			
Western spadefoot (*Spea hammondii*)	Federal: SOC State: SSC	Breeds in vernal pools and temporary ponds/pools.	Very Low. Suitable habitat/soils not present.
Reptiles			
Coast (San Diego) horned lizard (*Phrynosoma coronatum*)	Federal: None State: SSC	Open or sparse scrub and chaparral communities. This species prefers loose, friable soil for burrowing.	Moderate. Site suitable.
Coast Western Patch-nosed Snake (*Salvadora hexalepis virgultea*)	Federal: None State: SSC	Occupies desert scrub, coastal chaparral, washes, sandy flats, and rocky areas.	Low. Site is suitable, but species is uncommon.
Coastal western whiptail (*Aspidoscelis tigris stejnegeri*)	Federal: SOC State: None	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	Moderate. Site suitable.
Western pond turtle (*Clemmys marmorata pallida*)	Federal: None State: SSC	Ponds, small lakes, perennial pools in drainages, marshes, slow-moving, sometimes brackish water.	Very Low. Suitable habitat/soils not present.

Table 4 (continued) **SENSITIVE ANIMAL SPECIES WITH THE POTENTIAL TO OCCUR**			
SPECIES	**SENSITIVITY[1]**	**HABITAT**	**POTENTIAL TO OCCUR**
Birds			
American bittern (*Botaurus lentiginosus*)	Federal: SOC State: None	Freshwater marshes and vegetated borders of ponds and lakes.	Very Low. Suitable habitat/soils not present.
Bald Eagle (*Haliaeetus leucocephalus*)	Federal: Delisted State: E	Open areas, forest edges, and mountains near large lakes and rivers. Requires tall trees for nesting.	Very Low. Suitable habitat not present.
Bell's sage sparrow (*Amphispiza belli belli*)	Federal: SOC State: SWL	Extensive patches of chaparral less than about 2 meters in height and sage scrub shaded and relatively open at the ground layer.	Moderate. Habitat suitable, but somewhat sparse.
Black-crowned night-heron (*Nycticorax nycticorax*)	Federal: None State: None	Many types of wetlands.	Very Low. Suitable habitat not present.
Burrowing owl (*Athene cunicularia*)	Federal: SOC State: SSC	Requires fairly large expanses of relatively open, level, or hummocky terrain, including grasslands, agricultural fields, dairies, flood channels, and occasionally undisturbed areas of golf courses or airports.	Very Low. A habitat assessment conducted on the site did not find suitable habitat characteristics for the species.
Cactus wren (*Campylorhynchus brunneicapillus*)	Federal: None State: SSC	Coastal sage scrub with thickets, patches, or tracts of large branching cacti, thorny shrubs, and small trees.	Low. Suitable habitat (cactus) not present.
California Horned Lark (*Eremophila alpestris actia*)	Federal: None State: SSC	Found in a variety of open habitats.	Moderate. Site suitable.
Cooper's hawk (*Accipiter cooperii*)	Federal: None State: SWL	Mature forest, open woodlands, parks, and residential areas.	Very Low. Suitable habitat not present.

Table 4 (continued)
SENSITIVE ANIMAL SPECIES WITH THE POTENTIAL TO OCCUR

SPECIES	SENSITIVITY[1]	HABITAT	POTENTIAL TO OCCUR
Double-crested cormorant (*Phalacrocorax auritus*)	Federal: None State: None	Occupies diverse aquatic habitats in all seasons. Diet is primarily fishes. Tolerates only minimal disturbance at nesting colonies.	Very Low. Suitable habitat not present.
Downy woodpecker (*Picoides pubescens*)	Federal: None State: None	Nests in extensive lowland riparian woodland and forest; will forage in many adjacent habitats.	Very Low. Suitable habitat not present.
Least Bell's vireo (*Vireo bellii pusillus*)	Federal: E State: E	Riparian habitat with some tree layer and a dense understory, often of young willows but sometimes mule fat, blue elderberry, California rose, desert wild grape, and a variety of other shrubby species.	Very Low. Suitable habitat not present.
Loggerhead shrike (Lanius ludovicianus)	Federal: SOC State: SSC	Open areas (e.g., grassland, rangeland, fallow agricultural fields), especially where there are scattered large shrubs, trees, or other suitable perches at moderate height.	Moderate. Habitat somewhat suitable.
Northern harrier (*Circus cyaneus*)	Federal: None State: SSC	Coastal lowlands, marshes, mesic grasslands, and agricultural fields.	Low. Site generally unsuitable, possible foraging area.
Osprey (*Pandion haliaetus*)	Federal: None State: SWL	Large water bodies supporting fish with surrounding or nearby suitable nest sites.	Very Low. Suitable habitat not present.
Peregrine falcon (*Falco peregrinus*)	Federal: Delisted State: Delisted, P	Open areas, mud flats with waterfowl, shorebirds. Not currently believed to breed in Riverside County.	Very Low. Suitable habitat not present.

Table 4 (continued) **SENSITIVE ANIMAL SPECIES WITH THE POTENTIAL TO OCCUR**			
SPECIES	**SENSITIVITY[1]**	**HABITAT**	**POTENTIAL TO OCCUR**
Southwestern willow flycatcher (*Empidonax traillii extimus*)	Federal: E State: E	Riparian woodlands along rivers and streams, with mature dense stands of willows, cottonwoods, and sometimes alders. Requires some inundation or soil saturation in riparian areas at least through May.	Very Low. Suitable habitat not present.
Tree swallow (*Tachycineta bicolor*)	Federal: None State: None	During winter and migration, found in open areas, grasslands, meadows, brushlands, and near water sources.	Very Low. Suitable habitat not present.
Tricolor blackbird (*Agelaius tricolor*)	Federal: SOC State: SSC	Freshwater marshes. Suitable breeding habitat includes cattails and bulrushes	Very Low. Suitable habitat not present.
White-faced ibis (*Plegadis chihi*)	Federal: None State: SWL	Nests in large, shallow marshes with islands of emergent vegetation. Forages in a wide variety of marsh and mudflat habitats.	Very Low. Suitable habitat not present.
White-tailed kite (*Elanus leucurus*)	Federal: None State: P	Nests in riparian woodland edges, pasture lands and savannah, oaks, and sycamores. Forages in open areas with short grass and/or forbs.	Moderate. Site suitable as foraging habitat.
Yellow-breasted chat (*Icteria virens*)	Federal: None State: SSC	Nests and forages in dense, low riparian growth, including edges of woods, fencerows, dense thickets, and brambles in low, wet places near streams, pond edges, or swamps and in old overgrown clearings and fields.	Very Low. Suitable habitat not present.

Table 4 (continued)
SENSITIVE ANIMAL SPECIES WITH THE POTENTIAL TO OCCUR

SPECIES	SENSITIVITY[1]	HABITAT	POTENTIAL TO OCCUR
Yellow warbler (*Dendroica petechia brewsteri*)	Federal: None State: SSC	Nests in mature riparian forest and woodland, foraging largely in the upperstory; more common as a spring and fall migrant in varied habitats.	Very Low. Suitable habitat not present.
Mammals			
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	Federal: None State: SSC	Coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon juniper, and annual grassland in sandy herbaceous areas, usually in association with rocks or coarse gravel.	Low. Site somewhat suitable.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	Federal: None State: SSC	Arid regions supporting short-grass habitats such as annual grassland, often adjacent to or mixed with Riversidian sage, scrub, alluvial fan scrub, Great Basin sagebrush, chaparral, disturbed habitat, or agriculture.	Moderate. Habitat suitable. Likely would have been detected (scat, direct observation) if present.
Stephens' kangaroo rat (*Dipodomys stephensi*)	Federal: E State: T	Inhabits annual grassland with sparse perennial vegetation and open sage scrub in the San Jacinto Valley and adjacent areas of western Riverside County and northwestern San Diego County.	Very Low. A habitat assessment conducted on the site did not find suitable habitat characteristics for the species.

[1]See Appendix F for an explanation of sensitivity codes.

5.0 PROJECT IMPACT ANALYSIS

5.1 DIRECT IMPACTS

This section analyzes the Project's effects on the sensitive biological resources. CEQA Significance Determination Thresholds (State 2014) are used to establish whether or not there is a significant effect. A significant effect is defined as a "substantial or potentially substantial adverse change in the environment." The CEQA Guidelines (Appendix G) further indicate that there may be a significant effect on biological resources if a project will:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service;

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.1.1 Vegetation Communities

Approximately 23.5 acres would be impacted upon implementation of the proposed project (Figure 3; Table 5). The impacted areas include brittlebush scrub, non-native grassland, and developed land.

Table 5
PROJECT IMPACTS

Vegetation Communities[1]	Total
Brittlebush scrub	**21.4**
Non-native grassland	**2.1**
Developed	**< 0.1**
TOTAL IMPACTS	**23.5**

[1]Upland acreages rounded to 0.1

Upland Vegetation Communities

Brittlebush Scrub

21.4 acres of brittlebush scrub will be impacted upon implementation of the proposed project (Figure 3, Table 5).

Non-native Grassland

Approximately 2.1 acres of non-native grassland would be impacted upon implementation of the proposed project (Figure 3; Table 5).

Other Uplands

Developed

Less than 0.1 acre of non-sensitive developed land would be impacted upon implementation of the proposed project (Figure 3; Table 5).

5.1.2 Waters of the U.S./Waters of the State

The project would impact approximately 0.05 acre of Corps non-wetland WUS and 0.17 acre of CDFW streambed (Figure 4). The Corps area is included within the CDFW area. The impact would occur within ephemeral channels in the central portion of the site. Impacts to this jurisdictional feature would require permits from the Corps, RWQCB, and the CDFW.

5.1.3 Sensitive Plant Species

Implementation of the proposed project would not impact any sensitive plant species.

5.1.4 Sensitive Animal Species

Implementation of the proposed project would impact the habitat of the federally listed threatened Coastal California gnatcatcher. Impacts to this species would be considered significant. Given that the project is not within the MSHCP, there is no USFWS take authorization for impacts to the listed CAGN. As such, take authorization is anticipated to be obtained through a Section 7 Consultation between the Corps and the USFWS (refer to Section 3.1.1). The Corps will request the consultation with the USFWS as part of the permitting process for the jurisdictional impacts on site. The USFWS will analyze the project per the FESA and will issue a Biological Opinion (BO) for the project. The BO will be the document that will provide the authorization to impact (Take) the occupied CAGN habitat. No other federal- or state-listed animal species would be directly impacted by the proposed project.

Impacts to the orange-throated whiptail, red-diamond rattlesnake, and Southern California rufous-crowned sparrow are not considered significant because of these species' low sensitivity. There would be cumulatively significant impacts to raptor foraging habitat.

5.1.5 Sensitive Plant and Animal Species with Potential to Occur

As shown in Tables 3 and 4, the potential for additional sensitive plant species to occur on site is generally low. Impacts to federal- and state-listed plants on site would be considered significant. The potential for additional federal- or state-listed plants to occur on site ranges is very low. Additionally, the presence of other sensitive, non-listed, plant species would not be considered significant due to their low levels of sensitivity.

Of those animal species not observed but with the potential to occur on site, impacts to the federal-listed endangered quino checkerspot butterfly, Stephens' kangaroo rat, and the sensitive (non-listed) burrowing owl would be considered significant. The quino checkerspot butterfly was not observed during focused surveys. Additionally, habitat assessments for the Stephens' kangaroo rat and the burrowing owl were negative. The remaining sensitive animal species with the potential to occur are not federal- or state-listed and are not anticipated to occur on site due to unsuitable habitat conditions. Because of their low level of sensitivity, impacts to other potentially occurring species would not be considered significant if present on site.

5.2 INDIRECT IMPACTS

Potential indirect project impacts consist of secondary effects of the project, including habitat insularization, drainage/water quality, lighting, noise, exotic plant species, raptor foraging/nesting, and nuisance animal species. The magnitude of an indirect impact can be the same as a direct impact, but the effect usually takes a longer time to become apparent. Many of these potential indirect impacts are associated with residential development and not anticipated to be significant for this project. Potential indirect impacts are discussed in detail below.

Habitat Insularization

Habitat insularization is the fragmentation of large habitat areas into smaller "islands" effectively isolated from one another. Such fragmentation presents barriers to wildlife movement and breeding, splits animal and plant populations, and increases edge effects. Often, habitat insularization is associated with local species extirpation, since smaller habitat areas support relatively fewer species than larger ones.

Drainage/Water Quality

Runoff due to irrigation is often associated with increased erosion, sedimentation, and pollution, which could significantly impact water quality in adjacent sensitive habitats. Landscaping and irrigation are not a part of the mining operation; as such, indirect impacts related to landscaping and irrigation are not anticipated to be significant for this project. The use of structural and non-structural Best Management Practices, Best Available Technology, and use of sediment catchment devices downstream of paving activities shall reduce potential impacts associated with construction. The project design shall comply with the Standard Urban Stormwater Management Plan and Municipal Stormwater Permit criteria of the RWQCB and City.

Lighting

Night lighting exposes adjacent wildlife species to an unnatural light regime, may alter their behavior patterns, and consequently result in a loss of species diversity. Lighting for the mine expansion will be minimal given the nature of on-site activities and hours of operation. Lighting is not anticipated to have a significant impact on adjacent wildlife communities.

Noise

Noise from such sources as clearing, grading, blasting, and vehicular traffic associated with mining would be considered significant if sensitive species (in this case, the coastal California gnatcatcher) were displaced from their nests or territories and failed to breed. Nesting habitat for the coastal California gnatcatcher occurs in brittlebush scrub east of the EDA.

Significant indirect noise impacts to breeding gnatcatchers would occur if clearing, grubbing, grading, blasting, or other mining activities create noise in excess of 60 decibels (dB) hourly average in gnatcatcher-occupied brittlebush scrub during the gnatcatcher breeding season (February 15 to August 30).

Exotic Plant Species

Non-native plants could colonize areas disturbed by construction and could potentially spread into the adjacent vegetation communities, particularly following disturbances such as fire. Such invasions could displace native plant species, reducing diversity, increasing flammability and fire frequency, change ground and surface water levels, and adversely affect the native wildlife that are dependent on native vegetation. Invasion of exotic plant species would not occur from the Project because the landscaping associated with the Reclamation Plan revegetation plan will not include any of these species. Rather, it will include a seed mix of native annual and perennial herbaceous and shrub species found in the Study Area and/or in similar scrub communities in southwestern California.

Raptor Foraging/Nesting

Loss of sensitive non-native grassland would result in a cumulative loss of raptor foraging habitat. This impact would be mitigated in conjunction with the upland habitat mitigation for the project. Impacts to nesting raptors may occur if construction occurs within the raptor breeding season (February 1 to September 15).

Nuisance Animal Species

As the Project does not involve residential development, the potential for domestic animals to enter the site vicinity is low to none. Therefore, potential impacts to sensitive wildlife in the area is less than significant.

6.0 MITIGATION MEASURES

The project would significantly impact sensitive vegetation communities and sensitive plant and animal species. The following measures are proposed to mitigate for these direct and indirect impacts. Successful implementation of the mitigation measures in this section would reduce each impact to less than significant level.

6.1 MITIGATION FOR DIRECT IMPACTS

6.1.1 Jurisdictional Features

Prior to the issuance of a grading permit, the Project applicant will obtain the necessary authorizations from the regulatory agencies for proposed impacts to jurisdictional waters. Authorizations may include a Section 404 Permit, Section 1602 Streambed Alteration Agreement from CDFW, and a Section 401 Water Quality Certification/Waste Discharge Requirement from the Regional Board. Impacts to jurisdictional waters will be mitigated at a 1:1 ratio, pending approval from the appropriate regulatory agencies. Table 6 presents the amount of wetland mitigation proposed for the Project.

Table 6
JURISDICTIONAL MITIGATION

Jurisdictional Feature	Impact	Mitigation Ratio	Mitigation
Corps Non-wetland WUS	**0.05**	**1:1**	**0.05**
CDFW Streambed	**0.17**	**1:1**	**0.17**
TOTAL[1]	**0.17**		**0.17**

[1] The jurisdictional impacts and mitigation overlap and are not additive.

The 0.17 acre jurisdictional mitigation requirement will be met through payment into a suitable mitigation bank or through suitable habitat restoration. The final mitigation will be determined through agency consultation during the permitting process. Final agency determined mitigation will supersede the identified jurisdictional mitigation measures identified in this report.

6.1.2 Upland Vegetation Communities

Mitigation is proposed at a 1.5:1 ratio for brittlebush scrub impacts and at a 0.5:1 ratio for non-native grassland habitat (Table 7). The mitigation will be met through payment into a habitat mitigation bank acceptable to the City, preservation of habitat acceptable to the City, or a combination thereof. If mitigation credits are proposed, the approved mitigation bank must have sufficient credits available for non-native grassland and coastal sage scrub (of which brittlebush scrub is a subset) habitats. Coastal sage scrub credits also may be used for non-native grassland mitigation as it is considered to be a higher quality habitat.

Habitat proposed to be preserved as brittlebush scrub mitigation must meet the general criteria for coastal sage scrub habitat (Holland 1986) and be of high quality. Habitat preserved for non-native grassland impacts must meet the criteria for non-native grassland habitat (Holland 1986).

Non-native grassland impacts also may be mitigated through preservation of coastal sage scrub habitat as it is considered to be a higher quality habitat.

Impacts to developed land are not considered significant, and mitigation would not be required.

Table 7
UPLAND MITIGATION

Vegetation Communities	Impact	Mitigation Ratio	Mitigation
Brittlebush scrub	**21.4**	**1.5:1**	**32.1**
Non-native grassland	**2.1**	**0.5:1**	**1.1**
Developed	**<0.1**	**--**	**--**
TOTAL	**23.5**	**--**	**33.2**

6.1.3 Coastal California Gnatcatcher

The Project will directly impact occupied CAGN habitat (brittlebush scrub). Direct impacts to CAGN habitat shall be mitigated in accordance with mitigation measures discussed above, under Upland Vegetation Communities. In addition, the USFWS BO (refer to Sections 3.1.1 and 5.1.4) will identify specific Conservation Measures to be implemented for the take of the occupied CAGN habitat on site. It is anticipated that these BO measures will coincide with the upland habitat mitigation identified in Section 6.1.2 above.

6.1.4 Nesting Birds

To avoid any direct impacts to the CAGN, raptors, and/or any native/migratory birds protected by the MBTA, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the general avian breeding season (February 15 to September 15). If vegetation must be removed during this season, a qualified biologist will conduct a nesting bird survey of potentially suitable nesting vegetation prior to removal. Surveys will be conducted no more than three (3) days prior to scheduled removals. If active nests are identified, the biologist will establish buffers around the vegetation containing the active nest (300 feet for the CAGN and raptors; 100 feet for other non-raptors). The vegetation containing the active nest will not be removed, and no grading will occur within the established buffer, until a qualified biologist has determined that the nest is no longer active (i.e., the juveniles are surviving independent from the nest). If clearing is not conducted within three days of a negative survey, the nesting survey must be repeated to confirm the absence of nesting birds.

6.2 MITIGATION FOR INDIRECT IMPACTS

To avoid significant noise impacts to nesting coastal California gnatcatchers, the following measures shall be implemented.
Mining activities located more than 315 feet away from the open space area east of the EDA can occur without limitations. If between February 15 and August 30 (the breeding season of the coastal California gnatcatcher) mining activities will move within 315 feet of the open space, or if mining activities are already occurring within 315 feet of the open space and will move closer to the open space, then a qualified biologist shall conduct a nesting survey for the coastal California gnatcatcher in the open space area that falls within 315 feet of the planned mining activity. The survey shall be conducted no more than seven days before the mining activity moves closer to the open space. If the nesting survey is negative, then mining activities may move closer to the open space within seven days of the nesting survey. In the event that a nesting survey is positive, then mining activities shall not be allowed to move within 315 feet of the bird's nest (or any closer to the nest if mining is already occurring within 315 feet) until the nesting period ends (August 30) or until a qualified biologist has determined that the young have fledged or the nest is no longer active. Areas subject to avoidance shall be marked with orange construction fencing. Compliance with these requirements will be assured through the annual mining inspections, as required and reviewed by the Office of Mine Reclamation and Department of Conservation.

Within three days prior to any blasting activities within the proposed EDA from February 15 through August 30, a nesting survey shall be conducted by a qualified biologist within 1,250 feet of the blasting site. If any are nests located within 1,250 feet and within line-of-sight of the blasting site, no blasting shall occur until August 30 or until a qualified biologist has determined that the young have fledged or the nest is no longer active. If any active nests are located within 500 feet but not within line-of-sight of the blasting site, blasting may proceed after verification by the biologist that the nest is not in the line of sight. All vegetation within areas that would be subject to mining during the next nesting season (February 15 through August 30) must be cleared outside the nesting season at least 2 weeks prior to blasting and no more than 1 year prior to blasting.

Blasting activities outside the nesting season (September 1 through February 14) shall not have vegetation present within 50 feet of the actual blast site. This vegetation must be cleared at least 2 weeks and no more than 1 year prior to blasting.

6.3 CONSTRUCTION MEASURES

6.3.1 Pre-Construction Meeting

A qualified Biologist shall attend the preconstruction meeting, discuss the project's biological monitoring program, and arrange to perform any follow up mitigation measures and reporting including site-specific monitoring, restoration or revegetation, and additional fauna/flora surveys/salvage. During the meeting the biologist shall educate all construction personnel on the biological requirements of the project and clearly identify avoidance areas.

6.3.2 Monitoring

All construction (including access/staging areas) shall be restricted to areas previously identified, proposed for development/staging, or previously disturbed. A qualified Biologist shall monitor initial clearing activities as needed to ensure that impacts do not encroach into biologically sensitive areas, or cause other similar damage, and that the work plan has been amended to accommodate any sensitive species located during the pre-construction surveys.

7.0 REFERENCES

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Appendix A

Coastal California Gnatcatcher Protocol Survey Report

2015 Report
U.S. Fish and Wildlife Service Protocol Level Presence/Absence Surveys for the Coastal California Gnatcatcher (*Polioptila californica californica*)

Prepared for:

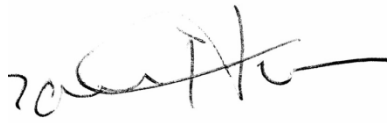
Nichols Road Partners, LLC

Prepared by:

Alden Environmental, Inc.
3245 University Ave., #1188
San Diego, CA 92104

June 1, 2015

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



Garrett Huffman (TE20168A-0)

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INTRODUCTION

This report documents the results of a focused survey conducted for the coastal California gnatcatcher (*Polioptila californica californica*; CAGN) on the Nichols Road Mine project site. The project site is located on an approximately 34-acre parcel (APN's 389-200-035 and 389-200-036) in the City of Lake Elsinore, east of I-15 and just north of Nichols Road in Riverside County (Figures 1 and 2).

The site is bordered to the west by the existing Nichols Road Mine facilities, to the north and east by undeveloped lands, and to the south by residential development and Temescal Canyon High School. The site is hilly with on-site elevations ranging from approximately 1320 feet to 1840 feet above mean sea level.

METHODS

The surveys were performed in accordance with the Year 1997 Survey Protocol Information (USFWS 1997) by US Fish & Wildlife Service (USFWS) permitted biologists Garrett Huffman (TE20168A-0). The project site is not located within a Natural Community Conservation Planning (NCCP) area; therefore, the USFWS survey protocol calls for 6 visits during the breeding season. Only 3 survey visits were conducted; however, as the CAGN was confirmed on site and there was no need to continue surveys. See below for additional discussion regarding results of the surveys. The surveys were conducted between April 2 and April 22, 2015. Each survey covered all 34 acres of habitat on site. Dates, times, and weather conditions at the start and end of each survey are presented in Appendix A. The survey was conducted by walking through, and adjacent to, suitable CAGN habitat on site. Birds were viewed with the aid of binoculars, where necessary. Recorded CAGN vocalizations ("mew calls") were broadcast for approximate 5-second durations at approximately 50-yard increments along the survey route, or as needed to adequately cover each suitable habitat patch. Recorded vocalizations were only broadcast to initially detect the possible presence of CAGNs. Copies of field notes from each survey are presented in Appendix B.

VEGETATION COMMUNITIES

Two sensitive vegetation communities occur on site: Riversidean sage scrub and non-native grassland. Less than 1 acre of developed area also occurs on site.

Riversidean Sage Scrub

Riversidean sage scrub occupies xeric (dry) sites characterized by shallow soils. This habitat is dominated by subshrubs whose leaves abscise during the summer and may be replaced by a lesser amount of small leaves. This adaptation allows these species to better withstand the prolonged dry period in the summer and fall. Riversidean sage scrub occurs throughout the majority of the study area (Figure 3). Predominant plant species in this community on site include California sagebrush (*Artemisia californica*) and brittlebush (*Encelia farinosa*). Approximately 29 acres of Riversidean sage scrub habitat occurs on site.

Non-native Grassland

Approximately 4 acres of non-native grassland occurs on site (Figure 3). Characteristic species within this vegetation community on site include wild oats (*Avena* spp.), foxtail chess (*Bromus madritensis* ssp. *Rubens*), ripgut grass (*B. diandrus*), filaree (*Erodium* spp.), and mustard (*Brassica* sp.) This habitat is not considered suitable for the CAGN.

SURVEY RESULTS

A family unit of two juveniles and an adult pair was observed during each visit in the southern portion of the site. A nest with four nestlings was observed in the same area during the last visit. All of the Riversidean sage scrub habitat on site was determined to be occupied by the CAGN by the third survey visit; therefore, additional visits were not required and the overall survey was terminated.

REFERENCES

USFWS. 1997. Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Guidelines. February 28.

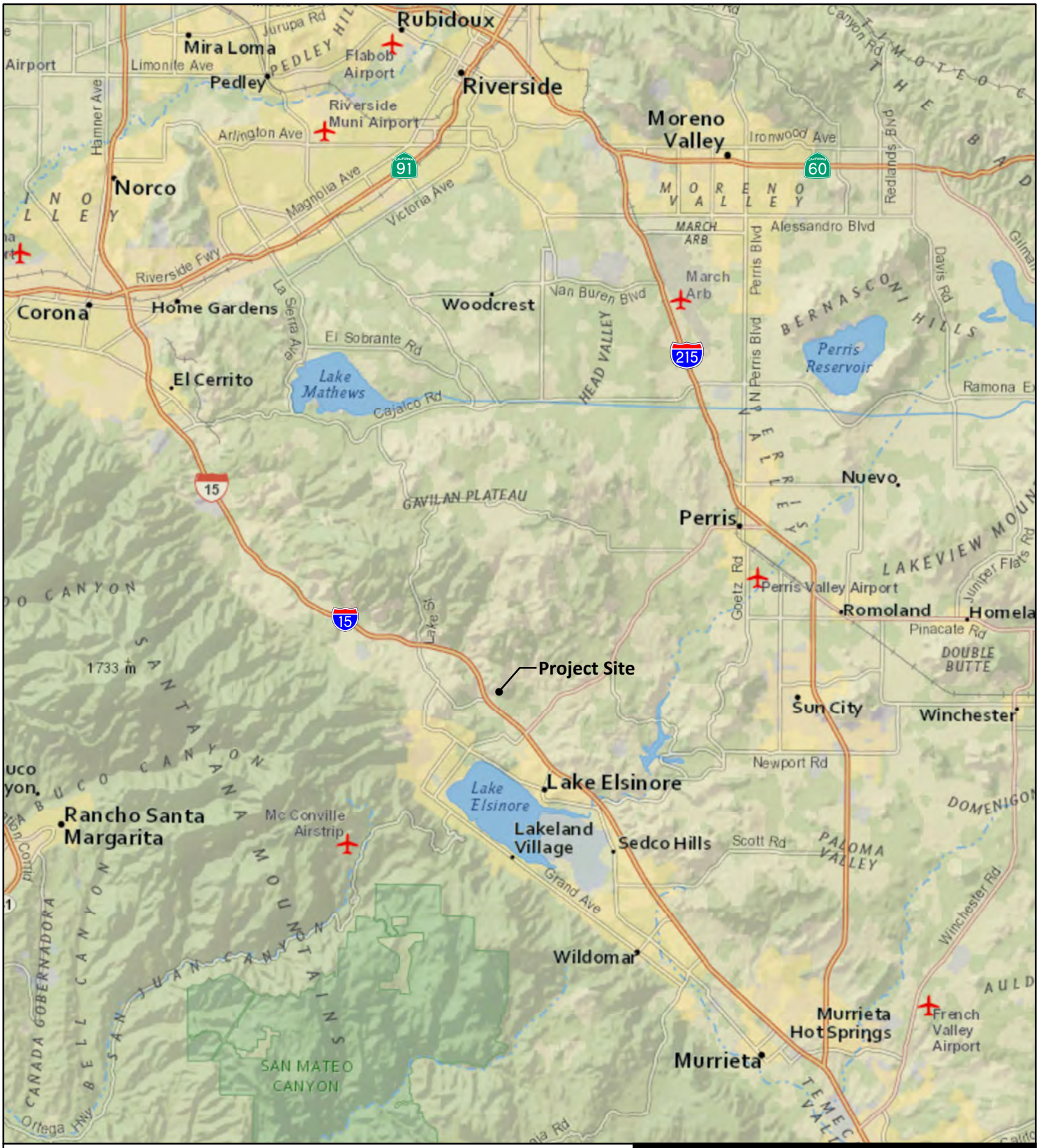
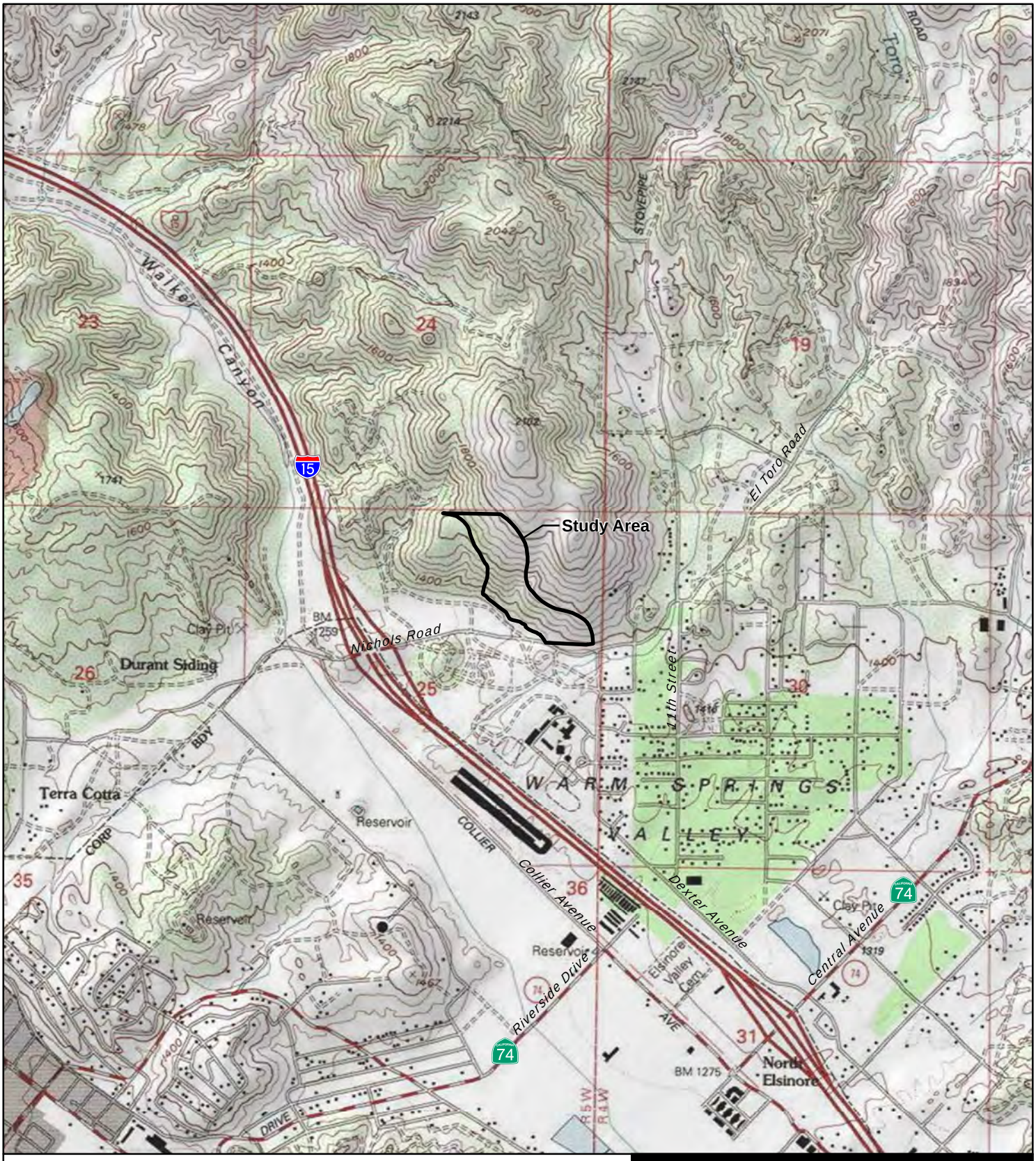


Figure 1

Regional Location

NICHOLS ROAD MINE PROJECT
COASTAL CALIFORNIA
GNATCATCHER SURVEY



Source: USGS 7.5' Quads (Lake Elsinore); Copyright:© 2013 National Geographic Society, i-cubed

N
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Figure 2

USGS Topographic Map

NICHOLS ROAD MINE PROJECT
COASTAL CALIFORNIA
GNATCATCHER SURVEY

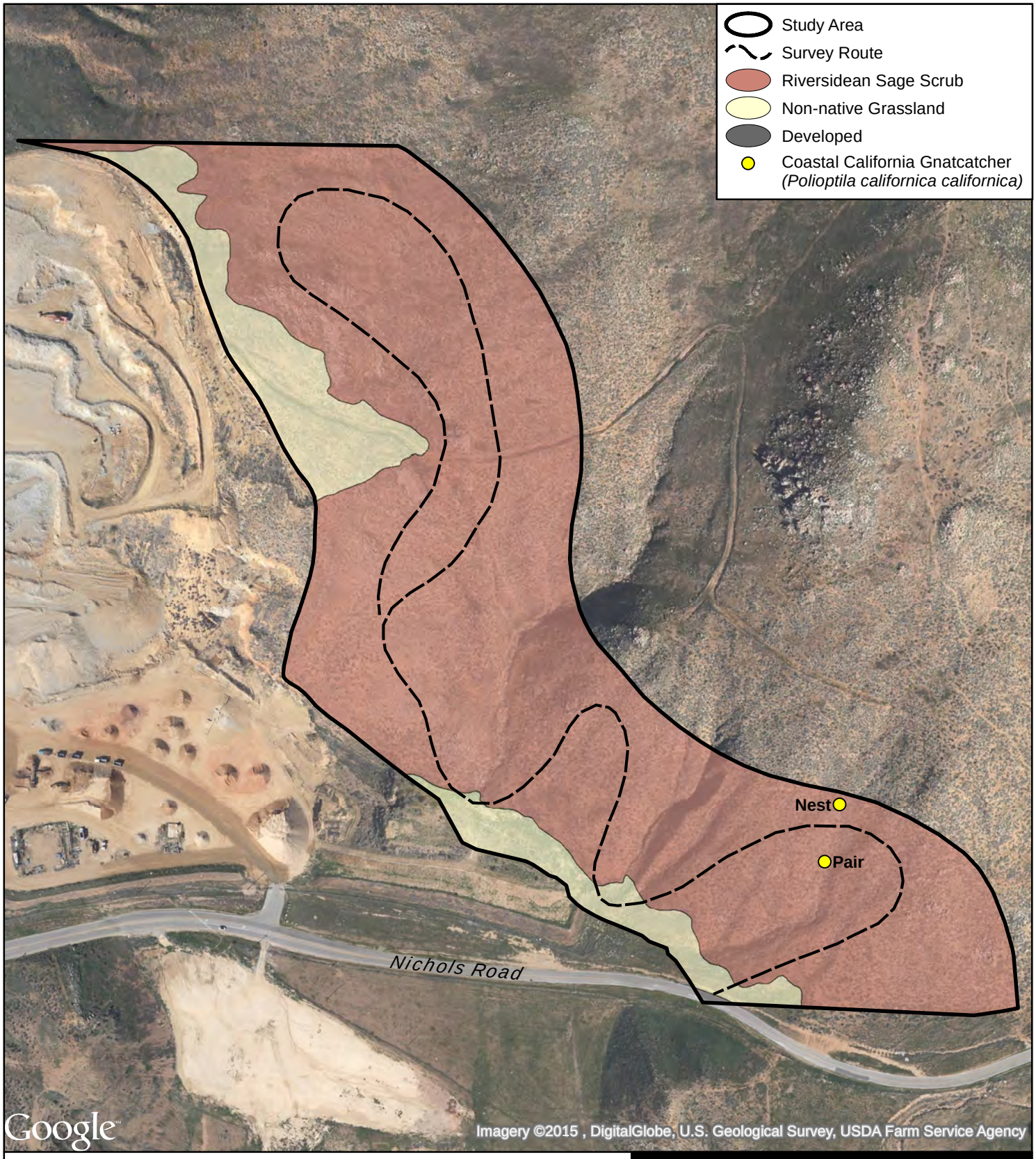

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Figure 3

Survey Results

NICHOLS ROAD MINE PROJECT
COASTAL CALIFORNIA
GNATCATCHER SURVEY

Appendix A
SUMMARY OF FIELD SURVEY CONDITIONS

Survey	Date	Biologist	Survey Times (start/stop)	Acres/Hour	Weather Conditions (start/stop)[1]
1	4/2/15	Garrett Huffman	0630/1030	8.5	80% cloud cover, 60°F, wind 0-2 mph/ 5%, 70°F, wind 1-3 mph
2	4/11/15	Garrett Huffman	0645/1000	10.5	0%, 51°F, wind 0-2 mph/ 0%, 69°F, wind 0-2 mph
3	4/22/15	Garrett Huffman	0700/1000	11	100%, 67°F, wind 2-4 mph/ 50%, 72°F, wind 0-2 mph

[1]Temperature was taken on the ground in the shade; percentages indicate cloud cover.

Appendix B
COPIES OF FIELD NOTES

ROCKS
BIOLOGICAL CONSULTING

Project Name: NICHOLS ROAD

Surveyor Name: GARRETT HUFFMAN, WENDY ROGERS

Date: 4/2/15 Survey # 1

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0630	60	80	0-2
End	1030	70	5	1-3

General Habitat Description:
ENCELIA FARINOSA SCRUB

CAGN observations and notes:
0730: CAGN VOCALIZATION HEARD 300 FT AWAY.
0745: A FAMILY UNIT OF 2 JUVENILES AND ADULT PAIR WERE OBSERVED MOVING WITHIN BRITTLEBUSH (ENCELIA FARINOSA). PASSIVE SURVEYING WAS CONDUCTED FROM 0745 TO 0900. ADULT PAIR OBSERVED REGULARLY FORAGING AND FEEDING BOTH JUVENILES. FAMILY UNIT FREQUENTED AN AREA OF APPROXIMATELY 300 X 300 FT. ADULTS AND JUVENILES WERE HEARD VOCALIZING DURING REMAINDER OF SURVEY WHILE CONDUCTING TRANSECTS FOR ANY ADDITIONAL POTENTIAL CAGN WITHIN SURVEY AREA. NO ADDITIONAL CAGN DETECTED.

Wildlife Species Observed:
AVIAN SPECIES: RCSP, HOFI, CATO, WCSP, KILL, SAGS, MODO, ROAD, CAGN, CORA, ANHU, WTSW, WEME, GREG
CROTALUS RUBER
ORANGE-THROATED WHIPTAIL
SIDE-BLOTCHED LIZARD
GRANITE SPINY LIZARD

ROCKS
BIOLOGICAL CONSULTING

Project Name: NICHOLS

Surveyor Name: GARRETT HUFFMAN

Date: 4/11/15 Survey # 2

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0645	51	~~0-2~~ 0%	0-2
End	1000	69	0%	0-2

General Habitat Description:
ENCELIA FARINOSA SCRUB

CAGN observations and notes:
0700-1000: INITIAL DETECTION OF CAGN OCCURRED THROUGH VOCALIZATION. 15 MINUTES LATER VISUAL OBSERVATION OF A FAMILY UNIT, CONSISTING OF A PAIR AND TWO JUVENILES, WAS MADE. 4 INDIVIDUALS WERE MONITORED WHILE FORAGING, ALL IN FAIRLY CLOSE PROXIMITY TO EACH OTHER. 2 INDIVIDUALS EVENTUALLY FLEW TO THE WESTERN PORTION OF SURVEY AREA. CAREFUL METHODOLOGY WAS IMPLEMENTED TO DETERMINE AN ACCURATE COUNT OF CAGN AND TERRITORY SIZE. CONCLUSION ~~DEA~~ DETERMINED THAT ONLY ONE FAMILY UNIT, CONSISTENT WITH SURVEY #1's OBSERVATIONS, IS PRESENT WITH EXPANDING FORAGING TERRITORIES.

Wildlife Species Observed:
AVIAN SPECIES: RCSP, CATO, HOFI, BUSH ANHU, CURA, WCSP, TUVU, KILL, WTSW, WEKI, ROWR, RTHA

GENERAL WILDLIFE: GRANITE SPINY LIZARD TIGER WHIPTAIL, SIDE-BLOTCHED LIZARD, ORANGE-THROATED WHIPTAIL, RED COACHWHIP

General Habitat Description:

COASTAL SAGE SCRUB

ROCKS BIOLOGICAL CONSULTING

Project Name: NICHOLS ROAD

Surveyor Name: GARRETT HUFFMAN

Date: 04/22/15 Survey # 3

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0700	67	100	2-4
End	1000	72	50	0-2

CAGN observations and notes:

0715 - HEARD VOCALIZING CAGN. OBSERVED MALE CAGN FORAGING. MONITORED ~~BEHAVIORS~~ MALE CARRYING FOOD BACK TO A COMPLETED NEST. NEST LOCATED APPROXIMATELY 3 FT UP IN AN ENCELIA FARINOSA. NEST CONTAINS 4 NESTLINGS.

NEST LOCATION: 467667E 3729915N

MALE & FEMALE PAIR OBSERVED MAKING FREQUENT TRIPS TO NEST FEEDING NESTLINGS.

2 MORE CAGN IMMATURES DETECTED IN SURVEY AREA WEST OF NEST LOCATION - PRESUMABLY OFFSPRING FROM OBSERVED PAIR. THESE OBSERVATIONS ARE CONSISTENT WITH PREVIOUS TWO VISITS.

Wildlife Species Observed:

AVIAN SPECIES: WTSW, MODO, VERD, ROWR, CAGN, CATO, LORA, BUSH, SAGS, RLSH.

- SIDE-BLOTCHED LIZARD
- GRANITE SPINY LIZARD

Appendix B

Quino Checkerspot Butterfly Protocol Survey Report

2015 Report
U.S. Fish and Wildlife Service Protocol Level Presence/Absence Surveys for the Quino Checkerspot Butterfly (*Euphydryas editha quino*)

Prepared for:

Nichols Road Partners, LLC

Prepared by:

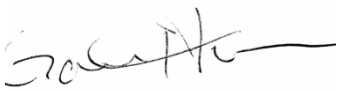
Alden Environmental, Inc.
3245 University Ave., #1188
San Diego, CA 92104

June 1, 2015

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Jim Rocks (TE-063230-4)

Lee Ripma (TE-221290-3.1)



Garrett Huffman (TE-20168A-0)

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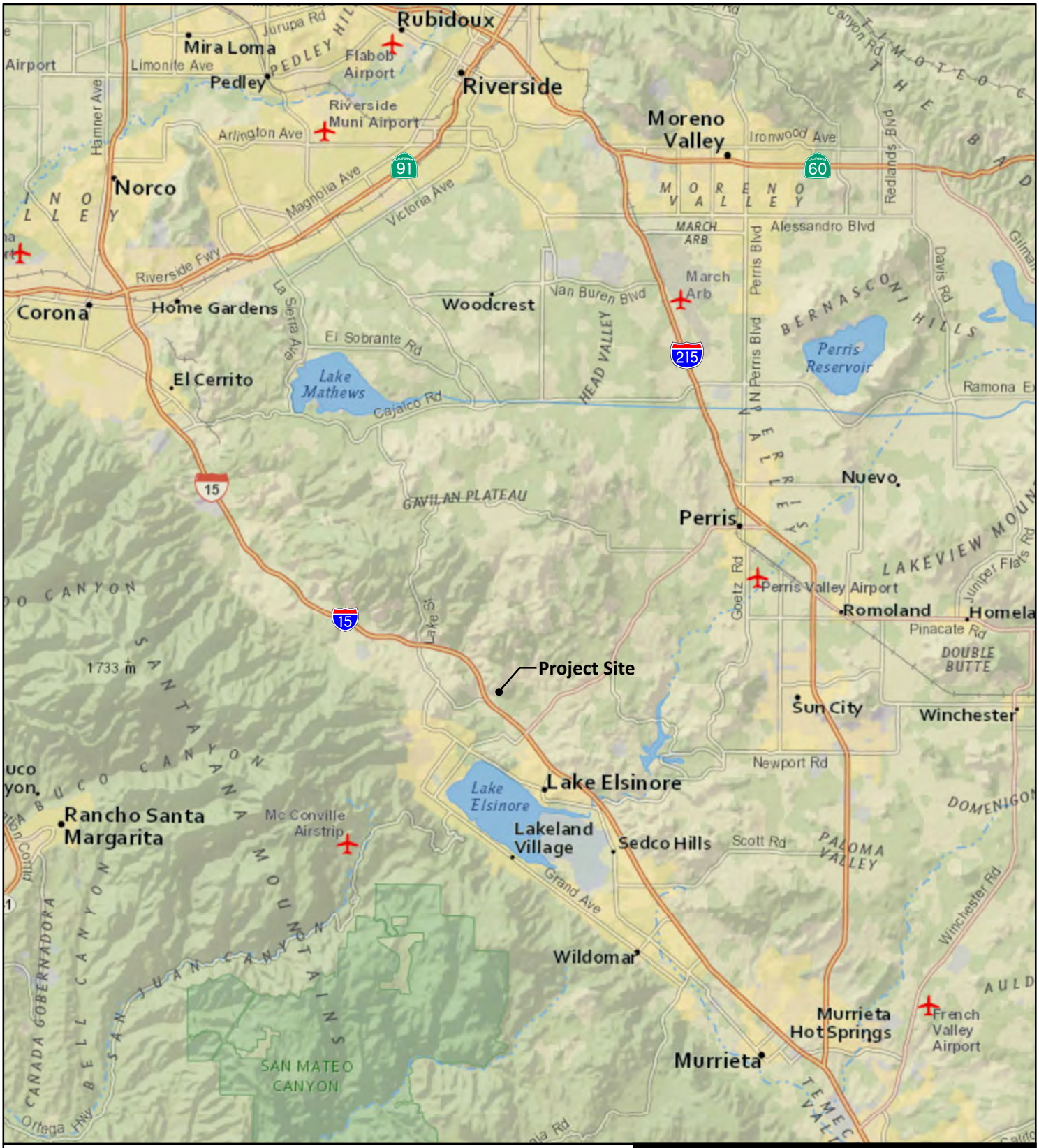

Figure 1

Regional Location

NICHOLS ROAD MINE PROJECT
QUINO CHECKERSPOT BUTTERFLY SURVEY

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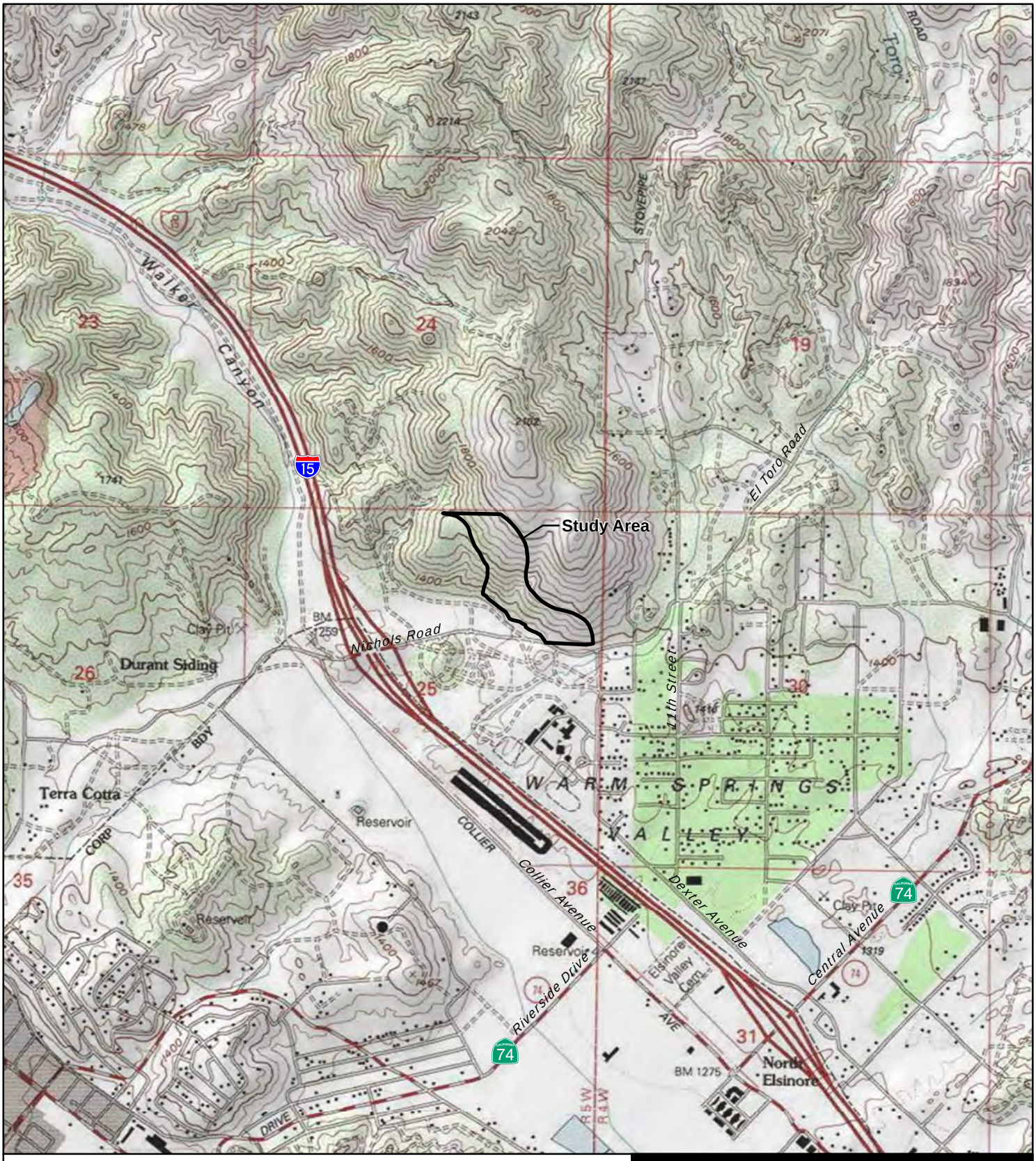

Source: USGS 7.5' Quads (Lake Elsinore); Copyright:© 2013 National Geographic Society, i-cubed

N
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0 1,000 2,000 Feet

ALDEN ENVIRONMENTAL, INC

Figure 2

Project Location

NICHOLS ROAD MINE PROJECT
QUINO CHECKERSPOT BUTTERFLY SURVEY

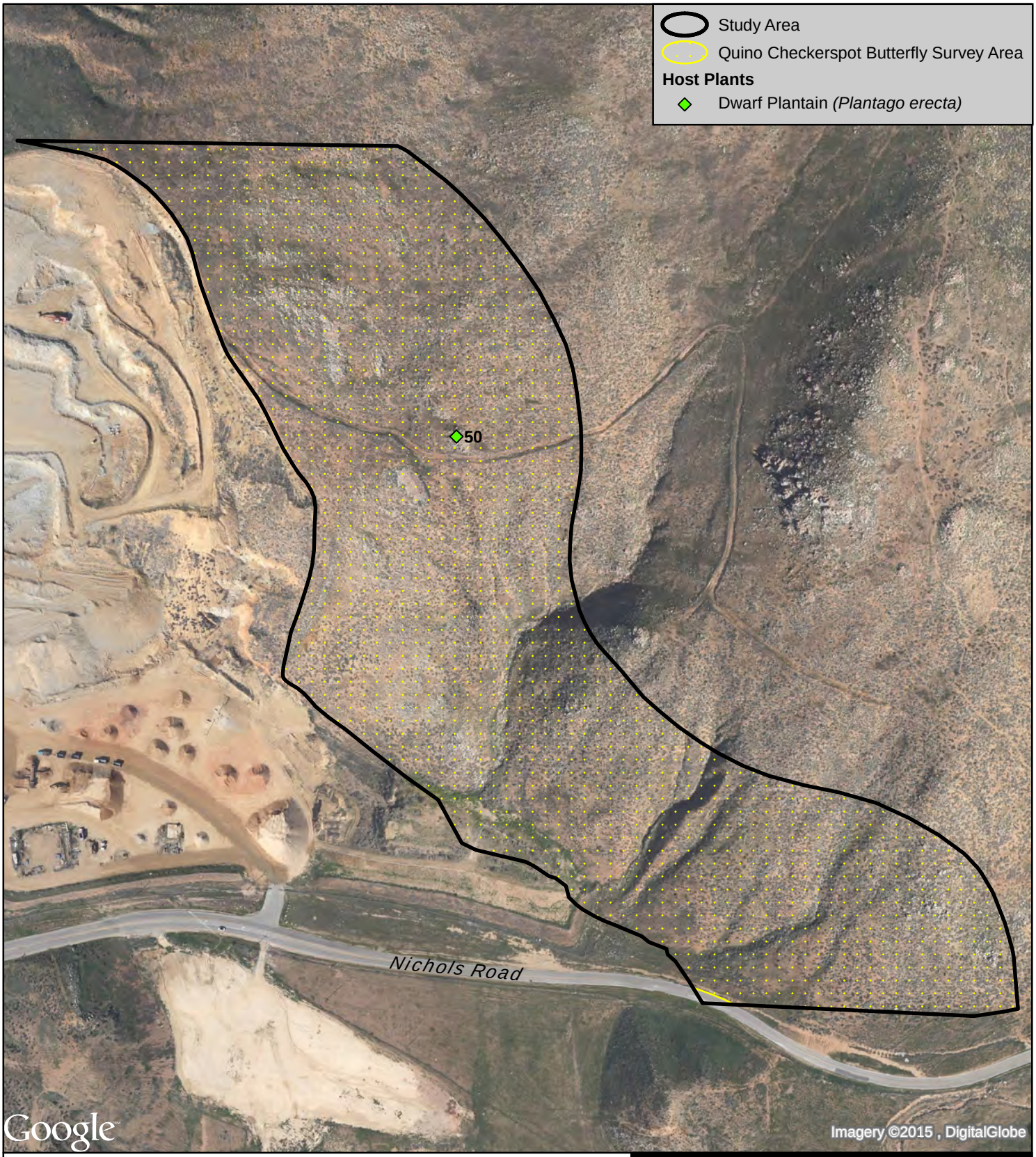

Figure 3

Survey Area

NICHOLS ROAD MINE PROJECT
QUINO CHECKERSPOT BUTTERFLY SURVEY

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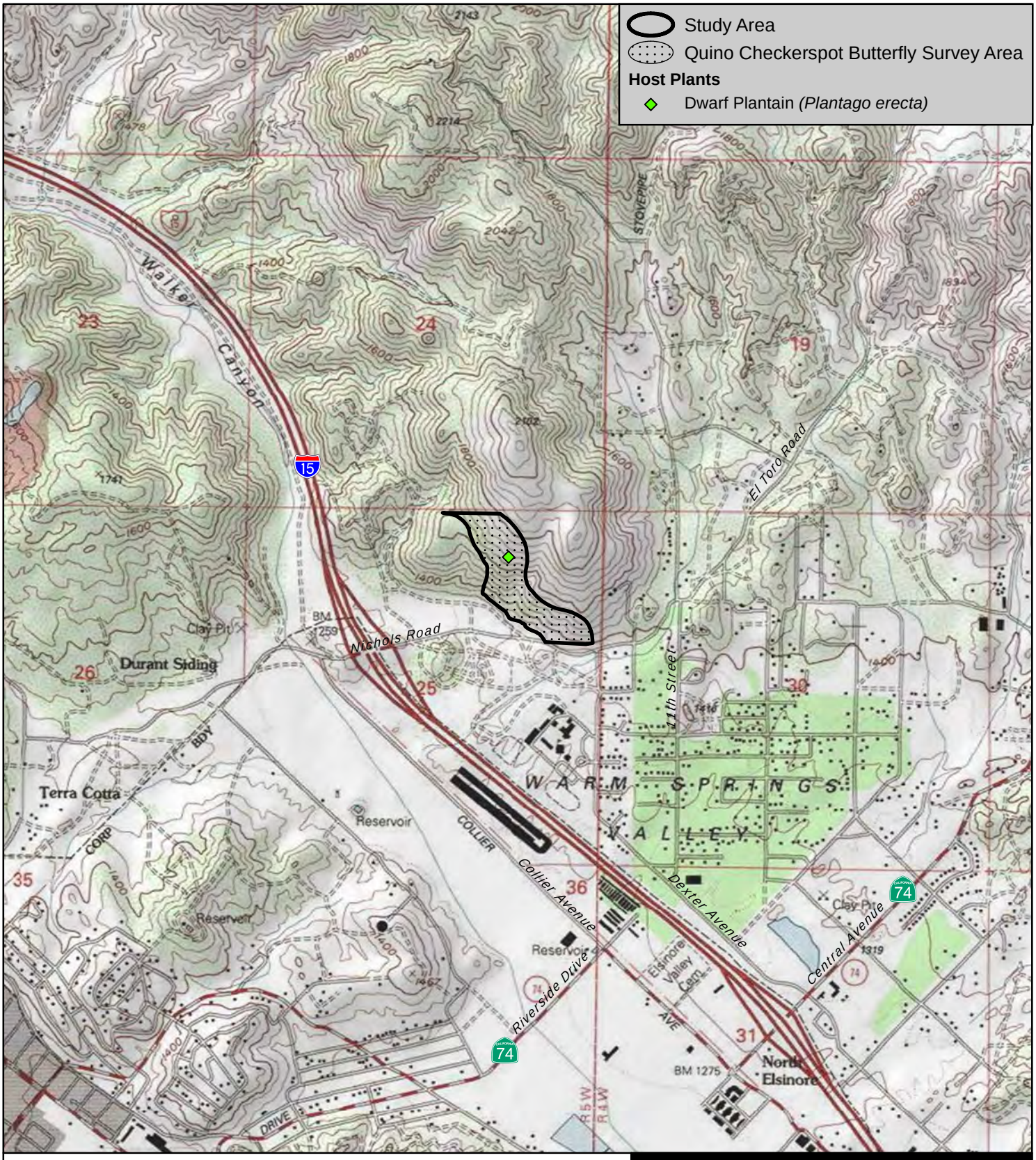
0 150 300 Feet

ALDEN ENVIRONMENTAL, INC



Source: USGS 7.5' Quads (Lake Elsinore); Copyright:© 2013 National Geographic Society, i-cubed

Figure 4

QCB Site Assessment Map

NICHOLS ROAD MINE PROJECT
QUINO CHECKERSPOT BUTTERFLY SURVEY

ALDEN ENVIRONMENTAL, INC

INTRODUCTION

This report documents the results of a focused survey conducted for the federally listed as endangered quino checkerspot butterfly (QCB; *Euphydryas editha quino*) on the Nichols Road Mine project site. The project site is located on an approximately 34-acre parcel (APN's 389-200-035 and 389-200-036) in the City of Lake Elsinore, east of I-15 and just north of Nichols Road in Riverside County (Figures 1 and 2).

The site is bordered to the west by the existing Nichols Road Mine facilities, to the north and east by undeveloped lands, and to the south by residential development and Temescal Canyon High School.

METHODS

The surveys were performed in accordance with the Year 2014 Survey Protocol Information (USFWS 2014a) and Survey Guidelines (USFWS 2014b) by USFWS permitted biologists Jim Rocks (TE063230-4), Lee Ripma (TE221290-3.1), and Garrett Huffman (TE20168A-0). A total of 12 protocol surveys were conducted on site. All surveys were conducted between February 20 and May 7, 2015. Dates, times, and weather conditions at the start and end of each survey are presented in Appendix A. The surveys were conducted by slowly walking (approximately 10 - 12 acres per hour) transects across the site and noting butterflies and/or potential QCB resources present. The entire Project site was surveyed, and no areas were excluded. Copies of field notes from each survey are presented in Appendix B. Lists of butterflies observed during each survey are presented in Appendix C.

RESULTS

The site is hilly with on-site elevations ranging from approximately 1,320 feet to 1,840 feet above mean sea level. Vegetation communities on site consist of Riversidean sage scrub, non-native grassland habitat, and developed areas. A patch of the primary host plant for QCB (*Plantago erecta*) was observed in the northern portion of the site during the surveys, however, no QCB or larvae were observed on site. Based on the negative results, the site does not support the QCB.

REFERENCES

U.S. Fish and Wildlife Service (USFWS). 2014a. Quino Checkerspot Butterfly (*Euphydryas editha quino*) 2014 Survey Protocol Information. February.

2014b. Quino Checkerspot Butterfly 2014 Survey Recommendations. February.

Appendix A
SUMMARY OF FIELD SURVEY CONDITIONS

Survey	Date	Biologist	Survey Times (start/stop)	Weather Conditions (start/stop)[1]
1	2/20/15	Jim Rocks	1000/1530	80%, 71°F, wind 0-1 mph/ 60%, 81°F, wind 1-7 mph
2	2/27/15	Jim Rocks Garrett Huffman	1100/1425	80%, 76°F, wind 0-2 mph/ 100%, 67°F, wind 1-8 mph
3	3/4/15	Lee Ripma	1045/1435	0%, 66°F, wind 2-5 mph/ 0%, 75°F, wind 1-3 mph
4	3/11/15	Garrett Huffman	0950/1400	75%, 70°F, wind 1-3 mph/ 10%, 83°F, wind 2-4 mph
5	3/18/15	Garrett Huffman	0930/1430	40%, 71°F, wind 4-5 mph/ 30%, 74°F, wind 3-6 mph
6	3/28/15	Garrett Huffman	0830/1230	0%, 65°F, wind 0-1 mph/ 0%, 91°F, wind 0-1 mph
7	4/2/15	Garrett Huffman	1045/1345	5%, 71°F, wind 1-3 mph/ 30%, 77°F, wind 3-7 mph
8	4/11/15	Garrett Huffman	01030/1345	0%, 70°F, wind 0-3 mph/ 0%, 86°F, wind 0-3 mph
9	4/17/15	Garrett Huffman	1330/1730	0%, 86°F, wind 2-8 mph/ 0%, 90°F, wind 4-9 mph
10	4/22/15	Garrett Huffman	1000/1400	50%, 72°F, wind 0-3 mph/ 40%, 78°F, wind 2-5 mph
11	5/1/15	Jim Rocks	0930/1315	40%, 65°F, wind 0-2 mph/ 15%, 91°F, wind 2-4 mph
12	5/7/15	Garrett Huffman	0900/1300	30%, 62°F, wind 2-6 mph/ 50%, 64°F, wind 4-8 mph

[1]Temperature was taken on the ground in the shade. Percentages indicate cloud cover.

Appendix B
COPIES OF FIELD NOTES

ROCKS
BIOLOGICAL CONSULTING

Nichols Rd. Site

Surveyor Name: J. Rocks

Date 2/20/15 Survey # 1

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1000	71	80% thin	0-1
End	1530	81	60% thin	1-7

Nymphalidae (Brush Footed Butterflies)	
	Euphydras editha quino (Quino Checkerspot)
	Euphydras chalcedona (Chalcedon Checkspot)
	Charidryas gabbii (Gabb's Checkerspot)
	Phycoides mylitta (Mylitta Crescent)
	Thessalia leanira (Leanira Checkerspot)
	Nymphalis antiopa (Mourning Cloak)
	Basilarchia lorquini (Lorquin's Admiral)
	Junonia coenia (Common Buckeye)
II	*Vanessa annabella* (West Coast Lady)
~~IIIIIIIII~~	*Vanessa cardui* (Painted Lady)
	Vanessa virginiensis (American Lady)
I	*Vanessa atalanta* (Red Admiral)
Danaidae	
	Danaus gilippus (Queen)
	Danaus plexippus (Monarch)
Hesperidae	
	Heliopetes ericetorum (Northern White-Skipper)
	Hylephila phyleus (Fiery Skipper)
	Pyrgus albescens (White Checkered-Skipper)
III	*Erynnis funeralis* (Funereal Duskywing)
	Erynnis tristis (Mournful Duskywing)
	Erynnis propertius (Propertius Duskywing)
	Ochlodes agricola (Rural Skipper)

Other Flora: SchBar, ~~EreCraCon~~, EriogElon, ArtCal Sarcostemma, BrickCal, MarMac, AveBar, SelBig

Lycaenidae (Hairstreaks)	
	Atlides halesus (Great Purple Hairstreak)
	Incisalia augustinus (Western Brown Elfin)
	Callophrys perplexa (Perplexing Hairstreak)
	Strymon melinus (Gray Hairstreak)
	Glaucopsyche lygdamus (Silvery Blue)
I	*Icarcia acmon* (Acmon Blue)
	Celastrina ladon (Echo Blue)
	Leptotes marina (Marine Blue)
	Philotes sonorensis (Sonoran Blue)
	Plebejus melissa (Melissa Blue)
	Everes amyntula (Western Tailed-Blue)
	Brephidium exilis (Western Pygmy-Blue)
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 Orangetips)	
	Anthocharis cethura (Desert Orangetip)
I	*Anthocharis sara* (Sara's Orangetip)
	Pieris rapae (Cabbage White)
	Pontia protodice (Checkered White)
	Colias eurytheme (Orange Sulphur)
	Colias harfordii (Harford's Sulphur)
	Eurema nicippe (Sleepy Orange)
	Nathalis iole (Dainty Sulphur)
Satyridae (Satyrids)	
	Coenonympha californica (Common California Ringlet)
Others	

List nectar sources and plant communities observed HirInc, SisIri, EreFar, DicCap PhaCamp, BebJun, EriFas, EschCal, PhaCicHis MirCal, Lup(con), AcmGla, SalCol, AmsMen SolPar, PtcLinFer, DatWri, ScrCal, UroLin

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

Plantago erecta - in one spot high up on hill. Very low abundance + density PE_2ft_low

Other Fauna: RCSP, ANHU, MODO, BGGN, CAGN (Pair) UtaStan, ROWR (Pair), CATO, AMCR, W. whiptail, CLSW Scel orcuttii, AudCot, HOFI, RTHA

ROCKS
BIOLOGICAL CONSULTING

Nichols Road Mine Site

Surveyor Name: J. Rocks (G. Huffman)

Date 2/27/15 Survey # 2

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1100	76	80	0-2
End	1425	67	100	1-8

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

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

List nectar sources and plant communities observed Enc Fal, Hyr Inc, Cry Int, Pha Camp, Pha Cic His, Pec Lin Fer, Dic Cap Sal Col

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

Low diversity & abundance of butterflies today
Plantago documented during first survey visited again, still in very low numbers.

ROCKS
BIOLOGICAL CONSULTING

Nichols Road Mine Site

Surveyor Name: GARRETT HUFFMAN

Date 2/27/15 Survey # 2

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1100	76°	80	0-2
End	1425	67°	100	1-8

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

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

List nectar sources and plant communities observed

ENCELIA FARINOSA SCRUB
SALVIA COLUMBARIAE
DICHELOSTEMMA CAPITATUM
ACMISPON GLABER
PLAGIOBOTHRYS SP.
MIRABILIS LAEVIS
KECKIELLA ANTIRRHINOIDES

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

AVIAN SPECIES:
LELO, HOFI, RCSP, CATO,
ANHU, BLPH, ROWR, WCSP,
MODO, CAFH, BGGN, RTHA,

SIDE-BLOTCHED LIZARD
GRANITE SPINY LIZARD
TIGER WHIPTAIL
ORANGE-THROATED WHIPTAIL

ROCKS BIOLOGICAL CONSULTING

Nichols Road Mine Site

Surveyor Name: Lee Ripma

Date 3/4/15 Survey # 3

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1045	66.0	0	2-5(7)
End	1435	75.3	0	1-3

Nymphalidae (Brush Footed Butterflies)	
	Euphydras editha quino (Quino Checkerspot)
	Euphydras chalcedona (Chalcedon Checkspot)
	Charidryas gabbii (Gabb's Checkerspot)
	Phycoides mylitta (Mylitta Crescent)
	Thessalia leanira (Leanira Checkerspot)
	Nymphalis antiopa (Mourning Cloak)
	Basilarchia lorquini (Lorquin's Admiral)
	Junonia coenia (Common Buckeye)
✓	*Vanessa annabella* (West Coast Lady) III
✓	*Vanessa cardui* (Painted Lady) IIII IIII IIII II
	Vanessa virginiensis (American Lady)
	Vanessa atalanta (Red Admiral)
Danaidae	
	Danaus gilippus (Queen)
	Danaus plexippus (Monarch)
Hesperidae	
	Heliopetes ericetorum (Northern White-Skipper)
	Hylephila phyleus (Fiery Skipper)
	Pyrgus albescens (White Checkered-Skipper)
✓	*Erynnis funeralis* (Funereal Duskywing) III
	Erynnis tristis (Mournful Duskywing)
	Erynnis propertius (Propertius Duskywing)
	Ochlodes agricola (Rural Skipper)

Lycaenidae (Hairstreaks)	
	Atlides halesus (Great Purple Hairstreak)
	Incisalia augustinus (Western Brown Elfin)
	Callophrys perplexa (Perplexing Hairstreak)
	Strymon melinus (Gray Hairstreak)
	Glaucopsyche lygdamus (Silvery Blue)
	Icarcia acmon (Acmon Blue)
	Celastrina ladon (Echo Blue)
	Leptotes marina (Marine Blue)
	Philotes sonorensis (Sonoran Blue)
	Plebejus melissa (Melissa Blue)
	Everes amyntula (Western Tailed-Blue)
	Brephidium exilis (Western Pygmy-Blue)
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 Orangetips)	
	Anthocharis cethura (Desert Orangetip)
	Anthocharis sara (Sara's Orangetip)
	Pieris rapae (Cabbage White)
	Pontia protodice (Checkered White)
	Colias eurytheme (Orange Sulphur)
	Colias harfordii (Harford's Sulphur)
	Eurema nicippe (Sleepy Orange)
	Nathalis iole (Dainty Sulphur)
Satyridae (Satyrids)	
	Coenonympha californica (Common California Ringlet)
Others	

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

Great day for butterflies, low wind & clear sky. Mostly painted ladies observed in area, very active. A few west coast ladies in flatter areas closer to the active mine.

List nectar sources and plant communities observed

Plagio colinus
Dichelostemma cap.
annual Lotus spp.
Encelia farinosa
Salvia columbariae
Eriophyllum confertiflorum
CSS dominated by E. fasciculata
Cryptantha
Phacelia
Lupine
Clarkia
Asclepias
Brassica
milkweed Sarcostemma
Allium
Lasthenia cal.
Nicotiana glauca

ROCKS
BIOLOGICAL CONSULTING

NICHOLS MINE
~~SDG&E Natural Gas System Potential Upgrades~~

Surveyor Name: GARRETT HUFFMAN

Date 3 | 11 | 15 Survey # 4

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0950	70	75	1-3
End	1400	83	100	2-4

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

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

List nectar sources and plant communities observed ERIOGONUM FARINOSUM SCRUB ADENOSTOMA GLABRUM, DICHONDRA CAPITATUM, CRYPTANTHA SP. SALVIA COLUMBARIAE, ESCHSCHOLZIA CALIFORNICA.

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

AVIAN SPECIES: ANHU, CORA, RTHA, TUVU, RCSP, MODO, BGGN, CAGN, SAGS, WTSW, SAPH, ROWR, BUSH.

ROCKS
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NICHOLS MINE
SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN

Date 03/18/15 Survey # 5

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0930	71	40	4-5
End	1430	74	30	3-6

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

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

List nectar sources and plant communities observed ENCELIA FARINOSA SCRUB ACMISPON GLABER, ERIOGONUM FASCICULATUM - DICHELOSTEMMA CAPITATUM, SALVIA COLUMBARIAE, CRYPTANTHA SP. 1 ESCHSCHOLZIA CALIFORNICA

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

AVIAN SPECIES:
WCSP, ROCR, RCSP, SAVS, ANHU, SAGS, TUVU, WTSW, CAGN, BGGN, CATO, HOLA

CAGN NEST W/ 3 NESTLINGS

~~33.708450~~ 33.70880 N
~~-117.348400~~ -117.34830 W

ROCKS
BIOLOGICAL CONSULTING

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN
JON WALKER

Date 03/26/15 Survey # 6

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0830	65	0	0-1
End	1230	91	0	0-1

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

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

List nectar sources and plant communities observed ENCELIA FARINOSA SCRUB ERIOGONUM, SALVIA, DICHONDRA, CUSCUTA, CRYPTANTHA, DELPHINIUM, ESCHSCHOLZIA,

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

AVIAN SPECIES: RCSP, HOFI, ROWR, TUVU, CATO, SAVS, BUOW, ANHU, WCSP, WTSW, CORA, RTHA

ROCKS
BIOLOGICAL CONSULTING

~~SDG&E Natural Gas System Potential~~ NICHOLS MINE Upgrades

Surveyor Name: ~~Garrett Huffman~~ WENDY ROGERS

Date 4/2/15 Survey # 7

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1045	71	5	1-3
End	1345	77	30	3-7

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

Lycaenidae (Hairstreaks)	
	Atlides halesus (Great Purple Hairstreak)
	Incisalia augustinus (Western Brown Elfin)
	Callophrys perplexa (Perplexing Hairstreak)
	Strymon melinus (Gray Hairstreak)
	Glaucopsyche lygdamus (Silvery Blue)
	Icaricia acmon (Acmon Blue)
	Celastrina ladon (Echo Blue)
1	*Leptotes marina* (Marine Blue)
	Philotes sonorensis (Sonoran Blue)
	Plebejus melissa (Melissa Blue)
	Everes amyntula (Western Tailed-Blue)
	Brephidium exilis (Western Pygmy-Blue)
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 Orangetips)	
	Anthocharis cethura (Desert Orangetip)
1	*Anthocharis sara* (Sara's Orangetip)
	Pieris rapae (Cabbage White)
5	Pontia protodice (Checkered White)
	Colias eurytheme (Orange Sulphur)
	Colias harfordii (Harford's Sulphur)
	Eurema nicippe (Sleepy Orange)
	Nathalis iole (Dainty Sulphur)
Satyridae (Satyrids)	
	Coenonympha californica (Common California Ringlet)
Others	

List nectar sources and plant communities observed ENCELIA FARINOSA SCRUB

ERIOGONUM, DEINANDRA, ENCELIA FARINOSA, ALNUS ON, ESCHSCHOLZIA, SALVIA,

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

AVIAN LIST: RCSP, HOFI, CATO, WCSP, KILL, SAGS, MODO, ROWR, CAGN, CORA, ANHU, WTSW, GREG, ANHU

ROCKS
BIOLOGICAL CONSULTING

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN

Date 4/11/15 Survey # 8

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1030	70	Ø	0-3
End	1345	86	Ø	0-3

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

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

List nectar sources and plant communities observed ENCELIA FARINOSA SCRUB

ENCELIA FARINOSA, ERIOGONUM, DEINANDRA, ACMISPON, ESCSCHOLZIA,

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

AVIAN LIST: RTHA, COHA, HOFI, ROWR, WTSW, CATO, LEGO, ANHU

ROCKS
BIOLOGICAL CONSULTING

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN

Date 04/17/15 Survey # 9

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1330	86	Ø	2-8
End	1730	90	Ø	4-9

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

	Lycaenidae (Hairstreaks)
	Atlides halesus (Great Purple Hairstreak)
	Incisalia augustinus (Western Brown Elfin)
	Callophrys perplexa (Perplexing Hairstreak)
	Strymon melinus (Gray Hairstreak)
	Glaucopsyche lygdamus (Silvery Blue)
	Icarcia acmon (Acmon Blue)
	Celastrina ladon (Echo Blue)
	Leptotes marina (Marine Blue)
	Philotes sonorensis (Sonoran Blue)
	Plebejus melissa (Melissa Blue)
	Everes amyntula (Western Tailed-Blue)
	Brephidium exilis (Western Pygmy-Blue)
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 Orangetips)	
	Anthocharis cethura (Desert Orangetip)
	Anthocharis sara (Sara's Orangetip)
	Pieris rapae (Cabbage White)
6	Pontia protodice (Checkered White)
	Colias eurytheme (Orange Sulphur)
	Colias harfordii (Harford's Sulphur)
	Eurema nicippe (Sleepy Orange)
	Nathalis iole (Dainty Sulphur)
Satyridae (Satyrids)	
	Coenonympha californica (Common California Ringlet)
Others	

List nectar sources and plant communities observed

ENCELIA FARINOSA SCRUB

DEINANDRA, ERIOGONUM

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

AVIAN SPECIES:

HOFI, SAGS, CAGN, ROWR, CLSW, CORA, RTHA, WEKI

S. BL. BLOTCHED LIZARD

GRANITE SPINY LIZARD

ROCKS
BIOLOGICAL CONSULTING

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN

Date 4/22/15 Survey # 10

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	1000	72	50	0-3
End	1400	78	40	2-5

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

Lycaenidae (Hairstreaks)	
	Atlides halesus (Great Purple Hairstreak)
	Incisalia augustinus (Western Brown Elfin)
	Callophrys perplexa (Perplexing Hairstreak)
	Strymon melinus (Gray Hairstreak)
	Glaucopsyche lygdamus (Silvery Blue)
	Icarcia acmon (Acmon Blue)
	Celastrina ladon (Echo Blue)
	Leptotes marina (Marine Blue)
	Philotes sonorensis (Sonoran Blue)
	Plebeius melissa (Melissa Blue)
	Everes amyntula (Western Tailed-Blue)
	Brephidium exilis (Western Pygmy-Blue)
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 Orangetips)	
	Anthocharis cethura (Desert Orangetip)
	Anthocharis sara (Sara's Orangetip)
	Pieris rapae (Cabbage White)
12	*Pontia protodice* (Checkered White)
	Colias eurytheme (Orange Sulphur)
	Colias harfordii (Harford's Sulphur)
	Eurema nicippe (Sleepy Orange)
	Nathalis iole (Dainty Sulphur)
Satyridae (Satyrids)	
	Coenonympha californica (Common California Ringlet)
Others	
	WRIGHT'S METALMARK (CALEPHELIS WRIGHTI)

List nectar sources and plant communities observed: ENCELIA FARINOSA SCRUB

DUDLEYA? DCINANORA FASCICULATA

ERIOGONUM FASCICULATUM

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

AVIAN LIST:
LEGO, MODO, HOFI, GEGG, KILL, CATO, CAGN, ROWR, JUVU, RTHA

GRANITE-SPINY LIZARD
SIDE-BLOTCHED LIZARD
TIGER WHIPTAIL
ORANGE-THROATED WHIPTAIL

ROCKS
BIOLOGICAL CONSULTING

Nichols Road Mine Site

Surveyor Name: J. Rocks

Date 05/01/15 Survey # 11

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0930	80	40	0-2
End	1315	90	15	2-4

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

Lycaenidae (Hairstreaks)	
	Atlides halesus (Great Purple Hairstreak)
	Incisalia augustinus (Western Brown Elfin)
	Callophrys perplexa (Perplexing Hairstreak)
	Strymon melinus (Gray Hairstreak)
	Glaucopsyche lygdamus (Silvery Blue)
	Icarcia acmon (Acmon Blue)
	Celastrina ladon (Echo Blue)
	Leptotes marina (Marine Blue)
	Philotes sonorensis (Sonoran Blue)
	Plebejus melissa (Melissa Blue)
	Everes amyntula (Western Tailed-Blue)
	Brephidium exilis (Western Pygmy-Blue)
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 Orangetips)	
	Anthocharis cethura (Desert Orangetip)
	Anthocharis sara (Sara's Orangetip)
	Pieris rapae (Cabbage White)
IIII	Pontia protodice (Checkered White)
	Colias eurytheme (Orange Sulphur)
	Colias harfordii (Harford's Sulphur)
	Eurema nicippe (Sleepy Orange)
	Nathalis iole (Dainty Sulphur)
Satyridae (Satyrids)	
	Coenonympha californica (Common California Ringlet)
Others	

List nectar sources and plant communities observed

Nectar sources waning - Enc. far in seed. Cry Int, Hir Inc, Ams Men, Beb Jun

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

Unbelievably low diversity + abundance of butterflies; only Checkered White observed!

ROCKS
BIOLOGICAL CONSULTING

SDG&E Natural Gas System Potential Upgrades

Surveyor Name: GARRETT HUFFMAN

Date 5/7/15 Survey # 12

	Time	Temp (°F)	Cloud Cover (%)	Wind Speed (avg. mph)
Start	0900	62	30	2-6
End	1300	64	50	4-8

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

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

List nectar sources and plant communities observed ~~ESS~~

ENCELIA FARINOSA SCRUB

ERIOGONUM

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

AVIAN SPECIES

WTSW, HOFI, ROWR, LELO, HOOR, CATO, RCSP, RTHA, CORA, ANHU

Appendix C
LISTS OF BUTTERFLIES OBSERVED DURING EACH SURVEY

Survey Number	Date	Species	Number Observed
1	**February 20, 2015**	Acmon blue (*Icarcia acmon*)	1
		Funereal duskywing (*Erynnis funeralis*)	4
		Painted lady (*Vanessa cardui*)	25
		Red admiral (*Vanessa atalanta*)	1
		Sara's orangetip (*Anthocharis sara*)	1
		West coast lady (*Vanessa annabella*)	3
2	**February 27, 2015**	Behr's metalmark (*apodemia mormo vergulti*)	6
		Funereal duskywing (*Erynnis funeralis*)	5
		Painted lady (*Vanessa cardui*)	25
		Silvery blue (*Glaucopsyche iygdamus*)	1
		West coast lady (*Vanessa annabella*)	1
3	**March 4, 2015**	Funereal duskywing (*Erynnis funeralis*)	3
		Painted lady (*Vanessa cardui*)	17
		West coast lady (*Vanessa annabella*)	3
4	**March 11, 2015**	Behr's metalmark (*apodemia mormo vergulti*)	4
		Funereal duskywing (*Erynnis funeralis*)	20
		Painted lady (*Vanessa cardui*)	30
		Sara's orangetip (*Anthocharis sara*)	7
5	**March 18, 2015**	Behr's metalmark (*apodemia mormo vergulti*)	1
		Checkered white (*Pontia protodice*)	2
		Funereal duskywing (*Erynnis funeralis*)	11
		Painted lady (*Vanessa cardui*)	10
		Sara's orangetip (*Anthocharis sara*)	7
		Wright's metalmark (*Calephelis wrighti*)	1
6	**March 28, 2015**	Behr's metalmark (*apodemia mormo vergulti*)	8
		Checkered white (*Pontia protodice*)	9
		Funereal duskywing (*Erynnis funeralis*)	4
		Painted lady (*Vanessa cardui*)	14
		Sara's orangetip (*Anthocharis sara*)	18
		West coast lady (*Vanessa Annabella*)	2

Survey Number	Date	Species	Number Observed
7	**April 2, 2015**	Checkered white (*Pontia protodice*)	5
		Funereal duskywing (*Erynnis funeralis*)	19
		Marine blue (*Leptotes marina*)	1
		Painted lady (*Vanessa cardui*)	7
		Sara's orangetip (*Anthocharis sara*)	1
8	**April 11, 2015**	Checkered white (*Pontia protodice*)	10
		Orange sulpher (*Colias eurytheme*)	3
		Painted lady (*Vanessa cardui*)	1
		White checkered skipper (*Pyrgus albescens*)	1
9	**April 17, 2015**	Checkered white (*Pontia protodice*)	6
		Funereal duskywing (*Erynnis funeralis*)	2
		Painted lady (*Vanessa cardui*)	1
10	**April 22, 2015**	Checkered white (*Pontia protodice*)	12
		Funereal duskywing (*Erynnis funeralis*)	2
		Wright's metalmark (*Calephelis wrighti*)	1
11	**May 1, 2015**	Checkered white (*Pontia protodice*)	4
12	**May 7, 2015**	Behr's metalmark (*apodemia mormo vergulti*)	1
		Checkered white (*Pontia protodice*)	3
		Funereal duskywing (*Erynnis funeralis*)	3

Appendix C

Stephens' Kangaroo Rat
Habitat Assessment

ENVIRA

Aquaculture Fisheries Environmental
P.O. Box 2612, Ramona, California, USA 92065
Phone 619-885-0236 E-mail PHVERGNE@AOL.COM

Philippe Vergne, a permitted Stephen's (*Dipodomys stephensi*)-SKR biologist (TE068072-3), was contracted by Alden Environmental, Inc. to conduct a phase one evaluation for SKR on the Nichols Road Partners existing Mine Expansion.

METHODS

A literature review and records check was conducted for sensitive resources within the vicinity of the proposed project. In addition to the literature review, a general field survey of the project area was conducted. The field survey provided information on the existing conditions on the site and the potential for sensitive resources to be present. A phase one walk-over of the site was conducted by walking transects over all suitable/potential kangaroo rat habitat on the property. Kangaroo rat sign looked for included burrows, tail drags, scat, and tracks.

LITERATURE REVIEW

A literature review was conducted prior to the trapping effort. This included a review of standard field guides and texts on sensitive and non-sensitive biological resources, as well as the following sources:

- List of sensitive biological resources provided by the California Natural Diversity Data Base (CNDDB);
- Biological resources reports for the project site and adjacent properties; and
- General texts and other documents identifying potential resources on the site.

All technical information reviewed is included in the References section of this document.
The Dulzura (*Dipodomys simulans*) and the Stephens kangaroo rat (*Dipodomys stephensi*) have overlapping ranges. Dulzura kangaroo rats are known to occasionally inhabit open grasslands

more characteristic of SKR. SKR are infrequently known to inhabit areas of denser vegetation. Therefore, trapping is often the only definitive method of confirming the absence or presence, distribution, and abundance of SKR in areas where they are sympatric with other kangaroo rat species, or where trace sign is found.

Stephens Kangaroo Rat

The Stephens kangaroo rat (SKR) prefers open areas with sparse perennial cover (Lackey 1967, Bleich 1977, Thomas 1975). They occur in areas of loose soil where the soil depth is at least 0.5 meters (Price and Endo 1989). SKR will also inhabit disturbed areas such as fallow fields by using the burrows of other rodents, including pocket gophers (*Thomomys bottae*) (Bleich 1977) and the Beechey ground squirrel (*Spermophilus beecheyi*) (O'Farrell 1989).

Like all kangaroo rats, the SKR is primarily a seed eater, feeding on the seeds of both annual and shrub species. It also feeds on green vegetation and insects when these are available. Being primarily a dry biome species, kangaroo rats obtain nearly all of their water from the food they eat, and can subsist indefinitely on water extracted from dry seeds. They forage in open ground and underneath shrubs. Burrows are dug in loose soil.

The closest SKR populations to the proposed project are located to the north and south east about one half mile from the project site. Those populations are located within flat to moderately steep foothills dominated by disturbed annual grasslands.

PHASE ONE BIOLOGICAL SURVEYS

A reconnaissance-level phase one pedestrian survey was conducted on the property on April 15, 2015 from 10AM to 4 PM to assess suitable habitat for SKR resources within the project boundaries. Notes were taken during the surveys of all plant and wildlife species observed. Observations of wildlife species included scat, trails, tracks, burrows, nests, calls, and visual observation. In addition, site characteristics such as soils, topography, the condition of the plant communities, and evidence of human use of the site were noted.

Based on the available information and site conditions, there was a very low probability that SKR could occur on the project site.

Topography and Soils

The majority of the site consists of very steep sloping terrain and prominent rock outcrops located above the existing mining operation.

The sols conditions on site are suitable for small fossorial mammal occupancy. However the steepness of the terrain and the predominance of sage scrub verses disturbed annual grasslands indicates that any k-rat present would be the Dulzura kangaroo rat and not the SKR.

Surrounding Land Uses

Surrounding lands are open space to the north, and east of the mining operation. Highway 15 is located to the west and Nichols Road to the South.

Plant Communities

There is one plant communities on the property. In decreasing order of importance they are: disturbed annual grasslands and sparse sage scrub.

California Sage Scrub

The sage scrub stands on site are dominated by sparse to moderately dense California buckwheat, and brittle brush on steep hillsides. The understory is dominated by brome grasses.

Wildlife

Wildlife activity was low, with most of the wildlife represented by reptiles in the rock-outcrops and bird species. Small fossorial mammals sign was indicative of pocket gophers, deer and brush mice, possibly southwestern San Diego pocket mice, and Dulzura kangaroo rat.

Reptiles were observed mainly in the open scrub habitats adjacent to rock outcrops.

Disturbances

Other than a dirt road on the upper part of the site the mine expansion area is mostly undisturbed due to steepness and difficulty of access.

Findings

No sign attributable to the Stephens' kangaroo rat was observed on the property. The SKR is not currently present on the property or on adjacent properties. No impacts to SKR or their habitat will occur due to project implementation.

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Upper Portion of Future Borrow Site

Looking down at existing operation from new proposed expansion area.

Appendix D
Plant Species Observed

Appendix D
PLANT SPECIES OBSERVED

SCIENTIFIC NAME	**COMMON NAME**
LYCOPODIAE	
Selaginellaceae – Spikemoss Family	
Selaginella bigelovii	Bigelow's mossfern
ANGIOSPERMAE – MONOCOTYLEDONEAE	
Agavaceae – Agave Family	
Hesperoyucca whipplei	Our Lord's candle
Alliaceae – Onion Family	
Allium haematochiton	red-skinned onion
Poaceae (Gramineae) – Grass Family	
Avena barbata[1]	wild oats
Bromus diandrus[1]	ripgut grass
Bromus madritensis ssp. *rubens*[1]	red brome
Hordeum murinum[1]	barley
Schismus barbatus[1]	Mediterranean schismus
Themidaceae – Brodiaea Family	
Dichelostemma capitatum ssp. *capitatum*	blue dicks
ANGIOSPERMAE – DICOTYLEDONEAE	
Apocynaceae – Dogbane Family	
Funastrum cynanchoides var. *hartwegii*	climbing milkweed
Asteraceae (Compositae) – Sunflower Family	
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Bebbia juncea var. *aspera*	rush sweetbush
Brickellia californica	brickellbush
Centaurea melitensis[1]	tocalote
Chaenactis artemisiifolia	white pincushion-flower
Deinandra kelloggii	Kellogg tarplant
Encelia farinosa	brittlebush, incienso
Logfia gallica	narrowleaf filago
Stylocline gnaphalioides	everlasting nest-straw
Uropappus lindleyi	silver puffs

Appendix A (cont.)
PLANT SPECIES OBSERVED

SCIENTIFIC NAME	**COMMON NAME**
ANGIOSPERMAE – DICOTYLEDONEAE (cont.)	
Boraginaceae – Borage Family	
Amsinckia intermedia	yellow fiddleneck
Cryptantha intermedia	common forget-me-not
Pectocarya linear var. *ferocula*	slender comb-seed
Phacelia campanularia var. *campanularia*	desert bluebell
Phacelia cicutaria var. *hispida*	caterpillar phacelia
Phacelia distans	wild-heliotrope
Plagiobothrys collinus var. *gracilis*	San Diego popcornflower
Brassicaceae (Cruciferae) – Mustard Family	
Hirschfeldia incana[1]	perennial mustard
Cactaceae – Cactus Family	
Cylindropuntia californica var. *parkeri*	silver cholla
Chenopodiaceae – Goosefoot Family	
Salsola tragus[1]	Russian-thistle, tumbleweed
Crassulaceae – Stonecrop Family	
Crassula connata	dwarf stone-crop
Curcurbitaceae – Gourd Family	
Marah macrocarpus	wild cucumber
Euphorbiaceae – Spurge Family	
Croton setiger	turkey mullein
Euphorbia polycarpa	fairy mats
Stillingia linearifolia	linear-leaf stillingia
Fabaceae (Leguminosae) – Pea Family	
Acmispon glaber var. *brevialatus*	deerweed
Acmispon micranthus	grab lotus
Acmispon strigosus	Bishop's lotus
Lupinus concinnus	bajada lupine
Lupinus hirsutissimus	stinging lupine

Appendix A (cont.)
PLANT SPECIES OBSERVED

SCIENTIFIC NAME	**COMMON NAME**
ANGIOSPERMAE – DICOTYLEDONEAE (cont.)	
Geraniaceae – Geranium Family	
Erodium cicutarium[1]	red-stem filaree
Lamiaceae (Labiatae) – Mint Family	
Salvia apiana	white sage
Salvia columbariae	chia
Nyctaginaceae – Four O'Clock Family	
Mirabilis laevis var. *crassifolia*	wishbone bush
Onagraceae – Evening Primrose Family	
Eulobus californicus	mustard primrose
Eschscholzia californica	California poppy
Eulobus californicus	mustard primrose
Plantaginaceae – Plantain Family	
Keckiella antirrhinoides var. *antirrhinoides*	yellow bush penstemon
Plantago erecta	dot-seed plantain
Polygonaceae – Buckwheat Family	
Eriogonum elongatum var. *elongatum*	tall buckwheat
Eriogonum fasciculatum ssp. *foliolosum*	California buckwheat
Scrophulariaceae – Figwort Family	
Scrophularia californica	California figwort
Solanaceae – Nightshade Family	
Datura wrightii	Jimson weed
Solanum parishii	purple nightshade

[1]Non-native species

Appendix E
Animal Species Observed

Appendix E
ANIMAL SPECIES OBSERVED OR DETECTED

SCIENTIFIC NAME	**COMMON NAME**
INVERTEBRATES	
Butterflies	
Anthocharis sara	Sara's orangetip
Apodemia mormo vergulti	Behr's metalmark
Calephelis wrighti	Wright's metalmark
Colias eurytheme	orange sulphur
Glaucopsyche iygdamus	silvery blue
Icarcia acmon	acmon blue
Leptotes marina	marine blue
Pontia protodice	checkered white
Pyrgus albescens	white checkered skipper
Vanessa annabella	west coast lady
Vanessa atalanta	red admiral
Vanessa cardui	painted lady
VERTEBRATES	
Reptiles	
Aspidoscelis hyperythra	orange-throated whiptail
Aspidoscelis tigris	tiger whiptail
Crotalus ruber	red diamond rattlesnake
Masticophis flagellum	red coachwhip
Sceloporus orcutti	granite spiny lizard
Uta stansburiana	side-blotched lizard
Birds	
Accipitridae – Kites, Eagles, Accipters, Buteos, Harriers	
Buteo jamaicensis	red-tailed hawk
Aegithalidae – Bushtits	
Psaltriparus minimus	American bushtit
Alaudidae – Larks	
Eremophila alpestris	horned lark
Apodidae – Swifts	
Aeronautes saxatalis	white-throated swift
Ardeidae – Herons	
Ardea alba	great egret
Cathartidae – New World Vultures	
Cathartes aura	turkey vulture

Appendix E (cont.)
ANIMAL SPECIES OBSERVED OR DETECTED

SCIENTIFIC NAME	**COMMON NAME**
VERTEBRATES (cont.)	
Birds (cont.)	
Charadriidae – Plover	
Charadrius vociferus	killdeer
Columbidae – Pigeons and Doves	
Zenaida macroura	mourning dove
Corvidae – Jays, Magpies, and Crows	
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Emberizidae – Warblers, Sparrows, Blackbirds, and Relatives	
Aimophila ruficeps	rufous-crowned sparrow
Amphispiza belli	sage sparrow
Melozone crissalis	California towhee
Passerculus sandwichensis	savannah sparrow
Zonotrichia leucophrys	white-crowned sparrow
Fringillidae – Finches	
Carduelis psaltria	lesser goldfinch
Carpodacus mexicanus	house finch
Hirundinidae – Swallows	
Hirundo pyrrhonota	cliff swallow
Icterid	
Icterus cucullatus	hooded oriole
Mimidae – Mockingbirds and Thrashers	
Toxostoma redivivum	California thrasher
Muscicapidae – Kinglets, Gnatcatchers	
Polioptila caerulea	blue-gray gnatcatcher
Polioptila californica californica	coastal California gnatcatcher
Trochilidae – Hummingbirds	
Calypte anna	Anna's hummingbird
Tyrannidae – Tyrant Flycatchers	
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
Troglioditidae – Wrens	
Salpinctes obsoletus	rock wren
Mammals	
Sylvilagus audubonii	Audubon's cottontail

Appendix F

Explanation of Listing or Status Codes for Plant and Animal Species

Appendix F
EXPLANATION OF LISTING OR STATUS CODES
FOR PLANT AND ANIMAL SPECIES

U.S. Fish and Wildlife Service (USFWS)

FE Federally Listed Endangered
FT Federally Listed Threatened
FC Candidate for Federal Endangered Species Act Protection
BCC Bird of Conservation Concern—Represents USFWS' highest conservation priorities and draw attention to species in need of conservation action.

California Department of Fish and Wildlife (CDFW)

SE State Listed Endangered
SSC State Species of Special Concern—Declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
WL Watch List—Birds that are/were: a) not on the current list of species of special concern but were on previous lists and have not been State listed under the California Endangered Species Act; b) previously State or federally listed and now are on neither list; or c) on the list of "Fully Protected" species.
FP Fully Protected refers to all vertebrate and invertebrate taxa of concern to the California Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.

Appendix F (cont.)
EXPLANATION OF LISTING OR STATUS CODES
FOR PLANT AND ANIMAL SPECIES

California Native Plant Society (CNPS)

California Rare Plant Rank

1A = Presumed extirpated in California and either rare or extinct elsewhere.
1B = Rare, threatened, or endangered in California and elsewhere.

2A= Presumed extirpated in California but more common elsewhere.
2B= Rare, threatened, or endangered in California but more common elsewhere.
3 = More information is needed.
4 = A watch list for species of limited distribution.

Threat Rank

.1 = Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Moderately endangered in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)

.3 = Not very threatened in California (less than 20 percent of occurrences threatened/ low degree and immediacy of threat or no current threats known)