



Biological Assessment

13th Street Crossing over Santa Maria Creek at Maple Street and Walnut Street,
in the Unincorporated Community of Ramona, San Diego County

Unincorporated Community of Ramona
San Diego County, California
District 11-SD

[BRLO-NBIL(515)]

October 2020

**STATE OF CALIFORNIA
Department of Transportation
and County of San Diego Department of Public Works**

The environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans.

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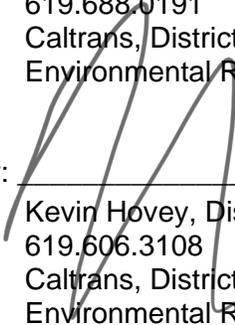
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List of Abbreviated Terms

amsl	above mean sea level
APS	Advanced Planning Study
BA	biological assessment
BMP	best management practice
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
County	County of San Diego
dBA	A-weighted decibel
ESA	Environmentally Sensitive Area
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
ICF	ICF International
IPaC	[USFWS] Information for Planning and Consultation
LBVI	least Bell's vireo
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NPDES	National Pollutant Discharge Elimination System
RECON	Regional Environmental Consultants
RFS	Riverside fairy shrimp
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SDFS	San Diego fairy shrimp
SWPPP	Storm Water Pollution Prevention Plan
TAIC	Technology Associates
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Executive Summary

The California Department of Transportation (Caltrans) District 11, in cooperation with the County of San Diego (County) proposes to make improvements to 13th Street and Maple Street between Main Street and Walnut Street, in Ramona, California. The County is the lead agency for compliance under the California Environmental Quality Act (CEQA) and Caltrans is the lead agency for compliance under the National Environmental Policy Act (NEPA).

The purpose of this biological assessment (BA) is to provide technical information and to review the proposed 13th Street Bridge Project in sufficient detail to determine to what extent the proposed project may affect threatened, endangered, or proposed species. The County has prepared this BA on behalf of Caltrans, who is the federal lead agency as assigned by the Federal Highway Administration (FHWA), under its assumption of responsibility at 23 United States Code (USC) 326 or 23 USC 327. This BA is also prepared in accordance with 50 Code of Federal Regulations 402; legal requirements found in Section 7 (a)(2) of the Federal Endangered Species Act (FESA) (16 USC 1536(c)); and with FHWA and Caltrans regulation, policy, and guidance. The document presents technical information upon which later decisions regarding project effects are developed.

Studies were initially completed for the proposed project from 2012 through 2014 by ICF International (ICF). Subsequent to the completion of ICF surveys in 2014, the proposed project changed in size due to design modifications. AECOM reinitiated survey efforts in 2018 through 2020 to update previous survey data and to collect data in areas not covered by ICF's surveys, and to address changes to report standards related to jurisdictional water delineations. A general survey, including vegetation mapping and habitat assessments, was conducted to assess the site for required surveys. Based on the results of database search and habitat assessment, focused surveys were conducted for rare plants, San Diego fairy shrimp (*Branchinecta sandiegonensis*, SDFS), Riverside fairy shrimp (*Streptocephalus wootoni*; RFS), and least Bell's vireo (*Vireo bellii pusillus*; LBVI). Surveys were conducted within the Action Area, which is defined as the limits of disturbance plus an associated 350-foot buffer to account for potential indirect effects during construction.

U.S. Fish and Wildlife Service (USFWS) protocol-level surveys were conducted in 2012/13 and 2018 for SDFS and RFS within all suitable habitat occurring within the Action Area. USFWS protocol-level surveys were conducted in 2012 and 2018 for LBVI within all suitable habitat occurring within the Action Area. Neither SDFS nor RFS was detected during the 2012/13/14 or 2018 survey effort. LBVI was the only federally listed wildlife species detected within the Action Area. No designated critical habitat is present for any species within the Action Area.

The proposed 13th Street Bridge Project would temporarily impact 0.86 acre and permanently impact 0.10 acre of riparian habitat occupied by LBVI, consisting of southern cottonwood-willow riparian forest and southern willow scrub.

A combination of avoidance and minimization measures and compensatory mitigation would reduce the overall adverse impacts to federally listed as threatened, endangered, or proposed species. In accordance with Section 7 of the federal Endangered Species Act, Caltrans will request concurrence with a *No Effect* determination for SDFS and RFS, and a *May Affect, Not Likely to Adversely Affect* determination for LBVI.

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Chapter 1. Introduction

The County of San Diego (County), in cooperation with the California Department of Transportation (Caltrans) District 11, proposes to make improvements to 13th Street and Maple Street between Main Street and Walnut Street, in Ramona, California. The County is the lead agency for compliance under the California Environmental Quality Act (CEQA) and Caltrans is the lead agency for compliance under the National Environmental Policy Act (NEPA).

The purpose of this biological assessment (BA) is to provide technical information and to review the proposed action in sufficient detail to determine to what extent the proposed action may affect threatened, endangered, or proposed species. This BA is prepared in accordance with 50 Code of Federal Regulations 402; legal requirements found in legal requirements found in Section 7 (a)(2) of the Federal Endangered Species Act (FESA) (16 United States Code [USC] 1536(c)) and with Federal Highway Administration (FHWA) and Caltrans regulation, policy, and guidance.

1.1. Purpose and Need of the Proposed Action

The proposed 13th Street Bridge Project is located on 13th Street and Maple Street between Main Street (State Route 67) and Walnut Street in the unincorporated community of Ramona (Figures 1 and 2, Appendix A). The project segment of 13th Street/Maple Street is a dirt roadway, with gravel at the Santa Maria Creek culvert crossing. The existing, undersized corrugated steel culvert does not have sufficient capacity to convey the creek water during storm events; flooding at this crossing makes the roadway impassable for motor vehicles and pedestrians during portions of the rainy season.

The objective of the project is to provide an adequate and safe crossing that allows for the conveyance of water from a 100-year storm event. The project would include replacement of the existing culvert crossing with a bridge designed to meet current federal standards, with roadway improvements along 13th Street/Maple Street and Walnut Street, and the addition of stormwater conveyance and treatment features that would ultimately discharge into Santa Maria Creek.

1.2. Threatened, Endangered, Proposed Threatened, or Proposed Endangered Species, Critical Habitat

An updated species list was provided by the U.S. Fish and Wildlife Service (USFWS) for the Action Area of this project (Appendix B). The Action Area includes the limits of disturbance plus a 350-foot buffer and is further defined in Section 1.4.4. The listed and proposed species and/or designated critical habitats included in Table 1 were identified on the updated federal species list and were considered during this analysis.

TABLE 1. FEDERALLY LISTED AND PROPOSED SPECIES CONSIDERED FOR ANALYSIS

Common Name	Scientific Name	Status	Determination
Least Bell's vireo (LBVI)	<i>Vireo bellii pusillus</i>	FE	May Affect, Not Likely to Adversely Affect
San Diego fairy shrimp (SDFS)	<i>Branchinecta sandiegonensis</i>	FE	No Effect
Riverside fairy shrimp (RFS)	<i>Streptocephalus wootoni</i>	FE	No Effect

Status Key: FE=Federally Endangered

In addition to the species listed in Table 1, 12 other federally listed species on the official USFWS list for this project and known from the vicinity based on database searches were evaluated for potential to occur with the Action Area (Table 2). The species are not expected to occur because the Action Area is either outside the species' range or suitable habitat is not present within the Action Area. Therefore, these 12 species are not considered further in this BA.

Critical Habitat

The proposed action addressed within this document does not fall within Critical Habitat for any of the species listed above. No critical habitat is present within or in proximity to the Action Area.

TABLE 2. FEDERALLY LISTED EVALUATED FOR POTENTIAL TO OCCUR IN THE ACTION AREA

Common Name	Scientific Name	Status	General Habitat Description	Potential to Occur
San Diego thorn-mint	<i>Acanthomintha ilicifolia</i>	FT	Clay soils in chaparral, coastal scrub, valley and foothill grassland, vernal pool, wetland	Not expected as heavy clay soils are absent from the Action Area. Vernal pools have been historically documented in the project area, but none were observed during 2012 and 2018 surveys.
San Diego ambrosia	<i>Ambrosia pumila</i>	FE	Chaparral, coastal scrub, valley and foothill grassland	Not expected. Marginally suitable habitat and soils present on-site.
Encinitas baccharis	<i>Baccharis vanessae</i>	FT	chaparral	Not expected. No suitable habitat on-site.
thread-leaved brodiaea	<i>Brodiaea filifolia</i>	FT	Clay soils in coastal sage scrub, cismontane woodland, valley and foothill grasslands, and near vernal pools	Not expected as heavy clay soils are absent from the Action Area. Species occurs in northwestern San Diego County.
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	FE	Coastal sage scrub, valley and foothill grasslands, and vernal pools	Not expected as heavy clay soils are absent from the Action Area.

Common Name	Scientific Name	Status	General Habitat Description	Potential to Occur
willowy monardella	<i>Monardella viminea</i>	FE	Open cobbly stream benches	Not expected. No suitable habitat on-site.
spreading navarretia	<i>Navarretia fossalis</i>	FT	Alkali playa, chenopod scrub, marsh and swamp, vernal pool, wetland	Low. Vernal pools have been historically documented in the study area, but none were observed during 2012 and 2018 surveys.
Quino checkerspot butterfly	<i>Euphydryas editha quino</i>	FE	Coastal sage scrub	Not expected. No suitable habitat on-site.
arroyo toad	<i>Anaxyrus californicus</i>	FE	Desert wash, riparian scrub, riparian woodland, south coast flowing waters, south coast standing waters	Not expected. Habitat assessment determined focused surveys were not warranted. Creek bed in the project area is under a dense canopy. This species is known to occur downstream of this location in the Ramona Grasslands County Preserve and along Santa Maria Creek near the Ramona Airport. There are no known locations of arroyo toad upstream of the Ramona Airport.
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	F	Riparian woodland	Not expected. Habitat assessment determined the habitat was not suitable for breeding. Lacks a dense midstory and understory with open patches preferred by this species.
coastal California gnatcatcher	<i>Polioptila californica</i>	FT	Coastal bluff scrub, coastal scrub	Not expected. No suitable habitat on-site.
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	FE	Coastal scrub, valley and foothill grassland	Not expected. Nearest population is approximately 2 miles from the site. Species is not expected to occur.

Status Key: FE = Federally Endangered; FT = Federally Threatened

1.3. Consultation History

On May 2, 2012, County of San Diego Department of Public Works staff hosted a resource agency meeting at County offices with representatives present from the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and USFWS. County staff presented on the conceptual bridge design for the 13th Street Bridge Project, discussed the habitats and potential sensitive species on-site, and solicited feedback on the project. Agency representatives suggested the use of piers/bents to support the

bridge and minimize impacts to the creek; determined that a jurisdictional delineation should be conducted for all potential waters in the review area, such as vernal pools; and suggested that the bridge design accommodate roosting bats.

On November 27, 2018 and September 22, 2020, Caltrans contacted the USFWS Information for Planning and Consultation (IPaC) website and requested an official species list for the Action Area (<https://ecos.fws.gov/ipac/>).

During summer 2020, the County and Caltrans consulted informally with the USFWS regarding the draft Biological Assessment; the emails and discussions are summarized in the following points:

- On June 25, 2020, Caltrans staff corresponded via email with the USFWS regarding the dates of the fairy shrimp, LBVI, and rare plant surveys as they were conducted during drought years and asked if the USFWS would require an additional year of surveys. The USFWS concurred with Caltrans recommendation in an email dated June 25, 2020, but stated that they still needed to review the BA.
- On July 2, 2020, County staff clarified in an email to Caltrans that the most recent surveys were conducted in 2018 thus the data is still good, and disagreed that another year of surveys would be necessary. While 2018 was a dry year, the BA includes multiple seasons of surveys, meets the protocol requirements, and provides adequate data to move forward for each of the species evaluated in the BA.
- On July 21, 2020, County staff hosted a teleconference meeting with representatives from Caltrans and USFWS. County staff clarified that for fairy shrimp, the surveys were complete sets of wet and dry seasons in both 2013 and 2018 and provided additional information on the Stephens' kangaroo rat habitat assessment. County staff also discussed nesting LBVI and clarified that there was one pair sighted with two nest attempts, and the County anticipated formal consultation. The USFWS thought the information would be sufficient but needed to discuss the LBVI information and fairy shrimp surveys internally.
- On August 3, 2020, the USFWS responded in an email that the LBVI information and wet and dry season surveys for fairy shrimp in 2013 and 2018 should be sufficient. However, the USFWS needed clarification regarding two pools located to the southwest of the project footprint as they were not included in the surveys, and due to the potential for impacts, the USFWS wanted to know how the pools would be addressed and avoided.
- On August 11, 2020, the County explained in an email to the USFWS that the biologist who completed the fairy shrimp surveys in 2018 was aware of the pools in question, and determined that the area was considered a temporary ponded area rather than a potential vernal pool because it drains and did not hold water for long. While there were other rain events, the area never ponded again. In addition, a dry sample was collected and tested with the results negative. With regards to the pool located a bit further to the west, it was not visited given the direction of water flow, and it was determined that there was a low likelihood that the pool would be impacted, especially with the implementation of typical stormwater best management practices (BMPs). The project would not disrupt the micro-watershed for

the western most pool and concluded that there would be no impact to the listed fairy shrimp species from the 13th Street Bridge Project.

- On August 13, 2020, the USFWS responded in an email that they do not have micro-watershed data or any information for the pools, and that typically Caltrans has consulted formally when projects were close to occupied pool basins. While there would be proposed measures that would be implemented to avoid impacts to these pools (e.g., BMPs, ESA fencing, etc.), because the USFWS has not seen the site or any detailed avoidance measures, the USFWS decided to defer to the Caltrans biologists on their determination for these adjacent pools.
- On August 17, 2020, Caltrans replied in an email that the information provided was sufficient enough to move forward with formal consultation and recommended that a summary of the species surveys and adjacent pools discussions with the USFWS be documented within the BA because they were resolved.

1.4. Description of Proposed Action

1.4.1. Project Summary

The County, in cooperation with Caltrans, proposes to replace the existing undersized culvert with a bridge where 13th Street and Maple Street cross Santa Maria Creek (Appendix A, Figures 1 and 2). The County is undertaking replacement of the existing culvert crossing with a bridge to alleviate intersection flooding during rain events. As proposed, this project includes channel improvements, roadway improvements along 13th Street/Maple Street and Walnut Street, and storm drain systems that will ultimately discharge into Santa Maria Creek. The project site is approximately 1,650 feet long.

The proposed bridge would be a 4-span, cast-in-place, pre-stressed, post-tensioned concrete box girder structure, approximately 480 feet long and approximately 42 feet wide with three singular-column bents and two abutments. The bridge and approaches would include two 12-foot-wide travel lanes, 3-foot-wide shoulders on each side, and an approximately 8-foot-wide multi-use pathway to accommodate pedestrians, bicyclists, and equestrians. In addition, three bridge barriers with a total width of approximately 4 feet, consisting of two edge deck rails and one pedestrian barrier, would be installed to separate pathway users from the travel lane and creek. The pathway across the bridge would connect to the existing southern segment near the Ramona Library and transition users across the bridge to existing and planned facilities north of the bridge. The grade of 13th Street/Maple Street would be raised approximately 10 feet at the Santa Maria Creek crossing to comply with current FHWA requirements.

Storm drain systems are proposed directly to the north and south of the bridge to capture runoff and direct it toward the existing creek. Permeable pavement areas would be incorporated into the project as Green Street features to facilitate meeting water quality requirements and for stormwater management. An existing bioretention basin south of the bridge that currently treats stormwater from the library and associated parking lot would be redesigned to continue treating those existing areas in addition to the proposed paved roads south of Santa Maria Creek.

The total quantity of cut for the project is approximately 6,200 cubic yards, the total quantity of fill is approximately 8,442 cubic yards, and the total quantity of import is approximately 13,000 cubic yards. Construction is anticipated to last approximately 12 months. During the bridge foundation construction, dewatering may be required for the project. Two potential detour alternatives have been identified for the single stage construction of the 13th Street Bridge Project. Detour Alternative 1: from Main Street, go north onto Montecito Road and continue west on Montecito Road, turn north on Alice Street, and turn east on Walnut Street. Detour Alternative 2: from Main Street, go north on 10th Street/Pine Street, turn west on Olive Street, and turn south on Maple Street/13th Street.

The County intends to use the vacant parcel on the east side of 13th Street as a temporary construction laydown and staging area during the proposed bridge construction project. This vacant parcel consists primarily of disturbed vegetation growing through a gravel base with several disturbed basins that pond and occasionally hold water for a short time. The vast majority of the basins that were sampled for fairy shrimp are depressions in the gravel surface of this disturbed lot/vacant parcel. As part of the project, the bioretention basin (disturbed wetland, also known as Basin 1) would be redesigned and regraded, and roadway and drainage improvements are planned at the northern and southern ends of 13th and Maple Streets, and along Walnut Street (Appendix A, Figures 4 and 6). A temporary construction access road is also planned from the cul-de-sac at the northern end of 12th Street to the west, to provide access to the southern end of the proposed bridge site during construction.

1.4.2. Authorities and Discretion

The County has prepared this BA on behalf of Caltrans, who is the federal lead agency as assigned by FHWA, under its assumption of responsibility at 23 USC 326 or 23 USC 327. This BA is also prepared in accordance with 50 Code of Federal Regulations (CFR) 402, legal requirements found in Section 7 (a)(2) of the FESA (16 USC 1536(c)) and with FHWA and Caltrans regulation, policy and guidance.

Under the provisions of the FESA of 1973 as amended (16 USC Section 1531 et seq.), federal agencies are directed to conserve threatened and endangered species and the habitats in which these species are found. Federal agencies are to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any endangered, threatened, or proposed (for listing as threatened or endangered) species or its critical habitat. This BA provides documentation to meet federal requirements for the proposed action.

1.4.3. Project Location

The 13th Street Bridge Project is located in the unincorporated community of Ramona, in San Diego County, California (Appendix A, Figure 1). The project is located in Township 13 South, Range 1 East, and San Bernardino Base and Meridian of the Ramona 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle map (Appendix A, Figure 2). The project area is bounded by Olive Street to the north, 12th Street to the east, Main Street to the south, and 14th Street and Brazos Street to the west. The project area includes a section of 13th Street that begins just north of the Ramona Library on Main Street, and extends to the north where it terminates adjacent to the

southwestern boundary of 405 North Maple Street, Ramona. The site also includes an approximately 800-foot long, east-west–trending section of road on Walnut Street, just north of Santa Maria Creek. The project area includes both paved and unpaved sections of road. A drainage swale is located on the east side of 13th Street, south of a bioretention basin, which receives water from the paved parking lot of the Ramona Library. This drainage swale drains into Santa Maria Creek to the north.

1.4.4. Define Action Area

The Action Area for the proposed action includes the proposed limits of disturbance that may be directly impacted by construction-related activities as well as the area that may be indirectly affected. Therefore, the Action Area is defined as the limits of disturbance (i.e., temporary and permanent impact area) plus an associated 350-foot buffer to account for potential indirect effects during construction (e.g., noise, dust, and vibration, etc.) (Appendix A, Figures 2 and 3). This number was chosen based on the assumption that most species present outside this distance would not be affected by the proposed action given the existing indirect effects already present from existing development within and in proximity of the proposed action.

Direct effects are anticipated within the proposed limits of disturbance within the Action Area, and indirect effects are anticipated up to 350 feet from the limits of disturbance. The Action Area was determined based on the current 70% Design Footprint (as of November 27, 2018) limits of disturbance and the types of construction activities that are currently planned. Factors considered when determining the Action Areas for federally listed species included direct and indirect impacts from project construction, including vegetation removal, as well as degradation of suitable habitat from sedimentation, erosion, pollutants, dust, vibration, lighting, noise, and invasive plant species. Any areas containing suitable habitat that were outside of the Action Area were not included in the analyses for this BA as they would not be directly or indirectly impacted by the project.

1.4.5. Conservation Measures

1.4.5.1. PROJECT DESIGN MODIFICATIONS FOR AVOIDANCE AND MINIMIZATION

Design modifications for the 13th Street Bridge that will avoid and/or minimize impacts to biological resources include the use of piers/bents to hold the bridge above water and minimize impacts to the creek and facilitate habitat connectivity within the riparian corridor. Incorporation of a storm drain system will also help facilitate meeting water quality requirements and for stormwater management, which will minimize erosion and degradation of habitat downstream of the bridge. Additional minimization measures include BMPs to minimize indirect impacts associated with dust, erosion, and sedimentation as well as the establishment of environmentally sensitive areas (ESAs) to be protected during construction activities. Design modifications discussed during several project development meetings for the proposed action are discussed in the following paragraphs.

On May 2, 2012, County staff hosted a resource agency meeting at County offices with representatives present from the USACE, RWQCB, CDFW, and USFWS. County staff presented on the conceptual bridge design for the 13th Street Bridge Project, discussed the habitats and potential sensitive species on-site, and solicited feedback on the project. Agency representatives suggested the use of piers/bents to support the bridge and minimize impacts to the creek.

On February 4, 2015, a Project Development Team Meeting was held at Caltrans to discuss environmental issues and bridge width determination for the 13th Street Bridge Project. Due to the potential for the 13th Street Bridge Project to result in an environmental impact to recreation (4(f); trail connectivity) in the area, a multi-use pathway was considered. Ultimately, the design included an approximately 8-foot-wide multi-use pathway to accommodate pedestrians, bicyclists, and equestrians. In addition, including a pathway along the roadside and across the bridge minimizes use of informal trails through the creek that could impact sensitive habitat.

On June 29, 2016, a Project Development Team Meeting was held at Caltrans to discuss environmental alternatives for the 13th Street Bridge Project. County staff developed an Advanced Planning Study (APS) to evaluate the viability of the shorter bridge alternative based on previous comments provided by the Caltrans functional units. This short span bridge would require extensive channel grading as demonstrated in the APS provided to Caltrans and documented in the Alternatives Matrix. County staff summarized the five bridge alternatives and explained that there were three alternatives from an environmental standpoint. Caltrans concurred that extensive channel grading would not be supported and removed those alternatives as viable options.

No other design modifications have been made at this time, but Caltrans will consider recommendations from USFWS during Section 7 consultation and will implement appropriate conditions within the design phase for the proposed action.

1.4.5.2. SPECIES-SPECIFIC AVOIDANCE/MINIMIZATION MEASURES OR BMPs FROM THE USFWS/NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FISHERIES BA CHECKLISTS

Habitat within Santa Maria Creek is occupied by LBVI. As a result, the conservation measures summarized here and detailed in Section 5.5.1 were developed to minimize impacts to this species. To the extent possible, vegetation clearing will occur outside of the breeding season for LBVI (March 15 through September 15). If work occurs within the LBVI breeding season (March 15 through September 15), a pre-activity nesting bird survey will occur and buffers and/or noise attenuation measures will be implemented if nests are found. If work stops for more than 7 days during the breeding season, the pre-activity survey will be repeated before restarting work. Section 5.5.1 details each avoidance and minimization measure for biological resources. These measures will avoid and minimize impacts to LBVI, including breeding adults, eggs, and juveniles.

1.4.5.3. CONSERVATION MEASURES

Following is a summary of the avoidance and minimization measures and BMPs that will be implemented to reduce the temporary effects from project construction to LBVI occupied habitat. A complete list of Conservation Measures is provided in Section 5.5.1. Prior to construction, pre-construction clearance surveys for LBVI will be conducted and a worker environmental awareness program covering all listed species and associated avoidance measures will be presented by a qualified biologist to all personnel working on-site. ESA fencing will be installed around the entire disturbance limits to avoid or minimize unnecessary encroachment and prohibit mechanical activity in sensitive habitats. Trash will be stored in closed containers and removed from the construction site daily to avoid attracting predators. If feasible, initiation of construction and

vegetation removal will be avoided during the LBVI breeding season (March 15 through September 15). To the extent practicable, construction equipment will avoid operating in areas of ponded or flowing water, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed. A National Pollutant Discharge Elimination System (NPDES) Construction General Permit and construction site BMPs outlined in the project's Storm Water Pollution Prevention Plan (SWPPP) will be implemented to avoid and minimize erosion, sedimentation, and pollution from entering water.

Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal off-site or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of non-native plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Weeds removed will be appropriately bagged and disposed of in a sanitary landfill. A qualified biologist will monitor construction activities prior to and during vegetation removal for the duration of the project to ensure that practicable measures are being employed to avoid and minimize incidental disturbance of habitat and covered species inside and outside the project footprint. After construction is complete, areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition.

1.4.6. Interrelated and interdependent Actions

There is one interrelated, and no interdependent, actions to the 13th Street Bridge Project. The 13th Street Gap Project footprint intersects the 13th Street Bridge Project footprint. Because of this, on February 4, 2015, Caltrans and County environmental staff agreed that the NEPA/CEQA technical studies can include the analysis of the impacts associated with the 13th Street Gap Project. Therefore, the 13th Street Bridge Project and Gap Project are considered one project from an environmental standpoint. See Sections 1.3 and 1.4.5.1 for additional details related to agency consultation regarding these two projects.

Although bundled together from an environmental standpoint, the 13th Street Bridge Project is a stand-alone project in terms of traffic delays and road closures due to flooding events, improving roadway and drainage infrastructure, and reducing the amount of hardscape in the creek bed.

Chapter 2. Study Methods

2.1. Summary

Surveys and assessments to inventory and evaluate biological resources were conducted within the Action Area. Prior to conducting fieldwork, regionally occurring plant and animal species and natural vegetation communities with special regulatory status were evaluated for their potential to occur in the vicinity of the Action Area. This included a review of the California Natural Diversity Database (CNDDDB), the California Native Plant Society's Electronic Inventory, the San Diego Plant Atlas (San Diego Natural History Museum 2018), and the USFWS species occurrence and critical habitat database. Biologists searched special-status species records within the USGS 7.5-minute Ramona Quadrangle. In addition, the following surrounding eight quadrangles were also reviewed for regional context: San Pasqual, Rodriguez Mountain, Mesa Grande, Warner Ranch, Santa Ysabel, Tule Springs, El Cajon Mountain, and San Vicente Reservoir.

Studies were initially completed for the proposed action from 2012 through 2014 by ICF International. Subsequent to the completion of ICF surveys in 2014, the proposed action changed in size due to design modifications. AECOM reinitiated survey efforts in 2018 through 2020 to update previous survey data and to collect data in areas not covered by ICF's surveys, and to address changes to report standards relating to jurisdictional water delineations.

A general survey, including vegetation mapping and habitat assessments, was conducted to assess the site for required surveys. Based on the results of database search and habitat assessment, focused surveys were conducted for rare plants, SDFS, RFS, and LBVI. Biologists incidentally recorded plant and wildlife sign, track, and direct observations during focused protocol surveys. Habitat assessments for southwestern arroyo toad (*Anaxyrus californicus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) were conducted but habitat was determined unsuitable for these species (see Table 2). Therefore, focused surveys were not conducted for these species.

2.2. Personnel and Survey Dates

Table 3 lists the survey data (including survey type, dates, and biologists) for the various surveys listed above and is followed by a detailed discussion of the methods used for surveys pertaining to federally listed species. Details regarding the other surveys for the project are provided in the Natural Environment Study (NES) (AECOM 2020).

TABLE 3. SURVEY TYPE, DATES AND PERSONNEL

Survey Type	Survey Date(s)	Survey Personnel	Company
General survey, habitat assessments	5/11/2012	Dale Ritenour, Cheryl Rustin	ICF International
	10/10/2012	Dale Ritenour	ICF International
	5/29/2018	John Messina	AECOM
Vegetation mapping	5/11/2012	Dale Ritenour, Cheryl Rustin	ICF International
	4/27, 5/29/2018	John Messina	AECOM
Rare plant survey	10/10/12	Dale Ritenour	ICF International
	7/6, 7/22/2013	Lindsay Willrick	ICF International
	6/25/2014	Dale Ritenour	ICF International
	4/27, 5/29, 7/6/2018	John Messina	AECOM
Least-Bell's vireo protocol surveys	5/9, 5/20, 5/31/2012 6/10, 6/21/2012 7/3, 7/13, 7/24/2012	Cheryl Rustin	ICF International
	4/14, 4/24/2018 5/4, 5/14, 2/24/2018 6/3, 6/13, 6/23/2018	Renee Owens, Patrick Hord	Sage Wildlife Biology
Branchiopod wet-season protocol surveys	12/26/2012 1/9, 1/23, 1/30/2013 2/7, 2/19/2013 3/9, 3/25/2013 4/7/2013 5/2, 5/11, 5/22/2013	Dale Ritenour	ICF International
	1/16, 1/23/2018 2/27/2018 3/7, 3/14, 3/19, 3/26/2018	Rick Bailey	AECOM
Branchiopod dry soil analysis (dry-season) protocol surveys	9/17/2013	Doug Allen	ICF International
	5/25/2018	Andrew Fisher (collected) Brent Helm (analyzed)	Helm Biological Consulting

2.2.1. Vegetation Mapping

Vegetation mapping was initially conducted by ICF on May 11, 2012. AECOM updated vegetation mapping on April 27 and May 29, 2018. Vegetation communities were classified based on the presence of dominant and/or characteristic plant species in accordance with vegetation community classifications following Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), as modified by Oberbauer in *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008).

2.2.2. Rare Plant Surveys

The rare plant surveys were conducted following the *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations* (CDFG 2009) and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). The undeveloped portion of the Action Area was traversed by wandering transects. Any rare plant occurrences detected were mapped in the field with a global positioning system unit. Field botanists also recorded a floral inventory during rare plant surveys.

Rare plant surveys were conducted by ICF on October 10, 2012; July 6 and 22, 2013; and June 25, 2014. Rare plant surveys were conducted by AECOM on April 27, May 29, and July 6, 2018.

2.2.3. Least Bell's Vireo Protocol Surveys

USFWS focused protocol surveys were conducted within suitable habitat to determine presence or absence of LBVI in the Action Area. Protocol-level surveys were conducted by ICF in 2012 and AECOM in 2018, following current USFWS survey protocol for the species (USFWS 2001). Biologists walked potential LBVI habitat and conducted passive surveillance (i.e., listening and looking for the species). Per the current USFWS protocol, suitable habitats within the survey area were surveyed eight times, at least 10 days apart, during the LBVI breeding period (April 10 through July 31). In addition to any LBVI observations/detections, other avian species detected were recorded.

Detailed methods and results of the focused LBVI surveys are presented in the survey reports in Appendix C.

2.2.4. Fairy Shrimp Surveys

Focused protocol surveys were conducted for federally listed vernal pool branchiopods, specifically SDFS and RFS, per the criteria set by the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996). A complete survey consists of sampling for either of the following:

1. two full wet-season surveys performed within a 5-year period; or
2. two consecutive seasons of one full wet-season survey and one dry-season survey (or one dry-season survey and one full wet-season survey).

ICF biologist Dale Ritenour conducted a wet season protocol survey from December 26, 2012 through May 22, 2013. ICF biologist Dale Ritenour (TE-58888A-0) and Doug Allen (TE-837448-5) conducted a dry season soil collection survey on September 17, 2013. The dry season soil samples were delivered to Ecological Restoration Service and analyzed by Chuck Black, PhD (TE-837448-5) on October 25, 2013.

AECOM biologist Rick Bailey (TE-101151-3) conducted a wet season protocol survey from January 16 through March 26, 2018. AECOM biologist Andrew Fisher (TE-820658-7) conducted a dry season soil collection survey on May 25, 2018. The dry season soil samples were delivered to Helm Biological Consulting and analyzed by Brent Helm, PhD (TE-795930-10.2) on June 7 and 8, 2018.

Detailed methods and results of the SDFS and RFS surveys are presented in the survey reports in Appendix D.

2.3. Resource Agency Coordination and Professional Contacts

No additional agency coordination/consultation has occurred beyond the coordination discussed in Sections 1.3 and 1.4.5.1. The official species lists received from the USFWS Carlsbad office in November 2018 and September 2020 are included in Appendix B.

2.4. Limitations and Assumptions That May Influence Results

Potential limitations associated with each of the studies include the following:

- Vegetation mapping: There were no survey limitations associated with the vegetation mapping. Although mapping occurred during below-average rainfall years, the habitat could still be characterized to the appropriate vegetation community based on the species present.
- LBVI surveys: There were no survey limitations while performing focused LBVI surveys in 2012 and 2018 and all surveys were completed per protocol requirements.
- Fairy shrimp surveys: The region received less than average rainfall during 2012–2013 and 2017–2018. This low rainfall may have limited the detectability of fairy shrimp during wet season survey in 2012–2013 and 2017–2018, if pools were not inundated long enough for fairy shrimp cysts to hatch, if present. However, protocol dry season surveys were done after the wet season surveys and would detect fairy shrimp regardless of the precipitation of any given year.
- Rare plant surveys: The 2012–2013 and 2018 rare plant surveys were conducted during below average rainfall years so many annual and herbaceous perennial plant species may not have germinated or flowered during these years. If germination and flowering did occur, it was likely in smaller numbers than other years.

Chapter 3. Environmental Baseline

The environmental baseline describes the setting in which the project will occur and includes the effects from past and present federal, state, and private actions; proposed federal projects with completed Section 7 consultations; and contemporaneous state or private actions with consultation in progress. The environmental baseline also considers non-permitted actions (i.e., other non-federal actions occurring within the Action Area). The Action Area includes the limits of disturbance plus an associated 350-foot buffer.

3.1. Habitat Conditions in the Action Area

The portion of Santa Maria Creek near 13th Street is ephemeral with a flat, sandy bottom. Dense southern cottonwood-willow riparian forest occurs along the banks of the creek and is dominated by southern cottonwood (*Populus fremontii*), mule-fat (*Baccharis salicifolia*), and several species of willow such as black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*). The elevation in the southern end of the project area is approximately 1,425 feet above mean sea level (amsl) and approximately 1,430 feet amsl at the northern end. The topography surrounding the project location consists of urban/developed land and gently sloped non-native grasslands that generally converge toward Santa Maria Creek (approximately 1,410 feet amsl).

Much of the landscape within and surrounding the Action Area is urban/developed and non-native grassland habitats. The remaining area is composed of southern-cottonwood riparian forest, southern willow scrub, and non-native grassland along Santa Maria Creek, with a small portion of Diegan coastal sage scrub and a disturbed wetland located to the south. Specific vegetation and land cover types mapped in the Action Area are discussed in Section 3.3.2. The various land cover types within the Action Area are shown in Figure 4, Vegetation Communities (Appendix A). Representative site photographs are provided in Appendix E, Site Photographs.

3.2. Summary of Environmental Baseline

Vegetation communities and other land cover types in the Action Area include alkali seep, Diegan coastal sage scrub, disturbed wetland, non-native grassland, southern cottonwood-willow riparian forest, southern willow scrub, and urban/developed (Appendix A, Figure 4).

One ephemeral creek, Santa Maria Creek, flows east to west through the Action Area, and is just south of Walnut Street. The creek is natural and channelized and conveys ephemeral flows. Vegetation lining the creek primarily consists of southern cottonwood-willow riparian forest, southern willow scrub, and non-native grassland.

Much of the habitat within the Action Area is subject to ongoing disturbances, such as frequent noise, lighting, litter, and occasional human visitation associated with 13th Street/Maple Street and Walnut Street.

3.3. Describe the Action Area

3.3.1. Physical Conditions

The majority of the Action Area is urban/developed and non-native grassland habitat. The remaining 25 percent is composed of riparian forest, willow scrub, and eucalyptus woodland along Santa Maria Creek, with a small portion of coastal sage scrub and a disturbed wetland located to the south. The project area is relatively flat with a man-made earthen berm along the northwest portion of Santa Maria Creek and a row of boulders situated along the southeast portion of the creek. Santa Maria Creek is an ephemeral creek that flows from east to west along the northern portion of the Action Area. A man-made depression (detention basin) that contained standing water and non-native wildflowers occurs north of the Ramona Library parking lot. Representative site photographs are provided in Appendix E, Site Photographs.

A portion of the proposed project area is within County right-of-way; however, most of the land within the Action Area consists of private parcels (Appendix A, Figure 3). Adjacent developed land features industrial and commercial uses, such as automotive body repair, towing yards, propane sales, wrecking yard, and solid waste collection / transfer.

Soils located within the Action Area consist of Riverwash (Rm); Placentia sandy loam, 2 to 9 percent slopes (PeC); Visalia sandy loam, 0 to 2 percent slopes (VaA); Fallbrook sandy loam, 15 to 30 percent slopes, eroded (FaE2); Fallbrook sandy loam 9 to 15 percent slopes, eroded (FaD2); and Chino silt loam, saline, 0 to 2 percent slopes (CkA) (USDA 1973) (Appendix A, Figure 5). Rm occurs in intermittent stream channels. The material is typically sandy, gravelly, or cobbly. It is excessively drained and rapidly permeable. Many areas are barren; however, scattered shrubs and forbs often occur in patches. The soil within Santa Maria Creek and the surrounding area is composed of Rm.

3.3.2. Vegetation/Natural Communities

The vegetation present within the Action Area is typical for a disturbed riparian/non-native grassland setting. Six vegetation communities and two land cover types are present within the Action Area. The vegetation communities are southern cottonwood-willow riparian forest; southern willow scrub; Diegan coastal sage scrub – inland form; alkali seep; non-native grassland; and disturbed wetland. Urban/developed and eucalyptus woodland areas represent the two land cover types. Each vegetation community is described in detail in the 13th Street NES (AECOM 2020). The total acres within the Action Area per vegetation community are presented below in Table 4 and shown accordingly in Figure 4 (Appendix A).

TABLE 4. VEGETATION COMMUNITIES WITHIN THE ACTION AREA

Vegetation Communities and Other Cover Types¹	Total (Acres)
<i>Riparian and Wetlands</i>	8.02
45320 Alkali Seep	0.12
11200 Disturbed Wetland	0.12
61330 Southern Cottonwood-Willow Riparian Forest	7.67
63320 Southern Willow Scrub	0.11
<i>Uplands</i>	20.90
32520 Diegan Coastal Sage Scrub - Inland Form	0.06
42200 Non-Native Grassland	20.84
<i>Other Cover Types</i>	38.02
79100 Eucalyptus Woodland	0.44
12000 Urban/Developed	37.58
Total	66.94

¹ Oberbauer et al. 2008; as modified from Holland 1986

3.3.3. Plants and Wildlife

A total of 59 plant species were observed during surveys, including 48 native and 21 non-native species. One sensitive plant species, southern tarplant (*Centromadia parryi* ssp. *australis*) a California Rare Plant Rank 1B.1 species, was detected during rare plant surveys. A total of 81 wildlife species were detected including 21 invertebrate, one amphibian, four reptile, 49 bird, and six mammal species. Seven sensitive wildlife species were detected during surveys including one reptile and six avian species. LBVI, a federally listed species, was detected and is discussed in Section 4.2. Two County of San Diego sensitive species detected, turkey vulture (*Cathartes aura*) and great blue heron (*Ardea herodias*), are only expected to forage in the Action Area because there is no nesting habitat present for these species. Four of the species are non-listed sensitive species and are expected to forage and breed within the Action Area; those species are orange-throated whiptail (*Aspidoscelis hyperythra*), Cooper's hawk (*Accipiter cooperii*), yellow warbler (*Setophaga petechia*), and western bluebird (*Sialia mexicana*).

3.3.4. Wildlife Corridors

Wildlife movement corridors are defined as areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features such as canyon drainages, ridgelines, and areas with vegetation cover can provide corridors for wildlife travel. Wildlife movement corridors are important because they provide access to mates, food, and water; allow the dispersal of individuals away from high population density areas; and facilitate the exchange of genetic traits between populations. Wildlife movement corridors are considered sensitive by resource and conservation agencies.

Regionally, the Action Area is not part of any designated corridors identified in regional conservation programs such as the Multiple Species Conservation Program. The Action Area is part of the Pacific Flyway, a major migration route for birds that travel north and south. Santa Maria Creek likely provides stop-over habitat for migrant species.

At a local scale, avian species may use this riparian corridor to move through the community of Ramona and rural residential development. Development and roads crossing Santa Maria Creek may limit many terrestrial species from using this corridor extensively to disperse to open space habitat. This Action Area is surrounded by developed and disturbed land to the north and south. Santa Maria Creek and its associated riparian vegetation provide an east-west wildlife linkage. Although the creek bed is dry much of the year, it provides cover for wildlife to move from expanses of undeveloped land to the east and west of the Action Area. Santa Maria Creek provides cover nearly continuously from the forest to the east to the Ramona Grasslands to the west. As Santa Maria Creek is the main drainage channel running through Ramona, it is unlikely that this linkage will be lost through future development, but it will likely be encroached upon. In addition to avian species, terrestrial species likely to use the corridor include bobcat (*Lynx rufus*), coyote (*Canis latrans*), and raccoon (*Procyon lotor*).

Chapter 4. Federally Listed/Proposed Species and Designated Critical Habitat within Action Area

4.1. Federally Listed/Proposed Species

The federally listed animal species evaluated in this document are presented in Table 1 above. The following species have the potential to be affected by the proposed action:

- LBVI
- SDFS
- RFS

4.2. Discussion of Least Bell's Vireo

There are four subspecies of the Bell's vireo (*Vireo bellii*); the westernmost LBVI (*V.b. pusillus*) breeds in California and northern Baja California. The California Department of Fish and Game (now California Department of Fish and Wildlife) listed LBVI as endangered in 1980. The USFWS followed suit in 1986 (USFWS 1986). Critical habitat was designated for this subspecies in 1994 along the southwestern coastline of California below Santa Barbara (USFWS 1994).

LBVI is a small, migratory insectivore that prefers dense riparian vegetation for foraging and nesting. LBVI is a small grayish songbird that can be difficult to see in the field. However, male LBVI sing consistently within established territories, and it is easy for surveyors to detect nesting pairs. LBVI feed primarily on insects and small spiders. LBVI is highly migratory and virtually all LBVI leave California for the winter. From March through August, the species is found from northern California to northern Baja California Sur. Most of the population winters in southern Baja California Sur. In California, LBVI is generally found in lowland areas west of the mountains and deserts. It is replaced to the east by the Arizona Bell's vireo (*V. b. arizonae*). On the Baja California Peninsula, LBVI also occurs in riparian areas in the Vizcaíno Desert.

LBVI typically begin to arrive on their breeding grounds by mid to late March and begin to depart by late July; most having left by September. Males tend to arrive first and establish territories; females arrive a few days later. Site fidelity is high among adult LBVI, with many birds returning to the same territory each year and even using the same shrub as previous years (Salata 1983; Kus 2002). Male LBVI establish and defend breeding territories through singing and physically chasing intruders (USFWS 1998). Territories typically range in size from 0.5 acre to 7.5 acres (USFWS 1998). Nests are typically placed within 3 feet of the ground in dense shrubby riparian habitat, and a diverse canopy height is required for foraging, with willows often dominating the canopy layer (Salata 1983). In southern California, LBVI nest sites are most frequently located in riparian stands between 5 and 10 years old (SANDAG and RECON 1990). Based on rigorous statistical analysis of LBVI habitat structure and composition, this species appears to preferentially select sites with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover (SANDAG and RECON 1990). The nesting period from completion of clutch to

synchronous hatching is usually about 14 days, and the period from hatching to fledging is usually 10 to 12 days (Kus et al. 2010).

The southern cottonwood-willow riparian forest habitat within the Action Area contains a dense overstory of mature cottonwoods and willows, but lacks a dense midstory and understory with open patches preferred by this species. In addition, Santa Maria Creek is ephemeral and does not provide the open water preferred by this species for foraging. Prior to the completion of surveys for the proposed action, the nearest documented LBVI occurrence is over 6 miles northeast of the Action Area and occurred in 1991 (CDFW 2020).

4.2.1. Survey Results for LBVI

Protocol surveys for LBVI were completed in 2012 and 2018 (Appendix C). The focused surveys followed the 2001 USFWS protocol. During 2012 and 2018, eight separate surveys were conducted at least 10 days apart within the survey area. Surveys were conducted between April 10 and July 31, 2012, and between April 14 and June 23, 2018, in all potentially suitable habitats and during suitable weather conditions. Surveys were conducted by biologists during morning hours prior to 1100, when LBVI are most active, and included frequent stops to look and listen for LBVI vocalizations (songs and/or scolds). Surveys were not conducted during inclement weather, such as extreme hot or cold temperatures, fog, high winds, or rain.

No LBVI were detected in the Action Area during protocol surveys in 2012. However, LBVI were detected during each of the eight protocol surveys in 2018. LBVI were observed nesting within the Action Area. A pair of LBVI was detected building two nests in the Action Area over the course of the survey period (April 14 through June 23, 2018). The first nest was deemed inactive on May 14, 2018, and was located within the 350-foot buffer outside the limits of disturbance (Appendix A, Figure 4; Appendix C). The second nest was detected under construction, within 15 feet of the first nest, on May 24, 2018, and was located within the temporary impact limits of disturbance in the Action Area. The second nest was successful with at least one fledgling. No nests were observed within the permanent impact limits of disturbance in the Action Area. LBVI are not known to occur upstream or downstream of the Action Area based on a review of CNDDDB and USFWS databases.

4.2.2. Status of Designated Critical Habitat in the Action Area for LBVI

The Action Area is not located within any designated critical habitat area for LBVI.

4.3. Discussion of San Diego Fairy Shrimp

The SDFS is a federally endangered species found in vernal pools of the coastal mesas of San Diego County. It is the most common fairy shrimp within a 50-kilometer coastal strip of vernal pools that mostly range in elevation from 15 to 125 meters. Disjunct populations of this species occur in northern Baja and southern Orange County (Eriksen and Belk 1999). However, coastal mesas are also one of the most popular sites for development and consequently this species has declined dramatically. It was originally identified as the relatively common versatile fairy shrimp (*Branchinecta lindahlii*) and was not described as a separate species until 1993.

SDFS are minute (<1 inch) crustaceans found in vernal pools and other seasonally filled water holes. The shrimp may appear after late fall, winter, or spring rains sufficiently fill their small, shallow pools (<12 inches deep). Fairy shrimp are filter feeders that digest microscopic particles of plant and animal detritus. Predators include birds and larger invertebrates that develop in their pools if water persists. One of the most unique features of fairy shrimp biology is the ability of their progeny to remain in soil, as egg-like cysts, for many years without hatching and then under appropriate conditions to hatch and reproduce.

4.3.1. Survey Results for SDFS

Focused vernal pool and fairy shrimp surveys were conducted in the southern extent of the Action Area in 2008 as part of the Ramona Library Project (TAIC 2008). Five vernal pools were identified within the library site during that time and SDFS were documented in four of those pools.

Approximately 22 basins were documented within the Action Area during the wet and dry season fairy shrimp surveys (Appendix A, Figure 6). These basins are temporarily ponded areas that include road ruts, depressions, and depressional features. Approximately 18 basins occur within the limits of disturbance: two within the roadway of Walnut Street, three within the roadway of Maple Street, one within the roadway of 13th Street, and the rest within the non-native grassland-broadleaf dominated habitat east of 13th Street. Basins 1 through 25 were originally documented by ICF in 2012–2013 surveys (Appendix D). All 21 basins were surveyed again in 2018, and Basin 26 was added as a new basin (Appendix D). Basin 1 is located in the disturbed wetland (Appendix A, Figure 4 and Figure 6). None of the basins were classified as vernal pools (Appendix D).

No SDFS were detected during protocol wet or dry season surveys in 2012–2013 within the Action Area (Appendix D). In 2018, AECOM SDFS permitted biologist Rick Bailey (TE-101151-3) conducted surveys of 22 basins, including 21 basins from the 2012–2013 ICF surveys (Appendix A, Figure 6). Focused protocol wet-season surveys for the federally listed SDFS were conducted in the project area from January 16 through March 26, 2018. Focused protocol dry-season surveys were conducted in spring 2018, with soil collected by AECOM SDFS permitted biologist Andrew Fisher (TE-820658-7) on May 25, 2018. No SDFS were detected during protocol wet or dry season surveys conducted in 2018 within the Action Area (Appendix D).

4.3.2. Status of Designated Critical Habitat in the Action Area for SDFS

The Action Area is not located within any designated critical habitat area for SDFS.

4.4. Discussion of Species Riverside Fairy Shrimp

The RFS is a tiny freshwater crustacean that typically inhabits relatively large, long-lived vernal pools. Its distribution is highly restricted, with most of the known populations located in coastal San Diego and Orange Counties, western Riverside County, and northern Baja California (Eriksen and Belk 1999). The species requires larger basins with prolonged inundation, such as stock ponds and detention basins, to provide the approximately 2 months required to attain sexual maturity.

4.4.1. Survey Results for RFS

Focused vernal pool and fairy shrimp surveys were conducted in the southern extent of the Action Area in 2008 as part of the Ramona Library Project (TAIC 2008). Five vernal pools were identified in the library site during that time, but no RFS were documented on-site. The Ramona Library Project created a detention basin that ponds with sufficient duration to support RFS. Ruts on the shoulder of 13th Street have some potential to pond with sufficient duration to be suitable for RFS. There are no known records for RFS in the vicinity of the Ramona valley (CDFW 2020). This species was not detected during protocol wet and dry season surveys in 2012/13/14 within the Action Area (Appendix D).

As described above for SDFS, in 2018, AECOM SDFS permitted biologist Rick Bailey (TE-101151-3) conducted surveys of 22 basins, including 21 basins from the 2012–2013 ICF surveys (Appendix A, Figure 6). Focused protocol wet-season surveys for the federally listed RFS were conducted in the project area from January 16 through March 26, 2018. Focused protocol dry-season surveys were conducted in spring 2018, with soil collected by AECOM RFS permitted biologist Andrew Fisher (TE-820658-7) on May 25, 2018. No RFS were detected during protocol wet or dry season surveys conducted in 2018 within the Action Area (Appendix D).

4.4.2. Status of Designated Critical Habitat in the Action Area for RFS

The Action Area is not located within any designated critical habitat area for RFS.

Chapter 5. Effects of the Project on the Action Area

5.1. Deconstruct Action

Construction activities will consist of the following project components, including an approximately 480-foot-long bridge over Santa Maria Creek. The proposed bridge would be a 42-foot-wide cast-in-place concrete box girder structure with two 12-foot-wide travel lanes, 3-foot-wide shoulders on each side, an 8-foot-wide multi-use pathway, and three bridge barriers with a total width of 4 feet. The new bridge would be elevated by approximately 10 feet above ground. The contractor will be required to stage and store all equipment on-site, off-site, or within previously disturbed upland areas. Construction activities for the 13th Street Bridge Project will include installing construction fencing, erosion control, and temporary K-rails; clearing, grubbing, and preparing soils; constructing temporary access roads; slope grading, road demolition and excavation work; relocating (undergrounding) utilities installing new roadway infrastructure; relocating/reconstructing drainage structures; and restoring temporary impact areas (e.g., revegetation). The new 10-foot-high, 480-foot-long bridge will be constructed over Santa Maria Creek to replace the existing unimproved (dirt and gravel) culvert crossing and, in doing so, improve traffic circulation during flood events in the Action Area.

Three federally listed wildlife species (LBVI, SDFS, and RFS) have potential to occur within the Action Area. One listed species (LBVI) has been observed within the proposed action limits of disturbance in Action Area and one observation occurred just outside of the limits of disturbance as recently as 2018 (Appendix A, Figure 7; and Appendix C). No SDFS or RFS were detected in the Action Area during focused surveys in 2012/13 or 2018 (Appendix D). A combination of avoidance and minimization measures and compensatory mitigation would reduce the overall adverse impacts to biological resources.

5.1.1. Construction Scenario (Summary)

All construction activities will be limited to the impact boundaries by installing highly visible fencing (i.e., silt fence with flagging, orange snow fencing, or other suitable non-penetrable fencing) along the boundary to prevent construction from encroaching into adjacent areas and to exclude wildlife from the construction site. Installation of ESA fencing and silt fencing, and implementation of BMPs will take place prior to the start of construction. Construction access and staging will be restricted to the disturbance limits for the proposed action. Specific staging and storing sites would be determined closer to construction, but all construction staging and storing, fuel sites, and concrete mixing sites, etc., will occur in previously disturbed areas outside of ESAs. All grading will occur within the disturbance limits of the 13th Street Bridge Project. Construction of the cast-in-place concrete box girder structure would require the construction of a temporary access road, clearing and grubbing, remediating the base soil form, and pouring the concrete box girder. The existing 13th Street Santa Maria Creek may be closed periodically for certain construction activities. Construction of the bridge components (roadway widening, pathway construction including bridge barriers, and

drainage improvements) would require clearing and grubbing, slope grading, roadway demolition and excavation, roadway structural work and paving, and equestrian K-rail installation.

Disposal of excavated material (soil, rock, vegetation, and solid waste) is the responsibility of the contractor and will occur off-site in a permitted off-site treatment and/or disposal facility.

Permanent and temporary impacts to sensitive vegetation communities within the limits of disturbance in the Action Area are shown below in Table 5. The 13th Street Bridge Project would temporarily impact 0.86 acre and permanently impact 0.10 acre of riparian habitat potentially suitable for LBVI, consisting of southern cottonwood-willow riparian forest and southern willow scrub.

TABLE 5. PERMANENT AND TEMPORARY DIRECT IMPACTS TO SENSITIVE VEGETATION COMMUNITIES (ACRES)

Vegetation Community¹	Permanent Impact	Temporary Impact	Total Impacts
<i>Riparian and Wetlands</i>	<i>0.10</i>	<i>0.98</i>	<i>1.08</i>
Disturbed Wetland	-	0.12	0.12
Southern Cottonwood-Willow Riparian Forest	0.06	0.79	0.85
Southern Willow Scrub	0.04	0.07	0.11
<i>Uplands</i>	<i>1.21</i>	<i>3.31</i>	<i>4.52</i>
Diegan Coastal Sage Scrub - Inland Form	0.05	-	0.05
Non-Native Grassland	1.16	3.31	4.47
Total	1.31	4.29	5.60

¹ Vegetation communities not listed are not impacted by the proposed action.

5.1.2. Sequencing and Schedule

Construction of the proposed action is anticipated to last 12 months. To the extent feasible, construction will be initiated and vegetation removed outside the LBVI breeding season (March 15 through September 15). The sequencing and schedule of work is as follows: installation of orange construction fencing and implementation of BMPs (i.e., silt fencing and other standard site preparation), clearing and grubbing, grading, road demolition and excavation, shoulder widening, installing bridge components, and pathway components. Details about each phase of work are provided below in sequential order:

- (1) Installation of ESA Fencing. Prior to clearing or construction, the contractor will install orange construction fencing adjacent to the entire disturbance limits (including storage and stockpile areas) and designate ESAs to be preserved. The ESA fencing installation will be completed using highly visible snow/safety fencing and t-posts installed by hand crews. This activity is expected to occur daily and may take less than 2 months.
- (2) Implementation of BMPs. Silt fencing, erosion control, and other BMPs will be employed as part of the SWPPP. Conservation measures for LBVI will also be implemented prior to construction.
- (3) Clearing and Grubbing. Once the orange construction fencing and BMPs have been implemented, vegetation removal including clearing, grubbing, or trimming activities using chainsaws, string trimmers, and other mechanized or non-mechanized hand tools will be the

next step of construction. Construction access routes would also be established during this phase; all temporary access routes would be constructed within disturbed areas, to the extent feasible. Clearing and grubbing would result in both permanent and temporary impacts to upland and riparian vegetation communities. This activity is expected to occur daily and may take less than 2 months. To avoid impacts to nesting LBVI, where feasible, vegetation removal will occur outside of the nesting bird season (March 15 through September 15). In the event that vegetation clearing is necessary during the nesting season, a qualified biologist will conduct a pre-construction survey to identify the locations of nests. Should nesting LBVI be found, an exclusionary buffer will be established by the qualified biologist. This buffer should be clearly marked in the field by construction personnel under guidance of the qualified biologist, and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active.

- (4) Road Demolition and Excavation. Roadway demolition and excavation for the shoulder widening would require grading, excavation, and trenching in areas along the existing road shoulder. This would result in both permanent and temporary impacts to upland and riparian vegetation communities. This work will be conducted using heavy equipment such as excavators, backhoes, bulldozers, trucks, and compactors. The duration of this work is unknown at this time.
- (5) Installing Structures. Installation of new structures, modification of existing drainage systems, and associated improvements would occur following grading and excavation work using cranes and other heavy equipment as well as work conducted by hand. The existing 250-foot-long Santa Maria Creek culvert crossing would be replaced with a 4-span, cast-in-place, post-tensioned, concrete box girder structure approximately 480 feet long and 42 feet wide with three singular-column bents. Ground disturbance is anticipated within and immediately adjacent to Santa Maria Creek. Direct permanent impacts would occur in areas to be paved, areas within the proposed bridge approaches and box girder structure, and in areas where new roadway and drainage infrastructure (e.g., expanded shoulders, pathway, column bents, bridge barriers) are added. Direct temporary impacts would occur in temporary construction access and staging areas, areas needed to facilitate equipment movement, and graded slopes and contours identified for restoration.

5.1.3. Stressors from Project Actions

Stressors induce an adverse response in an organism by any physical, chemical, or biological alteration of the environment (or resource) that can lead to a response from the individual. Stressors can act directly on an individual, or indirectly through effects to a resource.

The following sections discuss potential direct and indirect project stressors and how they may affect LBVI, if present in the Action Area during construction activities. Indirect project stressors are not expected to adversely affect the species through implementation of BMPs and the avoidance and minimization measures.

As shown in Table 5, and discussed above, direct temporary and permanent impacts to occupied LBVI habitats are anticipated as a result of the clearing and grubbing; grading; road demolition and

excavation; shoulder widening; and installation of bridge components, pathway components, and box girder structure. Direct permanent impacts to riparian habitats would occur in areas to be paved or graded for roadway widening, bridge installation, and in areas where new roadway (i.e., road shoulders and sidewalks) and drainage infrastructure is added or modified. Direct temporary impacts to sensitive vegetation communities may include impacts from construction access or temporary ground disturbance. Indirect permanent impacts may occur outside of the direct disturbance limits where construction activities would result in lasting effects on the physical environment (localized changes in hydrology where new drainage infrastructure is added or where existing drainage systems are modified [e.g., box girder structure], or through enhancing the germination and proliferation of non-native invasive plant species). These permanent indirect impacts are already occurring as a result of existing conditions. Implementation of the proposed action would likely lessen these impacts. Once construction is complete, operation and maintenance of the bridge is expected to provide a net benefit to habitat in the surrounding area. Flooding across the existing dirt road during the rainy season likely degrades habitat downstream of the road as result of erosion and sedimentation. Construction of the bridge would allow water to move under the road during rain events, and installation of storm drain systems would minimize erosion and sedimentation downstream of the bridge.

The use of vehicles and equipment will produce noise that may disturb the breeding LBVI if it occurs during March 15 through September 15. The use of heavy equipment on the project area may cause direct vehicle strike of small birds such as LBVI occupying the streams and surrounding riparian habitat. Modification of occupied habitat would temporarily remove vegetative cover during construction and would directly reduce foraging habitat for the LBVI. These activities may discourage LBVI from using the Action Area during the nesting season if they are utilizing adjacent habitat for nesting, which could indirectly affect their breeding and nest success if they are pressured to fly farther for food and resources. Once project components are complete, riparian habitat temporarily impacted would be restored. In addition, permanent impacts to riparian habitat would be mitigated. Therefore, suitable habitat for foraging and nesting within the Action Area would not have an appreciable decrease.

Other indirect temporary effects to LBVI suitable habitat may include fugitive dust from construction. Species present in adjacent habitats during construction may be temporarily subjected to increased noise, light, and vibration. These indirect effects would occur in areas both within and outside of the direct disturbance limits (Action Area and associated 350-foot buffer). Such indirect effects would be minimized and avoided to the extent feasible through the implementation of BMPs and impact avoidance and minimization features. Once construction is complete, removal of the existing dirt road would eliminate generated dust that currently affects habitat in the vicinity of the road.

5.1.4. Project Operation and Maintenance

Once construction is complete, operation and maintenance of the bridge is expected to provide a net benefit to habitat in the surrounding area. Flooding across the existing dirt road during the rainy season likely degrades habitat downstream of the road as result of erosion and sedimentation. Construction of the bridge would allow water to move under the road during rain events and installation of storm drain systems would minimize erosion and sedimentation downstream of the

bridge. In addition, paving of the existing dirt road would eliminate generated dust that currently affects habitat in the vicinity of the road.

Foreseeable maintenance activities include the removal of accumulated debris in the drainage structures and periodic structure maintenance to maintain related infrastructure. Such maintenance activities would incorporate applicable impact avoidance measures (e.g., nesting bird season restrictions, and clearance surveys, etc.) to avoid and/or minimize potential impacts on sensitive biological resources.

5.2. Exposure to Stressors from the Action

Exposures are defined as the interaction of the species, their resources, and the stressors that result from the project action.

Construction is anticipated to overlap with the LBVI nesting season. If LBVI are found nesting in the project area, they may be disturbed by noise produced from construction-related activities. The use of vehicles and equipment during construction will produce noise that the LBVI will be exposed to if individuals are nesting nearby or using the foraging habitat in the Action Area. The use of heavy equipment and increased vehicular traffic during construction in the project area may cause direct exposure to vehicle strike of small birds such as LBVI occupying the streams and surrounding riparian habitat. This exposure to noise may deter the species from using the riparian corridors in the Action Area. This could also indirectly stress individuals if they are forced to fly farther for resources in order to avoid project noise.

Removal of vegetative cover would indirectly stress the LBVI by reducing the quality of foraging habitat in the Action Area. This would discourage LBVI from using the project area, which could indirectly affect their success if they are pressured to fly farther for food and resources.

5.3. Response to the Exposure

The use of vehicles and equipment during construction will produce noise that the LBVI will be exposed to. This direct exposure to noise could cause a behavior response of flushing birds from the Action Area during construction activities. Additionally, the species would likely avoid the area while loud noises occur. The proposed action could physically stress an individual as well, if an individual is pressured to fly farther to forage. These responses are unlikely to affect any adult or juvenile individuals that have left the nest, due to low likelihood of exposure to the stressors. The intensity of the exposure would be low, given the use of large equipment is common in the Action Area and individuals are exposed to intermittent loud noises on a regular basis.

The use of heavy equipment and increased vehicular traffic during construction in the project area may cause vehicle strikes of passerines such as LBVI occupying the streams and surrounding riparian habitat. This would cause direct physical stress on an individual. The likelihood of this occurring is extremely low because equipment and vehicles move slow and cautiously during construction.

Removal of vegetative cover would reduce the quality of foraging habitat in the Action Area. This could discourage LBVI from utilizing the project area until temporary disturbances were restored. If there were LBVI utilizing the area during nesting season, this indirect stress could affect reproductive success if adults were pressured to fly farther for food and resources.

One pair of LBVI was observed nesting within the Action Area; therefore, exposure of juvenile or adult LBVI to stressors is possible. However, implementation of the conservation measures in Section 5.5 and the presence of an on-site biological monitor would substantially reduce the potential for exposure of LBVI to stressors.

5.4. Effects of the Action

Effect is a description of the manner in which the action may affect any listed species or critical habitat and an analysis of any cumulative effect (50 CFR 402.02). The effect of the action is the consequence (behavioral, physical, or physiological) of a response to a stressor.

5.4.1. San Diego Fairy and Riverside Fairy Shrimp

The project will have no effect on SDFS or RFS.

5.4.2. Least Bell's Vireo

LBVI are known to occur within and adjacent to the Action Area. Permanent and temporary habitat loss could reduce resources for the LBVI. The loss of temporary (0.86 acre) and permanent (0.10 acre) habitat within the Action Area is minimal, especially when considering the abundance of riparian habitat in the Santa Maria Creek watershed.

Direct permanent impacts to occupied LBVI habitat are anticipated due to the installation of the 13th Street Bridge. Paved and concrete areas, and areas with new bridge footings and drainage infrastructure would be permanently impacted. Direct temporary impacts to occupied LBVI habitat may include impacts from construction staging and access areas or temporary ground disturbance.

Indirect impacts to LBVI would only occur when construction activities take place during nesting season for this species and/or if an active nest was detected.

Indirect permanent impacts may occur in limited areas outside of the direct disturbance limits where construction activities may result in lasting effects on the physical environment (localized changes in hydrology where existing drainage features are modified, or through the potential enhancement of the germination and proliferation of non-native invasive plants). Indirect temporary impacts include those generated from construction-related activities (e.g., construction-related noise, fugitive dust, unauthorized access). The project could flush individuals from surrounding habitat or cause them to avoid the Action Area due to loud noises. Avoidance or displacement of individuals could also affect other LBVI territories that may be in the vicinity if individuals are forced to compete for resources. The potential that foraging or dispersing LBVI would move near or across work areas is considered low. Animals would be expected to avoid active work sites due to human presence and active heavy equipment. Impacts to this habitat are expected to be minimal and mostly temporary. Potential habitat that could be disrupted by construction activities will be available for use after construction.

Implementation of conservation measures during construction period would minimize or avoid indirect effects.

5.4.3. Critical Habitat

No direct effects on designated critical habitat would occur because no critical habitat is located in the Action Area.

There would be no indirect effects of the proposed action on existing critical habitat that occurs outside the Action Area or critical habitat that may be designated in the future. No critical habitat occurs in the Action Area, and none is likely to become established in the Action Area.

5.5. Conservation Measures and Compensation Proposal

5.5.1. Conservation Measures

The proposed action has been designed to avoid and minimize adverse impacts to biological resources. The following BMPs will be implemented to further minimize impacts especially indirect impacts:

AMM-1: The project has incorporated storm drain systems to facilitate meeting water quality requirements and for stormwater management, which will minimize erosion and degradation of habitat downstream of the bridge.

AMM-2: The limits of grading and temporary work areas will be demarked with construction exclusion fencing for all of these areas of natural communities of special concern to avoid unintentional encroachment into these sensitive areas. Signage will be posted identifying the excluded areas as ESAs.

AMM-3: A qualified biologist will be retained to supervise construction activities, including installation of exclusion fencing, construction and grading activities, and contractor education. The qualified biologist will conduct pre-construction surveys for any nesting bird species potentially occurring within the habitats within the Action Area; including pre-construction surveys for LBVI (see BIO-1).

AMM-4: Standard fugitive dust BMPs, e.g., a water truck, are recommended to reduce effects of construction-generated erosion and sedimentation into the adjacent ESAs.

AMM-5: Where applicable, implement all relevant BMPs as required by a SWPPP and the NPDES.

AMM-6: BMPs will be implemented to ensure invasive plant material is not spread from the project site to other areas by disposal off-site or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of non-native plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Weeds removed will be appropriately bagged and disposed of in a sanitary landfill.

In addition to implementation of AMM-1 through AMM-6, LBVI avoidance measure BIO-1 would be implemented:

BIO-1. Least Bell's Vireo Avoidance and Minimization. To the extent possible, vegetation clearing will occur outside of the breeding season for LBVI (March 15 through September 15). If work is proposed to start during the LBVI or other avian species breeding season, a pre-activity nesting bird survey will be conducted within 7 days prior to starting work to identify any nesting vireos or other riparian birds within 500 feet of the project area. If work stops for more than 7 days during the breeding season, the pre-activity survey will be repeated before restarting work.

If there are no nesting birds (includes nest building or other breeding/nesting behavior) within this area, vegetation trimming and other project activities will be allowed to proceed.

If nesting birds are found, the qualified biologist will flag the active nests and project activities will avoid active nests until nesting behavior has ceased, nests have failed, or young have fledged and/or the biologist determines that no impacts are anticipated to the nesting birds or their young. Project activities within 300 feet of a nest that could generate noise in excess of 60 A-weighted decibels (dBA) or ambient, if it is higher than 60 dBA, at the edge of occupied habitat, will either (1) be postponed until a qualified biologist determines the nest(s) is no longer active or until after the respective breeding season; or (2) not occur until a temporary noise barrier or berm is constructed at the edge of the development footprint and/or around the piece of equipment to ensure that noise levels are reduced to below 60 dBA or ambient. Buffer distances may be adjusted as recommended by the qualified biologist depending on the sensitivity of the species.

5.5.2. Compensation

Compensatory mitigation for permanent and temporary impacts to occupied LBVI habitat would be implemented through habitat-based mitigation for impacts to southern cottonwood-willow riparian forest and southern willow scrub. Tables 6 and 7 provide the acres of mitigation that would be required as a result of permanent and temporary impacts to the vegetation communities within the project area. Mitigation ratios for permanent impacts to vegetation communities are based on the County of San Diego's *Guidelines for Determining Significance and Report Format and Content Requirements Biological Resources* (County of San Diego 2010) (Table 6). Temporary direct impacts would be mitigated in-place at a 1:1 ratio (with the exception of grasslands at 0.5:1 ratio) through on-site restoration (Table 7).

Mitigation for permanent and temporary direct impacts to riparian and wetland communities would be "in-kind." Mitigation for direct impacts to upland habitats of Diegan coastal sage scrub and non-native grassland may be mitigated "out of kind." The County's Guidelines (County of San Diego 2010) note that mitigation using an "out of kind" habitat type may be appropriate in cases that meet the following criteria:

- The biological function and value of the habitat used for mitigation is similar to that which was impacted.
- For non-native grassland habitats that have been created by past legal human activity, it may be appropriate to mitigate with the native habitat type that the land formerly supported.

TABLE 6. MITIGATION FOR PERMANENT DIRECT IMPACTS TO SENSITIVE VEGETATION COMMUNITIES

Vegetation Community ¹	Permanent Impact (acres)	Mitigation Ratio	Mitigation Acreage
Riparian and Wetlands			
Southern Cottonwood-Willow Riparian Forest	0.06	3:1	0.18
Southern Willow Scrub	0.04	3:1	0.12
Uplands			
Diegan Coastal Sage Scrub - Inland Form ^{2,3}	0.05	1:1	0.05
Non-Native Grassland ³	1.16	0.5:1	0.58
Total	1.31		0.93

¹ Vegetation communities not listed are not permanently impacted by the proposed action.

² The County's Guidelines mitigation ratios for coastal sage scrub habitat types are subject to the Natural Community Conservation Planning Process guidelines and are typically 1:1 to 3:1 depending on habitat value for long-term conservation. The coastal sage scrub within the BSA is very small and surrounded by non-native grasslands and would not support species dependent on coastal sage scrub habitat. It therefore has a low value for long-term conservation as coastal sage scrub habitat and a mitigation ratio of 1:1 will be used to offset impacts.

³ Mitigation for Diegan coastal sage scrub and non-native grassland may be out of kind through enhancement and/or restoration of riparian and wetland communities.

TABLE 7. MITIGATION FOR TEMPORARY DIRECT IMPACTS TO SENSITIVE VEGETATION COMMUNITIES

Vegetation Community ¹	Temporary Impact (acres)	Mitigation Ratio	Mitigation Acreage
Riparian and Wetlands			
Disturbed Wetland	0.12	1:1	0.12
Southern Cottonwood-Willow Riparian Forest	0.79	1:1	0.79
Southern Willow Scrub	0.07	1:1	0.07
Uplands			
Non-Native Grassland ²	3.31	0.5:1	1.66
Total	4.29		2.64

¹ Vegetation communities not listed are not temporarily impacted by the proposed action.

² Mitigation for non-native grassland may be out of kind through enhancement and/or restoration of riparian and wetland communities.

Examination of historical aerial imagery in Google Earth indicates that most of the areas where impacts to Diegan coastal sage scrub and non-native grassland would occur have been heavily disturbed over the past 20 years. The isolated patch of Diegan coastal sage scrub in particular has only recently appeared within the Action Area based on historical imagery. Although the non-native grassland is more expansive within the Action Area both of these habitats likely have low biological value for the species that inhabit them due to the developed setting and ongoing disturbance. As a result, it may be more appropriate to mitigate for the loss of Diegan coastal sage scrub and non-native grassland by creating additional riparian and wetland communities, thereby increasing the function and value of the Santa Maria Creek corridor.

Implementation of BIO-2 and BIO-3 would mitigate direct impacts to sensitive vegetation communities and address in-kind versus out of kind mitigation.

BIO-2: All permanent direct impacts to sensitive vegetation communities, habitat, and jurisdictional wetlands or waters will be mitigated on- or off-site consistent with the ratios in the County's

Guidelines (County of San Diego 2010; Table 6), and through coordination with the resource agencies. Mitigation will be accomplished on-site as feasible. On-site mitigation may occur in the form of restoration or habitat enhancement. A conceptual mitigation plan will be prepared to address the on-site mitigation proposed for the project. The conceptual mitigation plan will include the identification and location of areas that could be used for creation, restoration, or habitat enhancement. The conceptual mitigation plan will include lists of native plant species, by habitat-type, that may be used in potential on-site revegetation efforts (e.g., planting and seeding). In addition, if needed to meet mitigation needs, the conceptual mitigation plan will identify opportunities for additional enhancements of habitats in temporary impact areas, such as supplemental planting of trees, weeding of adjacent buffer habitat, or other opportunities. The enhancement opportunities will include acreage estimates of treated areas, acreage of invasive removal, and figures to illustrate the treatment area and mapped invasive species. The conceptual mitigation plan will ultimately be used to inform the Mitigation Monitoring Plan. A habitat restoration specialist will determine the optimal areas for habitat establishment and restoration and prepare a Mitigation Monitoring Plan that provides details on the concept. The plan will specifically discuss habitat restoration implementation, including plant establishment methods, performance standards, maintenance and monitoring period, and reporting.

BIO-3: All areas of temporary direct impacts (grading and work areas) will be restored on-site. The conceptual mitigation plan described in BIO-2 will be prepared to address the on-site mitigation proposed for the project.

5.6. Effects of Interrelated and Interdependent Actions/Conclusions and Determination

5.6.1. Interrelated Actions

Interrelated actions are actions that are part of a larger action and depend on the larger action for their justification (50 CFR 402.02) (i.e., this project would not occur “but for” a larger project). Interrelated actions are typically associated with the proposed action.

There is one interrelated action to the 13th Street Bridge Project. The 13th Street Gap Project footprint intersects the 13th Street Bridge Project footprint. Because of this, on February 4, 2015, Caltrans and County environmental staff agreed that the NEPA/CEQA technical studies can include the analysis of the impacts associated with the 13th Street Gap Project. Therefore, the 13th Street Bridge Project and Gap Project are considered one project from an environmental standpoint. See Sections 1.3 and 1.4.5.1 for additional details related to agency consultation regarding these two projects.

The 13th Street Bridge Project is proposed for the purposes of improving roadway creek crossing during flood events, and roadway and drainage infrastructure. Although bundled together from an environmental standpoint, the 13th Street Bridge Project is a stand-alone project in terms of traffic delays and road closures due to flooding events, improving roadway and drainage infrastructure, and reducing the amount of hardscape in the creek bed.

5.6.2. Interdependent Actions

Interdependent actions are actions having no independent utility apart from the proposed action. [50 CFR 402.02].

The 13th Street Bridge Project is a stand-alone project proposed for the purposes of improving roadway creek crossing during flood events and roadway and drainage infrastructure. The project is not associated with any interdependent actions.

5.7. Cumulative Effects

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the Action Area described in this BA. Future federal actions unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the FESA.

Implementation of the proposed action, as well as other projects within the region, would contribute to cumulative impacts to LBVI occupied habitat in the form of southern cottonwood-willow riparian forest and southern willow scrub through direct, incremental loss of habitat. However, the proposed action would only contribute a small amount (0.1 acre) of permanent impacts to willow riparian habitat and these impacts would be mitigated per the County's mitigation ratios as detailed in Table 6. Furthermore, the project is anticipated to provide a net benefit to habitat for this species by reducing the magnitude of existing indirect impacts that affect adjacent habitat. Therefore, cumulative impacts to this species would not be considered adverse.

5.8. Determination

5.8.1. Species and Critical Habitat Determination

5.8.1.1. NO EFFECT DETERMINATION

A no effect determination was made for the following species. No designated critical habitat occurs within the Action Area. No consultation is required for these species.

- SDFS
- RFS

5.8.1.2. MAY AFFECT NOT LIKELY TO ADVERSELY AFFECT DETERMINATION

A May Effect, Not Likely to Adversely Affect determination was made for the following species. No designated critical habitat occurs within the Action Area. Formal consultation is required.

- LBVI

5.8.2. Discussion Supporting Determination

Under provisions of Section 7(a)(2) of the FESA, a federal agency (e.g., the FHWA) that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed species or destroy or

adversely modify critical habitat. This BA addresses the 13th Street Bridge Project effects on and avoidance and minimization measures for federally listed wildlife species.

Protocol surveys were conducted in 2012/13 and 2018 for SDFS and RFS, but results were negative. Notwithstanding the negative survey results, low-quality suitable habitat for SDFS and RFS is still present in the Action Area. Direct effects to SDFS and RFS are not expected to occur as a result of implementation of the 13th Street Bridge Project because those species are not known to occur within 13th Street Bridge Project direct disturbance limits.

The effect determination for LBVI is May Effect, Not Likely to Adversely Affect. There is occupied habitat present within the Action Area, but impacts are expected to be minimal relative to the available habitat. In addition, no net loss of habitat will occur as result of mitigation. Although indirect effects including stressors from project construction may occur within suitable habitats, the implementation of avoidance and minimization measures and beneficial design features would avoid and minimize impacts to suitable habitat for this species. Due to the limited acreage of LBVI habitat impacted in comparison to the available habitat and the distribution of these impacts along an existing road in a relatively urban area, the proposed action is not expected to appreciably reduce the numbers, reproduction, or distribution of the LBVI population in this region of San Diego County.

A No Effect determination was made for the 12 additional federally listed plant and animal species identified in the federal species lists obtained for the project. When analyzing and surveying the Action Area, it was determined that suitable habitats are absent for these species and/or the Action Area is outside of the known current range of these species.

Chapter 6. Literature Cited

- AECOM. 2020. *13th Street Bridge Project Natural Environment Study (NES), 13th Street Bridge Project*. April.
- California Department of Fish and Game (CDFG). 2009. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*.
- California Department of Fish and Wildlife (CDFW). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. March 20, 2018.
- California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDDB). Biogeographic Data Branch.
- County of San Diego. 2010. *County of San Diego Guidelines of Determining Significance and Report Format and Content Requirements, Biological Resources*. Fourth Revision. September 15.
- Eriksen, C. H., and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Eureka, CA.
- Holland, R. F. 1986. *Preliminary Description of the Terrestrial Natural Communities of California*. California Department of Fish and Game. Vegetation Ecologist Nongame-Heritage Program. October.
- Kus, B. 2002. Least Bell's Vireo (*Vireo bellii pusillus*). In *The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-Associated Birds in California*. California Partners in Flight. Available at http://www.prbo.org/calpif/htmldocs/riparian_v-2.html.
- Kus, B., S. L. Hopp, R. R. Johnson, and B.T. Brown. 2010. Bell's Vireo (*Vireo bellii*), version 2.0. In *The Birds of North America* (P. G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, New York, USA. Available at <https://doi.org/10.2173/bna.35>.
- Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California." March.
- Salata, L. 1983. Status of the Least Bell's Vireo on Camp Pendleton, California. U.S. Fish and Wildlife Service, Laguna Niguel, CA. Unpublished Report.
- San Diego Association of Governments and Regional Environmental Consultants (SANDAG and RECON). 1990. *Draft Comprehensive Species Management Plan for the Least Bell's Vireo*. San Diego Assoc. of Governments, San Diego, CA. 244 pp.
- San Diego Natural History Museum. 2018. *Plant Atlas*. Available at <http://www.sdplantatlas.org/>. Accessed May 2018 by John Messina.

- Technology Associates (TAIC). 2008. *Draft Biological Assessment, Ramona Branch Public Library Project*. August 22, 2008.
- U.S. Department of Agriculture (USDA). 1973. Soil Survey, San Diego Area, California. Washington, DC: U.S. Soil Conservation Service [now Natural Resources Conservation Service] and U.S. Forest Service.
- U.S. Fish and Wildlife Service (USFWS). 1986. Determination of Endangered Status for the Least Bell's Vireo. *Federal Register* 51:16474–16481.
- USFWS. 1994. Designation of Critical Habitat for the Least Bell's Vireo. *Federal Register* 59:4845–4867.
- USFWS. 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)1(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*.
- USFWS. 1998. *Draft Recovery Plan for the Least Bell's Vireo (Vireo bellii pusillus)*. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. March 1998.
- USFWS. 2001. *Least Bell's Vireo Survey Guidelines*. Report from Carlsbad, California Field Office. January 19, 2001. 3 pp.

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Appendix A Figures

Figure 1. Regional Location

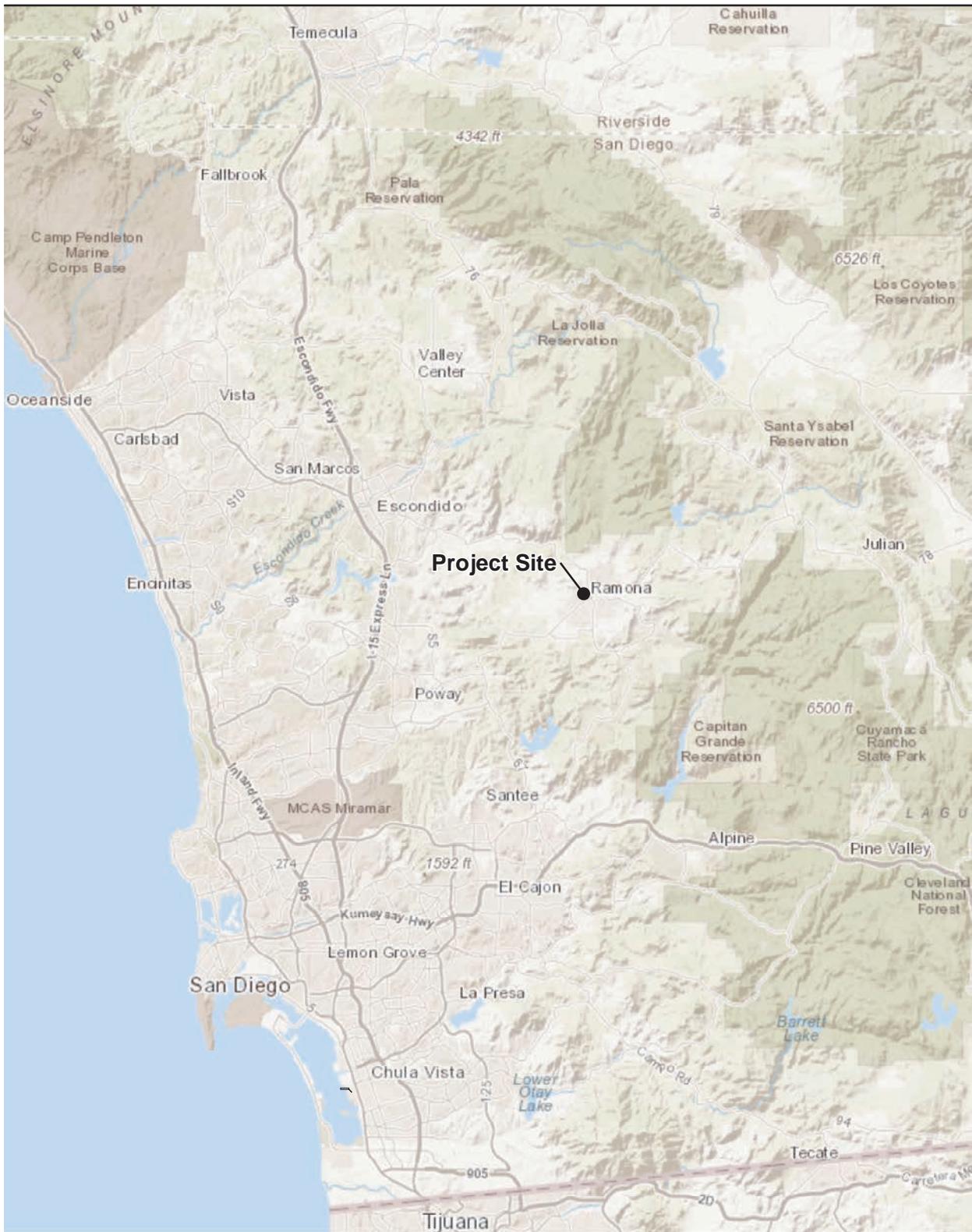
Figure 2. Vicinity

Figure 3. Land Ownership

Figure 4. Biological Resources

Figure 5. Soils

Figure 6. Hydrologic and Aquatic Resources



Source: Esri online basemap

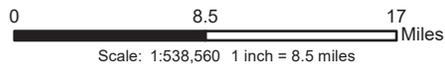
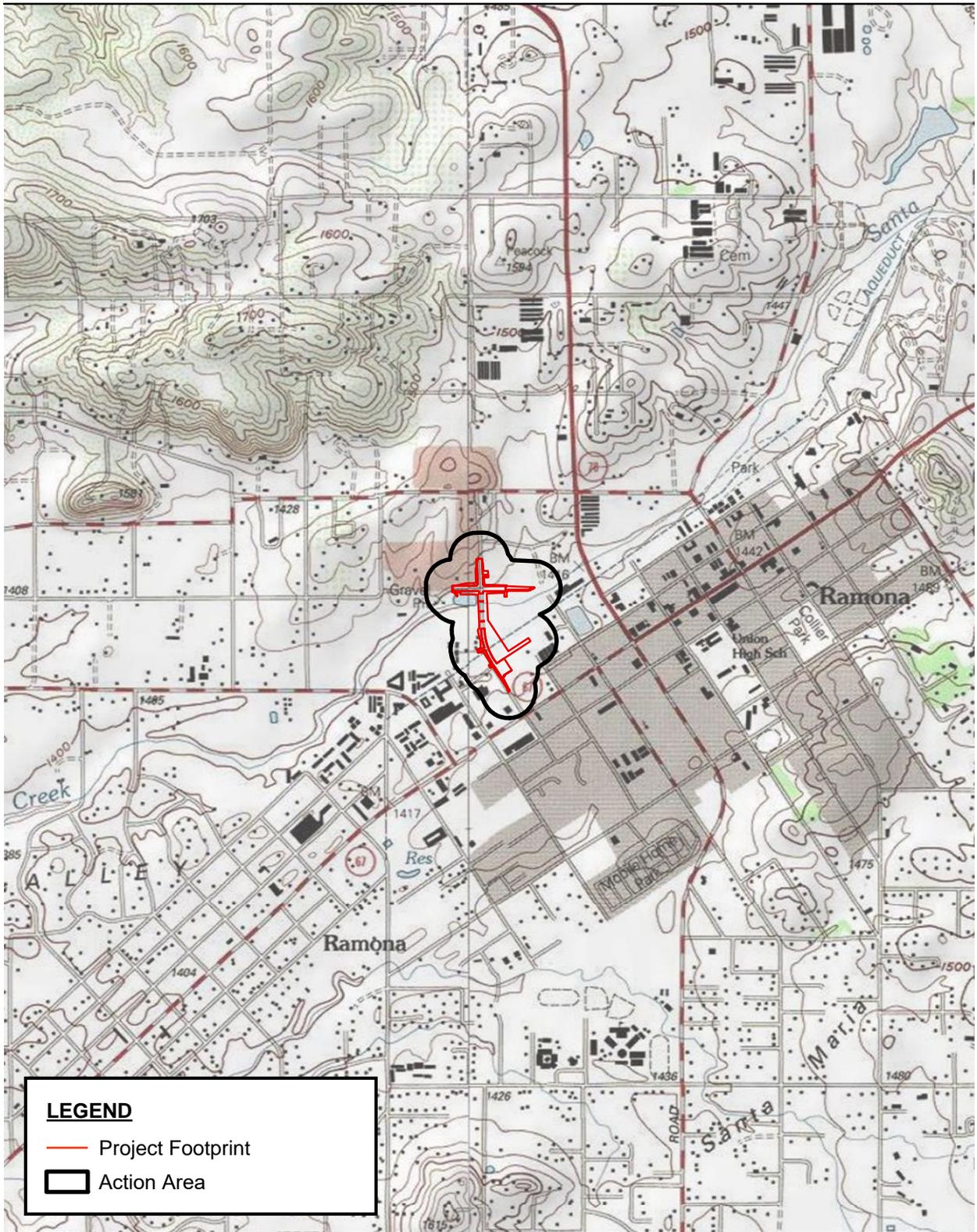


Figure 1
Regional Location



Source: USGS 7.5' Quadrangle San Pasqual, Calif 1984, Ramona, Calif. 1985; Esri, Copyright:© 2013 National Geographic Society, i-cubed

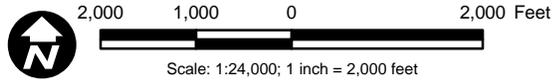
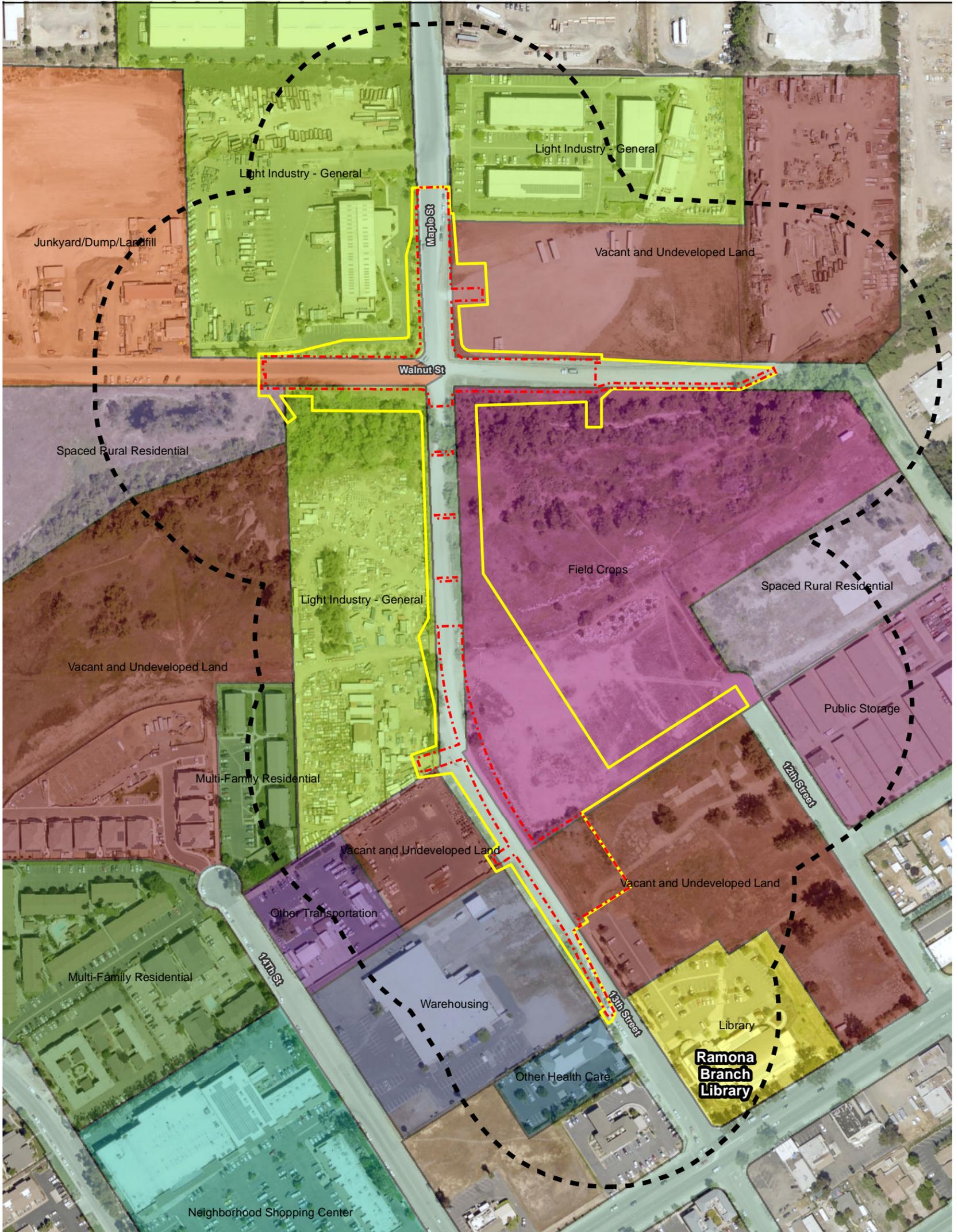


Figure 2
Vicinity

13th Street Bridge Biological Assessment

Path: P:_6056\60562978_13thStBridge\900-CAD-GIS\920 GIS\map_docs\mxd\Bio\NES\Fig2_VicinityMap.mxd, 11/26/2018, daniel.arellano



LEGEND

Permanent Impact	Land Use	Other Health Care
Temporary Impact	Field Crops	Other Transportation
Action Area	Junkyard/Dump/Landfill	Public Storage
	Library	Road Right of Way
	Light Industry - General	Spaced Rural Residential
	Multi-Family Residential	Vacant and Undeveloped Land
	Neighborhood Shopping Center	Warehousing

Source: SANDAG 2017; SanGIS 2018

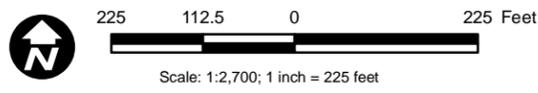
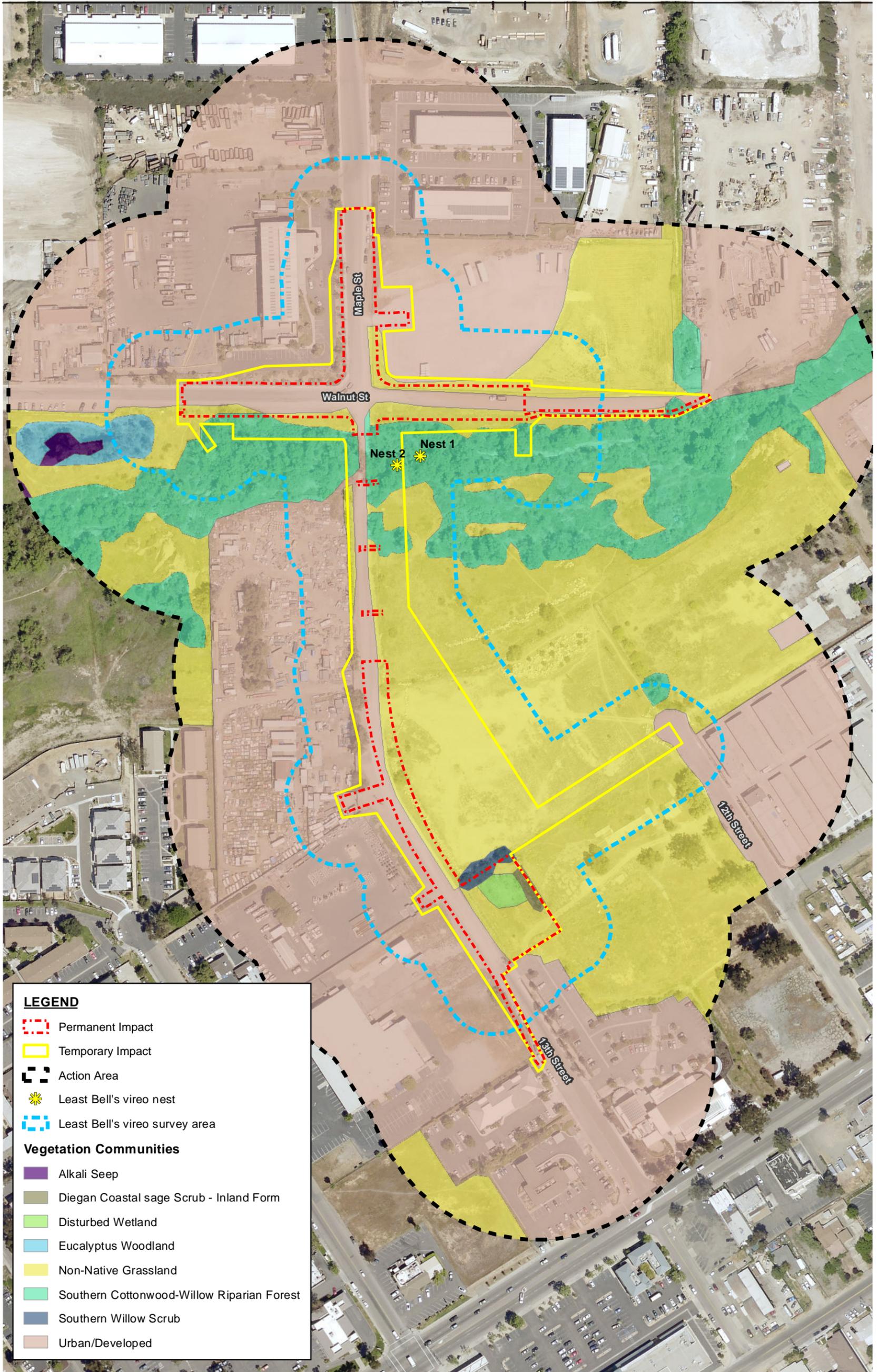


Figure 3
Land Use



Source: SANDAG 2017; GeomorphIS 2018

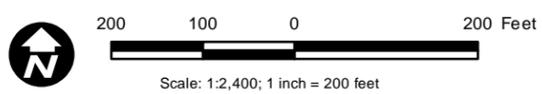
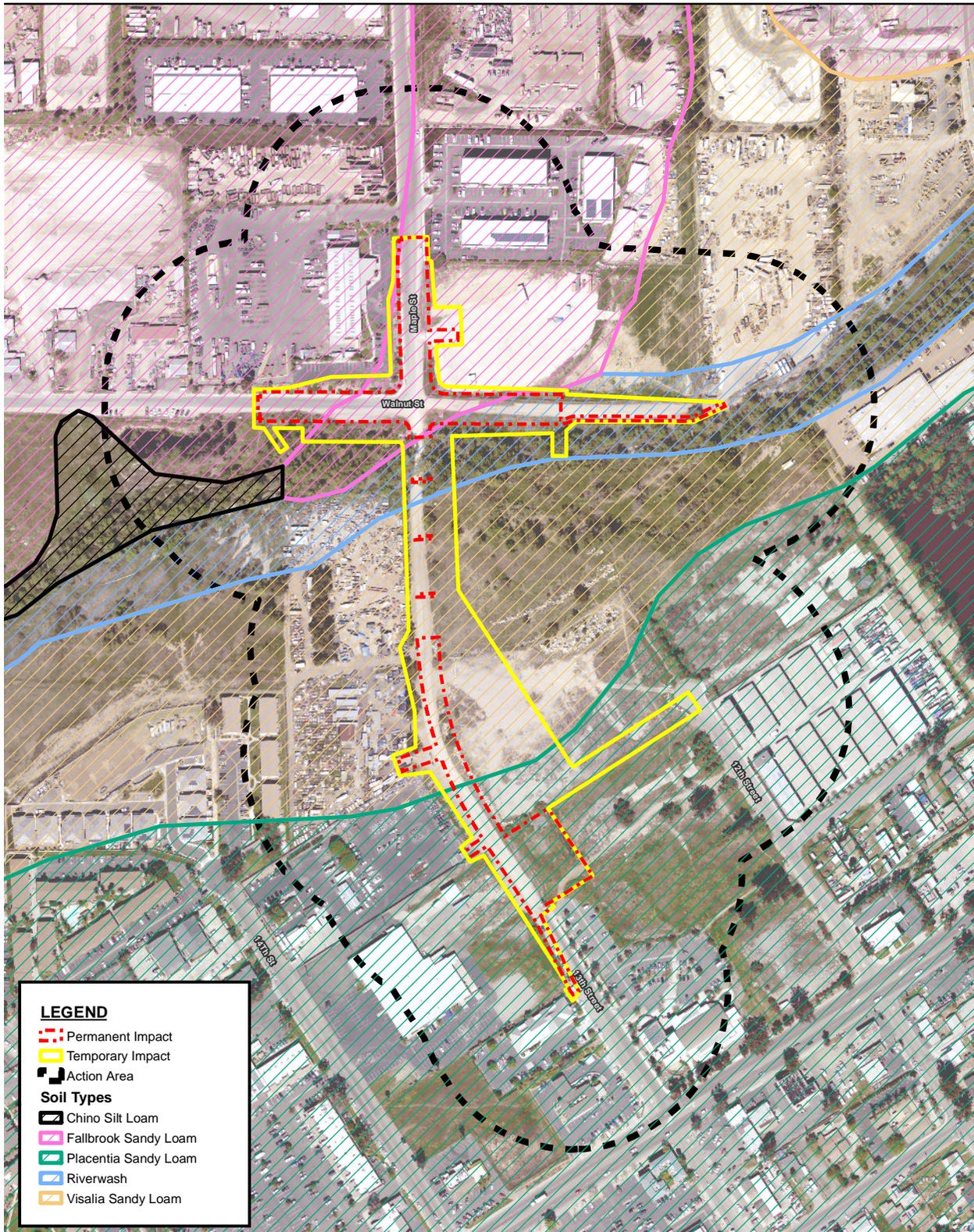


Figure 4
Biological Resources Map



Source: SANDAG 2017; Esri 2009.; NRCS 2007

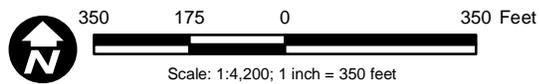
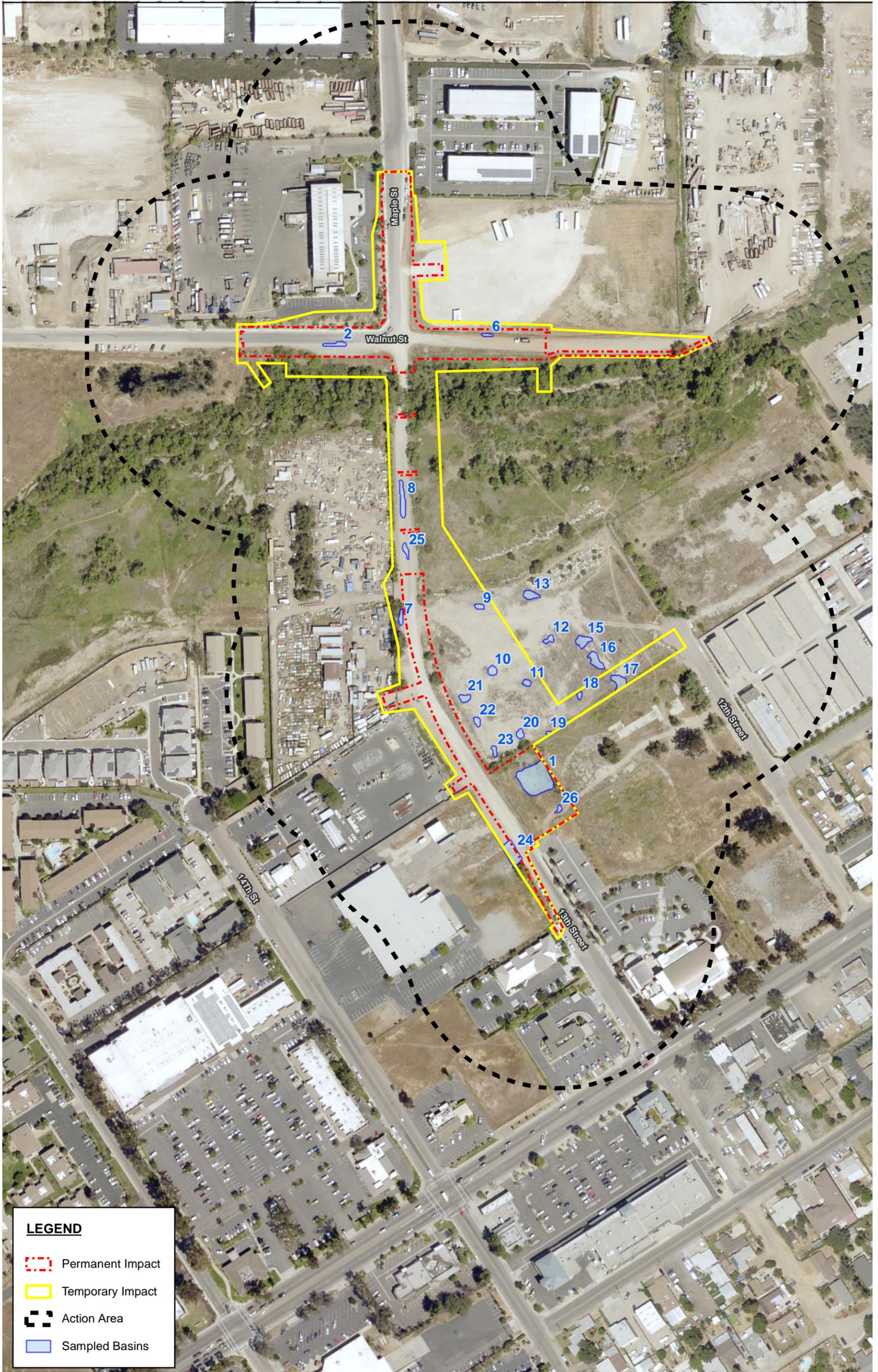


Figure 5
Soils

13th Street Bridge Biological Assessment

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LEGEND

- Permanent Impact
- Temporary Impact
- Action Area
- Sampled Basins

Source: SANDAG 2017

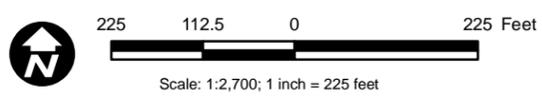


Figure 6
Hydrologic and Aquatic Resources

BIOLOGICAL ASSESSMENT

Appendix B USFWS Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
<http://www.fws.gov/carlsbad/>

In Reply Refer To:
Consultation Code: 08ECAR00-2019-SLI-0241
Event Code: 08ECAR00-2019-E-00561
Project Name: 13th Street Bridge Project

November 27, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office

2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2019-SLI-0241

Event Code: 08ECAR00-2019-E-00561

Project Name: 13th Street Bridge Project

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: The purpose of the proposed project is to make improvements to 13th Street and Maple Street between Main Street and Walnut Street, Ramona, California. Improvements include the construction of an approximately 480-ft long bridge over Santa Maria Creek to replace the existing unimproved (dirt and gravel) culvert crossing.

This proposed action is needed because the 13th Street crossing at Santa Maria Creek frequently becomes impassable for motor vehicles and pedestrians due to flooding during the rainy season. The street becomes flooded because the existing corrugated metal culvert crossing does not have sufficient capacity to convey the volume of water following rain storm events. Santa Maria Creek runs east to west in the vicinity of the project area and is fed year-round (in varying degrees) by precipitation and stormwater runoff during the wet season or urban runoff at other times. The objective of the project is to provide an adequate and safe crossing that allows for conveyance of water from 100-year flood events.

Project components include an approximately 480-ft long bridge over Santa Maria Creek, a 6-ft wide sidewalk on the west side approaches, two 12-ft wide travel lanes on the bridge, 3-ft wide shoulders on each side of 13th Street, and a 10-ft wide multi-use trail on the east side separated from the travel lane by a concrete barrier and equestrian railing. The new bridge would be elevated by approximately 10-ft above ground.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.042627431188066N116.87437582761729W>



Counties: San Diego, CA

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Stephens' Kangaroo Rat <i>Dipodomys stephensi</i> (incl. <i>D. cascus</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
Coastal California Gnatcatcher <i>Polioptila californica californica</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad <i>Anaxyrus californicus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3762	Endangered

Crustaceans

NAME	STATUS
Riverside Fairy Shrimp <i>Streptocephalus woottoni</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8148	Endangered
San Diego Fairy Shrimp <i>Branchinecta sandiegonensis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6945	Endangered

Flowering Plants

NAME	STATUS
Encinitas Baccharis <i>Baccharis vanessae</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3343	Threatened
San Diego Ambrosia <i>Ambrosia pumila</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
San Diego Button-celery <i>Eryngium aristulatum</i> var. <i>parishii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5937	Endangered
San Diego Thornmint <i>Acanthomintha ilicifolia</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/351	Threatened
Spreading Navarretia <i>Navarretia fossalis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1334	Threatened
Thread-leaved Brodiaea <i>Brodiaea filifolia</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened
Willowey Monardella <i>Monardella viminea</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/250	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
<http://www.fws.gov/carlsbad/>

In Reply Refer To:

September 22, 2020

Consultation Code: 08ECAR00-2020-SLI-1597

Event Code: 08ECAR00-2020-E-03718

Project Name: 13th Street Bridge Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

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This species list is provided by:

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2177 Salk Avenue - Suite 250

Carlsbad, CA 92008-7385

(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-1597

Event Code: 08ECAR00-2020-E-03718

Project Name: 13th Street Bridge Project

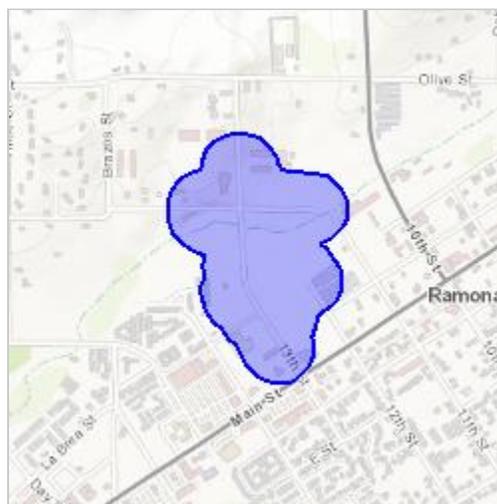
Project Type: TRANSPORTATION

Project Description: The proposed 13th Street Bridge Project is located on 13th Street and Maple Street between Main Street (State Route 67) and Walnut Street in the unincorporated community of Ramona. The project segment of 13th Street/Maple Street is a dirt roadway, with gravel at the Santa Maria Creek culvert crossing. The existing, undersized corrugated steel culvert does not have sufficient capacity to convey the creek water during storm events; flooding at this crossing makes the roadway impassable for motor vehicles and pedestrians during portions of the rainy season.

The objective of the project is to provide an adequate and safe crossing that allows for the conveyance of water from a 100-year storm event. The project would include replacement of the existing culvert crossing with a bridge designed to meet current federal standards, with roadway improvements along 13th Street/Maple Street and Walnut Street, and the addition of stormwater conveyance and treatment features that would ultimately discharge into Santa Maria Creek.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/33.042627431188066N116.87437582761729W>



Counties: San Diego, CA

Endangered Species Act Species

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Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

BIOLOGICAL ASSESSMENT

Appendix C LBVI Report

LBVI Report 2012

LBVI Report 2018

RESULTS OF LEAST BELL'S VIREO SURVEYS FOR THE 13TH STREET BRIDGE PROJECT IN RAMONA, CALIFORNIA

PREPARED FOR:

California Department of Transportation
County of San Diego
Department of Public Works
Contact: Thomas Duffy
(858) 874-4039

PREPARED BY:

ICF International
9775 Businesspark Avenue
San Diego, CA 92131
Contact: Cheryl Rustin
(858) 444-3968

August 2012



ICF International. 2012. Results of Least Bell's Vireo Surveys for the 13th Street Bridge Project in Ramona, California. July 2012. San Diego, CA.
Prepared for California Department of Transportation, San Diego, CA.

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Summary

ICF International was retained by the County of San Diego (County) Department of Public Works (DPW) to conduct focused surveys for least Bell's vireo (*Vireo bellii pusillus*) at the site of the 13th Street Bridge Project. The County DPW, in cooperation with the California Department of Transportation (Caltrans), is proposing to improve a segment of 13th Street, between Walnut Street to the north and Main Street (State Route 67 [SR-67]) to the south, in the unincorporated community of Ramona, San Diego County, California. The proposed road improvement will include replacing the existing Santa Maria Creek culvert crossing with a bridge. The segment of 13th Street that will be improved is currently unpaved road (except for an approximately 250-foot-long segment of paved roadway near Main Street), and the existing culvert does not have sufficient capacity to convey the volume of water following storm events. The crossing at Santa Maria Creek frequently becomes impassable for motor vehicles and pedestrians due to flooding during the rainy season. The improvements would include widening and paving the roadway to approximately 72 feet between Main Street and Walnut Street. The bridge would be approximately 540-feet-long. Bridge specifications include six new bridge pier supports; the new piers would be aligned with the flow of the river to minimize turbulent flow and scour potential. Rock slope protection would be placed at the foot of the bridge abutments. All foundations would be designed to withstand a 100-year flood event, and the bridge would be elevated above the river to convey the 100-year flood event beneath the lowest point of the bridge deck. Additionally, the proposed bridge would include all of the applicable seismic design criteria. The objective of the project is to provide an adequate and safe crossing that allows for conveyance of water from 100-year flood events.

The 13th Street bridge construction will require ground disturbance within and immediately adjacent to Santa Maria Creek. Work along 13th Street is anticipated to take approximately several months and will require crews to access the creek area beneath the proposed bridge. Moderately dense southern cottonwood-willow riparian forest occurring along the banks of the creek provides potentially suitable habitat for least Bell's vireo. This vegetation community is predominated by southern cottonwood (*Populus fremontii*), mule-fat (*Baccharis salicifolia*), and several species of willow such as black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*). The flow of water along this portion of the creek was intermittent and flowing water was not observed on any of the survey dates. The survey area consisted of the southern cottonwood-willow riparian forest occurring in the vicinity of the proposed bridge and an additional 250-foot-wide area surrounding the proposed bridge.

The focused surveys for least Bell's vireo followed the U.S. Fish and Wildlife Service (USFWS 2001) protocol. Eight separate surveys were conducted at least 10 days apart within the survey area between May 9 and July 24, 2012, in all potentially suitable habitats and during suitable weather conditions. Surveys were completed by Cheryl Rustin. Surveys were performed during morning hours prior to 1100, when vireos are most active and included frequent stops to look and listen for least Bell's vireo vocalizations (songs and/or scolds). Surveys were not conducted during inclement weather, such as extreme hot or cold temperatures, fog, high winds, or rain.

No least Bell's vireo individuals were detected during the focused surveys conducted at the site. The riparian forest habitat within the survey area represents low-quality habitat for this species mainly due to the lack of flowing water in the creek and the level of disturbance to the riparian habitat and

surrounding areas. This habitat also lacks a dense under-story, resulting in the absence of vertical stratification, which is preferred by least Bell's vireo.

Project Description

ICF International was retained by the County of San Diego (County) Department of Public Works (DPW) to conduct focused surveys for least Bell's vireo (*Vireo bellii pusillus*) at the site of the 13th Street Bridge Project. The County DPW, in cooperation with Caltrans, is proposing to improve a segment of 13th Street between Walnut Street to the north and Main Street (SR-67) to the south, located in Ramona, San Diego County (Thomas Bros. 1152: F/6). This segment of 13th Street is currently an unimproved dirt road, except for the gravel at the Santa Maria Creek culvert crossing and an approximately 250-foot-long segment of paved roadway near Main Street.

The proposed project would involve widening and paving the roadway to approximately 72 feet between Main Street and Walnut Street; project maps are provided in Appendix A. In addition, a bridge would be constructed over Santa Maria Creek that will replace the existing, graveled culvert crossing that does not have sufficient capacity to convey the volume of water following storm events. The bridge would span approximately 540 feet. This work will require ground disturbance within and immediately adjacent to Santa Maria Creek. Representative photographs of the project area are provided in Appendix B. As shown on the U.S. Geological Survey 7.5-minute Ramona Quadrangle map, the proposed project area is situated within Township 13 South, and Range 1 East, (Figures 1 and 2).

Environmental Setting

The portion of Santa Maria Creek occurring in the vicinity of 13th Street is intermittent with a flat, sandy bottom. Dense southern cottonwood-willow riparian forest occurs along the banks of the creek and is predominated by southern cottonwood (*Populus fremontii*), mule-fat (*Baccharis salicifolia*), and several species of willow such as black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*). During the surveys, there was no water flowing through the creek. Elevation ranges from 2,920 – 3,040 feet above mean sea level. With the exception of 13th Street, the survey area is undeveloped but is surrounded by industrial and commercial uses (automotive body repair, towing yards, propane sales, wrecking yard, and solid waste collection / transfer), single-family residential development, and minor agricultural uses.

Soils located within the survey area consist of Riverwash (Rm); Placentia sandy loam, 2 to 9 percent slopes (PeC); Visalia sandy loam, 0 to 2 percent slopes (VaA); Fallbrook sandy loam, 15 to 30 percent slopes, eroded (FaE2); Fallbrook sandy loam 9 to 15 percent slopes, eroded (FaD2); and Chino silt loam, saline, 0 to 2 percent slopes (CkA) (USDA 1973). Riverwash typically occurs in intermittent streams and channels. The material is sandy, gravelly, or cobbly and is excessively drained and rapidly permeable (USDA 1973).

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Figure 2
Project Vicinity
13th Street Bridge Least Bell's Vireo Survey Report

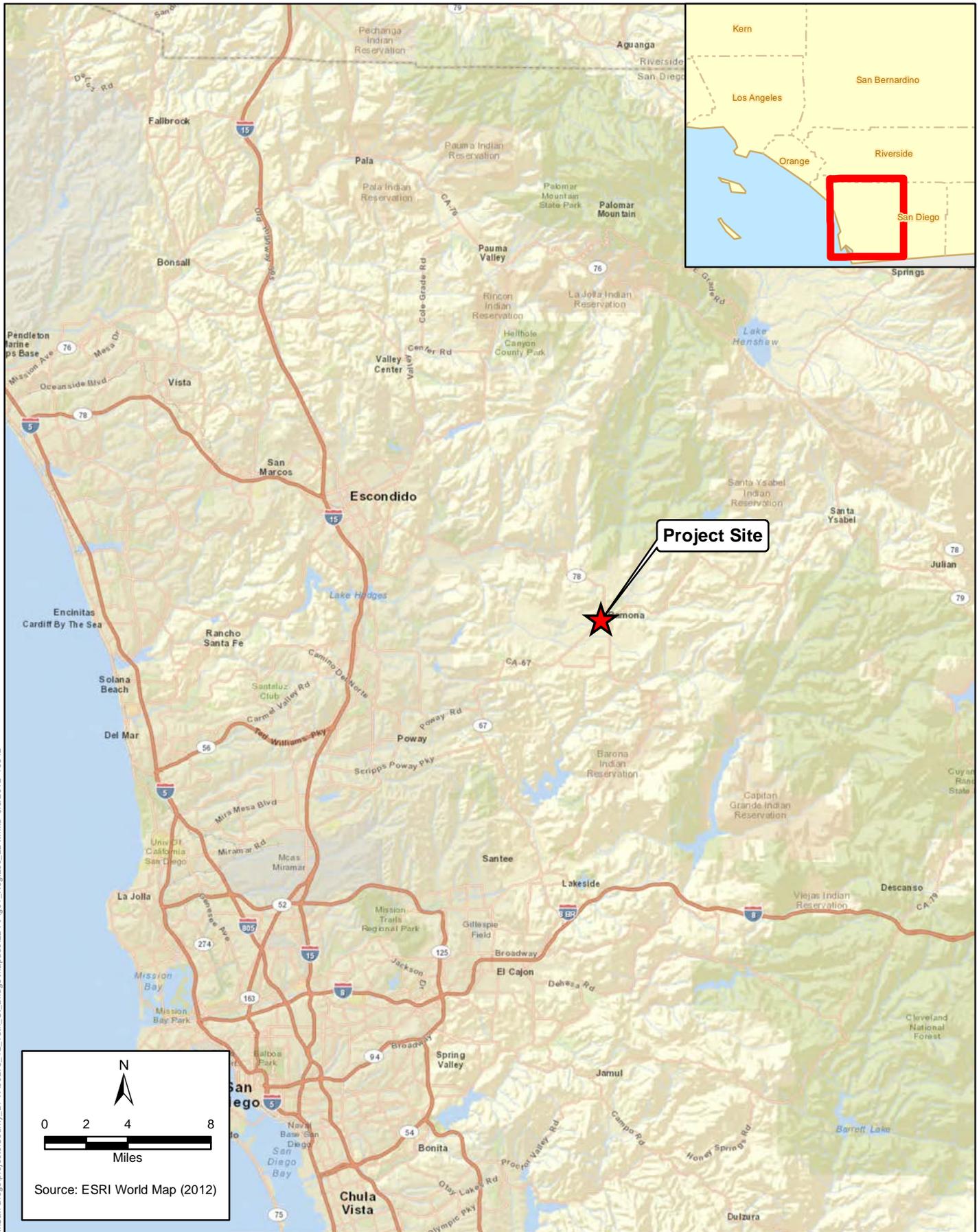


Figure 1
Regional Location
13th Street Bridge Least Bell's Vireo Survey Report

Species Description

Least Bell's Vireo

There are four subspecies of the Bell's vireo (*Vireo bellii*); the westernmost—the least Bell's vireo (*V.b. pusillus*)—breeds in California and northern Baja California. The least Bell's vireo is a small, migratory insectivore that prefers dense riparian vegetation for foraging and nesting. The California Department of Fish and Game (CDFG) listed the least Bell's vireo as endangered in 1980. The U. S. Fish and Wildlife Service (USFWS) followed suit in 1986. Critical habitat was designated for this subspecies in 1994 along the southwestern coastline of California below Santa Barbara (USFWS 1994).

Historically, least Bell's vireo was a common to locally abundant species found in lowland riparian habitats between northern California and coastal southern California. However, loss of riparian habitats and brown-headed cowbird (*Molothrus ater*) parasitism led to a large population decline. When USFWS first listed the bird in 1986, the population was estimated to be a mere 300 pairs. The latest Five Year Review, dated September 2006, reported a 10-fold increase in population size since the time of its listing to an estimated 2,968 territories (USFWS 2006). Least Bell's vireo is found only in mid- to southern California, with the majority in San Diego County.

Least Bell's vireos typically begin to arrive on their breeding grounds by mid to late March and begin to depart by late July; most having left by September. Males tend to arrive first and establish territories; females arrive a few days later. Site fidelity is high among adult least Bell's vireo, with many birds returning to the same territory each year and even using the same shrub as previous years (Salata 1983, Kus 2002). Nests are typically placed within 1 meter of the ground in dense shrubby riparian habitat, and a diverse canopy height is required for foraging, with willows often dominating the canopy layer (Salata 1983). In southern California, least Bell's vireo nest sites were most frequently located in riparian stands between 5 and 10 years old (SANDAG and RECON 1990). Based on rigorous statistical analysis of least Bell's vireo habitat structure and composition, this species appears to preferentially select sites with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover (SANDAG and RECON 1990).

Survey Area and Habitat Suitability

The need for focused surveys for least Bell's vireo at the project site was determined by a habitat assessment conducted by ICF biologists, as well as counsel with the USFWS. The survey area consisted of the riparian habitat occurring in the vicinity of the proposed bridge and an additional 250-foot-wide area surrounding the proposed bridge (Figure 3). All areas supporting southern cottonwood-willow riparian forest within the survey area provide potentially suitable habitat for least Bell's vireo.

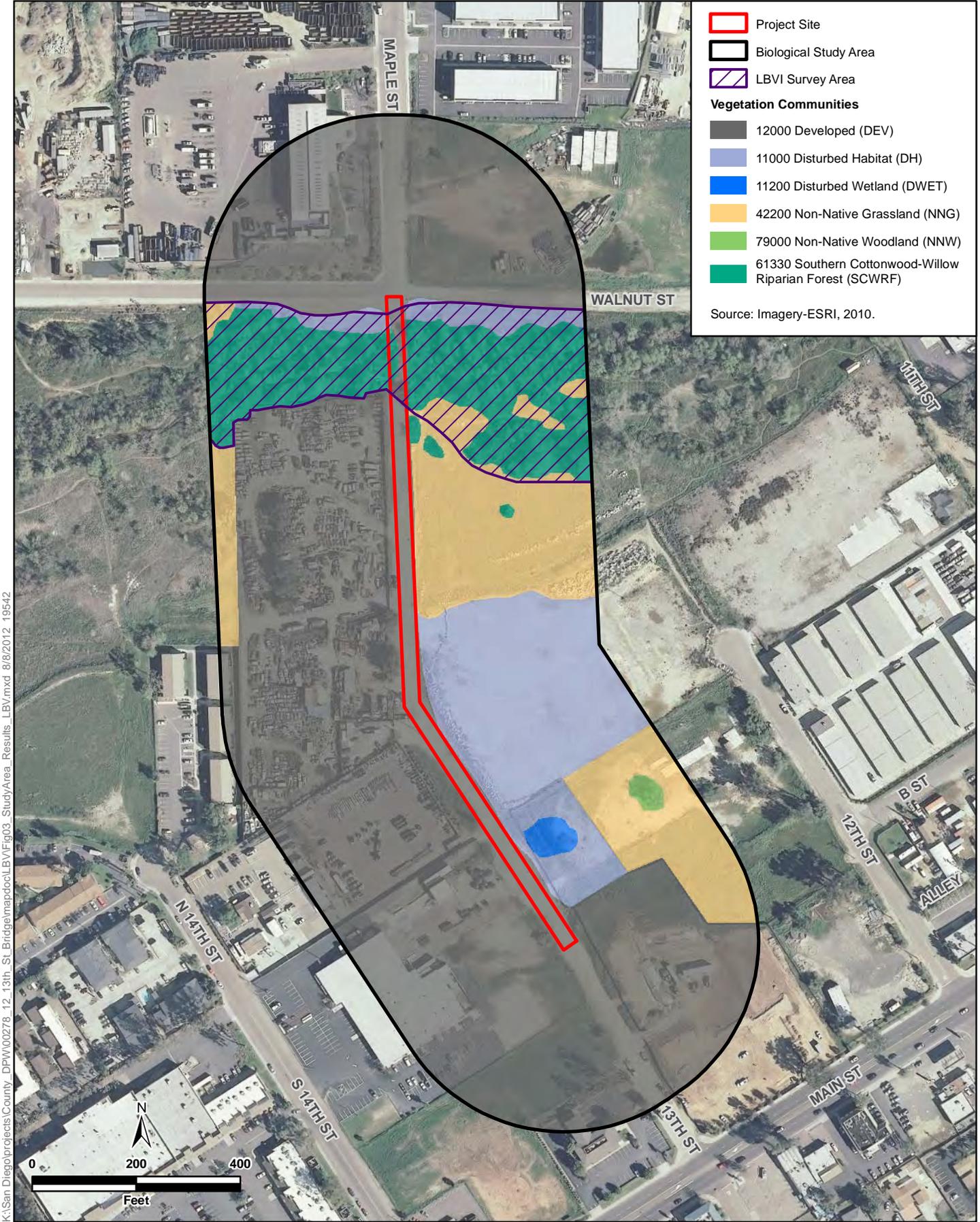
In the survey area, southern cottonwood-willow riparian forest occurs along the banks of Santa Maria Creek and supports cottonwoods, arroyo willow, black willow, sandbar willow (*Salix exigua*), mule fat (*Baccharis salicifolia*), and tamarisk (*Tamarix* sp.). The understory within the creek bed consisted of cattails (*Typha* sp.), umbrella sedge (*Cyperus eragrostis*), and stinging nettle (*Urtica dioica*).

A record search of the California Natural Diversity Database (CNDDDB 2012) and USFWS database (USFWS 2012) was conducted in order to review historical occurrences of least Bell's vireo in the area. The search parameters included the Ramona quadrangle and the eight surrounding quadrangles (Mesa Grande, Warner's Ranch, Santa Ysabel, Tule Springs, San Vicente Reservoir, San Pasqual, Rodriguez Mountain, and El Cajon Mountain) for CNDDDB, and a five-mile radius from the project site for USFWS. The search indicated that least Bell's vireo were documented within five miles of the project site in 2009 and 2011 (USFWS 2012).

Survey Methods

Least Bell's Vireo

The focused surveys for least Bell's vireo followed the USFWS (2001) protocol. Eight separate surveys were conducted at least 10 days apart between May 9 and July 24, 2012, in all potentially suitable habitats within the survey area and during suitable weather conditions. ICF biologist Cheryl Rustin conducted the surveys on May 9, 20, and 31; June 10 and 21; and July 3, 13, and 24, 2012 (see Table 1). The surveys were conducted in areas of southern cottonwood-willow riparian forest within the project impact area and a within a 250-foot-wide area surrounding the project impact area. All visits were performed during morning hours prior to 1100, when vireos are most active and included frequent stops to look and listen for least Bell's vireo vocalizations (songs and/or scolds). Surveys were not conducted during inclement weather, such as extreme hot or cold temperatures, fog, high winds, or rain. At this time, no special permits are required to perform focused surveys for least Bell's vireo in accordance with the recommended guidelines.



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Figure 3
Biological Study Area and Results
13th Street Bridge Least Bell's Vireo Survey Report

Table 1. Survey Conditions

Survey #	Date (2012)	Start Time	End Time	Temp. (°F)	Wind Speed (mph)	Sky Condition	Surveyor
1	05/09/12	0845	1000	72-75	0-1	Clear	Cheryl Rustin
2	05/20/12	0800	0915	64-66	0-1	Hazy	Cheryl Rustin
3	05/31/12	1000	1100	73-75	0-1	Clear	Cheryl Rustin
4	06/10/12	0815	0915	67-68	1-2	Hazy	Cheryl Rustin
5	06/21/12	0830	0930	60-63	1-2	Clear	Cheryl Rustin
6	07/03/12	0830	0930	65-70	0-2	Clear	Cheryl Rustin
7	07/13/12	0830	0930	75-76	0-1	Cloudy	Cheryl Rustin
8	07/24/12	0845	1000	71-75	0-1	Clear	Cheryl Rustin

Least Bell's Vireo

No least Bell's vireo individuals were detected during the eight focused surveys. The southern cottonwood-willow riparian forest habitat within the survey area represents low-quality habitat for least Bell's vireo. Although this habitat contains a shrubby mid-story, it lacks regularly flowing open water preferred by least Bell's vireo for foraging. The habitat consists mostly of a dense upper canopy layer. Least Bell's vireo typically uses habitat with large amounts of shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover.

Other Special-Status Species

In total, 33 wildlife species were detected during the surveys, including one amphibian, two reptiles, 26 birds, and four mammals. No special status species were observed during any of the surveys. A complete list of wildlife species detected during the surveys is presented in Appendix B.

Chapter 4 Certification

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

Cheryl Rustin
Senior Biologist – *Field Surveys, Primary Author*

Date

Chapter 5 References

- California Natural Diversity Data Base (CNDDB). 2012. Database RareFind 4 Report. Accessed June 22, 2012.
- Kus, B. 2002. Least Bell's Vireo (*Vireo bellii pusillus*). In The riparian bird conservation plan: a strategy for reversing the decline of riparian-associated birds in California. *California Partners in Flight*. Available: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html.
- Salata, L. 1983. Status of the least Bell's vireo on Camp Pendleton, California. U.S. Fish and Wildlife Service, Laguna Niguel, CA. Unpublished Report.
- San Diego Association of Governments and Regional Environmental Consultants (SANDAG and RECON). 1990. Draft Comprehensive Species Management Plan for the Least Bell's Vireo (Draft). San Diego Assoc. of Governments, San Diego, CA. 244 pp.
- U.S. Department of Agriculture (USDA). 1973. *Soil survey, San Diego Area, California*. Washington, DC: U.S. Soil Conservation Service [now Natural Resources Conservation Service] and U.S. Forest Service.
- U.S. Fish and Wildlife Service (USFWS). 1994. Designation of critical habitat for the least Bell's vireo. 59 FR 4845 4867
- USFWS. 2001. Least Bell's vireo survey guidelines. Report from Carlsbad, California Field Office. January 19, 2001. 3 pp.
- USFWS. 2006. Least Bell's Vireo Five Year Review Summary and Evaluation. Report from Carlsbad, California Field Office. September 2006.
- USFWS 2012. TESS query web service. <http://ecos.fws.gov>. Accessed July 2012.

Appendix A Site Photos



View of inner structure of southern cottonwood-willow riparian forest, facing west.



View of southern cottonwood-willow riparian forest, facing south.

Appendix B
Wildlife Species Detected On Site

Appendix F: Wildlife Species Detected on the 13th Street Bridge Site

Scientific Name	Common Name	Special Status
VERTEBRATES		
Amphibians		
<i>Pseudacris regilla</i>	Pacific Chorus Frog	
Reptiles		
<i>Sceloporus occidentalis</i>	Western Fence Lizard	
<i>Uta stansburiana</i>	Side-blotched Lizard	
Birds		
<i>Anas platyrhynchos</i>	Mallard	
<i>Cathartes aura</i>	Turkey Vulture	
<i>Accipiter cooperii</i>	Cooper's Hawk	
<i>Buteo jamaicensis</i>	Red-tailed Hawk	
<i>Buteo lagopus</i>	Rough-legged Hawk	
<i>Falco sparverius</i>	American Kestrel	
<i>Zenaida macroura</i>	Mourning Dove	
<i>Calypte anna</i>	Anna's Hummingbird	
<i>Picoides nuttallii</i>	Nuttall's Woodpecker	
<i>Sayornis nigricans</i>	Black Phoebe	
<i>Myiarchus cinerascens</i>	Ash-throated Flycatcher	
<i>Tyrannus verticalis</i>	Western Kingbird	
<i>Aphelocoma californica</i>	Western Scrub-Jay	
<i>Corvus brachyrhynchos</i>	American Crow	
<i>Corvus corax</i>	Common Raven	
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	
<i>Psaltriparus minimus</i>	Bushtit	
<i>Mimus polyglottos</i>	Northern Mockingbird	
<i>Geothlypis trichas</i>	Common Yellowthroat	
<i>Pipilo maculatus</i>	Spotted Towhee	
<i>Melospiza melodia</i>	Song Sparrow	
* <i>Molothrus ater</i>	Brown-headed Cowbird	
<i>Carpodacus mexicanus</i>	House Finch	
<i>Carduelis psaltria</i>	Lesser Goldfinch	
* <i>Passer domesticus</i>	House Sparrow	

Scientific Name	Common Name	Special Status
Mammals		
<i>Sylvilagus audubonii</i>	Desert Cottontail	
<i>Spermophilus beecheyi</i>	California Ground Squirrel	
<i>Mustela frenata</i>	Long-tailed Weasel	
* <i>Felis catus</i>	Domestic Cat	

Legend

*= Non-native or invasive species

Special Status:

Federal:

FE = Endangered

FT = Threatened

State:

SE = Endangered

ST =Threatened

CSC = California Species of Special Concern

CFP = California Fully Protected Species

Appendix C
Field Notes

0 17320 - Night shades
 75 yd B4 Purgana flower
 25 yd C5 Yucca

arrives to 12300 through
 SDGE gate located at
 Camino Daniela
 walk thru driveway @
 3/15 Camino Daniela
 go thru gate onto Camino
 Luna Nuevo thru to
 Camino Cabo Viejo - arrives
 on E side of pool

EZ1230 - increases odds of to
 construction @ Flower Hill
 mall - took pick from outside
 construction site.

OT Workshop, OASIS

5/9/12 131A St Bridge
 8:45am LBVI ①
 7:20
 Clear
 0-1 apr
 10:00
 75
 Clear
 0-1

Ah hu
 nd md
 Gara
 mall
 BFD
 mdo
 SDSF
 Legs
 Scis
 buti
 woodpecker (red "mohawk")
 CD ha (OH)

Good grass habitat and no water in
 stream - many birds - several birds
 * look for old bird nest for
 project

5/20/12
 0600
 04
 Clear
 0-1
 90 Sp
 00 ra
 He Si
 NPD MD
 mo do
 00 na
 05 ju
 4m
 00001
 SC Ju
 10 do
 mall

Ramona
 13th St

⊕

9/15
 06
 Clear
 0-1

12000 L (berry field)
~~Brooklyn Foster Center~~
 No LBU1

5/3/12

10:00 am

73°

clear

0-1 mph

NORI

SOS P

COXA

NO MUD

Ca to

woodpecker

508

in Rk

13th ST

LBV

SD

(3)

11:00

75°

clear

0-1

~~SDS P~~
western fence

NO CBUI

SD-

DD4 - 0511652; 31656177

cutback on W side of rd

OH VM ~ 10 ft

Narrow down to ~ 3 feet

about ft down stream.

6/10/12

8:15 Am

670

1-2

noisy

no DD

no MD

HO Fi

Am lw

corda

Re ta

Turn

casto

Park

Nu wo

13th St

LBUI

(4)

9:15

68

1-2

noisy

no LBUI

6/21/12
8:30 AM
600
Partly Cloudy
1-2 mph

13th St
Pamona
LBI ⑤

9:30
63
clear
1-2

Coege
CAHO
FOFI
SOSP
CORA
CDVA
Amhu
WMO
SPTO
Meds
BRCD
Sueallows
Dinner

Sr Sq
Jance lizard
NO LBI

7/3/12

6:30 Am

65°F

1-2

hazy

13th St

Residg

LBV1 #4

9:30

70°F

0-1

clear

Soto

Rusti

Nemo

Leso

Amke

Amcr

Hosi

Mobo

Amhu

Hann

Bipk

Btme

ClSB

NWMO

Pole

Coyg

No LBV1

Observed

7/13/12

8:30 am

75°F

0-1 mph

cloudy/rain

13th St

LB01 ①

9:30

75°

0-1

cloudy

Domcat

HO SP

HO FI

NO MP

SP TO

CO RA

AM CR

Bevy

Ca to

medo

B1 pn

Cl SW

an hr

NO LB01

7/24/12

8:45 am

71° F

Clear

D-1 mph

13th St

LBUI (B)

10:00

75°

Clear

0-1

AMCR

Hd Si:

SP to

Lege

Cora

B/Ph

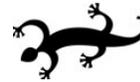
BuH

Greg

no LBUI



SAGE WILDLIFE BIOLOGY



Environmental consulting, research, and wildlife conservation in the U.S. and Latin America

**Least Bell's Vireo Survey Report
For the 13th Street Bridge Project
Ramona, San Diego California**

County of San Diego
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San Diego, CA 92123
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August 2018

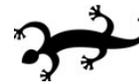


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- 2 Project Site Least Bell’s Vireo Habitat 2
- 3 Project Site Least Bell’s Vireo Habitat 3
- 4 Least Bell’s Vireo Female Nest Incubating

APPENDICES

- A List of Observed Species

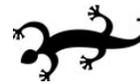
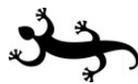


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1.0 INTRODUCTION

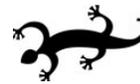
This report summarizes the results of protocol surveys for the least Bell's vireo (*Vireo bellii pusillus*; LBVI) conducted in 2018 by Sage Wildlife Biology (Recovery Permit TE799569-6) for the County of San Diego Department of Public Works' 13th Street Bridge Project (Project) in Ramona, California. Sage biologists have been conducting surveys and monitoring of LBVIs since 1992.

2.0 PROJECT DESCRIPTION

The Project site is located in the unincorporated community of Ramona, in northeastern San Diego County (Figures 1 and 2). The site is situated within Township 13 South, Range 1 East, in the U.S. Geological Survey Ramona and San Pasqual quadrangles. The Project consists of alterations to 13th Street/Maple Street between Main Street and Walnut Street, including construction of an approximately 480-foot-long bridge over Santa Maria Creek. Santa Maria Creek transects 13th Street (by way of a corrugated steel culvert) and parallels Walnut Street to the south. The site is bounded to the north by Olive Street, 12th Street to the east, Main Street to the south, and 14th Street and Brazos Street to the west (Figures 2 and 3).

3.0 VEGETATION COMMUNITIES

More than one vegetation community can be found within and in proximity to the Project site. The LBVI utilizes riparian willow and mule fat dominated habitat during breeding season and as a migration corridor, as such the vegetation community that was surveyed for presence / absence was focused primarily on the riparian forest habitat onsite, specifically along the Santa Maria Creek. The portion of Santa Maria Creek within and bordering the Project consists of dense, heterogeneous stands of southern willow-cottonwood riparian forest (Oberbauer et al. 2008) dominated by species such as black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), mule-fat (*Baccharis salicifolia*), wild radish (*Raphanus sativus*), California bulrush (*Schoenoplectus californicus*), and stinging nettles (*Urtica dioica*) (Photos 1-3). The elevation in the southern end of the site is approximately 1,425 feet above mean sea level. Although there is a high incidence of trash from foot traffic and nearby roads, the habitat itself is high quality in respect to that preferred for nesting by LBVI.



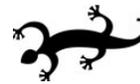
4.0 NATURAL HISTORY

The LBVI is a migratory song bird and a breeding season resident of San Diego County. The species utilizes riparian wetlands dominated by willow, mulefat, and to a lesser extent Fremont cottonwood (Kus et al. 2010, 2002a). Its preferred nesting season habitat includes woodlands that are dense and botanically heterogeneous with clear vegetative layers; the birds build cup nests typically two to five feet off the ground, well hidden in trees and shrubs. As such a key structural component of nesting habitat includes a dense shrub layer two to ten feet above ground (Goldwasser 1981). Individuals may forage in woodlands or scrub habitat near suitable nesting habitat, especially when actively nesting. LBVIs are also known to forage in upland vegetation adjacent to riparian corridors, especially late in the breeding season as juveniles spread out and explore their territory. Willow riparian, arroyo scrub, and hedgerows in coastal drainages are typical habitats used in winter by the species (USFWS 1998, Kus et al. 2010).

The LBVI arrives in southern California between mid-March and early April, forms pairs and begins nest building soon after arrival, and remains in the breeding territories into late September before leaving for its wintering grounds in Baja California and mainland Mexico. Breeding season is characterized by monogamous pairs that may have one to three clutches, depending on individual nesting success (Kus 2002b). Nest parasitism by the brown headed cowbird (*Molothrus ater*) (BHCO) has reduced LBVI nesting success; however trapping efforts of the BHCO have helped improve nesting success (Kus and Whitfield 2005).

LBVI usually begin breeding as first-year adults (Kus 2002a). Both adults incubate nestlings and care for fledglings. As juveniles mature they expand territorial boundaries and range over larger areas, although they generally remain in the vicinity throughout the breeding season. As males commence post-breeding season molt and undergo reduced testosterone, their singing frequency declines significantly as is typical with many passerines, making them more challenging to detect during winter.

Due to habitat loss from agricultural, urban, and commercial developments, flood control and river channelization projects, livestock grazing, invasive exotic plants, off-road vehicles, and other factors, the LBVI population declined to an estimated 300 pairs by the mid-1980s, with the majority occurring in San Diego County (Franzreb 1987). By 1985 over 95% of historical riparian habitat had been lost throughout the vireo's former breeding range in the Central Valley of California, which may have accounted for 60-80% of the original population (USFWS



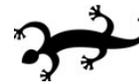
1986). Similar habitat losses occurred concurrently throughout its historical range in southern California. Subsequently the LBVI was officially listed as endangered in 1986 under the federal Endangered Species Act (USFWS 1986). Critical habitat protection, riparian woodland restoration, and to a lesser degree brown-headed cowbird control have allowed populations to increase to a population estimated at roughly 2,000 by 1998 (Kus 2002a). Critical habitat for the LBVI was designated in six southern California counties in 1994 (USFWS 1994).

5.0 METHODS

Before commencing surveys, Sage biologists conducted a thorough search of the existing literature, including websites, U.S. Fish and Wildlife critical habitat maps for the LBVI (USFWS 1994), the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB) (CDFW 2018), and eBird (eBird 2018) for LBVI observations in and around the study area. Suitable LBVI habitat was evaluated during the initial biological survey.

The nearest designated Critical Habitat of the LBVI is located approximately 16 miles to the southwest along the San Diego River, just south of Santee Lakes. According to the sources listed above, the nearest record of a nesting LBVI is approximately three and half miles to the northwest, in close proximity to Santa Isabel Creek.

Eight surveys were conducted at least ten days apart by qualified biologists Renée Owens and Patrick Hord throughout concurrent weeks in April, May, and June 2018. Surveys were carried out in and bordering all project areas of habitat suitable for potential breeding or migrating birds, and were conducted during times and conditions appropriate for protocol surveys (Table 1). Each survey consisted of methodically walking transects along and within all survey areas, including vegetation proximal to the project site and designated habitats. The route was arranged to ensure complete survey coverage of the site and immediately contiguous areas within a buffer zone. Binoculars were used to aid in bird detection. Although some biologists use song playback recordings to aid in detection of LBVI, Sage biologists use playback only when other means of detection fail after a minimum of 20 minutes of passive observation within a given area. For this Project song playback was unnecessary. Surveys were not conducted during periods of inclement weather such as extreme wind, rain, or abnormal heat, commenced after sunrise, and ended before 11:00 AM, and followed the *Least Bell's Vireo Survey Guidelines* (USFWS 2001).



6.0 RESULTS

One pair of LBVI was detected during the protocol surveys, using riparian habitat on both sides (east and west) of 13th Street along the Santa Maria Creek corridor. Pair observations are described in Table 1. Throughout the course of the surveys, the pair was observed building two nests; the first siting was observed on April 24, 2018 with both parents intermittently incubating eggs (Photo 4). During the subsequent survey, the same nest was observed predated; it was not being visited by the pair, and upon closer observation, it contained eggshell remains and Argentine ants. A second nest observed on May 24, 2018 was then constructed just west of the first one and successfully fledged at least one juvenile. A brown-headed cowbird female—a known nest parasite of vireos—was observed near the first nest when the nest contained LBVI eggs. However, no brown-headed cowbird eggs or nestlings were observed during any of the surveys when nests were checked. Proximity to nests was avoided as much as possible throughout the surveys to minimize chance of disturbance. Close approach to nests during the nest building period was especially avoided and observed only from a distance via binoculars, since this is one of the phases of nesting when adults are most likely to abandon a nest.

Aside from the LBVI pair described, no threatened or endangered species were detected on site. Other sensitive species incidentally observed on the Project site include a red-tailed hawk (*Buteo jamaicensis*) (flyover), a Cooper's hawk (*Buteo lineatus*), several yellow warblers (*Setophaga petechia*), and at least two orange-throated whiptails (*Aspidoscelis hyperythra*). Appendix A lists all species observed.

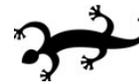
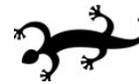


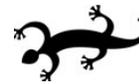
Table 1 13 th Street Project Least Bell's Vireo Survey Data – 2018						
Survey	Date	Time	Temp (°F)	% Cloud cover	Wind (km/h)	Observations
1	April 14	0820-1030	60-64	0-0	0-1	One pair observed nest site searching
2	April 24	0800-1005	72-78	30-0	0-3	Pair observed nest building
3	May 4	0800-1015	68-84	20-0	0-4	Pair observed incubating three eggs
4	May 14	0830-1030	60-65	15-0	0-2	One pair observed; nest inactive (predated with shell remains and Argentine ants)
5	May 24	0800-1015	60-63	70-25	0-2	Pair observed almost completing nest building a 2 nd nest close to first one
6	June 3	0810-1015	67-74	30-10	0-3	Pair incubating 2 nd nest
7	June 13	0800-1005	74-85	0-0	0-1	Pair feeding nestlings
8	June 23	0815-1015	66-73	25-0	0-1	Pair feeding one fledgling

°F = degrees Fahrenheit; km/h = kilometers per hour

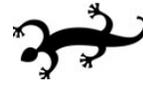


7.0 REFERENCES

- California Department of Fish and Wildlife (CDFW). 2018 California Natural Diversity Database (CNDDDB). Sacramento, California.
- eBird. 2018. Least Bell's Vireo Observations near Ramona, CA. Retrieved from: <https://ebird.org/map/belvir3?neg=true&env.minX=&env.minY=&env.maxX=&env.maxY=&zh=false&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2018>
- Franzreb, K.E. 1987. Endangered Status and Strategies for Conservation of the Least Bell's Vireo (*Vireo Bellii Pusillus*) in California. *Western Birds*, 18:43-49.
- Goldwasser, S. 1981. Habitat Requirements of the Least Bell's Vireo. Final Report. Sacramento, California: California Department of Fish and Game.
- Kus, B.E. 2002a. "Least Bell's Vireo (*Vireo bellii pusillus*).” In California Partners in Flight: The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian Associated Birds in California. Retrieved from: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html
- Kus, B.E. 2002b. Use of Restored Riparian Habitat by the Endangered Least Bell's Vireo (*Vireo bellii pusillus*). *Restoration Ecology*, 6(1): 75-82. DOI: <https://doi.org/10.1046/j.1526-100x.1998.06110.x>
- Kus, B.E. and Whitfield, M.J. 2005. Management of Cowbirds and Their Hosts: Balancing Science, Ethics, and Mandates. *Ornithological Monographs*. No. 57:16-27. DOI: 10.2307/40166811
- Kus, B.E., Hopp, S. R., Johnson R., Brown, B.T. 2010. Bell's Vireo (*Vireo bellii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Retrieved from: <http://bna.birds.cornell.edu/bna/species/035doi:10.2173/bna.35>
- Oberbauer, T., Kelly M., and Buegge, J. 2008. Vegetation Communities of San Diego County. Based on "Descriptions of the Terrestrial Natural Communities of California," Robert F. Holland, PhD., October 1986.

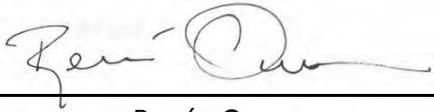


- U.S. Fish and Wildlife Service (USFWS). 1986. Endangered and Threatened Wildlife and Plants: Determination of Endangered Status for the Least Bell's Vireo. Federal Register 51:16474-16482.
- U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Least Bell's Vireo. February 2, 1994. Final Rule. Federal Register 59: 4845-4867.
- U.S. Fish and Wildlife Service (USFWS). 1998. Draft Recovery Plan for the Least Bell's Vireo. USFWS, Portland, Oregon.
- U.S. Fish and Wildlife Service (USFWS). 2001. Least Bell's Vireo (*Vireo bellii pusillus*) Survey Guidelines January 19, 2001. Retrieved from: <http://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/LBVireo.2001.protocol.pdf>.



8.0 CERTIFICATION

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



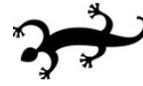
Renée Owens



Patrick Lee Hord



SAGE WILDLIFE BIOLOGY



Environmental consulting, research, and wildlife conservation in the U.S. and Latin America

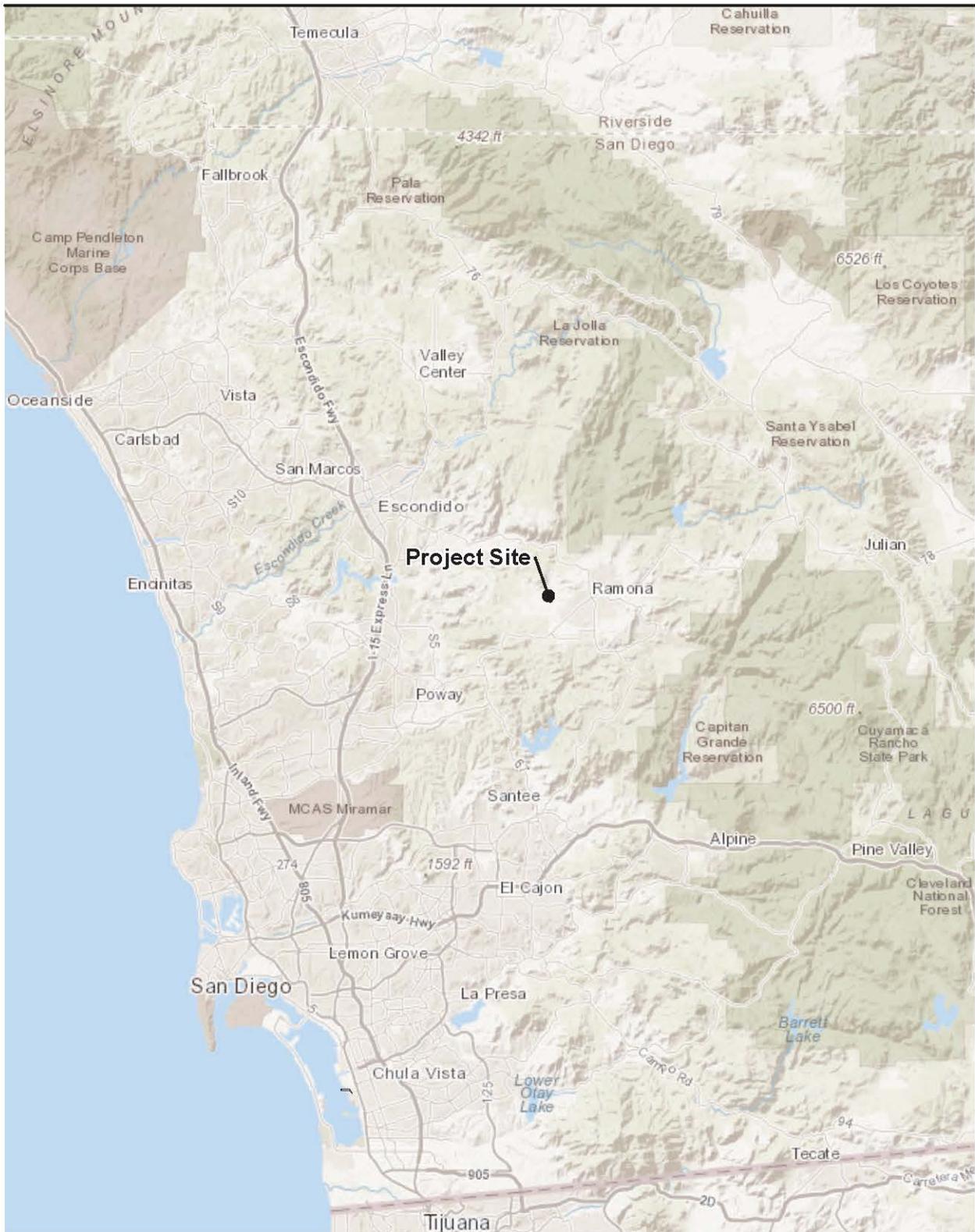
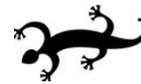
FIGURES



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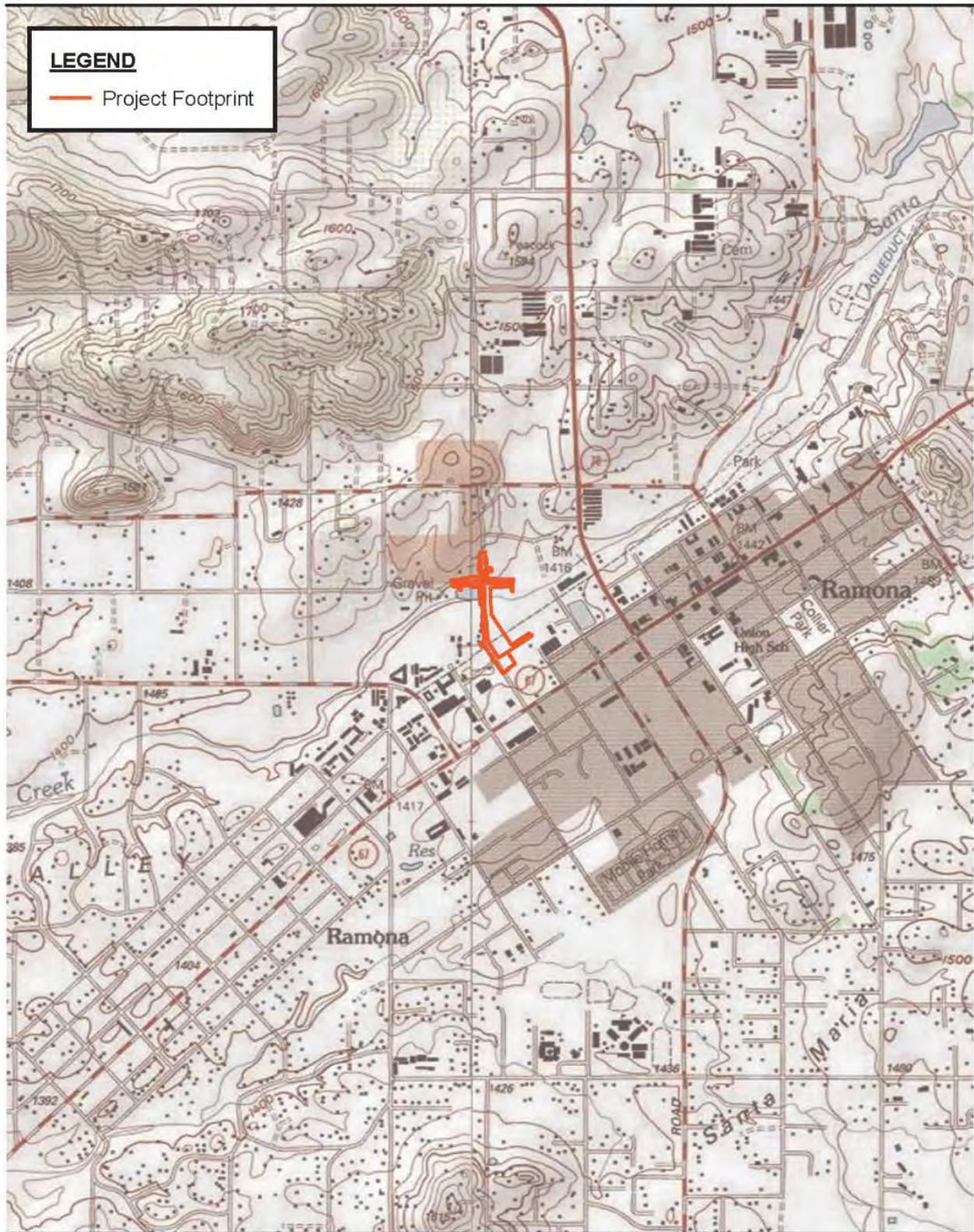
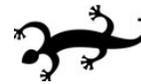
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Source: USGS 7.5' Quadrangle San Pasqual, Calif 1984, Ramona, Calif. 1985; Esri, Copyright© 2013 National Geographic Society, i-cubed



Figure 1
Regional Map



0 2,000 4,000 Feet

Scale: 1:24,000; 1 inch = 2,000 feet

Figure 2
Vicinity Map

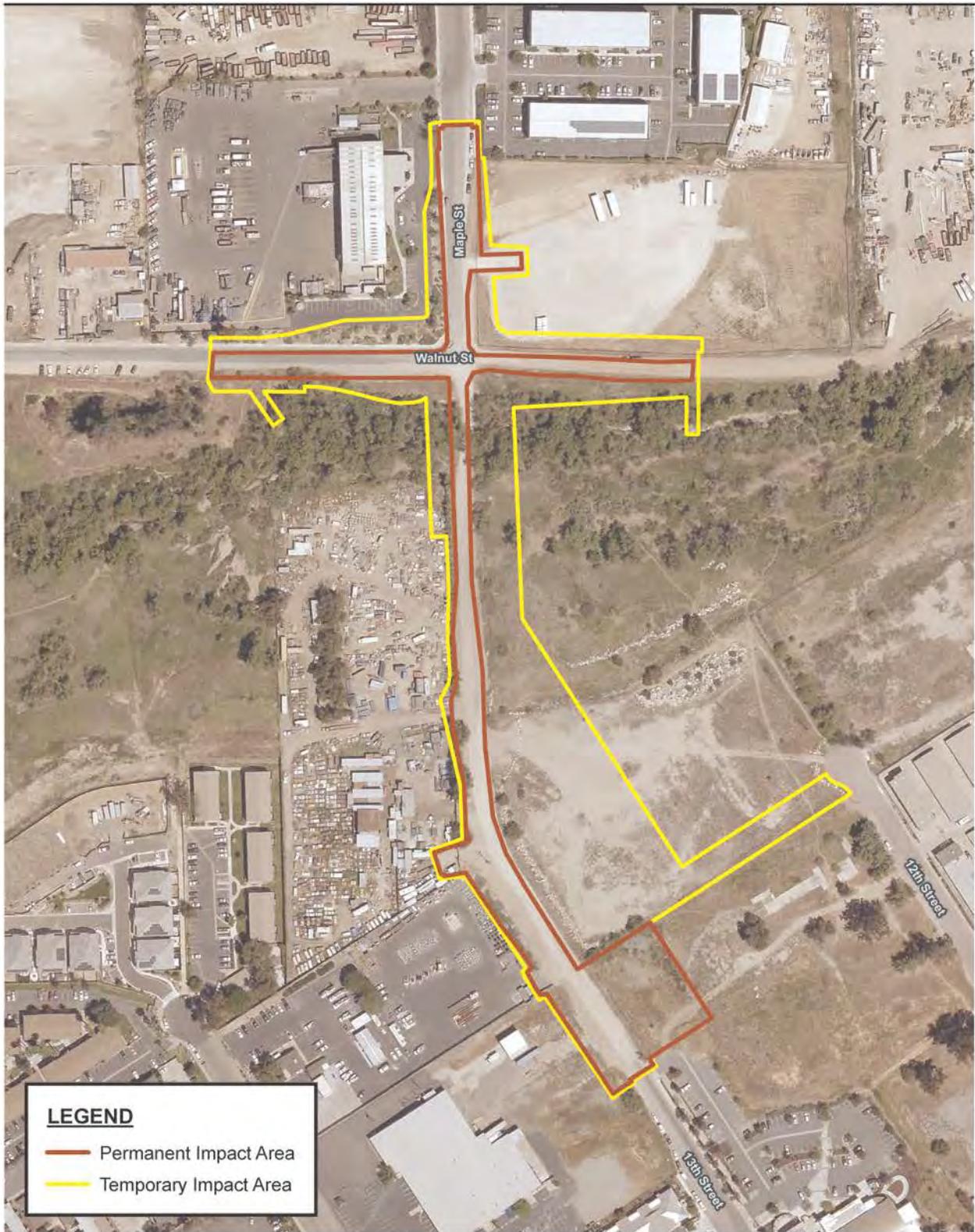
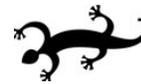


Figure 3
Aerial Map

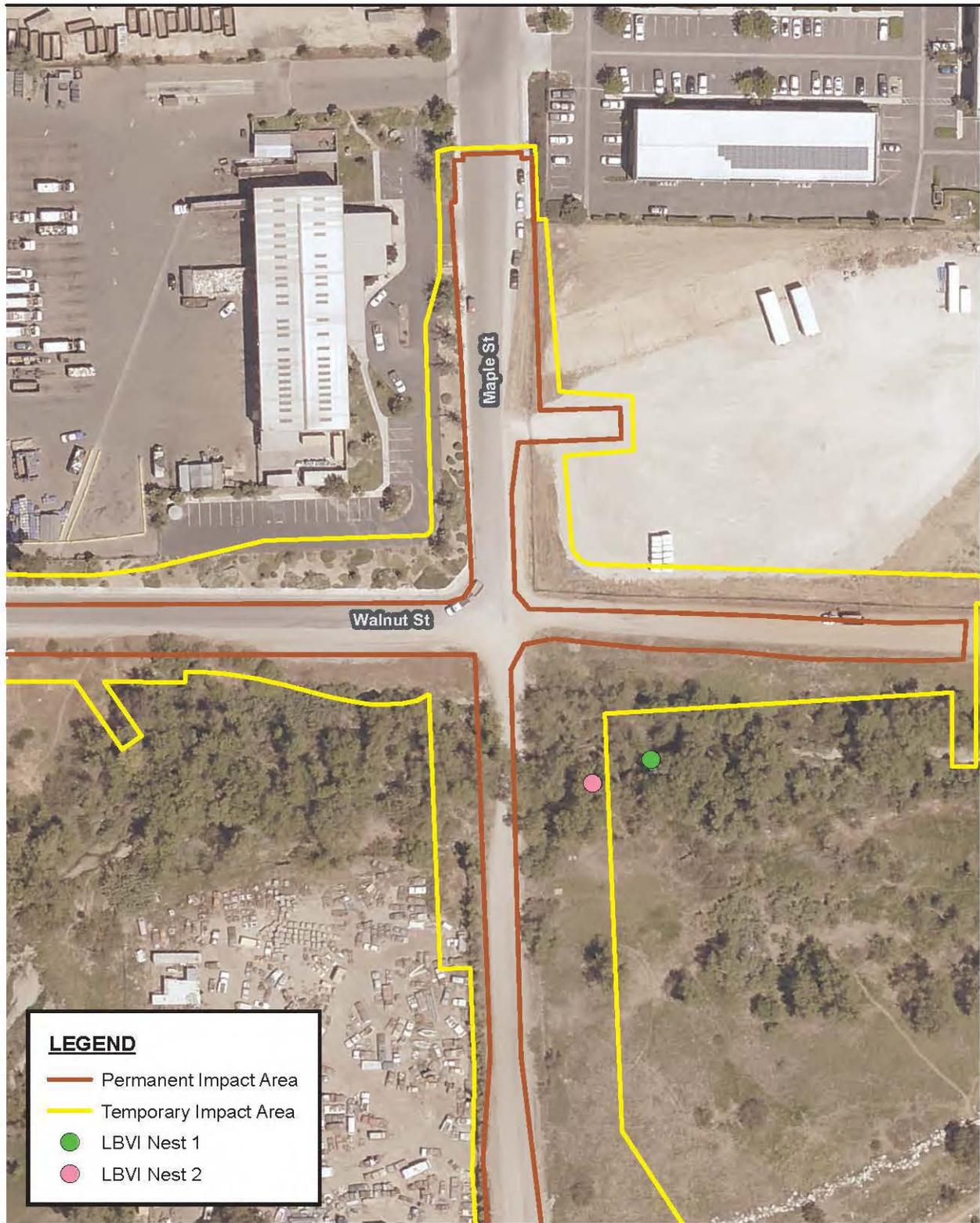
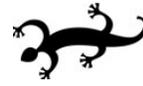


Figure 4
LBVI Nest Locations



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PHOTOS



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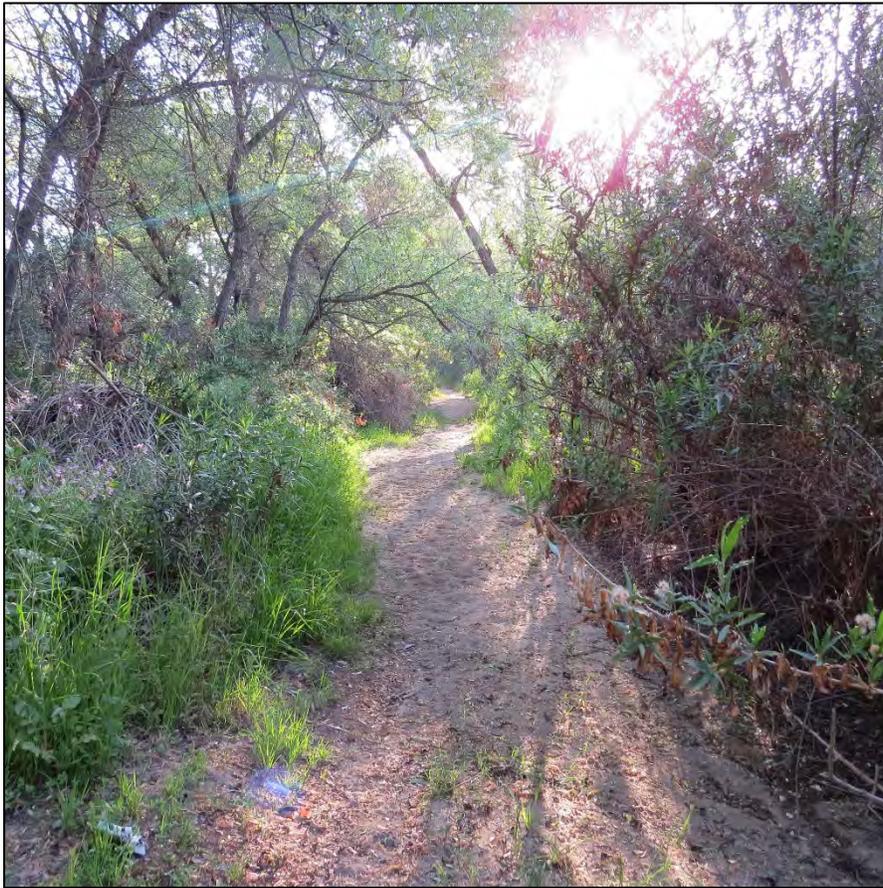


Photo 1 Project Site Least Bell's Vireo Habitat 1



Photo 2 Project Site Least Bell's Vireo Habitat 2

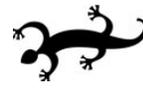


Photo 3 Project Site Least Bell's Vireo Habitat 3



Photo 4 Least Bell's Vireo Female Nest Incubating



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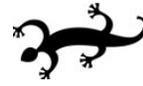
Environmental consulting, research, and wildlife conservation in the U.S. and Latin America

APPENDIX A

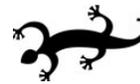
LIST OF OBSERVED SPECIES



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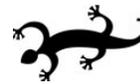


Environmental consulting, research, and wildlife conservation in the U.S. and Latin America

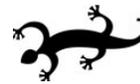


APPENDIX A
List of Observed Species*

INVERTEBRATES FAMILY	COMMON NAME	SCIENTIFIC NAME
Apidae		
	Honey bee	<i>Apis mellifera</i>
	California carpenter bee	<i>Xylocopa californica</i>
Coenagrionidae		
	Vivid dancer	<i>Argia vivida</i>
Formicidae		
	Argentine ant	<i>Linepithema humile</i>
	California harvester ant	<i>Pogonomyrmex californicus</i>
Hesperiidae		
	Fiery skipper	<i>Hylephila phyleus</i>
	Funereal duskywing	<i>Erynnis funeralis</i>
Libellulidae		
	Flame skimmer	<i>Libellula saturata</i>
	Western pondhawk	<i>Erythemis collocata</i>
Lycaenidae		
	Acmon blue	<i>Icaricia acmon acmon</i>
	Marine blue	<i>Leptotes marina</i>
Nymphalidae		
	California sister	<i>Adelphia bredowii californica</i>
	Common buckeye	<i>Junonia coenia grisea</i>
	Mourning cloak	<i>Nymphalis antiopa</i>
	Painted lady	<i>Vanessa cardui</i>
Papilionidae		
	Pale swallowtail	<i>Papilio eurymedon</i>
Pieridae		
	Cabbage white	<i>Pieris rapae</i>
	Orange sulphur	<i>Colias eurytheme</i>
	Sara orangetip	<i>Anthocharis sara sara</i>
Pompilidae		
	Tarantula hawk wasp	<i>Pepsis sp.</i>
Tenebrionidae		
	Darkling beetle	<i>Coelocnemis californicus</i>



INVERTEBRATES FAMILY	COMMON NAME	SCIENTIFIC NAME
REPTILES		
Colubridae		
	Gopher snake	<i>Pituophis catenifer</i>
Phrynosomatidae		
	Granite spiny lizard	<i>Sceloporus orcuttii</i>
	Western fence lizard	<i>Sceloporus occidentalis</i>
Teiidae		
	Orange-throated whiptail	<i>Aspisdoscelis hyperythra</i>
BIRDS		
Accipitridae		
	Cooper's hawk	<i>Accipiter cooperii</i>
	Red-tailed hawk	<i>Buteo jamaicensis</i>
Aegithalidae		
	Bushtit	<i>Psaltriparus minimus</i>
Ardeidae		
	Great blue heron	<i>Ardea herodias</i>
	Great egret	<i>Casmerodius albus</i>
Cardinalidae		
	Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
	Blue grosbeak	<i>Passerina caerulea</i>
Cathartidae		
	Turkey vulture	<i>Cathartes aura</i>
Charadriidae		
	Killdeer	<i>Charadrius vociferous</i>
Columbidae		
	Mourning dove	<i>Zenaida macroura</i>
Corvidae		
	American crow	<i>Corvus brachyrhyncus</i>
	Western scrub jay	<i>Aphelocoma coerulescens</i>
Emberizidae		
	Song sparrow	<i>Melospiza melodia</i>
Fringillidae		
	American goldfinch	<i>Carduelis tristis</i>
	House finch	<i>Carpodacus mexicanus</i>
	Lesser goldfinch	<i>Careuelis psaltria</i>



INVERTEBRATES FAMILY	COMMON NAME	SCIENTIFIC NAME
Hirundinidae		
	Cliff swallow	<i>Petrochelidon pyrrhonota</i>
	Northern rough-wing swallow	<i>Stelgidopteryx serripennis</i>
	Tree swallow	<i>Tachycineta bicolor</i>
Icteridae		
	Bullock's oriole	<i>Icterus bullocki</i>
Mimidae		
	California thrasher	<i>Toxostoma redivivum</i>
	Northern mockingbird	<i>Mimus polyglottos</i>
Muscicapidae		
	Western bluebird	<i>Sialia mexicana</i>
Parulidae		
	Audubon's warbler	<i>Setophaga coronata auduboni</i>
	Common yellowthroat	<i>Geothlypis trichas</i>
	Orange-crowned warbler	<i>Oreothlypis celata</i>
	Townsend's warbler	<i>Setophaga townsendi</i>
	Wilson's warbler	<i>Cardellina pusilla</i>
	Yellow warbler	<i>Setophaga petechia</i>
	Yellow-rumped warbler	<i>Dendroica coronata</i>
Passerelidae		
	California towhee	<i>Melospiza crissalis</i>
	Spotted towhee	<i>Pipilo maculatus</i>
Phasianidae		
	California quail	<i>Callipepla californica</i>
Picidae		
	Acorn woodpecker	<i>Melanerpes formicivorus</i>
	Northern flicker	<i>Colaptes auratus</i>
	Nuttall's woodpecker	<i>Picoides nuttallii</i>
Ptilonotidae		
	Phainopepla	<i>Phainopepla nitens</i>
Sittidae		
	White-breasted nuthatch	<i>Sitta carolinensis</i>
Sturnidae		
	European starling	<i>Sturnis vulgaris</i>



INVERTEBRATES FAMILY	COMMON NAME	SCIENTIFIC NAME
Trochilidae		
	Anna's hummingbird	<i>Calypte anna</i>
	Black-chinned hummingbird	<i>Archilochus alexandrii</i>
Troglodytidae		
	Bewick's wren	<i>Thryomanes bewickii</i>
Tyrannidae		
	Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
	Black phoebe	<i>Sayornis nigricans</i>
	Cassin's kingbird	<i>Tyrannus vociferans</i>
	Pacific slope flycatcher	<i>Empidonax difficilis</i>
	Say's phoebe	<i>Sayornis saya</i>
Vireonidae		
	Least Bell's vireo	<i>Vireo bellii pusillus</i>
	Warbling vireo	<i>Vireo gilvus</i>
MAMMALS		
Canidae		
	Coyote	<i>Canis latrans</i>
Cricetidae		
	Woodrat	<i>Neotoma sp.</i>
Geomyidae		
	Botta's pocket gopher	<i>Thomomys bottae</i>
Leporidae		
	Desert cottontail	<i>Sylvilagus auduboni</i>
Procyonidae		
	Raccoon	<i>Procyon lotor</i>
Sciuridae		
	California ground squirrel	<i>Spermophilus beecheyi</i>

* = Species observed visually, by sound, tracks, nests, and/or scat.

BIOLOGICAL ASSESSMENT

Appendix D Fairy Shrimp Reports (Wet and Dry)

Appendix D.1: Wet Season Fairy Shrimp Report 2013

Appendix D.2: Dry Soil Analysis (Dry Season) Fairy Shrimp Report 2013

Appendix D.3: Wet Season Fairy Shrimp Report 2018

Appendix D.4 Dry Soil Analysis (Dry Season) Fairy Shrimp Report 2018

**13TH STREET BRIDGE, WET SEASON PROTOCOL
SURVEY FOR LISTED FAIRY SHRIMP,
RAMONA, COUNTY OF SAN DIEGO,
CALIFORNIA**

PREPARED FOR:

Ms. Gail Jurgella
County of San Diego
Department of Public Works
5510 Overland Drive, Suite 410, MS O-38
San Diego, CA 92123

PREPARED BY:

ICF International
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

August 2013



ICF International. 2013. 13th Street Bridge, Wet Season Protocol Survey for Listed Fairy Shrimp, County of San Diego Department of Public Works. August.

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Appendices

- A. USFWS Notification
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- C. Vernal Pool Data Sheets

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2. Precipitation	2

Figure	Follows Page
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2. Survey Area Vicinity	1
3. Basin Locations.....	3

1.0 Introduction

The County of San Diego Department of Public Works (DPW), in cooperation with the California Department of Transportation (Caltrans), proposes to improve existing road conditions and to construct a bridge where 13th Street crosses the Santa Maria Creek, in the unincorporated community of Ramona, San Diego County, California (Figures 1 and 2). The objective of the project is to provide an adequate and safe crossing that allows for conveyance of water from 100-year flood events.

In order to ascertain the potential biological constraints, DPW requested an assessment of the presence of listed fairy shrimp for the proposed 13th Street Bridge project. The vicinity of the survey area is known to support several areas of standing water with potential habitat to support fairy shrimp. ICF International (ICF) initiated a vernal pool habitat assessment and mapping in October 2012. Focused fairy shrimp surveys were conducted to determine the presence or absence of federally-listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) or Riverside fairy shrimp (*Streptocephalus woottoni*) within the basins. Complete protocol surveys require one wet season survey and one dry season survey to be conducted within one year or two wet season surveys to be conducted within a five year period (USFWS 1996). ICF was contracted to conduct one wet season and one dry season survey for the 2012/2013 survey period. This report presents the results for the wet season protocol survey of the 13th Street Bridge project biological study area.

1.1 Project Area

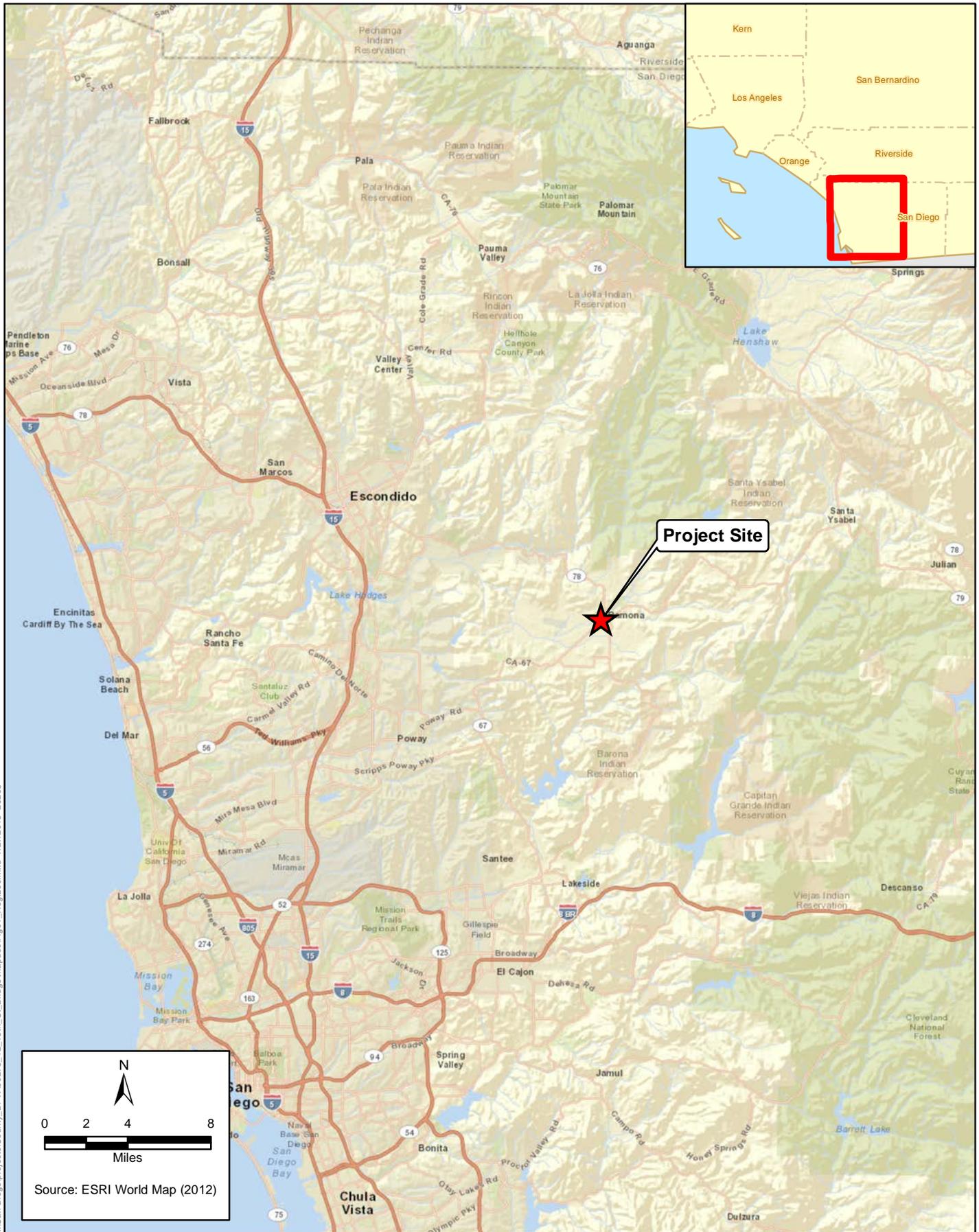
The unincorporated community of Ramona is located in the central portion of San Diego County, California, approximately 30 air-miles northeast of the City of San Diego. Ramona is characterized by warm dry summers and cool wet winters, typical of the semi-arid Mediterranean climate found in southern California. Topography onsite is generally flat alluvium with Santa Maria Creek traversing the middle of the study area.

2.0 Methods

ICF biologist Dale Ritenour (TE Permit# 58888A-0) conducted a protocol wet season survey to determine the presence/absence of San Diego and Riverside fairy shrimp within the study area during the 2012-2013 rainy season. Surveys were conducted from December 26, 2012 through May 22, 2013. Survey methodology follows the Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (Guidelines) (USFWS 1996). Prior to initiating the surveys, a 15-day pre-notification letter was sent to the U.S. Fish and Wildlife Service-Carlsbad Field Office informing them of intent to conduct a protocol wet season survey for the presence of listed fairy shrimp (Appendix A).

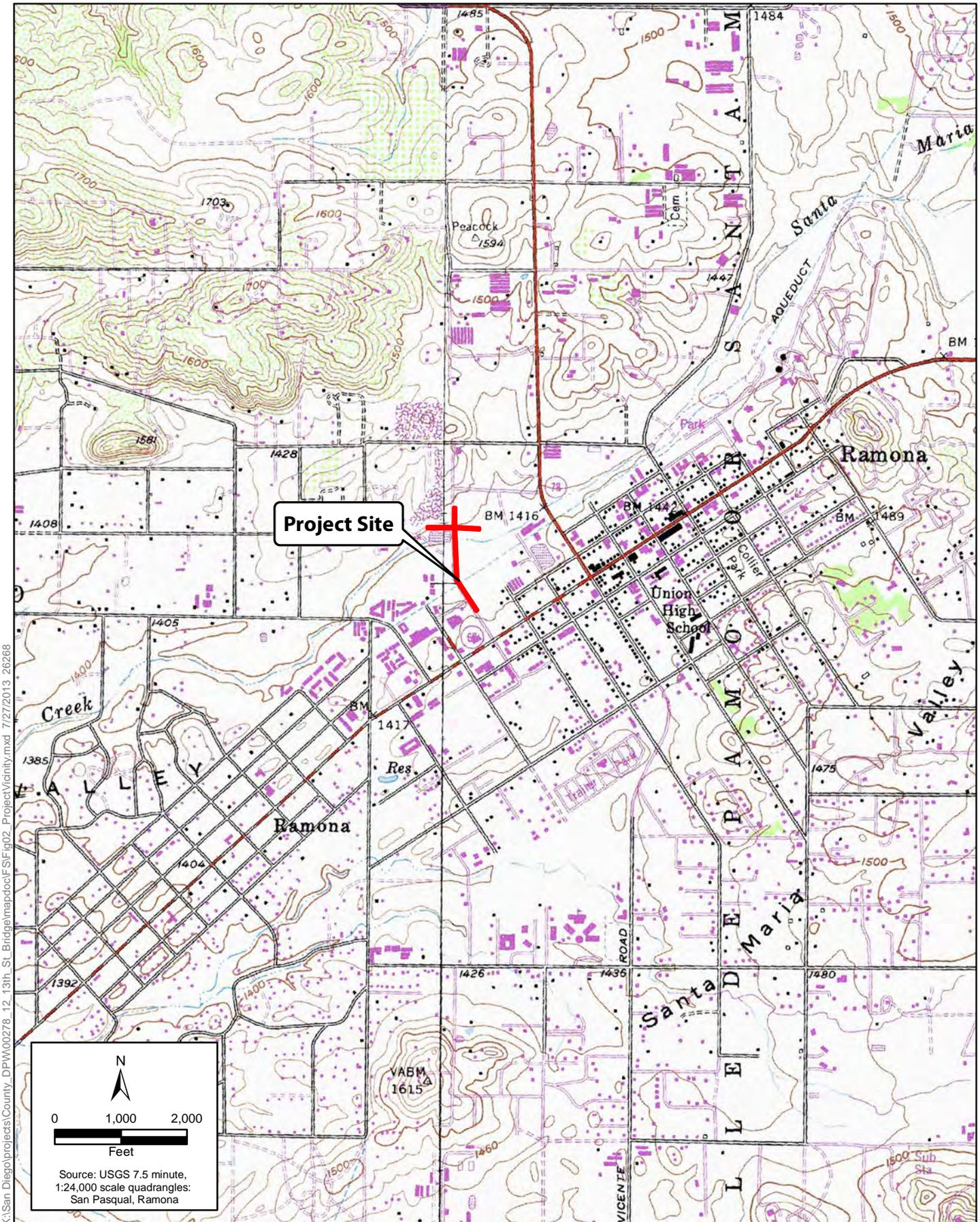
Wet season sampling commenced after the first significant rainfall of the 2012/2013 season (Table 1). Surveys were conducted approximately every 14-days until all basins were dry. The protocol wet-season survey was considered completed on May 31, 2013. Rainfall records for the Ramona area were collected and are presented in Table 2.

During each visit, portions of the pool bottom, edges and vertical water column were sampled using a dip net or aquarium net as appropriate for the size of the pool. Mesh size was no larger than 1/8



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Figure 1
Regional Location
13th Street Bridge



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Figure 2
Project Vicinity
13th Street Bridge

inch. Sampling tools were examined and emptied at least once every five linear meters. If shrimp had been observed, they would be identified to species level in the field and promptly returned to the basin they were collected from. In some instances, fairy shrimp would be collected and identified using the key in Eriksen and Belk (1999) with aid of a dissecting scope. Basin depth, area, water temperature, air temperature, habitat condition, and species present were noted and recorded on a USFWS Vernal Pool Data Sheet (Appendix C). Data sheets were not filled out when a basin was dry during a survey visit. Representative photographs are included in Appendix B.

Table 1. Wet Season Site Visits and Personnel

Date	Personnel	Notes
12-26-2012	D. Ritenour	Survey after first significant rain; only Basin 1 inundated: most others have saturated soil with no ponding
01-09-2013	D. Ritenour	Four basins ponding
01-23-2013	D. Ritenour	All basins dry
01-30-2013	D. Ritenour	Post-storm ponding check, all basins inundated
02-07-2013	D. Ritenour	Four basins ponding
02-19-2013	D. Ritenour	Three basins ponding
03-09-2013	D. Ritenour	Post-storm ponding check, all basins inundated
03-25-2013	D. Ritenour	Basin 1 (Detention basin)_almost dry; all others dry
04-07-2013	D. Ritenour	All basins dry
05-02-2013	D. Ritenour	All basins dry
05-11-2013	D. Ritenour	Basins 1 and 8 almost dry; all others dry
05-22-2013	D. Ritenour	All basins dry

Table 2. Precipitation

Rain Event Dates	Precipitation Total (inches)
10-11 to 10-12-2012	0.63
10-20 to 10-22-2012	0.11
11-08 to 11-10-2012	0.11
11-30-2012	0.06
12-13 to 12-18-2012	1.52
01-24 to 01-27-2013	0.96
02-19 (p.m.) to 02-21-2013	0.25
03-07 to 03-09-2013	1.33
04-08-2013	0.02
04-15-2013	0.04
05-05 to 05-08-2013	0.38
Total Rainfall	5.41

3.0 Results

A total of twenty-five basins were identified and mapped for the 13th Street Bridge project wet season surveys (Figure 3). Basins were identified as depressions with the potential for ponding, and all were observed to hold water after some winter storm events. The detention basin (#1) was created as part of the Ramona Library project and held water the longest of any of the basins within the study area. The majority of basins (numbers 9-23) exist on a graded, gravel lot with slight depressions. The remainder of the basins were road ruts on the dirt shoulders of 13th, Walnut, and Maple streets.

No vernal pool indicator plant species (USCAE 1997) were observed in any of the basins. Basin 1 contained a variety of upland and wetland plants, including Mediterranean barley (*Hordeum murianum* ssp. *glaucum*), birdfoot trefoil (*Lotus corniculatus*), grass poly (*Lythrum hyssopifolia*), and tall flatsedge (*Cyperus eragrostis*). The deepest parts of the detention basin were unvegetated during the survey. Most of the ruts in the dirt shoulders were unvegetated, with the exceptions of basins 6, 8, and 24. Basin 6 was sparsely vegetated with upland grasses and southern tarplant (*Centromadia parryi* ssp. *australis*). Basin 24 was covered primarily in exotic, upland grasses (*Bromus* spp.) with a few curly dock (*Rumex crispus*). Basin 8 was sparsely vegetated with upland grasses. The basins on the graded lot (9-23) were sparsely vegetated with the invasive weed stinkwort (*Dittrichia graveolens*).

No fairy shrimp were observed or collected from any of the basins during the 2012-2013 wet season survey. Seed shrimp (Ostracoda) were observed only in Basin 1. To determine presence/absence of listed fairy shrimp in these basins, per the USFWS guidelines, a complete survey consisting of a wet and a dry season survey would be required.

4.0 References

- Eriksen, C.H. and D. Belk. 1999. Fairy Shrimps of California's Puddles, Pools, and Playas. Mad River Press. Eureka, California. 196pp.
- U.S. Army Corps of Engineers (USACE). 1997. Indicator Species for Vernal Pools. November.
- U.S. Fish and Wildlife Service (USFWS). 1996. Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. April 19.



K:\San Diego\projects\County_DP\W00278_12_13th_St_Bridge\mapdoc\F\SF\ig03_Sampled_basins.mxd 7/27/2013 26268



Figure 3
Sampled Basins
13th Street Bridge - Fairy Shrimp Survey

5.0 Certification

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



Dale Ritenour (Permit No. TE-58888A-0)
Biologist
Author and Field Surveys

July 31, 2013
Date

Appendix A
USFWS Notification



December 19, 2012

Ms. Susie Tharratt
Recovery Permit Coordinator
Department of Interior
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, CA 92011

RE: 15-Day Notice for Protocol Surveys for Listed Vernal Pool Branchiopods

Dear Ms. Tharratt:

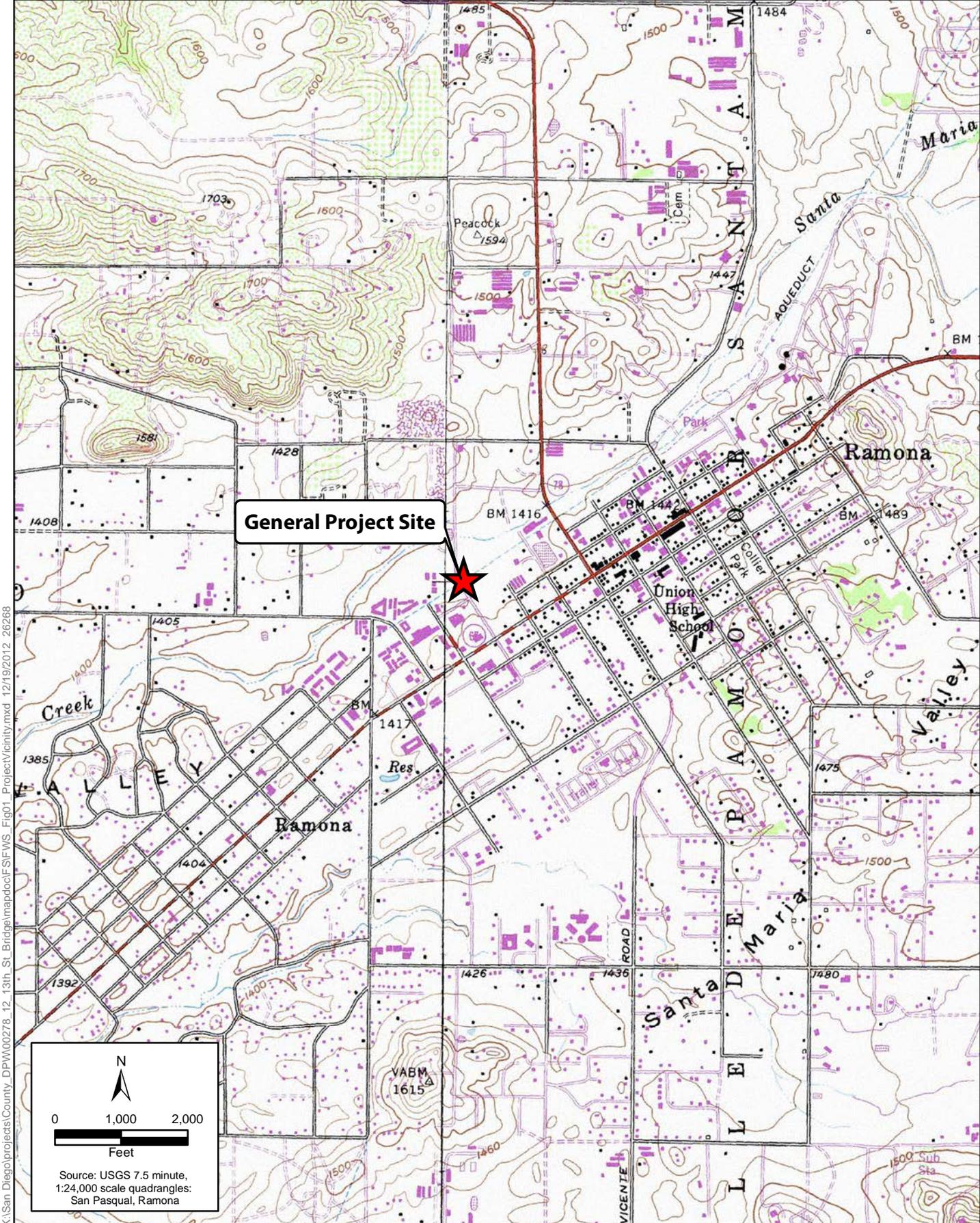
The County of San Diego (County) Department of Parks and Recreation (DPR) has requested that ICF International (ICF) conduct a protocol wet and dry season survey for listed vernal pool branchiopods on the Ramona 13th Street Bridge Project. This project is located in Ramona, San Diego County, CA (Figure 1). Douglas Allen (TE-837448-5) and I will be conducting the wet/dry season survey under the guidelines stated in the 1996 Interim Survey Guidelines issued by the U.S. Fish and Wildlife Service.

Please do not hesitate to contact me with any questions.

Sincerely,

A handwritten signature in blue ink that reads "Dale Ritenour". The signature is fluid and cursive, with the first name "Dale" being larger and more prominent than the last name "Ritenour".

Dale Ritenour
TE-58888A-0
Biologist
(858) 578-8964
Dale.Ritenour@icfi.com



K:\San Diego\projects\County_DP\W00278_12_13th_St_Bridge\mapdoc\F\SF\WS_Fig01_ProjectVicinity.mxd 12/19/2012 26268

Figure 1
Project Vicinity
13th Street Bridge Wet Season Fairy Shrimp Survey

Appendix B

Site Photographs



Photo 1

Representative overview
of Walnut street. Facing
east at Basin 2.

Photographer:
D. Ritenour

February 7, 2013



Photo 2

Representative overview
of detention basin and
graded lot. Facing north.

Photographer:
D. Ritenour

January 23, 2013



Photo 3

Basin 1, facing north

Detention basin north of
Ramona library

Photographer:
D. Ritenour

January 30, 2013



Photo 4

Basin 8, facing south

Representative of
road ruts within the
study area

Photographer:
D. Ritenour

February 7, 2013



Photo 5

Basin 9, facing east

Representative of
shallow basins on the
graded lot

Photographer:
D. Ritenour

January 30, 2013



Photo 6

Basin 23, facing south

Representative of
shallow basins on the
graded lot

Photographer:
D. Ritenour

January 30, 2013

Appendix C
Vernal Pool Data Sheets

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 12/26/12 Time: 930 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 1

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 12 °C Air: 13 °C

Pool Depth: at time of sampling: 15 cm estimated maximum: 20 cm
Surface Area: at time of sampling: 30 m x 20 m estimated maximum: 30 m x 20 m

Habitat Condition: (circle where appropriate)

- undisturbed
- undisturbed
- ungrazed
- land use of habitat: detention basin
- disturbed: tire tracks garbage discing/plowing
- grazed: cattle light horses moderate sheep heavy other ___

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
 (note reproductive status)

Notostracans: *None*
 (note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
 Conchostracans: yes no
 Copepods: yes no
 Ostracods *yes* no
 Fish yes no
 Frogs yes no
 Salamanders yes no
 Waterfowl yes no
 Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
 Zygoptera: yes no
 Hydrophilidae: yes no
 Dytiscidae: yes no
 Corixidae: yes no
 Notonectidae: yes no
 Belostomatidae: yes no
 Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
----------------	----------------------	----------------------------	---------------

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/19/13 Time: 1218 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 4

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 15 °C Air: 16 °C

Pool Depth: at time of sampling: 5 cm estimated maximum: 10 cm
Surface Area: at time of sampling: 1 m x 0.5 m estimated maximum: 2 m x 2 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep other _____
 light moderate heavy
- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): _____ ppm or mg/l Conductivity: _____ uMHO
Dissolved NH₄: _____ ppt or ppm Dissolved Oxygen: _____ ppm or mg/l
pH: _____ Turbidity: (secchi disc depth) _____ cm or: clear to bottom _____
Salinity: _____ ppt or ppm Total Dissolved Solids (TDS): _____ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

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Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

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Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

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Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

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Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
----------------	----------------------	----------------------------	---------------

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1430 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 9

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 3 m x 5 m estimated maximum: 3 m x 5 m

Habitat Condition: (circle where appropriate)

- undisturbed (disturbed) tire tracks garbage discing/plowing
(ungrazed) grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat: poorly graded gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1435 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 10

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 6 m x 6 m estimated maximum: 6 m x 6 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle light horses moderate sheep heavy other ___
- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1435 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 11

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 4 m x 5 m estimated maximum: 4 m x 5 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1440 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 12

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 3 m x 9 m estimated maximum: 3 m x 9 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1445 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 5888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 14

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 6 m x 8 m estimated maximum: 6 m x 8 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1445 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 15

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 6 m x 10 m estimated maximum: 6 m x 10 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1450 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 16

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 20 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm Surface Area: at time of sampling: 4 m x 12 m
estimated maximum: 3 cm estimated maximum: 4 m x 12 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1455 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 17

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm Surface Area: at time of sampling: 6 m x 10 m
estimated maximum: 3 cm estimated maximum: 6 m x 10 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1500 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 18

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm Surface Area: at time of sampling: 4 m x 4 m
estimated maximum: 3 cm estimated maximum: 4 m x 4 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
ungrazed grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1505 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 19

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 20 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm Surface Area: at time of sampling: 1 m x 1 m
estimated maximum: 3 cm estimated maximum: 1 m x 1 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1510 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 20

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 20 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 5 m x 5 m estimated maximum: 5 m x 5 m

Habitat Condition: (circle where appropriate)

- undisturbed (disturbed) tire tracks garbage discing/plowing
- (ungrazed) grazed: cattle horses sheep other ___
light moderate heavy
- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/15 Time: 1515 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 21

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 1 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 4 m x 6 m estimated maximum: 4 m x 6 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no

Conchostracans: yes no

Copepods: yes no

Ostracods yes no

Fish yes no

Frogs yes no

Salamanders yes no

Waterfowl yes no

Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no

Zygoptera: yes no

Hydrophilidae: yes no

Dytiscidae: yes no

Corixidae: yes no

Notonectidae: yes no

Belostomatidae: yes no

Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1520 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 22

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 2 cm estimated maximum: 2 cm
Surface Area: at time of sampling: 4 m x 6 m estimated maximum: 4 m x 6 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1525 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 23

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 3 m x 8 m estimated maximum: 3 m x 8 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
- ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 1/30/13 Time: 1530 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 7

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 20 °C Air: 20 °C

Pool Depth: at time of sampling: 15 cm Surface Area: at time of sampling: 5 m x 10 m
estimated maximum: 15 cm estimated maximum: 5 m x 10 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat: road shoulder

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 21 7 13 Time: 920 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 1

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 13 °C Air: 14 °C

Pool Depth: at time of sampling: 10 cm estimated maximum: 20 cm
Surface Area: at time of sampling: 20 m x 20 m estimated maximum: 30 m x 20 m

Habitat Condition: (circle where appropriate)

undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat: detention basin

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 2/19/13 Time: 9:15 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 8

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 13 °C Air: 13 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 10 cm
Surface Area: at time of sampling: 1 m x 2 m estimated maximum: 6 m x 20 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
 light moderate heavy

- land use of habitat: dirt road

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *None*

Notostracans: (note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 3/9/13 Time: 1015 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 9

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 10 °C Air: 10 °C

Pool Depth: at time of sampling: 5 cm estimated maximum: 5 cm
Surface Area: at time of sampling: 3 m x 5 m estimated maximum: 3 m x 5 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
 ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: poorly leveled, graded gravel lot (#'s 9-23)

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: (note reproductive status) *None*

Notostracans: (note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 1030 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 12

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 10 °C Air: 10 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 3 m x 9 m estimated maximum: 3 m x 9 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity : ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no yes

Required color slides and/or photographs for the project site are included: ___ no yes

Date: 3/9/13 Time: 1040 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 14

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 10 °C Air: 10 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 6 m x 7 m estimated maximum: 6 m x 7 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed: tire tracks garbage discing/plowing

-ungrazed

grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l

Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm

Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm

Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 1055 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 17

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: ___ °C Air: ___ °C

Pool Depth: at time of sampling: 3 cm Surface Area: at time of sampling: 5 m x 10 m
estimated maximum: 3 cm estimated maximum: 5 m x 10 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: no yes

Required color slides and/or photographs for the project site are included: no yes

Date: 3/9/13 Time: 1100 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 18

Township: 13S Range: R1E Section: Unsectioned lat. long.

Temperature: Water: °C Air: °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 4 m x 4 m estimated maximum: 4 m x 4 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed:

tire tracks

garbage

discing/plowing

ungrazed

grazed:

cattle
light

horses
moderate

sheep
heavy

other

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ppm or mg/l

Conductivity: uMHO

Dissolved NH₄: ppt or ppm

Dissolved Oxygen: ppm or mg/l

pH: Turbidity: (secchi disc depth) cm or: clear to bottom

Salinity: ppt or ppm

Total Dissolved Solids (TDS): ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: no yes

Required color slides and/or photographs for the project site are included: no yes

Date: 3/9/13 Time: 1105 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 19

Township: 13S Range: R1E Section: Unsectioned lat. long.

Temperature: Water: 11 °C Air: 11 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 1 m x 1 m estimated maximum: 1 m x 1 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed: tire tracks garbage discing/plowing

ungrazed

grazed: cattle horses sheep other
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ppm or mg/l

Conductivity: uMHO

Dissolved NH₄: ppt or ppm

Dissolved Oxygen: ppm or mg/l

pH: Turbidity: (secchi disc depth) cm or: clear to bottom

Salinity: ppt or ppm

Total Dissolved Solids (TDS): ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 1110 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 20

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 11 °C Air: 11 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 5 m x 5 m estimated maximum: 5 m x 5 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed

tire tracks

garbage

discing/plowing

ungrazed

grazed:

cattle
light

horses
moderate

sheep

other
heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l

Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm

Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm

Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 1115 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 21

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 11 °C Air: 11 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 4 m x 6 m estimated maximum: 4 m x 6 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed: tire tracks garbage discing/plowing

ungrazed

grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l

Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm

Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity : ___ ppt or ppm

Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 1120 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 22

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 11 °C Air: 11 °C

Pool Depth: at time of sampling: 2 cm estimated maximum: 2 cm
Surface Area: at time of sampling: 4 m x 6 m estimated maximum: 4 m x 6 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 1125 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 23

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 11 °C Air: 11 °C

Pool Depth: at time of sampling: 3 cm estimated maximum: 3 cm
Surface Area: at time of sampling: 3 m x 8 m estimated maximum: 3 m x 8 m

Habitat Condition: (circle where appropriate)

- undisturbed

disturbed: tire tracks garbage discing/plowing

- ungrazed

grazed: cattle light horses moderate sheep heavy other ___

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l

Conductivity: ___ uMHO

Dissolved NH₄: ___ ppt or ppm

Dissolved Oxygen: ___ ppm or mg/l

pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___

Salinity: ___ ppt or ppm

Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
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U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: ___ no X yes

Required color slides and/or photographs for the project site are included: ___ no X yes

Date: 3/9/13 Time: 9:20 County: San Diego Quad: Ramona

Collector(s): Dale Ritenour Permit #: TE 58888A-0

Site/Project Name: County DPW-13th St. Bridge Pool #: 24

Township: 13S Range: R1E Section: Unsectioned lat. ___ long. ___

Temperature: Water: 10 °C Air: 10 °C

Pool Depth: at time of sampling: 20 cm estimated maximum: 20 cm
Surface Area: at time of sampling: 5 m x 10 m estimated maximum: 5 m x 10 m

Habitat Condition: (circle where appropriate)

- undisturbed disturbed: tire tracks garbage discing/plowing
ungrazed grazed: cattle horses sheep other ___
light moderate heavy

- land use of habitat: road shoulder - empty lot

(Optional) Water Chemistry Data

Alkalinity (total): ___ ppm or mg/l Conductivity: ___ uMHO
Dissolved NH₄: ___ ppt or ppm Dissolved Oxygen: ___ ppm or mg/l
pH: ___ Turbidity: (secchi disc depth) ___ cm or: clear to bottom ___
Salinity: ___ ppt or ppm Total Dissolved Solids (TDS): ___ ppm

Notes:

Heavy rain ending this morning.

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans:
(note reproductive status) *None*

Notostracans:
(note reproductive status) *None*

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

**U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey**

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

<u>Species</u>	<u># Individuals</u>	<u>Accession/Catalog #</u>	<u>Pool #</u>
----------------	----------------------	----------------------------	---------------

U.S. Fish and Wildlife Service Vernal Pool Data Sheet
Wet Season Survey

Note: Please fill out the required information completely for each site visit.

Species Observed: state none or estimate # of individuals present in terms of an order of magnitude (e.g., 10's, 100's, 1000's)

Anostracans: *None*
(note reproductive status)

Notostracans: *None*
(note reproductive status)

(Optional) Species Observations:

Cladocerans: yes no
Conchostracans: yes no
Copepods: yes no
Ostracods yes no
Fish yes no
Frogs yes no
Salamanders yes no
Waterfowl yes no
Other (specify) _____

Insects: (adult or larvae)

Anisoptera: yes no
Zygoptera: yes no
Hydrophilidae: yes no
Dytiscidae: yes no
Corixidae: yes no
Notonectidae: yes no
Belostomatidae: yes no
Other (specify) _____

Voucher Specimens

Specimens shall be preserved according to the standards of the institution in which they will be accessioned.

Species # Individuals Accession/Catalog # Pool #

**13TH STREET BRIDGE, DRY SEASON PROTOCOL
SURVEY FOR LISTED FAIRY SHRIMP,
RAMONA, COUNTY OF SAN DIEGO,
CALIFORNIA**

PREPARED FOR:

Ms. Gail Jurgella
County of San Diego
Department of Public Works
5510 Overland Drive, Suite 410, MS O-38
San Diego, CA 92123

PREPARED BY:

ICF International
9775 Businesspark Avenue, Suite 200
San Diego, California 92131

December 2013



ICF International. 2013. 13th Street Bridge, Dry Season Protocol Survey for Listed Fairy Shrimp, Prepared for County of San Diego Department of Public Works. December.

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4.0 References.....	3
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Appendices

- A. USFWS Notification
- B. Site Photographs
- C. ERS Soil Sample Analysis
- D. Vernal Pool Data Sheets

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1.0 Introduction

The County of San Diego Department of Public Works (DPW), in cooperation with the California Department of Transportation (Caltrans), proposes to improve existing road conditions and to construct a bridge where 13th Street crosses the Santa Maria Creek, in the unincorporated community of Ramona, San Diego County, California (Figures 1 and 2). The objective of the project is to provide an adequate and safe crossing that allows for conveyance of water from 100-year flood events.

In order to ascertain the potential biological constraints, DPW requested an assessment of the presence of listed fairy shrimp for the proposed 13th Street Bridge project. The vicinity of the survey area is known to support several areas of standing water with potential habitat to support fairy shrimp. ICF International (ICF) initiated a vernal pool habitat assessment and mapping in October 2012. Focused fairy shrimp surveys were conducted to determine the presence or absence of federally-listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) or Riverside fairy shrimp (*Streptocephalus woottoni*) within the basins. Complete protocol surveys require one wet season survey and one dry season survey to be conducted within one year or two wet season surveys to be conducted within a five year period (USFWS 1996). ICF was contracted to conduct one wet season and one dry season survey for the 2012/2013 survey period. A wet season survey was conducted in the winter of 2012-2013 (ICF 2013). This report presents the results for the dry season protocol survey of the 13th Street Bridge project biological study area.

1.1 Project Area

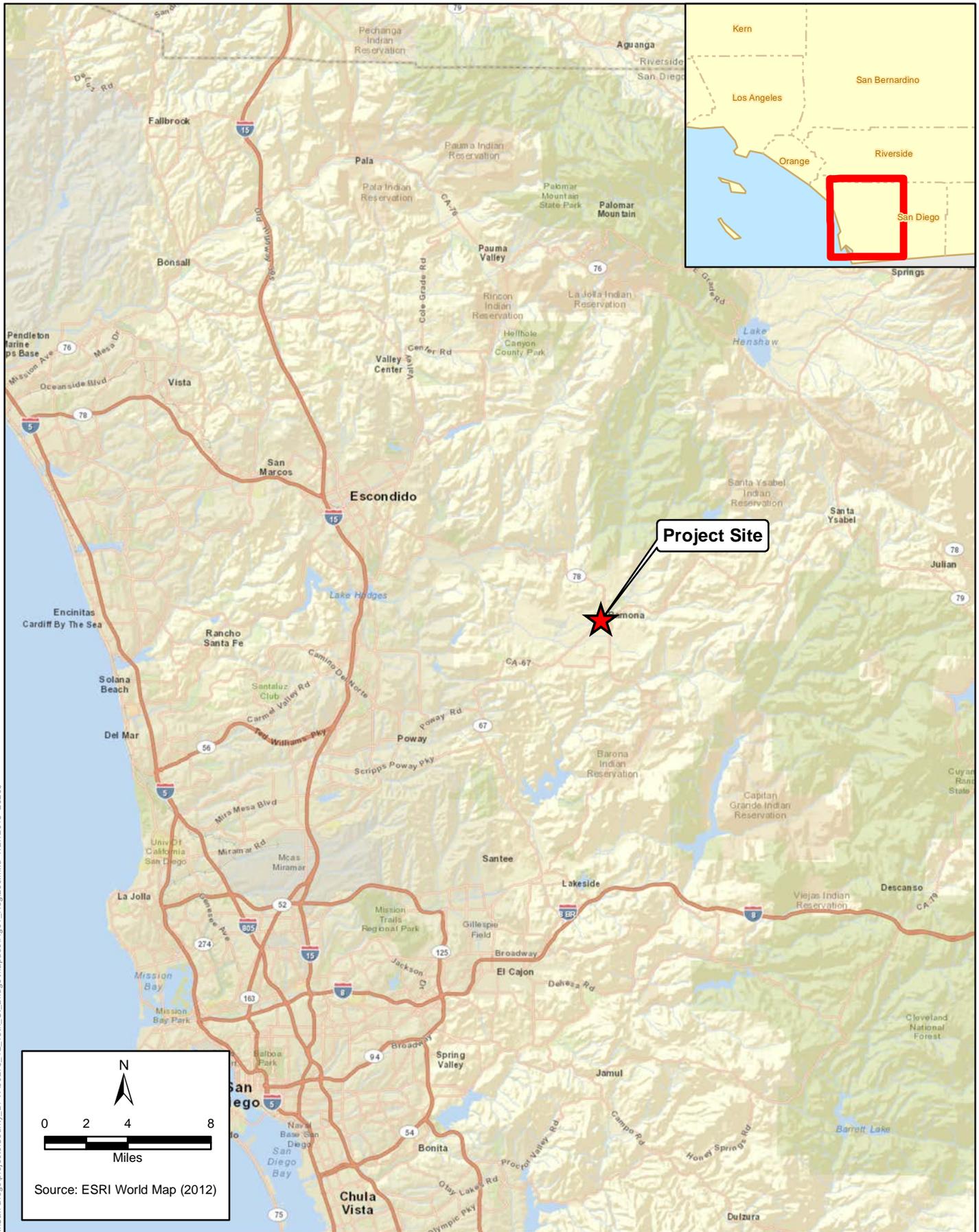
The unincorporated community of Ramona is located in the central portion of San Diego County, California, approximately 30 miles (straight line distance) northeast of the City of San Diego. Ramona is characterized by warm dry summers and cool wet winters, typical of the semi-arid Mediterranean climate found in southern California. Topography onsite is generally flat alluvium with Santa Maria Creek traversing the middle of the study area.

Soils in the study area include Placentia sandy loam (2 to 9 percent slopes), Visalia sandy loam (0 to 2 percent slopes), Riverwash, Fallbrook sandy loam (9 to 15 percent eroded, 15 to 30 percent eroded), and Chino silt loam saline (0 to 2 percent slopes). Soils in the Placentia series are derived from granitic alluvium and contain an impermeable clay layer (Bowman 1973). Placentia series are one of the five soil types in cismontane San Diego County with which vernal pools are primarily associated (Witham et al. 1998).

A larger 350-foot survey buffer from the roads was used for the wet season survey, as it was uncertain where the bridge would be placed. For the dry season survey a smaller 250-foot buffer was used, as the project area will likely follow the existing road alignment and any potential biological impacts would be detected within this survey area.

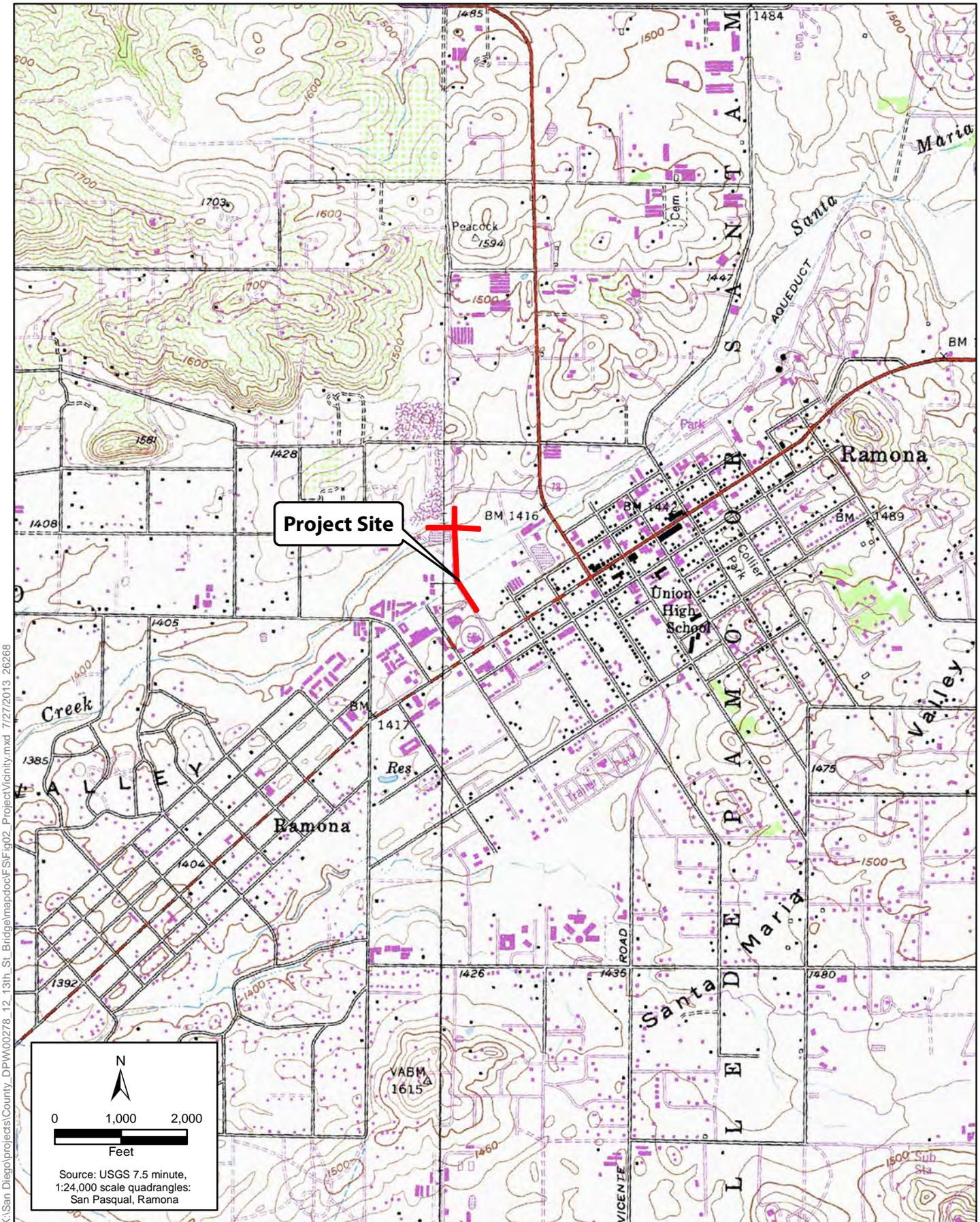
2.0 Methods

ICF biologists Dale Ritenour (USFWS Permit# TE-58888A-0) and Doug Allen (USFWS Permit# TE-837448-5) initiated a protocol dry season survey to determine the presence/absence of San Diego and Riverside fairy shrimp within the study area. Survey methodology follows the Interim Survey



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Figure 1
Regional Location
13th Street Bridge



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Figure 2
Project Vicinity
13th Street Bridge

Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (Guidelines) (USFWS 1996). Prior to initiating the surveys, a 15-day pre-notification letter was sent to the U.S. Fish and Wildlife Service-Carlsbad Field Office informing them of intent to conduct a protocol dry season survey for the presence of listed fairy shrimp (Appendix A).

Cysts of the *Streptocephalus* genus can be discerned from *Branchinecta* cysts based on cyst surface characteristics. Only one member of the *Streptocephalus* genus, Riverside fairy shrimp, is found within San Diego County, so any observed *Streptocephalus* cysts would be accepted as Riverside fairy shrimp. Two species of *Branchinecta* have been found on in San Diego County: San Diego fairy shrimp and Lindahl's/versatile fairy shrimp (*Branchinecta lindahli*). Only San Diego fairy shrimp are known from the Ramona area, so any observed *Branchinecta* cysts would be assumed to be San Diego fairy shrimp.

ICF contracted USFWS-approved listed branchiopod cyst identifier, Dr. Chuck Black of Ecological Restoration Service (TE-835549-8), to process the soil samples from the basins for presence or absence of fairy shrimp cysts.

2.1 Dry Season Fairy Shrimp Sampling

2.1.1 Soil Collection

On September 17, 2013, ICF vernal pool biologist Doug Allen collected soil samples for the dry season survey. Soil samples were collected when the areas with potential to support fairy shrimp (i.e., road ruts and basins) were dry. Representative photos are presented in Appendix B. A hand trowel was used to collect soil samples from the top 1-3 centimeters of basin sediment in accordance with the USFWS-approved recovery permit protocol. Whenever possible, soil samples were collected in chunks and the trowel was used to pry up intact chunks of sediment. Loosening the soil by raking or shoveling was avoided as such methods can damage cysts. Ten 100-mililiter soil samples were collected from each, with no more than one liter of soil taken from the basin. For very small basins (i.e. 3, 4, and 5) only 500-mililiters of soil were collected, to reduce potential impacts to the basin if listed shrimp were present. The stored samples were kept out of direct sunlight in order to avoid excessive heating. USFWS dry season survey data sheets are presented in Appendix D.

2.1.2 Soil Processing for Cyst Presence

Soil samples were processed by Dr. Black in accordance with the Guidelines (USFWS 1996). The ten soil samples were measured into individual plastic containers. These samples were hydrated in tap water then washed through a set of sieves. Material passing through a Number 45 (0.0139") USA Standard Testing Sieve, A.S.T.M.E.-11 specification and caught on a Number 70 (0.0083") Sieve was rinsed into a container with approximately 50-milliliters of a saturated brine solution to float organic material, including fairy shrimp cysts. The material floating on the brine was decanted onto a paper filter on a filter funnel, and water was removed through the filter paper by vacuum suction. The organic material collected on the paper was examined under a 6.3-570x power Olympus SZX9 Zoom Stereo Microscope.

3.0 Results

A total of 18 basins were sampled for the 13th Street Bridge project dry season surveys (Figure 3). The detention basin (basin 1) was created as part of the Ramona Library project and was the largest, deepest feature in the survey area. The majority of basins (basins 9-11, 19-23) exist on a graded, gravel lot with slight depressions. The remainder of the basins were road ruts on the dirt shoulders of 13th, Walnut, and Maple streets.

No fairy shrimp cysts were identified from any of the sampled basins in the dry season sampling. Seed shrimp shells (Ostracoda) were observed in small numbers in Basins 1, 8, and 24. This shows that these basins possess suitable hydrology and water chemistry to support freshwater crustaceans, but the lack of cysts shows that listed fairy shrimp were absent from these basins. The methods and results from Dr. Black are included as Appendix C. No fairy shrimp were observed in any of the sampled basins during the wet season (ICF 2013).

These 18 basins have had a complete USFWS wet and dry season survey and can be considered to be unoccupied by listed fairy shrimp. These results are generally valid for five years (USFWS 1996).

4.0 References

- Bowman R. 1973. *Soil Survey of the San Diego Area*. U.S. Department of Agriculture in cooperation with the USDI, UC Agricultural Experiment Station, Bureau of Indian Affairs, Department of the Navy, and the U.S. Marine Corps.
- Eriksen, C.H. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press. Eureka, California. 196pp.
- ICF International. 2013. *13th Street Bridge, Wet Season Protocol Survey for Listed Fairy Shrimp*, County of San Diego Department of Public Works. August.
- U.S. Fish and Wildlife Service (USFWS). 1996. *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. April 19.
- Witham, C.W., E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (eds.). 1998. *Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference*. California Native Plant Society, Sacramento, CA. Pages 56-70.



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Figure 3
Sampled Basins-Dry Season
13th Street Bridge - Fairy Shrimp Survey

5.0 Certification

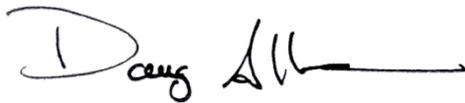
I certify that the information in this survey report and attached exhibits fully and accurately represent my work.



Dale Ritenour (Permit No. TE-58888A-0)
Vernal Pool Biologist
Author

November 8, 2013

Date



Doug Allen (Permit No. TE-837448-5)
Vernal Pool Biologist
Field Surveys

November 8, 2013

Date

Appendix A
USFWS Notification



September 09, 2013

Ms. Susie Tharratt
Recovery Permit Coordinator
Department of Interior
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, CA 92011

Subject: 15-day Notice for Protocol Surveys for Listed Vernal Pool Branchiopods for
County DPW 13th Street Bridge Project, Ramona, CA

Dear Ms. Tharratt:

The County of San Diego (County) Department of Public Works (DPW) has requested that ICF International (ICF) conduct a protocol dry season survey for listed vernal pool branchiopods on Ramona 13th Street Bridge Project. This project is located in Ramona, San Diego County, CA (Figure 1). ICF conducted a wet-season survey on this site in the winter/spring of 2012-2013 on a 350-foot buffer from the project site. Twenty-five basins were sampled and no branchiopods were observed. The wet season report is dated August 2013 and was mailed on August 22. The survey area has been reduced to an approximately 250-foot buffer from the preliminary project area and 18 basins will be sampled (Figure 2; basins 1-11, 19-25). Douglas Allen (TE-837448-5) and I will be conducting a dry season survey following the guidelines stated in the 1996 Interim Survey Guidelines issued by the U.S. Fish and Wildlife Service. Because of issues with the details of my permit authorizations, Service-approved listed branchiopod cyst identifier Dr. Chuck Black of Ecological Restoration Service (TE-835549-8) will supervise the processing of soil and review and certify the identification of branchiopod cysts.

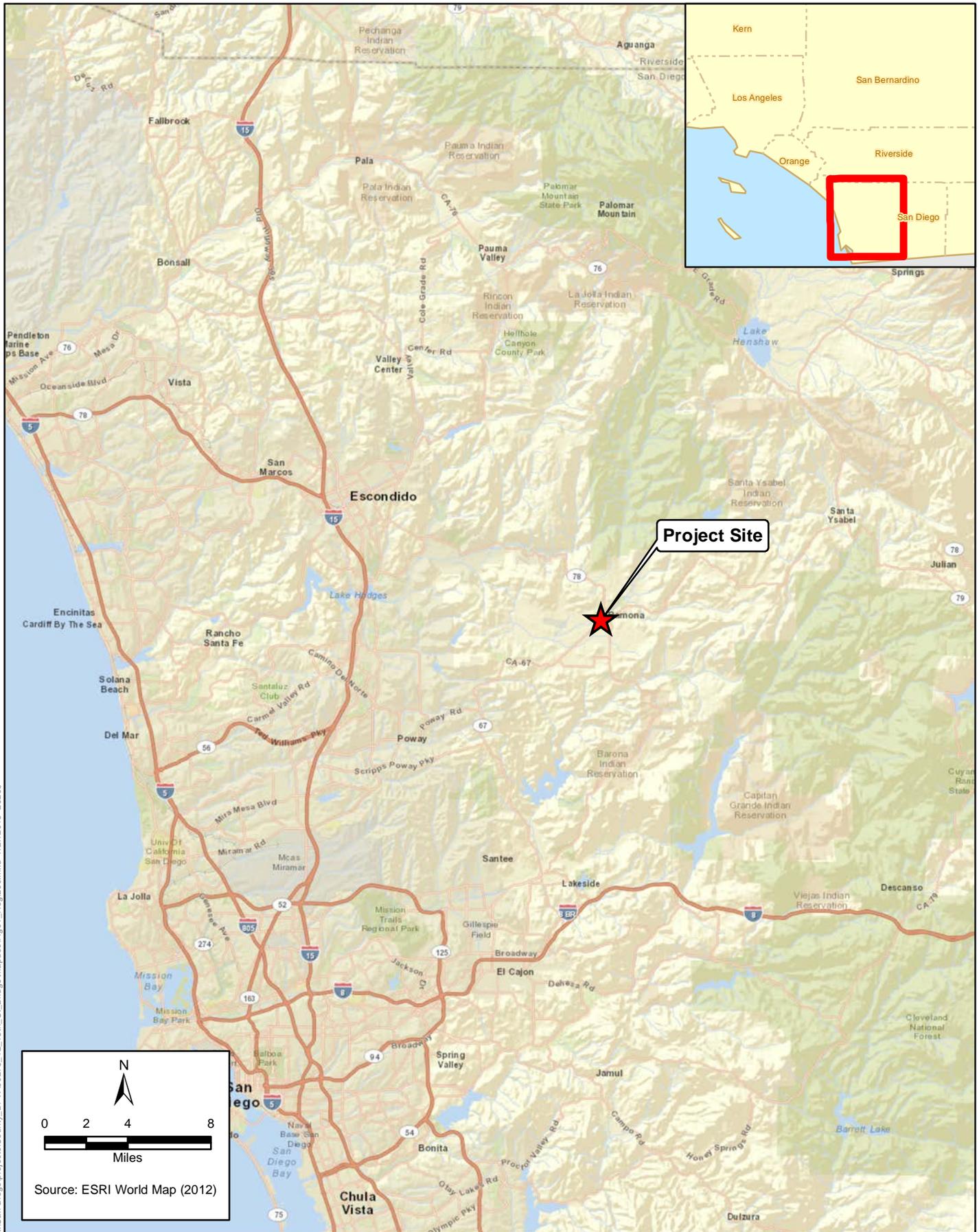
Please do not hesitate to contact me with any questions or comments.

Sincerely,

A handwritten signature in blue ink that reads "Dale Olson".

Ms. Susie Tharratt
September 9, 2013
Page 2

Dale Ritenour
TE-58888A-0
Biologist
(858) 578-8964
Dale.Ritenour@icfi.com



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Figure 1
Regional Location
13th Street Bridge



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Figure 2
Sampled Basins-Dry Season
13th Street Bridge - Fairy Shrimp Survey

Appendix B

Site Photographs



Photo 1

Representative overview
of detention basin 1

Photographer:
D. Allen

September 17, 2013



Photo 2

Representative overview
of Walnut Street. Facing
east at Basin 6.

Photographer:
D. Allen

September 17, 2013

Appendix C
ERS Soil Sample Analysis

Examination of Soil Samples from a Ramona, CA Site for Fairy Shrimp Cysts

Chuck Black
Ecological Restoration Service
San Diego, CA 92103
(619) 944-1964
25 October 2013

10(a)(1)(A) permit
TE835549-8
Effective to 3/9/2015

Introduction

Ecological Restoration Service was contracted by ICF Inc., San Diego, CA in October 2013 to process soil samples collected by from 18 seasonally ponding basins at the Ramona CA, Main St. Library site, for determination of the presence of fairy shrimp cysts. Samples collected by ICF Inc. employee Doug Allen (10(a)(1)(A) permit number TE-837448-5) were delivered to ERS for processing.

Methods

Soil Processing for Cyst Presence

Ten approximately 100 ml dry soil samples per pool, except for small basins 3 and 5, which had only five approximately 100 ml dry soil samples, were processed per the U.S. Fish and Wildlife Service April 19, 1996 Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods, modified by Ecological Restoration Service as described below. Charles Black of Ecological Restoration Service is authorized by the U.S. fish and Wildlife Service to process dry samples for the presence of fairy shrimp cysts and to culture cysts to identify to species level as special conditions of his 10(a)(1)(A) permit. These samples were hydrated for approximately 2 hours in tap water, then washed through a set of sieves. Material passing through a Number 45 (.0139”) USA Standard Testing Sieve, A.S.T.M.E.-11 specification and caught on a Number 70 (.0083”) Sieve was rinsed into a container with approximately 50 ml of a saturated brine solution to float organic material, including fairy shrimp cysts. The material floating on the brine was decanted onto a paper filter on a filter funnel, and water was removed through the filter paper by vacuum suction. The material left on the paper was examined under a 6.3-570x power Olympus SZX9 Zoom Stereo Microscope. Distinctive fairy shrimp cysts, if present, were individually counted (if less than approximately 50) or estimated (for larger numbers). The presences of ostracod shells and cladoceran ephippia were also noted in samples when found.

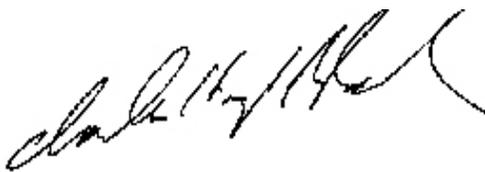
Results

Cyst Presence

Distinctive *Branchinecta* and *Streptocephalus* cysts were not found in any samples from the 18 basins. Ostracod shells were found in small numbers (<10 per sample) in basins 1, 8 and 24.

Basin	Samples Processed	cysts	Ostracod shells
1	10	0	x
2	10	0	0
3	5	0	0
4	10	0	0
5	5	0	0
6	10	0	0
7	10	0	0
8	10	0	x
9	10	0	0
10	10	0	0
11	10	0	0
19	10	0	0
20	10	0	0
21	10	0	0
22	10	0	0
23	10	0	0
24	10	0	x
25	10	0	0

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



Appendix D
Vernal Pool Data Sheets

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no X yes

Required color slides and/or photographs for the project site are included: _____ no X yes

Date: 9/17/2013 Time: _____ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13th Street Bridge Pool #: 2

Township: 13S Range: 1E Section: unsectioned lat. _____ long. _____

63 69 904' / 1 96 01 97'

Habitat Condition: (circle where appropriate)

- undisturbed
- ungrazed
- disturbed: tire tracks
- grazed: cattle
- garbage
- horses
- light
- discing/plowing
- sheep
- moderate
- other _____
- heavy

- land use of habitat: road shoulder

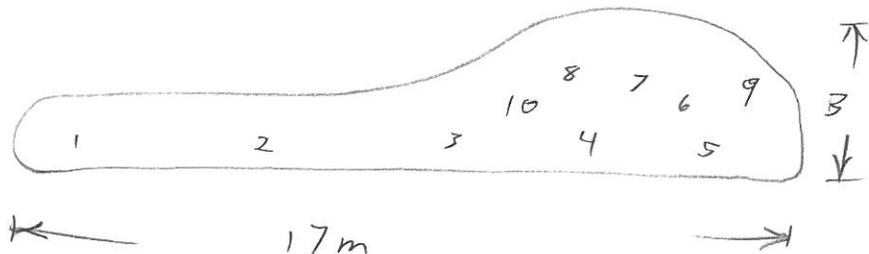
Pool Bottom Surface: (circle where appropriate)

- hardpan
- claypan
- cobbly/rocky
- lava flow
- other _____

Pool Depth: 15 cm (estimated maximum) Surface Area: 40 m² (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no X yes

Required color slides and/or photographs for the project site are included: _____ no X yes

Date: 9/17/2013 Time: _____ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13th Street Bridge Pool #: 4

Township: 13S Range: 1E Section: unsectioned lat. _____ long. 6369439' / 1960207'

Habitat Condition: (circle where appropriate)

- undisturbed
- ungrazed
- disturbed: fire tracks
- grazed: cattle
- garbage
- horses
- light
- discing/plowing
- sheep
- moderate
- other _____
- heavy

- land use of habitat: Road Shoulder

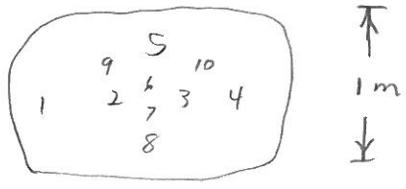
Pool Bottom Surface: (circle where appropriate)

- hardpan
- claypan
- cobbly/rocky
- lava flow
- other _____

Pool Depth: 5 cm (estimated maximum) Surface Area: 4 m² (estimated maximum)

Sketch of pool and transects showing:

- scale
 - indication of North
 - sampling locations
- 500 ml collected



U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	.50	None	0	0

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-5	100	None	0	0
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey
 Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no X yes

Required color slides and/or photographs for the project site are included: _____ no X yes

Date: 9/11/2013 Time: _____ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13th Street Bridge Pool #: 6

Township: 13S Range: 1E Section: unsectioned lat. _____ long. 6370252' / 1960219'

Habitat Condition: (circle where appropriate)

- | | | | | |
|-------------------|-------------------------------|---------|-----------------|-------------|
| - undisturbed | disturbed: <u>tire tracks</u> | garbage | discing/plowing | |
| <u>- ungrazed</u> | grazed: <u>cattle</u> | horses | sheep | other _____ |
| | | light | moderate | heavy |
- land use of habitat: dirt road

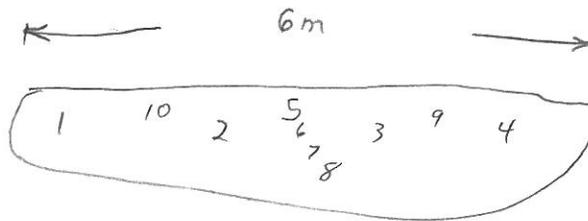
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other _____

Pool Depth: 5 cm (estimated maximum) Surface Area: 6 m² (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North N ↑
- sampling locations



U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	∅	∅

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	∅	∅

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	∅	∅
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S. Fish and Wildlife Service Vernal Pool Data Sheet Dry Season Survey

Note: Please fill out the required information completely for each site visit.

This form is being submitted to serve as part of the 90-day report: _____ no X yes

Required color slides and/or photographs for the project site are included: _____ no X yes

Date: 9/17/2013 Time: _____ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13th Street Bridge Pool #: 21

Township: 13S Range: 1E Section: unsectioned lat. _____ long. 6370195' / 1959383'

Habitat Condition: (circle where appropriate)

- undisturbed
 - ungrazed
 - land use of habitat: graded dirt lot
- | | | | |
|------------------------|---------|-----------------|-------------|
| disturbed: tire tracks | garbage | discing/plowing | |
| grazed: cattle | horses | sheep | other _____ |
| | light | moderate | heavy |

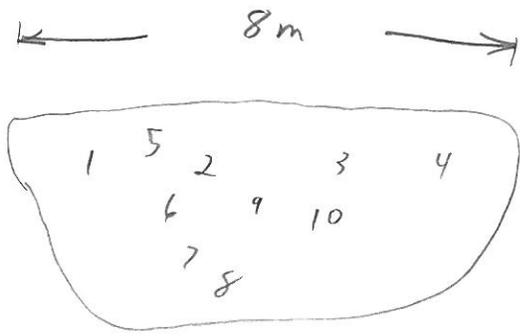
Pool Bottom Surface: (circle where appropriate)

- hardpan
- claypan
- cobbly/rocky
- lava flow
- other _____

Pool Depth: 3 cm (estimated maximum) Surface Area: 35 m² (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



U.S Fish and Wildlife Service Vernal Pool Data Sheet
Dry Season Survey
Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	∅	∅
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
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_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
 Dry Season Survey
 Soil Analysis

Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0

Voucher _____ Specimens
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U.S Fish and Wildlife Service Vernal Pool Data Sheet
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Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

U.S Fish and Wildlife Service Vernal Pool Data Sheet
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Note: Please fill out the required information completely for each site visit.

Sample ID	Sample Volume(ml)	Genus (/species)	# Cysts (or None)	Cyst Density (#/100ml)
0-10	100	None	0	0

Voucher _____ Specimens
 Cysts shall be stored dry and shall be preserved according to the standards of the institution in which they will be accessioned.

Genus (/species) # Cysts Catalog/Accession # Pool #

June 26, 2018

Ms. Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: 2018 13th Street Bridge Project, Listed Branchiopod Species 90-Day Report of Protocol Wet-Season Surveys, Ramona, San Diego County, California

Dear Ms. Love:

In compliance with Special Terms and Conditions for Endangered and Threatened Wildlife Species Permit TE-101151-3 (Eric "Rick" Bailey), AECOM conducted focused wet-season surveys to determine the presence or absence of a listed vernal pool branchiopod species, the federally listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) (SDFS), for the 13th Street Bridge Project (project), located along 13th Street in Ramona, San Diego County, California (Figure 1). AECOM was contracted by the County of San Diego (County) to conduct protocol surveys for listed vernal pool branchiopods in accordance with the most current U.S. Fish and Wildlife Service (USFWS) protocol (USFWS 2017).

Project Description

The County Department of Public Works, in cooperation with the California Department of Transportation, proposes to replace the existing undersized culvert with a bridge where 13th Street/Maple Street crosses Santa Maria Creek, in the unincorporated San Diego County community of Ramona (Figure 1). To alleviate flooding during rain events, the County is undertaking replacement of the existing culvert crossing with a bridge. As proposed, this project includes channel improvements, roadway improvements along 13th Street/Maple Street and Walnut Street, and storm drain systems that will ultimately discharge into Santa Maria Creek. The project site is approximately 1,650 feet long. The project site plus a surrounding 100-foot buffer comprise the project area.

The project consists of improvements to 13th Street/Maple Street between Main Street and Walnut Street and construction of an approximately 480-foot-long bridge over Santa Maria Creek to replace the existing corrugated steel culvert. The bridge and approaches would include a 6-foot sidewalk on the west, two 12-foot travel lanes on the bridge, 3-foot shoulders on each side of 13th Street, and a 10-foot multiuse trail on the east that would be separated from the travel lane by a concrete barrier and equestrian railing.

Site Description

The project area is bounded by Olive Street to the north, 12th Street to the east, Main Street to the south, and 14th Street and Brazos Street to the west (Figure 2). The project area includes a

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Carlsbad Fish and Wildlife Office
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section of 13th Street that begins just north of the Ramona Library on Main Street, and extends to the north where it terminates adjacent to the southwestern boundary of 405 North Maple Street. The site also includes an approximately 800-foot-long, east-west trending section of road on Walnut Street, just north of Santa Maria Creek. The project area includes both paved and unpaved sections of road. A drainage swale is located on the east side of 13th Street, south of a bioretention basin, which receives water from the paved parking lot of the Ramona Library. This drainage swale drains into Santa Maria Creek to the north.

The County intends to use the vacant parcel on the east side of 13th Street as a temporary construction laydown and staging area during the proposed bridge construction project. This vacant parcel consists primarily of disturbed vegetation growing through a gravel base with several disturbed basins that pond and occasionally hold water for a short time. The vast majority of the basins that were sampled for fairy shrimp are depressions in the gravel surface of this disturbed lot/vacant parcel. As part of the project, the bioretention basin (also known as Basin 1) would be redesigned and regraded, and roadway and drainage improvements are planned at the northern and southern ends of 13th and Maple Streets, and along Walnut Street. A temporary construction access road is also planned from the cul-de-sac at the northern end of 12th Street to the west, to provide access to the southern end of the site during construction.

The portion of Santa Maria Creek near 13th Street is intermittent with a flat, sandy bottom. Dense southern cottonwood–willow riparian forest occurs along the banks of the creek and is dominated by southern cottonwood (*Populus fremontii*), mule-fat (*Baccharis salicifolia*), and several species of willow such as black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*). The elevation in the southern end of the project area is approximately 1,425 feet above mean sea level (amsl) and approximately 1,430 feet amsl at the northern end. The topography generally converges toward Santa Maria Creek (approximately 1,410 feet amsl) (USGS 2012a, 2012b).

Species Background Information

USFWS listed SDFS as endangered on February 3, 1997 (USFWS 1997). A recovery plan for the species has been issued (USFWS 1998). Critical habitat for SDFS has been designated and, at its closest, is located approximately 0.25 mile southwest of the project area (USFWS 2007) (Figure 2).

SDFS are small aquatic crustaceans restricted to vernal pool environments. SDFS distribution occurs from Santa Barbara County south to northwestern Baja California, Mexico. SDFS have been detected in vernal pools and ephemeral basins at depths of 2–12 inches (USFWS 2000). SDFS are also known to occur in ditches and road ruts that can support suitable conditions (USFWS 1997). SDFS are typically observable from January through March, after winter and spring rains; however, the hatching period may begin earlier or end later with a longer season of rainfall that provides more water for refilling vernal

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pools. Simovich and Fugate (1992) found that SDFS cysts could hatch in temperatures ranging from 50 degrees Fahrenheit (°F) to 59°F. Newly hatched fairy shrimp (nauplii) emerge and develop into adults between mid-December and early May (Eriksen and Belk 1999). Hatching requirements include an aquatic environment with a moderate pH level and low alkalinity and conductivity levels, potentially because of physiological requirements (Gonzalez et al. 1996). Nauplii mature within 10–20 days and may live for approximately 40 days (Hathaway and Simovich 1996), during which time they mate and produce another generation of cysts. During the dry season, cysts are capable of withstanding extreme hot and cold temperatures and prolonged drying.

SDFS are found in San Diego County on mesa tops, and in grassland, agricultural, coastal sage scrub, and chaparral habitats. Chaparral, coastal sage scrub, and grassland habitats are associated most commonly with San Diego hardpan and claypan basins with suitable soil types to support vernal pools (Eriksen and Belk 1999).

SDFS are known to occur in Ramona in scattered pools within the downtown area (around Main Street), and around the Ramona Airport and surrounding grasslands. Historically, SDFS were known to occur in the area of the Ramona Library, prior to development. Riverside fairy shrimp (*Streptocephalus woottoni*) are not known from the Ramona area (USFWS 1998); therefore, the species is not expected to occur. However, any fairy shrimp species detected during the course of wet-season surveys were identified to species.

Survey Methodology

Wet-season surveys for federally listed vernal pool branchiopods for the 13th Street Bridge Project were historically conducted in 2012–2013 by ICF (ICF International 2013a). ICF documented 25 potential basins within the project site and vicinity. However, AECOM surveys included only 21 of the original 25 basins because several of them (Basins 3, 4, 5, and 14 [ICF International 2013a]) were located outside of the project area (the project footprint plus a 100-foot buffer). Figure 3 depicts the 21 known basins in the project area from the historical surveys conducted by ICF in 2012–2013. Because surveys were last conducted in the project area in 2012–2013, the potential exists for some of the basins to have been removed, filled, or altered. Several of the basins are located along the road shoulder of 13th Street and Walnut Street and new basins may have developed.

Temporarily ponded areas (including road ruts, depressions, and depressional features hereafter collectively referred to as “basins”) in the project area were sampled for listed vernal pool branchiopods. Eric “Rick” Bailey was the only AECOM biologist to conduct wet-season fairy shrimp surveys; therefore, only his permit (TE-101151-3) is mentioned in this report. Rick Bailey conducted focused protocol wet-season surveys for the federally listed SDFS in the project area from January 16 through March 26, 2018. For wet-season fairy shrimp surveys, all basins historically detected in the project area (21 basins) were surveyed along with one new basin (Basin 26) that was discovered and inundated during

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the course of the surveys (Figure 3). Basin 26 was the only new basin that was detected in 2017–2018 and was located south of Basin 1 along a dirt road. Therefore, 22 basins were surveyed during the wet-season. Because the project area includes 13th Street and Walnut Street, several of the historical basins detected in 2012–2013 which were located in and adjacent to active roads, had been partially graded, filled with material (gravel-based), or were no longer obvious (such as Basins 2, 7, 8, and 25).

Following the first major rain event in the Ramona area in early January 2018, AECOM biologist Andrew Fisher went out 24 hours after the rain event to confirm ponding. Most of the basins contained at least 3 centimeters of water and therefore surveys were initiated seven days later. During each wet-season visit, each basin that contained water was initially inspected for the presence of vernal pool branchiopods prior to sweeping the basin. Then, basins were sampled by sweeping a hand net with fine mesh (no larger than 1/16 inch diameter mesh net with an aluminum frame 7 to 12 inches wide) along the edges and throughout the basin, including the deepest portion of each basin. To avoid disturbing the basins, basins were not walked through, but the net was swept in a zig-zag pattern and water swirled to bring any shrimp resting on the bottom up to the surface. The net was inspected periodically during sweeping to ensure any potential vernal pool branchiopods were observed without capturing excessive amounts of detritus. For small basins, the entire basin was swept, and for larger basins (such as Basin 1), at least 25 percent of the basin was swept. For each basin, the maximum depth, width, length, water temperature, general basin characteristics, and any invertebrate (including shrimp, seed shrimp, dragonfly larvae, water beetles, etc.) or vertebrate species (such as frog or toad tadpoles) were recorded. Each basin that contained water was sampled every 7 days, or until the basin dried and did not refill again.

Results

Seven wet-season fairy shrimp surveys were conducted following the USFWS (2017) survey guidelines between January 16, 2018, and March 26, 2018. Of the 22 potential basins, 19 basins met the sampling criteria (contained at least 3 centimeters of water 24 hours after a rain event and remained inundated for at least seven days) at least once during the 2017–2018 wet-season and were sampled. Figure 3 shows the locations of all basins along with their basin numbers. Table 1 summarizes the dates, survey personnel, and weather conditions at the time of the surveys.

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Table 1
Survey Dates, Personnel, and Weather Conditions

Survey Number	Date	Survey Personnel	Time	Weather Conditions
1	January 16, 2018	Rick Bailey	3:25 p.m.–4:58 p.m.	Start: 66.5°F, wind 3 mph, 80% cover End: 68°F, wind 3 mph, 80% cover
2	January 23, 2018	Rick Bailey	12:30 p.m.–1:02 p.m.	Start: 71°F, wind 14 mph, 0% cover End: 70.7°F, wind 6 mph, 0% cover
3	February 27, 2018	Rick Bailey	4:34 p.m.–5:41 p.m.	Start: 49.4°F, wind 7 mph, 90% cover End: 46°F, wind 2 mph, 40% cover
4	March 7, 2018	Rick Bailey	4:38 p.m.–5:20 p.m.	Start: 72.2°F, wind 4 mph, 90% cover End: 67.8°F, wind 4 mph, 100% cover
5	March 14, 2018	Rick Bailey	5:50 p.m.–6:34 p.m.	Start: 57°F, wind 8 mph, 80% cover End: 54.2°F, wind 6 mph, 70% cover
6	March 19, 2018	Rick Bailey	5:02 p.m.–5:59 p.m.	Start: 73.2°F, wind 6 mph, 50% cover End: 66°F, wind 4 mph, 40% cover
7 ¹	March 26, 2018	Rick Bailey	6:16 p.m.–6:28 p.m.	Start: 58.3°F, wind 3 mph, 30% cover End: 55.3°F, wind 7 mph, 20% cover

°F = degrees Fahrenheit; mph = miles per hour

¹ All basins were dry after this date and no significant rain caused further inundation.

Table 2 presents a summary of the recorded basin depth in centimeters for each survey. Due to the absence of rain at the end of 2017, all surveys were conducted in 2018 and were continued until all basins had completely dried and did not refill again.

Table 2
Basin Inundation Depth During the 2018 Wet-Season

Basin Number	Water Depth in Basins (centimeters)						
	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5	Survey 6	Survey 7 ¹
1	8	–	25	–	–	20	8
2	–	–	2	–	–	–	–
6	–	–	2	–	–	–	–
7	–	–	2	–	–	–	–
8	–	–	5	–	–	–	–
9	–	–	–	–	–	4	–
10	–	–	3	–	–	–	–
11	–	–	3	–	–	–	–
12 ²	–	–	–	–	–	–	–
13	5	–	–	–	–	–	–
15	–	–	2	–	–	–	–
16	2	–	–	–	–	–	–
17	8	3	–	–	–	–	–
18 ²	–	–	–	–	–	–	–
19 ²	–	–	–	–	–	–	–
20	–	–	4	–	–	2	–
21	–	–	4	–	–	–	–
22	–	–	2	–	–	–	–
23	–	–	3	–	–	–	–
24	6	–	–	–	–	–	–
25	–	–	–	–	–	10	–
26	–	–	–	9	15	10	12

¹ All basins were dry after survey 7 and no significant rain caused further inundation.

² Basin was never inundated; it remained dry throughout all surveys.

No vernal pool branchiopod species were detected in any of the basins. Basin 1 contained copepods and several basins contained water beetles of undetermined species. The macroinvertebrate community was greatly lacking in all basins and Basin 1 was the only basin that contained enough water for Baja California chorus frog (*Pseudacris hypochondriaca*) tadpoles to survive. Only a few botanical wetland indicator species were detected, primarily in Basin 1. Water pygmy weed (*Crassula aquatica*), grass poly (*Lythrum hyssopifolia*), and pale spike rush (*Eleocharis macrostachya*) were detected in patches in Basin 1. There were also a couple of individuals each of flat sedge (*Cyperus sp.*) and curly dock (*Rumex crispus*) scattered in various basins, which indicate the presence of ponded water. These plant species occur commonly in wetland areas and do not necessarily indicate the presence of vernal pools. All basins appear to have been man-made or have been highly disturbed by previous activities in the area. Additionally, Basin 1 contains a

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drainage/outflow that allows water to flow out the north end of Basin 1 along the east side of 13th Street toward Santa Maria Creek, and therefore, does hold a large amount for an extended period of time.

Table 3, below, details the amount of rainfall recorded in Ramona between November 2017 and April 2018. In an average rainfall year, approximately 14.33 inches of rain are recorded during that time frame. During the 2017–2018 winter and spring months, approximately 5.62 inches fell, 8.71 inches less than the average rainfall for that period. Virtually no rain fell during November and December 2017. The most rain fell in January 2018 in a series of back-to-back storm events that temporarily filled a few basins, but they quickly dried out. Very few of the basins have sufficient depth to hold water for an extended period of time. All basins (except Basins 1, 24, 25, and 26) have relatively small watersheds and little potential for surrounding water to fill them through aboveground surface flow.

**Table 3
 Rainfall Data from November 2017 through April 2018
 as Recorded at the Ramona Airport**

Month	Observed Rainfall (inches)	Normal Rainfall (inches)	Departure from Normal (inches)
November 2017	0	1.19	-1.19
December 2017	0.04	2.23	-2.19
January 2018	3.29	3.32	-0.03
February 2018	0.71	3.11	-2.40
March 2018	1.52	3.08	-1.56
April 2018	0.06	1.40	-1.34
TOTAL	5.62	14.33	-8.71

Source: NOAA 2018

All field survey data were recorded electronically (using an iPad or iPhone operating a program known as Fulcrum) and saved in an electronic database. Appendix A provides a copy of the field survey data in an Excel spreadsheet. Appendix B presents representative wet-season photographs of basins in the project area.

Discussion

Rainfall for the 2017–2018 wet-season was significantly below average. Many of the basins did not pond water for very long and often dried up quickly. Santa Ana winds were common in the spring, and after rain events, the winds often caused the basins to dry up quickly. All of the basins are disturbed to some extent (generally with tire tracks, weeds, trash, or gravel), and none of them contain the elements necessary to support a long-term population of SDFS. Several basins are within active roadways, where vehicles can crush cysts, if present. The other basins are located in an old disturbed gravel lot, and are shallow and

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drain quickly. Without regular rainfall, the basins in the disturbed gravel lot are not able to support fairy shrimp simply because they are too shallow. Additionally, all basins are too shallow to support Riverside fairy shrimp, which requires larger basins that hold water for a longer period of time.

No other species of invertebrates (other than copepods in Basin 1 and a few water beetles) were found in any of the basins, thereby underscoring the lack of biotic life in the basins. A few common wetland plant indicator species were detected, primarily in Basin 1. No SDFS (or any other species of fairy shrimp) were detected during wet- and dry-season surveys in 2012–2013 (ICF International 2013a, 2013b), and no species of shrimp were detected during 2018; therefore, fairy shrimp are likely absent from the project area. The closest population of SDFS is 0.25 mile to the southwest, in critical habitat Subunit 3E.3 (USFWS 2007), and the likelihood that SDFS would make it to the project area is low due to a lack of habitat connectivity.

Per the USFWS 2017 protocol, a complete survey consists of both a wet- and dry-season survey completed in accordance with the protocol within a 3-year period. Therefore, dry season surveys are currently being conducted and the results will be included in an additional survey report.

If you have any comments or questions, feel free to contact me at (619) 937-1086.

Sincerely,



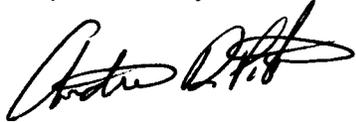
Andrew Fisher

Attachments: Figure 1 – Regional Map
 Figure 2 – Vicinity Map
 Figure 3 – Sampled Basins
 Appendix A – Field Survey Data Table
 Appendix B – Representative Wet-Season Photographs

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Certification Statements for AECOM Biologists

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



Andrew Fisher, Wildlife Biologist
TE-820658-7
June 26, 2018

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



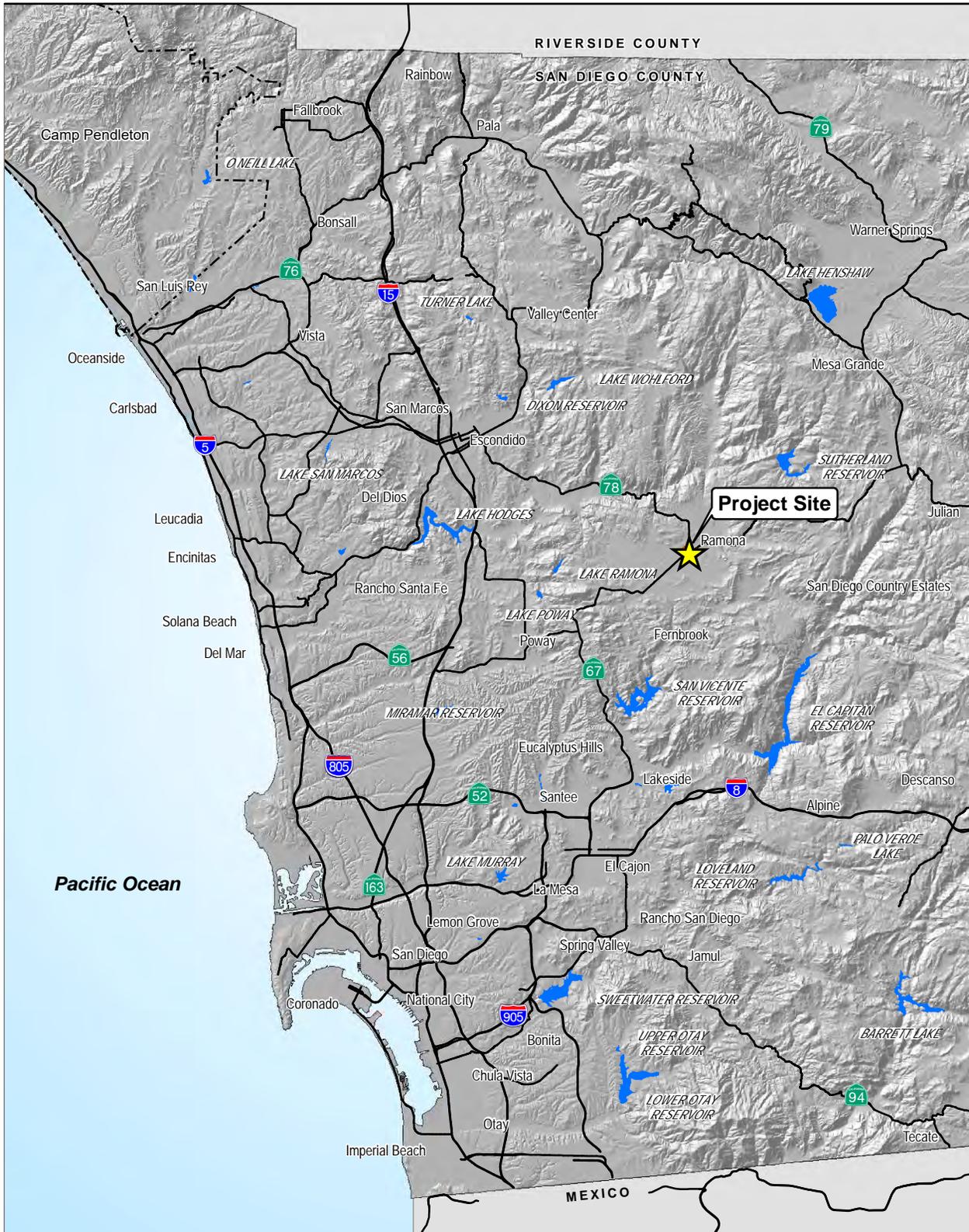
Eric "Rick" Bailey, Wildlife Biologist
TE-101151-3
June 26, 2018

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Literature Cited

- Eriksen, C., and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Eureka, CA: Mad River Press.
- Gonzalez, R. J., J. Drazen, S. Hathaway, B. Bauer, and M. Simovich. 1996. Physiological Correlates of Water Chemistry Requirements in Fairy Shrimps (Anostraca) from Southern California. *Journal of Crustacean Biology* 16:15–322.
- Hathaway, S. A., and M. A. Simovich. 1996. Factors Affecting the Distribution and Co-Occurrence of Two Southern California Anostracans (Branchiopoda), *Branchinecta sandiegonensis*. *Journal of Crustacean Biology* 16:669–677.
- ICF International. 2013a. *13th Street Bridge, Wet Season Protocol Survey for Listed Fairy Shrimp*. Prepared for County of San Diego Department of Public Works. August.
- . 2013b. *13th Street Bridge, Dry Season Protocol Survey for Listed Fairy Shrimp*. Prepared for County of San Diego Department of Public Works. December.
- National Oceanic and Atmospheric Administration (NOAA). 2018. National Weather Service Forecast Office, San Diego, CA: Observed Weather Reports. Available: <http://w2.weather.gov/climate/index.php?wfo=sgx>. Accessed June 7, 2018.
- Simovich, M. A., and M. Fugate. 1992. Branchiopod Diversity in San Diego County, California, USA. *Transactions of the Western Section of the Wildlife Society* 28:6–14.
- U.S. Fish and Wildlife Service (USFWS). 1997. *Endangered and Threatened Species Review of Plant and Animal Taxa; Proposed Rule*. 50 CFR 17 Vol. 62, No. 182.
- . 1998. *Vernal Pools of Southern California Recovery Plan*. Portland, OR.
- . 2000. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the San Diego Fairy Shrimp (*Branchinecta sandiegonensis*). *Federal Register* 65(205):63437–63466. October 23.
- . 2007. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designated Critical Habitat for the San Diego Fairy Shrimp (*Branchinecta sandiegonensis*); Final Rule. *Federal Register* 72(238):70648–70714. December 12.
- . 2017. *Survey Guidelines for the Listed Large Branchiopods*. November 7.
- U.S. Geological Survey (USGS). 2012a. Ramona, California: 7.5-minute series map (topographic). Scale: 1:24,000.
- . 2012b. San Pasqual, California: 7.5-minute series map (topographic). Scale: 1:24,000.

FIGURES



Source: Esri; SanGIS; SANDAG.

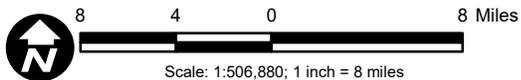
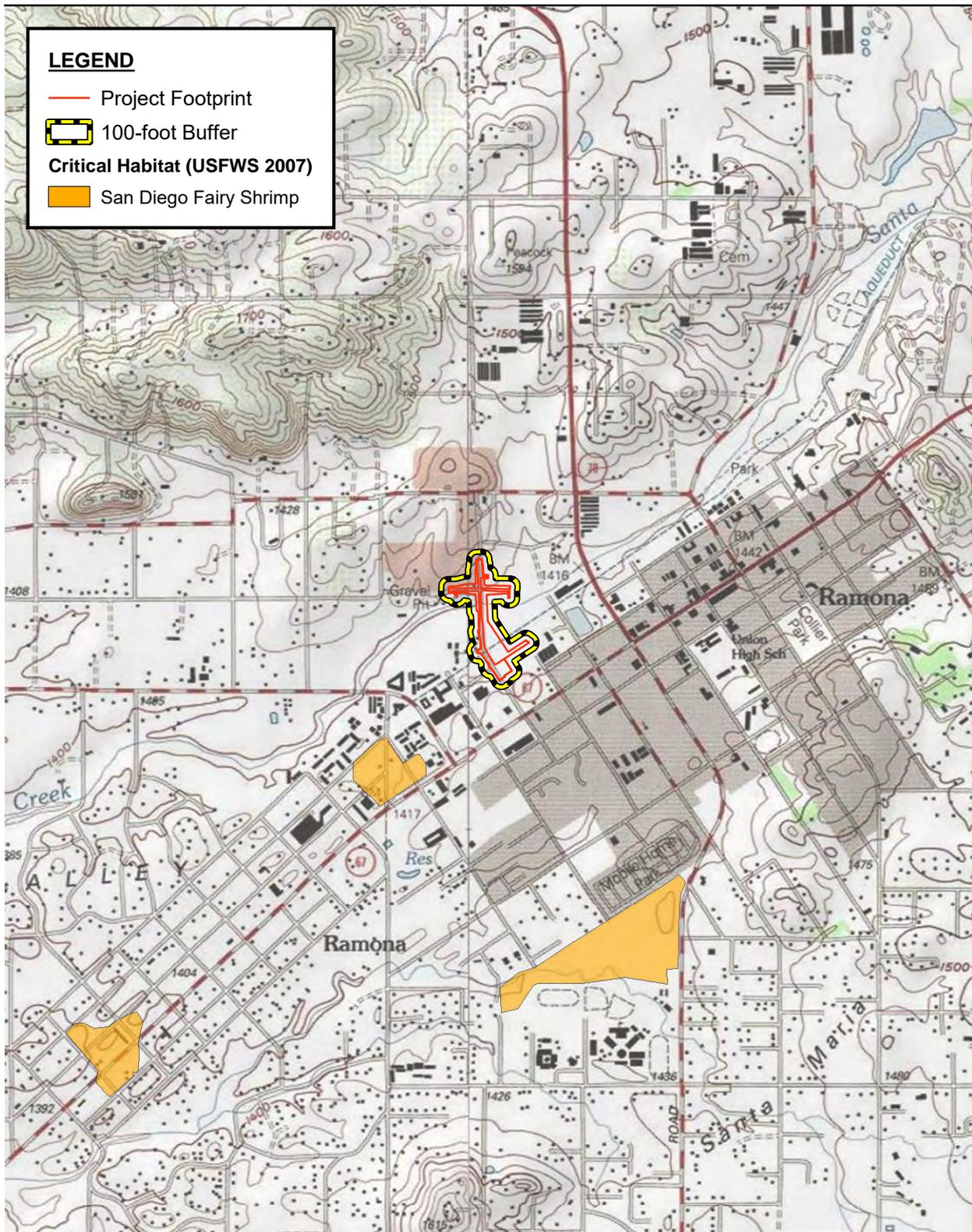


Figure 1
Regional Map

2018 13th Street Bridge Project Wet-Season Fairy Shrimp Survey Report

Path: P:_6056\60562978_13thStBridge\900-CAD-GIS\920 GIS\map_docs\mxd\Bio\WetSeasonSummaryReport2018\Fig1_Regional.mxd, 6/11/2018, daniel.arelano



Source: USA Topo Maps; USFWS; CNDDB.

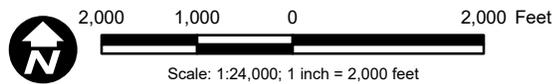
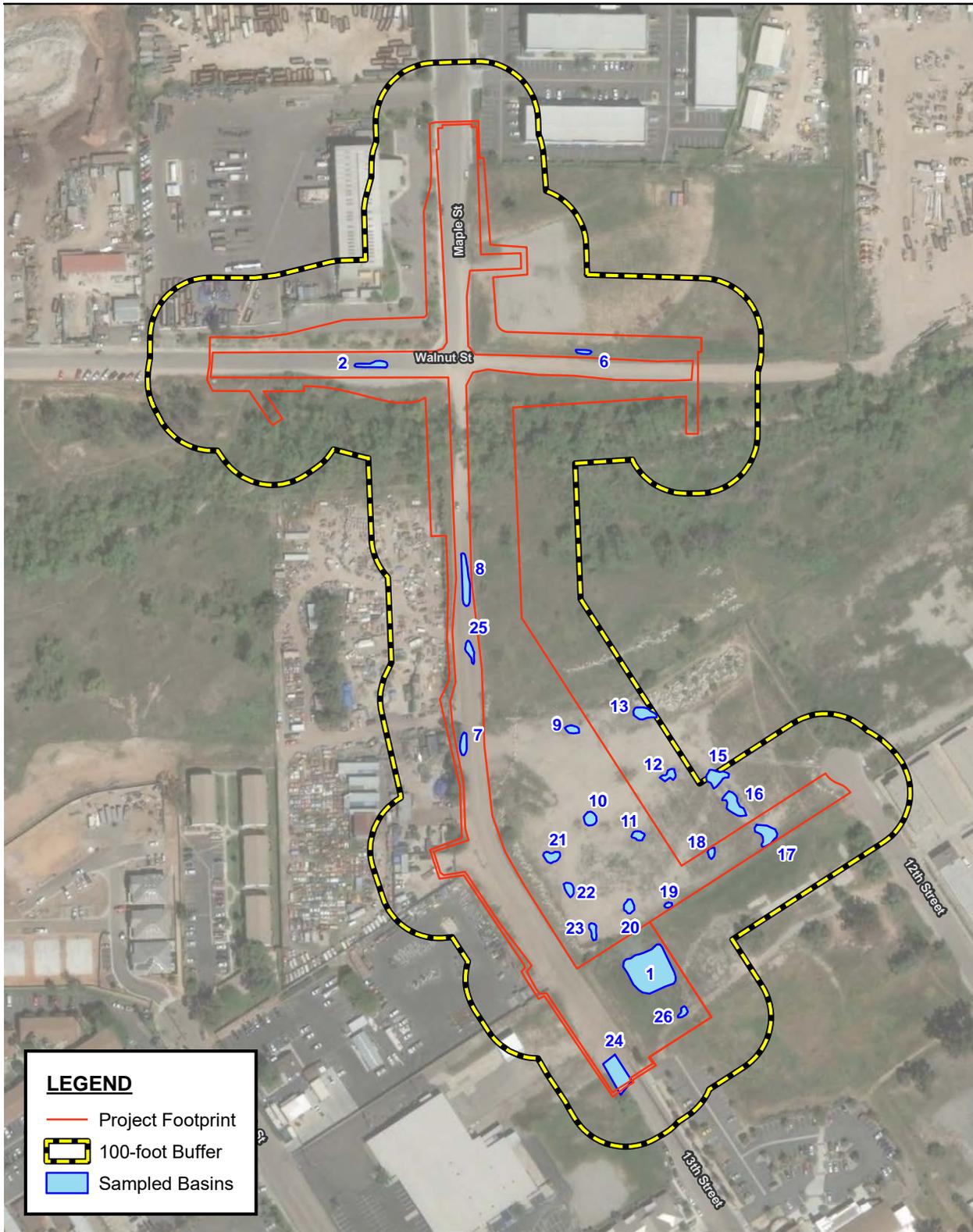


Figure 2
Vicinity Map

2018 13th Street Bridge Project Wet-Season Fairy Shrimp Survey Report

Path: P:_6056\60562978_13thStBridge\900-CAD-GIS\920 GIS\map_docs\mxd\Bio\WetSeasonSummaryReport2018\Fig2_VicinityMap.mxd, 6/12/2018, daniel.arellano



Source: NAIP 2016; Esri 2009.

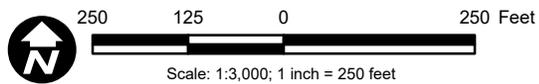


Figure 3
Sampled Basins

2018 13th Street Bridge Project Wet-Season Fairy Shrimp Survey Report

Path: P:_6056\60562978_13thStBridge\900-CAD-GIS\920 GIS\map_docs\mxd\Bio\WetSeasonSummaryReport2018\Fig3_SampledBasins.mxd, 6/12/2018, daniel.arellano

APPENDIX A
FIELD SURVEY DATA TABLE

APPENDIX A – FIELD SURVEY DATA TABLE

Permitted Biologist	Date and Time	Latitude	Longitude	Survey Number	Basin Number	Basin Wet/Dry	Water Temp (F)	Pool Depth (cm)	Pool Length (m)	Pool Width (m)	Pool Condition	Fairy Shrimp Present?	Other Observations
Rick Bailey	2018-05-22 10:27:43 PDT	33.0410717	-116.8743317	1	1	Wet	71	8	15	5	Disturbed-garbage	no	Water beetles
Rick Bailey	2018-01-16 16:58:14 PST	33.042865	-116.8752533	1	25	Dry					Disturbed-garbage		
Rick Bailey	2018-01-16 16:51:23 PST	33.0406383	-116.8743933	1	24	Wet	65	6	6	2	Disturbed-discing/plowing, Disturbed-garbage, Disturbed-tire tracks	no	Contiguous off-site another 10 meters by 6 meters
Rick Bailey	2018-01-16 16:43:44 PST	33.0413217	-116.87464	1	23	Dry					Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-01-16 16:41:53 PST	33.0415617	-116.87469	1	22	Dry					Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-01-16 16:40:06 PST	33.041785	-116.8748417	1	21	Dry					Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-01-16 16:32:53 PST	33.0414633	-116.8744617	1	20	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-16 16:30:31 PST	33.041445	-116.8742917	1	19	Dry					Disturbed-garbage		
Rick Bailey	2018-01-16 16:27:07 PST	33.0417167	-116.87405	1	18	Dry					Disturbed-garbage		
Rick Bailey	2018-01-16 16:24:47 PST	33.0418617	-116.8736833	1	17	Wet	66	8	11	11	Disturbed-garbage	no	Water beetles
Rick Bailey	2018-01-16 16:16:21 PST	33.04192	-116.8738733	1	16	Wet	66	2	1	0.5	Disturbed-garbage	no	Water beetles
Rick Bailey	2018-01-16 16:12:59 PST	33.0421667	-116.8740333	1	15	Dry					Disturbed-garbage		
Rick Bailey	2018-01-16 16:05:06 PST	33.0423833	-116.8743967	1	13	Wet	68	5	8	2.5	Disturbed-garbage	no	Water beetles
Rick Bailey	2018-01-16 15:56:51 PST	33.0421033	-116.8743117	1	12	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-16 15:54:18 PST	33.0419017	-116.8745633	1	11	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-16 15:49:45 PST	33.0419383	-116.8747117	1	10	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-16 15:46:44 PST	33.0423117	-116.8748183	1	9	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-16 15:41:53 PST	33.042995	-116.8751867	1	8	Dry					Disturbed-garbage		
Rick Bailey	2018-01-16 15:37:34 PST	33.042225	-116.8753	1	7	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-16 15:30:07 PST	33.044055	-116.874465	1	6	Dry					Disturbed-garbage		
Rick Bailey	2018-01-16 15:25:00 PST	33.0439517	-116.875785	1	2	Dry					Disturbed-tire tracks		
Rick Bailey	2018-01-23 13:01:48 PST	33.0407083	-116.874435	2	24	Dry					Disturbed-discing/plowing, Disturbed-garbage, Disturbed-tire tracks		No shrimp carcasses
Rick Bailey	2018-01-23 12:54:59 PST	33.0418283	-116.8736617	2	17	Wet	66	3	2	1.5	Disturbed-garbage	no	Water beetles
Rick Bailey	2018-01-23 12:45:43 PST	33.0419583	-116.8738767	2	16	Dry					Disturbed-garbage		No shrimp carcasses
Rick Bailey	2018-01-23 12:40:53 PST	33.0423767	-116.8743817	2	13	Dry					Disturbed-garbage		No shrimp carcasses found
Rick Bailey	2018-01-23 12:31:27 PST	33.0411033	-116.8742533	2	1	Dry					Disturbed-garbage		Checked basin for shrimp carcasses: none found
Rick Bailey	2018-02-27 17:41:25 PST	33.0431	-116.875265	3	25	Dry					Disturbed-garbage		
Rick Bailey	2018-02-27 17:38:41 PST	33.0406567	-116.87444	3	24	Dry					Disturbed-discing/plowing, Disturbed-garbage		
Rick Bailey	2018-02-27 17:35:37 PST	33.04138	-116.8746217	3	23	Wet	50	3	3	2	Disturbed-garbage	no	
Rick Bailey	2018-02-27 17:33:42 PST	33.0415933	-116.8746517	3	22	Wet	50	2	1.5	0.5	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 17:32:02 PST	33.0416717	-116.87477	3	21	Wet	50	4	3	3	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 17:31:03 PST	33.0414767	-116.8744167	3	20	Wet	50	4	5	5	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 17:28:53 PST	33.0414767	-116.8742817	3	19	Dry					Disturbed-garbage		
Rick Bailey	2018-02-27 17:26:19 PST	33.0417567	-116.8740367	3	18	Dry					Disturbed-garbage		
Rick Bailey	2018-02-27 17:24:27 PST	33.0418183	-116.8737767	3	17	Dry					Disturbed-garbage		
Rick Bailey	2018-02-27 17:23:12 PST	33.0419417	-116.873935	3	16	Dry					Disturbed-garbage		
Rick Bailey	2018-02-27 17:22:41 PST	33.0420867	-116.8740567	3	15	Wet	50	2	4	3	Disturbed-garbage	no	
Rick Bailey	2018-02-27 17:15:36 PST	33.042315	-116.8743783	3	13	Dry					Disturbed-tire tracks		
Rick Bailey	2018-02-27 17:13:19 PST	33.0420983	-116.87429	3	12	Dry					Disturbed-tire tracks		
Rick Bailey	2018-02-27 17:11:47 PST	33.0418633	-116.8744617	3	11	Wet	50	3	2.5	2	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 17:09:23 PST	33.0420333	-116.8747733	3	10	Wet	50	3	1.5	1.5	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 17:06:23 PST	33.0422617	-116.8748317	3	9	Dry					Disturbed-tire tracks		
Rick Bailey	2018-02-27 16:59:58 PST	33.0434083	-116.875355	3	8	Wet	50	5	10	2	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 16:55:47 PST	33.0423617	-116.87534	3	7	Wet	50	2	1	1	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 16:49:42 PST	33.0440133	-116.8747967	3	6	Wet	50	2	5	1	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 16:45:18 PST	33.0439117	-116.8757783	3	2	Wet	50	2	2	1	Disturbed-tire tracks	no	
Rick Bailey	2018-02-27 16:34:25 PST	33.04114	-116.8741833	3	1	Wet	50	25	18	15	Disturbed-garbage	no	Just ponded today
Rick Bailey	2018-03-07 17:19:52 PST	33.040705	-116.8744683	4	24	Dry					Disturbed-discing/plowing, Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-03-07 17:07:42 PST	33.0419267	-116.8747033	4	10	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-07 17:01:39 PST	33.0414567	-116.8744033	4	20	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-07 16:56:25 PST	33.0409667	-116.8741233	4	26	Wet	64.6	9	5	5	Disturbed-garbage, Disturbed-tire tracks	no	
Rick Bailey	2018-03-07 16:38:11 PST	33.041115	-116.8742583	4	1	Dry					Disturbed-garbage		
Rick Bailey	2018-03-14 18:22:14 PDT	33.0409667	-116.874155	5	26	Wet	66.2	15	6	6	Disturbed-tire tracks	no	

APPENDIX A – FIELD SURVEY DATA TABLE

Permitted Biologist	Date and Time	Latitude	Longitude	Survey Number	Basin Number	Basin Wet/Dry	Water Temp (F)	Pool Depth (cm)	Pool Length (m)	Pool Width (m)	Pool Condition	Fairy Shrimp Present?	Other Observations
Rick Bailey	2018-03-19 17:59:07 PDT	33.040925	-116.8741517	6	26	Wet	73.7	10	6	6	Disturbed-tire tracks	no	
Rick Bailey	2018-03-19 17:59:01 PDT	33.0414683	-116.8746467	6	24	Dry					Disturbed-discing/plowing, Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:50:11 PDT	33.0430033	-116.8753417	6	25	Wet	60.2	10	16	2	Disturbed-garbage, Disturbed-tire tracks	no	
Rick Bailey	2018-03-19 17:50:02 PDT	33.0430033	-116.8753417	6	8	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:49:59 PDT	33.044	-116.8747333	6	6	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:48:40 PDT	33.0414683	-116.8746467	6	23	Dry					Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:47:49 PDT	33.0414683	-116.8746467	6	22	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:47:37 PDT	33.0414683	-116.874645	6	21	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:46:06 PDT	33.0415	-116.8745017	6	20	Wet	70.3	2	4	1	Disturbed-garbage, Disturbed-tire tracks	no	
Rick Bailey	2018-03-19 17:42:58 PDT	33.0415017	-116.8744983	6	19	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:41:40 PDT	33.04154	-116.8744867	6	18	Dry					Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:39:33 PDT	33.0418083	-116.8737233	6	17	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:39:19 PDT	33.0418083	-116.873725	6	16	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:39:06 PDT	33.0418083	-116.873725	6	15	Dry					Disturbed-garbage, Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:36:41 PDT	33.04231	-116.874415	6	13	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:35:03 PDT	33.0419883	-116.874185	6	12	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:34:08 PDT	33.0420283	-116.874395	6	11	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:32:35 PDT	33.0419183	-116.8747217	6	10	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:30:17 PDT	33.04224	-116.8748233	6	9	Wet	74.1	4	8	4	Disturbed-garbage, Disturbed-tire tracks	no	
Rick Bailey	2018-03-19 17:26:03 PDT	33.042295	-116.8748533	6	7	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:11:03 PDT	33.0440067	-116.8747383	6	2	Dry					Disturbed-tire tracks		
Rick Bailey	2018-03-19 17:01:57 PDT	33.041135	-116.87419	6	1	Wet	73.4	20	20	20	Disturbed-garbage	no	Copepods
Rick Bailey	2018-03-26 18:27:25 PDT	33.0411833	-116.87435	7	1	Wet	63.8	8	7	5	Disturbed-garbage	no	Baja California chorus frog tadpoles, copepods
Rick Bailey	2018-03-26 18:16:02 PDT	33.0409367	-116.8740833	7	26	Wet	66.1	12	5	6	Disturbed-garbage, Disturbed-tire tracks	no	

APPENDIX A – FIELD SURVEY DATA TABLE

WEATHER DATA

Date and Time	Permitted Biologist	Survey Number	Temperature (F)	Cloud Cover %	Average Wind Speed (mph)	Wind Direction
2018-01-16 17:02:07 PST	Rick Bailey	1	68	80	3	West
2018-01-16 16:59:59 PST	Rick Bailey	1	66.5	80	3	West
2018-01-23 13:09:48 PST	Rick Bailey	2	70.7	0	5.7	East-southeast
2018-01-23 12:13:58 PST	Rick Bailey	2	71	0	14	East
2018-02-27 17:43:13 PST	Rick Bailey	3	46	40	2.2	South-southwest
2018-02-27 15:48:50 PST	Rick Bailey	3	49.4	90	7.2	Southwest
2018-03-07 17:27:39 PST	Rick Bailey	4	67.8	100	3.5	West
2018-03-07 16:21:58 PST	Rick Bailey	4	72.2	90	3.8	West-southwest
2018-03-14 18:33:35 PDT	Rick Bailey	5	54.2	70	6	West
2018-03-14 17:49:12 PDT	Rick Bailey	5	57	80	8	West-southwest
2018-03-19 18:05:50 PDT	Rick Bailey	6	66	40	3.9	West-southwest
2018-03-19 16:17:56 PDT	Rick Bailey	6	73.2	50	6.4	East
2018-03-26 18:47:02 PDT	Rick Bailey	7	55.3	30	6.7	West-northwest
2018-03-26 17:45:09 PDT	Rick Bailey	7	58.5	30	2.5	West-southwest

APPENDIX B

**REPRESENTATIVE WET-SEASON
PHOTOGRAPHS**

Representative Wet-Season Photographs of 13th Street Bridge Project



Photograph 1: View southeast of Basin 1 with Ramona Library parking lot in background.



Photograph 2: View north of Basins 22 and 21 in gravel lot.



Photograph 3: View west of Basin 2 on south side of Walnut Street.



Photograph 4: View southwest of Basins 20 and 23 in gravel lot.



Photograph 5: View northeast of Basin 26 along dirt access road.

Appendix I.2 Dry Soil Analysis (Dry Season) Fairy Shrimp Report 2018

**DRY SOIL ANALYSIS
FOR THE
DETECTION OF
FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
13TH STREET BRIDGE PROJECT
RAMONA, SAN DIEGO COUNTY, CALIFORNIA**



Prepared for:



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(619) 937-1086

**June 2018
(Revised August 2018)**



**DRY SOIL ANALYSIS
FOR THE
DETECTION OF
FEDERALLY-LISTED LARGE BRANCHIOPODS
AT THE
13TH STREET BRIDGE PROJECT
RAMONA, SAN DIEGO COUNTY, CALIFORNIA**

INTRODUCTION

Helm Biological Consulting (HBC), a division of Tansley Team, Inc., was contracted by AECOM to perform an analysis of soils collected from dry seasonally inundated depressions (hereafter “basins”) at the 13th Street Bridge Project (hereafter “Project”), for the presence of large branchiopods (fairy shrimp, tadpole shrimp, and clam shrimp) that are listed as threatened or endangered under the federal Endangered Species Act (e.g., the endangered San Diego fairy shrimp [*Branchinecta sandiegonensis*], the endangered Riverside fairy shrimp [*Streptocephalus woottoni*]).

The Project consists of an approximate 1,650-foot, roughly “t” shaped section of 13th, Maple, and Walnut Streets in the unincorporated community of Ramona, San Diego County (Figures 1 and 2). Additionally, the Project is bounded by Olive Street to the north, 12th Street to the east, Main Street to the south, and 14th Street and Brazos Street to the west. More specifically, the Project is located in Township 13 South, Range 1 East, and San Bernardino Base & Meridian of the Ramona 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle map. The approximate center coordinates of the Project are (World Geodetic System 1984 [WGS84]) Latitude 33.042357° and Longitude -116.875223°.

The remainder of this report discusses the methods and results of the soil examinations to determine the presence of federally-listed large branchiopods at the 13th Street Bridge Project.

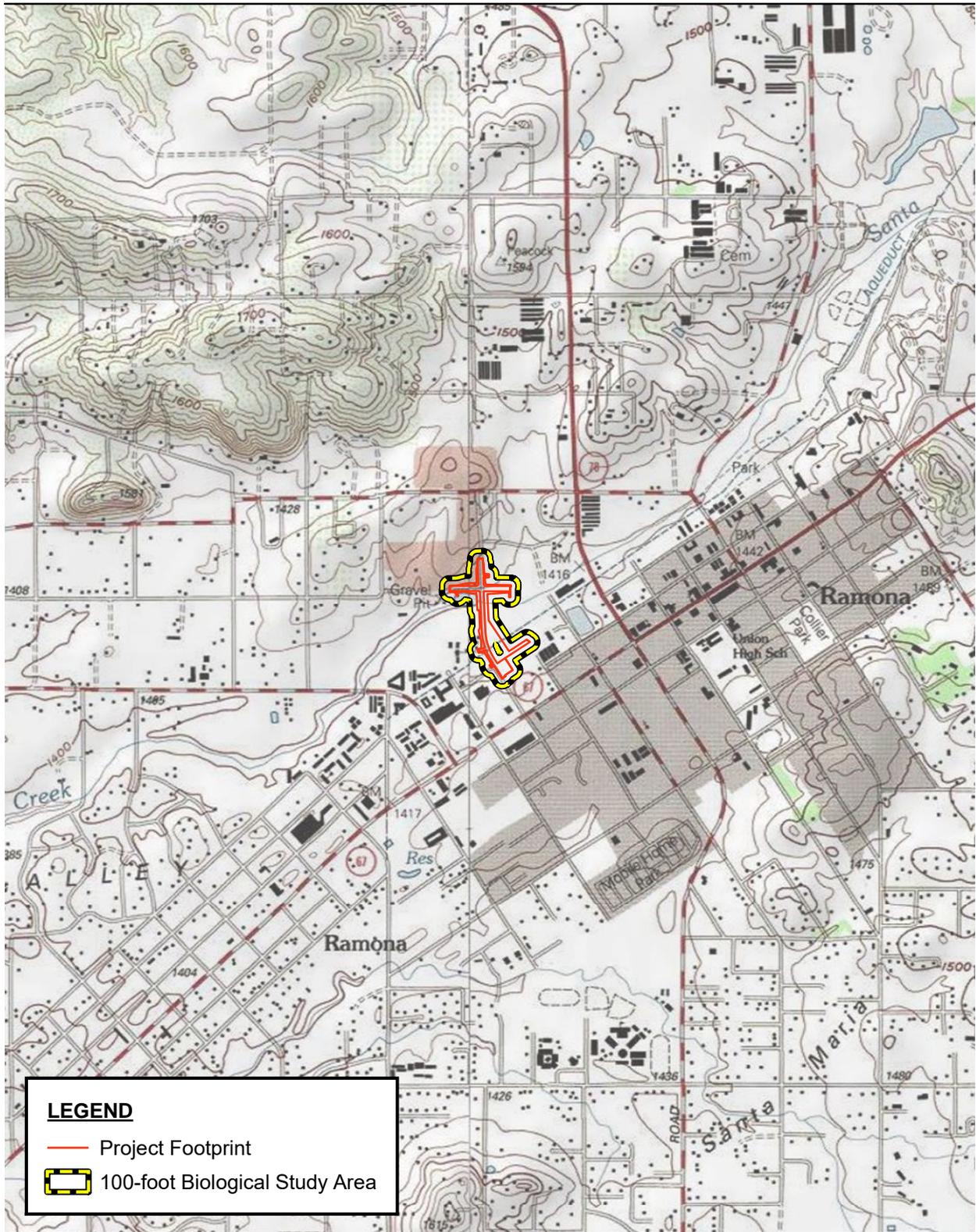


“We certify that the information in this survey report and attached exhibits fully and accurately represents our work.”

Brent P. Helm Signature  Date 8-3-2018
(TE-795930-10.2)

Sean M. O'Brien Signature  Date 8-3-2018
(TE-795930-10.2)

Andrew Fisher Signature  Date 8-3-2018
(TE-820658-7)



Source: USA Topo Maps.

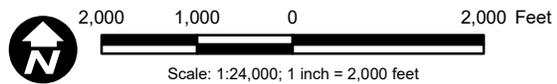
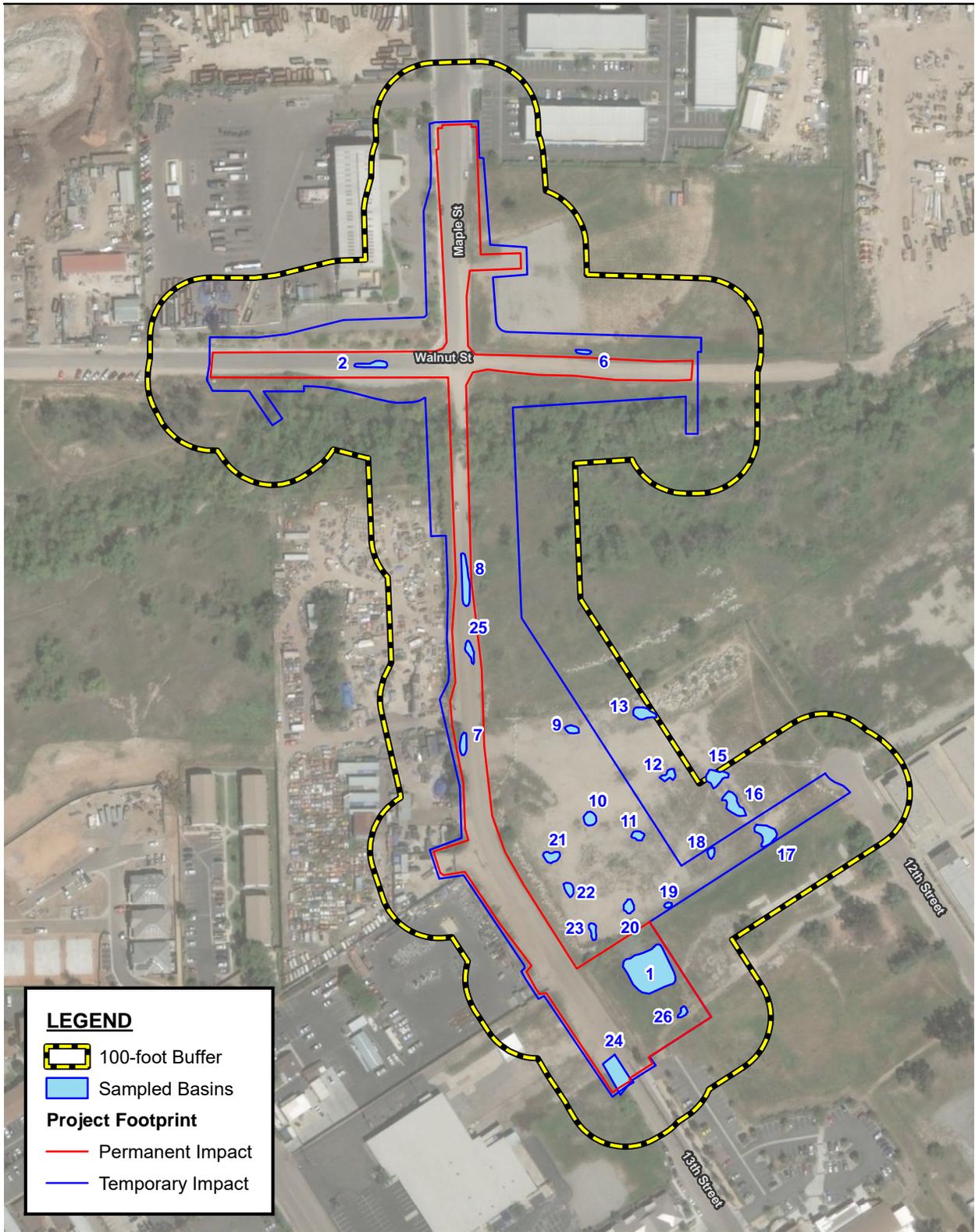


Figure 1
Vicinity Map



Source: NAIP 2016; Esri 2009.

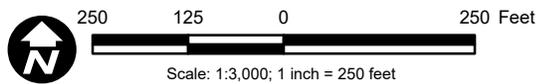


Figure 2
Sampled Basins

Dry Soil Analysis for Large Branchiopods, 13th Street Bridge Project

METHODS

Methods followed U.S. Fish and Wildlife Service's (USFWS 2017) *Survey Guidelines for Listed Large Branchiopods* for dry-season sampling and consisted of first soil collection and then soil processing and analysis as described below.

SOIL COLLECTION

Dry soils (dry to the touch and too dry to make a ped) from 22 basins were collected on May 25, 2018 by Mr. Andrew Fisher of AECOM as authorized by USFWS under permit number TE-820658-7 of Section 10(a)(1)(A) of the federal Endangered Species Act (ESA), 16 U.S.C. 1531 et seq., and its implementing regulations (Appendix A). Dry soil was collected from 22 basins by using a hand trowel to gently pry up portions of the deepest parts of each basin to collect a representative sample of soil from the each basin. Approximately 0.5 to 1.0 liters of soil was collected from each basin, depending upon the size of the basin and stored in a zip-locked bag. The collected soils were delivered to HBC for subsequent processing and analysis as described below.

SOIL PROCESSING AND ANALYSIS

Soil samples obtained from AECOM were processed and analyzed on June 7 and 8, 2018 by Dr. Brent Helm of HBC as authorized by the USFWS (Appendix A) under recovery permit number TE-795930-10.2 of Section 10(a)(1)(A) of the federal ESA, 16 U.S.C. 1531 et seq., and its implementing regulations. In HBC's laboratory, a brine solution was prepared by mixing table salt (NaCl) with lukewarm tap water in a large container. The collected soil material was placed in the brine solution. The soil material was then gently worked by hand to breakdown any persistent soil structure. The organic material rising to the top of the brine solution was skimmed off and placed in a 600-micron diameter pore-size sieve stacked atop a 75-micron diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The soil retained from the 75-micron diameter pore size sieve was then removed and thinly (≈ 1.0 mm) spread into plastic petri dishes.

The contents of each petri dish were examined under a 10 to 252-power zoom binocular microscope. A minimum of 0.5-hour was spent searching the contents of each petri dish for large branchiopod cysts (embryonic eggs). Dr. Helm's large branchiopod cyst reference collection and scanning electron micrographs of cysts (Belk 1989, Brendock *et al.* 2008, Gilchrist 1978, Hill and Shepard 1998, Mura 1991, and Rabet 2010) were used to identify and compare any cysts observed within the soil samples. This processing method (described above) favors the detection of cysts belonging to the genera *Branchinecta*, *Lepidurus*, and *Streptocephalus* since these



three genera have species that are federally listed. Evidence of other aquatic macroinvertebrates encountered was also noted on the laboratory data sheet.

RESULTS

SOIL COLLECTION

Soil samples collected from a total of 22 basins (Figure 2) were processed and analyzed. The basins mostly consisted of depressions in graded road areas and previous gravel pads.

SOIL PROCESSING AND ANALYSIS

No evidence of federally listed large branchiopods (cysts belonging to the genus *Branchinecta* or *Streptocephalus*) were observed in the soils collected (Table 1). Representative photographs of sampled pools are found in Appendix B.

This dry season survey concludes protocol fairy shrimp surveys for the 13th Street Bridge Project. No federally listed large branchiopods were detected during dry season surveys and none were detected during protocol wet season surveys conducted earlier in the year (January through March 2018; AECOM 2018). Therefore, based on the results of both wet and dry season surveys, there is no evidence that the Project contains federally listed large branchiopods.

Table 1. Results of Soil Analysis at the 13th Street Bridge Project (2018)

Basin No.	Invertebrates Present (X)					
	Insect Exo-Skeletons	Micro-Turbellaria Cysts	Cladocera Ehippia	Ostracods Carapaces	Nematoda	Collembola
1	X	X	X	X	X	X
2	X	X				X
6	X				X	X
7	X					X
8	X				X	X
9	X					X
10	X	X				X
11	X				X	X
12	X				X	X
13	X				X	X
15	X				X	X
16	X					X

Table 1. Results of Soil Analysis at the 13th Street Bridge Project (2018)

Basin No.	Invertebrates Present (X)					
	Insect Exo-Skeletons	Micro-Turbellaria Cysts	Cladocera Ehipippia	Ostracods Carapaces	Nematoda	Collembola
17	X		X	X	X	X
18	X				X	X
19	X					X
20	X					X
21	X				X	X
22	X				X	X
23	X					X
24	X	X	X	X	X	X
25	X				X	X
26	X	X	X		X	X

LITERATURE CITED

- AECOM. 2018. 2018 13th Street Bridge Project, Listed Branchiopod Species Survey 90-day Report of Protocol Wet-Season Surveys, Ramona, San Diego County, California. June 26.
- Belk, D. 1989. Identification of species in the Conchostraca genus *Eulimnadia* by egg shell morphology. *Journal of Crustacean Biology*. 9(1): 115-125.
- Brendock, L., D. C. Rogers, J. Olesen, S. Weeks, and W. R. Hoch. 2008. Global diversity of large branchiopods (Crustacea: Branchiopoda) in freshwater. *Hydrobiologia*. 595: 167-176.
- Gilchrist, B. M. 1978. Scanning electron microscope studies of the egg shell in some Anostraca (Crustacea: Branchiopoda). *Cell Tiss. Res.* 193: 337-351.
- Hill, R. E., and W. D. Shepard. 1998. Observation on the identification of California anostracan cysts. *Hydrobiologia* 359: 113-123.
- Mura, G. 1991. SEM morphology of resting eggs in the species of the genus *Branchinecta* from North America. *J. Crust. Biol.* 11: 432-436.
- Rabet, N. 2010. Revision of the egg morphology of *Eulimnadia* (Crustacea, Branchiopoda, Spinicaudata). *Zoosystema* 32 (3): 373-391.
- U.S. Department of the Interior, U.S. Fish and Wildlife Service (USFWS). 2017. Survey guidelines for the listed large branchiopods. 24 pp. Dated: 31 May 2015 (Revised November 13, 2017)



APPENDIX A.
USFWS AUTHORIZATION LETTER

From: Fisher, Andrew <Andrew.Fisher@aecom.com>

To: Brent P Helm <bhelm69485@aol.com>

Cc: DelRosario, Sheryll <Sheryll.DelRosario@aecom.com>

Subject: RE: Request for Cost for Dry Season Soil Analysis for 18 and 25 ponded areas

Date: Tue, May 29, 2018 10:44 pm

Attachments: 13th Street Bridge Notification of Fairy Shrimp Surveys.pdf (1656K)

Hi Brent,

I mailed off the dry season soil for the 13th Street Bridge to you last week. It should arrive soon. I sent it to this address:
4600 Karchner Rd
Sheridan, CA 95681

Attached is the notification letter sent to the USFWS and below is an email authorizing us to conduct the work:

Thank you for the notification. Please consider this email our approval for you to commence wet season surveys at this location according to the accepted survey guidelines for the listed large branchiopods dated November 13, 2017, and pursuant to the conditions of your [respective] recovery permit[s]. You are also approved to conduct dry season sampling for listed large branchiopods at this location provided you document in your report that the soil is dry (i.e., dry to the touch; too dry to make a ped (when the soil is moist enough that you can squish small clumps of it together with just the thumb and forefinger of one hand and it will stick together)).

Please note that the LA County Natural History Museum encourages deposition of all collected fairy shrimp, not only listed species.

Please email your survey report to Stacey Love (CC'd).

Susan Wynn
Fish and Wildlife Biologist
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008
(760) 431-9440 ext 216

Please let me know if there is anything else you need to conduct the dry season soil analysis. Thanks

Andrew

Andrew Fisher

Wildlife Biologist, Environment

D 1-907-261-6769 C 1-619-937-1086

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From: Fisher, Andrew

Sent: Friday, May 25, 2018 3:30 PM

To: 'Brent P Helm'

APPENDIX B.
REPRESENTATIVE PHOTOGRAPHS



Photograph of Basin 1 (facing northwest) taken by Andrew Fisher on May 25, 2018.



Photograph of Basin 6 (facing east) taken by Andrew Fisher on May 25, 2018.



Photograph of Basin 11 (facing northeast) taken by Andrew Fisher on May 25, 2018.



Photograph of Basin 20 (facing northeast) taken by Andrew Fisher on May 25, 2018.

Appendix E Photographs

**APPENDIX E. PHOTOGRAPHS FROM THE 13TH STREET BRIDGE
PROJECT** Source of Photographs: ICF International



Photo 1 – View of the cottonwood-willow riparian forest habitat and least Bell’s vireo survey area, facing southwest.



Photo 2 – View of Santa Maria Creek from the 13th Street crossing, facing west (downstream).

**APPENDIX E. PHOTOGRAPHS FROM THE 13TH STREET BRIDGE
PROJECT** Source of Photographs: ICF International



Photo 3 – View of Santa Maria Creek from the 13th Street crossing, facing east (upstream).



Photo 4 – View of the 13th Street crossing of Santa Maria Creek, facing south.

**APPENDIX E. PHOTOGRAPHS FROM THE 13TH STREET BRIDGE
PROJECT** Source of Photographs: ICF International



Photo 5 – View of 13th Street, facing north.



Photo 6 – View of the non-native grassland habitat, facing southeast.

**APPENDIX E. PHOTOGRAPHS FROM THE 13TH STREET BRIDGE
PROJECT** Source of Photographs: ICF International



Photo 7 – View of the settling basin adjacent to the library parking lot, facing south.



Photo 8 – View of 13th Street and adjacent disturbed habitat, facing northeast.

**APPENDIX E. PHOTOGRAPHS FROM THE 13TH STREET BRIDGE
PROJECT** Source of Photographs: ICF International



