

**DRY SOIL ANALYSIS  
FOR THE  
DETECTION OF  
FEDERALLY-LISTED LARGE BRANCHIOPODS  
AT THE  
13<sup>TH</sup> STREET BRIDGE PROJECT  
RAMONA, SAN DIEGO COUNTY, CALIFORNIA**



*Prepared for:*



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**June 2018  
(Revised August 2018)**



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**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 13<sup>th</sup> 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 13<sup>th</sup>, 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, 12<sup>th</sup> Street to the east, Main Street to the south, and 14<sup>th</sup> 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 13<sup>th</sup> Street Bridge Project.

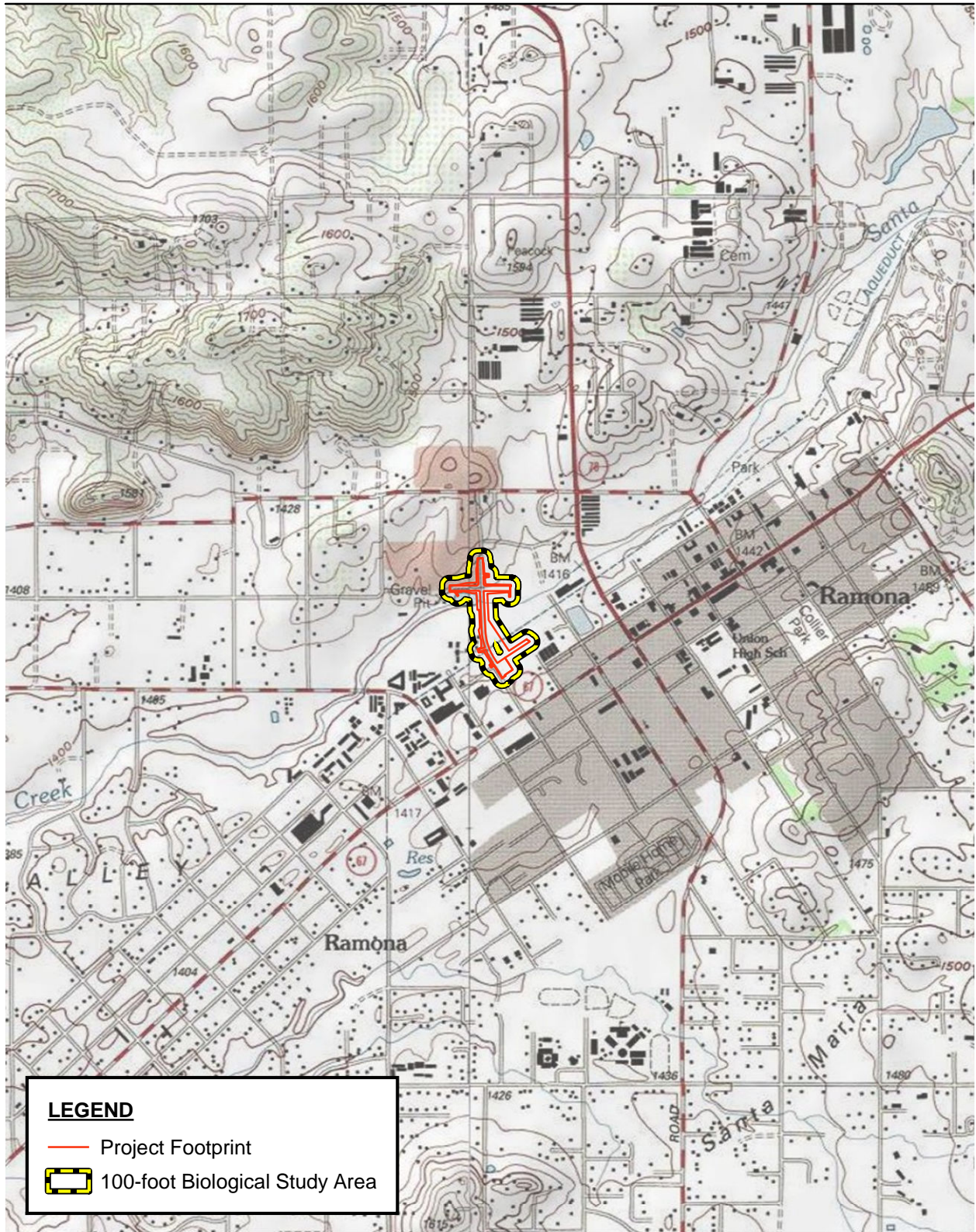


“We certify that the information in this survey report and attached exhibits fully and accurately represents our work.”

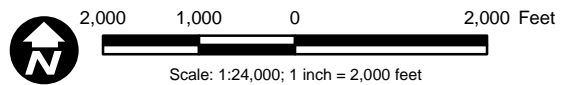
Brent P. Helm      Signature       Date 8-3-2018  
(TE-795930-10.2)

Sean M. O'Brien      Signature       Date 8-3-2018  
(TE-795930-10.2)

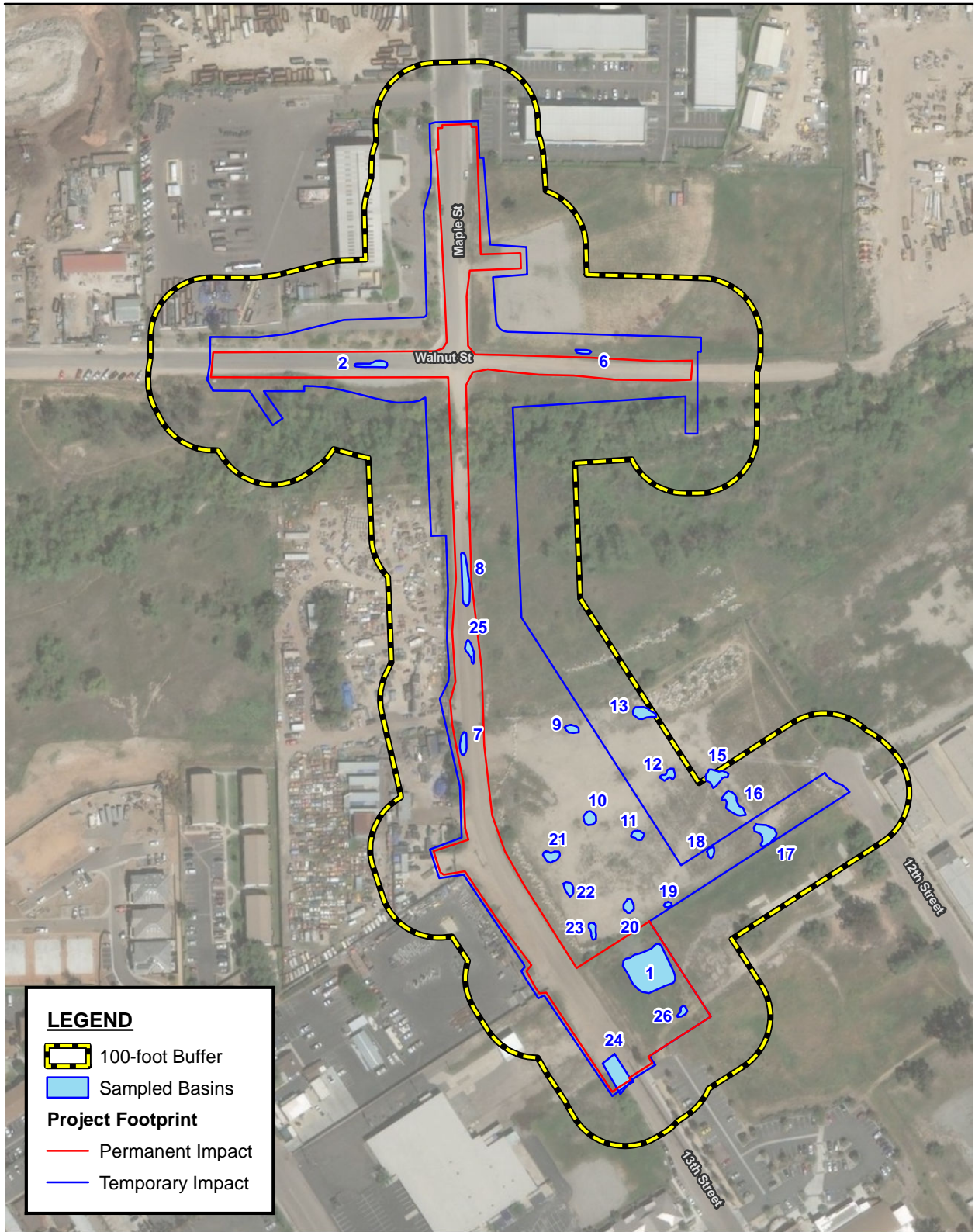
Andrew Fisher      Signature       Date 8-3-2018  
(TE-820658-7)



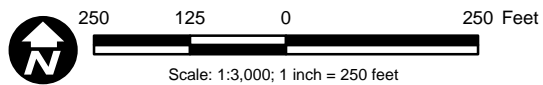
Source: USA Topo Maps.



**Figure 1**  
**Vicinity Map**



Source: NAIP 2016; Esri 2009.



**Figure 2**  
**Sampled Basins**

## 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 ( $\approx 1.0$  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



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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 13<sup>th</sup> 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.
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- 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.
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- 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)



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**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)

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Hi Brent,

I mailed off the dry season soil for the 13<sup>th</sup> 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

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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.

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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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 depression 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 <sup>1</sup>	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

<sup>1</sup> 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.

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**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 <sup>1</sup>
1	8	–	25	–	–	20	8
2	–	–	2	–	–	–	–
6	–	–	2	–	–	–	–
7	–	–	2	–	–	–	–
8	–	–	5	–	–	–	–
9	–	–	–	–	–	4	–
10	–	–	3	–	–	–	–
11	–	–	3	–	–	–	–
12 <sup>2</sup>	–	–	–	–	–	–	–
13	5	–	–	–	–	–	–
15	–	–	2	–	–	–	–
16	2	–	–	–	–	–	–
17	8	3	–	–	–	–	–
18 <sup>2</sup>	–	–	–	–	–	–	–
19 <sup>2</sup>	–	–	–	–	–	–	–
20	–	–	4	–	–	2	–
21	–	–	4	–	–	–	–
22	–	–	2	–	–	–	–
23	–	–	3	–	–	–	–
24	6	–	–	–	–	–	–
25	–	–	–	–	–	10	–
26	–	–	–	9	15	10	12

<sup>1</sup> All basins were dry after survey 7 and no significant rain caused further inundation.

<sup>2</sup> 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**

<b>Month</b>	<b>Observed Rainfall (inches)</b>	<b>Normal Rainfall (inches)</b>	<b>Departure from Normal (inches)</b>
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
<b>TOTAL</b>	<b>5.62</b>	<b>14.33</b>	<b>-8.71</b>

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,



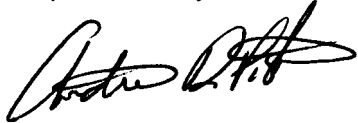
Andrew Fisher

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

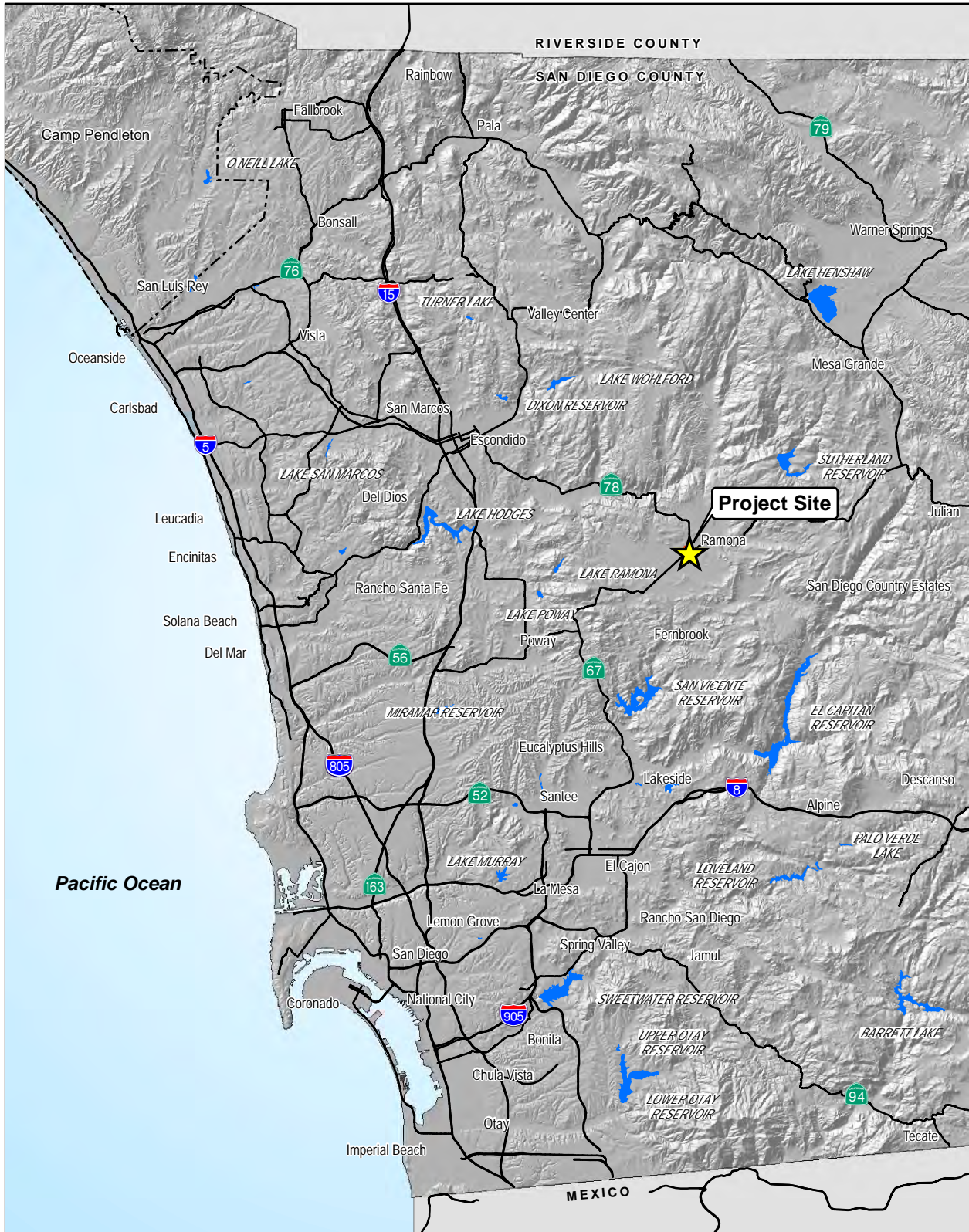


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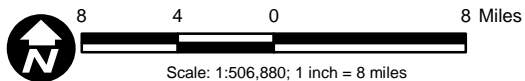
**Literature Cited**

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- . 2012b. San Pasqual, California: 7.5-minute series map (topographic). Scale: 1:24,000.

## FIGURES



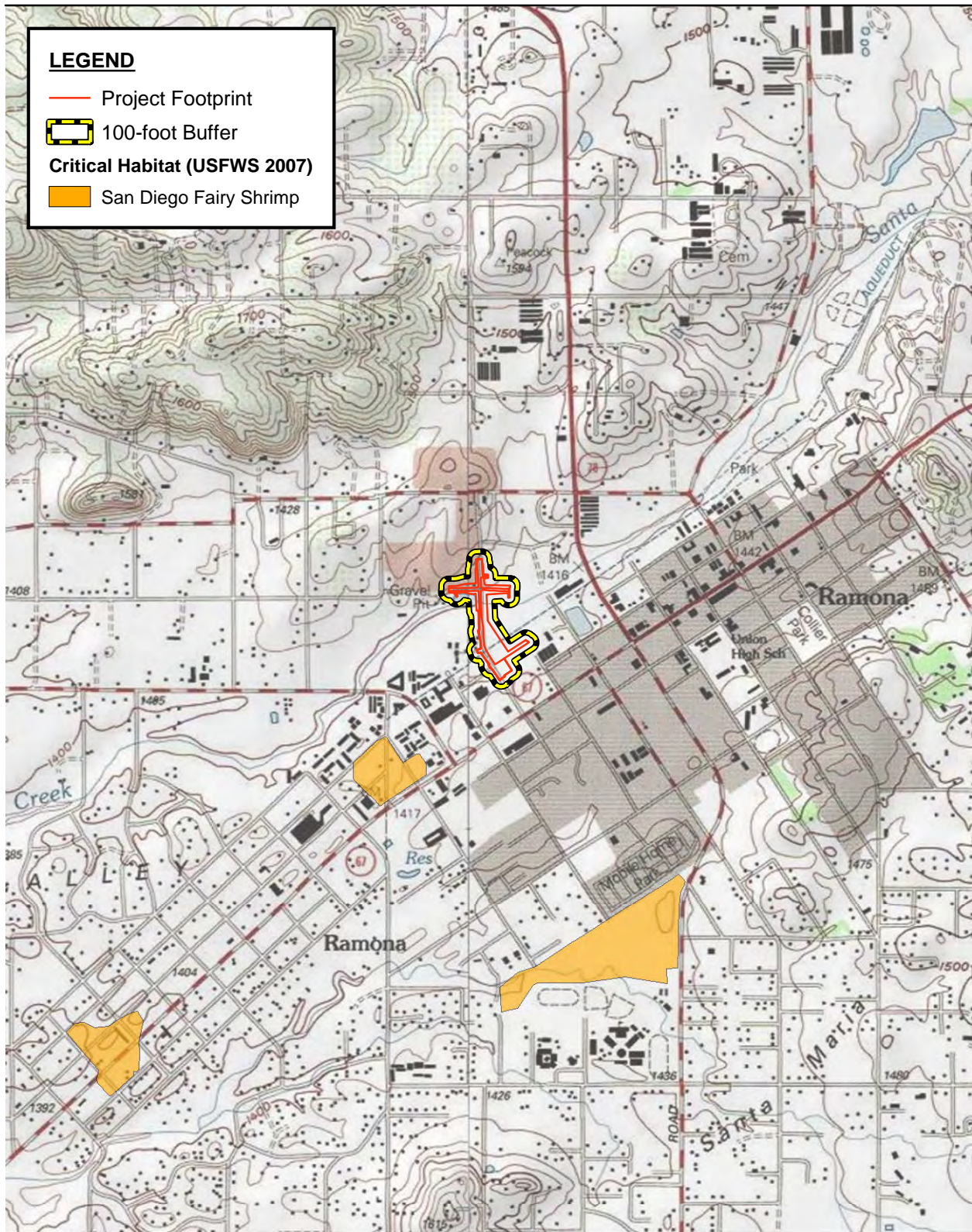
Source: Esri; SanGIS; SANDAG.



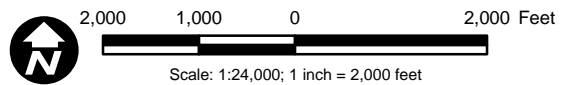
**Figure 1**  
**Regional Map**

2018 13th Street Bridge Project Wet-Season Fairy Shrimp Survey Report

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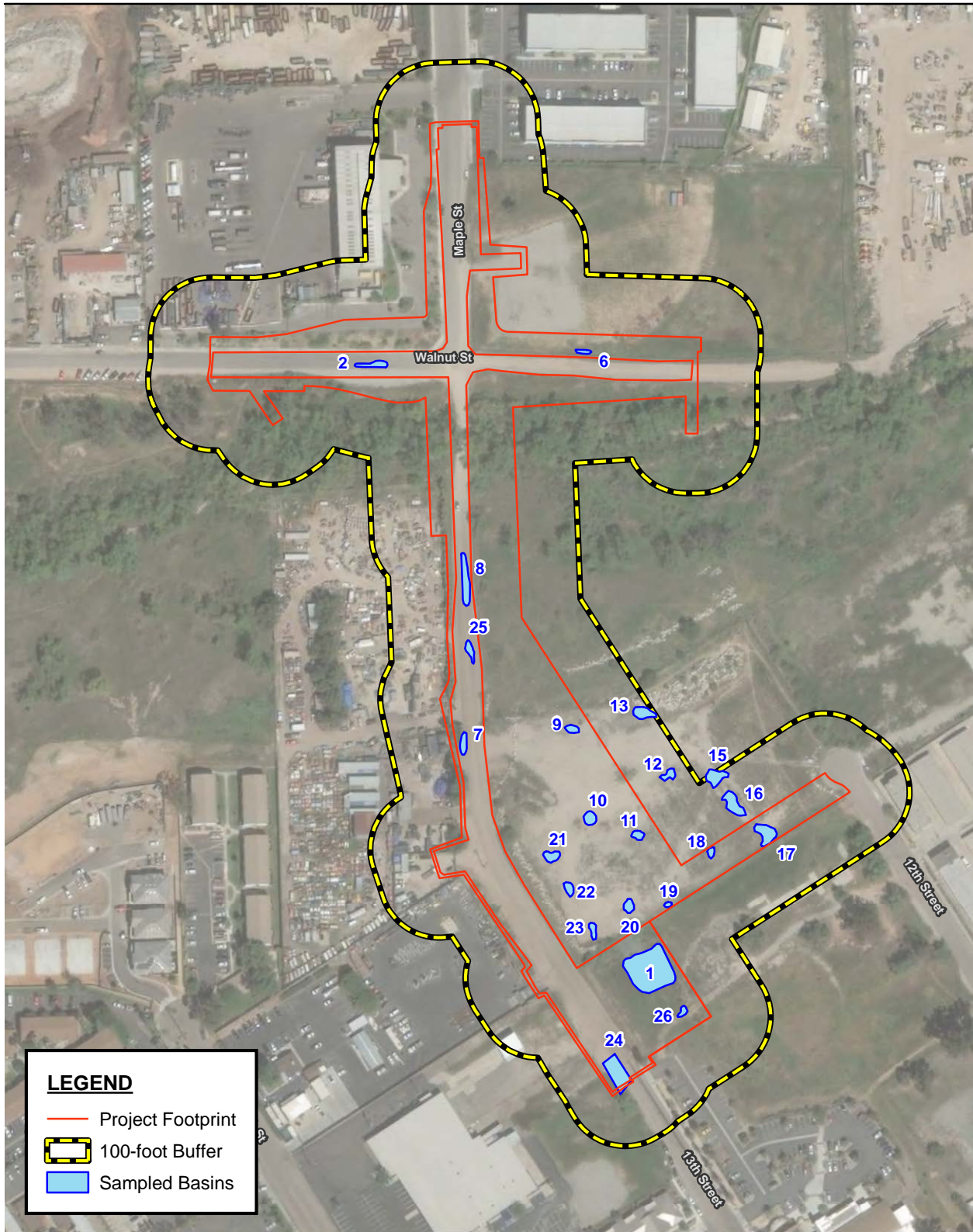
Source: USA Topo Maps; USFWS; CNDDDB.



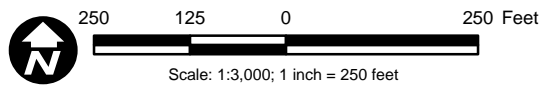
**Figure 2**  
**Vicinity Map**

2018 13th Street Bridge Project Wet-Season Fairy Shrimp Survey Report

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Source: NAIP 2016; Esri 2009.



**Figure 3**  
**Sampled Basins**

2018 13th Street Bridge Project Wet-Season Fairy Shrimp Survey Report

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**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.

**13<sup>TH</sup> 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. 13<sup>th</sup> 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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## Appendices

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- 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 13<sup>th</sup> 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 13<sup>th</sup> Street Bridge project biological study area.

## 1.1 Project Area

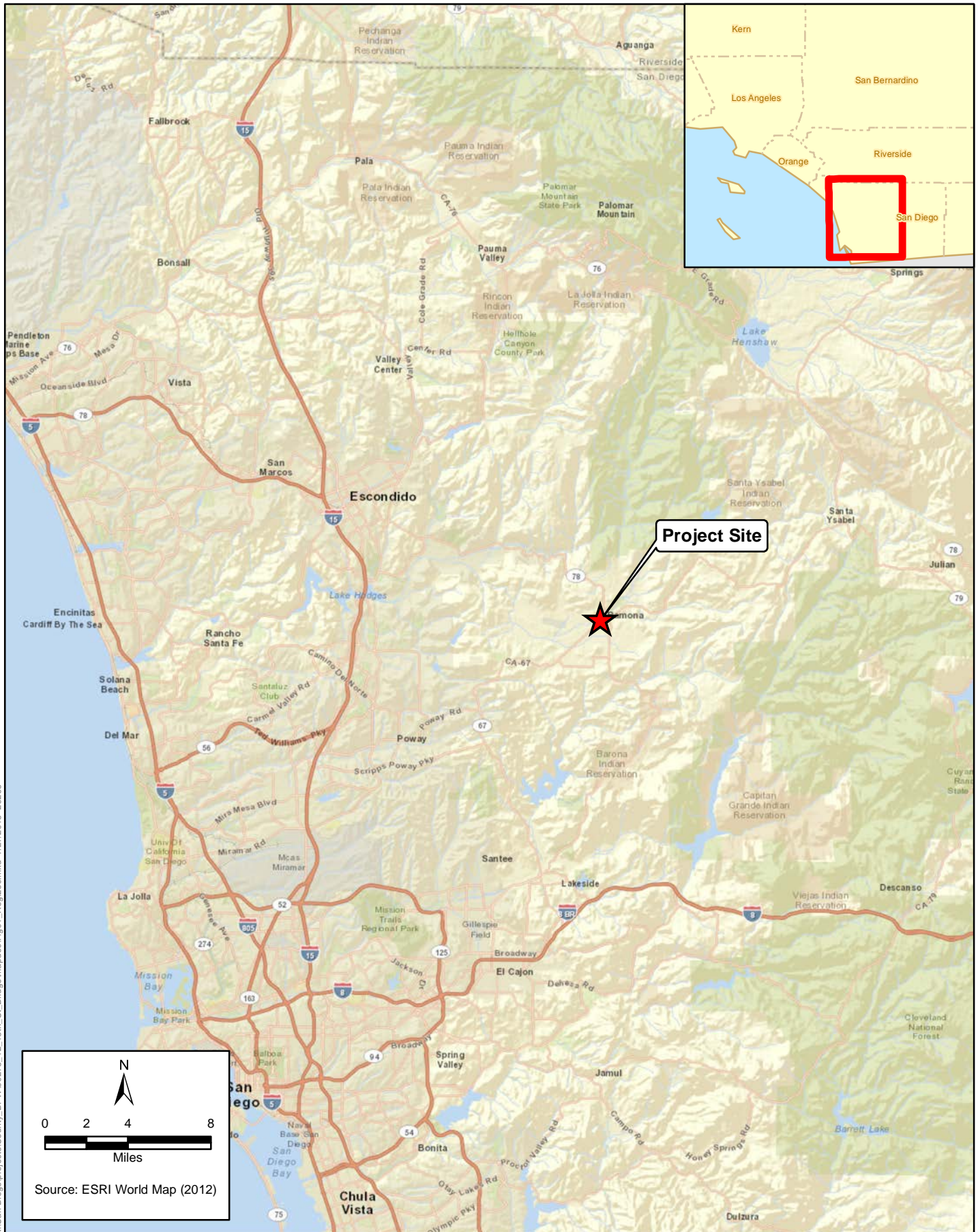
The unincorporated community of Ramona is located in the central portion of San Diego County, California, approximately 30 miles (straight line distance) northeast of the City of San Diego. Ramona is characterized by warm dry summers and cool wet winters, typical of the semi-arid Mediterranean climate 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.

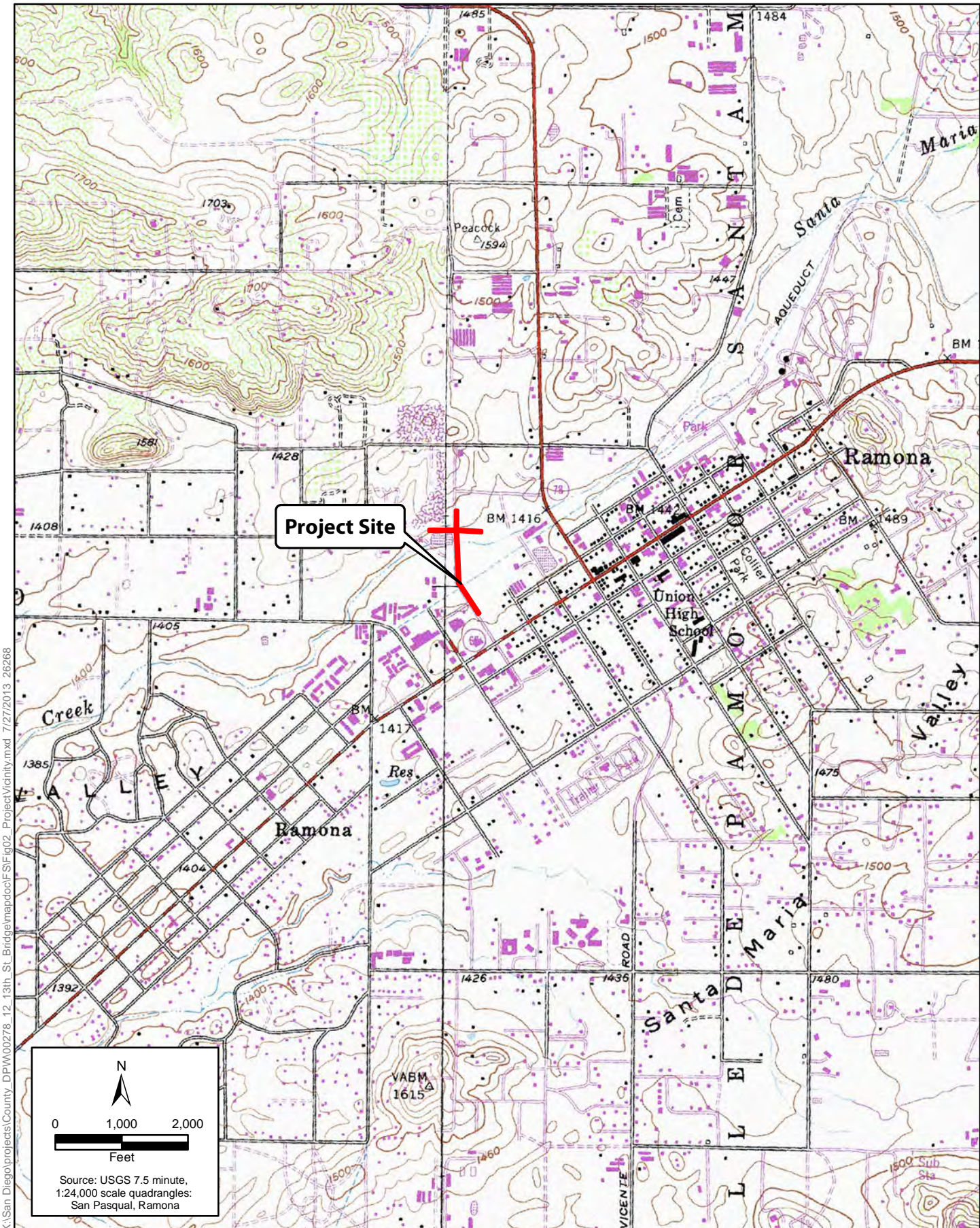
## 2.0 Methods

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 13<sup>th</sup> 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 13<sup>th</sup>, 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. *13<sup>th</sup> 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.

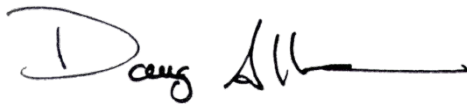


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Dale Ritenour (Permit No. TE-58888A-0)  
Vernal Pool Biologist  
*Author*

November 8, 2013

Date



---

Doug Allen (Permit No. TE-837448-5)  
Vernal Pool Biologist  
*Field Surveys*

November 8, 2013

Date

**Appendix A**  
**USFWS Notification**

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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 13<sup>th</sup> 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 13<sup>th</sup> 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.

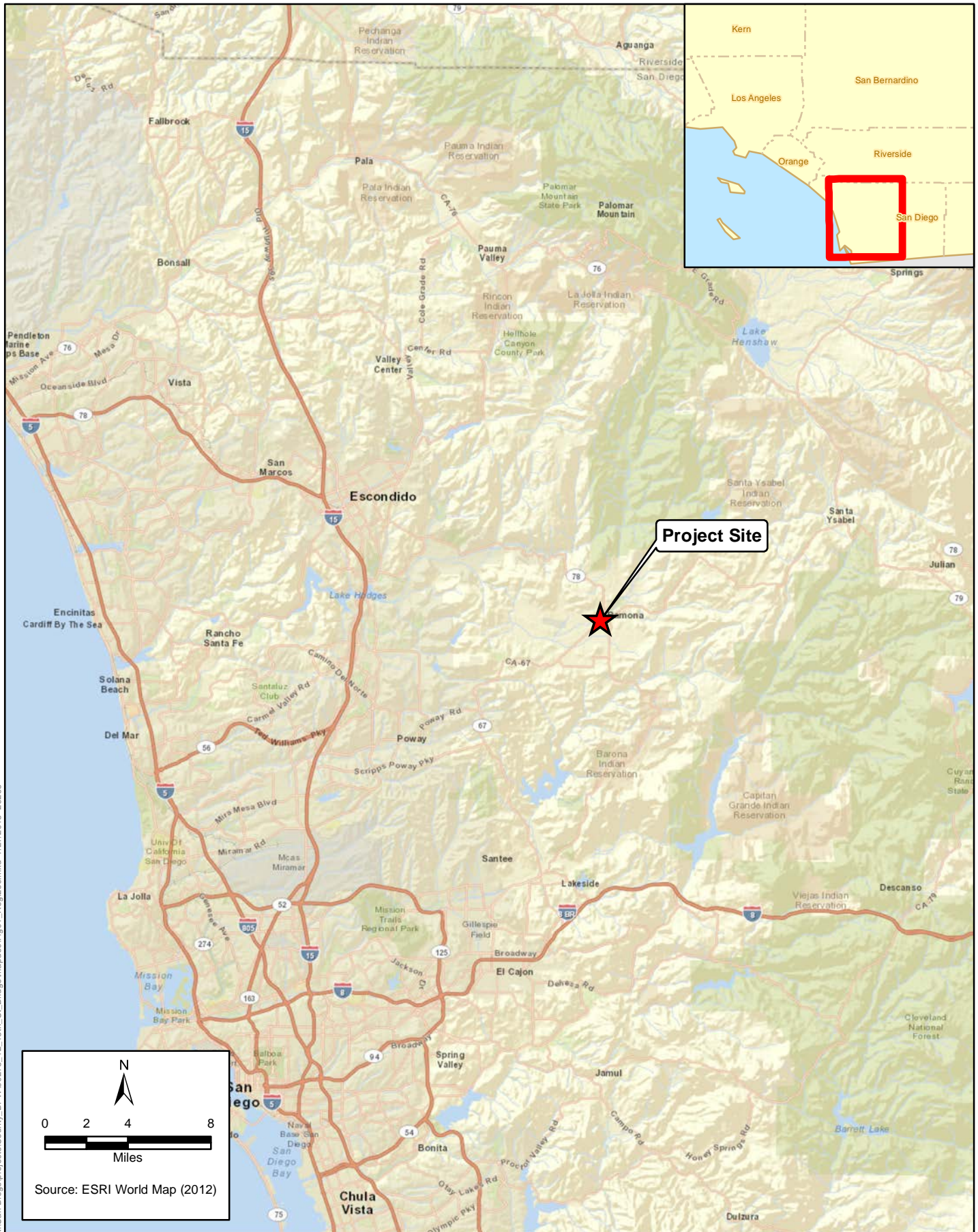
Please do not hesitate to contact me with any questions or comments.

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](mailto: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**

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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**

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# **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.



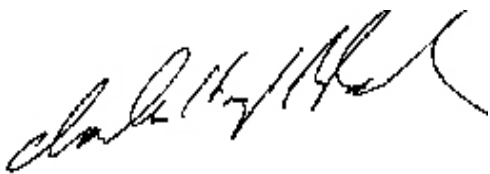
## Results

### 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

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: 7/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 1

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6370358/1959193

Habitat Condition: (circle where appropriate)

<u>- undisturbed</u>	disturbed: tire tracks	garbage	discing/plowing	
<u>- ungrazed</u>	grazed: cattle	horses	sheep	other _____
		light	moderate	heavy

- land use of habitat: detention basin for Ramona Library

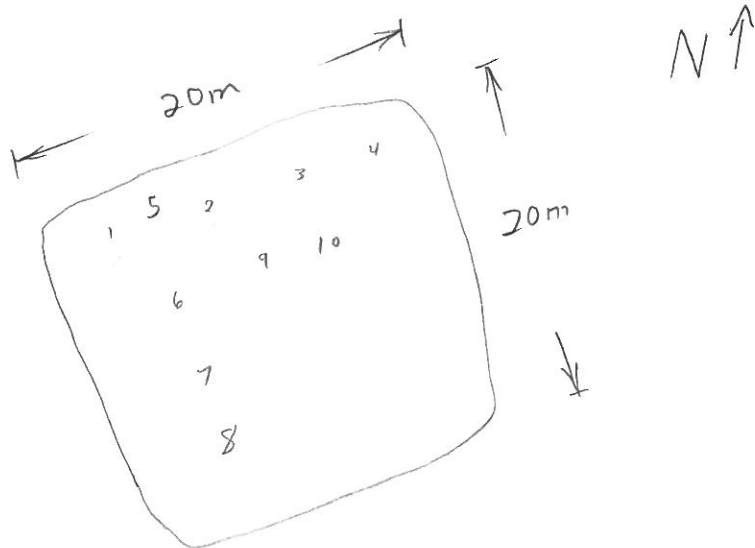
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 20 cm (estimated maximum) Surface Area: 400 m<sup>2</sup> (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: 13<sup>th</sup> Street Bridge Pool #: 2

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_

6369904' / 1960197'

Habitat Condition: (circle where appropriate)

- |                   |                               |         |                 |             |
|-------------------|-------------------------------|---------|-----------------|-------------|
| - undisturbed     | disturbed: <u>tire tracks</u> | garbage | discing/plowing |             |
| <u>- ungrazed</u> | grazed: cattle                | horses  | sheep           | other _____ |
|                   |                               | light   | moderate        | heavy       |

- land use of habitat: road shoulder

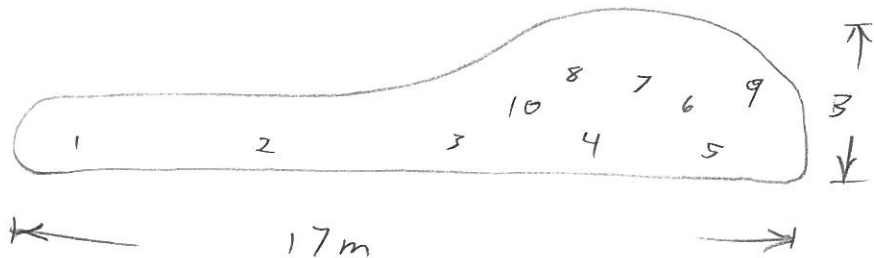
Pool Bottom Surface: (circle where appropriate)

- hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 15 cm (estimated maximum) Surface Area: 40 m<sup>2</sup> (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**  
 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: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 3

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_  
6369407' / 1960194'

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 shoulder of road

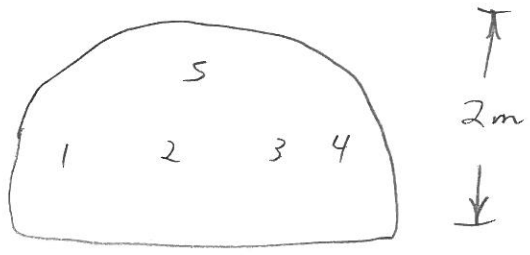
Pool Bottom Surface: (circle where appropriate)

- hardpan      claypan      cobbly/rocky      lava flow      other \_\_\_\_\_

Pool Depth: 8 cm (estimated maximum) Surface Area: 4 m<sup>2</sup> (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North      N ↑
- sampling locations
- 500ml. 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)
0-5	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: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> 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

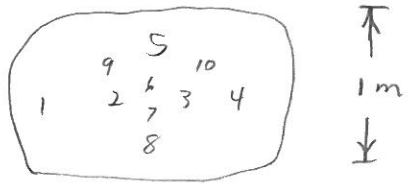
Pool Bottom Surface: (circle where appropriate)

- hardpan
- claypan
- cobbly/rocky
- lava flow
- other \_\_\_\_\_

Pool Depth: 5 cm (estimated maximum) Surface Area: 4 m<sup>2</sup> (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**  
 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: 13<sup>th</sup> Street Bridge Pool #: 5

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6369435 / 1960184

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: road shoulder

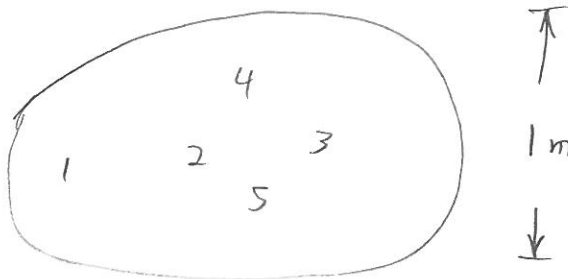
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 5 cm (estimated maximum) Surface Area: 4 m<sup>2</sup> (estimated maximum)

Sketch of pool and transects showing:

- scale
  - indication of North N ↑
  - 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)
0-5	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  yes

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

Date: 9/11/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> 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: <u>dirt road</u>				

Pool Bottom Surface: (circle where appropriate)

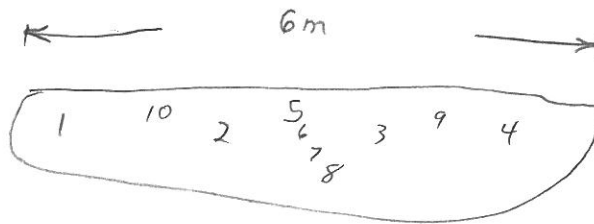
hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 5 cm (estimated maximum) Surface Area: 6 m<sup>2</sup> (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations

N ↑



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  yes

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

Date: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 7

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6370046/1959563'

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed: <u>tire tracks</u>	garbage	discing/plowing	
<u>- ungrazed</u>	grazed: cattle	horses	sheep	other _____
		light	moderate	heavy

- land use of habitat: dirt road

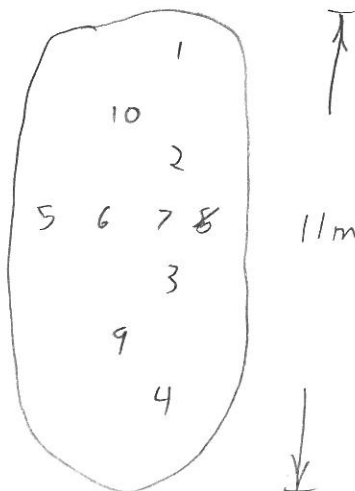
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 15 cm (estimated maximum) Surface Area: 32 m<sup>2</sup> (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**

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: 13<sup>th</sup> Street Bridge Pool #: 8

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6370052/1959835

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:

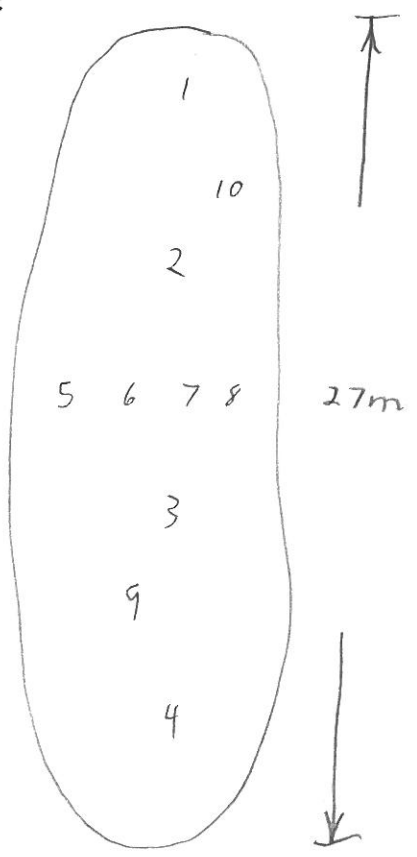
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 15 cm (estimated maximum) Surface Area: 100 m<sup>2</sup> (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

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: 13<sup>th</sup> Street Bridge Pool #: 9

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6370232' / 1959589'

Habitat Condition: (circle where appropriate)

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

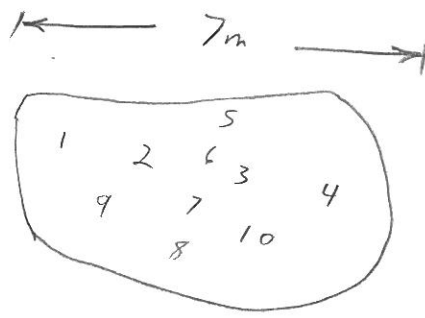
Pool Bottom Surface: (circle where appropriate)

- hardpan
- claypan
- cobbly/rocky
- lava flow
- other \_\_\_\_\_

Pool Depth: 3 cm (estimated maximum) Surface Area: 22 m<sup>2</sup> (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	∅	∅

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: 13<sup>th</sup> Street Bridge Pool #: 10

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_  
 6370259 / 1959436

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: graded dirt lot

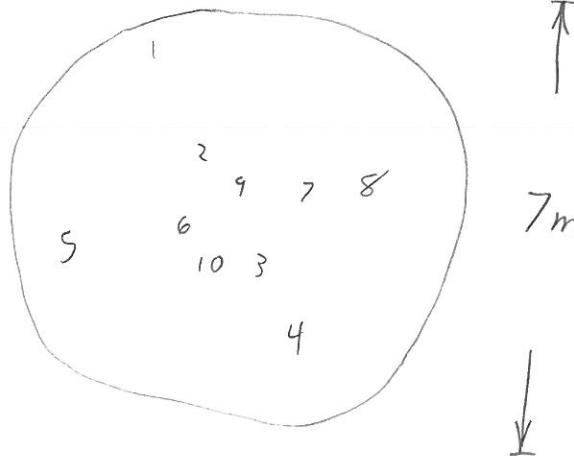
Pool Bottom Surface: (circle where appropriate)

hardpan    claypan    cobbly/rocky    lava flow    other \_\_\_\_\_

Pool Depth: 3 cm (estimated maximum) Surface Area: 35 m<sup>2</sup> (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

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: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 11

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_  
 6370339' / 1959416'

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed: tire tracks	garbage	discing/plowing
<input checked="" type="radio"/> <u>ungrazed</u>	grazed: cattle	horses	sheep
		light	moderate
			heavy

- land use of habitat: graded dirt lot

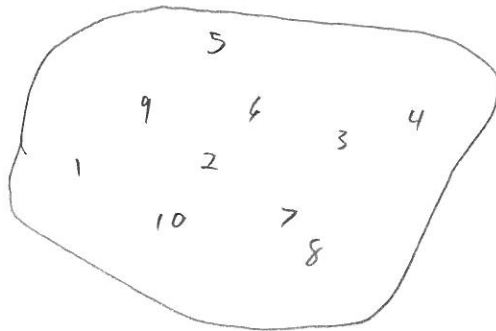
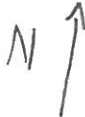
Pool Bottom Surface: (circle where appropriate)

hardpan  claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 3 cm (estimated maximum) Surface Area: 20 m<sup>2</sup> (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: 13<sup>th</sup> Street Bridge Pool #: 19

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6370391/1959297'

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed:	tire tracks	garbage	discing/plowing	
<u>ungrazed</u>	grazed:	cattle	horses	sheep	other _____
			light	moderate	heavy

- land use of habitat: graded dirt lot

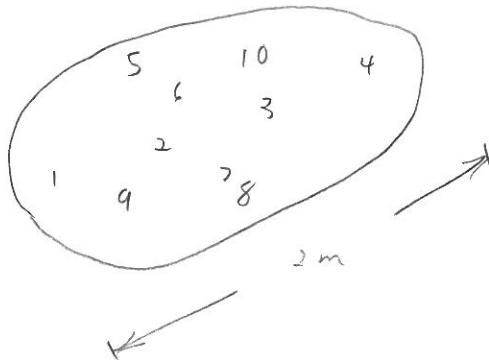
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 3 cm (estimated maximum) Surface Area: 9 m<sup>2</sup> (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  
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: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 20

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_  
6370326' / 1959294'

Habitat Condition: (circle where appropriate)

- |                   |                        |         |                 |             |
|-------------------|------------------------|---------|-----------------|-------------|
| - undisturbed     | disturbed: tire tracks | garbage | discing/plowing |             |
| <u>- ungrazed</u> | grazed: cattle         | horses  | sheep           | other _____ |
|                   |                        | light   | moderate        | heavy       |

- land use of habitat: graded dirt lot

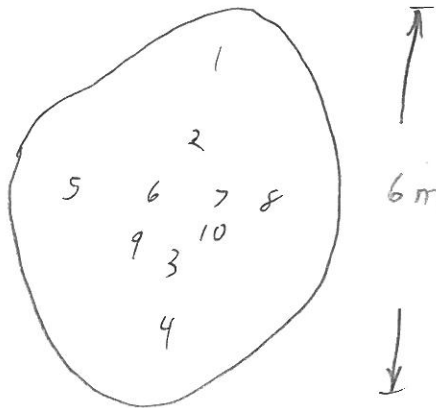
Pool Bottom Surface: (circle where appropriate)

- |         |                |              |           |             |
|---------|----------------|--------------|-----------|-------------|
| hardpan | <u>claypan</u> | cobbly/rocky | lava flow | other _____ |
|---------|----------------|--------------|-----------|-------------|

Pool Depth: 3 cm (estimated maximum) Surface Area: 9 m<sup>2</sup> (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

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: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 21

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_

6370195' / 1959383'

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed: tire tracks	garbage	discing/plowing	
<input checked="" type="checkbox"/> <u>ungrazed</u>	grazed: cattle	horses	sheep	other _____
		light	moderate	heavy

- land use of habitat: graded dirt lot

Pool Bottom Surface: (circle where appropriate)

hardpan  claypan cobbly/rocky lava flow other \_\_\_\_\_

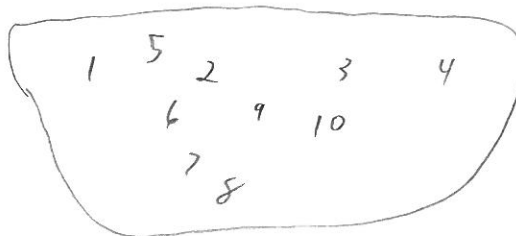
Pool Depth: 3 cm (estimated maximum) Surface Area: 35 m<sup>2</sup> (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North
- sampling locations



← 8m →



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: 13<sup>th</sup> Street Bridge Pool #: 22

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_  
6370225 / 1459324'

Habitat Condition: (circle where appropriate)

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

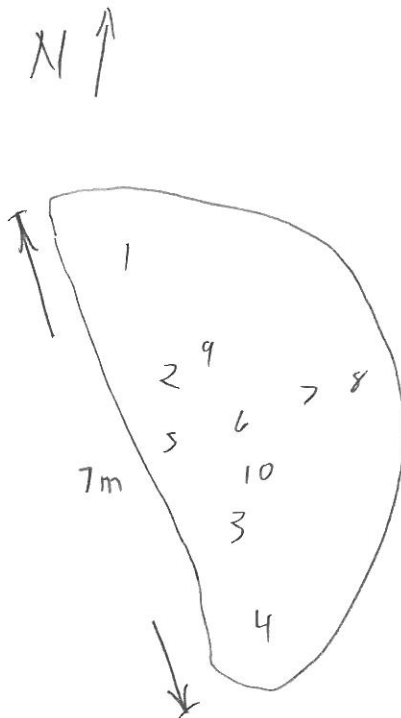
Pool Bottom Surface: (circle where appropriate)

- hardpan
- claypan
- cobbly/rocky
- lava flow
- other \_\_\_\_\_

Pool Depth: 2 cm (estimated maximum) Surface Area: 21 m<sup>2</sup> (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: 13<sup>th</sup> Street Bridge Pool #: 23

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_  
6370265' / 1949257'

Habitat Condition: (circle where appropriate)

- undisturbed	disturbed: tire tracks	garbage	discing/plowing	
<u>- ungrazed</u>	grazed: cattle	horses	sheep	other _____
		light	moderate	heavy

- land use of habitat: graded dirt lot

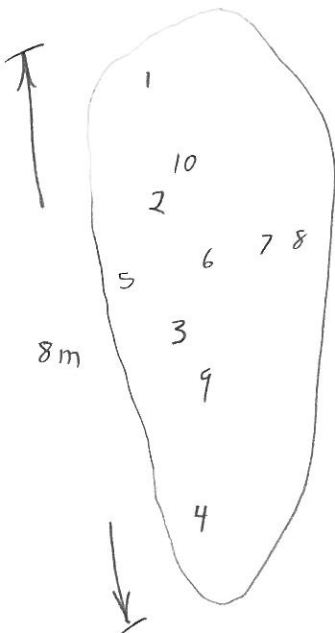
Pool Bottom Surface: (circle where appropriate)

hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 3 cm (estimated maximum) Surface Area: 20 m<sup>2</sup> (estimated maximum)

Sketch of pool and transects showing:

- scale
- indication of North N ↑
- sampling locations 1-10



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

**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  yes

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

Date: 9/17/2013 Time: \_\_\_\_\_ County: San Diego Quad: Ramona

Collector(s): Doug Allen Permit #: TE-837448-5

Site/Project Name: 13<sup>th</sup> Street Bridge Pool #: 24

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. 6370300/1959016'

Habitat Condition: (circle where appropriate)

- |                   |                               |         |                 |             |
|-------------------|-------------------------------|---------|-----------------|-------------|
| - undisturbed     | disturbed: <u>tire tracks</u> | garbage | discing/plowing |             |
| - <u>ungrazed</u> | grazed: cattle                | horses  | sheep           | other _____ |
|                   |                               | light   | moderate        | heavy       |

- land use of habitat: road shoulder

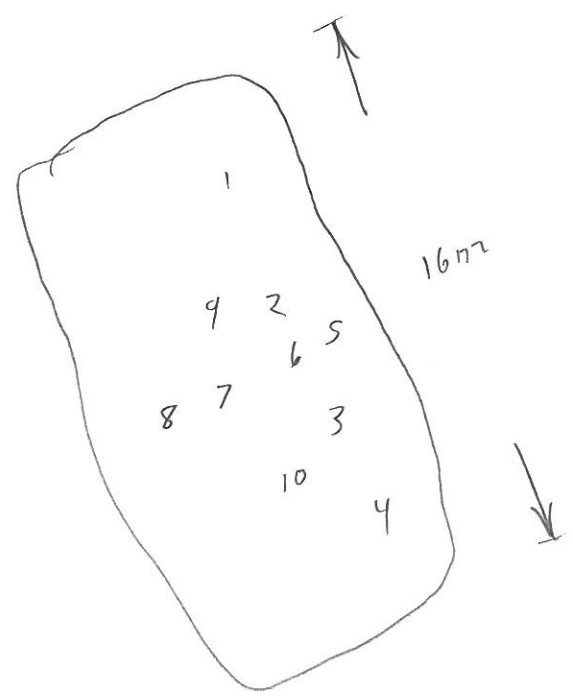
Pool Bottom Surface: (circle where appropriate)

- hardpan claypan cobbly/rocky lava flow other \_\_\_\_\_

Pool Depth: 20 cm (estimated maximum) Surface Area: 150 m<sup>2</sup> (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**

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: 13<sup>th</sup> Street Bridge Pool #: 25

Township: 13S Range: 1E Section: unsectioned lat. \_\_\_\_\_ long. \_\_\_\_\_

6370056/1959724

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

Pool Bottom Surface: (circle where appropriate)

hardpan

claypan

cobbly/rocky

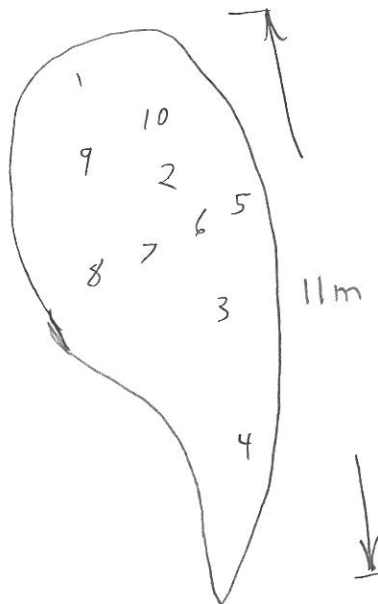
lava flow

other \_\_\_\_\_

Pool Depth: 10 cm (estimated maximum) Surface Area: 26 m<sup>2</sup> (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 #

**13<sup>TH</sup> 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. 13<sup>th</sup> Street Bridge, Wet Season Protocol Survey for Listed Fairy Shrimp, County of San Diego Department of Public Works. August.



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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 13<sup>th</sup> 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 13<sup>th</sup> Street Bridge project biological study area.

## 1.1 Project Area

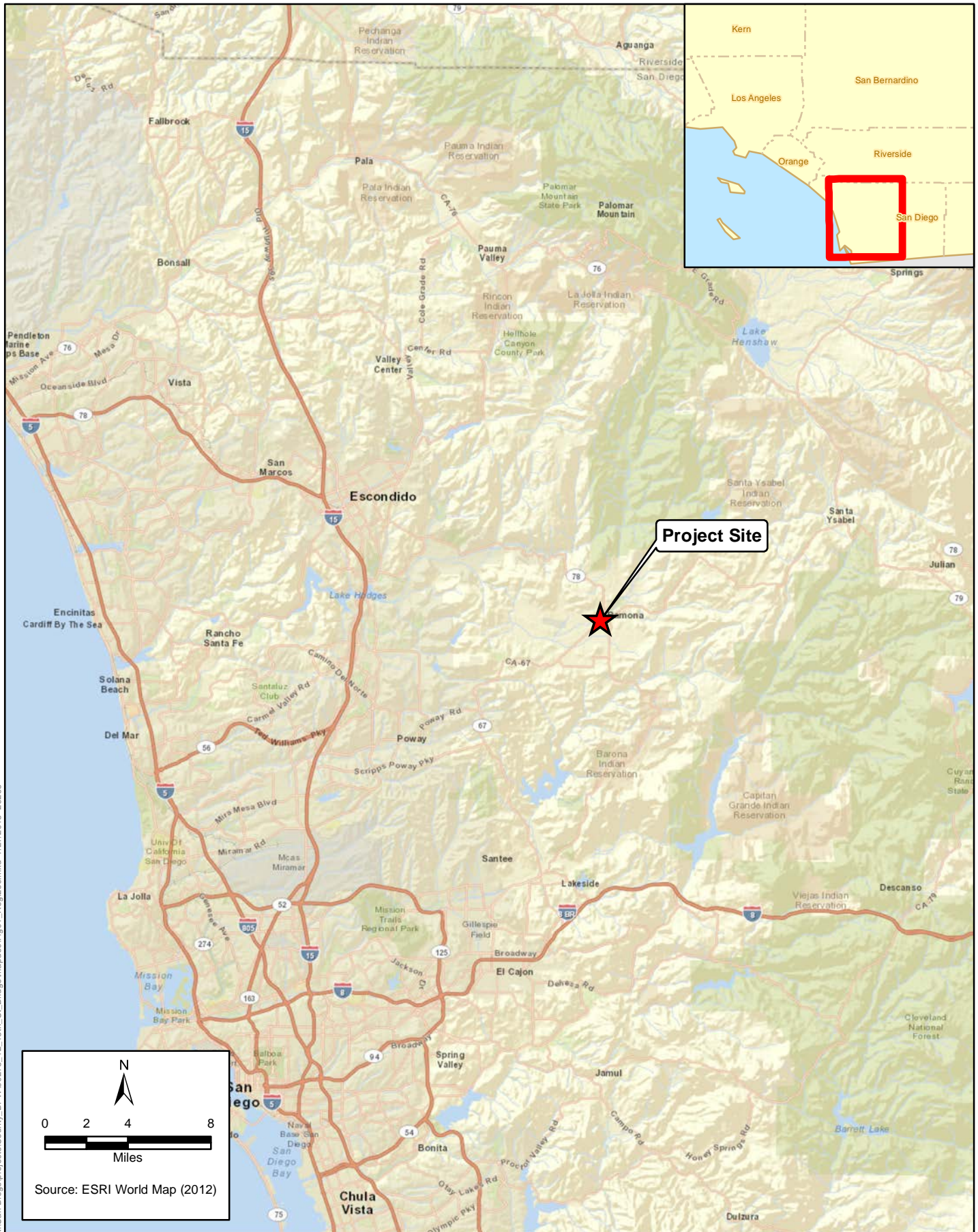
The unincorporated community of Ramona is located in the central portion of San Diego County, California, approximately 30 air-miles northeast of the City of San Diego. Ramona is characterized by warm dry summers and cool wet winters, typical of the semi-arid Mediterranean climate found in southern California. 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).

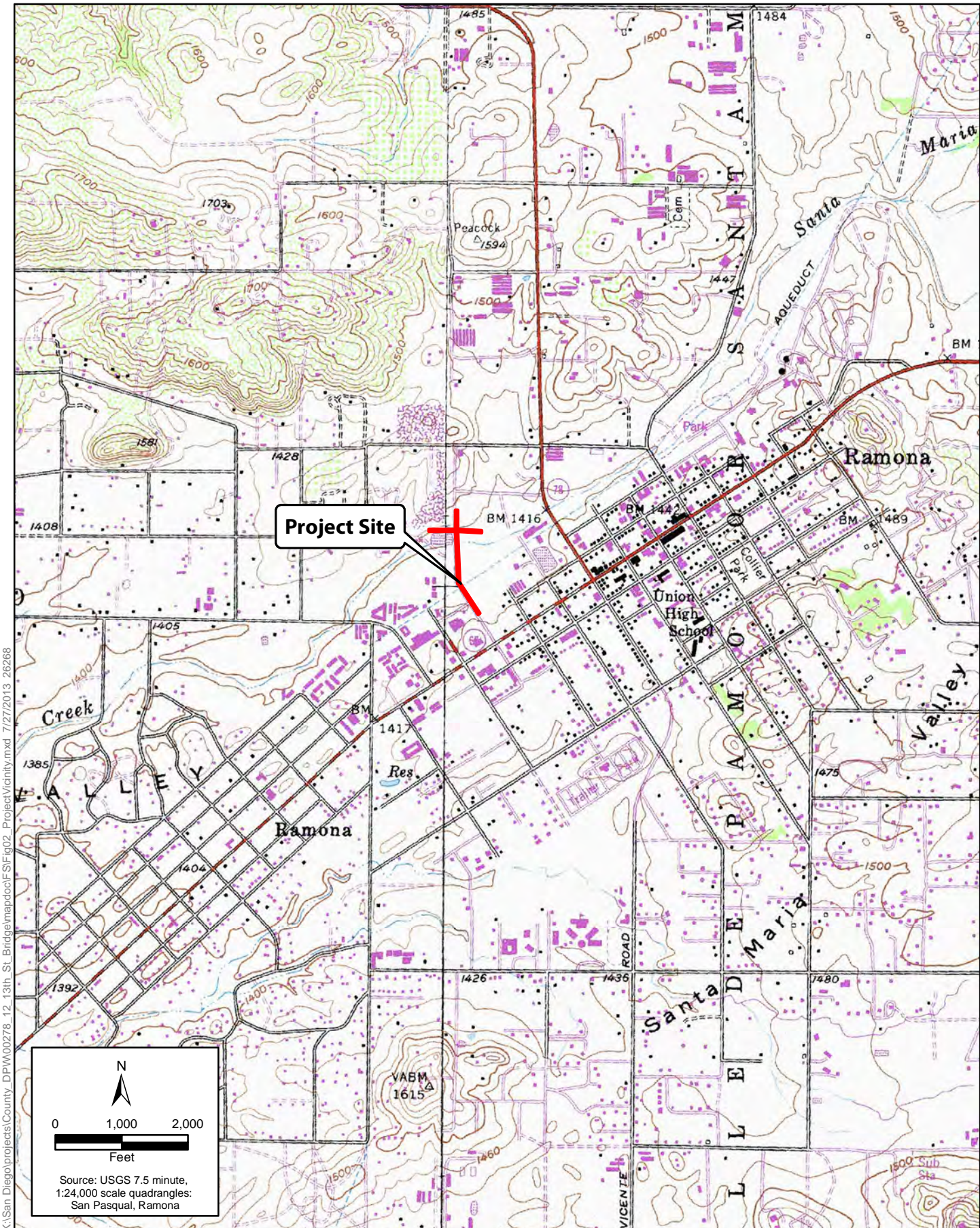
Wet season sampling commenced after the first significant rainfall of the 2012/2013 season (Table 1). Surveys were conducted approximately every 14-days until all basins were dry. The protocol wet-season survey was considered completed on May 31, 2013. Rainfall records for the Ramona area were collected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

<b>Date</b>	<b>Personnel</b>	<b>Notes</b>
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**

<b>Rain Event Dates</b>	<b>Precipitation Total (inches)</b>
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
<b>Total Rainfall</b>	<b>5.41</b>

## 3.0 Results

A total of twenty-five basins were identified and mapped for the 13<sup>th</sup> 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 13<sup>th</sup>, 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.



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**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:

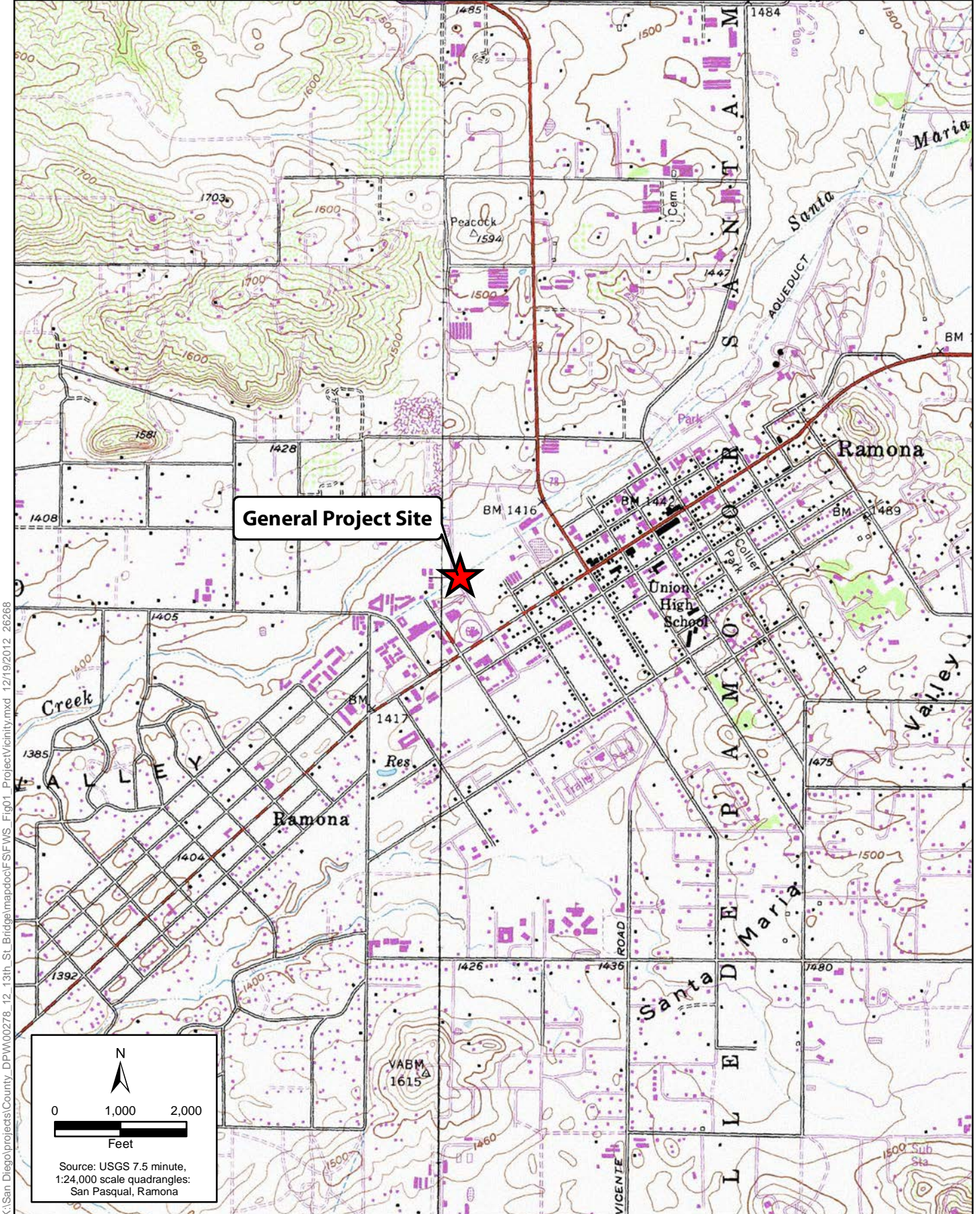
The County of San Diego (County) Department of Parks and Recreation (DPR) has requested that ICF International (ICF) conduct a protocol wet and dry season survey for listed vernal pool branchiopods on the Ramona 13<sup>th</sup> Street Bridge Project. This project is located in Ramona, San Diego County, 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.

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



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

## **Appendix B**

### **Site Photographs**

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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: 1/9/13 Time: 1257 County: San Diego Quad: Ramona

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

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

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 15 °C Air: 16 °C

Pool Depth: at time of sampling: 12 cm estimated maximum: 20 cm  
Surface Area: at time of sampling: 15 m x 15 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 NH<sub>4</sub>: \_\_\_ 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  yes

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

Date: 1-19-13 Time: 1210 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 2

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: 15 cm  
Surface Area: at time of sampling: 2 m x 1 m estimated maximum: 3 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: dirt shoulder of paved road

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l          Conductivity: \_\_\_ uMHO  
Dissolved NH<sub>4</sub>: \_\_\_ 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: 11/19/13 Time: 1215 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 3

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 15 °C Air: 16 °C

Pool Depth: at time of sampling: 10 cm Surface Area: at time of sampling: 3 m x 1 m  
estimated maximum: 10 cm estimated maximum: 3 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: dirt shoulder of paved road

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l      Conductivity: \_\_\_ uMHO  
Dissolved NH<sub>4</sub>: \_\_\_ 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.

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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_\_\_ 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.

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: 1400 County: San Diego Quad: Ramona

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

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

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 17 °C Air: 20 °C

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

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l

Conductivity: \_\_\_ uMHO

Dissolved NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 1/30/13 Time: 1410 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 2

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

Temperature: Water: 18 °C Air: 20 °C

Pool Depth: at time of sampling: 15 cm estimated maximum: 15 cm  
Surface Area: at time of sampling: 12 m x 3 m estimated maximum: 12 m x 3 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 NH<sub>4</sub>:      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: 1 130 2013 Time: 1415 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 3

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 18 °C Air: 20 °C

Pool Depth: at time of sampling: 8 cm Surface Area: at time of sampling: 2 m x 2 m  
estimated maximum: 8 cm 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 NH<sub>4</sub>: \_\_\_\_\_ 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) \_\_\_\_\_

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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: 1415 County: San Diego Quad: Ramona

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

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

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 18 °C Air: 20 °C

Pool Depth: at time of sampling: 5 cm estimated maximum: 5 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 NH<sub>4</sub>: \_\_\_\_\_ 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: 1415 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 5

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 18 °C Air: 20 °C

Pool Depth: at time of sampling: 5 cm estimated maximum: 5 cm  
Surface Area: at time of sampling: 2 m x 3 m estimated maximum: 2 m x 3 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 NH<sub>4</sub>: \_\_\_ 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  yes

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

Date: 1/30/13 Time: 1420 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 6

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

Temperature: Water: 18 °C Air: 20 °C

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

estimated maximum: 5 cm estimated maximum: 6 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 NH<sub>4</sub>:          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) \_\_\_\_\_

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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: 1425 County: San Diego Quad: Ramona

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

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

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 18 °C Air: 20 °C

Pool Depth: at time of sampling: 15 cm estimated maximum: 15 cm  
Surface Area: at time of sampling: 8 m x 30 m estimated maximum: 8 m x 30 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

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l

Conductivity: \_\_\_ uMHO

Dissolved NH<sub>4</sub>: \_\_\_ 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: receives irrigation runoff

**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  yes

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

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

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 24

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 16 °C Air: 20 °C

Pool Depth: at time of sampling: 20 cm Surface Area: at time of sampling: 5 m x 10 m

estimated maximum: 20 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 NH<sub>4</sub>: \_\_\_ 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: 1430 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 horses sheep other \_\_\_  
light moderate heavy

- land use of habitat: poorly graded gravel lot

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l Conductivity: \_\_\_ uMHO  
Dissolved NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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 5888A-0

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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  yes

Required color slides and/or photographs for the project site are included: \_\_\_ no  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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 1440 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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-13<sup>th</sup> St. Bridge Pool #: 13

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 19 °C Air: 20 °C

Pool Depth: at time of sampling: 5 cm Surface Area: at time of sampling: 6 m x 10 m  
estimated maximum: 5 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 NH<sub>4</sub>: \_\_\_ 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 5888A-0

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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: 1450 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 estimated maximum: 3 cm  
Surface Area: at time of sampling: 4 m x 12 m 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 1455 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 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 NH<sub>4</sub>: \_\_\_ 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: 1500 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_\_\_ 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-13<sup>th</sup> 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 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 NH<sub>4</sub>: \_\_\_ 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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 2/17/11 Time: 9:00 County: San Diego Quad: Ramona

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

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

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 14 °C Air: 14 °C

Pool Depth: at time of sampling: 5 cm Surface Area: at time of sampling: 1 m x 8 m

estimated maximum: 10 cm 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 NH<sub>4</sub>: \_\_\_ 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: 2/7/13 Time: 9:30 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 24

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 14 °C Air: 14 °C

Pool Depth: at time of sampling: 15 cm Surface Area: at time of sampling: 70 m x 70 m  
estimated maximum: 15 cm estimated maximum: 10 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 NH<sub>4</sub>: \_\_\_ 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: 2/19/13 Time: 9:15 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 2/19/13 Time: 930 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 24

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 13 °C Air: 13 °C

Pool Depth: at time of sampling: 8 cm estimated maximum: 15 cm  
Surface Area: at time of sampling: 5 m x 8 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 cut

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l      Conductivity: \_\_\_ uMHO  
Dissolved NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 3/19/13 Time: 9:30 County: San Diego Quad: Ramona

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

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

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: 25 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: defunction basin

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l Conductivity: \_\_\_ uMHO  
Dissolved NH<sub>4</sub>: \_\_\_ 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: *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: 950 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 2

Township: 13S Range: R1E Section: Unsectioned lat. \_\_\_ long. \_\_\_

Temperature: Water: 10 °C Air: 10 °C

Pool Depth: at time of sampling: 15 cm estimated maximum: 15 cm  
Surface Area: at time of sampling: 10 m x 3 m estimated maximum: 12 m x 3 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 NH<sub>4</sub>: \_\_\_ 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: *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) \_\_\_\_\_

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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) \_\_\_\_\_

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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: 1000 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 5

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: 2 m x 2 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: road shoulder of Walnut St.

(Optional) Water Chemistry Data

Alkalinity (total):      ppm or mg/l      Conductivity:      uMHO  
Dissolved NH<sub>4</sub>:      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) \_\_\_\_\_

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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) \_\_\_\_\_

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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) \_\_\_\_\_

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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-13<sup>th</sup> 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

Surface Area:

at time of sampling: 3 m x 5 m

estimated maximum: 5 cm

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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: -1020 County: San Diego Quad: Ramona

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

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

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 6 m estimated maximum: 6 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 NH<sub>4</sub>:          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) \_\_\_\_\_

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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.

<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: 1030 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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: 1035 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> St. Bridge Pool #: 13

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: 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:

(Optional) Water Chemistry Data

Alkalinity (total): \_\_\_ ppm or mg/l

Conductivity: \_\_\_ uMHO

Dissolved NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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.

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: 1050 County: San Diego Quad: Ramona

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

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

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 10 m estimated maximum: 4 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 horses sheep other           
light moderate heavy

- land use of habitat:

(Optional) Water Chemistry Data

Alkalinity (total):          ppm or mg/l

Conductivity:          uMHO

Dissolved NH<sub>4</sub>:          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: *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  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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_\_\_ 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) \_\_\_\_\_

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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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) \_\_\_\_\_

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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: 1120 County: San Diego Quad: Ramona

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

Site/Project Name: County DPW-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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  
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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-13<sup>th</sup> 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 NH<sub>4</sub>: \_\_\_ 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.

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