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June 19, 2015

Ms. Stacey Love
U.S. Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Ave, Suite 250
Carlsbad, CA 92008

Subject: **Fairy Shrimp Survey Report for the Vista Del Mar Elementary School Project San Diego County, CA.**

Dear Ms. Love:

As required by the U.S. Fish and Wildlife Service (USFWS), this letter provides documentation of the results of 2014/2015 wet season surveys for federally-listed vernal pool branchiopod (fairy shrimp) species. The surveys were conducted on behalf of the San Ysidro School District within the vernal pool restoration area associated with the Vista Del Mar Elementary School Project (Project), located in the community of San Ysidro, San Diego County, California.

Overview

To mitigate impacts to vernal pools from Project construction, a total of 32 vernal pools within the restoration area were created, restored, or enhanced through implementation of the agency-approved *Vista Del Mar Elementary School Vernal Pool Restoration Plan for the Off-Site Preserve* (Helix, 2011; as amended by TAIC, 2012). Pursuant to Project permit requirements, protocol-level fairy shrimp surveys will be conducted annually during the restoration period (generally five years) to ensure successful restoration. This report discusses the results of the fairy shrimp surveys conducted during the 2014/2015 wet season (Year 4), which were performed within the restoration area, as summarized below:

Name of project:	Vista Del Mar Elementary School
Permittee:	San Ysidro School District
Property Owner:	City of San Diego
Location:	The 1-acre survey area comprises 18 newly created and 14 restored or enhanced vernal pools within the vernal pool restoration area. The restoration area is located within the Imperial Beach 7.5 minute U.S. Geologic Survey (USGS) Quadrangle, on the Otay Mesa in the community of San Ysidro within the City of San Diego, San Diego County, California (Figure 1).

Reference Site: Two reference sites have been selected for monitoring. One reference site is located adjacent to the references area on the west side. This area was restored as mitigation for impacts associated with construction of the San Ysidro High School. The second site, known as the J26 Complex, is formally recognized by the U.S. Fish and Wildlife Service as a vernal pool reference site. This site is located approximately 10 km northeast of the restoration area (Figure 2).

Fairy Shrimp & Vernal Pool Biology

Fairy shrimp habitat includes all vernal pools and swales (including road ruts) that occur within the species' range, which can hold water for an extended period of time. According to the USFWS, vernal pools and swales can be defined as ephemeral wetlands that form in areas of California with Mediterranean climates that have shallow depressions underlain by a substrate of hardpan, clay, or basalt near the surface that restricts the percolation of water. They may be characterized by a barrier to overland flow that causes water to collect and pond. Vernal pools/swales may occur singly, but more typically occur in vernal pool/swale complexes, due to the local hydrology, geology, and topography. Initially, the dry soil in vernal pools/swales becomes wet and starts to saturate during the fall and early winter rains. The second stage in a typical vernal pool cycle is characterized by peak rainfall and inundation of the vernal pools/swales. Vernal pools may remain inundated until spring or early summer, sometimes filling and drying numerous times during the wet season. The vernal pools gradually dry down during the spring, quite often forming the unique "bathtub ring" of flowers from endemic vernal pool plants blooming profusely at the pool margins. This drying down stage is typified by the production of seeds in the endemic plants and the dispersal of animals from the vernal pools. These pools eventually dry down totally, with the onset of drought conditions. During this final stage, early season and shallow-rooted plants turn brown, and the soil dries and may crack. With average rainfall patterns, vernal pools are typically characterized by a predominantly annual plant community dominated by wetland species (USFWS, 1996).

Fairy shrimp mature and lay cysts in the soils lining the bottom of the pools while the pools are filled with water. Fairy shrimp hatch from cysts once the pools fill with water during winter months. As the pools dry in the spring and summer, the cysts are able to remain dormant in the soil for extended periods of time until the pool becomes inundated again. Fairy shrimp cysts can persist unharmed in the soil for years despite extreme weather conditions. Fairy shrimp cysts do not all hatch at once, and each time a pool fills in a single season new cysts may hatch (Eriksen and Belk, 1999).

Existing Conditions and Restoration Background

The 1-acre restoration area is located on a plateau within coastal sage scrub vegetation on the Otay Mesa and is known to have historically contained vernal pools (Figure 1). Prior to restoration, the restoration area had been disturbed by off-road vehicles and was previously owned by The Environmental Trust (TET). After TET declared bankruptcy, the restoration area and conservation easement was transferred to the City of San Diego. As part of the mitigation requirements for the Vista Del Mar Elementary School construction, the restoration area was seeded and planted with native vernal pool and upland coastal sage scrub species.

A total of 32 vernal pools within the Restoration Area were either created, restored, or enhanced through implementation of the agency-approved *Vista Del Mar Elementary School Vernal Pool Restoration Plan for the Off-Site Preserve* (Helix, 2011; as amended by TAIC, 2012). Eighteen of the pools (i.e., pool numbers 2, 5-10, 12-15, 22, 23, 27-29, 31, and 32) were newly created within the restoration area and were inoculated with vernal pool soils containing the federally-listed San Diego fairy shrimp (*Branchinecta sandiegonensis*) cysts salvaged from the Vista Del Mar Elementary School impact site and/or a vernal pool donor site located just west of the restoration area. The remaining fourteen pools (i.e., pool numbers 1, 3, 4, 11, 16-21, 24-26, and 30) were existing pools that were restored or enhanced within the restoration area and inoculated with San Diego fairy shrimp cysts from the road rut pool adjacent to the restoration area. All pools were constructed or recontoured in January and February 2012.

Fairy Shrimp Survey Methods

Branchiopod surveys were conducted within pools that were inundated for a sufficient amount of time and depth to support fairy shrimp, based on the results of hydrological monitoring that was being conducted within the restoration area and reference pools. During the 2014/2015 rainy season, the restoration area pools (Figure 3) were sampled twice during the season and the adjacent pools at San Ysidro High School reference site were sampled once; the J-26 reference pools were not sampled as they were not inundated sufficiently to support fairy shrimp. Sampling was conducted by Rocks Biological Consulting biologists Melanie Rocks (TE-082908-1) and Lee Ripma (TE-221290-3), who were assisted by Rocks Biological Consulting biologist Shannon Walsh, on December 16 and December 31, 2014 according to the Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (USFWS, 1996).

The protocol requires that depressions be examined 24 hours after a storm event to determine if the depression is inundated (defined as holding more than three centimeters of water). If after two weeks the depressions are still inundated, protocol fairy shrimp surveys must be conducted. All pools inundated to levels sufficient to support fairy shrimp were sampled using a hand-held net, which was

swept through the water and the net contents were examined for invertebrates. San Diego fairy shrimp were collected and identified with the aid of a dissecting microscope after the surveys were completed. The collected voucher specimens will be accessioned to the Los Angeles Natural History Museum, Crustacea Section, Invertebrate Zoology, 900 Exposition Boulevard, Los Angeles, California 90007.

Survey Results

During the 2014/2015 rainy season, San Diego County experienced its fourth straight year of drought conditions (San Diego County Water Authority, 2015). Between October 2014 and May 2015, a total of only 8.91 inches fell, as compared to 14.26 inches based on average monthly precipitation rates (Table 1).

Table 1. Actual vs. Average Precipitation October 2014-May 2015

Month	Normal (in.)	Actual (in.)
October 2013	0.82	0.00
November 2013	1.13	0.37
December 2013	2.27	4.50
January 2014	2.98	0.42
February 2014	3.23	0.28
March 2014	2.69	0.93
April 2014	0.96	0.02
May 2014	0.18	2.39
TOTALS	**14.26**	**8.91**

Source: local climate data from the National Oceanic and Atmospheric Administration (NOAA), Lindbergh Field.

During the current reporting period, two surveys were conducted; the first survey took place on December 16 within the restoration area and the second survey was performed on December 31, 2014 within both the restoration area and San Ysidro High School reference site. At the time of the first survey, all 32 pools held water for a sufficient depth and duration to support fairy shrimp. However, only half of these pools were found to hold fairy shrimp, therefore a second survey was performed on the remaining 16 pools to retest for fairy shrimp presence (Table 3). Only four pools within the adjacent San Ysidro High School reference site and no pools within the J26 Complex reference sites were inundated for a sufficient depth and duration to support fairy shrimp; the pools that were not inundated were not sampled. The four sampled pools are represented in Table 4.

Table 2. Fairy Shrimp Data from December 16, 2014 Survey

Pool Number	Description	Water Temp. (°C)	Maximum Depth (cm)	Size (m^2)	Presence of Fairy Shrimp	No. Male	No. Female	Population Estimate
1	Enhanced	17.9	3.0	10.0	none	0	0	0
2	Created	18.1	6.0	35.0	none	0	0	0
3	Enhanced	18.1	3.0	12.0	none	0	0	0
4	Enhanced	16.9	6.0	25.0	none	0	0	0
5	Created	17.1	7.0	30.0	none	0	0	0
6	Created	17.1	3.0	6.0	none	0	0	0
7	Created	16.5	10.0	28.0	*B. sandiegonensis*	6	2	1000s
8	Created	15.8	7.0	12.0	none	0	0	0
9	Created	15.8	9.0	30.0	*B. sandiegonensis*	5	2	1000s
10	Created	16.2	9.0	35.0	*B. sandiegonensis*	6	2	1000s
11	Enhanced	16.0	6.0	21.0	none	0	0	0
12	Created	16.1	6.0	16.0	*B. sandiegonensis*	6	3	1000s
13	Created	17.3	10.0	42.0	*B. sandiegonensis*	5	2	1000s
14	Created	16.6	8.0	60.0	*B. sandiegonensis*	5	2	1000s
15	Created	18.1	3.0	15.0	none	0	0	0
16	Enhanced	18.5	3.5	16.0	none	0	0	0
17	Enhanced	17.9	9.0	30.0	*B. sandiegonensis*	5	2	1000s
18	Enhanced	17.6	5.0	16.0	none	0	0	0
19	Enhanced	17.1	8.0	25.0	*B. sandiegonensis*	5	2	1000s
20	Enhanced	16.2	4.0	16.0	none	0	0	0
21	Enhanced	15.8	12.0	25.0	*B. sandiegonensis*	5	2	1000s
22	Created	15.5	13.0	25.0	*B. sandiegonensis*	5	2	1000s
23	Created	16.1	0.5	2.0	none	0	0	0
24	Enhanced	16.8	9.0	24.0	*B. sandiegonensis*	6	3	1000s
25	Enhanced	17.8	6.0	12.0	none	0	0	0
26	Enhanced	17.4	10.0	20.0	*B. sandiegonensis*	4	2	100s
27	Created	18.0	10.0	24.0	*B. sandiegonensis*	5	3	1000s
28	Created	17.6	5.0	12.0	*B. sandiegonensis*	2	2	10s
29	Created	15.3	16.5	40.0	*B. sandiegonensis*	5	4	1000s
30	Enhanced	17.6	6.5	36.0	*B. sandiegonensis*	3	2	100s
31	Created	18.3	4.5	8.0	*B. sandiegonensis*	1	1	10s
32	Created	17.7	8.0	12.0	*B. sandiegonensis*	5	2	1000s

Table 3. Fairy Shrimp Data from December 31, 2014 Survey

Pool Number	Description	Water Temp. (°C)	Maximum Depth (cm)	Size (m^2)	Presence of Fairy Shrimp	No. Male	No. Female	Population Estimate
1	Enhanced	11.9	2.0	8.0	*B. sandiegonensis*	3	3	100s
2	Created	11.8	5.0	25.0	*B. sandiegonensis*	5	4	100s
3	Enhanced	11.8	3.0	20.0	*B. sandiegonensis*	4	2	100s
4	Enhanced	11.8	5.0	20.0	*B. sandiegonensis*	5	2	1000s
5	Created	11.8	5.0	18.0	*B. sandiegonensis*	5	2	100s
6	Created	12.1	4.5	6.0	*B. sandiegonensis*	4	2	100s
8	Created	11.2	8.0	12.0	*B. sandiegonensis*	4	2	1000s
11	Enhanced	11.7	4.0	16.0	*B. sandiegonensis*	3	3	100s
15	Created	11.6	3.0	15.0	*B. sandiegonensis*	4	2	1000s
16	Enhanced	11.9	3.0	16.0	*B. sandiegonensis*	5	1	100s
18	Enhanced	12.1	4.0	6.0	none	0	0	0
20	Enhanced	12.1	4.0	16.0	*B. sandiegonensis*	5	2	1000s
23	Created	12.2	1.0	1.0	none	0	0	0
25	Enhanced	11.9	6.0	6.0	*B. sandiegonensis*	5	1	100s
30	Enhanced	12.1	5.0	36.0	*B. sandiegonensis*	3	2	100s
31	Created	12.4	5.0	8.0	*B. sandiegonensis*	3	3	100s

Table 4. Fairy Shrimp Reference Pool Data from December 31, 2014 Survey

Pool Number	Description	Water Temp. (°C)	Maximum Depth (cm)	Size (m^2)	Presence of Fairy Shrimp	No. Male	No. Female	Population Estimate
A-9	Reference	13.2	4.5	15.0	none	0	0	0
A-12	Reference	12.7	5.0	1.0	none	0	0	0
A-13	Reference	12.9	2.0	2.0	none	0	0	0
A-14	Reference	12.4	3.0	8.0	none	0	0	0

On December 16, the sampled pools within the restoration site varied in size from 2.0 to 60.0 square meters, with maximum depths ranging from 0.5 to 16.5 centimeters (Table 2). Water temperatures ranged from 15.3 to 18.5 degrees Celsius. Sixteen of the 32 pools sampled were found to support San Diego fairy shrimp. On December 31, the sampled pools within the restoration site varied in size from 1.0 to 36.0 square meters, with maximum depths ranging from 1.0 to 8.0 centimeters (Table 3). Water

temperatures ranged from 11.2 to 12.4 degrees Celsius. Of the four vernal pools surveyed at the San Ysidro High School reference site, the pools ranged in size from 1.0 to 15.0 square meters, maximum depths ranged from 2.0 to 5.0 centimeters, and water temperatures ranged from 12.4 to 13.2 degrees Celsius (Table 4).

Across both sampling dates, 30 of the 32 sampled restoration pools were found to support San Diego fairy shrimp (Tables 2 and 3). Two pools did not support fairy shrimp, 1 pool supported a low density of fairy shrimp (i.e., tens), 12 pools supported a medium density of fairy shrimp (i.e., hundreds), and the remaining 17 pools supported high densities of fairy shrimp (i.e., thousands). The presence of fairy shrimp is much higher than the previous year in which fairy shrimp were found in only 14 pools. Additionally, densities are slightly higher than in the previous year, in which 1 pool supported a medium density of fairy shrimp and 13 pools supported a high density of fairy shrimp.

The USFWS Vernal Pool Data Sheets for Wet Season Surveys (USFWS, 1996) are attached to this report and summarized in Tables 2-4. Photographs of site conditions at the time of surveys, the 10-Day Survey Notification Letter, and the California Natural Diversity Database (CNDDB) California Native Species Field Survey Forms are also attached to this report.

If you have any questions about the surveys or the Project, please do not hesitate to contact Rosanne Humphrey.

Sincerely,

Melanie Rocks
Rocks Biological Consulting
5101 September Street
San Diego, CA 92110-1118
(619) 843-6560

Rosanne Humphrey
Senior Biologist
ESA | Biological Resources and Land Management
rhumphrey@esassoc.com

Attachments

Rocks Biological Consulting Survey Certification Letter
Figures
- Figure 1: Regional Location
- Figure 2: Site Map
- Figure 3: Presence of Fairy Shrimp within Restoration Pools

10-Day Notification Letter
Representative Site Photographs
USFWS Vernal Pool Data Sheets for 2014 Wet Season Surveys
CNDDB Field Form

References

Eriksen, C.H. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press.

Environmental Science Associates, Inc. (ESA). 2012. *90-Day Report: Post-Survey Notification of Fairy Shrimp Surveys on the San Ysidro School District's Vista Del Mar Elementary Vernal Pool Restoration Area*.

Helix Environmental Planning (Helix). February 2, 2011; amended by TAIC August, 5, 2011. *Vista Del Mar Elementary School Vernal Pool Restoration Plan for the Off-Site Preserve.* Prepared for San Ysidro School District.

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, 1996.

National Oceanic and Atmospheric Administration. 2015. *Monthly Precipitation Summary Water Year 2015*. Accesed June 8, 2015. http://www.cnrfc.noaa.gov/monthly_precip.php.

San Diego County Water Authority. 2015. Accessed June 8, 2015. http://www.sdcwa.org/drought-conditions

ROCKS
BIOLOGICAL CONSULTING

May 29, 2015

I certify that this survey report and attached exhibits fully and accurately represents my work.

Melanie Rocks
Owner/Principal
TE-082908-2

Lee Ripma
Senior Biologist
TE-221290-3.1

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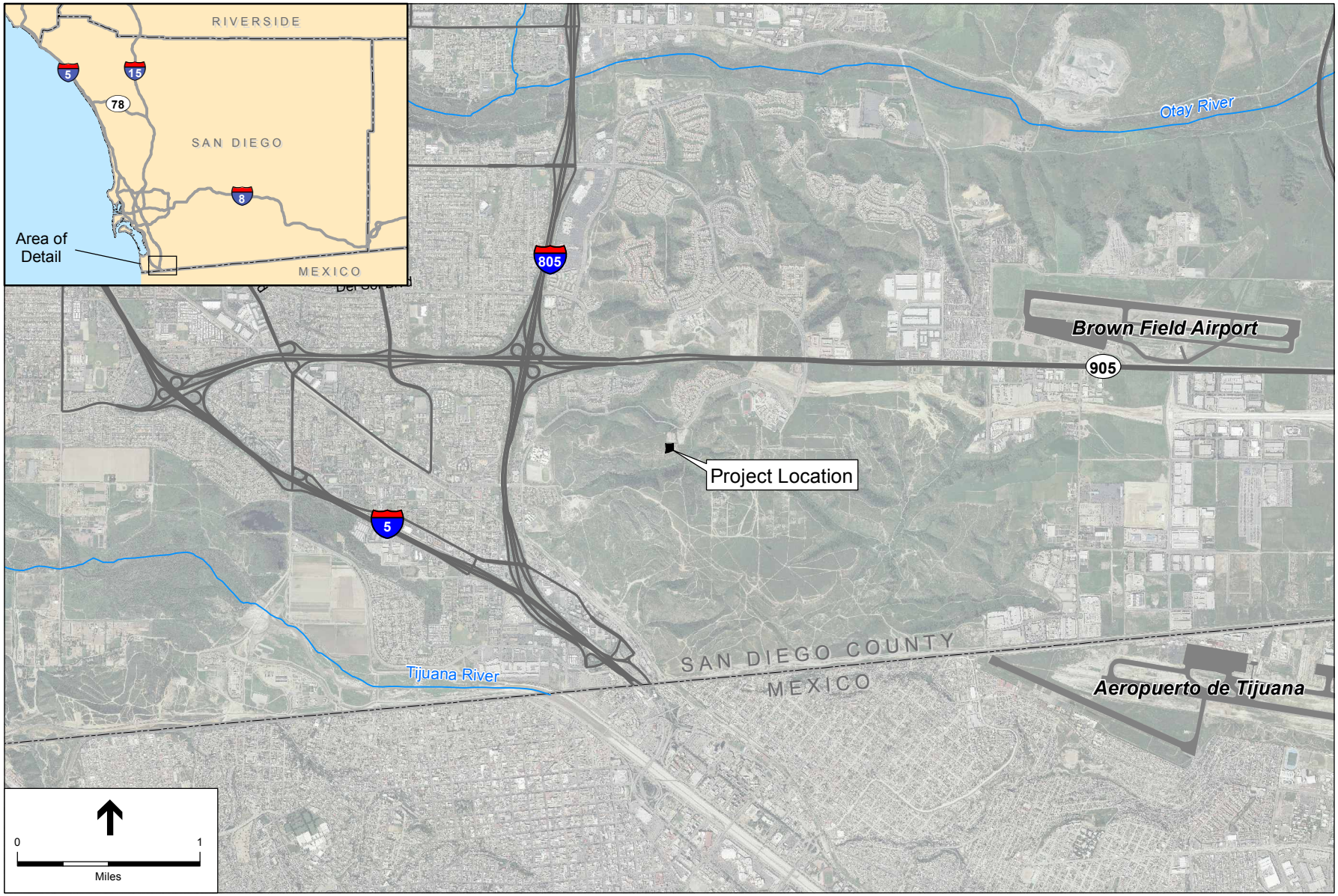
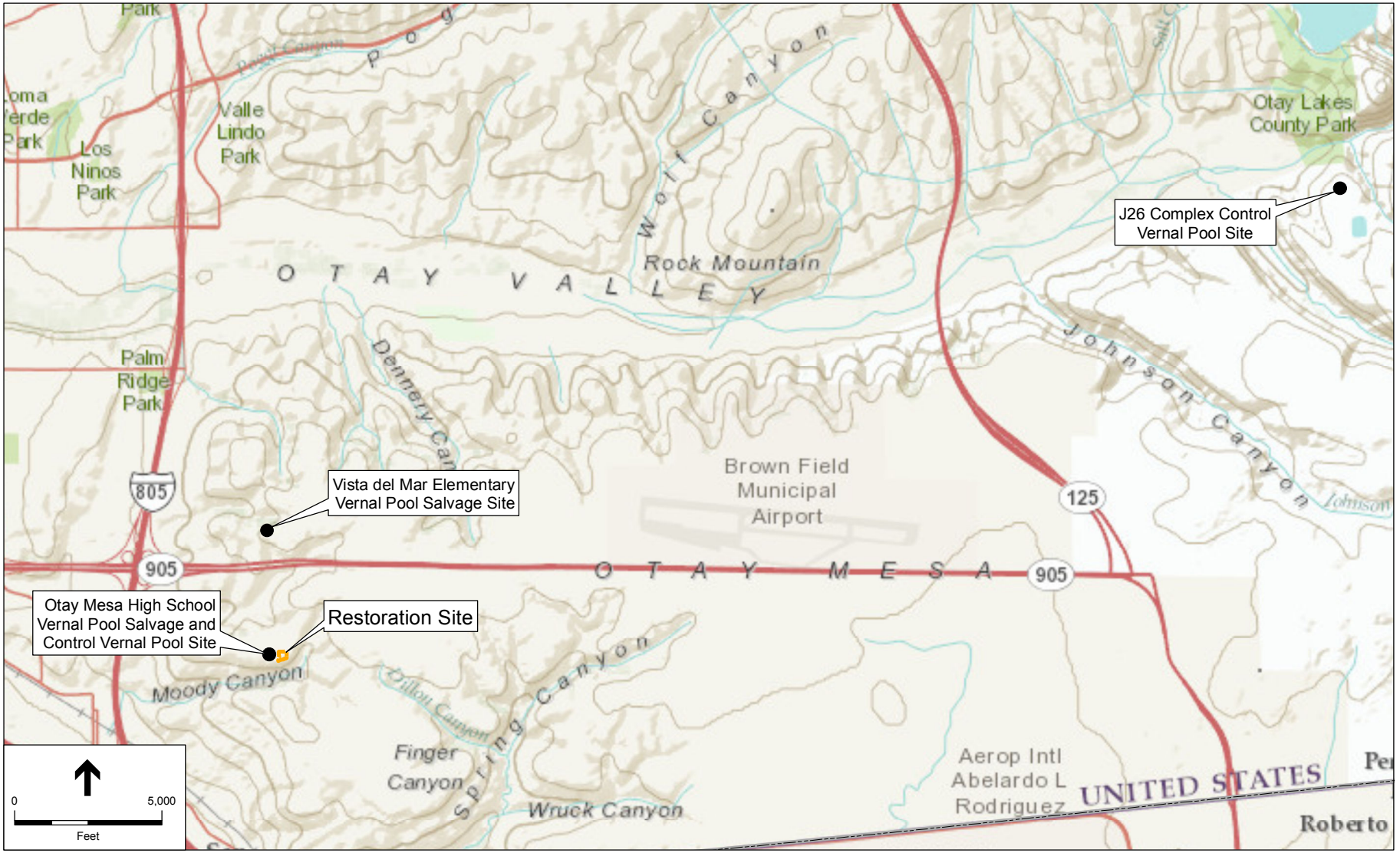


SOURCE: ESA, 2012.

Vista Del Mar Elementary School . 211685

Figure 1

Regional Location



SOURCE: USGS; RBF, 2012; ESA, 2012.

Vista Del Mar Elementary School . 211685

Figure 2
Site Map

SOURCE: Landiscor, 2010; RBF, 2012.

Vista Del Mar Elementary School . 211685

Figure 3

Presence of Fairy Shrimp within Restoration Pools

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December 17, 2014

Stacie Love
Recovery Permit Coordinator
Carlsbad Fish & Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Notice of intent to conduct wet season survey for San Diego fairy shrimp (*Branchinecta sandiegonensis*) on the Vista Del Mar vernal pool restoration site and reference sites on Otay Mesa in San Diego, CA.

Dear Ms. Love:

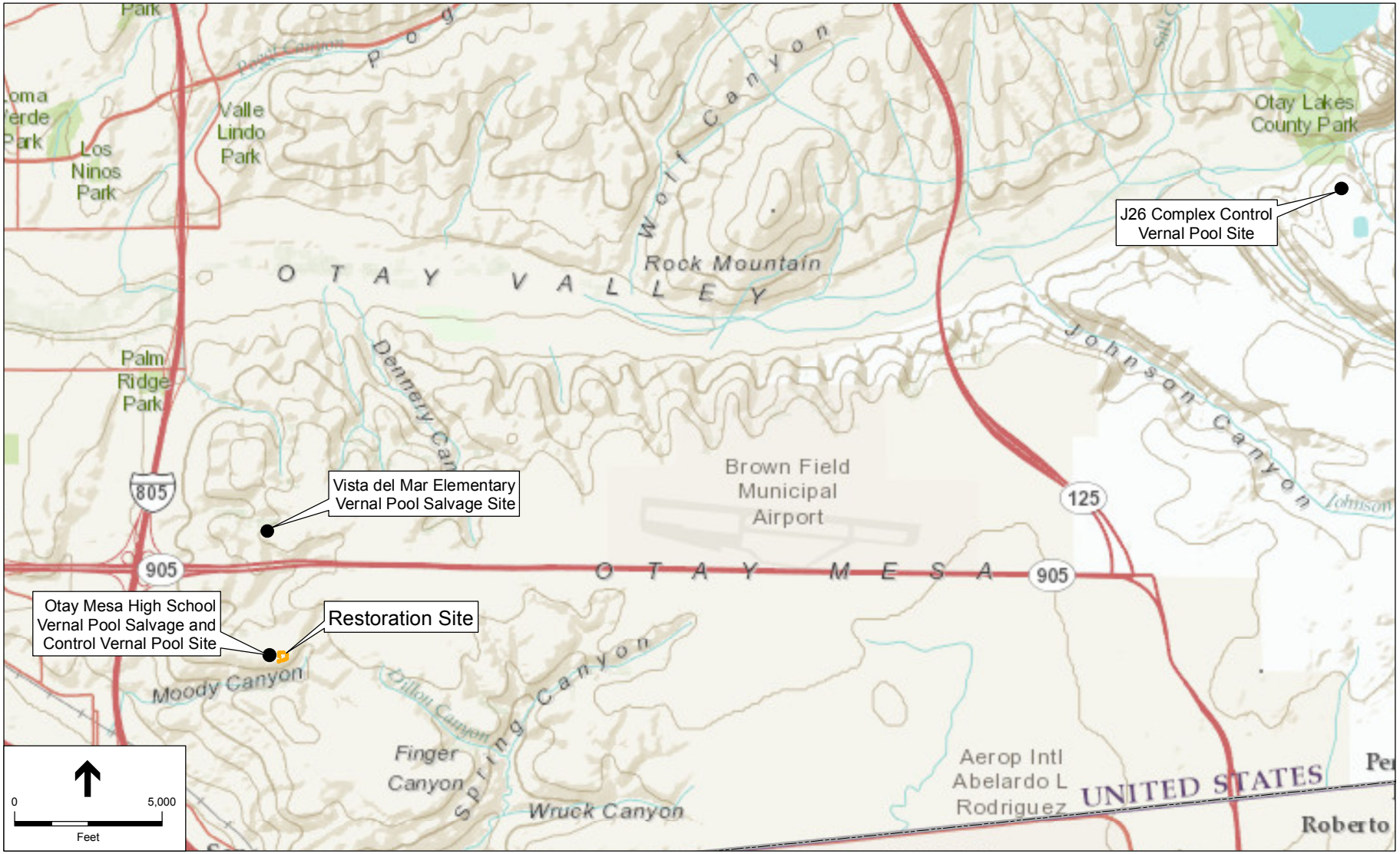
This letter serves as notification from Environmental Science Associates (ESA) of intent to conduct wet season surveys during the 2014/2015 wet season for the endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) as part of the on-going restoration monitoring on the Vista Del Mar vernal pool mitigation site on Otay Mesa in San Diego, California (Figure 1). The surveys will be conducted on behalf of the San Ysidro School District. The purpose of the sampling is to determine if fairy shrimp occupy vernal pools on the mitigation and reference sites, as a part of on-going restoration monitoring efforts (Figure 2). All mitigation site pools are known to contain fairy shrimp, either from previous wet season surveys or from restoration-related inoculations.

Surveys for the federally listed San Diego fairy shrimp will be conducted by Jim Rocks and/or Melanie Rocks under Recovery Permit Number TE-063230-4 and TE-082908-1, respectively. Surveys on the restoration site will occur within restored and enhanced vernal pools on the mitigation site (Figure 2). Surveys on the reference sites will include three pools at the San Ysidro High School restoration site adjacent to the Vista del Mar restoration site (Figure 3) and three pools at the J26 vernal pool complex (Figure 4). Surveys will be conducted pursuant to USFWS updated protocol for the survey of branchiopod species, and commence when the pools have held water long enough to allow for the identification of branchiopods to the species level. A single wet season survey will be conducted according to USFWS Interim Survey Guidelines (April 19, 1996). A voucher specimen will be collected from a single sampling location on the Vista Del Mar site as well as the two reference sites and submitted to the Los Angeles Natural History Museum. As required under the USFWS protocol for conducting San Diego fairy shrimp surveys, a written 10(a) report will be submitted to the USFWS Carlsbad Office within 45 days of completion of the final survey. Thank you for your consideration of this request. If you have any questions regarding this notice of intent, or if you would like additional information, please feel free to contact me at (619) 719-4200.

Sincerely,

Rosanne Humphrey

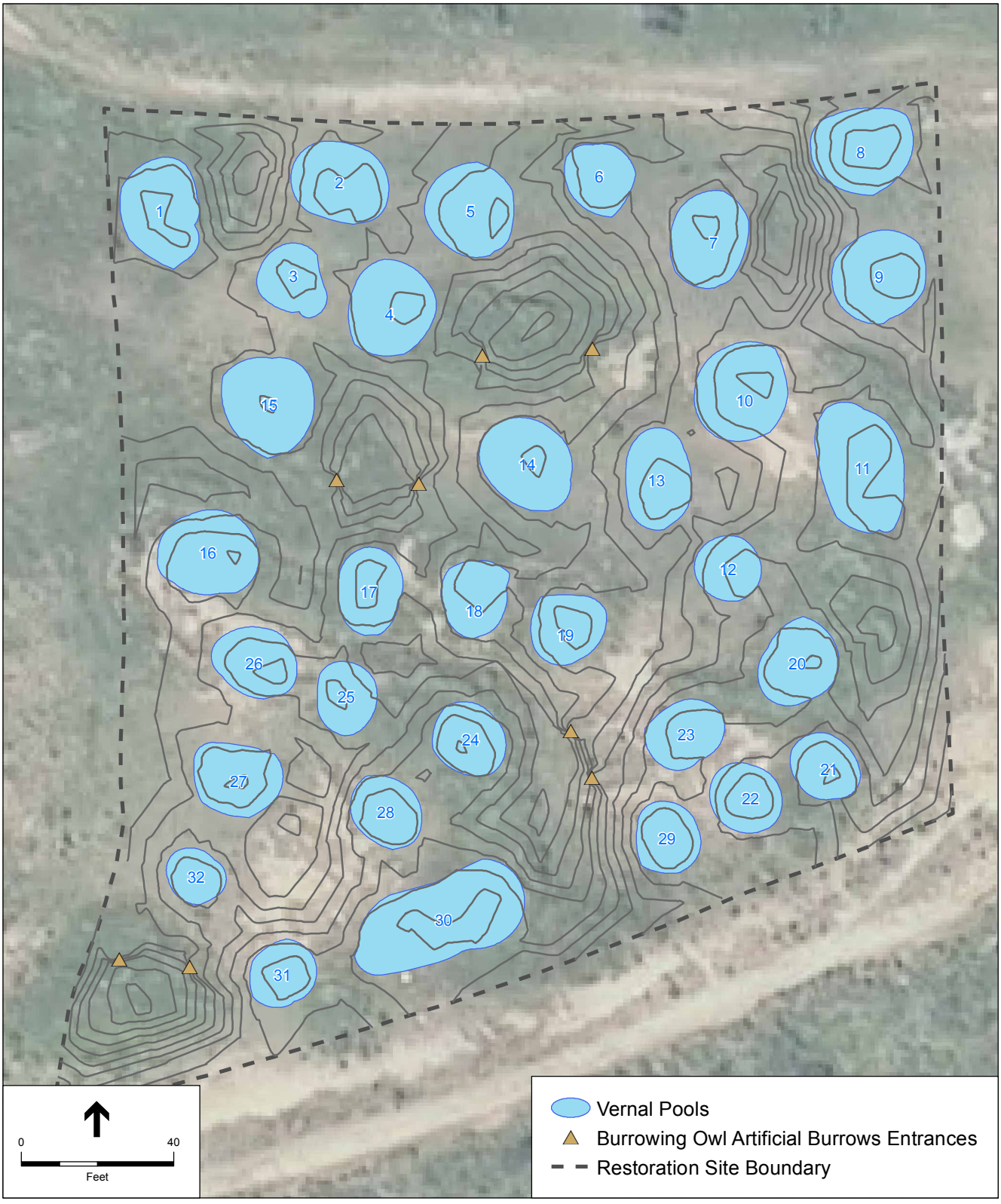
Senior Biologist
ESA | Biological Resources and Land Management



SOURCE: USGS; RBF, 2012; ESA, 2012.

Vista Del Mar Elementary School . 211685

Figure 1
Site Map



SOURCE: Landiscor, 2010; RBF, 2012.

Vista Del Mar Elementary School . 211685

Figure 2

As Built Vernal Pool Restoration

SOURCE: Landiscor, 2010; RBF, 2012; ESA, 2012.

Vista Del Mar Elementary School . 211685

Figure 3

San Ysidro High School Reference Vernal Pool

SOURCE: Landiscor, 2010; RBF, 2012; ESA, 2012.

Vista Del Mar Elementary School . 211685

Figure 4

J26 Complex Control Vernal Pools

Vernal Pool Restoration Area, December 2014

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Fairy Shrimp Survey Form

Surveyor Lee Ripma Add'l Person(s) Shannon Walsh

Project: Vista Del Mar Restoration Site Date: 16 December 2014 Survey 4 of 5

Start Time: 1050 Temp 57° Wind: 2-4 Cloud Cover: 100% **End** Time: 1345 Temp 58° Wind: 1-3 Cloud Cover: 100%

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-8	15.8	7cm	6	2	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-9	15.8	9cm	6	5	B. sandiegonensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-11	16	6cm	7	3	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-20	16.2	4cm	4	4	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-21	15.8	12cm	5	5	B. sandiegonensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Fairy Shrimp Survey Form—(continued)

Surveyor Lee Ripma Date 16 December 2014

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-22	15.5°	13cm	5	5	B. sandiegoensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-29	15.3°	16.5cm	8	5	B. sandiegoensis	5	4	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-23	16.1°	0.5cm	1	1	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-12	16.1°	6cm	4	4	B. sandiegoensis	6	3	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-10	16.2°	9cm	7	5	B. sandiegoensis	6	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-7	16.5°	10cm	7	4	B. sandiegoensis	6	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Additional Comments:

Fairy Shrimp Survey Form—(continued)

Surveyor Lee Ripma

Date 16 December 2014

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-6	17.1°	3cm	3	2	none	–	–	–

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-5	17.1°	7cm	6	5	none	–	–	–

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-4	16.9°	6cm	5	5	none	–	–	–

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-14	16.6°	8cm	10	6	B. sandiegonensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-13	17.3°	10 cm	7	6	B. sandiegonensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-19	17.1°	8cm	5	5	B. sandiegonensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Additional Comments:

Fairy Shrimp Survey Form—(continued)

Surveyor Lee Ripma

Date 16 December 2014

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-18	17.6°	5cm	4	4	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-24	16.8°	9cm	6	4	B. sandiegoensis	6	3	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-28	17.6°	5cm	4	3	B. sandiegoensis	2	2	10's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-30	17.6°	4.5cm	12	3	B. sandiegoensis	3	2	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments: possibly immature

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-31	18.3°	4.5cm	4	2	B. sandiegoensis	1	1	10's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments: shrimp are immature

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-32	17.7°	8cm	4	3	B. sandiegoensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Additional Comments: _____

Fairy Shrimp Survey Form—(continued)

Surveyor Lee Ripma Date 16 December 2014

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-27	18°	10cm	6	4	B. sandiegonensis	5	3	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-26	17.4°	10cm	5	4	B. sandiegonensis	4	2	100's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-25	17.8°	6cm	4	3	none	–	–	–

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-17	17.9°	9cm	6	5	B. sandiegonensis	5	2	1000's

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-16	18.5°	3.5cm	4	4	none	–	–	–

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-15	18.1°	3cm	5	3	none	–	–	–

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Additional Comments:

Fairy Shrimp Survey Form—(continued)

Surveyor: Lee Ripma

Date: 16 December 2014

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-3	18.1°	3cm	4	3	none	—	—	—

Pool condition (circle all): 1. undisturbed (circled) 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-2	18.1°	6cm	7	5	none	—	—	—

Pool condition (circle all): 1. undisturbed (circled) 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-1	17.9°	3cm	5	2	none	—	—	—

Pool condition (circle all): 1. undisturbed (circled) 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Additional Comments:

ROCKS
BIOLOGICAL CONSULTING

Fairy Shrimp Survey Form

Surveyor M. Rocks Add'l Person(s) S. Walsh

Project: Vista Del Mar Restoration Date: 12/31/2014 Survey ____ of ____

Start Time: 10:15 Temp 45 Wind: 0-2 Cloud Cover: 100% End Time: 1250 Temp 48° Wind: 1-3 Cloud Cover: 80%

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-8	11.2°	8 cm	6	2	B. sandiegonensis	4	2	1000s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-11	11.7°	4cm	8	2	B. sandiegonensis	3	3	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-20	12.1°	4cm	4	4	B. Sandiegonensis	5	2	1000s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-23	12.2°	1 cm	1	1	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-18	12.1	4	3	2	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

ROCKS
BIOLOGICAL CONSULTING

Fairy Shrimp Survey Form

Surveyor M. Rocks Add'l Person(s) S. Walsh

Project: Vista Del Mar Restoration Date: 12/3/2014 Survey ____ of ____

Start Time: ____ Temp ____ Wind: ____ Cloud Cover: ____ **End Time:** ____ Temp ____ Wind: ____ Cloud Cover: ____

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-6	12.1	4.5cm	3	2	B. sandiegonensis	4	2	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-5	11.8	5	6	3	B. sandiegonensis	5	2	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-2	11.8	5	5	5	B. sandiegonensis	5	4	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-4	11.8	5	5	4	B. sandiegonensis	5	2	1000s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-3	11.8	3	5	4	B. sandiegonensis	4	2	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

ROCKS
BIOLOGICAL CONSULTING

Fairy Shrimp Survey Form

Surveyor M. Rocks Add'l Person(s) S. Walsh

Project: Vista Del Mar Restoration Date: 12/31/2014 Survey ____ of ____

Start Time: ____ Temp ____ Wind: ____ Cloud Cover: ____ End Time: ____ Temp ____ Wind: ____ Cloud Cover: ____

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-1	11.9	2	4	2	B. sandiegonensis	3	3	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-15	11.6	3	5	3	B. sandiegonensis	4	2	1000s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-16	11.9	3	4	4	B. sandiegonensis	5	1	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-25	11.9	6	3	2	B sandiegonensis	5	1	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-31	12.4	5	4	2	B. sandiegonensis	3	3	100s

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

ROCKS
BIOLOGICAL CONSULTING

Fairy Shrimp Survey Form

Surveyor: M. ROCKS Add'l Person(s): S. Walsh

Project: Vista Del Mar Restoration Date: 12/31/2014 Survey ____ of ____

Start Time: ____ **Temp** ____ **Wind:** ____ **Cloud Cover:** ____ **End Time:** ____ **Temp** ____ **Wind:** ____ **Cloud Cover:** ____

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
VP-30	12.1°	5	12	3	B. sandiegonensis	3	2	1005

Pool condition (circle all): (1. undisturbed — circled) 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

ROCKS
BIOLOGICAL CONSULTING

Fairy Shrimp Survey Form

Surveyor Melanie ROCKS Add'l Person(s) Shannon Walsh

Project: Vista Del Mar Reference Pools Date: 12/31/2014 Survey ____ of ____

Start Time: 1250 Temp 48° Wind: 1-3 Cloud Cover: 80% End Time: 1310 Temp 48° Wind: 1-3 Cloud Cover: 80%

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
RefA-14	12.4	3	4	2	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
RefA-13	12.9	2	2	1	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
RefA-12	12.7	5	1	1	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
RefA-9	13.2°	4.5	5	3	none	—	—	—

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate

Pool condition (circle all): 1. undisturbed 2. disturbed (tire tracks garbage discing/plowing) 3. ungrazed 4. grazed (horses sheep) (light moderate heavy)
Additional Comments:

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.ca.gov

Date of Field Work (mm/dd/yyyy): 12/16/2014

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: Branchinecta sandiegonensis

Common Name: San Diego Fairy Shrimp

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 1000s Subsequent Visit? (●) Yes ( ) No

Is this an existing NDDB occurrence? 46 Yes, Occ. # ☐ No ☐ Unk.

Collection? If yes: _____ Number L.A. County Natural History Museu Museum / Herbarium

Reporter: Jim Rocks
Address: 5101 September St.
San Diego, CA 92110
E-mail Address: jim@rocksbio.com
Phone: 619 843-6640

Plant Information

Phenology:

_____ % vegetative _____ % flowering _____ % fruiting

Animal Information

1000 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☒ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ lek ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

The site is the Vista Del Mar School Vernal Pool Restoration Site, located just south of Otay Mesa Road, west of San Ysidro HS in southern San Diego County

County: San Diego Landowner / Mgr: San Ysidro School District

Quad Name: Imperial Beach Elevation: 150m

T___ R___ Sec___, ___¼ of ___ ¼, Meridian: H ( ) M ( ) S ( ) Source of Coordinates (GPS, topo. map & type): Google Earth

T___ R___ Sec___, ___¼ of ___ ¼, Meridian: H ( ) M ( ) S ( ) GPS Make & Model: _____

DATUM: **NAD27** ( ) **NAD83** ( ) **WGS84** (●) Horizontal Accuracy: _____ meters/feet

Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) ***OR*** Geographic (Latitude & Longitude) (●)

Coordinates: 32 33' 40.32" N 117 01' 36.06" W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

The site is a vernal pool creation and enhancement that includes 32 pools, with San Diego Fairy Shrimp as the target invertebrate species in the pools. SDFS was observed in 30 pools in 2014 and was the only fairy shrimp species observed. The population estimate in most pools was 1000s with a few pools numbering in the 10s or 100s. The site is surrounded by Diegan Coastal Sage Scrub, Native and Non-native Grassland, and Disturbed habitat.

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent (●) Good ( ) Fair ( ) Poor

Immediate AND surrounding land use: Mostly undeveloped mesas and canyons in immediate area with residential housing and schools

Visible disturbances: None observed

Threats: Minimal as the site is protected by fencing, but human disturbance always a possibility.

Comments: The site is being actively monitored and maintained at present and includes artificial burrows for Burrowing Owls and revegetation of immediately surrounding upland areas.

Determination: *(check one or more, and fill in blanks)*

- ☒ Keyed (cite reference): Fairy Shrimps of California. Erickson and Belk, 1999
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☒
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? (●) yes ( ) no