ESA Biological Resources

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June 6, 2014

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 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 in 2014 (Year 3), 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. Due to severe drought conditions in the region during the 2013/2014 rainy season, the reference pools never inundated sufficiently to support fairy shrimp; therefore, during the Year 3 monitoring period, the restoration area pools (Figure 3) were sampled only once during the season and the adjacent reference pools and J-26 reference pools (Figure 2) were not sampled. Sampling was conducted by Rocks Biological Consulting biologists Melanie Rocks (TE-082908-1) and Lee Ripma (TE# 221290-3) on March 14, 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 2013/2014 rainy season, southern San Diego County experienced severe drought conditions. Between October 2013 and May 2014, a total of only 5.01 inches fell, as compared to 14.26 inches based on average monthly precipitation rates (Table 1).

Table 1. Actual vs. Average Precipitation October 2013-May 2014

Month	Normal (in.)	Actual (in.)
October, 2013	0.82	0.90
November, 2013	1.13	0.8
December, 2013	2.27	0.55
January, 2014	2.98	0.08
February, 2014	3.23	1.24
March, 2014	2.69	0.75
April, 2014	0.96	0.68
May, 2014	0.18	0.01
TOTALS	**14.26**	**5.01**

Source: local climate data from the National Oceanic and Atmospheric Administration (NOAA)

During the current reporting period, one survey was conducted on March 14, 2014 within the restoration area. Out of the 32 vernal pools, only 14 pools (i.e., pool numbers 7, 9, 10, 12-14, 17, 19, 22, 24, 26, 27, 29, and 32) were sampled, as these were the only pools that held water for a sufficient depth and duration to support fairy shrimp. All pools within the adjacent San Ysidro High School site and J26 Complex reference sites did not inundate for a sufficient depth and duration to support fairy shrimp, and therefore were not sampled. The sampled pools within the restoration site varied in size from 0.5 to 12 square meters, with maximum depths ranging from 1.4 to 8.5 centimeters (Table 1). Water temperatures ranged from 21.0 to 23.9 degrees Celsius. All 14 of the sampled pools were found to support San Diego fairy shrimp (Table 2). One pool supported medium density (i.e., hundreds) of fairy shrimp and the remaining 13 pools supported high densities (i.e., thousands) of fairy shrimp. These densities are much higher than in the previous year, when sampling densities within inundated pools included very low densities (i.e., ones), low densities (i.e., tens), and medium densities (i.e., hundreds).

Table 2. Fairy Shrimp Data from March 14, 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				--			
2	Created				--			
3	Enhanced				--			
4	Enhanced				--			
5	Created				--			
6	Created				--			
7	Created	22.5	5.0	9.0	*B. sandiegonensis*	5	2	1000's
8	Created				--			
9	Created	21.4	1.75	1.5	*B. sandiegonensis*	4	3	100's
10	Created	21.0	2.0	6.0	*B. sandiegonensis*	4	0	1000's
11	Enhanced				--			
12	Created	21.4	1.4	0.05	*B. sandiegonensis*	9	0	1000's
13	Created	22.1	3.5	6.0	*B. sandiegonensis*	3	2	1000's
14	Created	22.2	1.75	1.5	*B. sandiegonensis*	8	2	1000's
15	Created				--			
16	Enhanced				--			
17	Enhanced	23.9	4.0	6.0	*B. sandiegonensis*	5	1	1000's
18	Enhanced				--			
19	Enhanced	22.1	5.25	6.0	*B. sandiegonensis*	5	0	1000's
20	Enhanced				--			
21	Enhanced				--			
22	Created	21.9	4.0	10.5	*B. sandiegonensis*	3	2	1000's
23	Created				--			
24	Enhanced	22.2	3.0	6.0	*B. sandiegonensis*	4	1	1000's
25	Enhanced				--			
26	Enhanced	23.4	3.75	2.0	*B. sandiegonensis*	5	1	1000's
27	Created	21.6	2.5	4.0	*B. sandiegonensis*	6	2	1000's
28	Created				--			
29	Created	20.5	8.5	12.0	*B. sandiegonensis*	5	0	1000's
30	Enhanced				--			
31	Created				--			
32	Created	22.1	2.5	6.0	*B. sandiegonensis*	3	3	1000's

The USFWS Vernal Pool Data Sheets for Wet Season Surveys (USFWS, 1996) are attached to this report and summarized in Table 2. 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 or concerns 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: Vicinity Map
- Figure 3: Fairy Shrimp Presence & Density within Restoration Area Pools

10-Day Notification Letter
Representative 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.

ROCKS
BIOLOGICAL CONSULTING

U.S. Fish and Wildlife Service
Attn: Ms. Stacey Love
Carlsbad Fish and Wildlife Office
2177 Salk Ave., Ste. 250
Carlsbad, CA 92008

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

Sincerely,

Lee Ripma
Permit Number TE-221290-3

Melanie Rocks
Permit Number TE-082908-0

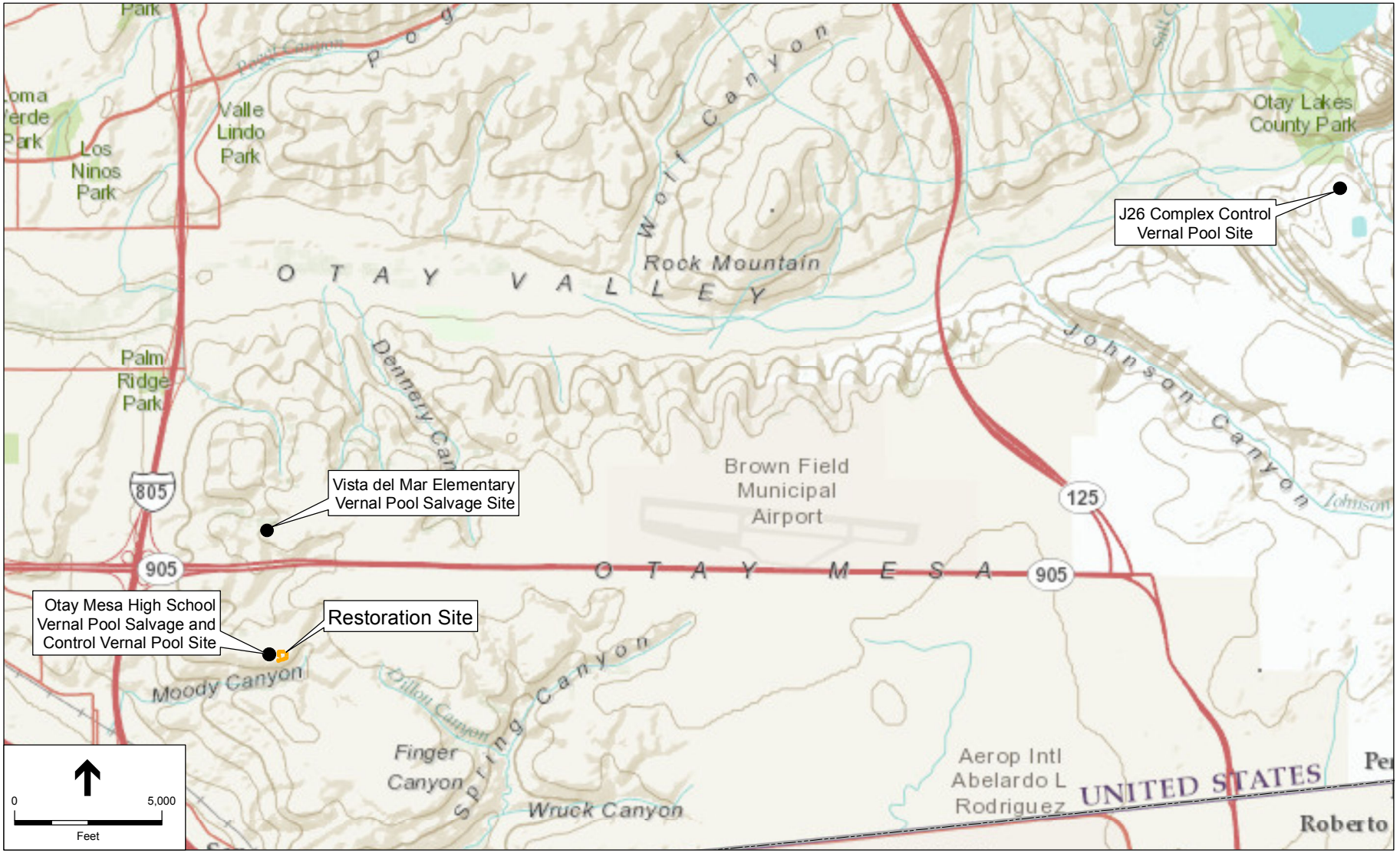
5101 SEPTEMBER STREET ● SAN DIEGO, CA 92110-1118
PH: 619-508-3803 ● E-MAIL: LEE@ROCKSBIO.COM

SOURCE: Landiscor, 2010; ESRI

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; ESA, 2014

Vista Del Mar Elementary School . 211685

Figure 3

Presence of Fairy Shrimp within Restoration Pools

November 21, 2013

Susie Tharratt
Acting Division Chief, Listing & Recovery
Carlsbad Fish & Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

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. Tharratt:

This letter serves as notification from Environmental Science Associates (ESA) of intent to conduct wet season surveys during the 2013/2014 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, and by Brian Lohstroh under Recovery Permit Number TE-063608-5. ESA's Joseph Henry and Dallas Pugh, permit candidates with appropriate training, will assist as needed. Surveys on the restoration site will occur within restored and enhanced vernal pools on the mitigation site, as well as a single road rut pool adjacent to the Vista Del Mar 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 (858) 768-7896.

Sincerely,

Christina Schaefer

Director of Biological Resources and Land Management
ESA | Biological Resources and Land Management
9191 Towne Centre Drive, Suite 340
San Diego, CA 92122
858.768.7896
cschaefer@esassoc.com
www.esassoc.com

Vernal Pool Restoration Area, March 2014

Rocks Biological Consulting, Inc.
Fairy Shrimp Survey Form

Surveyor Lee Ripma Add'l Person(s) Melanie Rocks

Project: ESA Vista Del Mar Date: 3.14.14 Survey 1 of

Start Time: 1100 Temp 76.2 Wind: 0-2 Cloud Cover: 0 **End** Time: 1225 Temp 77 Wind: 2-5 Cloud Cover: 0

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
9	21.4	1.75	1.5	1	B. sandiegonensis	4	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: restoration site

Pool #	Water (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male	# Female	Population Estimate
7	22.5	5	3	3	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
10	21	2	3	2	B. sandiegonensis	4	0	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
13	22.1	3.5	3	2	B. sandiegonensis	3	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
12	21.4	1.4	1	0.5	B. sandiegonensis	9	0	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: drying, very reduced

Fairy Shrimp Survey Form—(continued)

Surveyor Lee Kipma & M. Rocks

Date 3·14·14

Pool #	Water Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
22	21.9	41	3.5	3	B. sandiegonensis	3	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 Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
29	20.5	8.5	4	3	B. sandiegonensis	5	0	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 Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
19	22.1	5.25	3	2	B. sandiegonensis	5	0	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 Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
24	22.2	3	3	2	B. sandiegonensis	~~3~~ 4	1	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:

Additional Comments:

Fairy Shrimp Survey Form—(continued)

Surveyor Lee Ripma & M. Rocks

Date 3.14.14

Pool #	Water Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
32	22.1	2.5	3	2	B. sandiegonensis	3	3	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 Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
27	21.6	2.5	2	2	B. sandiegonensis	6	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 Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
26	23.4	3.75	2	1	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 Temp. (°C)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
17	23.9	4	3	2	B. sandiegonensis	5	1	

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 & M. Rocks

Date 3.14.14

Pool #	Water Temp. (ºC)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)
14	22.2	1.75	1.5	1	B. sandiegonensis	8	2	

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 Temp. (ºC)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)

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 Temp. (ºC)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)

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 Temp. (ºC)	Max. depth (cm)	Pool length (m)	Pool width (m)	Fairy Shrimp Present (Species)	# Male (♂)	# Female (♀)	Population Estimate (order of magnitude)

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:

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): 03/14/2014

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

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Branchinecta sandiegonensis*

Common Name: San Diego Fairy Shrimp

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 1000's Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

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

Reporter: Melanie Rocks
Address: 5101 September St.
San Diego, CA 92110
E-mail Address: Melanid@rocksbio.com
Phone: (619) 843-6640

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

1,000 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

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

The site is called the Vista Del Mar School Vernal Pool Restoration Site just south of Otay Mesa Road, west of San Ysidro High School 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 Eart

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 14 pools in 2014 and was the only fairy shrimp species observed. The population estimate in most pools was 1000s with one pool numbering in the 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 adjacent.

Visible disturbances: None observed

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

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

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

☑ Keyed (cite reference): airy 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 ☐