



June 1, 2016

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

Subject: 90-Day Wet Season Results, Vernal Pool Branchiopod Surveys at the Sycamore Canyon Business Park Warehouse Project, Riverside County, California

Ms. Love:

This letter presents the results of wet season vernal pool branchiopod (fairy shrimp) surveys at the Sycamore Canyon Business Park Warehouse Project site (project site) in Riverside County, California. Surveys were conducted at one artificially created area that holds water in the southern portion of the project site. The ponded area was created as part of a previous sand and gravel operation and is located in an otherwise upland area. *Branchinecta lindahli* was the only fairy shrimp species identified in this pool. Wet season survey results were negative for all federally-listed endangered or threatened fairy shrimp species at the project site.

Introduction

The approximately 72-acre Sycamore Canyon Business Park Warehouse Project site is located in Riverside County, California (Figure 1). The United States Geological Survey (USGS) 7.5' Quadrangle (Quad) is Riverside East within Section 4 (Figure 2). The project site is specifically located north of Sierra Ridge Drive, south of Sutherland Drive, east of Sycamore Canyon Wilderness, and west of Sycamore Canyon Boulevard. One artificially created area on the site impounds water seasonally (Figure 3). It was created as part of a previous sand and gravel operation and is located in an otherwise upland area. (See site photographs, Attachment A.)

Methods

Survey methodology followed the U.S. Fish and Wildlife Service (USFWS) Survey Guidelines for Listed Large Branchiopods (Guidelines), dated May 31, 2015, for wet season surveys. Surveys were conducted from October 19, 2015 to May 17, 2016. After initial inundation, the pool was sampled at 7-day intervals until dry, and sampling was reinitiated within 7 days of the pool becoming re-inundated. Sampling was conducted by Rocks Biological Consulting biologists Jim Rocks (TE-063230-4), Brian Lohstroh (TE-063608-5), Melanie Rocks (TE-082908-1), Lee Ripma (TE-221290-3), and Marty Lewis (authorized individual TE-221290-3). Data collected included average and maximum water depth, water and air temperature, pool length, pool width, degree and form of disturbance, a population estimate of any fairy shrimp present, and observations of any other pool-dwelling species. The pool was sampled using a hand-held net, which was swept through the water, and the net contents were examined for invertebrates. If fairy shrimp were captured, several mature individuals of both sexes were collected, as feasible, and preserved. Upon completion of the sampling survey, the collected specimens were identified using a dissecting scope and the dichotomous key written by Eriksen and Belk (1999). The collected

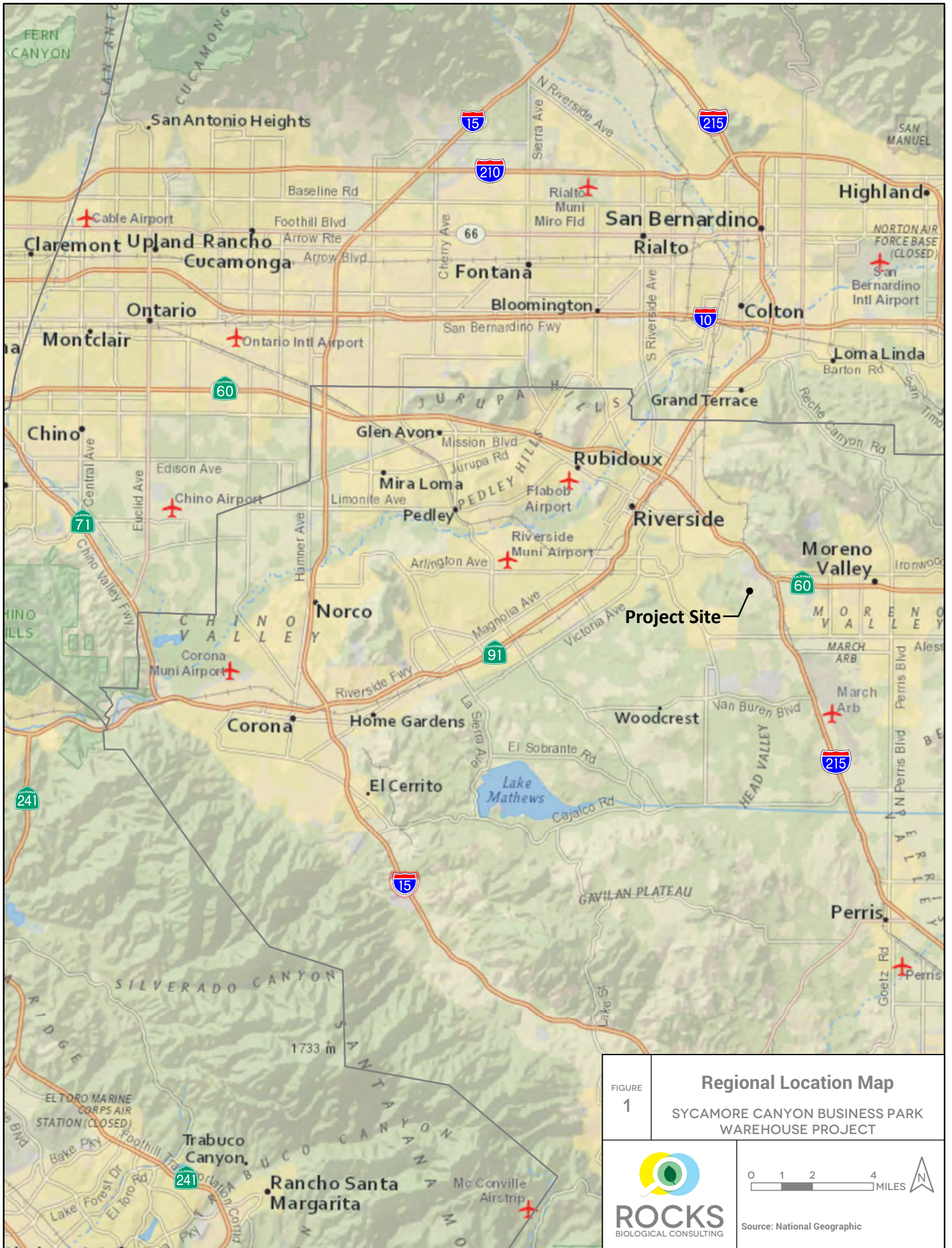


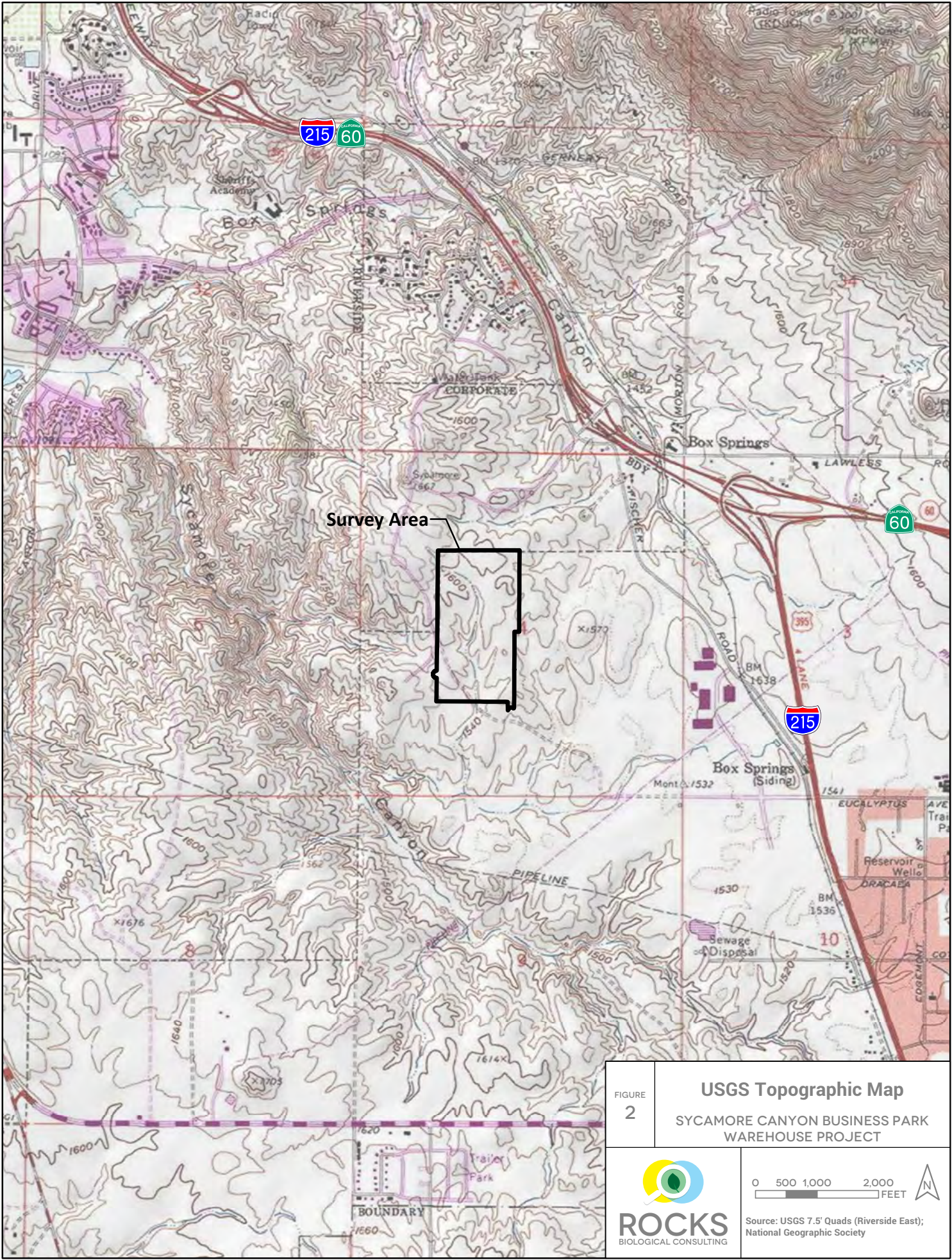
FIGURE
1

Regional Location Map

SYCAMORE CANYON BUSINESS PARK
WAREHOUSE PROJECT



Source: National Geographic



Survey Area

FIGURE
2

USGS Topographic Map
 SYCAMORE CANYON BUSINESS PARK
 WAREHOUSE PROJECT



Source: USGS 7.5' Quads (Riverside East);
 National Geographic Society





 Project Boundary
 Seasonally Poned Area

FIGURE
3

Survey Results

SYCAMORE CANYON BUSINESS PARK
WAREHOUSE PROJECT



Source: Google 2016

voucher specimens will be accessioned to the Los Angeles Natural History Museum, Crustacea Section, Invertebrate Zoology, 900 Exposition Boulevard, Los Angeles, California 90007. The sampling results are summarized in Table 1 below. Full survey results are included as Attachment B to this report.

Results

Fairy shrimp were collected from the pool during 10 of the 28 surveys. All individuals were identified as the versatile fairy shrimp (*Branchinecta lindahli*), a common non-listed species, aside from the immature (Nauplii) that were unidentifiable. No other *Branchinecta* species or *Streptocephalus* species were found during the survey.

Table 1: Fairy Shrimp (FS) Survey Results for Sycamore Canyon Business Park Warehouse Project

Survey Number	Date	Max Water Depth (cm)	FS Species Observed
1	10/19/15	45	None
2	10/26/15	25	None
3	11/2/15	13	None
4	11/9/15	35	None
5	11/16/15	20	None
6	11/23/15	7	None
7	11/30/15	DRY	None
8	12/16/15	DRY	None
9	12/29/15	6	Immature (Nauplii)
10	1/4/16	DRY	None
11	1/11/16	50	None
12	1/19/16	40	<i>Branchinecta lindahli</i>
13	1/26/16	25	<i>Branchinecta lindahli</i>
14	2/2/16	37	<i>Branchinecta lindahli</i>
15	2/9/16	32	<i>Branchinecta lindahli</i>
16	2/16/16	25	<i>Branchinecta lindahli</i>
17	2/23/16	20	<i>Branchinecta lindahli</i>
18	3/1/16	15	<i>Branchinecta lindahli</i>
19	3/8/16	12	<i>Branchinecta lindahli</i>
20	3/15/16	13	None
21	3/23/16	3	None
22	3/30/16	2	None
23	4/5/16	DRY	None
24	4/19/16	10.5	<i>Branchinecta lindahli</i>
25	4/26/16	18.5	None
26	5/3/16	11.5	<i>Branchinecta lindahli</i>
27	5/10/16	9	None
28	5/17/16	DRY	None

Conclusion

The artificially created ponding area on the project site contains only the common fairy shrimp species *Branchinecta lindahli*. Wet season survey results were negative for all federally-listed endangered or threatened fairy shrimp species at the Sycamore Canyon Business Park Warehouse project site.

Please don't hesitate to contact us at (619) 508-3803 if you have any questions.

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

Sincerely,



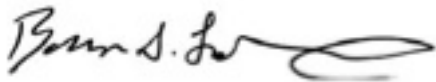
Lee Ripma
Senior Biologist
Permit Number TE-221290-3.2



Melanie Rocks
Principal Biologist
Permit Number TE-082908-1



Jim Rocks
Principal Biologist
Permit Number TE-063230-4



Brian Lohstroh
Biologist
Permit Number TE-063608-5

Attachments: Figure 1 – Regional and Vicinity Map
Figure 2 – USGS Topographic Map
Figure 3 – Project Site Jurisdictional Delineation Map
Attachment A – Site Photographs
Attachment B – Full Survey Results

References

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

U.S. Fish and Wildlife Service. 2015. Survey Guidelines for Listed Large Branchiopods. May 31, 2015.

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). 2003. Section 6.1.2 Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools.

Attachment A
Project Site Photographs



Photo 1. Overview (west) of the ponded area that holds water and the surrounding habitat.
(Photo by BL – 02/09/16)



Photo 2. View (east) of the ponded area during the fourth protocol survey (Photo by LR –
11/09/15)



Photo 3. View (northwest) of the ponded area during the fourteenth protocol survey (Photo by BL – 02/09/16)



Photo 4. View (southwest) of the ponded area and the surrounding vegetation (Photo by ML – 03/15/16)



Photo 5. View (north) of the ponded area during protocol survey (Photo by ML - 04/19/16)



Photo 6. View (north) of the ponded area that was dry during protocol survey (Photo by ML - 05/17/16)

Attachment B

Full Fairy Shrimp (FS) Survey Results for Sycamore Canyon Business Park Warehouse Project

Number	Date	Surveyor (Permit #)	Time (Start-End)	Pool Temp ° C	Max Depth (cm)	Area (m ²)	FS Species Observed	Population Estimate	Notes
1	10/19/15	Brian Lohstroh (TE-063608-5)	1240-1330	23	45	270	None	None	No fairy shrimp.
2	10/26/15	Brian Lohstroh (TE-063608-5)	1030-1130	17	25	270	None	None	No fairy shrimp.
3	11/2/15	Brian Lohstroh (TE-063608-5)	1000-1045	16.5	13	168	None	None	No fairy shrimp.
4	11/9/15	Lee Ripma (TE-221290-3.2)	1100-1140	19.7	35	63	None	None	Drizzle, two great egrets foraging in pool.
5	11/16/15	Lee Ripma (TE-221290-3.2)	1330-1410	7	20	30	None	None	Pool drying, frog calling.
6	11/23/15	Brian Lohstroh (TE-063608-5)	0950-1030	20.8	7	.005	None	None	Pool nearly dry, just footprint puddles.
7	11/30/15	Lee Ripma (TE-221290-3.2)	1200-1240	DRY	DRY	DRY	None	None	No fairy shrimp.
8	12/16/15	Jim Rocks (TE-063230-4)	1150-1210	DRY	DRY	DRY	None	None	No fairy shrimp.
9	12/29/15	Brian Lohstroh (TE-063608-5)	0950-1020	4.5	6	15.75	Immature (Nauplii)	Immature (Nauplii)	Wet. Thin layer of ice on pool surface. Fairy shrimp were present as Nauplii (unidentifiable).
10	1/4/16	Lee Ripma (TE-221290-3.2)	1100-1130	DRY	DRY	DRY	None	None	No fairy shrimp.
11	1/11/16	Lee Ripma (TE-221290-3.2)	1530-1615	11.9	50	5500	None	None	Pool very full! No fairy shrimp or much of anything living.

12	1/19/16	Lee Ripma (TE-221290-3.2)	1150-1220	20.9	40	4500	<i>B. lindahli</i>	1000's	Voucher taken
13	1/26/16	Lee Ripma (TE-221290-3.2)	1400-1440	17.9	25	700	<i>B. lindahli</i>	1000's	Voucher taken, collecting focused on deepest portions of pool to target Riverside fairy shrimp.
14	2/2/16	Brian Lohstroh (TE-063608-5)	1350-1445	10.3	37	672	<i>B. lindahli</i>	1000's	Voucher taken, collecting focused on deepest portions of pool to target Riverside fairy shrimp.
15	2/9/16	Brian Lohstroh (TE-063608-5)	1015-1100	14.4	32	320	<i>B. lindahli</i>	10000's	Voucher taken.
16	2/16/16	Melanie Rocks (TE-082908-1)	1200-1245	15	25	195	<i>B. lindahli</i>	1000's	Voucher taken.
17	2/23/16	Brian Lohstroh (TE-063608-5)	1045-1130	15.2	20	208	<i>B. lindahli</i>	100's	Voucher taken.
18	3/1/16	Lee Ripma (TE-221290-3.2)	1500-1545	28.2	15	96	<i>B. lindahli</i>	100's	8 vouchers taken, population much less than previous surveys.
19	3/8/16	Lee Ripma (TE-221290-3.2)	1600-1630	24.0	12	110	<i>B. lindahli</i>	10's	Only one fairy shrimp found.
20	3/15/16	Marty Lewis (authorized individual TE- 221290-3.2)	0930-0958	13.8	13	42	None	None	No fairy shrimp.
21	3/23/16	Marty Lewis (authorized individual TE-)	0955-1015	13.3	3	18	None	None	No fairy shrimp.

		221290-3.2)							
22	3/30/16	Marty Lewis (authorized individual TE- 221290-3.2)	1135-1145	26.0	2	2	None	None	No fairy shrimp.
23	4/5/16	Marty Lewis (authorized individual TE- 221290-3.2)	1035-1045	DRY	DRY	DRY	None	None	No fairy shrimp.
24	4/19/16	Marty Lewis (authorized individual TE- 221290-3.2)	1300-1330	28.6	10.5	64	<i>B. lindahli</i>	1000s	Voucher taken.
25	4/26/16	Marty Lewis (authorized individual TE- 221290-3.2)	1125-1155	21.1	18.5	169	None	None	No fairy shrimp.
26	5/3/16	Marty Lewis (authorized individual TE- 221290-3.2)	1020-1045	24	11.5	80	<i>B. lindahli</i>	1000s	Voucher taken.
27	5/10/16	Marty Lewis (authorized individual TE- 221290-3.2)	0915-0935	17.6	9	42	None	None	No fairy shrimp.
28	5/17/16	Marty Lewis (authorized individual TE- 221290-3.2)	1050-1100	DRY	DRY	DRY	None	None	No fairy shrimp.