Subject: 2016 Focused Coastal California Gnatcatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Dear Ms. Love:

This report documents the results of protocol-level presence/absence surveys for the federally listed threatened coastal California gnatcatcher (*Poliopitila californica californica*) (CAGN). The surveys were conducted in support of the Pure Water San Diego Program North City Project (North City Project), located in the County of San Diego, California. The North City Project is the first phase of the City of San Diego’s Public Utilities Department (PUD) proposed program to provide a safe, secure, and sustainable local drinking water supply for San Diego. The North City Project consists of the design and construction of a new advanced water treatment facility, expansion of a wastewater treatment facility, pump stations, transmission lines, and pipelines. The Project site contains approximately 575 acres of potentially CAGN-suitable habitat that were surveyed in 2016.

CAGN is a federally listed threatened species and a California Department of Fish and Wildlife (CDFW) Species of Special Concern. It is closely associated with coastal sage scrub habitat, and is thereby threatened primarily by loss, degradation, and fragmentation of this habitat. CAGN typically occurs below 820 feet above mean sea level (amsl) within 22 miles of the coast and 1,640 feet amsl for inland regions (Atwood and Bolsinger 1992). Studies have suggested that CAGN avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). CAGN is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

LOCATION AND EXISTING CONDITIONS

North City Project pipelines extend through the cities of San Diego, Santee, and the community of Lakeside in unincorporated San Diego County, in addition to federal lands within MCAS Miramar (Figure 1, Regional Map). CAGN surveys were being conducted on MCAS Miramar in...
2016 as part of their yearly monitoring. Following consultation with the U.S. Fish and Wildlife Service (USFWS), it was determined that additional surveys as part of this project were not required in suitable habitat areas of the project that overlapped with MCAS Miramar. Results of 2016 focused CAGN surveys on MCAS Miramar will be submitted to USFWS separately by MCAS Miramar biologists.

The Project site occupies portions of Township 14 South, Range 1 East, projected Sections 30 and 31; Township 14 South, Range 1 West, projected Sections 25 and 36; Township 14 South, Range 2 West, projected Sections 32, and 33; Township 15 South, Range 1 East, projected Sections 6 and 18; Township 15 South, Range 1 West, projected Sections 1, 23, and 30; Township 15 South, Range 2 West, projected Sections 6, 25, 29, 30, 31, 32, 33, 35, and 36; Township 15 South, Range 3 West, projected Sections 6, 25, 29, 30, 31, 32, 33, 35, and 36; Township 16 South, Range 1 East, projected Sections 6 and 18; Township 16 South, Range 1 West, projected Sections 1, 23, and 30; Township 16 South, Range 2 West, projected Sections 1, 2, 3, and 4; and Township 16 South, Range 3 West, projected Section 9 on the San Vicente Reservoir, El Cajon, La Mesa, Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).

Elevations range from about 94 feet amsl in the southwestern portion of the Project site to approximately 688 feet amsl.

Soils within the Project site consist of acid igneous rock land; Altamont clay; Carlsbad-Urban Land complex, Chesterton fine sandy loam; Chesterton-Urban Land complex; Ciebeba rocky and very rocky coarse sandy loam, Ciebeba-Fallbrook rocky sandy loam; Diablo clay; Diablo-Olivenhain complex; Diablo-Urban land complex; Fallbrook sandy loam; Fallbrook-Vista sandy loam; Friant rocky fine sandy loam; Gaviota fine sandy loam; gravel pits; Huerhuero loam; metamorphic rock land; Olivenhain cobbly loam; Ramona sandy loam; Redding cobbly and gravelly loam; Redding-Urban land complex; riverwash; Salinas clay loam; stony land; terrace escarpments; Tujunga sand; and Visalia sandy loam (SanGIS 2016).

**VEGETATION COMMUNITIES**

Based on species composition and general physiognomy, three vegetation communities with primary constituent element habitats (included restored and disturbed communities) suitable for CAGN were identified on the Project site and off-site mapping areas. Their acreages are presented in Table 1.

The entire project alignment includes approximately 847 acres of CAGN-suitable habitat were mapped on the Project site according to Holland (1986) and Oberbauer (2008). Approximately 517 acres of the CAGN-suitable habitat was surveyed on the Project site (due to exclusions and inaccessible private property).
Vegetation acreages are presented in Table 1, and primary constituent element habitats suitable for CAGN are described following the table.

Table 1
Coastal California Gnatcatcher-Suitable Vegetation Communities on the North City Project Site

<table>
<thead>
<tr>
<th>Total Vegetation Community/Land Cover</th>
<th>Total Acres*</th>
<th>Total Surveyed Acres*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diegan Coastal Sage Scrub</td>
<td>638.4</td>
<td>422.3</td>
</tr>
<tr>
<td>Diegan Coastal Sage Scrub-Restored</td>
<td>16.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Diegan Coastal Sage Scrub-Disturbed</td>
<td>155.8</td>
<td>78.0</td>
</tr>
<tr>
<td>Diegan Coastal Sage Scrub: Baccharis-Dominated</td>
<td>32.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Diegan Coastal Sage Scrub: Baccharis-Dominated-Disturbed</td>
<td>4.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Grand Total</td>
<td>847.3</td>
<td>517.4</td>
</tr>
</tbody>
</table>

Note:  
* The difference in total acres and surveyed acres is due to restricted access to private property and MCAS Miramar lands.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.)—with scattered evergreen shrubs, including laurel sumac (*Malosma laurina*). Diegan coastal sage scrub occupies 638.4 acres in many patches within undisturbed areas, and an additional 16.0 acres of restored Diegan coastal sage is located in two portions on site, including south of the San Vicente Reservoir and a small patch south of Miramar Road. In addition, 155.8 acres of disturbed Diegan coastal sage scrub occur in several areas, with the majority located north of Miramar Road and east of Interstate 805 (I-805).

Diegan Coastal Sage Scrub—Baccharis-Dominated

Diegan coastal sage scrub—Baccharis-dominated is similar to Diegan coastal sage scrub but dominated by *Baccharis* species (desert broom (*B. sarothroides*) and/or coyotebrush (*B. pilularis*)) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County. Approximately 32.4 acres of Diegan coastal sage scrub—Baccharis-dominated, and an additional 4.7 acres of disturbed Diegan coastal sage scrub—Baccharis-dominated vegetation throughout the study area.
METHODS

Dudek conducted a desktop CAGN-habitat suitability assessment of all coastal sage scrub habitat within the Project site. A number of areas were excluded from surveys due to the patch size being too small and/or isolated to support CAGN or the patch was buffered from the construction footprint by residential or commercial buildings. A number of areas were also excluded from the surveys as access permission was not provided by the landowner.

Focused surveys for CAGN were performed within the Project site between May 18 and July 7, 2016, by permitted biologists Jeff Priest, Tricia Wotipka, Kam Muri, Brenna Ogg, and Brian Lohstroh (Table 2). Non-permitted biologists Shelly Lawrence and Johanna Page accompanied CAGN-permitted biologists as passive observers, which included sitting quietly with little or no movement for prolonged periods while studying CAGN movements with binoculars and listening carefully to vocalizations. The surveys were conducted following the currently accepted USFWS Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol (USFWS 1997), using the breeding season survey methods. The majority of the Project alignment overlaps with the City of San Diego’s Multiple Species Conservation Program Subarea Plan, with the exception of those portions of the alignment in the City of Santee and community of Lakeside, California. The survey included three visits at a minimum of 7-day intervals. Survey routes are shown in Figure 3.

Survey routes completely covered all accessible areas of suitable CAGN habitat on site. Appropriate birding binoculars (7 x 35 to 10 x 50 power) were used to aid in detecting and identifying bird species. The survey conditions were within protocol limits, as shown in Table 2. A recording of vocalizations was used frequently to elicit a response from the species. The recording was played approximately every 50 to 100 feet, and when a CAGN was detected, the playing of the recording ceased to avoid harassment. Two additional surveys were conducted in August and September to review habitat conditions for CAGN.

Table 2
Survey Conditions

<table>
<thead>
<tr>
<th>Survey Pass</th>
<th>Survey Area</th>
<th>Date</th>
<th>Time</th>
<th>Personnel</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>05/18/2016</td>
<td>6:00 AM–12:00 PM</td>
<td>JP</td>
<td>60°F–72°F; 20%–100% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>05/19/2016</td>
<td>7:00 AM–12:00 PM</td>
<td>JP</td>
<td>62°F–78°F; 0%–100% cc; 0 to 8 mph wind</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>05/20/2016</td>
<td>6:10 AM–11:10 AM</td>
<td>BL</td>
<td>59°F–65°F; 50%–70% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>05/20/2016</td>
<td>6:00 AM–12:00 PM</td>
<td>JP</td>
<td>60°F–72°F; 50%–90% cc; 0 to 6 mph wind</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>05/27/2016</td>
<td>6:30 AM–12:00 PM</td>
<td>TW</td>
<td>63°F–68°F; 100% cc; 0 to 2 mph wind</td>
</tr>
</tbody>
</table>
Ms. Stacey Love

Subject: 2016 Focused Coastal California Gnatcatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Table 2
Survey Conditions

<table>
<thead>
<tr>
<th>Survey Pass</th>
<th>Survey Area</th>
<th>Date</th>
<th>Time</th>
<th>Personnel</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>05/28/2016</td>
<td>6:00 AM–12:25 PM</td>
<td>BO</td>
<td>64°F–74°F; 90%–100% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>05/30/2016</td>
<td>6:05 AM–11:30 AM</td>
<td>BO</td>
<td>61°F–72°F; 100% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>06/01/2016</td>
<td>6:45 AM–12:00 PM</td>
<td>TW</td>
<td>62°F–69°F; 100% cc; 0 to 2 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>05/25/2016</td>
<td>6:00 AM–12:00 PM</td>
<td>JP</td>
<td>56°F–68°F; 70%–50% cc; 0 to 6 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>05/26/2016</td>
<td>6:10 AM–12:00 PM</td>
<td>JP</td>
<td>55°F–72°F; 90%–100% cc; 0 to 4 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>05/27/2016</td>
<td>6:00 AM–11:44 AM</td>
<td>BL, SL</td>
<td>61°F–72°F; 70%–100% cc; 0 to 4 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>06/04/2016</td>
<td>6:00 AM–12:00 PM</td>
<td>BO</td>
<td>60°F–85°F; 0%–100% cc; 0 to 11 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>06/07/2016</td>
<td>6:00 AM–11:30 AM</td>
<td>JP</td>
<td>58°F–78°F; 10%–100% cc; 1 to 6 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>06/09/2016</td>
<td>7:45 AM–11:45 AM</td>
<td>KM</td>
<td>64°F–68°F; 100% cc; 2 to 4 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>06/12/2016</td>
<td>7:05 AM–12:00 PM</td>
<td>BO</td>
<td>61°F–70°F; 50%–100% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>06/23/2016</td>
<td>7:40 AM–12:30 PM</td>
<td>KM</td>
<td>72°F–81°F; 10%–80% cc; 2 to 7 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>06/03/2016</td>
<td>6:00 AM–11:00 AM</td>
<td>BL, JOP</td>
<td>59°F–82°F; 10%–100% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>06/14/2016</td>
<td>7:45 AM–12:30 PM</td>
<td>KM</td>
<td>62°F–72°F; 0%–100% cc; 2 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>06/18/2016</td>
<td>6:00 AM–12:00 PM</td>
<td>BO</td>
<td>53°F–89°F; 0%–50% cc; 0 to 12 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>06/19/2016</td>
<td>6:35 AM–9:45 AM</td>
<td>BO</td>
<td>67°F–95°F; 0%–10% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>06/20/2016</td>
<td>5:40 AM–11:45 AM</td>
<td>BL</td>
<td>68°F–92°F; 0% cc; 0/3 to 3 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>6, 7</td>
<td>06/27/2016</td>
<td>6:10 AM–11:15 AM</td>
<td>JP</td>
<td>68°F–90°F; 10%–70% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>06/30/2016</td>
<td>6:00 AM–12:00 PM</td>
<td>TW</td>
<td>64°F–79°F; 0%–100% cc; 0 to 4 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>07/07/2016</td>
<td>7:45 AM–12:35 PM</td>
<td>KM</td>
<td>67°F–72°F; 0%–100% cc; 2 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>2, 6</td>
<td>07/07/2016</td>
<td>6:00 AM–11:30 AM</td>
<td>JP</td>
<td>63°F–82°F; 0%–100% cc; 0 to 5 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>6, 7, 8</td>
<td>08/18/2016</td>
<td>9:30 AM–2:00 PM</td>
<td>BAO</td>
<td>73°F–98°F; 0% cc; 0 to 1 mph wind</td>
</tr>
<tr>
<td>3</td>
<td>1, 2, 3, 4, 5</td>
<td>09/28/2016</td>
<td>8:40 AM–4:10 PM</td>
<td>BAO</td>
<td>67°F–90°F; 30%–0% cc; 0 to 5 mph wind</td>
</tr>
</tbody>
</table>

Notes: BL = Brian Lohstroh; BO = Brenna Ogg; JP = Jeff Priest; JOP = Johanna Page; KM = Kamarul Muri; SL = Shelley Lawrence; TW = Tricia Wotipka; BAO = Brock Ortega; °F = Fahrenheit; cc = cloud cover; mph = miles per hour.

RESULTS

Approximately 10 CAGN pairs and 45 individuals were observed in the survey area, including approximately 9 juveniles. Table 3 summarizes CAGN observations per survey area. Leg bands were not detected during these survey efforts.
### Table 3
Coastal California Gnatcatcher 2016 Survey Observations

<table>
<thead>
<tr>
<th>Survey Area</th>
<th>Survey Area Maps</th>
<th>Estimated Total CAGN Individuals In Survey Map</th>
<th>Summarized Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (79.2 acres)</td>
<td>1, 2, 3, 4, and 5</td>
<td>6</td>
<td>One male individual was observed immediately west of the survey area on Map 2 on 09/06/16. One female individual observed approximately 150 feet east of the survey area on Map 4 on 05/25/16. Two groups of two uncapped individuals were observed adjacent to the survey area on Map 4 on 07/07/16.</td>
</tr>
<tr>
<td>2 (66.3 acres)</td>
<td>5, 6, 7, 8, and 9</td>
<td>2</td>
<td>One male was observed within the survey area on 05/27/16 on Map 9, and a pair was observed in the same general area on 07/07/16.</td>
</tr>
<tr>
<td>3 (87.5 acres)</td>
<td>10, 11, and 12</td>
<td>8</td>
<td>One pair was observed within middle portion of the survey area on Map 11 on 06/22/16. One unknown uncapped individual was observed on the most eastern portion of Map 11 on 06/30/16. A pair and a male individual were observed on 06/30/16 in the middle portion of Map 11. In the same general area, an unknown individual was observed on 06/22/16 and a juvenile on 06/30/16.</td>
</tr>
<tr>
<td>4 (61.6 acres)</td>
<td>12 and 13</td>
<td>17</td>
<td>Two unknown individuals were observed at the southern extent of this survey area on two survey dates – 06/04/16 and 05/28/16. An additional territory was also identified north of this with two unknown individuals observed on 05/28/16 and 06/04/16 and a male observed on 06/16/16. A single unknown individual was observed north of this area on 06/04/16. Three additional territories were observed within this survey area. The most northern territory had observations from all three survey dates (05/28/16, 06/03/16 and 06/18/16) and an observation from a biologist surveying the adjacent survey area on 05/27/16. The next most northern territory also had observations from all three survey dates and had observations of a pair with juveniles and unknown individuals. The next territory also had observations from all three dates and included observations of a male, a pair with juveniles, and unknown individuals.</td>
</tr>
<tr>
<td>5 (55.4 acres)</td>
<td>12 and 13</td>
<td>5</td>
<td>One male was observed on 05/20/16 in the center of a large contiguous patch of suitable habitat on Map 12. A male individual was observed at the southern extent of this survey area on Map 12 on 05/20/16 and just outside the survey area on 05/27/16. A pair of was also observed in this vicinity on 06/03/16. A pair of was observed on 05/27/16 and 06/03/16 just north of the previous pair; the pair was observed with juveniles on the 05/27/16 survey date.</td>
</tr>
<tr>
<td>6 (77.5 acres)</td>
<td>14, 15, 16, and 17</td>
<td>6</td>
<td>A pair was observed on Map 14 of this survey area on 06/07/16 and 06/14/16. This pair was observed with juveniles (approximately two) on 06/14/16. A second pair was observed in the same patch on 06/07/16 and was confirmed as a separate pair.</td>
</tr>
<tr>
<td>7 (57.0 acres)</td>
<td>16 and 17</td>
<td>1</td>
<td>There was one juvenile observed on 06/27/16 on Map 17 within this survey area.</td>
</tr>
<tr>
<td>8 (25.7 acres)</td>
<td>17 and 18</td>
<td>0</td>
<td>There were no CAGN observations in this survey area.</td>
</tr>
</tbody>
</table>

Note: “Adult” is defined as an individual known to have hatched the year prior to 2016. Otherwise, exact age unknown.
A total of 105 species of wildlife were observed or detected during the surveys: 72 bird species, 16 invertebrate species, 6 mammals, 1 amphibian species, and 10 reptile species (Attachment A).

We certify that the information in this survey report and attachments fully and accurately represent our work. Please contact Brock Ortega (bortega@dudek.com) with questions or if you require additional information.

Sincerely,

Brock Ortega
Permit #TE813545/6

Jeffrey D. Priest
Permit #TE840619/5

Kam Muri
Permit #TE813545/6

Brian Lohstroh
Permit #TE063608/5

Tricia Wotipka
Permit #TE840619/2

Brenna Ogg
Permit #TE134338/3

cc: Brock Ortega

REFERENCES


FIGURE 2
Vicinity Map

SOURCE: USGS 7.5-Minute Series Del Mar, Poway, San Vicente Reservoir, La Jolla, La Mesa, El Cajon Quadrangles; City of San Diego 2016; CA Coastal Commission

2016 Coastal California Gnatcatcher Survey Report - Pure Water San Diego North City Project
FIGURE 3-1

Project Study Area
CAGN Survey Routes
Survey Areas
CSS - Diegan Coastal Sage Scrub

Survey Area 1
Vegetation Communities

0 Feet
200 Feet
400 Feet

2016 Coastal California Gnatcatcher Survey Results - Map 1

SOURCE: Bing Maps
Date: 12/15/2016  -  Last saved by: agreis  -  Path: Z:\Projects\j942003\MAPDOC\DOCUMENT\CAGN Report\Version2\Figure3-CAGN Results.mxd
Unsuitable CAGN habitat due to steep slopes, adjacent oak canopy, and marginal scrub habitat.
FIGURE 3-3

Project Study Area
CAGN Survey Routes
Suitable CAGN Habitat - No Permission to Access
Survey Areas
Survey Area 1
Vegetation Communities
CSS - Diegan Coastal Sage Scrub
dCSS - disturbed Diegan Coastal Sage Scrub
FIGURE 3-4
Project Study Area
Survey Results
- Female
- Unknown
CAGN Survey Routes
CAGN Territory
MCAS Miramar
Survey Areas
Survey Area 1
Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- dCSS - disturbed Diegan Coastal Sage Scrub

2016 Coastal California Gnatcatcher Survey Results - Map 4
2016 Coastal California Gnatcatcher Survey Report - Pure Water San Diego North City Project
FIGURE 3-5

Project Study
Survey Results
- Female
- Unknown
- CAGN Survey Routes
- CAGN Territory
- MCAS Miramar

Survey Areas
- Survey Area 1
- Survey Area 2
- Vegetation Communities
  - CSS - Diegan Coastal Sage Scrub
  - dCSS - disturbed Diegan Coastal Sage Scrub

SOURCE: Bing Maps
Date: 1/11/2017  -  Last saved by: agreis  -  Path: Z:\Projects\j942003\MAPDOC\DOCUMENT\CAGN Report\Version3\Figure3_CAGN Results.mxd

2016 Coastal California Gnatcatcher Survey Results - Map 5

2016 Coastal California Gnatcatcher Survey Report - Pure Water San Diego North City Project
FIGURE 3-6  
Project Study  
CAGN Survey Routes  
Survey Areas  
Survey Area 2  
Vegetation Communities  
dCSS - disturbed Diegan Coastal Sage Scrub  

Project Study  
CAGN Survey Routes  
Survey Areas  
Survey Area 2  
Vegetation Communities  
dCSS - disturbed Diegan Coastal Sage Scrub  

SOURCE: Bing Maps  
Date: 1/11/2017  -  Last saved by: agreis  -  Path: Z:\Projects\j942003\MAPDOC\DOCUMENT\CAGN Report\Version3\Figure3_CAGN Results.mxd
FIGURE 3-7

Project Study Area
CAGN Survey Routes
MCAS Miramar
Military Ownership - Air
National Guard
Survey Areas
Survey Area 2
Vegetation Communities
CSS - Diegan Coastal Sage Scrub
CSS-CHP - Coastal Sage-Chaparral Transition
dCSSB - disturbed Diegan Coastal Sage Scrub: Baccharis-dominated

SOURCE: Bing Maps
Date: 1/12/2017  -  Last saved by: agreis  -  Path: Z:\Projects\j942003\MAPDOC\DOCUMENT\CAGN Report\Version3\Figure3_CAGN Results.mxd

2016 Coastal California Gnatcatcher Survey Report - Pure Water San Diego North City Project
Figure 3-8

Project Study Area
Survey Results
- Male
- Pair
- CAGN Survey Routes
- CAGN Territory
- Suitable CAGN Habitat - No Permission to Access
- MCAS Miramar

Survey Areas
- Survey Area 2
- Vegetation Communities
  - CSS - Diegan Coastal Sage Scrub
  - CSSB - Diegan Coastal Sage Scrub: Baccharis-dominated
  - dCSS - disturbed Diegan Coastal Sage Scrub

2016 Coastal California Gnatcatcher Survey Results - Map 8

2016 Coastal California Gnatcatcher Survey Report - Pure Water San Diego North City Project

SOURCE: Bing Maps

Date: 1/11/2017  -  Last saved by: agreis  -  Path: Z:\Projects\j942003\MAPDOC\DOCUMENT\CAGN Report\Version3\Figure3_CAGN Results.mxd
Figure 3-9
Project Study
CAGN Survey Routes
Suitable CAGN Habitat - No Permission to Access
Survey Areas
Survey Area 3
Vegetation Communities
CSS - Diegan Coastal Sage Scrub
dCSS - disturbed Diegan Coastal Sage Scrub
FIGURE 3-10

Survey Results
- Female
- Pair
- Juvenile
- Unknown

CAGN Survey Routes
CAGN Territory

Survey Areas
- Survey Area 3
- Survey Area 4

Vegetation Communities
CSS - Diegan Coastal Sage Scrub
dCSS - disturbed Diegan Coastal Sage Scrub
FIGURE 3-11

2016 Coastal California Gnatcatcher Survey Results - Map 11
FIGURE 3-13
Project Study
Survey Results
- Pair
CAGN Survey Routes
CAGN Territory
Suitable CAGN Habitat - No
Permission to Access
Survey Areas
Survey Area 6
Vegetation Communities
CSS - Diegan Coastal Sage Scrub

2016 Coastal California Gnatcatcher Survey Results - Map 13
SOURCE: Bing Maps
2016 Coastal California Gnatcatcher Survey Results - Map 15

Impact only at Tunnel Entrance; Survey conducted within 500' Buffer

Survey Results
- Juvenile
- CAGN Survey Routes
- CAGN Territory

Survey Areas
- Survey Area 6
- Survey Area 7
- Survey Area 8

Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSS-r - Diegan Coastal Sage Scrub-Restored

SOURCE: Bing Maps
Date: 1/12/2017  -  Last saved by: agreis  -  Path: Z:\Projects\j942003\MAPDOC\DOCUMENT\CAGN Report\Version3\Figure3_CAGN_Results.mxd
FIGURE 3-16
2016 Coastal California Gnatcatcher Survey Results - Map 16

- Project Study Area
- San Vicente Pure Water Pipeline - Tunnel Alternative
- Tunnel Entrance (impact only at Entrance location; Survey conducted within 500' Buffer)

Survey Areas
- Survey Area 6
- Survey Area 7
- Survey Area 8

Vegetation Communities
- CSS - Diegan Coastal Sage Scrub
- CSS-r - Diegan Coastal Sage Scrub-Restored

Survey Results
- Juvenile
- CAGN Survey Routes
- CAGN Territory

Impact only at Tunnel Entrance; Survey conducted within 500’ Buffer
FIGURE 3-17
Project Study Area
San Vicente Pure Water
Pipeline - Tunnel Alternative
Tunnel Exit
CAGN Survey Routes
Survey Areas
Survey Area 8
Vegetation Communities
CSS - Diegan Coastal Sage Scrub
ATTACHMENT A

Wildlife Species Observed in Study Area
ATTACHMENT A
Wildlife Species Observed in Study Area

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS
  Icterus bullockii—Bullock’s oriole
*  Molothrus ater—brown/headed cowbird

BUSHTITS

AEGITHALIDAE—LONG/TAILED TITS AND BUSHTITS
  Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES
  Pheucticus melanocephalus—black/headed grosbeak

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS
  Melospiza melodia—song sparrow
  Melozone crissalis—California towhee
  Pipilo maculatus—spotted towhee

FALCONS

FALCONIDAE—CARACARAS AND FALCONS
  Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES
  Spinus psaltria—lesser goldfinch
  Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS
  Contopus sordidulus—western wood/pewee
  Myiarchus cinerascens—ash/throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin’s kingbird

Hawks

Accipitridae—Hawks, Kites, Eagles, and Allies

Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red/shouldered hawk

Hummingbirds

Trochilidae—Hummingbirds

Calypte anna—Anna’s hummingbird
Selasphorus sasin—Allen’s hummingbird

Jays, Magpies, and Crows

Corvidae—Crows and Jays

Aphelocoma californica—western scrub/jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

Mockingbirds and Thrashers

Mimidae—Mockingbirds and Thrashers

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

New World Quail

Odontophoridae—New World Quail

Callipepla californica—California quail

New World Vultures

Cathartidae—Cardinals and Allies

Cathartes aura—turkey vulture
OLD WORLD WARBLERS AND GNATCATCHERS

**SYLVIIDAE—SYLVIID WARBLERS**
- *Polioptila caerulea*—blue/gray gnatcatcher
- *Polioptila californica californica*—coastal California gnatcatcher

**PIGEONS AND DOVES**

**COLUMBIDAE—PIGEONS AND DOVES**
- *Zenaida macroura*—mourning dove
  *Columba livia*—rock pigeon (rock dove)
  *

**ROADRUNNERS AND CUCKOOS**

**CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS**
- *Geococcyx californianus*—greater roadrunner

**SILKY FLYCATCHERS**

**PTILOGONATIDAE—SILKY/FLYCATCHERS**
- *Phainopepla nitens*—phainopepla

**SWALLOWS**

**HIRUNDINIDAE—SWALLOWS**
- *Hirundo rustica*—barn swallow
- *Petrochelidon pyrrhonota*—cliff swallow
- *Stelgidopteryx serripennis*—northern rough/winged swallow

**SWIFTS**

**APODIDAE—SWIFTS**
- *Aeronautes saxatalis*—white/throated swift

**WOOD WARBLERS AND ALLIES**

**PARULIDAE—WOOD/WARBLERS**
- *Geothlypis trichas*—common yellowthroat
- *Oreothlypis celata*—orange/crowned warbler
WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES
   Melanerpes formicivorus—Acorn woodpecker
   Picoides nuttallii—Nuttall’s woodpecker
   Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS
   Salpinctes obsoletus—rock wren
   Thryomanes bewickii—Bewick’s wren
   Trogilodytes aedon—house wren
   Campylorhynchus brunneicapillus—caucus wren

WRENTITS

TIMALIIDAE—BABBLERS
   Chamaea fasciata—wrentit

INVERTEBRATE

BUTTERFLIES

NYMPHALIDAE—BRUSH/FOOTED BUTTERFLIES
   Junonia coenia—common buckeye
   Limenitis lorquini—Lorquin’s admiral

RIODINIDAE—METALMARKS
   Apodemia mormo virgulti—Behr’s metalmark

HESPERIIDAE—SKIPPERS
   Erynnis funeralis—funereal duskywing

PAPILIONIDAE—SWALLOWTAILS
   Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS
   Pieris rapae—cabbage white
   Pontia protodice—checkered white
MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES
  Canis latrans—coyote

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS
  Sylvilagus audubonii—desert cottontail
  Sylvilagus bachmani—brush rabbit

RACCOONS

PROCYONIDAE—RACCOONS AND RELATIVES
  Procyon lotor—raccoon

RATS AND MICE

MURIDAE—RATS AND MICE
  Neotoma fuscipes—dusky/footed woodrat

SQUIRRELS

SCIURIDAE—SQUIRRELS
  Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS
  Odocoileus hemionus—mule deer

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS
  Sceloporus occidentalis—western fence lizard
  Uta stansburiana—common side/blotched lizard
SNAKES

VIPERIDAE—VIPERS

*Crotalus ruber*—red diamondback rattlesnake

* signifies introduced (non/native) species
APPENDIX F

2016 Focused Least Bell’s Vireo
and Southwestern Willow Flycatcher
Subject: 2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Dear Recovery Permit Coordinator:

This report documents the results of protocol-level presence/absence surveys for the state- and federally listed endangered least Bell’s Vireo (Vireo bellii pusillus; vireo) and the state- and federally listed endangered southwestern willow flycatcher (Empidonax traillii extimus; flycatcher). The surveys were conducted in support of the Pure Water San Diego Program North City project (North City Project), located in the County of San Diego, California. The North City Project is the first phase of the City of San Diego’s Public Utilities Department (PUD) proposed program to provide a safe, secure, and sustainable local drinking water supply for San Diego. The North City Project consists of the design and construction of a new advanced water treatment facility, expansion of a wastewater treatment facility, pump stations, transmission lines, and pipelines. The North City Project site contains approximately 147.3 acres of potentially suitable vireo and flycatcher habitat that were surveyed in 2016.

The vireo and flycatcher are closely associated with riparian habitats, especially densely vegetated willow scrub and riparian forest vegetation. These species are threatened primarily by loss, degradation, and fragmentation of riparian habitats. They also are impacted by brown-headed cowbird (Molothrus ater) nest parasitism.

LOCATION AND EXISTING CONDITIONS

North City Project pipelines extend from the Cities of San Diego, Santee, and the community of Lakeside in unincorporated San Diego County, in addition to federal lands within MCAS Miramar (Figure 1, Regional Map). The site occupies portions of Township 14 South, Range 1 East, projected Sections 30 and 31; Township 14 South, Range 1 West, projected Sections 25 and 36; Township 14 South, Range 2 West, projected Sections 32, and 33; Township 15 South, Range 1 East, projected Sections 6 and 18; Township 15 South, Range 1 West, projected...
Sections 1, 23 and 30; Township 15 South, Range 2 West, projected Sections 6, 25, 30, 31, 32, 33, 35 and 36; Township 15 South, Range 3 West, projected Sections 9, 10, 11, 16, 17, 20, 25, 26, and 28; Township 16 South, Range 2 West, projected Sections 1, 2, 3, and 4; and Township 16 South, Range 3 West, projected Section 9 on the San Vicente Reservoir, El Cajon, La Mesa, Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).

Elevations range from about 94 feet above mean sea level in the southwestern portion of Pure Water Program area to approximately 688-feet above mean sea level.

Soils on site consist of acid igneous rock land; Altamont clay; Carlsbad-Urban Land complex, Chesterton fine sandy loam; Chesterton-Urban Land complex; Cienega rocky and very rocky coarse sandy loam, Cienega-Fallbrook rocky sandy loam; Diablo clay; Diablo- Olivenhain complex; Diablo-Urban land complex; Fallbrook sandy loam; Fallbrook-Vista sandy loam; Friant rocky fine sandy loam; Gaviota fine sandy loam; gravel pits; Huerhuero loam; metamorphic rock land; Olivenhain cobbly loam; Ramona sandy loam; Redding cobbly and gravelly loam; Redding-Urban land complex; riverwash; Salinas clay loam; stony land; terrace escarpments; Tujunga sand; and Visalia sandy loam (USDA 2016).

VEGETATION COMMUNITIES

Based on species composition and general physiognomy, 13 vegetation communities were identified on the Pure Water Program site and off-site mapping areas (Figure 3, Vegetation Communities). Their acreages are presented in Table 1. Approximately 147.3 acres of vireo- and flycatcher-suitable habitat were mapped on the Project site according to Oberbauer et al. (2008).

Vegetation acreages are presented in Table 1, and primary constituent element habitats suitable for vireo and flycatcher are described following the table.

<table>
<thead>
<tr>
<th>Vegetation Community</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arundo-Dominated Riparian</td>
<td>7.5</td>
</tr>
<tr>
<td>disturbed Mulefat Scrub</td>
<td>1.9</td>
</tr>
<tr>
<td>disturbed Southern Willow Scrub</td>
<td>4.1</td>
</tr>
<tr>
<td>Mulefat Scrub</td>
<td>6.5</td>
</tr>
<tr>
<td>Southern Arroyo Willow Riparian Forest</td>
<td>29.1</td>
</tr>
<tr>
<td>Southern Coast Live Oak Riparian Forest</td>
<td>3.6</td>
</tr>
</tbody>
</table>
Recovery Permit Coordinator

Subject: 2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Table 1
Vireo and Flycatcher-Suitable Vegetation Communities on the Pure Water Program Site

<table>
<thead>
<tr>
<th>Vegetation Community</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Cottonwood-Willow Riparian Forest</td>
<td>26.1</td>
</tr>
<tr>
<td>Southern Riparian Forest</td>
<td>6.8</td>
</tr>
<tr>
<td>Southern Sycamore-Alder Riparian Woodland</td>
<td>8.1</td>
</tr>
<tr>
<td>Southern Willow Scrub</td>
<td>53.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>147.3</strong></td>
</tr>
</tbody>
</table>

**Arundo-Dominated Riparian**

Arundo-dominated riparian is densely vegetated riparian thickets dominated by giant reed (*Arundo donax*) (Oberbauer et al. 2008). Arundo-dominated riparian primarily occurs along major rivers in coastal Southern California, including Otay River, Sweetwater River, San Diego River, San Dieguito River, and San Luis Rey River.

**Mulefat Scrub (including Disturbed forms)**

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub strongly dominated by mulefat (*Baccharis salicifolia*). This early seral community is maintained by frequent flooding. Site factors include intermittent stream channels with fairly coarse substrate and moderate depth to the water table (Oberbauer et al. 2008). This community type is widely scattered along intermittent streams and near larger rivers.

Areas mapped as mulefat scrub within the Project Area are dominated by mulefat and are typically found along drainages that receive intermittent water throughout the year.

Disturbed mulefat scrub was mapped where 50% or more of the vegetation cover was dominated by non-native vegetation.

**Southern Arroyo Willow Riparian Woodland**

Southern arroyo willow riparian woodland is described by Oberbauer et al. (2008) as a dense, low, closed-canopy broad-leaved, winter-deciduous woodland dominated by arroyo willow (*Salix lasiolepis*). Arroyo willow generally grows as a large, tree-like shrub. Characteristic species include white alder (*Alnus rhombifolia*), California wax myrtle (*Myrica californica*), and Pacific willow (*Salix lasiandra*).
Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is a dense riparian forest dominated by coast live oak (*Quercus agrifolia*), often with an herbaceous understory. This community occurs along the bottom or outer slopes of larger streams (Oberbauer et al. 2008). Areas mapped as oak riparian forest are dominated by coast live oak.

Southern Cottonwood-Willow Riparian Forest

Southern cottonwood-willow riparian forest is dominated by deciduous trees species: Fremont cottonwood (*Populus fremontii*) or balsam poplar (*Populus trichocarpa*), and various willow trees (*Salix* spp.) (Oberbauer et al. 2008). The shrub layer typically includes various willow species (Oberbauer et al. 2008).

Southern Riparian Forest

Southern riparian forest is a dense riparian forest dominated by western sycamore (*Platanus racemose*), *Populus* species, and other wetland plants (Oberbauer et al. 2008). Southern riparian forests are primarily found along streams and rivers.

Southern Sycamore–Alder Riparian Woodland

Southern sycamore–alder riparian woodland is described by Oberbauer et al. (2008) as a tall, open, broad-leaved, winter-deciduous streamside woodland dominated by well-spaced western sycamore and often also white alder. Seldom forming closed canopy forests, these stands may appear as trees scattered in a shrubby thicket of sclerophyllous (i.e., evergreen) and deciduous species and are subject to seasonally high-intensity flooding. Characteristic species of this habitat type include California mugwort (*Artemisia douglasiana*), coast live oak, California blackberry (*Rubus ursinus*), California laurel (*Umbellularia californica*), and giant stinging nettle (*Urtica holosericea*).

Southern Willow Scrub (including Disturbed forms)

Southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.) that occurs on loose, large-grained alluvium along stream channels. The closed canopy inhibits the development of a diverse understory. It may contain scattered Fremont’s cottonwood and western sycamore trees emerging above the willow canopy and requires repeated flooding to avoid succession to a community dominated by these trees (Oberbauer et al. 2008).
On site, southern willow scrub occurs in patches dominated by arroyo willow (*Salix lasiolepis*) and black willow, with an understory of mulefat (*Baccharis salicifolia*).

Disturbed southern willow scrub was mapped where 50% or more of the vegetation cover was dominated by non-native vegetation.

**METHODS**

Suitable habitat areas within the study area were surveyed eight times for vireo and five times for flycatcher. Flycatcher permitted Dudek wildlife biologists Paul M. Lemons (Permit #TE051248), Brock A. Ortega (Permit # TE813545-6), Jeff D. Priest (Permit # TE840619-3), and Anita M. Hayworth (Permit # TE781084-8) conducted all combined flycatcher/vireo surveys, while qualified Dudek biologists Callie J. Ford, Patricia Schuyler, Erin Bergman, and Marshall Paymard conducted vireo surveys on some visits (Table 2). Only flycatcher permitted biologists used audio-playback techniques to elicit flycatcher responses. Focused surveys for these species were initiated on April 25, 2016, and continued through July 31, 2016.

**Table 2**  
Vireo and Flycatcher Survey Schedule and Conditions

<table>
<thead>
<tr>
<th>Survey Pass #/Focus</th>
<th>Date</th>
<th>Hours</th>
<th>Personnel</th>
<th>Survey Area</th>
<th>Conditions (temperature, cloud cover, wind speed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-LBVI</td>
<td>2016-04-25</td>
<td>6:51 AM–9:52 AM</td>
<td>PS</td>
<td>3</td>
<td>57–61°F; 70–80% cc; 0-2 to 0-1 mph wind</td>
</tr>
<tr>
<td>1-LBVI</td>
<td>2016-04-27</td>
<td>6:02 AM–11:00 AM</td>
<td>KS</td>
<td>1A</td>
<td>55–62°F; 10–40% cc; 1-5 mph wind</td>
</tr>
<tr>
<td>1-LBVI</td>
<td>2016-04-28</td>
<td>6:02 AM–11:00 AM</td>
<td>KS</td>
<td>1B</td>
<td>55–58°F; 100% cc; 3-5 mph wind</td>
</tr>
<tr>
<td>1-LBVI</td>
<td>2016-05-04</td>
<td>6:28 AM–11:06 AM</td>
<td>CF</td>
<td>2</td>
<td>64–69°F; 0–100% cc; 0 mph wind</td>
</tr>
<tr>
<td>2-LBVI</td>
<td>2016-05-09</td>
<td>6:00 AM–10:59 AM</td>
<td>KS</td>
<td>1A</td>
<td>64–66°F; 90–100% cc; 2-3 mph wind</td>
</tr>
<tr>
<td>2-LBVI</td>
<td>2016-05-09</td>
<td>7:20 AM–10:16 AM</td>
<td>PS</td>
<td>3</td>
<td>63–68°F; 40–80% cc; 0-1 mph wind</td>
</tr>
<tr>
<td>2-LBVI</td>
<td>2016-05-10</td>
<td>6:04 AM–11:00 AM</td>
<td>KS</td>
<td>1B</td>
<td>64–70°F; 100% cc; 1 mph wind</td>
</tr>
<tr>
<td>2-LBVI</td>
<td>2016-05-17</td>
<td>4:50 AM–10:35 AM</td>
<td>JP</td>
<td>2</td>
<td>57–65°F; 100% cc; 0-1 to 1-4 mph wind</td>
</tr>
<tr>
<td>3-LBVI 1-SWFL</td>
<td>2016-05-19</td>
<td>5:58 AM–10:31 AM</td>
<td>BO</td>
<td>1B</td>
<td>53–64°F; 100% cc; 0-1 mph wind</td>
</tr>
<tr>
<td>3-LBVI 1-SWFL</td>
<td>2016-05-19</td>
<td>5:40 AM–11:00 AM</td>
<td>PL</td>
<td>1A</td>
<td>56–67°F; 100% cc; 0 to 1-4 mph wind</td>
</tr>
<tr>
<td>1-SWFL</td>
<td>2016-05-19</td>
<td>5:54 AM–11:09 AM</td>
<td>AH</td>
<td>3</td>
<td>61–75°F; 30–100% cc; 2-3 mph wind</td>
</tr>
<tr>
<td>3-LBVI 2-SWFL</td>
<td>2016-06-01</td>
<td>5:00 AM–11:00 AM</td>
<td>JP</td>
<td>2</td>
<td>54–65°F; 100% cc; 0-1 to 1-4 mph wind</td>
</tr>
<tr>
<td>2-SWFL</td>
<td>2016-06-02</td>
<td>5:04 AM–10:08 AM</td>
<td>AH</td>
<td>3</td>
<td>57–75°F; 0% cc; 2-3 mph wind</td>
</tr>
</tbody>
</table>
Recovery Permit Coordinator

Subject: 2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Table 2
Vireo and Flycatcher Survey Schedule and Conditions

<table>
<thead>
<tr>
<th>Survey Pass #/Focus</th>
<th>Date</th>
<th>Hours</th>
<th>Personnel</th>
<th>Survey Area</th>
<th>Conditions (temperature, cloud cover, wind speed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-LBVI 2- SWFL</td>
<td>2016-06-03</td>
<td>5:50 AM–11:00 AM</td>
<td>PL</td>
<td>1A</td>
<td>58–76°F; 0–100% cc; 0-1 to 2-5 mph wind</td>
</tr>
<tr>
<td>4-LBVI 2- SWFL</td>
<td>2016-06-04</td>
<td>6:03 AM–10:50 AM</td>
<td>BO</td>
<td>1B</td>
<td>63–85°F; 70% cc; 0-1 mph wind</td>
</tr>
<tr>
<td>3-LBVI</td>
<td>2016-06-06</td>
<td>7:25 AM–10:15 AM</td>
<td>PS</td>
<td>3</td>
<td>64–72°F; 10–100% cc; 0-2 mph wind</td>
</tr>
<tr>
<td>5-LBVI 3- SWFL</td>
<td>2016-06-16</td>
<td>5:50 AM–11:00 AM</td>
<td>PL</td>
<td>1A</td>
<td>62–79°F; 0–10% cc; 0-1 to 1-4 mph wind</td>
</tr>
<tr>
<td>4-LBVI</td>
<td>2016-06-17</td>
<td>6:57 AM–10:05 AM</td>
<td>PS</td>
<td>3</td>
<td>64–79°F; 0–10% cc; 0-2 mph wind</td>
</tr>
<tr>
<td>5-LBVI 3- SWFL</td>
<td>2016-06-17</td>
<td>5:14 AM–10:32 AM</td>
<td>BO</td>
<td>1B</td>
<td>60–75°F; 20% cc; 0 mph wind</td>
</tr>
<tr>
<td>4-LBVI 3- SWFL</td>
<td>2016-06-17</td>
<td>5:00 AM–11:00 AM</td>
<td>JP</td>
<td>2</td>
<td>50–85°F; 0–10% cc; 0-2 to 1-3 mph wind</td>
</tr>
<tr>
<td>3- SWFL</td>
<td>2016-06-17</td>
<td>5:08 AM–10:09 AM</td>
<td>AH</td>
<td>3</td>
<td>64–75°F; 30–70% cc; 2-3 mph wind</td>
</tr>
<tr>
<td>6-LBVI</td>
<td>2016-06-26</td>
<td>6:08 AM–11:02 AM</td>
<td>MP</td>
<td>1A</td>
<td>66–80°F; 0–10% cc; 1-2 mph wind</td>
</tr>
<tr>
<td>6-LBVI</td>
<td>2016-06-27</td>
<td>6:00 AM–11:02 AM</td>
<td>MP</td>
<td>1B</td>
<td>67–78°F; 10% cc; 1-2 mph wind</td>
</tr>
<tr>
<td>5-LBVI</td>
<td>2016-06-27</td>
<td>6:05 AM–10:46 AM</td>
<td>PS</td>
<td>3</td>
<td>66–82°F; 0–50% cc; 0-2 mph wind</td>
</tr>
<tr>
<td>5-LBVI 4- SWFL</td>
<td>2016-06-30</td>
<td>5:00 AM–11:00 AM</td>
<td>JP</td>
<td>2</td>
<td>62–80°F; 0–100% cc; 0-1 to 3-6 mph wind</td>
</tr>
<tr>
<td>4- SWFL</td>
<td>2016-07-01</td>
<td>5:33 AM–10:10 AM</td>
<td>AH</td>
<td>3</td>
<td>65–73°F; 0–100% cc; 2 mph wind</td>
</tr>
<tr>
<td>7-LBVI 4- SWFL</td>
<td>2016-07-05</td>
<td>5:31 AM–10:48 AM</td>
<td>BO</td>
<td>1B</td>
<td>65–82°F; 0–100% cc; 5 mph wind</td>
</tr>
<tr>
<td>7-LBVI 4- SWFL</td>
<td>2016-07-07</td>
<td>5:50 AM–11:00 AM</td>
<td>PL</td>
<td>1A</td>
<td>63–74°F; 0–100% cc; 0 to 1-5 mph wind</td>
</tr>
<tr>
<td>6-LBVI</td>
<td>2016-07-08</td>
<td>6:05 AM–10:54 AM</td>
<td>PS</td>
<td>3</td>
<td>64–77°F; 0–100% cc; 0-2 mph wind</td>
</tr>
<tr>
<td>6-LBVI 5- SWFL</td>
<td>2016-07-11</td>
<td>5:00 AM–11:00 AM</td>
<td>JP</td>
<td>2</td>
<td>64–76°F; 0–100% cc; 1-4 to 1-5 mph wind</td>
</tr>
<tr>
<td>5- SWFL</td>
<td>2016-07-14</td>
<td>5:30 AM–10:15 AM</td>
<td>AH</td>
<td>3</td>
<td>66–70°F; 50–100% cc; 1 mph wind</td>
</tr>
<tr>
<td>8-LBVI 5- SWFL</td>
<td>2016-07-15</td>
<td>5:53 AM–11:05 AM</td>
<td>BO</td>
<td>1B</td>
<td>65–77°F; 0–100% cc; 0-3 mph wind</td>
</tr>
<tr>
<td>8-LBVI 5- SWFL</td>
<td>2016-07-17</td>
<td>6:00 AM–11:00 AM</td>
<td>PL</td>
<td>1A</td>
<td>64–77°F; 0–100% cc; 0-1 to 2-6 mph wind</td>
</tr>
<tr>
<td>7-LBVI</td>
<td>2016-07-20</td>
<td>6:12 AM–10:39 AM</td>
<td>PS</td>
<td>3</td>
<td>64–82°F; 10–100% cc; 0-2 mph wind</td>
</tr>
<tr>
<td>7-LBVI</td>
<td>2016-07-21</td>
<td>6:00 AM–11:03 AM</td>
<td>MP</td>
<td>2</td>
<td>65–86°F; 10% cc; 1-2 to 2-3 mph wind</td>
</tr>
<tr>
<td>8-LBVI</td>
<td>2016-07-31</td>
<td>5:57 AM–11:57 AM</td>
<td>EB</td>
<td>3</td>
<td>69.3–85.1°F; 0–100% cc; 0-0.6 mph wind</td>
</tr>
<tr>
<td>8-LBVI</td>
<td>2016-07-31</td>
<td>6:20 AM–11:25 AM</td>
<td>CF</td>
<td>2</td>
<td>68–86°F; 0–100% cc; 0 mph wind</td>
</tr>
</tbody>
</table>

Notes: LBVI = least Bell’s vireo; SWFL = Southwestern willow flycatcher; AH = Anita Hayworth; BO = Brock Ortega; CF = Callie Ford; EB = Erin Bergman; JP = Jeff Priest; KS = Kevin Shaw; MP = Marshall Paymard; PL = Paul Lemons; PS = Patricia Schuyler; cc = cloud cover; mph = miles per hour; °F = degrees Fahrenheit.
As directed by Stacey Love, United States Fish & Wildlife Service (USFWS) Recovery Permit Coordinator (via email sent on April 27, 2016), surveys for vireo and flycatcher were not conducted concurrently. Due to differences in detectability, surveys were conducted sequentially, with surveys for the flycatcher first (i.e., first thing in the morning) and surveys for the vireo conducted afterwards. Additionally, for linear survey routes within a riparian corridor: flycatchers were surveyed from the starting point to the end, and vireos were surveyed on the way back. This route was arranged to cover all suitable habitat on site (depicted on Figure 3). A vegetation map (1:2,400 scale; 1 inch=200 feet) of the study area was available to record any detected vireo or flycatcher. Binoculars (7×50, 10×42, 10×50) were used to aid in detecting and identifying wildlife species.

The five surveys conducted for flycatcher followed the currently accepted protocol (A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher [Sogge et al. 2010]), which states that a minimum of five survey visits is needed to evaluate project effects on flycatchers. It is recommended that one survey is made between May 15 and 31, two surveys between June 1 and June 24, and two surveys between June 25 and July 17. Surveys during the final period (June 25 and July 17) were separated by at least five days. A tape of recorded flycatcher vocalizations was used, approximately every 50 to 100 feet within suitable habitat, to induce flycatcher responses. If a flycatcher had been detected, playing of the tape would have ceased to avoid harassment.

A Section 10(a)(1)(A) permit is not required to conduct presence/absence surveys for vireo. The eight surveys for vireo followed the currently accepted Least Bell’s Vireo Survey Guidelines (USFWS, 2001), which states that a minimum of eight survey visits should be made to all riparian areas and any other potential vireo habitats between April 10 and July 31. The site visits are required to be conducted at least 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Taped playback of vireo vocalizations were not used during the surveys. Surveys were conducted between dawn and noon and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather.

Weather conditions, time of day, and season were appropriate for the detection of flycatcher and vireo (Table 2).

RESULTS

Ten (10) vireo Use Areas were observed on several occasions during the 2016 survey effort. Observed vireo use areas are defined as the specific areas of habitat that each vireo was observed
utilizing throughout the 2016 survey effort. All vireos detected within the study area were adult males, either singing or directly observed, and are shown in Figures 3a through 3n. Due to the long linear project alignment and fragmented suitable habitat areas to be accessed throughout the alignment, long periods of time were not spent at each vireo location to determine behavior (i.e., paired, unpaired, breeding status) of each individual vireo.

A one-time observation of willow flycatcher (Empidonax traillii) was observed by biologist Brock Ortega on May 19, 2016 (Figure 3f). The flycatcher was vocal, responding to taped playback, with no breeding behavior observed during this observation. According to Sogge (2010), because this flycatcher was observed during Period 1 (May 15 to 31) was not observed again during all remaining survey visits, it is not expected to be a southwestern willow flycatcher breeding within the study area.

Sensitive species observed included coastal California gnatcatcher (Polioptila californica californica), a federally listed threatened species; yellow-breasted chat (Icteria virens), a California Department of Fish and Wildlife (CDFW) Species of Special Concern; yellow warbler (Dendroica petechia), a CDFW Species of Special Concern; southwestern pond turtle (Actinemys marmorata pallida), a CDFW Species of Special Concern; Cooper’s hawk (Accipiter cooperii), a CDFW Watch List species; and Nuttall’s woodpecker (Picoides nuttallii), a USFWS Bird of Conservation Concern. Sensitive species observation locations are shown in Figures 3a through 3n. Brown-headed cowbird was also detected within the study area (Figure 3m).

One hundred twenty-seven wildlife species were observed during the focused surveys. A full list of wildlife species observed during the survey is provided in Appendix A. Data forms (Sogge et al. 2010) for willow flycatcher are included as Appendix B.

Please feel free to contact me at 760.479.4238 with questions or if you require additional information.

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

Sincerely,

Paul Lemons
Wildlife Biologist

Brock Ortega
Permit #TE813545-6
Recovery Permit Coordinator
Subject: 2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program North City Project, County of San Diego, California

Anita Hayworth  Jeffrey D. Priest  
Permit #TE781084-8  Permit #TE840619

Att:  Figures 1–3n  Appendix A and B

cc:  Brock Ortega

REFERENCES


Figure 2B

Vicinity Map

SOURCE: USGS 7.5-Minute Series La Jolla and Del Mar Quadrangles.
Figure 2C

Vicinity Map
Figure 2D

Vicinity Map

SOURCE: USGS 7.5-Minute Series La Jolla and La Mesa Quadrangles.
Figure 2G
Vicinity Map

SOURCE: USGS 7.5-Minute Series San Vicente Reservoir and El Cajon Quadrangles.
Figure 2I
Vicinity Map

SOURCE: USGS 7.5-Minute Series Del Mar, Poway, La Jolla and La Mesa Quadrangles.
Figure 3a
Survey Results Map

LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/LBVI Survey Route
- Suitable SWFL/LBVI Habitat

Code, Dudek_VegCom
- ARU, Arundo-Dominated Riparian
- CAM, Cismontane Alkali Marsh
- DEV, Urban/Developed
- DH, Disturbed Habitat
- DW, Disturbed Wetland
- FWM, Coastal and Valley Freshwater Marsh
- HW, Herbaceous wetland
- MFS, Mule Fat Scrub
- NVC, Non-Vegetated Channel or Floodway
- OW, Open Water
- SWS, Southern Willow Scrub
dSWS, disturbed Southern Willow Scrub

Riparian Habitat

SWFL/LBVI Survey Areas
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3
Figure 3f

Survey Results Map

LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- WIFL/LBVI Survey Route

Survey Results

Species Code, Common Name
- WIFL, Willow Flycatcher
- YBCH, Yellow-breasted chat
- YEWA, Yellow warbler

Suitable WIFL/LBVI Habitat
- CSS-CHP, Coastal Sage-Chaparral Transition
- DH, Disturbed Habitat
- SARW, Southern Sycamore-Alder Riparian Woodland
- SMX, Southern Mixed Chaparral
- SRF, Southern Riparian Forest
- SWS, Southern Willow Scrub
dSWS, disturbed Southern Willow Scrub

Riparian Habitat

WIFL/LBVI Survey Areas
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

SOURCE: ESRI World Topographic Basemap, 2016

Date: 9/28/2016  -  Last saved by: mwatson  -  Path: Z:\Projects\J942003\MAPDOC\DOCUMENT\SWIFL_LBVI\Figure3-SurveyResults-11x17_MapBook.mxd
Figure 3g

Report Title: 2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

Source: ESRI World Imagery Base Map, 2020

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Legend:
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/LBVI Survey Route

Survey Results:
- Species Code, Common Name
  - YEWA, Yellow warbler
  - Suitable SWFL/LBVI Habitat
- Code, Dudek_VegCom
  - FWM, Coastal and Valley Freshwater Marsh
  - SCWRF, Southern Cottonwood-Willow Riparian Forest
  - SWRF, Southern Arroyo Willow Riparian Forest
  - SWS, Southern Willow Scrub

Riparian Habitat:
- SWFL/LBVI Survey Areas
  - Survey Area 1A
  - Survey Area 1B
  - Survey Area 2
  - Survey Area 3

Legend:
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/LBVI Survey Route

Survey Results Map

2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California
LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/LBVI Survey Route

Survey Results
Species Code, Common Name
- YEWA, Yellow warbler
- SWFL/LBVI Habitat

Code, Dudek_VegCom
- ARU, Arundo-Dominated Riparian
- FWM, Coastal and Valley Freshwater Marsh
- OW, Open Water
- SWS, Southern Willow Scrub

Riparian Habitat
SWFL/LBVI Survey Areas
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

Figure 3h
Survey Results Map
Figure 3i

Survey Results Map

LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/ LBVI Survey Route

Survey Results
Species Code, Common Name
- COHA, Cooper’s Hawk
- SWS, Southern Willow Scrub

Code, Dudek_VegCom
- Suitable SWFL/ LBVI Habitat

Riparian Habitat
- SWFL/LBVI Survey Areas
  - Survey Area 1A
  - Survey Area 1B
  - Survey Area 2
  - Survey Area 3

SOURCE: ESRI World Topographic Basemap, 2016
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Figure 3j

Survey Results Map

Legend
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/LBVI Survey Route

Survey Results
Species Code, Common Name
- LBVI-adult male, Least Bell's Vireo
- NUWO, Nutall's woodpecker
- YBCH, Yellow-breasted chat
- YEWA, Yellow warbler
- Suitable SWFL/LBVI Habitat

Species Code, Dudek_VegCom
- SWRF, Southern Arroyo Willow Riparian Forest

Riparian Habitat
SWFL/LBVI Survey Areas
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

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SOURCE: ESRI World Topographic Basemap, 2016
2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

Figure 3k: Survey Results Map

LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/LBVI Survey Route

Survey Results
Species Code, Common Name
- COHA, Cooper’s Hawk
- LBVI-adult male, Least Bell’s Vireo
- NUWO, Nutall’s woodpecker
- YBCH, Yellow-breasted chat

Suitable SWFL/LBVI Habitat
- Code, Dudek_VegCom
  - SWS, Southern Willow Scrub

Riparian Habitat
SWFL/LBVI Survey Areas
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3

Figure 3k: Survey Results Map

SOURCE: ESRI World Topographic Basemap, 2016

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Survey Results Map

**Legend**
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/ LBVI Survey Route

**Survey Results**

**Species Code, Common Name**
- LBVI-adult male, Least Bell's Vireo
- YEWA, Yellow warbler

**Suitable SWFL/ LBVI Habitat**
- Dudek_VegCom code: SWS, Southern Willow Scrub

**Riparian Habitat**
- SWFL/LBVI Survey Areas
  - Survey Area 1A
  - Survey Area 1B
  - Survey Area 2
  - Survey Area 3

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2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

*Figure 31*
Figure 3m
2016 Focused Least Bell's Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- Observed LBVI Use Area
- SWFL/LBVI Survey Route

Survey Results
Species Code, Common Name
- BHCO, brown headed cowbird
- CAGN, California Gnatcatcher
- COHA, Cooper’s Hawk
- LBVI-adult male, Least Bell’s Vireo
- NUWO, Nutall’s woodpecker
- YEWA, Yellow warbler

Suitable SWFL/LBVI Habitat

Code, Dudek_VegCom
- CSS, Diegan Coastal Sage Scrub
- DEV, Urban/Developed
- NVC, Non-Vegetated Channel or Floodway
- OW, Open Water
- SCWRF, Southern Cottonwood-Willow Riparian Forest
- SWRF, Southern Arroyo Willow Riparian Forest
- SWS, Southern Willow Scrub

Riparian Habitat

Survey Results Map

Survey Results Map

Survey Area 1A
Survey Area 1B
Survey Area 2
Survey Area 3

2016 Focused Least Bell’s Vireo and Southwestern Willow Flycatcher Survey Report for the Pure Water San Diego Program, County of San Diego, California

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Figure 3n
Survey Results Map

LEGEND
- Pipeline Study Area - 500 FT Buffer
- Project Pipeline Impacts
- SWFL/LBVI Survey Route

Survey Results
Species Code, Common Name
- YEWA, Yellow warbler
- Suitable SWFL/LBVI Habitat

Code, Dudek_VegCom
- ARU, Arundo-Dominated Riparian
- DEV, Urban/Developed
- MFS, Mule Fat Scrub
- dMFS, disturbed Mule Fat Scrub

Riparian Habitat
SWFL/LBVI Survey Areas
- Survey Area 1A
- Survey Area 1B
- Survey Area 2
- Survey Area 3
APPENDIX A

Wildlife Species Observed in Study Area
ATTACHMENT A
Wildlife Species Observed in Study Area

AMPHIBIANS

FROGS

RANIDAE—TONGUELESS FROGS

* Lithobates catesbeianus—American bullfrog

BIRDS

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Agelaius phoeniceus—red-winged blackbird
Euphagus cyanocephalus—Brewer’s blackbird
Icterus bullockii—Bullock’s oriole
Quiscalus mexicanus—great-tailed grackle

* Molothrus ater—brown-headed cowbird
Icterus cucullatus—hooded oriole

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Passerina amoena—Lazuli bunting
Piranga ludoviciana—western tanager
Passerina caerulea—blue grosbeak
Pheucticus melanocephalus—black-headed grosbeak

CORMORANTS

PHALACROCORACIDAE—CORMORANTS

Phalacrocorax auritus—double-crested cormorant

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Chondestes grammacus—lark sparrow
Melospiza lincolnii—Lincoln’s sparrow
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee
Zonotrichia leucophrys—white-crowned sparrow
Aimophila ruficeps—rufous-crowned sparrow
Junco hyemalis—dark-eyed junco

FALCONS

FALCONIDAE—CARACARAS AND FALCONS
Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES
Spinus psaltria—lesser goldfinch
Spinus tristis—American goldfinch
Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS
Contopus sordidulus—western wood-pewee
Empidonax traillii—willow flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say’s phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin’s kingbird
Empidonax difficilis—Pacific-slope flycatcher

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS
Chordeiles acutipennis—lesser nighthawk

GREBES

PODICIPEDIDAE—GREBES
Podilymbus podiceps—pied-billed grebe
HAWKS

**ACCIPTRIDAE—HAWKS, KITES, EAGLES, AND ALLIES**

- *Accipiter cooperii*—Cooper’s hawk
- *Buteo jamaicensis*—red-tailed hawk
- *Buteo lineatus*—red-shouldered hawk
- *Circus cyaneus*—northern harrier
- *Elanus leucurus*—white-tailed kite

HERONS AND BITTERNES

**ARDEIDAE—HERONS, BITTERNES, AND ALLIES**

- *Ardea alba*—great egret
- *Ardea herodias*—great blue heron
- *Butorides virescens*—green heron
- *Egretta thula*—snowy egret
- *Nycticorax nycticorax*—black-crowned night-heron

HUMMINGBIRDS

**TROCHILIDAE—HUMMINGBIRDS**

- *Calypte anna*—Anna’s hummingbird
- *Calypte costae*—Costa’s hummingbird
- *Selasphorus sasin*—Allen’s hummingbird

JAYS, MAGPIES, AND CROWS

**CORVIDAE—CROWS AND JAYS**

- *Aphelocoma californica*—western scrub-jay
- *Corvus brachyrhynchos*—American crow
- *Corvus corax*—common raven

KINGLETS

**REGULIDAE—KINGLETS**

- *Regulus calendula*—ruby-crowned kinglet

MOCKINGBIRDS AND THRASHERS

**MIMIDAE—MOCKINGBIRDS AND THRASHERS**

- *Mimus polyglottos*—northern mockingbird
- *Toxostoma redivivum*—California thrasher
NEW WORLD QUAIL

**ODONTOPHORIDAE—NEW WORLD QUAIL**
*Callipepla californica*—California quail

NEW WORLD VULTURES

**CATHARTIDAE—CARDINALS AND ALLIES**
*Cathartes aura*—turkey vulture

OLD WORLD SPARROWS

**PASSERIDAE—OLD WORLD SPARROWS**
*Passer domesticus*—house sparrow

OLD WORLD WARBLERS AND GNATCATCHERS

**SYLVIIDAE—SYLVIID WARBLERS**
*Polioptila caerulea*—blue-gray gnatcatcher
*Polioptila californica californica*—coastal California gnatcatcher

OWLS

**TYTONIDAE—BARN OWLS**
*Tyto alba*—barn owl

PIGEONS AND DOVES

**COLUMBIDAE—PIGEONS AND DOVES**
*Zenaida macroura*—mourning dove
*Columba livia*—rock pigeon (rock dove)
*Streptopelia decaocto*—Eurasian collared-dove

RAILS, GALLINULES, AND COOTS

**RALLIDAE—RAILS, GALLINULES, AND COOTS**
*Fulica americana*—American coot

SHOREBIRDS

**CHARADRIIDAE—LAPWINGS AND PLOVERS**
*Charadrius vociferus*—killdeer
ATTACHMENT A (Continued)

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS
Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS
* Sturnus vulgaris—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS
Hirundo rustica—barn swallow
Petrochelidon pyrrhonota—cliff swallow
Stelgidopteryx serripennis—northern rough-winged swallow

SWIFTS

APODIDAE—SWIFTS
Aeronautes saxatalis—white-throated swift

TERNS AND GULLS

LARIDAE—GULLS, TERNs, AND SKIMMERS
Larus occidentalis—western gull
Sterna hirundo—common tern
Hydroprogne caspia—Caspian tern

THRUSHES

TURDIDAE—THRUSHES
Catharus guttatus—hermit thrush
Sialia mexicana—western bluebird
Turdus migratorius—American robin

TITMICE

PARIDAE—CHICKADEES AND TITMICE
Baeolophus inornatus—oak titmouse
ATTACHMENT A (Continued)

VIREOS

**VIREONIDAE—VIREOS**
- *Vireo bellii pusillus*—least Bell’s vireo
- *Vireo gilvus*—warbling vireo
- *Vireo huttoni*—Hutton’s vireo

WATERFOWL

**ANATIDAE—DUCKS, GEESE, AND SWANS**
- *Anas platyrhynchos*—mallard
- *Anas strepera*—gadwall
- *Lophodytes cucullatus*—hooded merganser

WAXWINGS

**BOMBYCILLIDAE—WAXWINGS**
- *Bombycilla cedrorum*—cedar waxwing

WOOD WARBLERS AND ALLIES

**PARULIDAE—WOOD-WARBLERS**
- *Geothlypis trichas*—common yellowthroat
- *Icteria virens*—yellow-breasted chat
- *Oreothlypis celata*—orange-crowned warbler
- *Cardellina pusilla*—Wilson’s warbler
- *Setophaga petechia*—yellow warbler
- *Setophaga townsendi*—Townsend’s warbler

WOODPECKERS

**PICIDAE—WOODPECKERS AND ALLIES**
- *Melanerpes formicivorus*—Acorn woodpecker
- *Picoides nuttallii*—Nuttall’s woodpecker
- *Picoides pubescens*—downy woodpecker
- *Colaptes auratus*—northern flicker

WRENS

**TROGLODYTIDAE—WRENS**
- *Thryomanes bewickii*—Bewick’s wren
- *Trogodytes aedon*—house wren
INVERTEBRATES

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREACKS, AND COPPERS

Leptotes marina—marine blue

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister
Danaus gilippus—queen
Junonia coenia—common buckeye
Nymphalis antiopa—mourning cloak
Vanessa annabella—west coast lady
Vanessa atalanta—red admiral
Vanessa cardui—painted lady
Danaus plexippus—monarch

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr’s metalmark

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail
Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white
Pontia protodice—checkered white
Pontia sisymbrii—spring white

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat
ATTACHMENT A (Continued)

DOMESTIC

**CANIDAE—WOLVES AND FOXES**
* Canis lupus familiaris—domestic dog

HARES AND RABBITS

**LEPORIDAE—HARES AND RABBITS**
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit

MUSTELIDS

**MEPHITIDAE—SKUNKS**
Mephitis mephitis—striped skunk

POCKET GOPHERS

**GEOMYIDAE—POCKET GOPHERS**
Thomomys bottae—Botta’s pocket gopher

RACCOONS

**PROCYONIDAE—RACCOONS AND RELATIVES**
Procyon lotor—raccoon

SQUIRRELS

**SCIURIDAE—SQUIRRELS**
Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

**CERVIDAE—DEERS**
Odocoileus hemionus—mule deer

REPTILES

LIZARDS

**PHRYNOSOMATIDAE—IGUANID LIZARDS**
Sceloporus occidentalis—western fence lizard
Uta stanburiana—common side-blotched lizard
TEIIDAE—WHIPTAIL LIZARDS
   *Aspidoscelis hyamythra beldingi*—Belding’s orange-throated whiptail

SNAKES

VIPERIDAE—VIPERS
   *Crotalus ruber*—red diamondback rattlesnake

TURTLES

EMYDIDAE—BOX AND WATER TURTLES
   *Actinemys marmorata*—western pond turtle

* signifies introduced (non-native) species
APPENDIX B
Willow Flycatcher Survey and Detection Forms
# Appendix 1: Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office website (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

**Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)**

- **Site Name:** Pure Water
- **State:** CA
- **County:** San Diego
- **Elevation:** 28 - 240 (meters)
- **Is copy of USGS map marked with survey area and WIFL sightings attached (as required)?** Yes/No

**Survey Coordinates:**
- **Site:** E 481091.25, N 3624112.49
- **Datum:** NAD27

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

## **Fill in additional site information on back of this page**

<table>
<thead>
<tr>
<th>Survey #</th>
<th>Observer(s)</th>
<th>Date(s) (Day/Mon)/Year</th>
<th>Start <em>X</em></th>
<th>Stop <em>X</em></th>
<th>Total X's</th>
<th>Number of Adult WIFLS</th>
<th>Number of Pairs</th>
<th>Extended Number of Seasonal Territories</th>
<th>Comments (e.g., habitat, evidence of nest or feeding, potential predators, livestock, cattle, farmsteads, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paul Lemons</td>
<td>7/1/11</td>
<td>0900</td>
<td>1100</td>
<td>1010</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td># Eggs, # Sca, UTM E, UTM N</td>
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<td>2</td>
<td>Paul Lemons</td>
<td>7/1/11</td>
<td>0900</td>
<td>1100</td>
<td>1010</td>
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<td># Eggs, # Sca, UTM E, UTM N</td>
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<td>5</td>
<td>Paul Lemons</td>
<td>7/1/11</td>
<td>0900</td>
<td>1100</td>
<td>1010</td>
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<td>0</td>
<td>0</td>
<td># Eggs, # Sca, UTM E, UTM N</td>
</tr>
</tbody>
</table>

**Overall Site Summary**

- Total Adult Willow Flycatchers:
- Total Pairs:
- Total Territories:
- Total Nest:

**Were any Willow Flycatchers color-banded?** Yes/No

If Yes, report color combination(s) in comments section on back of form and report to USFWS.

**Reporting Individual:** Paul Lemons

**Date Report Completed:** September 2011

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.
Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual: Paul Lemons Phone #: 760-412-5147
Affiliation: Centennial Wildlife Program E-mail: plemons@edel.com
Site Name: Pure-Water San Diego Program Date Report Completed: Sept 2016

Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable X
If site name is different, what name(s) was/were used in the past? N/A
If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below, N/A
Did you survey the same general area during each visit to this site this year? Yes ___ No ___ If no, summarize below.

Management Authority for Survey Area: Federal ___ Municipal/County ___ State ___ Tribal ___ Private ___
Name of Management Entity or Owner (e.g., Tonto National Forest): City of San Diego

Length of area surveyed: ~37,400 (metres) = Approximate length of existing Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub forest layer at this site (check one):

- Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)
- X Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name:
Salix lasiolepis, Plantapus racemosus, Populus fremontii

Average height of canopy (Do not include a range): 35_(meters)

Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFI detections.
Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFI s or WIFI nests detected.
Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary):

No WIFI detected

<table>
<thead>
<tr>
<th>Territory Number</th>
<th>All Dates Detected</th>
<th>UTM N</th>
<th>UTM E</th>
<th>Pair Confirmed? Y or N</th>
<th>Nest Found? Y or N</th>
<th>Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)</th>
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</tbody>
</table>

Attach additional sheets if necessary
Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site [http://www.fws.gov/southwest/az/arizona/](http://www.fws.gov/southwest/az/arizona/) for the most up-to-date version.

**Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2016)**

Survey Coordinates: Start: E 591012.27, N 3624102.48 UTM Zone 11S (See instructions)  
End: E 5967913.02, N 3642158.31 UTM Zone 11S

If survey coordinates changed between sites, enter coordinates for each survey in comments section on back of this page.

**Fill in additional site information on back of this page**

<table>
<thead>
<tr>
<th>Survey #</th>
<th>Observer(s)</th>
<th>Date (m/d)</th>
<th>Bird(s) Sex</th>
<th>UTM E</th>
<th>UTM N</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Brook</td>
<td>5/17</td>
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<td></td>
<td>Ortega (30)</td>
<td>5/18</td>
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<td>5</td>
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<td>7/14</td>
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</tbody>
</table>

Overall Site Summary

Total Active Adults: [ ] Total Nest Sites: [ ] Total Nesting Pairs: [ ] Total Recent Check: [ ]

Were any Willow Flycatchers color-banded? Yes [ ] No [X]

If Yes, report color combination(s) in comments section on back of form and report to USFWS.

Reporting Individual: Brook Ortega  
US Fish and Wildlife Service Permit #: 16834956  
State Wildlife Agency Permit #:  
Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.
Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual: [Surname] [First Name]
Affiliation: [Organization]
Site Name: [Location]
Phone #: [Number]
E-mail: [Email]
Date Report Completed: [Date]

Did you verify that this site name is consistent with that used in previous years? Yes ____ No ____ Not Applicable X

If site name is different, what name(s) was used in the past? N/A

If site was surveyed last year, did you survey the same general area this year? Yes ____ No ____ If no, summarize below. N/A

Did you survey the same general area during each visit to this site this year? Yes ____ No ____ If no, summarize below.

Management Authority for Survey Area: Federal ____ Municipal/County ____ State ____ Tribal ____ Private ____
Name of Management Entity or Owner (e.g., Tonto National Forest) [Name]

City of San Diego

Length of area surveyed: [37.400] (meters) = Approximate Length of Entire Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

- Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow) X
- Mixed native and exotic plants (mostly native, 50-90% native)
- Mixed native and exotic plants (mostly exotic, 50-90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species, in order of dominance: Use scientific name.

[Species 1] [Species 2] [Species 3] [Species 4] ...

Average height of canopy (Do not include a range): 20 (meters)

Attach copy of USGS quadrangle topographical map (REQUIRED) of survey area, outlining survey site and location of WIFI detections.
Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFIs or WIFI nests detected.
Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)

Territory Summary Table. Provide the following information for each verified territory at your site.

<table>
<thead>
<tr>
<th>Territory Number</th>
<th>All Dates Detected</th>
<th>UTM N</th>
<th>UTM E</th>
<th>Pair Confirmed? Y or N</th>
<th>Nest Found? Y or N</th>
<th>Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)</th>
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</table>

Attach additional sheets if necessary
Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office website (http://www.fws.gov/southwest/az/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Survey Coordinates: Start: E 1491059.27 N 3667912.49 UTM Zone 11S Datum NAD27 (See Instructions)
Stop: E 1491298.43 N 3667911.87 UTM Zone 11S Datum NAD27 (See Instructions)

If survey coordinates changed between visits, enter coordinates for each survey in Comments section on back of this page.

**Fill in additional site information on back of this page**

<table>
<thead>
<tr>
<th>Survey #</th>
<th>Observer(s)</th>
<th>Date (WIFL) Survey Date</th>
<th>Hour of Adults</th>
<th>Estimated Number of Pairs</th>
<th>Estimated Number of Territories</th>
<th>Nest(y) Found? Y or N</th>
<th>Yes, number of nests</th>
<th>Comments (e.g., bird behavior, evidence of pair or nesting, potential threats, etc.)</th>
<th># Birds</th>
<th># Species</th>
<th>UTM E</th>
<th>UTM N</th>
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</thead>
<tbody>
<tr>
<td>Survey 1</td>
<td>Ted Priest</td>
<td>2016/5/14</td>
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<td>0</td>
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<td>N</td>
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<td>Survey 2</td>
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<td>Survey 3</td>
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<td>Survey 5</td>
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<tr>
<td>Overall Site Summary</td>
<td></td>
<td></td>
<td>Total Adult Residents</td>
<td>Total Pairs</td>
<td>Total Territories</td>
<td>Total Nest</td>
<td>Were any Willow Flycatchers color-banded? Yes <em>No</em></td>
<td></td>
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<td>If yes, report color combination(s) in the comments section on back of form and report to USFWS.</td>
<td></td>
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</tr>
</tbody>
</table>

Reporting Individual: Ted Priest

Date Report Completed:

US Fish and Wildlife Service Permit # 16-54-002-2
State Wildlife Agency Permit # 30-2211

Submit form to USFWS and State Wildlife Agency by September 1st. Keep a copy for your records.
Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

**Reporting individual:** Jeff Priest

**Affiliation:** Consultant, Biodex

**Site Name:** Pico Water Front Program

**Phone #:** 760.942.5147

**Date Report Completed:**

Did you verify that this site name is consistent with that used in previous years? Yes [ ] No [ ] Not Applicable [X]

If site name is different, what name(s) was/were used in the past? [ ]

If site was surveyed last year, did you survey the same general area this year? Yes [ ] No [ ] If no, summarize below:

Did you survey the same general area during each visit to this site this year? Yes [ ] No [ ] If no, summarize below:

**Management Authority for Survey Area:**

[ ] Federal

[ ] Municipal/County

[ ] State

[ ] Tribal

[ ] Private

**Name of Management Entity or Owner (e.g., Fort National Forest):** City of San Diego

**Length of area surveyed:** 3,740.42 (meters) | **Approximate Length of Culture Project Alignment**

**Vegetation Characteristics:** Mark the category that best describes the predominant tree/shrub/forb layer at this site (check one):

[ ] Native broadleaf plants (entirely or almost entirely, >90% native, includes high-elevation willow)

[ ] Mixed native and exotic plants (mostly native, 50-90% native)

[ ] Mixed native and exotic plants (mostly exotic, 50-90% exotic)

[ ] Exotic/introduced plants (entirely or almost entirely, >90% exotic)

**Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.**

**Average height of canopy (Do not include a range):** 8 m

**Territory Summary Table:** Provide the following information for each verified territory at your site.

<table>
<thead>
<tr>
<th>Territory Number</th>
<th>All Dates Detected</th>
<th>UTM N</th>
<th>UTME</th>
<th>Pair Continued? Y or N</th>
<th>Nest Found? Y or N</th>
<th>Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)</th>
</tr>
</thead>
</table>

**Comments (attach additional sheets if necessary):**

[ ] No WIFL observed.

Attach additional sheets if necessary.
**Appendix 1. Willow Flycatcher Survey and Detection Form**

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2018)

<table>
<thead>
<tr>
<th>Survey #</th>
<th>Observer(s)</th>
<th>Date (MM/DD)</th>
<th>Start H:M</th>
<th>End H:M</th>
<th>Total hours</th>
<th>Number of Adult WIFL</th>
<th>Estimated Number of Territories</th>
<th>Nest(s) Found?</th>
<th>Y or N</th>
<th>Comments (e.g., bird behavior, evidence of pair or breeding)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anta Hayworth</td>
<td>5/19</td>
<td>0855</td>
<td>0955</td>
<td>0:10</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Anta Hayworth</td>
<td>6/2</td>
<td>0655</td>
<td>0755</td>
<td>0:10</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>6/17</td>
<td>0855</td>
<td>0955</td>
<td>0:10</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Anta Hayworth</td>
<td>7/11</td>
<td>0955</td>
<td>1055</td>
<td>0:10</td>
<td>0</td>
<td>0</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Anta Hayworth</td>
<td>7/14</td>
<td>0955</td>
<td>1055</td>
<td>0:10</td>
<td>0</td>
<td>0</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall Site Summary
- Total # of Adult WIFL: 0
- Total Number of Territories: 0
- Total Nest(s): 0

Were any Willow Flycatchers color-banded? Yes No

If yes, report color combination(s) in the comments section on back of form and report to USFWS.

Reported by: Anta Hayworth Date Report Completed: September 2016

US Fish and Wildlife Service Permit #TF-105905-27 State Wildlife Agency Permit # 10810

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.
Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual: Antone Hayworth
Affiliation: Consultant, Deltek
Site Name: Pescadero Slough
E-mail: chayworth@deltek.com
Phone #: 760-442-5147
Date Report Completed: Sept 2000

Did you verify that this site name is consistent with that used in previous years? Yes __ No __ Not Applicable __
If site name is different, what name(s) was used in the past? __ N/A __
If site was surveyed last year, did you survey the same general area this year? Yes __ No __
(If no, summarize below: __)
Did you survey the same general area during each visit to this site this year? Yes __ No __
(If no, summarize below: __)

Management Authority for Survey Area:
Federal ___ Municipal/County ___ State ___ Tribal ___ Private ___
Name of Management Entity or Owner (e.g., Tonto National Forest): __ City of San Diego __

Length of area surveyed: ~374,000 (meters) = Approximate Length of Entire Project Alignment

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

___ Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)
___ Mixed native and exotic plants (mostly native, 50 - 90% native)
___ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
___ Exotic/Introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name:
Tamarisk sp.; Salix sp.; Baccharis salicifolia

Average height of canopy (Do not include a range): __ 6 __ (meters)

Attach copy of USGS quad/topographical map (required) of survey area, outlining survey site and location of WIFL detections.
Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL tests detected.
Attach photos of the interior of the patch, exterior of the patch, and overall site: describe any unique habitat features.

Comments (attach additional sheets if necessary):


Territory Summary Table: Provide the following information for each verified territory at your site.

<table>
<thead>
<tr>
<th>Territory Number</th>
<th>All Dates Detected</th>
<th>UTM N</th>
<th>UTM E</th>
<th>Pair Confirmed? Y or N</th>
<th>Nest Found? Y or N</th>
<th>Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Attach additional sheets if necessary
APPENDIX G

2016/2017 Wet Season
Fairy Shrimp Survey Report
August 15, 2017

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

The 2016/17 wet season survey for the presence or absence of two federally listed endangered vernal pool branchiopod species, Riverside fairy shrimp (*Streptocephalus woottoni*) and San Diego fairy shrimp (*Branchinecta sandiegonensis*), was conducted between December 5, 2016, and May 19, 2017. Dudek biologist Paul Lemons (TE-051248-5) conducted the surveys according to the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2015). This report summarizes the results of the 2016/2017 wet season survey in order to fulfill the report requirements in accordance with the Section 10(a)(1)(A) Recovery Permit for the Pure Water San Diego Program North City Project, located in San Diego County, California.

A total of 19 basins were identified as suitable habitat for vernal pool branchiopods and were surveyed during the 2016/2017 wet survey season. These 19 basins were identified as new in 2016/17 and not previously surveyed.

**PROJECT LOCATION AND EXISTING CONDITIONS**

Proposed North City Project pipelines extend through the cities of San Diego, Santee, and the community of Lakeside in unincorporated San Diego County, in addition to federal lands within MCAS Miramar (Figure 1, Regional Map). The Project site occupies portions of Township 14 South, Range 1 East, projected Sections 30 and 31; Township 14 South, Range 1 West, projected Sections 25 and 36; Township 14 South, Range 2 West, projected Sections 32, and 33; Township 15 South, Range 1 East, projected Sections 6 and 18; Township 15 South, Range 1 West, projected Sections 1, 23, and 30; Township 15 South, Range 2 West, projected Sections 6, 25, 29, 30, 31, 32, 33, 35, and 36; Township 15 South, Range 3 West, projected Sections 9, 10, 11, 16, 17, 20, 25, 26, and 28; Township 16 South, Range 2 West, projected Sections 1, 2, 3, and 4; and Township 16 South, Range 3 West, projected Section 9 on the San Vicente Reservoir, El Cajon, La Mesa, Poway, La Jolla, and Del Mar U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).
Elevations range from about 94 feet amsl in the southwestern portion of the Project site to approximately 688 feet amsl.

Soils within the Project site consist of acid igneous rock land; Altamont clay; Carlsbad-Urban Land complex, Chesterton fine sandy loam; Chesterton-Urban Land complex; Cienega rocky and very rocky coarse sandy loam, Cienega-Fallbrook rocky sandy loam; Diablo clay; Diablo-Olivenhain complex; Diablo-Urban land complex; Fallbrook sandy loam; Fallbrook-Vista sandy loam; Friant rocky fine sandy loam; Gaviota fine sandy loam; gravel pits; Huerhuero loam; metamorphic rock land; Olivenhain cobbly loam; Ramona sandy loam; Redding cobbly and gravelly loam; Redding-Urban land complex; riverwash; Salinas clay loam; stony land; terrace escarpments; Tujunga sand; and Visalia sandy loam (SanGIS 2016).

VEGETATION COMMUNITIES, LAND COVERS, AND WET FEATURES

A total of 28 vegetation communities and/or land cover types were identified within a 500-foot buffer of the Miramar Reservoir Alternative study area, and 26 vegetation communities and/or land cover types were observed within a 500-foot buffer of the San Vicente Pipeline Alternative study area. Dominate vegetation community/land cover categories within the study areas include disturbed and developed areas, scrub and chaparral, riparian and bottomlands, woodlands, and grasslands.

Suitable and potentially suitable habitat (i.e., ephemerally wet/ponded basins) for vernal pool branchiopods was identified on site and consists primarily of road rut (man-made) depressions, lacking vegetation, located immediately adjacent to roads and driveway access areas along the proposed project alignments; however, one basin (PWP 8) appears to be a naturally occurring pool adjacent to the Metro Biosolids Center (located north of State Route 52 (SR-52), adjacent to the Miramar Landfill). All of the basins surveyed are considered potentially suitable habitat for vernal pool branchiopods. All 19 basins surveyed were found in areas mapped as disturbed habitat.

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as native or naturalized vegetation associations (Oberbauer et al. 2008). These areas may continue to retail soil substrate. If vegetation is present, it is almost entirely composed of non-native vegetation, such as ornamentals or ruderal exotic species. Examples of these areas may include graded landscapes or areas, graded firebreaks, graded construction pads, construction staging areas, off-highway vehicle (OHV) trails, areas repeatedly cleared for fuel management, or repeatedly used areas that prevent revegetation (e.g., parking lots, trails that have persisted for years). On site, the dirt roads, dirt trails, and OHV areas are mapped as disturbed habitat.
PREVIOUS BRACHIOPOD STUDIES

To Dudek’s knowledge, no previous protocol-level surveys have been conducted within the basins surveyed during the 2016/17 wet season and discussed in this report.

SURVEY METHODS

The surveys methods follow the current USFWS survey guidelines protocol (USFWS 2015). The onset of the 2016/17 wet season survey at the project site began with a significant rain event occurring between November 26 and November 28, 2016. Within 24 hours after this rain event, the entire proposed alignment was visited by biologist Brock Ortega to confirm pooling. Mapping (using a Trimble GeoXT handheld Global Positioning System (GPS) unit) of inundated basins was conducted by Dudek biologist Monique O’Conner on December 1, 2016. The first day of protocol-level sampling (and all surveys thereafter) was conducted by biologist Paul Lemons on December 5, 2016. The protocol states that sampling must be initiated within 7 days of inundation. All suitable habitat basins on site that met the USFWS inundation criteria (i.e., depth of 3 centimeters (1.2 inches) or greater 24 hours after a rain event) to initiate protocol-level surveys were sampled, and USFWS survey forms were completed.

After initial inundation, all wet basins were surveyed at approximately 1-week intervals, according to the survey protocol, until dried up. Basins that dried up and then refilled were surveyed within 7 days of refilling and surveys were reinitiated at the 1-week interval. During the 2016/17 wet season survey, the project site was visited on 24 occasions. A schedule of the 2016/17 wet season survey effort is presented in Table 1. Due to significant rainfall on February 27, 2017 the visit was terminated due to safety concerns from flooding.

The surveys were conducted by Dudek biologist Paul Lemons (TE-051248-5). During each site visit, Mr. Lemons evaluated all basins to document inundation levels and performed sampling when appropriate. Throughout the 2016/17 season, daily precipitation was monitored from multiple weather stations across the proposed project alignment, using Weather Underground Inc. 2016–2017).
Recovery Permit Coordinator  
Subject: 2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

Table 1  
2015/16 Schedule of Surveys

<table>
<thead>
<tr>
<th>Visit Number</th>
<th>Biologist</th>
<th>Date</th>
<th>Survey Type</th>
<th>Survey Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BAO</td>
<td>November 28, 2016</td>
<td>Ponding check</td>
<td>No conditions recorded</td>
</tr>
<tr>
<td>2</td>
<td>MO</td>
<td>December 1, 2016</td>
<td>GPS inundated ponded basins</td>
<td>No conditions recorded</td>
</tr>
<tr>
<td>3</td>
<td>PML</td>
<td>December 5, 2016</td>
<td>Survey</td>
<td>0900-1500; 66°F–68°F; 50-70% cc; 2-6 mph winds</td>
</tr>
<tr>
<td>4</td>
<td>PML</td>
<td>December 12, 2016</td>
<td>Survey</td>
<td>0840-1230; 60-70°F; 80-40% cc; 0–7 mph winds</td>
</tr>
<tr>
<td>5</td>
<td>PML</td>
<td>December 19, 2016</td>
<td>Survey</td>
<td>0830-1500; 63-67°F; 0% cc; 1-3 mph winds</td>
</tr>
<tr>
<td>6</td>
<td>PML</td>
<td>December 26, 2016</td>
<td>Survey</td>
<td>0950-1600; 58-60°F; 20-30% cc; 0-5 mph winds</td>
</tr>
<tr>
<td>7</td>
<td>PML</td>
<td>January 2, 2017</td>
<td>Survey</td>
<td>0930–1500; 54-61°F; 100% cc; 0-5 mph winds</td>
</tr>
<tr>
<td>8</td>
<td>PML</td>
<td>January 9, 2017</td>
<td>Survey</td>
<td>0820–1500; 60-63°F; 100% cc; 1-4 mph winds</td>
</tr>
<tr>
<td>9</td>
<td>PML</td>
<td>January 16, 2017</td>
<td>Survey</td>
<td>0900–1500; 55–66°F; 60-5% cc; 0-5 mph winds</td>
</tr>
<tr>
<td>10</td>
<td>PML</td>
<td>January 23, 2017</td>
<td>Survey</td>
<td>0900–1520; 54-56°F; 100-90% cc; 3-15 mph winds, some rain</td>
</tr>
<tr>
<td>11</td>
<td>PML</td>
<td>January 30, 2017</td>
<td>Survey</td>
<td>0800–1440; 59-62°F; 10-20% cc; 0-7 mph winds</td>
</tr>
<tr>
<td>12</td>
<td>PML</td>
<td>February 6, 2017</td>
<td>Survey</td>
<td>0900–1520; 56-61°F; 100% cc; 1-10 mph winds</td>
</tr>
<tr>
<td>13</td>
<td>PML</td>
<td>February 13, 2017</td>
<td>Survey</td>
<td>0840-1500; 61°F–74°F; 0-60% cc; 0-4 mph winds</td>
</tr>
<tr>
<td>14</td>
<td>PML</td>
<td>February 20, 2017</td>
<td>Survey</td>
<td>0800–1430; 59-71°F; 100–40% cc; 0–6 mph winds</td>
</tr>
<tr>
<td>15</td>
<td>PML</td>
<td>February 27, 2017</td>
<td>Survey</td>
<td>0900–1400; 49–58°F; 100% cc; 4–15 mph winds; Heavy rain</td>
</tr>
<tr>
<td>16</td>
<td>PML</td>
<td>March 6, 2017</td>
<td>Survey</td>
<td>0900–1530; 54°F–76°F; 0% cc; 1-10 mph winds</td>
</tr>
<tr>
<td>17</td>
<td>PML</td>
<td>March 13, 2017</td>
<td>Survey</td>
<td>0820-1500; 59–75°F; 50-0% cc; 0-5 mph winds</td>
</tr>
<tr>
<td>18</td>
<td>PML</td>
<td>March 20, 2017</td>
<td>Survey- All pools dry</td>
<td>No conditions recorded</td>
</tr>
<tr>
<td>19</td>
<td>PML</td>
<td>March 23, 2017</td>
<td>Ponding check</td>
<td>No conditions recorded</td>
</tr>
<tr>
<td>20</td>
<td>PML</td>
<td>March 27, 2017</td>
<td>Survey- All pools dry</td>
<td>No conditions recorded</td>
</tr>
<tr>
<td>21</td>
<td>PML</td>
<td>May 8, 2017</td>
<td>Ponding check</td>
<td>No conditions recorded</td>
</tr>
</tbody>
</table>
Protocol-level sampling was performed within all basins that were considered potential listed branchiopod habitat by vernal pool branchiopods and any depressions meeting the USFWS 3-centimeter (1.2-inch) inundation criteria. The location of each basin sampled was recorded using a Global Positioning System (GPS) unit with sub-meter accuracy. GPS data were downloaded into an ArcGIS file by Dudek geographic information systems (GIS) specialist Andrew Greis.

During each survey, Mr. Lemons inspected the individual basins for depth, surface area of water, air and water temperature, level of disturbance, and presence of aquatic wildlife. An aquarium dip net was passed through every basin that met the USFWS inundation criteria. All portions of ponded water were surveyed from the bottom to the surface by moving the dip net in a mild zigzag pattern through the basin as directed by the sampling protocol (USFWS 2015). Dip net contents were frequently viewed and discarded of algae, plants, and other debris material when occurring at high concentrations (USFWS 2015). Samples were collected, when needed, using the aquarium net and a 40-milliliter (1.4-ounce) glass vial. Specimens were stored in the vial with water collected where the specimen was found. Specimens were taken to the laboratory within 24 hours of collection and placed in a non-denatured ethyl alcohol (200 proof) solution for preservation. Each specimen was inspected thoroughly using a dissecting microscope and soft-tip forceps. Eriksen and Belk (1999) was used to verify the species of each specimen collected. If any listed vernal pool branchiopods would have been identified during this survey effort, the USFWS would have been notified within 10 days of occupied basins as stated in the protocol.

Survey data sheets (provided in the 2015 survey protocol) were completed for every basin that met the minimum USFWS inundation requirement at the time of sampling (Appendix A). All information was hand recorded in the field using the data sheet, with the most pertinent information (e.g., pool basin data, fairy shrimp presence/absence, and species identification) recorded. Photographs of the pool basins are included in Appendix B.
SURVEY RESULTS

Basin Descriptions

A total of 19 basins were identified as suitable habitat for vernal pool branchiopods and were surveyed during the 2016/17 wet survey season. The basins within the study area are distributed in topographically flat areas primarily along Eastgate Mall Road in the City of San Diego and Moreno Avenue in Lakeside, CA. Seventeen (17) of the basins are considered road ruts. Road ruts are depressions that are typically formed by vehicular traffic within or immediately adjacent to roadways, generally lack aquatic vegetation, and are heavily disturbed by vehicular traffic moderately to highly disturbed, showing evidence of current roadside disturbance (i.e., parked vehicles, trailers, tire tracks, trash). Two basins (PWP 1 and PWP 8) are considered vernal pools. Vernal pools are depressions that retain sufficient water level, support vernal pool indicator plant species, and likely support vernal pool branchiopods (Note that no vernal pool branchiopods were detected within PWP 1 during the 2016/17 wet season surveys).

Fairy Shrimp Presence/Absence

Neither of the two federally listed endangered vernal pool branchiopod species (Riverside fairy shrimp or San Diego fairy shrimp) were identified during the 2016/17 wet season survey effort. During the 16 survey sampling visits, 12 basins (PWP 3, PWP 4, PWP 5, PWP 6, PWP 8, PWP 9, PWP 11, PWP 12, PWP 13, PWP 14, PWP 15, PWP 17) were found to be occupied by versatile fairy shrimp (Branchinecta lindahli). A summary of the survey results is provided in Table 2. The distribution of basins sampled in the study area is presented in Figure 3 attached to this report.

Table 2

<table>
<thead>
<tr>
<th>Basin ID</th>
<th>Branchiopod Species Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWP 1</td>
<td>None</td>
</tr>
<tr>
<td>PWP 2</td>
<td>None</td>
</tr>
<tr>
<td>PWP 3</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
<tr>
<td>PWP 4</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
<tr>
<td>PWP 5</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
<tr>
<td>PWP 6</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
<tr>
<td>PWP 7</td>
<td>None</td>
</tr>
<tr>
<td>PWP 8</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
<tr>
<td>PWP 9</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
<tr>
<td>PWP 10</td>
<td>None</td>
</tr>
<tr>
<td>PWP 11</td>
<td>Fairy shrimp present; Versatile fairy shrimp (<em>Branchinecta lindahli</em>)</td>
</tr>
</tbody>
</table>
Table 2
2015/16 Vernal Pool Branchiopods Survey Results*

<table>
<thead>
<tr>
<th>Basin ID</th>
<th>Branchiopod Species Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWP 12</td>
<td>Fairy shrimp present; Versatile fairy shrimp (Branchinecta lindahli)</td>
</tr>
<tr>
<td>PWP 13</td>
<td>Fairy shrimp present; Versatile fairy shrimp (Branchinecta lindahli)</td>
</tr>
<tr>
<td>PWP 14</td>
<td>Fairy shrimp present; Versatile fairy shrimp (Branchinecta lindahli)</td>
</tr>
<tr>
<td>PWP 15</td>
<td>Fairy shrimp present; Versatile fairy shrimp (Branchinecta lindahli)</td>
</tr>
<tr>
<td>PWP 16</td>
<td>None</td>
</tr>
<tr>
<td>PWP 17</td>
<td>Fairy shrimp present; Versatile fairy shrimp (Branchinecta lindahli)</td>
</tr>
<tr>
<td>PWP 18</td>
<td>None</td>
</tr>
<tr>
<td>PWP 19</td>
<td>None</td>
</tr>
</tbody>
</table>

I certify that the information presented in this survey report and attached exhibits fully and accurately represents my work. Please contact Brock Ortega at bortega@dudek.com, Paul Lemons at plemons@dudek.com, or Danielle Mullen at dmullen@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Paul Lemons
TE051248-5

Att: Figure 1, Regional Map
Figure 2A–C, Vicinity Map
Figures 3A–F, Aerial Map
Appendix A, Survey Data Forms
Appendix B, Photographs

cc: Brock Ortega, Dudek

REFERENCES CITED


Recovery Permit Coordinator

Subject: 2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California


http://www.wunderground.com
FIGURE 2A
Vicinity Map

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.

2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California
FIGURE 2B
Vicinity Map

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.

2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California
Vicinity Map

2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.

FIGURE 2C

Vicinity Map
2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

PROJECT STUDY AREA
Basin with versatile fairy shrimp (Branchinecta lindahli) present
Basin
Vernal pool

FIGURE 3A
Aerial Map

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.
2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.

FIGURE 3B
Aerial Map

Project Study Area
Vernal pool with versatile fairy shrimp (Branchinecta lindahi) present
Aerial Map

2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.

FIGURE 3C
Aerial Map

Project Study Area
Basin with versatile fairy shrimp (Branchinecta lindahli) present
Basin
FIGURE 3D
Aerial Map

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.

Project Study Area
Basin with versatile fairy shrimp (Branchinecta lindahli) present
Basin
2016/17 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Pure Water San Diego Program North City Project, San Diego County, California

SOURCE: USGS 7.5-Minute Series El Cajon, San Vicente Reservoir Quadrangles.
APPENDIX A

Survey Data Forms
## Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** PuJP  
**County:** San Diego  
**Quad:**  
**Township:**  
**Range:**  
**Section:**

### SURVEYOR / Permit Number:
Paul Lemons  
**TE051248**

### Date:
12/5/16  
**Time:** 0900-1500  
**Weather Conditions:** 66-68°F, 2-6 mph winds, 50-70% clouds.

<table>
<thead>
<tr>
<th>Feature ID #</th>
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**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark.  
Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Limnodiella occidentalis, BRL = Branchinecta lindahl). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.  
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

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### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

<table>
<thead>
<tr>
<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
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**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderella occidentalis*, BRLU = *Branchinecta lindahi*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Converted Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
### U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** PWP  
**County:** San Diego  
**Date:** 12/12/10  
**Weather Conditions:** 60-70°F, 0-7 mph, 80-40% cc

<table>
<thead>
<tr>
<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°F)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (Flatworms)</th>
<th>Notes / Voucher information</th>
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<td>D, T, T, No F5</td>
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</tbody>
</table>

*All other pools dry*

**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindenella occidentalis*, BRLI = *Branchinecta lindahi*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
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<tr>
<th>Feature ID #</th>
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<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminthes (flatworms)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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<th>Feature ID #</th>
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<th>Surface Area (m x m)</th>
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<th>Insects</th>
<th>Platyhelminths (flatworms)</th>
<th>Habitat Condition</th>
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<td>8x8</td>
<td></td>
<td>D, TT N, F 5</td>
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<td>3x12</td>
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<td></td>
<td>D, TT N, F 5</td>
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Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIO = Linderiella occidentalis, BRN = Branchinecta lindahl). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed, G = grazed, UG = ungrazed. by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

<table>
<thead>
<tr>
<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (Flatworms)</th>
<th>Habitual Condition</th>
<th>Notes / Voucher information</th>
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<td>PWP 15</td>
<td>5041024.91 3629664.95</td>
<td>Air 54 Water 57</td>
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<td></td>
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<td>DIT</td>
<td>No FS</td>
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# Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** See Report – Several Throughout San Diego County  
**Township:**  
**Range:**  
**Section:**  

**SURVEYOR / Permit Number:** Paul Lemons, TE051248-5  
**Date:** 1/2/17  
**Time:** 6:30-15:00  
**Weather Conditions:** 54°-61°F, 0-5 mph winds, 100% cc

<table>
<thead>
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<th>UTM (Northing, Easting, Datum)</th>
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<th>Depth (cm)</th>
<th>Surface Area (m² m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminthes (Flatworms)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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<td>4.12</td>
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<td>D, IT, No FS</td>
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</table>

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
<table>
<thead>
<tr>
<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
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<th>Insects</th>
<th>Platyhelminths (Nematodes)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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<td>NoFS</td>
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<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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<td>No F5</td>
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<td>PWP 2</td>
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<td>D, T</td>
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<td>D, T</td>
<td>No F5</td>
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<th>Insects</th>
<th>Plathelminthes (Flatworms)</th>
<th>Notes / Voucher Information</th>
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<td>3x16</td>
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### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** See Report - Several throughout San Diego County  
**SURVEYOR / Permit Number:** Paul Lemons, TCE 051248-5  
**Date:** 1/1/74  
**Time:** 0600-1500  
**Weather Conditions:** 55-66°F, 0-5 mph winds, 60-5% cc

<table>
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<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°F)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
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<th>Platyhelminths (flukes)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher Information</th>
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<td>Notostracans</td>
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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
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## Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** See Report - Several Throughout San Diego County  
**Township:**  
**Range:**  
**Section:**  

**SURVEYOR/Permit Number:** Paul Lemon, TE 051249-5  
**Date:** 1/23/14  
**Time:** 09:00-15:20  
**Weather Conditions:** 54-56°F, 3-15 mph winds, 100-98% cc, some rain

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</table>

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIO = Linderieriella occidentalis, BRLI = Branchinecta lindahl). For habitat conditions use two letter abbreviator as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** Several - See Report  
**SURVEYOR / Permit Number:** Pure Lemon - TE051246-5  
**Date:** 10/17/2022  
**Weather Conditions:** °F, mph winds, %E

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<th>Temp (°C)</th>
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<th>Surface Area (m x m)</th>
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<th>Insects</th>
<th>Playhelminths (Flatworms)</th>
<th>Habitat Condition</th>
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Notes: Fill in abbreviated names of Anostacans and Notostracans, for all others indicate presence with a check mark. Anostacan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRL = Branchinecta lindahlii).  
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.  
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
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<tr>
<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
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<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (flatsworms)</th>
<th>Habitat Condition</th>
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Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Limnocythere occidentalis, BRLL = Branchinecta lindahl). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
<table>
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## Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** Several – See Report  
**Towship:**  
**Range:**  
**Section:**  

**SURVEYOR / Permit Number:** Par Lemon - TE05128-5

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<th>Time:</th>
<th>Weather Conditions:</th>
<th>°F, mph winds, %CC</th>
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<th>Insects</th>
<th>Platyhelminths (Flatworms)</th>
<th>Notes / Voucher information</th>
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**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOO = Linderiella occidentalis, BRL = Branchinecta lindahl). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys for Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** See Report - Several Throughout San Diego County  
**Township:**  
**Range:**  
**Section:**  

**SURVEYOR / Permit Number:** Paul Lemons, TE051249-5  
**Date:** 7/20/14  
**Time:** 0800-1430  
**Weather Conditions:** S = 71°F, 0-6 mph winds, 100-40% CC

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<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
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<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
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<td>1 x 2</td>
<td>DTT</td>
<td>20% BRL</td>
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<td>75</td>
<td>8</td>
<td>8</td>
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<td>4 x 10</td>
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<td>DTT</td>
<td>10% BRL, 10%</td>
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<td>68</td>
<td>7</td>
<td>8</td>
<td>5 x 8</td>
<td>8 x 8</td>
<td>DTT</td>
<td>No FS</td>
</tr>
<tr>
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<td>67</td>
<td>7</td>
<td>8</td>
<td>5 x 8</td>
<td>8 x 8</td>
<td>DTT</td>
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</tr>
<tr>
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<td>8 x 8</td>
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<td>57%</td>
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<td>12</td>
<td>4 x 12</td>
<td>4 x 12</td>
<td>DTT</td>
<td>20% BRL, 10%</td>
</tr>
</tbody>
</table>

**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRL = Branchinecta lindahli).  
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by: C = cattle, H = horses, S = sheep, AB = Algal blooms present.  
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
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<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Plathelminths (Flukes)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher Information</th>
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</thead>
<tbody>
<tr>
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<td>8x8</td>
<td>DTT</td>
<td>NoFS</td>
</tr>
<tr>
<td>PWP 16</td>
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<td>4x20</td>
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<td>DTT</td>
<td>NoF3</td>
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<td>NoFS</td>
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<td>3x16</td>
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<td>DTT</td>
<td>NoFS</td>
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</table>

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLL = Branchinecta lindahi). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep, AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** See Report – Several throughout San Diego County  
**Township:**  
**Range:**  
**Section:**  

**SURVEYOR / Permit Number:** Paul Lemons, TEO51248-5  
**Date:** 2/24/94  
**Time:** 0900-1400  
**Weather Conditions:** 59.58°F, 4-15 mph winds, 100% cc Heavy Rain  

<table>
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<tr>
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<th>UTM (Northing, Easting, Datum)</th>
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<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (flatworms)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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<tbody>
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<td>49</td>
<td>59</td>
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<td>D,TT</td>
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<td>Pwp 14</td>
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<td>1x3</td>
<td>D,TT</td>
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</tbody>
</table>

**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRCI = Brachinecta lindahi).  
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed  
by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.  
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
<table>
<thead>
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<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (Flatworms)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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<td>3 x 6</td>
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</table>

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<th>Surface Area (m x m)</th>
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<th>Insects</th>
<th>Platyhelminths</th>
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<th>Notes / Voucher Information</th>
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<td>Water</td>
<td>DTT</td>
<td>No FS</td>
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<td>DTT</td>
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<td>1 x 3</td>
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<td>Winter</td>
<td>DTT</td>
<td>No FS</td>
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</table>

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No FS - lots of tadpoles
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<th>Feature ID #</th>
<th>UTM - (Northing, Easting, Datum)</th>
<th>Temp (°C)</th>
<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (flatworms)</th>
<th>Notes / Voucher information</th>
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<td>7.1</td>
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<td>6 6</td>
<td>3.16</td>
<td>3.60</td>
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<td>D,TT No FS</td>
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Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderella occidentalis, BRLI = Branchinecta lindahl). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
<table>
<thead>
<tr>
<th>Feature ID #</th>
<th>UTM (Northing, Easting, Datum)</th>
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<th>Depth (cm)</th>
<th>Surface Area (m x m)</th>
<th>Crustaceans</th>
<th>Insects</th>
<th>Platyhelminths (flatsworm)</th>
<th>Voucher information</th>
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Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BR1 = Branchinecta lindaei).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.
### Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

**Site or Project Name:** Pure Water  
**County:** San Diego  
**Quad:** SEVERAL - SEE REPORT  
**SURVEYOR / Permit Number:** PAR LEMONS - TE05'248-5

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<th>Surface Area (m x m)</th>
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<th>Insects</th>
<th>Platyhelminths (flatworms)</th>
<th>Habitat Condition</th>
<th>Notes / Voucher information</th>
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**Date:** 3/15/17  
**Time:**  
**Weather Conditions:** °F, mph winds, %cc

**Notes:** Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindaei).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints). LG = light grazing, MG = moderate grazing, HG = heavy grazing.
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APPENDIX B

Photographs