Appendix A
Agency Correspondence
Dear Ms. Kershek:

The Federal Transit Administration (FTA) is the lead federal agency for the Mid-Coast Corridor Transit Project located in San Diego, California. The San Diego Association of Governments (SANDAG) is the local lead agency and designated non-Federal representative per 50 Code of Federal Regulations (CFR) §402.08. Pursuant to 50 CFR §402.14, the FTA requests initiation of formal consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act for the Project. The FTA also requests concurrence from the USFWS on the determination of effect on federal listed endangered species.

Project Description
The Mid-Coast Corridor Transit Project would extend the existing San Diego Trolley (Trolley) Blue Line from the Santa Fe Depot north via the existing Trolley tracks within the Metropolitan Transit System (MTS) right-of-way for approximately 3.5 miles to just north of the Old Town Transit Center (OTTC) and south of the San Diego River. North of this point, the Project includes construction of 10.9 miles of new double track extending to the terminus at the University Towne Centre Transit Center in University City. The Project includes nine new stations at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, Veterans Administration Medical Center, University of California at San Diego (UCSD) West Campus, UCSD East Campus, Executive Drive, and the University Towne Centre Transit Center (see Figure 2-1 in the BA). In addition, the Project includes upgrades to existing systems facilities between the Santa Fe Depot and the OTTC, and the acquisition of new Trolley vehicles for the extended Project operation.

Consultation History
In February 2013, in cooperation with the FTA, SANDAG submitted a letter requesting the initiation of informal federal Endangered Species Act Section 7 consultation with the USFWS. Species of interest included the federally listed threatened coastal California gnatcatcher (Polioptila californica californica), federally listed endangered San Diego fairy shrimp (Branchinecta sandiegensis), federally listed endangered least Bell’s vireo (Vireo bellii pusillus), and federally listed endangered southwestern willow flycatcher (Empidonax traillii extimus). The USFWS requested additional information related to the Project in March 2013, which was provided by SANDAG that month. The Mid-Coast Corridor Transit Project Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report and supporting technical reports were submitted to USFWS during the 60-day public review and comment period from May 17 to July 17, 2013. In November 2013, SANDAG discussed the Project further with USFWS. Informal consultation was extended to consider the light-footed clapper rail (Rallus longirostris levipes), which is known to occur in the San Diego River to the west of the Project.

At SANDAG’s request, in January 2014, USFWS provided a summary of the Section 7 consultation to date and updates on the listing of threatened and endangered species. In April 2014, FTA and SANDAG held a conference call with USFWS to discuss the recent detection of San Diego fairy shrimp within the...
project impact area and the need for formal Section 7 consultation. A follow-up field meeting was held with USFWS, FTA, and SANDAG on May 6, 2014 to view the impact area and the proposed mitigation site. The enclosed Biological Assessment (BA), completed in accordance with 50 CFR §402.12, includes additional detail on the consultation history as well as information on the mitigation as discussed in the field meeting.

Survey Results and Effects

Focused surveys were conducted for the Project in 2010, 2012, and 2014. No federally-listed species were recorded during any of the focused plant surveys. Based on the results of focused surveys and the presence of potentially suitable habitat in the study area, the following species of concern have been identified: San Diego fairy shrimp, coastal California gnatcatcher, least Bell’s vireo, southern willow flycatcher, and light-footed clapper rail. No critical habitat for wildlife species listed as federally threatened or endangered occurs in the study area.

Potential habitat for federally listed species could be directly or indirectly affected by the construction of the Project. Direct effects may include permanent (long-term) impacts from loss and shading of suitable habitat due to new track construction, track realignment, and maintenance of associated structures and facilities and/or temporary (short-term) construction-related impacts. Indirect construction impacts on adjacent biological resources located outside the limits of work typically include noise, vibration, dust, lighting, increased human activity (e.g., construction workers), erosion and sedimentation, pollutants, and chemical spills. Section 5 in the BA discusses the long-term (direct and indirect), construction, and cumulative effects of the Project on federally listed wildlife species and vegetation communities as well as the proposed mitigation to minimize and avoid impacts. Table 4-1 provides a summary of the impacts to vegetation communities and land covers while Table 4-2 includes an overview of the impacts to wetlands and waters of the U.S.

Implementation of the Project would result in the loss of an occupied San Diego fairy shrimp basin and, therefore, implementation of the Project “may affect, and is likely to adversely affect” San Diego fairy shrimp. With implementation of the proposed avoidance, minimization, and mitigation measures described in the BA, the Project “may affect, but is not likely to adversely affect” coastal California gnatcatcher, least Bell’s vireo, southwestern willow flycatcher, and light-footed clapper rail. The FTA requests that USFWS concur with this finding of effect.

If you have any questions regarding our request, please contact Mary Nguyen, FTA Environmental Protection Specialist, by phone at (213) 202-3960 or by email at mary.nguyen@dot.gov or contact Leslie Blanda, SANDAG Project Development Program Manager, by phone at (619) 699-6907 or by email at lbla@sandag.org.

Sincerely,

[Signature]

Leslie T. Rogers
Regional Administrator

cc: Leslie Blanda, SANDAG

Enclosure:
Mid-Coast Corridor Transit Project Section 7 Consultation Biological Assessment, May 2014
Appendix B
Section 7 Consultation
Biological Assessment
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Section 7 Consultation Biological Assessment
June 2014

Prepared by:
The San Diego Association of Governments (SANDAG)
# Table of Contents

## 1.0 INTRODUCTION

1.1 Species List

1.2 Critical Habitat

1.3 Consultation to Date

## 2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Project Location

2.2 Existing Site Conditions

2.2.1 Study Area and Surrounding Land Uses

2.2.2 Soils

2.2.3 Terrain

2.2.4 Vegetation Communities

2.2.5 Waters of the U.S.

2.3 Proposed Action

2.4 Definition of Action Area

2.4.1 Alignment

2.4.2 Stations

2.4.3 Trolley Vehicle Fleet and Maintenance Facilities

2.4.4 Power System and Signaling

2.4.5 Operating Plan

## 3.0 FEDERALLY LISTED SPECIES AND THEIR HABITAT

3.1 Coastal California Gnatcatcher

3.2 Southwestern Willow Flycatcher and Least Bell’s Vireo

3.3 Light-footed Clapper Rail

3.4 San Diego Fairy Shrimp

3.5 Special-Status Plants

## 4.0 SUMMARY OF EFFECTS

4.1 Long-Term Impacts

4.2 Construction Impacts

4.3 Cumulative Impacts

4.4 Summary of Impacts to Vegetation Communities and Land Covers

4.5 Summary of Impacts to Waters of the U.S.

## 5.0 FEDERALLY LISTED SPECIES

5.1 Coastal California Gnatcatcher

5.2 Southwestern Willow Flycatcher and Least Bell’s Vireo

MID-COAST CORRIDOR TRANSIT PROJECT

June 2014
|
|---|
|5.3 | Light-footed Clapper Rail | 5-9 |
|5.3.1 | Long-term Impacts | 5-9 |
|5.3.2 | Construction (Short-term) Impacts | 5-10 |
|5.3.3 | Avoidance, Minimization, and Mitigation Measures | 5-10 |
|5.3.4 | Determination of Effect | 5-10 |
|5.4 | San Diego Fairy Shrimp | 5-11 |
|5.4.1 | Long-term Impacts | 5-11 |
|5.4.2 | Construction (Short-term) Impacts | 5-11 |
|5.4.3 | Avoidance, Minimization, and Mitigation Measures | 5-11 |
|5.4.4 | Determination of Effect | 5-12 |

6.0 | RELEVANT REPORTS PREPARED | 6-1 |

7.0 | REFERENCES | 7-1 |

**List of Appendices**

| A | MID-COAST OBSERVED PLANT SPECIES | A-1 |
| B | MID-COAST OBSERVED WILDLIFE SPECIES | B-1 |
| C | SPECIAL-STATUS SPECIES NOT OBSERVED AND WITH LOW POTENTIAL OR NOT EXPECTED TO OCCUR ON SITE | C-1 |
| D | FOCUSED SURVEY REPORTS | D-1 |

**List of Figures**

| Figure 2-1. | Mid-Coast Corridor Transit Project | 2-2 |
| Figure 2-2. | Soils Map | 2-4 |
| Figure 2-3. | Topography | 2-6 |
| Figure 2-4. | Conceptual Plan and Profile of Mid-Coast Corridor Transit Project | 2-11 |
| Figure 2-5. | Existing Traction Power Substation at a Street North of Santa Fe Depot | 2-16 |
| Figure 2-6. | Refined Build Alternative Opening Year Trolley Operating Plan | 2-20 |
| Figure 2-7. | Refined Build Alternative 2030 Trolley Operating Plan | 2-21 |
| Figure 3-1. | Federally Listed Species Locations, Habitat, and Proposed Impacts, Maps 1 through 8 | 3-5 |
| Figure 4-1. | San Diego Fairy Shrimp Basin II Hydrology | 4-5 |
List of Tables

Table 2-1. Mapped Soil Series and Units in the Special-Status Plant Survey Area .............2-3
Table 2-2. Vegetation Communities and Land Covers .........................................................2-7
Table 2-3. Waters of the U.S. in the Study Area by Vegetation Community .......................2-8
Table 2-4. Traction Power Substations Locations ...............................................................2-17
Table 2-5. Trolley Operating Plans .....................................................................................2-18
Table 4-1. Impacts to Vegetation Communities and Land Covers ....................................4-8
Table 4-2. Impacts to Waters of the U.S. by Vegetation Type ............................................4-9
Abbreviations

The following acronyms, initialisms, and short forms are used in this report.

- **amsl**: above mean sea level
- **C&S**: communications and signaling
- **Caltrans**: California Department of Transportation
- **CDFG**: California Department of Fish and Game (name changed to California Department of Fish and Wildlife on January 1, 2013)
- **DARs**: direct-access ramps
- **dBA**: A-weighted decibel
- **EMP**: Environmental Mitigation Program
- **ESA**: Endangered Species Act
- **FTA**: Federal Transit Administration
- **I-**: Interstate
- **L<sub>eq</sub>**: equivalent sound level
- **LOSSAN**: Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency
- **LRVs**: light rail vehicles
- **MHPA**: Multi-Habitat Planning Area
- **MSCP**: Multiple Species Conservation Program
- **MTS**: Metropolitan Transit System
- **OTTC**: Old Town Transit Center
- **quad**: quadrangle
- **SANDAG**: San Diego Association of Governments
- **SEIS/SEIR**: Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report
- **SR**: State Route
- **study area**: biological resources study area
- **TPSS**: traction power substation
- **Trolley**: San Diego Trolley
- **UCSD**: University of California, San Diego
<table>
<thead>
<tr>
<th>Acronym</th>
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<tr>
<td>VA</td>
<td>Veterans Administration</td>
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1.0 INTRODUCTION

The purpose of this biological assessment is to review the Mid-Coast Corridor Transit Project in sufficient detail to determine to what extent the proposed action may affect any threatened, endangered, proposed, or candidate species. This biological assessment was prepared in accordance with legal requirements set forth under Section 7 of the federal Endangered Species Act (ESA) (16 United States Code 1536 (c)).

Sensitive biological resources present or potentially present in the study area were identified through a literature search using the following sources: the California Natural Diversity Database (California Department of Fish and Game [CDFG], 2012a), the Inventory of Rare and Endangered Plants (California Native Plant Society, 2011), U.S. Fish and Wildlife Service (USFWS) data (USFWS, 2008), and USFWS Critical Habitat (USFWS, 2012). A nine-quadrangle (quad) search was performed for the U.S. Geological Survey (USGS) quads in which the survey area is found, and the surrounding quads were searched: Del Mar, Del Mar OE1 W, Encinitas, Escondido, Imperial Beach, Imperial Beach OE W, La Jolla, La Jolla OE W, La Mesa, National City, Point Loma, Point Loma OE W, Poway, and Rancho Santa Fe. All federally listed species identified in the search are considered in this document. Vegetation mapping and jurisdictional delineation has been completed within the study area, and focused surveys have been conducted for special-status plants and wildlife. Refer to Appendix A and Appendix B for a complete list of plant and wildlife species observed during all surveys conducted for the project.

1.1 Species List2

Federal Endangered Species

- San Diego ambrosia (*Ambrosia pumila*)
- Del Mar manzanita (*Arctostaphylos glandulosa ssp. crassifolia*)
- Coastal dunes milk-vetch (*Astragalus tener var. titi*)
- Nevin’s barberry (*Berberis nevinii*)
- Salt marsh bird’s-beak (*Chloropyron maritimum ssp. maritimum*)
- Orcutt’s spineflower (*Chorizanthe orcuttiana*)
- San Diego button-celery (*Eryngium aristulatum var. parishii*)
- Mexican flannelbush (*Fremontodendron mexicanum*)
- Willowy monardella (*Monardella viminea*)
- California Orcutt grass (*Orcuttia californica*)

1 “OE” is a map-naming convention that stands for “Over Edge,” meaning the quad for an area does not have a USGS quad number because the data are included on the adjoining map sheet.

2 Species with an asterisk (*) are considered likely to occur in the study area and are discussed further in this document.
• San Diego mesa mint (*Pogogyne abramsii*)
• Otay Mesa mint (*Pogogyne nudiuscula*)
• Arroyo toad (*Anaxyrus californicus*)
• *Southwestern willow flycatcher (*Empidonax traillii extimus*)
• *Light-footed clapper rail (*Rallus longirostris levipes*)
• California least tern (*Sternula antillarum browni*)
• *Least Bell’s vireo (*Vireo bellii pusillus*)
• *San Diego fairy shrimp (*Branchinecta sandiegonensis*)
• Pacific pocket mouse (*Perognathus longimembris pacificus*)
• Quino checkerspot butterfly (*Euphydryas editha quino*)
• Riverside fairy shrimp (*Streptocephalus woottoni*)

**Federal Threatened Species**

• San Diego thornmint (*Acanthomintha ilicifolia*)
• Encinitas baccharis (*Baccharis vanessae*)
• Thread-leaved brodiaea (*Brodiaea filifolia*)
• Otay tarplant (*Deinandra conjugens*)
• Spreading navarretia (*Navarretia fossalis*)
• California red-legged frog (*Rana draytoni*)
• Western snowy plover (coastal population) (*Charadrius alexandrinus nivosus*)
• *Coastal California gnatcatcher (*Polioptila californica californica*)
• Vernal pool fairy shrimp (*Branchinecta lynchi*)

**Federal Candidate Species**

• Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Of the above-listed species, the following 26 species are considered unlikely to occur within the study area and are therefore not discussed further in this document: San Diego ambrosia, Del Mar manzanita, coastal dunes milk-vetch, Nevin’s barberry, salt marsh bird’s-beak, Orcutt’s spineflower, San Diego button-celery, Mexican flannelbush, willowy monardella, California Orcutt grass, San Diego mesa mint, Otay Mesa mint, San Diego thornmint, Encinitas baccharis, thread-leaved brodiaea, Otay tarplant, spreading navarretia, arroyo toad, California red-legged frog, California least tern, western snowy plover (coastal population), western yellow-billed cuckoo, Pacific pocket mouse, vernal pool fairy shrimp, Riverside fairy shrimp, and quino checkerspot butterfly. No plant species listed or proposed as federally threatened or endangered were found during the focused surveys and none are expected to occur in the study area. A brief discussion is provided for each of these species below, with additional detail provided in Appendix C.
Plants

- **San Diego ambrosia** has a low potential to occur in the study area. Limited suitable clay soils occur within the study area; vernal pools are absent; and focused surveys were negative for this species.

- **Del Mar manzanita** is not expected to occur in the study area. This species was not detected during focused surveys and this shrub is likely to have been detected.

- **Coastal dunes milk-vetch** is not expected to occur in the study area. No suitable habitat exists for this species within the study area.

- **Nevin’s barberry** is not expected to occur in the study area. The study area is outside the known elevation range for the species.

- **Salt marsh bird’s-beak** is not expected to occur in the study area. No suitable habitat exists for this species within the study area.

- **Orcutt’s spineflower** has a low potential to occur in the study area. This species is only recorded from 11 occurrences in San Diego County and the potentially suitable habitat—sandy sites and openings—in the study area are associated with disturbance. Additionally, this species was not observed during focused surveys.

- **San Diego button-celery** is not expected to occur in the study area. Suitable (vernal pool) microhabitat is lacking.

- **Mexican flannelbush** is not expected to occur in the study area. This shrub was not observed during focused surveys.

- **Willowy monardella** is not expected to occur in the study area. The preferred microhabitat of rocky washes (Jepson, 2012) is marginal within the study area. In addition, focused surveys were negative.

- **California Orcutt grass** is not expected to occur in the study area. No suitable vernal pool habitat occurs within the study area.

- **San Diego mesa mint** is not expected to occur in the study area. No suitable vernal pool habitat occurs within the study area.

- **Otay Mesa mint** is not expected to occur in the study area. No suitable vernal pool habitat occurs within the study area.

- **San Diego thornmint** has a low potential to occur in the study area. Limited suitable clay soils occur within the study area; vernal pools are absent; and focused surveys were negative for this species.

- **Encinitas baccharis** is not expected to occur in the study area. The study area is outside of the species known elevation range.

- **Thread-leaved brodiaea** has a low potential to occur in the study area. Focused surveys targeted suitable habitat during peak blooming period; however, these survey results were negative.

- **Otay tarplant** has a low potential to occur in the study area. There are limited suitable clay soils within the study area and this species was not detected during focused surveys.
• **Spreading navarretia** has a low potential to occur in the study area due to the limited suitable freshwater marsh habitat present.

**Animals**

• **Arroyo toad** is not expected to occur in the study area. Although stream channels occur in the study area, the closest recorded location is approximately 14 miles to the southeast (CDFG, 2012a). In addition, the species is no longer known to occur within City of San Diego limits.

• **California red-legged frog** is not expected to occur in the study area. Suitable habitat exists in the study area within wetland areas; however, the closest recorded location for this species is approximately 48 miles to the northeast in Riverside County (CDFG, 2012a).

• **California least tern** has a low potential to occur in the study area, but is recorded in the general vicinity (CDFG, 2012a). This species has a moderate potential to breed at Mission Bay or San Diego Bay and may forage in shallow waters of Rose Creek, San Clemente Creek, Tecolote Creek, and San Diego River. No suitable nesting habitat occurs within the study area.

• **Western snowy plover** has a moderate potential to nest at Mission Bay and possibly use areas along the San Diego River. This species was recorded in the vicinity near San Diego Bay and north of the study area along the coast; however, these records are not recent (Unitt, 2004). No suitable nesting habitat occurs within the study area.

• **Western yellow-billed cuckoo** is not expected to occur due to lack of suitable large stands of riparian vegetation. This species was also not recorded in the vicinity (CDFG, 2012a).

• **Pacific pocket mouse** has a very low potential to occur within the study area. This species was recorded historically in the vicinity, however, it is assumed to be extirpated in southern San Diego County. Currently, this species is only known to occur in northern San Diego County and southern Orange County coastal areas.

• **Vernal pool fairy shrimp** is not expected to occur in the study area. Wet-season focused surveys conducted in 2010-2011, 2011-2012, and 2013-2014 were negative for this species. While suitable depressions were observed with evidence of clay soils and seasonal inundation, this species has not been recorded in the area.

• **Riverside fairy shrimp** is not expected to occur in the study area. Wet-season focused surveys conducted in 2010-2011, 2011-2012, and 2013-2014 were negative for this species. While suitable depressions were observed with evidence of clay soils and seasonal inundation, this species has not been recorded in the area.

• **Quino checkerspot butterfly** is not expected to occur in the study area. Although the species was likely historically present, the species is considered extirpated from this portion of its range by urban development.
1.2 Critical Habitat

No critical habitat for plant species listed as federally threatened or endangered occurs in the study area. In addition, no critical habitat for wildlife species listed as federally threatened or endangered, including coastal California gnatcatcher and San Diego fairy shrimp, occurs in the study area.

1.3 Consultation to Date

This document was prepared to support Section 7 consultation between the USFWS and the Federal Transit Administration (FTA) and its non-federal representative, the San Diego Association of Governments (SANDAG), for the Mid-Coast Corridor Transit Project located in San Diego, California (Figure 2-1). A brief summary of the consultation history is provided as follows.

25 February 2013—In cooperation with the FTA, SANDAG requested to initiate informal Section 7 consultation with the USFWS regarding the federally listed threatened coastal California gnatcatcher and the federally listed endangered least Bell’s vireo, southwestern willow flycatcher, and San Diego fairy shrimp. The request included pertinent project information and presented the basis for the preliminary finding made by the FTA and SANDAG that the project may affect, but is not likely to adversely affect, the four species for which Section 7 consultation was originally requested. Upon receipt of the initial consultation request, Ms. Lauren Kershek was identified as the USFWS contact.

20 March 2013—Ms. Kershek contacted SANDAG to request additional project-related information and subsequently indicated that the USFWS did not anticipate any difficulties in proceeding with the informal Section 7 consultation. At SANDAG’s request, Ms. Kershek agreed to keep the consultation open until the Draft Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR) (SANDAG, 2013a) was circulated for public review to ensure that any concerns regarding the project were adequately addressed.

27 March 2013—SANDAG provided the requested project-related information to Ms. Kershek via e-mail and ftp transmittal. Information included the project description and documentation of the proposed off-site mitigation areas.

17 May through 17 July, 2013—The Draft SEIS/SEIR and supporting technical reports were circulated for a 60-day public review and comment period.

7 November 2013—SANDAG spoke with Ms. Kershek to provide information to the USFWS regarding the current status of the project. Topics addressed included the close of the Draft SEIS/SEIR comment period, incorporation of refinements to the project engineering design, ongoing efforts to respond to comments received, and efforts to update the Mid-Coast Corridor Transit Project Biological Resources Technical Report (SANDAG, 2013e). Ms. Kershek expressed support for the identified mitigation sites. At that time, Ms. Kershek indicated that the federally listed endangered light-footed clapper rail had been reported in the San Diego River and that the informal Section 7 consultation should address potential impacts to this species. In addition, Ms. Kershek
also requested that two occurrences of special-status plant species recorded in the California Natural Diversity Database in the San Diego River be investigated if focused plant surveys had not already been conducted for them. The first dates from around the 1930s and is for Brand’s phacelia (Phacelia stellaris). The next is also an older record for San Diego ambrosia.

22 January 2014—At SANDAG’s request, Ms. Kershek provided a summary of the Section 7 consultation to date. Ms. Kershek provided an e-mail describing the activities listed above. Ms. Kershek also stated that she had confirmed that the San Diego ambrosia population that used to occur in the San Diego River has likely been extirpated. In addition, she stated that the USFWS has released a listing decision regarding Brand’s phacelia which determined that listing is not warranted; therefore, it is no longer a candidate species and does not need to be addressed in the Section 7 consultation. The population that historically occurred in the San Diego River has also likely been extirpated. The e-mail indicated that an informal Section 7 consultation is appropriate, and that the FTA will need to request consultation in writing or designate SANDAG as their non-federal representative.

30 April 2014—SANDAG and FTA Region IX held a conference call with Ms. Kershek to discuss the positive survey findings during the 2013-2014 San Diego fairy shrimp protocol surveys and the anticipated need for a formal Section 7 consultation. Ms. Kershek agreed that a formal consultation would be appropriate.

6 May 2014—SANDAG and FTA Region IX participated in a field visit with Ms. Kershek and Ms. Susan Wynn of USFWS to review the San Diego fairy shrimp impact location and the proposed mitigation site. USFWS indicated approval of the proposed mitigation location, the Anderprizes Property in Otay Mesa, California.
2.0 DESCRIPTION OF THE PROPOSED ACTION

This chapter describes the location of the Mid-Coast Corridor Transit Project, including existing site conditions. The chapter concludes with an overview of the project, including the alignment, stations, vehicle and power requirements, and the operating plan.

2.1 Project Location

The Mid-Coast Corridor Transit Project is located in San Diego, California. The Mid-Coast Corridor is the area centering on Interstate (I-) 5 and extending from Downtown San Diego on the south to University of California, San Diego (UCSD) and University City on the north. Located entirely within the City of San Diego, the corridor is bounded by the Pacific Ocean on the west and by I-805 and State Route (SR) 163 on the east. The Mid-Coast Corridor Transit Project alignment is shown on Figure 2-1.

2.2 Existing Site Conditions

This section describes the existing site conditions within the study area for the biological resources analysis, including surrounding land uses, soils, terrain, vegetation communities, and Waters of the U.S.

2.2.1 Study Area and Surrounding Land Uses

The biological resources study area generally includes all areas within 500 feet of the project alignment from Old Town Transit Center (OTTC) north to University Towne Centre (UTC). For special-status plants and jurisdictional resources, the study area is limited to areas within 100 feet of the project alignment. The study area consists of the Metropolitan Transit System (MTS) right-of-way; the I-5 right-of-way; public streets; and the UCSD campus; including disturbed and developed lands; and native and non-native upland, riparian, and wetland vegetation communities. Land uses within and adjacent to the study area include single- and multi-family residential, commercial, school, park (including designated open space park or preserve), and transportation uses, as described in more detail in the Mid-Coast Corridor Transit Project Land Use Impacts Technical Report (San Diego Association of Governments [SANDAG], 2013d).

The Mid-Coast Corridor is characterized by dense urban centers and an abundance of regional activity centers and other major trip generators. Dense population and employment centers currently anchor both the northern and southern ends of the Mid-Coast Corridor. The UCSD campus, the Westfield UTC shopping center, and regional hospitals are clustered in the north part of the corridor and represent the second most dense land uses in the county. At the south end of the corridor is the region’s only identified Metropolitan Center—Downtown San Diego—with the region’s densest land uses and high-rise development.
Figure 2-1. Mid-Coast Corridor Transit Project

Source: SANDAG, 2014
2.2.2 Soils

Eighteen soil types representing 11 soil series occur in the study area (Bowman, 1973), and are depicted in Figure 2-2 and listed in Table 2-1. Huerhuero is the most common soil series in the study area. As indicated in Table 2-1, 7 of the 18 soil types have been identified as suitable substrates for special-status plant taxa (designated by an asterisk) in the Multiple Habitat Conservation Program (AMEC et al., 2003), which covers North San Diego County cities, but is also applicable to this soil characterization for special-status plants in the study area.

Table 2-1. Mapped Soil Series and Units in the Special-Status Plant Survey Area

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<th>Soil Series</th>
<th>Soil Unit</th>
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<tbody>
<tr>
<td>Altamont</td>
<td>Altamont clay, 15% to 30% slopes, eroded*</td>
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<td></td>
<td>Altamont clay, 30% to 50% slopes*</td>
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<tr>
<td>Carlsbad</td>
<td>Carlsbad-Urban land complex, 2% to 9% slopes</td>
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<tr>
<td>Chesterton</td>
<td>Chesterton fine sandy loam, 2% to 5% slopes*</td>
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<td>Chesterton-Urban land complex, 2% to 9% slopes</td>
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<td>Corralitos</td>
<td>Corralitos loamy sand, 0% to 5% slopes*</td>
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<td></td>
<td>Huerhuero loam, 9% to 15% slopes, eroded*</td>
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<td></td>
<td>Huerhuero-Urban land complex, 2% to 9% slopes</td>
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<tr>
<td></td>
<td>Huerhuero-Urban land complex, 9% to 30% slopes</td>
</tr>
<tr>
<td>Lagoon water</td>
<td>Lagoon water</td>
</tr>
<tr>
<td>Made land</td>
<td>Made land</td>
</tr>
<tr>
<td>Salinas</td>
<td>Salinas clay loam, 2% to 9% slopes</td>
</tr>
<tr>
<td>Terrace escarpments</td>
<td>Terrace escarpments</td>
</tr>
<tr>
<td>Urban land</td>
<td>Urban land</td>
</tr>
</tbody>
</table>

Source: Bowman, 1973
Note: *Soil types within the indicated soil series have been identified as substrate for special-status plant taxa (AMEC et al., 2003).

2.2.3 Terrain

The Mid-Coast Corridor is topographically diverse, with terrain ranging from coastal beaches and bays to inland areas containing steep hillsides and narrow canyons. The lowest elevations on site occur at the southern end of the study area where the San Diego River lies at approximately 9 feet above mean sea level. The highest elevations are at the north end of the study area in La Jolla, where elevations at UCSD and University City range from approximately 320 to 360 feet above mean sea level. In addition to the San Diego River, two other surface waters traverse the study area: Tecolote Creek, which empties into Mission Bay approximately 700 feet to the west of the project, and Rose Creek, which parallels a substantial portion of the project alignment from approximately Balboa Avenue north to La Jolla Colony Drive.
Figure 2-2. Soils Map

Sources: U.S. Department of Agriculture, 2010b; SANDAG, 2014; San Diego Geographic Information Source (SanGIS), 2011
The southern portion of the study area is generally characterized by the moderate, west-facing slopes of Clairemont overlooking Mission Bay, with Mission Valley and the San Diego River located to the south (Figure 2-3). Rose Canyon is the most prominent natural feature in the northern portion of the study area. The upper portion of Rose Canyon near La Jolla Colony Drive generally trends in an east–west direction, while San Clemente Canyon to the south also runs east–west and includes the SR 52 corridor.

2.2.4 Vegetation Communities

Twenty-four vegetation communities and land covers (including disturbed forms) were mapped in the study area and include 20 native or naturalized vegetation types and 4 non-native land covers, as described below and presented in Table 2-2. Native marsh, riparian, and wetland communities are associated with the San Diego River and Rose Creek, though small patches occur in relatively urbanized situations on the UCSD campus. Marsh, riparian, and wetland vegetation types include cismontane alkali marsh, coastal and valley freshwater marsh (including disturbed), herbaceous wetlands (including disturbed), southern riparian forest (including disturbed), southern coast live oak riparian forest, southern arroyo willow riparian forest, southern riparian scrub, mulefat scrub, southern willow scrub (including disturbed), Arundo-dominated riparian, and non-vegetated channel or floodway. Disturbed wetlands also occur throughout the study area, and primarily include concrete-lined portions of Rose Creek and Tecolote Creek. Native uplands consist primarily of coastal sage scrub and disturbed coastal sage scrub. The majority of coastal sage scrub vegetation occurs on west-facing slopes above I-5 to the north and south of SR 52, with limited areas also occurring on the UCSD campus. The majority of disturbed coastal sage scrub occurs within or adjacent to the existing MTS right-of-way and consists of narrow, fragmented slivers of vegetation that are not contiguous with the larger habitat areas. Non-native grassland is present throughout the study area, primarily alongside the existing MTS right-of-way north of Garnet Avenue and in transitional areas adjacent to Rose Creek. Eucalyptus woodland also occurs throughout the study area along the existing MTS right-of-way south of Balboa Avenue, along the east side of I-5 north of La Jolla Colony Drive, and on the UCSD campus. Urban/Developed and associated Ornamental areas are the most common land cover types in the study area.
Figure 2-3. Topography

Sources: Parsons Brinckerhoff, 2008; Esri, 2012
### Table 2-2. Vegetation Communities and Land Covers

<table>
<thead>
<tr>
<th>General Vegetation Community/Land Cover Category</th>
<th>General Vegetation Type (Holland/Oberbauer Code)</th>
<th>Acres</th>
<th>% of Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbed and Developed Areas (10000)</td>
<td>Disturbed Wetland (11200)</td>
<td>11.5</td>
<td>0.70%</td>
</tr>
<tr>
<td></td>
<td>Disturbed Habitat (11300)</td>
<td>57.3</td>
<td>3.70%</td>
</tr>
<tr>
<td></td>
<td>Ornamental (N/A)</td>
<td>117.9</td>
<td>7.50%</td>
</tr>
<tr>
<td></td>
<td>Urban/Developed (12000)</td>
<td>1,092.20</td>
<td>69.90%</td>
</tr>
<tr>
<td></td>
<td><strong>Disturbed and Developed Areas Total</strong></td>
<td><strong>1,278.90</strong></td>
<td><strong>81.90%</strong></td>
</tr>
<tr>
<td>Scrub and Chaparral (30000)</td>
<td>Diegan Coastal Sage Scrub (32500)</td>
<td>71.1</td>
<td>4.60%</td>
</tr>
<tr>
<td></td>
<td>Disturbed Diegan Coastal Sage Scrub (32500)</td>
<td>36.4</td>
<td>2.30%</td>
</tr>
<tr>
<td></td>
<td>Southern Mixed Chaparral (37120)</td>
<td>4.5</td>
<td>0.30%</td>
</tr>
<tr>
<td></td>
<td><strong>Scrub and Chaparral Total</strong></td>
<td><strong>112</strong></td>
<td><strong>7.20%</strong></td>
</tr>
<tr>
<td>Grasslands, Vernal Pools, Meadows, and Other Herb Communities (40000)</td>
<td>Non-Native Grassland (42200)</td>
<td>28.6</td>
<td>1.80%</td>
</tr>
<tr>
<td></td>
<td><strong>Grasslands, Vernal Pools, Meadows, and Other Herb Communities Total</strong></td>
<td><strong>28.6</strong></td>
<td><strong>1.80%</strong></td>
</tr>
<tr>
<td>Bog and Marsh (50000)</td>
<td>Cismontane Alkali Marsh (52310)</td>
<td>1.4</td>
<td>0.10%</td>
</tr>
<tr>
<td></td>
<td>Coastal and Valley Freshwater Marsh (52410)</td>
<td>0.5</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td></td>
<td>Disturbed Coastal and Valley Freshwater Marsh (52410)</td>
<td>&lt;0.01</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td></td>
<td>Herbaceous Wetland (52510)</td>
<td>0.3</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td></td>
<td>Disturbed Herbaceous Wetland (52510)</td>
<td>0.1</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td></td>
<td><strong>Bog and Marsh Total</strong></td>
<td><strong>2.3</strong></td>
<td><strong>0.10%</strong></td>
</tr>
<tr>
<td>Riparian and Bottomland Habitat (60000)</td>
<td>Southern Riparian Forest (61300)</td>
<td>48</td>
<td>3.10%</td>
</tr>
<tr>
<td></td>
<td>Disturbed Southern Riparian Forest (61300)</td>
<td>2</td>
<td>0.10%</td>
</tr>
<tr>
<td></td>
<td>Southern Coast Live Oak Riparian Forest (61310)</td>
<td>2.9</td>
<td>0.20%</td>
</tr>
<tr>
<td></td>
<td>Southern Arroyo Willow Riparian Forest (61320)</td>
<td>0.2</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td></td>
<td>Southern Riparian Scrub (63300)</td>
<td>1.4</td>
<td>0.10%</td>
</tr>
<tr>
<td></td>
<td>Mulefat Scrub (63310)</td>
<td>1.2</td>
<td>0.10%</td>
</tr>
<tr>
<td></td>
<td>Southern Willow Scrub (63320)</td>
<td>8.8</td>
<td>0.60%</td>
</tr>
<tr>
<td></td>
<td>Disturbed Southern Willow Scrub (63320)</td>
<td>7.7</td>
<td>0.50%</td>
</tr>
<tr>
<td></td>
<td>Arundo-Dominated Riparian (65100)</td>
<td>1.1</td>
<td>0.10%</td>
</tr>
<tr>
<td></td>
<td>Non-Vegetated Channel or Floodway (64200)</td>
<td>3</td>
<td>0.20%</td>
</tr>
<tr>
<td></td>
<td><strong>Riparian and Bottomland Habitat Total</strong></td>
<td><strong>76.3</strong></td>
<td><strong>4.90%</strong></td>
</tr>
<tr>
<td>Woodland (70000)</td>
<td>Eucalyptus Woodland (79100)</td>
<td>63.7</td>
<td>4.10%</td>
</tr>
<tr>
<td></td>
<td><strong>Woodland Total</strong></td>
<td><strong>63.7</strong></td>
<td><strong>4.10%</strong></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,561.80</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Sources: Holland, 1986; Oberbauer et al., 2008
2.2.5 Waters of the U.S.

A wetland delineation was conducted by Dudek biologists in February and March 2011. The delineation included all areas within a 100-foot buffer of the alignment. Table 2-3 lists acreages for Waters of the U.S., including wetlands, within the study area and under the jurisdiction of the U.S. Army Corps of Engineers. The results of the jurisdictional delineation are subject to confirmation with the U.S. Army Corps of Engineers, which is expected to occur as part of the permitting process. Wetlands and non-wetland Waters of the U.S. in the San Diego River and Rose Creek include suitable riparian habitat for least Bell’s vireo and southwestern willow flycatcher. Wetlands and non-wetland Waters of the U.S. in the San Diego River include suitable riparian habitat for light-footed clapper rail.

Table 2-3. Waters of the U.S. in the Study Area by Vegetation Community

<table>
<thead>
<tr>
<th>Waters of the U.S.</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetlands</td>
<td></td>
</tr>
<tr>
<td>Disturbed Wetland (11200)</td>
<td>6.58</td>
</tr>
<tr>
<td>Coastal and Valley Freshwater Marsh (52410)</td>
<td>0.10</td>
</tr>
<tr>
<td>Disturbed Coastal and Valley Freshwater Marsh (52410)</td>
<td>0.01</td>
</tr>
<tr>
<td>Herbaceous Wetland (52510)</td>
<td>0.01</td>
</tr>
<tr>
<td>Southern Riparian Forest (61300)</td>
<td>2.40</td>
</tr>
<tr>
<td>Disturbed Southern Riparian Forest (61300)</td>
<td>0.01</td>
</tr>
<tr>
<td>Mulefat Scrub (63310)</td>
<td>0.51</td>
</tr>
<tr>
<td>Southern Willow Scrub (63320)</td>
<td>2.65</td>
</tr>
<tr>
<td>Disturbed Southern Willow Scrub (63320)</td>
<td>1.09</td>
</tr>
<tr>
<td>Arundo-Dominated Riparian (65100)</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Total Wetlands</strong></td>
<td><strong>13.45</strong></td>
</tr>
<tr>
<td>Non-Wetland Waters</td>
<td></td>
</tr>
<tr>
<td>Unvegetated Waters</td>
<td>0.25</td>
</tr>
<tr>
<td>Non-Vegetated Channel or Floodway (64200)</td>
<td>1.32</td>
</tr>
<tr>
<td><strong>Total Non-Wetland Waters</strong></td>
<td><strong>1.57</strong></td>
</tr>
<tr>
<td><strong>Total Wetland and Non-Wetland Waters</strong></td>
<td><strong>15.02</strong></td>
</tr>
</tbody>
</table>

Source: SANDAG, 2013

2.3 Proposed Action

The project consists of extending the existing San Diego Trolley (Trolley) Blue Line from the Santa Fe Depot north via the existing Trolley tracks to the OTTC, and then north along new tracks to the UTC Transit Center in University City, with nine new stations at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, UCSD West Campus, UCSD East Campus, Veterans Administration (VA) Medical Center, Executive Drive, and the UTC Transit Center (Figure 2-1). Construction is assumed to begin in early 2016, and revenue service is expected to start by the spring of 2019. This section describes the project, including minor modifications to bus services to improve access to stations and eliminate duplication of service with the extension of the Trolley Blue Line.
The Mid-Coast Corridor Transit Project provides for the extension of the Trolley Blue Line from the Santa Fe Depot in Downtown San Diego to the UTC Transit Center in University City. With the extension of the Trolley Blue Line, construction of the project would provide for continuous service on the Trolley Blue Line from the San Ysidro Transit Center at the U.S.–Mexico International Border to University City.

Figure 2-1 shows the project alignment and station locations. The project would use the existing Trolley tracks for approximately 3.5 miles, from the Santa Fe Depot to a point just north of the OTTC and south of the San Diego River. The Trolley Blue Line trains would share the tracks with the Trolley Green Line trains. North of this point, the project includes construction of 10.9 miles of new double track extending to the terminus at the UTC Transit Center in University City.

In addition, the project includes upgrades to existing systems facilities between the Santa Fe Depot and the OTTC, and the acquisition of new Trolley vehicles for the extended project operation.

2.4 Definition of Action Area

The project action area can generally be described as the linear railway corridor with adjoining or adjacent areas for stations, park-and-ride facilities, and power system and signaling. The follow sections describe the project alignment, operation plans, and traction power substations (TPSS) in more detail.

2.4.1 Alignment

The project alignment would follow the Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency (LOSSAN) tracks within the existing MTS and City of San Diego right-of-way from the Santa Fe Depot to approximately 3,500 feet south of the I-5/Gilman Drive/La Jolla Colony Drive interchange. The alignment would then leave the LOSSAN right-of-way, enter California Department of Transportation (Caltrans) right-of-way, and parallel the east side of the I-5 corridor north to the I-5/Gilman Drive/La Jolla Colony Drive interchange. North of the interchange, the alignment would parallel the I-5 corridor, traveling partially within Caltrans right-of-way and partially on private property. At about 2,500 feet south of Nobel Drive, the alignment would transition to an aerial structure and cross over to the west side of I-5 south of Nobel Drive. From Nobel Drive, the alignment would continue north to the UCSD West Campus, then cross back over to the east side of I-5 along the south side of Voigt Drive and terminate on Genesee Avenue at the UTC Transit Center. The alignment’s total length from the south side of the San Diego River to the terminus at the UTC Transit Center is 10.9 miles.

Figure 2-4 presents a conceptual plan and profile drawing of the project alignment, stations, and supporting facilities. The Mid-Coast Corridor Transit Project Property Acquisitions Technical Report (SANDAG, 2013b) identifies property acquisitions and structures to be demolished as part of the project. The Mid-Coast Corridor Transit Project Construction Impacts Technical Report (SANDAG, 2013c) describes the construction methods, activities, and durations.

North of the OTTC, the project alignment would be located primarily at grade within the existing MTS right-of-way, north to the vicinity of Gilman Drive/La Jolla Colony Drive. This railroad corridor is used by the COASTER commuter rail, Amtrak intercity rail, and
Burlington Northern Santa Fe freight rail. The project alignment would be located east of the existing LOSSAN tracks, from the OTTC to south of SR 52, with at-grade stations at Tecolote Road, Clairemont Drive, and Balboa Avenue.

The project alignment would use bridges to cross the San Diego River, Tecolote Creek, and Rose Creek, and would be grade separated over Friars Road and Balboa Avenue. South of SR 52, the alignment would transition to an aerial structure and would cross the existing LOSSAN tracks, continuing at grade west of the existing LOSSAN tracks. To accommodate the alignment along the westerly right-of-way, the existing LOSSAN tracks would be relocated east but would still be located within the MTS right-of-way. Just south of Gilman Drive/La Jolla Colony Drive, the alignment would leave the MTS right-of-way and enter the I-5 right-of-way. Along the I-5 corridor, the project alignment would be designed so as not to preclude the future widening of I-5.

Upon entering the I-5 right-of-way north of SR 52, the project alignment would extend at grade along the east side of I-5, crossing under La Jolla Colony Drive in an approximately 200-foot-long cut-and-cover underpass. North of that underpass, the alignment would continue at grade along the east side of I-5, generally within or adjacent to the I-5 right-of-way to Charmant Drive. The alignment would then cross over two canyons along the east side of I-5 and west of Charmant Drive and transition to an aerial structure to cross to the west side of I-5, south of Nobel Drive. The aerial alignment would continue north along the west side of I-5 to an aerial station at La Jolla Village Square (Nobel Drive Station).

Continuing north from the Nobel Drive Station, the project alignment would remain on an aerial structure, travel for approximately 160 feet along the southeast corner of the shopping center on the north side of Nobel Drive, then enter the I-5 right-of-way and travel along the west side of I-5 within the I-5 right-of-way. It would return to grade just north of the I-5/La Jolla Village Drive interchange. North of this interchange, the alignment would run at-grade for approximately 470 feet along the west side of I-5 and the east side of the VA Medical Center. An at-grade station would be located at the VA Medical Center. The station would be within the I-5 right-of-way, with access provided from the VA Medical Center property.

South of Gilman Drive, the project alignment would transition back to an aerial structure and enter the UCSD West Campus, crossing Gilman Drive and the surface parking lot located north of Gilman Drive on the UCSD campus. The aerial alignment would then cross Pepper Canyon and continue to an aerial station on the UCSD West Campus.

North of the UCSD West Station, the project alignment would turn east on an aerial structure on the UCSD campus and cross to the north side of Voigt Drive. The aerial alignment would then proceed east and cross back over Voigt Drive to the northeastern corner of Warren Field and across Gilman Drive along the south side of the future Voigt Drive bridge proposed as part of the Caltrans I-5 North Coast Corridor Project.

The I-5 North Coast Corridor Project proposes to construct HOV direct access ramps that connect to the north side of Voigt Drive. Construction of the direct access ramps is scheduled for completion by 2020. No major modifications to I-5 would be required to accommodate the crossing. As part of the I-5 North Coast Corridor Project, Caltrans
Figure 2-4. Conceptual Plan and Profile of Mid-Coast Corridor Transit Project

Source: SANDAG, 2014
Figure 2-4. Conceptual Plan and Profile of Mid-Coast Corridor Transit Project (continued)

Source: SANDAG, 2014
proposes to realign Voigt Drive to connect to Genesee Avenue and realign Campus Point Drive to connect to Voigt Drive. Voigt Drive is located on UCSD property. The Mid-Coast Corridor Transit Project’s alignment would be located so as not to preclude the realignment of Voigt Drive and Campus Point Drive.

After crossing I-5, the project alignment would continue east along the south side of Voigt Drive, and to the north of the existing UCSD baseball field. The aerial alignment would continue across the future realigned Campus Point Drive at Voigt Drive and across Voigt Drive to Genesee Avenue, where it would enter the street right-of-way. The UCSD East Station spans the future realigned Campus Point Drive. The aerial alignment would enter the Genesee Avenue right-of-way just west of Regents Road and continue south on an aerial structure in the median of Genesee Avenue, following the existing alignment of Genesee Avenue to a station at Executive Drive, and a terminal station at the UTC Transit Center.

Under the project, the support columns generally would be located in the center of the Genesee Avenue median. The project would require two straddle bents along Genesee Avenue. The first straddle bent would be located west of Regents Road where the alignment would enter Genesee Avenue at an angle. The second one would be located on Genesee Avenue at the Executive Square intersection. The straddle bents would have support columns either in the median of Genesee Avenue, along the south side of Genesee Avenue, or in the median of Executive Square. The remaining support columns would be spaced at approximately 125 to 210 feet apart. Localized widening of Genesee Avenue would be required to accommodate the support columns with necessary clearances and to maintain the number of existing traffic lanes, as well as to accommodate the stations at Executive Drive and the UTC Transit Center.

2.4.2 Stations

The project includes nine new stations for passenger access. All new stations would be side-platform stations with 360-foot-long platforms designed to accommodate up to four-car trains. All platforms would be fully accessible and comply with the Americans with Disabilities Act. Parking and bus transfer facilities would be provided at five stations. Lighting would be provided at all station platforms and parking areas. No public restrooms would be provided at any of the stations.

The new project stations include both at-grade and aerial stations. The project segment along the MTS right-of-way between the San Diego River crossing and Gilman Drive would include three at-grade stations at Tecolote Road, Clairemont Drive, and Balboa Avenue.

The project segment along the I-5 corridor between Gilman Drive and the alignment crossing of I-5 at Voigt Drive would include an aerial station at Nobel Drive, an at-grade station at the VA Medical Center, and an aerial station on the UCSD West Campus.

The project segment east of I-5, along Voigt Drive, would include an aerial station on the UCSD East Campus west of Campus Point Drive, serving both the UCSD East Campus and Scripps Hospital. Along Genesee Avenue, the project would include aerial stations at Executive Drive and at the UTC Transit Center.
2.4.3  **Trolley Vehicle Fleet and Maintenance Facilities**

The Trolley Blue Line extension would require 36 new light rail vehicles (LRVs) to cover peak-period service with spares in 2030. In the opening year of revenue service, 25 of the 36 new LRVs would be required.

The MTS maintenance plan for LRVs, including those for the project, centralizes all functions at the existing maintenance facilities located at 1255 Imperial Avenue in Downtown San Diego. No expansion of existing maintenance facilities would be required for the project.

2.4.4  **Power System and Signaling**

The LRVs would receive electrical power from overhead contact wires. Catenary support poles, approximately 25 feet high, would be located at approximately 150- to 180-foot intervals. The catenary poles generally would be located in the center of the project alignment. In some locations, the poles would be located on both sides of the Trolley tracks. The overhead electrical power lines would be suspended above the Trolley tracks.

Electricity to power the LRVs would be provided by TPSSs. The TPSSs would be of similar size and design to the existing substations used on the Trolley Green Line. Typical TPSS dimensions would be a 40-foot by 15-foot unmanned equipment enclosure within a 45-foot by 75-foot fenced site. Figure 2-5 shows an example of an existing TPSS.

![Existing Traction Power Substation at a Street North of Santa Fe Depot](source:SANDAG, 2013)

The extension of the Trolley Blue Line service from Santa Fe Depot to the UTC Transit Center would require 16 TPSSs, consisting of 4 new or upgraded substations between Santa Fe Depot and the OTTC and 12 new substations north of the OTTC.
Between Santa Fe Depot and the OTTC, replacement or upgrades to two existing TPSS locations on Olive Street and on Bean Street and two new substations would be required because of the increased frequency of Trolley service and the higher power draw of the new vehicles. One of the new substations is a second substation to the existing site at Olive Street and the other is a new substation within the existing MTS Wright Street Yard south of the OTTC. The remaining 12 new substations would be located north of the OTTC. Table 2-4 identifies the location of the existing substations and the proposed substation upgrades between Santa Fe Depot and the OTTC, and the proposed new substations north of the OTTC.

Table 2-4. Traction Power Substations Locations

<table>
<thead>
<tr>
<th>No.</th>
<th>Stationing</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>64+50</td>
<td>Replacement of an existing substation located along the east side of the right-of-way at Olive St</td>
</tr>
<tr>
<td>2</td>
<td>64+50</td>
<td>Addition of a second new substation at Olive St</td>
</tr>
<tr>
<td>3</td>
<td>101+36</td>
<td>Replacement of an existing substation at Bean St</td>
</tr>
<tr>
<td>4</td>
<td>129+50</td>
<td>New substation at Wright St. Yard within existing MTS property</td>
</tr>
<tr>
<td>5</td>
<td>190+50</td>
<td>New substation south of the San Diego River and north of I-8, in City of San Diego right-of-way</td>
</tr>
<tr>
<td>6</td>
<td>241+00</td>
<td>New substation at Tecolote Rd Station along east side of tracks and south of Tecolote Creek</td>
</tr>
<tr>
<td>7</td>
<td>313+25</td>
<td>New substation at Clairemont Dr. Station parking lot</td>
</tr>
<tr>
<td>8</td>
<td>313+25</td>
<td>New substation at Clairemont Dr Station parking lot</td>
</tr>
<tr>
<td>9</td>
<td>401+25</td>
<td>New substation north of Balboa Ave within City Yard</td>
</tr>
<tr>
<td>10</td>
<td>456+00</td>
<td>New substation just north of Jutland Dr on undeveloped parcel east of MTS right-of-way</td>
</tr>
<tr>
<td>11</td>
<td>550+00</td>
<td>New substation south of La Jolla Colony Dr on the east side of I-5</td>
</tr>
<tr>
<td>12</td>
<td>612-10</td>
<td>New substation on the west side of I-5 in Caltrans right-of-way towards the southern end of the La Jolla Village Square shopping center</td>
</tr>
<tr>
<td>13</td>
<td>645+50</td>
<td>New substation in Caltrans right-of-way next to VA Medical Center</td>
</tr>
<tr>
<td>14</td>
<td>687+00</td>
<td>New substation on east side of I-5 and west of the UCSD baseball field</td>
</tr>
<tr>
<td>15</td>
<td>731+10</td>
<td>New substation on SDG&amp;E property located at the terminus of Fez St</td>
</tr>
<tr>
<td>16</td>
<td>771+00</td>
<td>New substation on Westfield UTC property north of Nobel Dr</td>
</tr>
</tbody>
</table>

Source: SANDAG, 2014
Notes: Caltrans = California Department of Transportation; I - = Interstate; MTS = Metropolitan Transit System; SDG&E = San Diego Gas & Electric; UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration

Communications and signaling (C&S) buildings centralize train control and communications for Trolley operations at each station. Upgrades to the existing C&S system between the Santa Fe Depot and the OTTC would be required as part of the project; however, this would not require additional C&S buildings.

Other proposed physical improvements to the Trolley system south of the OTTC and north of Santa Fe Depot would include upgrades to existing systems, including the signaling system and the overhead catenary system to accommodate all-day 7.5-minute Trolley Blue Line service. These potential improvements would be located within the existing railroad and MTS right-of-way.
2.4.5 Operating Plan

Operating plans were developed using ridership forecasts. These operating plans were then used to develop the capital and operating cost estimates and to provide the basis for the analysis of potential project impacts.

Table 2-5 presents the existing 2010 Trolley operating plan and the Trolley operating plans developed for the opening year and 2030 revenue service. The 2030 operating plan for the No-Build Alternative is included for comparative purposes. Currently, the Trolley Blue Line operates from approximately 4:00 a.m. until 2:00 a.m. the next day. Hours of service for the Trolley Blue Line under the Refined Build Alternative would be similar to existing service.

Table 2-5. Trolley Operating Plans

<table>
<thead>
<tr>
<th>Route</th>
<th>2010 Operating Plan (Existing Conditions)</th>
<th>2010 Operating Plan (Refined Build Alternative)</th>
<th>Opening Year Operating Plan*</th>
<th>2030 Operating Plan (Refined Build Alternative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trolley Green Line Santee Town Center to OTTC</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Trolley Blue Line San Ysidro Transit Center to OTTC</td>
<td>7.5</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Trolley Orange Line Gillespie Field to 12th and Imperial Transit Center</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Trolley Blue Line San Ysidro Transit Center to UTC Transit Center</td>
<td>7.5</td>
<td>7.5</td>
<td>15.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Trolley Orange Line Gillespie Field to America Plaza</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Trolley Blue Line America Plaza to UTC Transit Center</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Trolley Orange Line Gillespie Field to Santa Fe Depot</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Source: SANDAG, 2012
Notes: *The Trolley Blue Line would operate as a continuous run from the San Ysidro Transit Center to the UTC Transit Center. During peak periods in the opening year, alternating trains would turn back at America Plaza, resulting in 15-minute headways north of America Plaza and 7.5-minute headways south of America Plaza.
OTTC = Old Town Transit Center; UTC = University Towne Centre
At the startup of revenue operations, the project is expected to require 15-minute service during peak and off-peak periods. Figure 2-6 shows the operating plan for the opening year of service.

The proposed Trolley operating plan for the Refined Build Alternative in 2030 presented in Table 2-5 includes the extension of the Trolley Blue Line to the UTC Transit Center. As shown in Figure 2-7, the Trolley Blue Line in 2030 would be operated as a single line with three-car trains from the existing San Ysidro Transit Center in the south to the UTC Transit Center in University City, with stops at all 29 intermediate stations. Weekday Trolley Blue Line service in 2030 would operate every 7.5 minutes during peak periods (i.e., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.) and during the off-peak midday period (i.e., 9:00 a.m. to 3:00 p.m.). Service during the early morning and evening hours would be less frequent.

With extension of Trolley Blue Line service to the UTC Transit Center, the service provided by bus Route 150 operating between Downtown San Diego and University City would duplicate the new Trolley services and therefore would be eliminated with implementation of the project, consistent with the 2030 RTP. In addition to this modification, minor changes would be made to several bus routes to improve access to the new Trolley stations proposed under the Refined Build Alternative. These modifications consist of rerouting of bus routes to connect to stations. The service frequency of the routes serving the stations would not change. No changes to other bus routes or the COASTER would be required.
Figure 2-6. Refined Build Alternative Opening Year Trolley Operating Plan

Source: SANDAG, 2013
Figure 2-7. Refined Build Alternative 2030 Trolley Operating Plan

Source: SANDAG, 2013
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3.0 FEDERALLY LISTED SPECIES AND THEIR HABITAT

This chapter provides a description of the federally listed species within the Mid-Coast Corridor, including an overview of their habitat.

3.1 Coastal California Gnatcatcher

*Coastal California Gnatcatcher (Polioptila californica californica)*

Federal Status: Threatened
State Status: None

The coastal California gnatcatcher occurs in coastal Southern California and Baja California year-round, where it depends on a variety of arid scrub habitats. The coastal California gnatcatcher occurs mainly on cismontane slopes (coastal side of the mountains) in Southern California, ranging from Ventura and northern Los Angeles counties south through the Palos Verdes Peninsula to Orange, Riverside, San Bernardino, and San Diego counties. The range for the species continues south to El Rosario, Mexico. Initially it was reported that 99 percent of all coastal California gnatcatcher locality records occurred at or below an elevation of 984 feet above mean sea level (amsl) (Atwood, 1990; Atwood and Bolsinger, 1992). The coastal California gnatcatcher typically occurs in or near coastal scrub vegetation which is composed of relatively low-growing, dry-season deciduous and succulent plants. The coastal California gnatcatcher also occurs in chaparral, grassland, and riparian vegetation communities where the coastal scrub community is close by (Bontrager, 1991). The use of these vegetation communities appears to be most frequent during late summer, autumn, and winter, with smaller numbers of birds using such areas during the breeding season. The coastal California gnatcatcher tends to occur most frequently within the California sagebrush-dominated stands on mesas, gently sloping areas, and along the lower slopes of the Coast Ranges (Atwood, 1990). The coastal California gnatcatcher occurs in high frequencies and densities in coastal scrub communities with an open or broken canopy, whereas it is absent from coastal scrub dominated by tall shrubs and occurs in low frequencies and densities in low coastal scrub with a closed canopy (Weaver, 1998).

Focused surveys were conducted for the Mid-Coast Corridor Transit Project in 2010 and 2012, and are scheduled for spring/summer 2014. Survey reports for 2010 and 2012 are included in Appendix D, and include additional details regarding methodology, survey personnel, and results. A cumulative list of wildlife species observed during surveys conducted for the project is provided in Appendix B. The coastal California gnatcatcher was observed in the study area during focused surveys conducted in 2010 and 2012. Two coastal California gnatcatcher pairs were observed during the 2010 focused survey, and a single male coastal California gnatcatcher, considered to represent a third coastal California gnatcatcher pair in the study area, was observed during the 2012 focused survey. A fourth coastal California gnatcatcher location is on the University of California, San Diego (UCSD) campus north of Voigt Drive and is presumed occupied based on previous observations of the species in nearby contiguous habitat during surveys conducted on behalf of UCSD in 2001 and 2004 (UCSD, 2004 and Leonard, 2004).
During the 2010 survey, one pair was observed in suitable habitat northeast of the Interstate (I-) 5/State Route (SR) 52 interchange (Figure 3-1, Map 1). Coastal California gnatcatcher previously had been recorded south of this location west of I-5 in 1993 (California Department of Fish and Game [CDFG], 2012a). A second pair was observed foraging in suitable habitat just south of Caminito Cassis Street, near the I-5/La Jolla Colony Drive exit (Figure 3-1, Map 2). Coastal California gnatcatcher previously had been recorded near this location in 2002 (CDFG, 2012a).

During the 2012 focused survey, a single male coastal California gnatcatcher was observed at a location south of SR 52, foraging on the west-facing slope above and to the east of Rose Creek south of the terminus of Santa Fe Street (Figure 3-1, Map 3). Although only a single male coastal California gnatcatcher was observed over the course of the focused survey, suitable habitat in the area is assumed to be occupied, and thus this sighting is recorded as a third pair in the study area. Coastal California gnatcatcher had not been recorded in this area in the past (CDFG, 2012a).

The 2010 focused survey did not identify coastal California gnatcatcher within the upper portion (i.e., within 500 feet of the alignment) of the finger canyon to the north of Voigt Drive on the UCSD campus (within the Ecological Reserve on West Campus), but the species was recorded in contiguous habitat immediately to the north during surveys in 2001 and 2004 (UCSD, 2004 and Leonard, 2004). For purposes of this assessment, it is assumed that suitable coastal sage scrub habitat to the north of Voigt Drive is occupied by coastal California gnatcatcher (Figure 3-1, Map 4).

As noted above, focused surveys for coastal California gnatcatcher will be conducted in all suitable habitat in spring/summer 2014.

3.2 Southwestern Willow Flycatcher and Least Bell’s Vireo

**Southwestern Willow Flycatcher** (*Empidonax traillii extimus*)
Federal Status: Endangered
State Status: Endangered

**Least Bell’s Vireo** (*Vireo bellii pusillus*)
Federal Status: Endangered
State Status: Endangered

The willow flycatcher (*E. traillii*), consisting of four or five subspecies, is the most widely distributed of the Empidonax flycatchers. The southwestern willow flycatcher has a known United States breeding range in six states: Arizona, New Mexico, California, southwestern Colorado, extreme southern portions of Nevada and Utah, and, possibly, western Texas. In California, its breeding range extends from the Mexican border north and inland to the City of Independence in the Owens Valley east of the Sierra Nevada, to the South Fork Kern River in the San Joaquin Valley, and coastally to the Santa Ynez River in Santa Barbara County (Craig and Williams, 1998). The southwestern willow flycatcher was formerly a common summer resident throughout California, but has been extirpated from most of its historic breeding range in California. In California the smallest regularly occurring breeding populations consist of approximately five pairs (occurrences of one or more pairs at several sites
are reported annually; however, these may not persist) and the largest is approximately 50 pairs (W. Haas, n.d.). The number of southwestern willow flycatchers in California has been estimated at approximately 200, recorded at 22 locations within 13 drainages (Finch et al., 2000). The southwestern willow flycatcher is a riparian-obligate species restricted to complex streamside vegetation. Four general habitat types are used by the southwestern willow flycatcher at its breeding sites: monotypic high-elevation willow; exotic monotypes (e.g., dense stands of tamarisk (Tamarix spp.) or Russian olive (Elaeagnus angustifolia)), especially in the desert southwest; native broadleaf-dominated riparian forest; and mixed native/exotic forests (Sogge et al., 1997). Of these, native broadleaf-dominated and mixed native/exotic are the primary habitats used by southwestern willow flycatcher in California.

The least Bell's vireo is one of four subspecies of the Bell's vireo (Vireo bellii); its breeding range includes coastal and inland southern California (including the western edge of southern California's southern deserts), a small area within California's Central Valley, and extreme northern Baja California, Mexico. Although the winter range of full species Bell's vireo is not well known, it generally appears to winter from southern Baja and southern Sonora, Mexico, south along the west coast of Mexico and Central America to Honduras and casually to northern Nicaragua. It is also reported from the eastern coast of Central America from Veracruz south to Honduras (County of Riverside, 2008). Least Bell's vireos primarily occupy riverine riparian habitats along water, including dry portions of intermittent streams that typically provide dense cover within one to two meters (3.3 to 6.6 feet) of the ground, often adjacent to a complex, stratified canopy. Least Bell's vireo nesting habitats in cismontane and coastal areas include southern willow scrub, mulefat scrub, arroyo willow riparian forest edge, wild blackberry thickets, and, more rarely, cottonwood forest, sycamore alluvial woodland, and southern coast live oak riparian forest. Along riparian corridors at desert locations, young willows (Salix spp.) are favored and, where absent, mesquite (Prosopsis spp.) and desert apricot (Prunus fremontii) are typically used. In interior regions, least Bell's vireo habitat is usually limited to the immediate vicinity of watercourses below approximately 457 meters (1,500 feet) amsl (51 FR 16474–16482; Small, 1994). In the coastal portions of its southern California range, the least Bell's vireo occurs in lower portions of canyons, typically below 600 meters (2,000 feet) amsl.

Habitat suitable for the state- and federally-listed endangered least Bell’s vireo and the state- and federally-listed endangered southwestern willow flycatcher is present within the study area in the San Diego River and along Rose Creek, but focused surveys for these species were negative. Surveys were conducted concurrently from May through July, 2010 and were in accordance with the current southwestern willow flycatcher and least Bell’s vireo protocols (Sogge et al., 1997; U.S. Fish and Wildlife Service [USFWS], 2000; USFWS, 2001).

As stated above, no least Bell’s vireo or southwestern willow flycatcher were observed during the protocol-level surveys conducted in 2010 (Appendix D). However, one individual male least Bell’s vireo was detected in 2014 during ongoing surveys; there is insufficient information at this time to determine whether the detection represents a breeding pair. The single male least Bell’s vireo was observed using riparian habitat to the east and west of the existing rail bridge and to the west of the existing Santa Fe
Street bridge over Rose Creek in April and early May; however, the individual was not seen in follow-up surveys conducted on May 22 or May 27. The area will be surveyed on 4 more occasions as part of the 8-visit protocol survey on June 6, June 16, July 1, and July 15. Riparian habitat at this location and potentially suitable riparian habitat present elsewhere in the study area occurs in highly urbanized areas. Least Bell’s vireo and southwestern willow flycatcher have not been recorded previously (prior to 2014) in the study area. The closest record of least Bell’s vireo is from Tecolote Canyon Natural Park and the San Diego River approximately 4 miles east of the study area (CDFG, 2012a). The only records of southwestern willow flycatcher in south and central San Diego County are in the Escondido, Jamul Mountains, and El Cajon Mountains, California, U.S. Geological Survey quadrangles (quads) (CDFG, 2012a). Although southwestern willow flycatcher was not observed in the study area, and least Bell’s vireo may not be nesting in the area, potentially suitable riparian habitat in the study area could become occupied prior to construction. Suitable riparian habitat areas are shown on Figure 3-1, Maps 5-7.

The San Diego Association of Governments is currently conducting updated focused surveys. Focused surveys for least Bell’s vireo and southwestern willow flycatcher were initiated in April 2014, and will be completed in July 2014. As noted above, a single male least Bell’s vireo was detected in 2014, and the location is shown on Figure 3-1, Map 6. The 2010 focused survey report submitted to the USFWS is included in Appendix D. A cumulative list of wildlife species observed during surveys conducted for the project is provided in Appendix B.

3.3 Light-footed Clapper Rail

**Light-footed Clapper Rail** (*Rallus longirostris levipes*)

Federal Status: Endangered
State Status: Endangered

Light-footed clapper rails are omnivorous and opportunistic foragers which rely mostly on salt marsh invertebrates. This species is typically resident in coastal marsh habitats and its current range in California extends from Ventura County in the north to the Mexican border in the south (USFWS, 2009). Distribution within the range of the light-footed clapper rail is discontinuous due to sporadically occurring salt marsh habitats along the coastline; however, it is believed that historically most of the coastal salt marshes supported clapper rails from Santa Barbara to the Mexican border (USFWS, 2009). Nesting usually begins in March and late nests hatch by August. Nests are placed to avoid flooding by tides yet in dense enough cover to be hidden from predators and support a large nest (Storey et al., 1988).

Potentially suitable foraging and nesting habitat for light-footed clapper rail is present in the study area in the San Diego River, but it is of marginal quality (Figure 3-1, Map 4). Potentially suitable habitat is primarily to the west of the existing Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency (LOSSAN) bridge and includes cismontane alkali marsh and freshwater marsh to the north of the main flow channel, and open disturbed wetlands and non-vegetated channel or floodway to the south of the main flow channel. Although focused surveys for light-footed clapper rail have not been conducted for this project, the species was not observed during the 2010 focused
Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 1

Source: SANDAG, 2014
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Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 2

Source: SANDAG, 2014
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Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 3

Source: SANDAG, 2014
Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 4

Source: SANDAG, 2014
Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 5

Source: SANDAG, 2014
Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 6

Source: SANDAG, 2014
Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 7

Source: SANDAG, 2014
surveys conducted in the San Diego River for least Bell’s vireo and southwestern willow flycatcher, which involved eight visits to the study area between April and July. Wildlife species observed during the 2010 focused survey for least Bell’s vireo and southwestern willow flycatcher are listed in the survey report submitted to USFWS (Appendix D); a cumulative list of wildlife species observed in the study area is provided in Appendix B. Additionally, pre-construction surveys and focused surveys for light-footed clapper rail were conducted in the fall 2013 and spring 2014, respectively, in support of geotechnical activities for the LOSSAN project which crosses the San Diego River immediately to the west of the Mid-Coast Corridor Transit Project. Those surveys were negative (Merkel & Associates, 2014). The closest record of light-footed clapper rail is from the San Diego River estuary to the west of I-5, approximately 1 mile from the study area (CDFG, 2012a, Zembal and Hoffman, 2012). Light-footed clapper rail is also known from upstream portions of the San Diego River approximately 13 miles inland at Lake Kumeyaay (Zembal and Hoffman, 2012).

Therefore, this species is considered to have a low potential to nest within the study area in the San Diego River due to marginal quality of available marsh habitat and a moderate potential to forage in marginal quality habitats west of existing LOSSAN bridge.

3.4 San Diego Fairy Shrimp

**San Diego Fairy Shrimp** (*Branchinecta sandiegonensis*)

Federal Status: Endangered

State Status: None

San Diego fairy shrimp is a small aquatic crustacean typically restricted to vernal pools and other non-vegetated ephemeral basins 2 to 12 inches in depth. The San Diego fairy shrimp occurs in the Great Central Valley and Coastal Mesa Systems (Eriksen and Belk, 1999). The geographic range of the species extends from coastal Orange and San Diego Counties in southern California and in northwestern Baja California, Mexico (USFWS, 2007). This species is usually observed from January to March when seasonal rainfall fills vernal pools and initiates cyst (egg) hatching (USFWS, 2008). This species may also occasionally occur in ditches and road ruts. The shrimp hatch from cysts when cool water (5-20° C for hatching) fills the pool and are mature in 10-20 days in the field (Eriksen and Belk, 1999). At maturity, mating takes place and cysts are dropped. Water characteristics of pools where this species is found include moderate pH (6.5-8) and alkalinity (40-55 parts per million) and total dissolved solids (mean of 75 parts per million, as measured by conductivity) are low (Eriksen and Belk, 1999).

Wet-season focused surveys for listed species of fairy shrimp were conducted in 2010-2011, 2011-2012, and 2013-2014. No listed fairy shrimp species were detected during the 2010-2011 survey. San Diego fairy shrimp was observed during wet-season focused surveys in 2011-2012 and in 2013-2014. During the 2011-2012 focused survey, San Diego fairy shrimp was observed in Basin BB (Figure 3-1, Map 8). This basin consists of a long, narrow area approximately 270 feet long and varying between 2 and 10 feet in width. The basin is located approximately 72 feet from the project alignment (centerline of the proposed southbound Trolley track), immediately adjacent to I-5 between I-5 and Morena Boulevard, south of Clairemont Drive and north of Tecolote Road. During the
2013-2014 focused survey, San Diego fairy shrimp was observed in Basin II (Figure 3-1, Map 8). Basin II is approximately 76 feet long and 5.5 feet wide, and is located approximately 25 feet to the east of the existing LOSSAN tracks. The maximum depth measured for Basin II during the 2013-2014 survey was 10 inches.

The non-sensitive versatile fairy shrimp (*Branchinecta lindahli*) was observed in several basins within the study area (i.e., Basins WW, XX, ZZ, H, I, J, and K; see Appendix D). The majority of the depressions sampled in the study area were widely scattered (i.e., not clustered in a particular area) in and adjacent to the MTS right-of-way. The depressions detected in the study area were either road ruts or ephemeral basins. Road ruts are depressions typically formed by vehicular traffic within or immediately adjacent to access roads, which generally lack aquatic vegetation and are heavily disturbed by vehicular traffic. Ephemeral basins are depressions that retain sufficient water to often support aquatic vegetation, and generally lack vehicle disturbance. Of the 42 depressions sampled in 2010-2011, 27 were considered road ruts and 15 were considered ephemeral basins (12 of the ephemeral basins were heavily disturbed and did not support native vegetation). A total of 54 basins were observed during the 2011-2012 survey, including 32 considered to be road ruts and 22 considered to be ephemeral basins. During the 2013-2014 surveys to date, the majority of basins present in 2010-2011 and 2011-2012 have remained too dry to establish ponded conditions capable of supporting fairy shrimp. Eight basins were observed during the 2013-2014 survey.

The 2010-2011 and 2011-2012 focused survey reports submitted to the USFWS are included in Appendix D. The 2013-2014 focused survey report will be submitted to USFWS upon completion of surveys. A cumulative list of wildlife species observed during surveys conducted for the project is provided in Appendix B.

### 3.5 Special-Status Plants

In 2009, a focused survey was conducted for special-status plant species in the approximately 141 acres of suitable habitat located in Rose Canyon and on portions of the UCSD campus north of Miramar Street and north of Voigt Drive within 500 feet of the project. In 2010, focused surveys were conducted for special-status plant species in 3 separate passes in May, June, July, and August in approximately 91 acres of suitable habitat located within 100 feet of the project alignment. The different survey passes were timed to coincide with flowering periods when the target species are most detectable and identifiable. In 2011, an additional focused plant survey was conducted for San Diego sagewort (*Artemisia palmeri*) and selected other species beyond areas surveyed in 2010. Approximately 35 acres of suitable habitat were surveyed from the end of Santa Fe Street south to Balboa Avenue. No federally-listed species were recorded during any of the focused plant surveys. A cumulative list of plant species observed in the study area is provided in Appendix A.
Figure 3-1. Federally Listed Species Locations, Habitat, and Proposed Impacts, Map 8

Source: SANDAG, 2014
4.0 SUMMARY OF EFFECTS

The long-term (direct and indirect), construction (direct and indirect), and cumulative effects of the Mid-Coast Corridor Transit Project on federally listed wildlife species, vegetation communities, and aquatic resources are described in this section.

Potential habitat for federally listed species could be directly or indirectly affected by the construction of the project. Direct effects may include permanent and/or temporary construction-related impacts. Activities that may cause varying degrees of impact on listed species and/or their habitats include, but are not necessarily limited to:

- Construction activities within potential habitat for listed species
- Construction activities associated with dust, erosion, and runoff
- Construction noise adversely impacting breeding listed bird species
- Vegetation clearing, grading, and other construction activities
- Long-term shading impacts to potential habitat for listed species

4.1 Long-Term Impacts

Long-term, direct impacts refer to the permanent loss of vegetation, land covers, and plant and animal species within a designated impact footprint as well as direct impacts to biological resources that would result from ongoing project operations. Direct impacts typically occur during vegetation clearing, grading, or excavation associated with project implementation. Direct impacts to plants can include complete or partial removal of the plants; crushing, trimming, or mowing; and compression of soil around roots. Direct impacts to wildlife refer to loss of habitat and/or loss of, or harm to, individuals that can be immediately attributed to the project. Loss of, or harm to, individuals may vary by wildlife species, but the result is a net loss of a portion of a species’ population. For example, equipment used for excavation or grading can cause direct wildlife mortality, or injure or entomb individuals, resulting in their eventual death. Vegetation clearing and/or grading can also result in destruction of birds’ nests, resulting in the loss of eggs and young. Additionally, increased train traffic could also impact wildlife species directly through injury or mortality from collisions with trains.

Direct impacts include areas within the footprint of permanent structures and facilities to be constructed as part of the project, as well as portions of the rail right-of-way that may not include permanent structures but that would be cleared and maintained as part of the long-term operation and maintenance of the project. Permanent structures and facilities include the double-track alignment from the Old Town Transit Center to the University Towne Centre Transit Center, overhead structures, bridges, stations, and associated facilities (e.g., parking facilities). Permanent structures also include several traction power substations located along the alignment. Refer to Section 2.4 for a description of project features.

Long-term direct impacts associated with the Mid-Coast Corridor Transit Project would generally include the loss of native riparian and upland vegetation communities. Direct
impacts generally would occur within or immediately adjacent to the existing Metropolitan Transit System (MTS) right-of-way and in existing developed areas.

Long-term indirect impacts associated with the project include shading impacts to native riparian vegetation communities within or adjacent to the existing MTS right-of-way and/or on the University of California, San Diego (UCSD) campus. Indirect impacts to habitat linkages and wildlife corridors could result primarily from adverse edge effects, which typically occur along the development–preservation interface, including lighting, noise, and invasive species. The project would also introduce light rail transit train activity and add new tracks within the existing MTS right-of-way in areas already subject to potential adverse edge effects that may include noise and lighting associated with current rail service operations. Potential long-term indirect impacts may also include the degradation of habitat due to invasion by exotic plants and animals, exposure to urban pollutants (e.g., pesticides, herbicides, and other toxic materials), soil erosion, noise, and hydrological changes (e.g., runoff pattern changes, surface and ground water levels and quality).

4.2 Construction Impacts

During construction, establishing of construction access and staging areas, installing falsework, and completing ground improvements at bridge crossings and elevated portions of the alignment would require the removal of native riparian and upland vegetation communities, resulting in direct impacts. Coastal sage scrub areas that would be directly but temporarily affected during construction are located entirely within or along the existing MTS right-of-way or on the UCSD campus surrounded by developed land uses. Temporary impacts to coastal sage scrub occur within the Multi-Habitat Planning Area along Rose Creek to the north and south of State Route (SR) 52. The affected vegetation communities within the Multi-Habitat Planning Area would be confined to areas immediately adjacent to the existing MTS right-of-way and would result in a temporary loss of habitat for special-status wildlife species. As project construction is anticipated to occur over a 4.5-year period, the duration of temporal loss of habitat could be 4.5 years or longer depending on the length of time required to restore the vegetation to pre-construction conditions (typically around 3 to 5 years).

Indirect construction impacts on adjacent biological resources located outside the limits of work typically include noise, vibration, dust, lighting, increased human activity (e.g., construction workers), erosion and sedimentation, pollutants, and chemical spills. These kinds of impacts can cause behavioral disruptions and stress in wildlife and degrade habitat adjacent to construction areas.

During construction, noise levels depend on the number and type of equipment, their general condition, the amount of time each piece operates per day, and the presence of any noise attenuating features such as walls or natural topography. The impact of increased noise depends on the location of the construction activities relative to adjacent biological resources, like breeding birds, that would be potentially affected by construction noise. Project construction is expected to require the use of heavy earth-moving equipment, pneumatic tools, generators, concrete pumps, and similar equipment, all of which may contribute to increased noise levels within habitat areas near construction areas. During construction, ground-borne vibration associated with
ground improvement activities necessary at bridge crossings and elevated structures may affect biological resources in adjacent areas. Ground improvements are typically necessary where support structures such as piers (walls or columns) and abutments are proposed on unimproved lands, and can create vibration levels similar to pile driving. If construction is proposed at night, lighting within construction areas could spill into adjacent habitat areas and potentially affect wildlife species active primarily at night.

4.3 Cumulative Impacts

Cumulative impacts are defined by the National Environmental Policy Act as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts include the direct and indirect effects of a project and can result from individually minor, but collectively substantial, actions taking place over a period of time” (40 Code of Federal Regulations 1508.7).

The timeframe for the cumulative impacts analysis included both past actions and reasonably foreseeable future actions. The period of the past analysis was determined by the information available for the resources studied. In most cases, it considered the time since development of the corridor began. The time for future effect analysis extends from the present day to 2030, which is the horizon year for the 2030 San Diego Regional Transportation Plan: Pathways for the Future (SANDAG, 2007).

A majority of cumulative transportation and transit projects are located within or adjacent to existing developed rights-of-way in urbanized areas. The analysis assumes implementation of the planned transportation improvements committed to be implemented by 2030, as identified in the 2030 San Diego Regional Transportation Plan: Pathways for the Future (SANDAG, 2007) under the Revenue Constrained Scenario.

- Double tracking of the Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency (LOSSAN) tracks and other rail improvements, with an increase in frequency of COASTER service to every 20 minutes during peak and to every 60 minutes during off-peak periods in both directions.
- High occupancy vehicle (HOV) lanes on Interstate (I-) 5 from I-8 north to Oceanside, with direct access ramps (DARs) at various locations, of which the DARs at Voigt Drive would be located within the Mid-Coast Corridor. The HOV lanes would be restricted to vehicles with two or more occupants.
- Combination of HOV and Managed Lanes on I-805 from I-5 to South Bay, with DARs at Carroll Canyon Road and Nobel Drive.
- San Diego Trolley (Trolley) low-floor system improvements to the Trolley Blue and Orange Lines, including station platform, power, and signaling improvements to allow extending the Trolley Green Line to the 12th and Imperial Avenue Transit Center and use of low-floor vehicles system-wide.
Regional growth and development is also expected to affect areas primarily within urbanized areas. The cumulative effects of the Mid-Coast Corridor Transit Project and future projects on regional biological resources are expected to be limited. Where native habitats are present in areas affected by future projects, impacts could include the removal of native vegetation communities, the loss of aquatic resources, and the loss of habitat for special-status plant and wildlife species. Each of these projects, however, would undergo separate environmental review and would be permitted for construction consistent with applicable federal, state, and local regulations, plans, and policies.

The Multiple Species Conservation Program (MSCP) was designed to compensate for the cumulative loss of biological resources throughout the region. Projects that conform with the MSCP, as specified by the Subarea Plan and implementing ordinances (i.e., San Diego Municipal Code Land Development Code—Biology Guidelines [City of San Diego, 2012]), are not expected to result in a cumulatively considerable impact for those biological resources adequately covered by the MSCP. These resources include the native vegetation communities and the MSCP Covered Species (including least Bell’s vireo, coastal California gnatcatcher, southwestern willow flycatcher, and light-footed clapper rail).

Although San Diego fairy shrimp was observed in the study area and is not covered by the MSCP, the impacted basin (Basin II) is located within the existing MTS right-of-way in an otherwise developed area with limited long-term conservation value for the species. This impacted basin is devoid of vernal pool vegetation and dependent upon hydrology solely from storm water runoff from the watershed area tributary (approximately 0.70 acres), which could be disrupted by ongoing routine maintenance within the railway corridor. Figure 4-1 presents the hydrology for Basin II. Because the location does not provide long-term conservation value for the species, impacts associated with the project would not have a cumulative impact on this resource within the corridor.
Figure 4-1. San Diego Fairy Shrimp Basin II Hydrology

Source: SANDAG, 2014
4.4 **Summary of Impacts to Vegetation Communities and Land Covers**

Long-term direct and indirect (shading) and construction (short-term) impacts to vegetation communities and land covers resulting from implementing the Mid-Coast Corridor Transit Project are presented in Table 4-1. The vast majority (91 percent) of long-term direct impacts would occur within disturbed/developed lands and non-native vegetation communities, including developed and disturbed habitat, non-native grasslands, eucalyptus woodland, and ornamental plantings. Riparian communities would account for 1 percent of long-term impacts and include disturbed wetland, southern riparian forest, mulefat scrub, southern willow scrub (including disturbed), Arundo-dominated riparian, and non-vegetated floodway or channel. Impacts to native uplands include coastal sage scrub and disturbed coastal sage scrub communities, and would account for 6 percent of long-term impacts.

A total of 14.54 acres of riparian and upland vegetation communities and land covers would be subject to potential long-term indirect impacts as a result of shading from elevated project structures. The majority of areas affected, approximately 13.30 acres, are disturbed/developed lands and/or consist of non-native vegetation, including disturbed habitat, urban/developed, ornamental, and eucalyptus woodland. A total of 0.28 acre of coastal sage scrub (including disturbed) that would be affected by shading is located beneath the UCSD West Station. Of the 0.89 acre of riparian communities and land covers subject to potential shading effects, 0.10 acre comprises non-vegetated channel or floodway and the remaining 0.79 acre is comprised of riparian communities including mulefat scrub, southern willow scrub, disturbed southern willow scrub, disturbed wetland, and Arundo-dominated riparian.

Potential construction (short-term) impacts would result from establishing construction access and staging areas, installing falsework, and completing ground improvements at bridge crossings and elevated portions of the alignment. A total of 59.60 acres of riparian and upland vegetation communities and land covers would be subject to potential short-term impacts as a result of construction activities. The majority of the areas affected, 53.67 acres, are disturbed/developed lands and/or consist of non-native vegetation, including disturbed habitat, urban/developed, ornamental, eucalyptus woodland. A total of 2.57 acres of coastal sage scrub (including disturbed) would be directly removed by construction activities. Of the 3.21 acres of riparian communities and land covers subject to construction impacts, 0.29 acre comprise non-vegetated channel or floodways and the remaining 2.92 acres is comprised of riparian communities including disturbed wetland, disturbed herbaceous wetland, southern riparian forest, mulefat scrub, southern willow scrub (including disturbed), and Arundo-dominated riparian. The affected vegetation communities would be confined to areas immediately adjacent to the existing MTS right-of-way and on the UCSD campus and would represent a temporary loss of vegetation communities in the study area. As project construction is anticipated over a 4.5-year period, the duration of temporal loss of vegetation communities could be 4.5 years or longer depending on the length of time required to restore the vegetation to pre-construction conditions.
Table 4-1. Impacts to Vegetation Communities and Land Covers

<table>
<thead>
<tr>
<th>General Vegetation Type (Holland/Oberbauer Code)</th>
<th>Existing (Acres)</th>
<th>Long-Term</th>
<th>Construction/Shading</th>
<th>Construction</th>
<th>Total</th>
<th>Remaining (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Riparian Vegetation Communities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disturbed Wetland (11200)</td>
<td>11.5</td>
<td>0.07</td>
<td>0.32</td>
<td>0.98</td>
<td>1.38</td>
<td>10.12</td>
</tr>
<tr>
<td>Disturbed Herbaceous Wetland (62510)</td>
<td>0.01</td>
<td>—</td>
<td>—</td>
<td>0.01</td>
<td>0.01</td>
<td>0</td>
</tr>
<tr>
<td>Southern Riparian Forest (61300)</td>
<td>48.0</td>
<td>0.48</td>
<td>—</td>
<td>0.89</td>
<td>1.37</td>
<td>46.63</td>
</tr>
<tr>
<td>Mulefat Scrub (63310)</td>
<td>1.2</td>
<td>&lt;0.01</td>
<td>0.09</td>
<td>0.02</td>
<td>0.11</td>
<td>1.09</td>
</tr>
<tr>
<td>Southern Willow Scrub (63320)</td>
<td>8.8</td>
<td>0.16</td>
<td>0.16</td>
<td>0.66</td>
<td>0.98</td>
<td>7.82</td>
</tr>
<tr>
<td>Disturbed Southern Willow Scrub (63320)</td>
<td>7.7</td>
<td>&lt;0.01</td>
<td>0.11</td>
<td>0.27</td>
<td>0.39</td>
<td>7.31</td>
</tr>
<tr>
<td>Arundo-Dominated Riparian (65100)</td>
<td>1.1</td>
<td>0.02</td>
<td>0.10</td>
<td>0.10</td>
<td>0.22</td>
<td>0.88</td>
</tr>
<tr>
<td>Non-Vegetated Channel or Floodway (64200)</td>
<td>3.0</td>
<td>0.13</td>
<td>0.10</td>
<td>0.29</td>
<td>0.52</td>
<td>2.48</td>
</tr>
<tr>
<td><strong>Riparian Subtotal</strong></td>
<td><strong>81.3</strong></td>
<td><strong>0.87</strong></td>
<td><strong>0.89</strong></td>
<td><strong>3.21</strong></td>
<td><strong>4.97</strong></td>
<td><strong>76.33</strong></td>
</tr>
<tr>
<td><strong>Upland Vegetation Communities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diegan Coastal Sage Scrub (32500)</td>
<td>71.1</td>
<td>1.73</td>
<td>0.15</td>
<td>1.92</td>
<td>3.81</td>
<td>67.29</td>
</tr>
<tr>
<td>Disturbed Diegan Coastal Sage Scrub (32500)</td>
<td>36.4</td>
<td>4.25</td>
<td>0.12</td>
<td>0.65</td>
<td>5.03</td>
<td>31.37</td>
</tr>
<tr>
<td>Non-Native Grassland (42200)</td>
<td>28.6</td>
<td>1.43</td>
<td>0.07</td>
<td>0.14</td>
<td>1.65</td>
<td>26.95</td>
</tr>
<tr>
<td>Disturbed Habitat (11300)</td>
<td>57.3</td>
<td>23.67</td>
<td>0.56</td>
<td>5.06</td>
<td>29.29</td>
<td>28.01</td>
</tr>
<tr>
<td>Urban/Developed (12000)</td>
<td>1,092.2</td>
<td>43.91</td>
<td>10.08</td>
<td>34.47</td>
<td>88.47</td>
<td>1,003.73</td>
</tr>
<tr>
<td>Ornamental (N/A)</td>
<td>117.9</td>
<td>5.71</td>
<td>1.64</td>
<td>8.49</td>
<td>15.84</td>
<td>102.06</td>
</tr>
<tr>
<td>Eucalyptus Woodland (79100)</td>
<td>63.7</td>
<td>10.83</td>
<td>1.02</td>
<td>5.65</td>
<td>17.50</td>
<td>46.20</td>
</tr>
<tr>
<td><strong>Uplands Subtotal</strong></td>
<td><strong>1,467.2</strong></td>
<td><strong>91.53</strong></td>
<td><strong>13.64</strong></td>
<td><strong>56.38</strong></td>
<td><strong>161.59</strong></td>
<td><strong>1,305.61</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,548.5</strong></td>
<td><strong>92.42</strong></td>
<td><strong>14.54</strong></td>
<td><strong>59.60</strong></td>
<td><strong>166.55</strong></td>
<td><strong>1,381.95</strong></td>
</tr>
</tbody>
</table>

Source: SANDAG, 2013
Note: *Acreages do not total due to rounding.

Impacts presented in this table represent the Refined Build Alternative, as approved by the SANDAG Board of Directors on November 15, 2013. The Refined Build Alternative alignment was amended on May 9, 2014 in the vicinity of I-5 and Nobel Drive, and acreages will be updated once the plan set has been updated. The change will primarily affect impacts to disturbed habitat, urban/developed, eucalyptus woodland, and ornamental areas.

4.5 Summary of Impacts to Waters of the U.S.

The project would result in 0.37 acre of long-term direct impacts to wetland and non-wetland Waters of the U.S. The majority of long-term impacts to Waters of the U.S. are associated with replacing an approximately 700-foot-long concrete-lined open channel portion of Rose Creek located at the SR 52 interchange with a narrower concrete-lined open channel and installing associated channel improvements immediately upstream and downstream. Long-term direct impacts are also associated with the concrete piers and abutments of the five bridge crossings (one over the San Diego River, one over
Tecolote Creek, and three over Rose Creek). Limited long-term impacts to Rose Creek north and south of SR 52 are associated with grading and/or retaining walls necessary to accommodate the proposed double-track light rail transit alignment alongside the existing main line within the MTS right-of-way.

Shading from elevated project structures could have long-term indirect impacts to 0.72 acre of wetland and non-wetland Waters of the U.S. (0.59 acre of wetlands and 0.13 acre of non-wetland) (Table 4-2).

### Table 4-2. Impacts to Waters of the U.S. by Vegetation Type

<table>
<thead>
<tr>
<th>Resource</th>
<th>General Vegetation Type (Holland/Oberbauer Code)</th>
<th>Long-Term (Acres)</th>
<th>Short-term Construction/Indirect Shading (Acres)</th>
<th>Short-term Construction (Acres)</th>
<th>Total (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetlands</td>
<td>Disturbed Wetland (11200)</td>
<td>0.02</td>
<td>0.28</td>
<td>0.18</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>Southern Riparian Forest (61300)</td>
<td>0.03</td>
<td>—</td>
<td>0.05</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>Mulefat Scrub (63310)</td>
<td>&lt; 0.01</td>
<td>0.09</td>
<td>0.02</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>Southern Willow Scrub (63320)</td>
<td>0.12</td>
<td>0.06</td>
<td>0.38</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>Disturbed Southern Willow Scrub (63320)</td>
<td>&lt; 0.01</td>
<td>0.11</td>
<td>0.27</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>Arundo-Dominated Riparian (65100)</td>
<td>&lt; 0.01</td>
<td>0.04</td>
<td>0.02</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td><strong>Wetlands Subtotal</strong></td>
<td><strong>0.17</strong></td>
<td><strong>0.59</strong></td>
<td><strong>0.92</strong></td>
<td><strong>1.68</strong></td>
</tr>
<tr>
<td>Non-Wetland Waters</td>
<td>Non-Vegetated Channel or Floodway (64200)</td>
<td>0.13</td>
<td>0.10</td>
<td>0.29</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>Disturbed Wetland (11200) – Concrete Lined</td>
<td>0.06</td>
<td>0.03</td>
<td>0.64</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>Disturbed Wetland (11200) - Riprap</td>
<td>—</td>
<td>—</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td><strong>Non-Wetland Waters Subtotal</strong></td>
<td><strong>0.19</strong></td>
<td><strong>0.13</strong></td>
<td><strong>1.0</strong></td>
<td><strong>1.33</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Wetland and Non-Wetland Total</strong></td>
<td><strong>0.37</strong></td>
<td><strong>0.72</strong></td>
<td><strong>1.92</strong></td>
<td><strong>3.01</strong></td>
</tr>
</tbody>
</table>

Source: City of San Diego, 1997; Oberbauer et al., 2008.

Notes: Totals may not sum due to rounding.

USACE = U.S. Army Corps of Engineers

Impacts presented in this table represent the Refined Build Alternative, as approved by the SANDAG Board of Directors on November 15, 2013. The Refined Build Alternative alignment was amended on May 9, 2014 in the vicinity of I-5 and Nobel Drive, and acreages will be updated once the plan set has been updated. The change is not expected to affect impacts to jurisdictional aquatic resources.

During construction, temporary impacts to Waters of the U.S. would result from falsework installation, ground improvements, staging areas, and haul routes associated with bridge construction. A total of 2.64 acres of Waters of the U.S. (1.51 acres of wetland and 1.13 acres of non-wetland waters) would be temporarily impacted, including Arundo-dominated riparian, southern willow scrub (including disturbed), southern riparian forest, disturbed wetland, mulefat scrub, non-vegetated channel or floodway, and disturbed herbaceous wetland.
5.0 FEDERALLY LISTED SPECIES

This chapter includes the analysis of the long-term (direct and indirect) and construction (short-term direct and indirect) impacts of the Mid-Coast Corridor Transit Project on the federally listed species. This section includes a discussion of avoidance and minimization measures and proposed mitigation. The determination of effect for each species is discussed in detail below and is based on the following U.S. Fish and Wildlife Service (USFWS) criteria:

- **No effect** means there are absolutely no effects, positive or negative, to species or habitat from the proposed action. “No effect” does not mean a small effect or an effect that is unlikely to occur. If effects are insignificant (small in size) or discountable (extremely unlikely), a “may affect, but not likely to adversely affect” determination is appropriate. A “no effect” determination does not require Section 7 consultation with the USFWS.

- **May affect, but not likely to adversely affect** means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects on the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated and should never reach the scale where “take” occurs. Discountable effects are those extremely unlikely to occur. Based on the best scientific and commercial information available, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the USFWS.

- **May affect, and is likely to adversely affect** means that listed species or habitat are likely to be exposed to the action or its environmental consequences, and will respond in a negative manner to the exposure. This determination means that effects on species and habitat: (1) are not insignificant in size and avoidance of “take” cannot be guaranteed, and (2) effects are not discountable (extremely unlikely to occur). A combination of beneficial and adverse effects is still “likely to adversely affect,” even if the net effect is neutral or positive. This determination requires formal consultation with USFWS.

The following analysis identifies the project features and/or activities that are anticipated to adversely impact the species and, when feasible, quantifies such impacts.

5.1 Coastal California Gnatcatcher

The project has the potential to affect coastal California gnatcatcher through long-term direct and indirect impacts stemming from loss and shading of suitable habitat; short-term direct impacts from the temporary removal of suitable habitat during construction; and short-term construction-related noise that may affect occupied habitat areas adjacent to the project during the breeding season.

As described in Section 3.1, three coastal California gnatcatcher pairs and a fourth location with presumed occupied habitat on the University of California, San Diego
(UCSD) campus occur in the study area. Figure 3-1, Maps 1-4 show the coastal California gnatcatcher locations and their distances from the project work limits. The coastal California gnatcatcher pair near the La Jolla Colony exit off Interstate (I-) 5 is approximately 2,030 feet away from the project work limits and is not expected to be directly or indirectly affected by the project and, therefore, is excluded from further discussion. Potential impacts on the two coastal California gnatcatcher pairs located to the north and south of State Route (SR) 52 and the presumed occupied habitat on the UCSD campus are discussed in further detail in the following sections.

5.1.1 Long-term Impacts

The project would result in the loss of 5.99 acres of coastal sage scrub from improvements within and adjacent to the existing Metropolitan Transit System (MTS) right-of-way associated with new track construction, track realignment, and the construction and maintenance of associated structures and facilities (Figure 3-1, Maps 1-4). The affected areas consist primarily of disturbed coastal sage scrub located within or immediately adjacent to the existing MTS right-of-way or on the UCSD campus surrounded by developed land uses. The affected areas are not contiguous with habitat where coastal California gnatcatcher were observed; are substantially degraded; and are generally too small, degraded, and/or isolated to be considered suitable nesting habitat. Although the impacted coastal sage scrub areas may occasionally be used as foraging habitat, the long-term loss of these areas would not preclude the broader use of larger, intact suitable habitat in the area by coastal California gnatcatcher.

The pair located just north of SR 52 was observed approximately 185 feet from the project work limits (Figure 3-1, Map 1). Proposed long-term direct impacts that may affect coastal California gnatcatcher at this location include the permanent loss of 0.90 acre of disturbed coastal sage scrub, including 0.06 acre within the Multi-Habitat Planning Area (MHPA) mapped within the existing MTS right-of-way. The MHPA is the City of San Diego’s “hard line” preserve system under the San Diego Multiple Species Conservation Program. The MHPA consists of biological core and linkage areas. Portions of the study area identified as biological cores and linkages include the area along Rose Creek near the SR 52 interchange and the San Diego River in the southern portion of the study area.

The pair located on the west-facing slopes south of SR 52 was observed approximately 450 feet from the project work limits, and presumed occupied habitat on the UCSD campus is located approximately 60 feet from the project work limits (Figure 3-1, Maps 3 and 4). At both of these locations, long-term direct impacts associated with the project would not affect coastal California gnatcatcher because there would be no impacts to suitable habitat in the vicinity of these locations. Long-term shading (indirect) effects would be limited to unoccupied coastal sage scrub within the existing MTS right-of-way and on the UCSD campus, where potential indirect impacts to coastal California gnatcatcher are not expected to occur. In addition, shading of suitable habitat along the existing rail right-of-way is unlikely to adversely affect the broader use of existing coastal sage scrub within and adjacent to the study area as foraging or nesting habitat by coastal California gnatcatcher.
5.1.2 Construction (Short-term) Impacts

Potential impacts to coastal California gnatcatcher also include the temporary loss of coastal sage scrub adjacent to the alignment associated with the realignment of an existing sewer line near Rose Creek (Figure 3-1, Map 1) and construction-related noise that may affect occupied habitat areas within 500 feet of project construction during the breeding season.

Coastal sage scrub that would be subject to direct temporary impacts during construction is located primarily within or along the existing MTS right-of-way or on the UCSD campus surrounded by developed land uses. During construction, 2.57 acres of coastal sage scrub (including disturbed) would be removed, including 0.23 acre of coastal sage scrub within the MHPA along Rose Creek to the north and south of SR 52.

Construction-related noise has the potential to disrupt occupied coastal California gnatcatcher habitat within 500 feet of the project during the breeding season (March 1 through August 31). Construction-related noise can disrupt foraging, nesting, and other reproductive activities. The affected areas are generally linear and are located along the edges of the existing transportation corridor.

In the vicinity of the coastal California gnatcatcher pair observed to the north of the SR 52 interchange, ambient noise levels at two long-term noise measurement locations (referred to as LT-8 and LT-9) at the top of the west-facing slopes above I-5 ranged from 58 to 64 A-weighted decibels (dBA) equivalent sound level (Leq) (San Diego Association of Governments [SANDAG], 2014) (Figure 2-1). Additional measurements (referred to as ST-14 through ST-18) taken within occupied habitat downslope of and nearer to the freeway ranged between 59 and 64 dBA Leq. Ambient noise levels within occupied habitat areas are, therefore, expected to regularly meet or exceed the 60-dBA Leq threshold commonly used to analyze potential noise impacts to coastal California gnatcatcher and other federally listed bird species (i.e., southwestern willow flycatcher, least Bell’s vireo, and light-footed clapper rail). Because of the existing high ambient noise levels measured in the vicinity, construction noise in excess of 60 dBA Leq in occupied habitat areas is unlikely to have an adverse indirect effect on coastal California gnatcatcher unless construction-related noise substantially increases ambient noise levels.

Noise measurements taken near occupied habitat to the south of SR 52 and within presumed occupied habitat north of Voigt Drive on the UCSD campus suggest that existing ambient noise levels in these occupied habitat areas may be less than 60 dBA Leq. South of SR 52, a short-term noise measurement site (referred to as ST-13) located approximately 50 feet east of the existing tracks and down-slope of the southernmost coastal California gnatcatcher pair measured ambient noise levels at 57 dBA Leq over a 1-hour period. Within the presumed occupied habitat on the UCSD campus (referred to as ST-22, 23 and ST-24), just north of Warren Field, daytime noise levels were recorded from 48 to 51 dBA Leq. As a result, occupied habitat within 500 feet of the work limits along these portions of the project may be subject to construction-related noise that increases ambient noise levels, and that may result in ambient noise levels that exceed the 60 dBA Leq threshold during the breeding season.
5.1.3 Avoidance, Minimization, and Mitigation Measures

This section describes the avoidance and minimization measures as well as mitigation.

5.1.3.1 General Avoidance, Minimization, and Mitigation Measures

During construction, vegetation clearing, grading, and other ground-disturbing activities in coastal sage scrub (including disturbed) in occupied habitat within the MHPA would occur outside of the breeding season (February 15 through August 31).

The following general avoidance and minimization measures would reduce impacts to coastal California gnatcatcher:

- During final design, the project’s construction footprint would be further reviewed and, where possible, the footprint would be minimized to reduce impacts to wetlands and vegetation.

- Where construction occurs adjacent to sensitive biological resources, the limits of construction would be visibly delineated through brightly colored fencing or other highly visible means. Construction crews would be directed not to encroach beyond the limits of construction.

- Best management practices would minimize dust, erosion, and runoff generated by construction activities.

- During construction, a biological monitor would be present to assist in the avoidance of impacts to native vegetation, jurisdictional aquatic resources, special-status plants and wildlife, and nesting birds. The biological monitor would provide training to construction personnel to increase awareness of the possible presence of wildlife beneath vehicles and equipment and to use best judgment to avoid killing or injuring wildlife. A biological monitor would assist with decisions or aid with moving wildlife, if necessary.

- To prevent the introduction of invasive plant species, construction vehicles and equipment would be washed prior to working in areas where sensitive vegetation communities are present adjacent to the project.

Two general mitigation measures have been identified to avoid impacts to nesting birds; these measures would also apply to coastal California gnatcatcher:

- Biologists would conduct nesting bird surveys not more than 72 hours prior to initiating construction-related ground-disturbing activities (i.e., grading or ground-clearing activities) during the breeding season (February 15 through August 31 for most species, January 15 through August 31 for raptors, or as determined by a qualified biologist). Surveys would include the disturbance zone or areas within 300 feet (500 feet for raptors) of the disturbance zone during the nesting/breeding season of native bird species potentially nesting on the site. If ground-disturbing activities are delayed, then additional pre-disturbance surveys would be conducted such that no more than 72 hours would have elapsed between the survey and the initiation of ground-disturbing activities.
If biologists find an active nest of a native bird species, then vegetation clearing, ground-disturbing activities, and construction equipment that generates high noise or vibration levels would cease and be postponed or halted at the discretion of the biologist in consultation with California Department of Fish and Wildlife. This work cessation would be effective within a buffer area from the nest at a distance appropriate to the sensitivity of the species and the distribution of the surrounding habitat. Construction work would not resume until the biologist has determined that the nest is no longer active, the juveniles have fledged, and there is no evidence of a second attempt at nesting. Alternatively, a qualified biological monitor would be present full-time while construction is occurring within the buffer area to observe the nesting birds, and would have the authority to halt or redirect construction if the birds exhibit signs of distress. Limits of construction around active nests would be established in the field with flagging, fencing, or other appropriate barriers, and construction personnel would be instructed on the sensitivity of nest areas. The biologist would serve as a construction monitor during those periods when construction activities would occur near active nest areas to ensure that no inadvertent impacts to nesting birds occur.

5.1.3.2 Mitigation for Impacts to Suitable Habitat

In addition to the general measures identified above, specific mitigation measures have been identified to address impacts to coastal California gnatcatcher and suitable habitat (coastal sage scrub). Mitigation for long-term impacts to coastal sage scrub (including disturbed) would occur through SANDAG’s TransNet Environmental Mitigation Program (EMP), and may include on- or off-site mitigation or the purchase of mitigation credits, as described below. Off-site mitigation is proposed at the Sage Hill site, which has been approved by the USFWS for use in mitigating upland impacts associated with the Mid-Coast Corridor Transit Project.

- **On-site Mitigation:** To the extent feasible, disturbed lands within or adjacent to the existing MTS right-of-way would be revegetated. Revegetated areas would be maintained and monitored for approximately five years to ensure successful reestablishment of vegetation communities.

- **Off-site Mitigation:** Where mitigation requirements cannot be accommodated within existing disturbed lands in the study area, impacts to sensitive vegetation communities would be mitigated elsewhere within the County of San Diego (e.g., Sage Hill site). Off-site mitigation may include creation (establishing native vegetation communities in areas that are currently disturbed, developed, or supporting non-native vegetation communities) or enhancement (improving the quality of existing areas of sensitive vegetation communities through removal of non-native species, establishment of native species, restoration of prior impacts, and protection from future disturbance).

- **Mitigation Credits:** In addition to on-site and off-site mitigation, impacts to sensitive vegetation communities may be mitigated through the purchase of mitigation credits. The purchase of mitigation credits could result in the long-term preservation of vegetation communities within established mitigation banks where these communities have been created and/or enhanced and are maintained in perpetuity.
Mitigation ratios would depend on the location of the impact and mitigation sites, either inside or outside of the MHPA, and would range from 1:1 to 2:1. Therefore, the long-term loss of 5.99 acres of unoccupied coastal sage scrub habitat, and shading of 0.28 acre of unoccupied coastal sage scrub habitat, would be offset through mitigation and is not expected to significantly affect coastal California gnatcatcher pairs.

Mitigation for construction (short-term) impacts to coastal California gnatcatcher suitable habitat would occur through SANDAG’s TransNet EMP, and may include on-site mitigation, off-site mitigation, or the purchase of mitigation credits, as described above. Specific mitigation has been identified to address construction impacts to coastal sage scrub (including disturbed) through restoration of areas disturbed during construction and provision of additional compensatory mitigation, as described below.

- For short-term construction impacts to coastal sage scrub (including disturbed) within the MHPA, mitigation is proposed at a 1:1 ratio if the mitigation occurs outside the MHPA, and at a 1:1 ratio if mitigation occurs within the MHPA. For short-term impacts to coastal sage scrub (including disturbed) outside the MHPA, mitigation is proposed at a 1.5:1 ratio if the mitigation occurs outside the MHPA, and at a 1:1 ratio if the mitigation occurs within the MHPA.

Therefore, the temporary loss of 2.57 acres of coastal sage scrub is not expected to significantly affect coastal California gnatcatcher pairs.

5.1.3.3 Mitigation for Indirect Construction Noise Impacts

The following measure has been identified to minimize or avoid construction noise impacts to coastal California gnatcatcher during the breeding season.

- Construction-related noise levels in coastal California gnatcatcher occupied habitat within 500 feet of construction activity would not exceed 60 dBA L_{eq} (1 hour) or pre-construction ambient noise levels, whichever is greater, during the breeding season. Project construction within 500 feet of occupied habitat would occur outside of the breeding season if possible. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project, or noise attenuation measures, such as temporary sound walls, would be implemented to reduce noise levels below 60 dBA L_{eq} (1 hour) or below existing ambient noise levels, whichever is greater.

With the implementation of breeding season avoidance, noise minimization, and/or noise attenuation measures, potential short-term indirect construction noise impacts are not expected to significantly affect coastal California gnatcatcher pairs.

5.1.4 Determination of Effect

With implementation of the proposed avoidance, minimization, and mitigation measures described in the previous sections, potential adverse effects associated with the project are considered to be insignificant or discountable. As a result, the project “may affect, but is not likely to adversely affect” the coastal California gnatcatcher.
Section 7 Consultation Biological Assessment
Chapter 5.0 – Federally Listed Species

5.2 **Southwestern Willow Flycatcher and Least Bell’s Vireo**

Although previously-conducted focused surveys for these species were negative, potentially suitable riparian habitat occurs within the project impact area in the San Diego River, Rose Creek, and on UCSD campus. Additionally, a single male least Bell’s vireo has been detected during 2014 focused surveys, which are currently in progress. These species could move into the area prior to construction. If these species are present, potential impacts would include long-term direct and indirect impacts stemming from loss and shading of suitable habitat, short-term direct and indirect impacts from the temporary removal of suitable habitat during construction, and construction-related noise that may affect occupied habitat areas adjacent to the project during the breeding season.

As described in Section 3.2, suitable habitat in the study area occurs in the San Diego River, in Rose Creek and on the UCSD campus. Figure 3-1, Maps 5-7 show the locations of suitable riparian habitat that would be impacted by the project and the location of the single least Bell’s vireo observed.

**5.2.1 Long-term Impacts**

Implementation of the project would result in 0.68 acre of long-term direct impacts to potentially suitable riparian habitat for least Bell’s vireo and southwestern willow flycatcher in the San Diego River, Rose Creek, and on the UCSD campus, including 0.19 acre within the MHPA. Potentially suitable riparian habitat includes southern riparian forest and southern willow scrub (including disturbed), as well as contiguous areas of mulefat scrub, disturbed wetlands (including disturbed herbaceous wetland), and Arundo-dominated riparian. The majority of long-term direct impacts would occur to areas located within or adjacent to the existing MTS right-of-way.

Shading of existing riparian habitat would occur at bridge crossings over the San Diego River and Rose Creek, and beneath a portion of elevated track along Voigt Drive to the east of I-5 on the UCSD campus. Long-term indirect impacts include shading effects on 0.76 acre of riparian habitat in the San Diego River, Rose Creek, and on UCSD campus.

If the single male least Bell’s vireo in Rose Creek establishes a nesting territory this year, then long-term direct impacts would include less than 0.01 acre of occupied habitat permanently displaced by bridge piers for the project. Long-term indirect impacts would include shading effects on 0.19 acre of occupied habitat in Rose Creek. However, due to the extent of contiguous habitat in downstream portions of the creek to the west of the existing rail bridge and Santa Fe Street bridge, these impacts would not result in the loss of a nesting territory.

**5.2.2 Construction (Short-term) Impacts**

If present, potential impacts to least Bell’s vireo and southwestern willow flycatcher would also include the temporary loss of riparian habitat associated with construction at bridge crossings. During construction, 2.13 acres of riparian habitat would be temporarily impacted, including 1.35 acres within the MHPA.
If the single male least Bell’s vireo in Rose Creek establishes a nesting territory this year, then short-term construction impacts would include the temporary loss of 0.09 acre of occupied habitat in Rose Creek.

If either species is present in the study area, construction-related noise that may exceed 60 dBA $L_{eq}$ has the potential to disrupt occupied least Bell’s vireo and southwestern willow flycatcher habitat within 500 feet of the project during the breeding season (March 1 through August 31), which can disrupt foraging, nesting, and other reproductive activities. The affected areas are generally linear and are located in adjacent suitable riparian habitat areas shown on Figure 3-1, Maps 5-7, along the edges of an existing transportation corridor. Suitable habitat within 500 feet of the work limits in the San Diego River and along Rose Creek may be subject to construction-related noise that substantially increases ambient noise levels.

5.2.3 Avoidance, Minimization, and Mitigation Measures

This section describes the avoidance and minimization measures as well as mitigation.

5.2.3.1 General Avoidance, Minimization, and Mitigation Measures

The avoidance and minimization measures described in Section 5.1.3.1 would also reduce impacts to southwestern willow flycatcher and least Bell’s vireo.

During construction, vegetation clearing, grading, and other ground-disturbing activities in occupied riparian habitat (including disturbed) in the MHPA would occur outside of the breeding season (March 1 through August 31).

5.2.3.2 Mitigation for Impacts to Suitable Habitat

Mitigation for long-term impacts to riparian habitat (including disturbed) would occur through SANDAG’s TransNet EMP. For impacts to riparian habitat in the San Diego River, off-site mitigation is proposed at the Mast Park Mitigation Site in the City of Santee, which has been approved by the USFWS for use in mitigating wetland impacts associated with another transportation project, or at another site identified during the permitting process. For impacts in the Rose Creek watershed, mitigation includes implementing a portion of the restoration and creation opportunities identified in the Rose Creek Watershed Wetland, Riparian and Water Quality Restoration Opportunities Analysis (San Diego Earthworks, 2012) in coordination with the Rose Creek Watershed Association. Additional mitigation sites may be identified through agency consultation and through the TransNet EMP. Mitigation for long-term impacts to riparian habitat is proposed at a 3:1 ratio, including a minimum 1:1 ratio of habitat creation to achieve no net loss. Therefore, the long-term loss of 0.68 acre of unoccupied riparian habitat, and shading of 0.76 acre of unoccupied riparian habitat, would be offset through mitigation and is not expected to significantly affect least Bell’s vireo or southwestern willow flycatcher. If the single male least Bell’s vireo establishes a nesting territory this year, then 0.19 acre of indirect shading effects, 0.09 acre of temporary construction impacts, and the permanent loss of less than 0.01 acre of disturbed wetlands in Rose Creek would be considered impacts to occupied habitat.

Mitigation for temporary impacts to riparian habitat (including disturbed) during construction would occur by restoring affected areas to pre-existing habitat conditions (or
Section 7 Consultation Biological Assessment
Chapter 5.0 – Federally Listed Species

better) upon project completion. Furthermore, the two species have not been recorded breeding in this area. Therefore, the temporary loss of 2.13 acres of riparian habitat is not expected to significantly affect least Bell’s vireo or southwestern willow flycatcher.

5.2.3.3 Mitigation for Indirect Construction Noise Impacts
The following measure has been identified to minimize or avoid construction noise impacts to least Bell’s vireo and southwestern willow flycatcher during the breeding season.

- To avoid potential adverse impacts to least Bell’s vireo and southwestern willow flycatcher from construction-related noise, project construction within 500 feet of occupied habitat would be timed to occur outside of the breeding season if possible. If project construction within 500 feet of occupied habitat must occur during the breeding season, construction-related noise within the occupied habitat areas would not exceed 60 dBA \( L_{eq} \) (1 hour) or pre-construction ambient noise levels, whichever is greater, during the breeding season. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project, or noise attenuation measures would be implemented to reduce noise levels below 60 dBA \( L_{eq} \) (1 hour) or below existing ambient noise levels, whichever is greater.

With the implementation of breeding season avoidance, noise minimization, and/or noise attenuation measures, potential short-term indirect construction noise impacts are not expected to significantly affect least Bell’s vireo and southwestern willow flycatcher.

5.2.4 Determination of Effect
With implementation of the proposed avoidance, minimization, and mitigation measures described in the previous sections, potential adverse effects associated with the project are considered to be insignificant or discountable. As a result, the project “may affect, but is not likely to adversely affect” least Bell’s vireo and southwestern willow flycatcher.

5.3 Light-footed Clapper Rail
Although a focused survey conducted in 2014 for light-footed clapper rail was negative, the species could forage and/or nest in marginal quality habitat in the San Diego River to the west of the existing Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency bridge, and may move through the study area along the San Diego River main channel (Figure 3-1, Map 5). If light-footed clapper rail were to move into the area prior to construction, potential impacts would be limited to short-term indirect impacts from construction-related noise that may affect suitable habitat adjacent to the project during the breeding season.

5.3.1 Long-term Impacts
As suitable foraging and/or nesting habitat does not occur within the project impact area at the San Diego River, and because movement along the San Diego River main channel would not be affected by the San Diego River bridge for the project, no long-term impacts to light-footed clapper rail or suitable habitat would occur.
5.3.2 **Construction (Short-term) Impacts**

Implementation of the project would result in construction noise in adjacent suitable marsh habitat areas to the west of the existing Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency bridge which could disrupt foraging, nesting, and reproductive activities during the breeding season if this species is determined to be present prior to construction. Suitable habitat within 500 feet of the work limits in the San Diego River may be subject to construction-related noise that substantially increases ambient noise levels, and that may exceed the 60-dBA Leq threshold during the breeding season. As no equipment or work is proposed within the San Diego River main channel, movement of clapper rails through the study area would not be affected.

5.3.3 **Avoidance, Minimization, and Mitigation Measures**

This section describes the avoidance and minimization measures as well as mitigation.

5.3.3.1 **General Avoidance, Minimization, and Mitigation Measures**

The avoidance and minimization measures described in Section 5.1.3.1 would also reduce impacts to light-footed clapper rail.

5.3.3.2 **Mitigation for Indirect Construction Noise Impacts**

The following measures have been identified to minimize or avoid construction impacts to light-footed clapper rail.

- During construction, a movement corridor for light-footed clapper rail would be maintained along the San Diego River main channel to allow clapper rails to move through the construction area, if present. The movement corridor would include exclusionary fencing along the project limits on either side of the flow channel to prevent clapper rails from entering construction areas, if present.

- To avoid potential adverse impacts to light-footed clapper rail from construction-related noise, project construction within 500 feet of occupied habitat would be timed to occur outside of the breeding season, if possible. If project construction within 500 feet of occupied habitat must occur during the breeding season, construction-related noise within the occupied habitat areas would not exceed 60 dBA L_{eq} (1-hour) or pre-construction ambient noise levels, whichever is greater, during the breeding season. If necessary, construction activities would be managed to limit noise levels in occupied habitat within 500 feet of the project or noise attenuation measures would be implemented to reduce noise levels below 60 dBA L_{eq} (1-hour) or below existing ambient noise levels, whichever is greater.

With the implementation of the avoidance and minimization measures, potential direct and indirect impacts associated with construction activities are not expected to significantly affect light-footed clapper rail.

5.3.4 **Determination of Effect**

With implementation of the proposed avoidance, minimization, and mitigation measures described in the previous sections, potential adverse effects associated with the project
are considered to be insignificant or discountable. As a result, the project “may affect, but is not likely to adversely affect” light-footed clapper rail.

5.4 San Diego Fairy Shrimp

The project has the potential to affect San Diego fairy shrimp through long-term direct impacts and short-term indirect impacts during construction. As described in Section 3.4, San Diego fairy shrimp are present in two ephemeral basins in the study area. Figure 3-1, Map 8 shows the location of the two basins within the MTS right-of-way between Tecolote Road and Clairemont Drive.

5.4.1 Long-term Impacts

The project would result in the loss of an occupied basin from improvements within the existing MTS right-of-way associated with new track construction. Basin II is located to the east of the existing tracks, and measured approximately 76 feet long and 5.5 feet wide at the time San Diego fairy shrimp was observed, with an area of approximately 425 square feet and a maximum depth of 10 inches. In addition to the basin area itself, the basin microwatershed would also be directly impacted by grading and other improvements associated with new track construction.

A second occupied basin, Basin BB, is located within the MTS right-of-way to the west of the existing tracks but would be avoided by the project. Basin BB is located approximately 50 feet west of the project development footprint (72 feet from the project alignment), and is separated hydrologically from the study area by the existing tracks. No long-term impacts to San Diego fairy shrimp in Basin BB and/or the associated basin’s microwatershed would occur.

5.4.2 Construction (Short-term) Impacts

During construction, dust could indirectly impact San Diego fairy shrimp in Basin BB. Dust accumulating within the basin, either during the wet or dry season, could adversely affect the emergence of cysts during the wet season. During the wet season, dust settling in the basin could also increase turbidity of the pool and disrupt foraging and reproductive activities. Because Basin BB and its associated basin microwatershed are separated from the study area by the existing tracks, San Diego fairy shrimp at this location would not be affected by erosion and/or runoff during construction.

5.4.3 Avoidance, Minimization, and Mitigation Measures

This section describes the avoidance and minimization measures as well as mitigation.

5.4.3.1 General Avoidance, Minimization, and Mitigation Measures

The avoidance and minimization measures related to water quality, biological monitoring, and implementation of best management practices described in Section 5.1.3.1 would also reduce impacts to San Diego fairy shrimp.

5.4.3.2 Mitigation for Impacts to Occupied Areas

In addition to the general avoidance and minimization measures, the following measure has been identified to avoid indirect impacts to the San Diego fairy shrimp in Basin BB.
• Indirect construction impacts to the San Diego fairy shrimp in Basin BB, which is located outside of the project impact area, would be avoided through the designation of a buffer. The buffer would be established to prevent construction from indirectly affecting the pool and its associated watershed.

Impacts to ephemeral basins occupied by San Diego fairy shrimp, including Basin II, are proposed to be mitigated at a 2:1 ratio through restoration and/or enhancement of vernal pools within west Otay Mesa on property purchased for vernal pool mitigation or within another approved mitigation area acceptable to the USFWS. Mitigation is proposed at a 2:1 ratio for impacts to ephemeral basins supporting San Diego fairy shrimp, or as otherwise agreed to by the USFWS. Restoration would be conducted at a minimum 1:1 ratio to achieve a no-net-loss of San Diego fairy shrimp habitat; a combination of restoration and enhancement would make up the remaining mitigation.

SANDAG would restore/enhance vernal pools suitable to support San Diego fairy shrimp within the west Otay Mesa on the 40-acre Anderprizes parcel, which was previously acquired for future mitigation of vernal pools, and which has been approved by the USFWS for mitigation of impacts to San Diego fairy shrimp that would result from the Mid-Coast Corridor Transit Project. SANDAG would develop a vernal pool restoration plan subject to approval by the USFWS prior to project construction.

Additional mitigation locations may be identified through consultation with USFWS. Mitigation at other sites would include the implementation of a vernal pool restoration, enhancement, and/or preservation plan subject to the approval by USFWS prior to project construction. SANDAG would ensure that the mitigation areas would be conserved in perpetuity, including providing financial assurances and/or securing conservation easements, as necessary for USFWS approval.

5.4.4 Determination of Effect

Because implementation of the project would result in the loss of an occupied basin, implementation of the project “may affect, and is likely to adversely affect” San Diego fairy shrimp.
6.0 RELEVANT REPORTS PREPARED

The *Mid-Coast Corridor Transit Project Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR)* (San Diego Association of Governments, 2013a) and supporting technical reports were circulated for a 60-day public review and comment period between May 17, 2013 and July 17, 2013. The administrative draft of the Final SEIS/SEIR has been completed and is currently under review by the Federal Transit Administration. Circulation of the Final SEIS/SEIR for public review is expected to occur in summer 2014. Focused survey reports for the coastal California gnatcatcher (September 22, 2010; October 4, 2012), San Diego fairy shrimp (September 15, 2011; October 4, 2012), and least Bell’s vireo and southwestern willow flycatcher (September 22, 2010, January 25, 2010) are included in Appendix D.
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7.0 REFERENCES


San Diego Association of Governments (SANDAG). 2013d. Mid-Coast Corridor Transit Project Land Use Impacts Technical Report


Appendix A
Mid-Coast Observed Plant Species
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APPENDIX A  MID-COAST OBSERVED PLANT SPECIES

VASCULAR PLANT SPECIES

**EPHEDRACEAE – EPHEDRA FAMILY**

*Ephedra californica* – desert tea

**PINACEAE – PINE FAMILY**

*Pinus* sp. – pine

**AIZOACEAE – FIG-MARIGOLD FAMILY**

* *Aptenia cordifolia* – baby sun rose
  * *Carpobrotus edulis* – Hottentot-fig
  * *Mesembryanthemum crystallinum* – crystalline iceplant
  * *Mesembryanthemum nodiflorum* – slender-leaved iceplant

**ANACARDIACEAE – SUMAC FAMILY**

*Rhus integrifolia* – lemonadeberry
*Rhus ovata* – sugar bush

* *Schinus molle* – Peruvian pepper tree
  * *Schinus terebinthifolius* – Brazilian pepper tree
  * *Toxicodendron diversilobum* – western poison oak

**APIACEAE – CARROT FAMILY**

* *Apium graveolens* – celery
  * *Conium maculatum* – poison-hemlock
  * *Daucus pusillus* – rattlesnake weed
  * *Foeniculum vulgare* – fennel
  * *Sanicula* sp. – sanicle

**APOCYNACEAE – DOGBANE FAMILY**

* *Vinca major* – big periwinkle

**ASTERACEAE – SUNFLOWER FAMILY**

*Achillea millefolium* – yarrow, milfoil
* *Ambrosia psilostachya* – western ragweed
* *Artemisia californica* – California sagebrush
* *Artemisia dracunculus* – tarragon
* *Artemisia palmeri* – San Diego sagewort
* *Baccharis pilularis* – chaparral broom, coyote brush
* *Baccharis salicifolia* – mulefat, seep-willow, water-wally
* *Baccharis sarothroides* – broom baccharis

* *Bidens pilosa* – common beggar-ticks, Spanish-needles
* *Carduus pycnocephalus* – Italian thistle
  * *Centaurea melitensis* – tocalote
  * *Glebionis matricarioides* – pineapple weed, rayless chamomile
  * *Glebionis coronaria* – garland or crown daisy
  * *Cirsium vulgare* – bull thistle
  * *Cirsium* sp. – thistle
* Conyza bonariensis – flax-leaved fleabane
  Conyza canadensis – horseweed
* Cynara cardunculus – artichoke thistle
Deinandra [=Hemizonia] fasciculata – fascicled tarweed
Encelia californica – California encelia
Eriophyllum confertiflorum – long-stem golden yarrow
Logfia filaginoides – California filago
Gnaphalium bicolor – bicolor cudweed
Gnaphalium californicum – California everlasting
Pseudognaphalium beneolens – white everlasting
Pseudognaphalium microcephalum – fragrant everlasting
* Gnaphalium luteoalbum – white-head cudweed
Gnaphalium palustre – lowland cudweed
Grindelia hirsutula – gum plant
* Hedypnois cretica – Crete hedypnois
Heterotheca grandiflora – telegraph weed
* Hypochnaeris glabra – smooth cat’s-ear
Isocoma menziesii ssp. menziesii – spreading goldenbush
Isocoma menziesii var. decumbens – decumbent goldenbush
Isocoma menziesii var. vernonioides – coastal goldenbush
Iva hayesiana – San Diego marsh-elder
* Lactuca serriola – prickly lettuce
* Helminthotheca echiioides – bristly ox-tongue
* Picris echiioides – bristly ox-tongue
Rafinesquia californica – California chicory
* Senecio vulgaris – common groundsel
* Silybum marianum – milk thistle
* Sonchus asper ssp. asper – prickly sow thistle
* Sonchus oleraceus – common sow thistle
Stephanomeria sp. – wreath-plant
Stephanomeria exigua ssp. deanei – small wreath-plant
Stephanomeria virgata ssp. virgata – virgate wreath-plant
Tetradymia comosa – cotton-thorn
Xanthium strumarium – cocklebur

**BETULACEAE – BIRCH FAMILY**
Alnus rhombifolia – white alder

**BORAGINACEAE – BORAGE FAMILY**
Heliotropium curassavicum – salt heliotrope

**BRASSICACEAE – MUSTARD FAMILY**
* Brassica nigra – black mustard
* Lepidium draba ssp. draba – hoary cress
* Lepidium didymum – swine cress
* Hirschfeldia incana – short-pod mustard
Lepidium sp. – peppergrass
* Lepidium latifolium – broadleaved pepperweed
* Lobularia maritima – sweet alyssum
* Raphanus sativus – radish  
  Nasturtium officinale – water cress

** CACTACEAE – CACTUS FAMILY**
* Opuntia sp. – cactus  
  Mammillaria dioica – fish-hook cactus  
  Cylindropuntia californica – snake cholla  
  Opuntia littoralis – coastal prickly-pear

**CAPRIFOLIACEAE – HONEYSUCKLE FAMILY**
  Sambucus nigra – blue elderberry

**CARYOPHYLLACEAE – PINK FAMILY**
* Silene gallica – common catchfly  
* Spergularia bocconei – Boccone’s sand spurry

**CHENOPODIACEAE – GOOSEFOOT FAMILY**
  Atriplex sp. – silverscale  
  Atriplex canescens – four-wing saltbush/shadscale  
  Atriplex nummularia – old man saltbush  
* Atriplex semibaccata – Australian saltbush  
* Chenopodium album – pigweed, lamb’s-quarters  
* Chenopodium murale – nettle-leaf goosefoot  
* Salsola tragus – Russian thistle, tumbleweed

**CLEOMACEAE – CLEOME FAMILY**
  Isomeris arborea – bladderpod

**CONVOLVULACEAE – MORNING-GLORY FAMILY**
  Calystegia macrostegia – morning-glory

**CRASSULACEAE – STONECROP FAMILY**
* Crassula connata – pygmy-weed  
* Crassula ovata – jade tree  
  Dudleya lanceolata – lanceleaf or coastal dudleya  
  Dudleya pulverulenta – chalky live-forever  
  Dudleya virens ssp. virens – bright green dudleya

**CUCURBITACEAE – GOURD FAMILY**
  Cucurbita palmata – coyote melon  
  Marah macrocarpus var. macrocarpus – manroot, wild-cucumber

**CYPERACEAE – SEDGE FAMILY**
  Bolboschoenus maritimus – tuberous bulrush  
  Schoenoplectus californicus – California tule

**EUPHORBIACEAE – SPURGE FAMILY**
* Chamaesyce maculata – spotted spurge  
  Croton setigerus – doveweed
* _Euphorbia lathyris_ – caper spurge, gopher plant
* _Euphorbia peplus_ – petty spurge
* _Euphorbia sp._ – spurge
* _Ricinus communis_ – castor bean

**FABACEAE – PEA FAMILY**
* _Acacia cyclops_ – western coastal wattle
* _Acacia longifolia_ – Sydney golden or golden wattle
* _Acacia redolens_ – desert carpet
* _Astragalus trichopodus_ var. _lonchus_ – ocean locoweed
* _Hoffmannseggia glauca_ – pig-nut, hog potato
* _Acmispon americanus_ – Spanish-clover
* _Acmispon glaber_ – deerweed
* _Cytisus striatus_ – striated broom
* _Lathyrus sp._ – sweet pea
* _Lupinus succulentus_ – arroyo lupine
* _Medicago polymorpha_ – California burclover
* _Melilotus albus_ – white sweetclover
* _Melilotus indica_ – sourclover
* _Robinia pseudoacacia_ – common locust
* _Vicia villosa_ – hairy vetch

**FAGACEAE – OAK FAMILY**
* _Quercus agrifolia_ – coast live oak, encina
* _Quercus berberidifolia_ – scrub oak

**GERANIACEAE – GERANIUM FAMILY**
* _Erodium botrys_ – long-beak filaree/storks bill
* _Erodium cicutarium_ – redstem filaree
* _Geranium carolinianum_ – Carolina geranium

**GROSSULARIACEAE – CURRANT FAMILY**
* _Ribes speciosum_ – fuschia-flowered gooseberry

**IRIDACEAE – IRIS FAMILY**
* _Sisyrinchium bellum_ – blue-eyed-grass

**LAMIACEAE – MINT FAMILY**
* _Marrubium vulgare_ – horehound
* _Salvia apiana_ - white sage
* _Salvia mellifera_ – black sage
* _Stachys ajugoides_ var. _rigida_ – hillside hedge-nettle
* _Trichostema lanceolatum_ – vinegar weed

**LYTHRACEAE – LOOSESTRIFE FAMILY**
* _Lythrum hyssopifolia_ – grass poly
MALVACEAE – MALLOW FAMILY
  * Malacothamnus fasciculatus – chaparral bushmallow
  * Malva parviflora – cheeseweed, little mallow
  Sidalcea sparsifolia – checker-bloom
  Sidalcea neomexicana – salt spring checkerbloom

MYRSINACEAE – MIRSINE FAMILY
  * Anagallis arvensis – poor man’s weatherglass, scarlet pimpernel

MYRTACEAE – MYRTLE FAMILY
  * Eucalyptus spp. – eucalyptus
  * Eucalyptus globulus – blue gum
  * Melaleuca viminalis – weeping bottle brush

OLEACEAE – OLIVE FAMILY
  * Olea europaea – olive

ONAGRACEAE – EVENING-PRIMROSE FAMILY
  * Camissonia sp. – camissonia
  Clarkia purpurea ssp. quadrivulnera – four-spot
  Epilobium ciliatum ssp. ciliatum – willow herb
  Oenothera elata ssp. hookeri – great marsh evening-primrose

OXALIDACEAE – WOOD-SORREL FAMILY
  * Oxalis pes-caprae – Bermuda buttercup

PHRYMACEAE – LOPSEED FAMILY
  * Mimulus aurantiacus – coast monkey flower, bush monkey flower

PLANTAGINACEAE – PLANTAIN FAMILY
  * Antirrhinum nuttallianum ssp. nuttallianum – Nuttall’s snapdragon

PLATANACEAE – SYCAMORE FAMILY
  * Platanus racemosa – western sycamore

PLUMBAGINACEAE – LEADWORT FAMILY
  * Limonium perezii – Perez’s sea lavender
  * Limonium sp. – marsh-rosemary

POLYGONACEAE – BUCKWHEAT FAMILY
  * Eriogonum elongatum var. elongatum – tall buckwheat
  Eriogonum fasciculatum – California buckwheat
  Persicaria hydropiperoides – waterpepper
  * Rumex crispus – curly dock
  Rumex salicifolius – willow dock

PRIMULACEAE – PRIMROSE FAMILY
  * Dodecatheon clevelandii ssp. clevelandii – Padre’s shooting star
**Rhamnaceae – Buckthorn Family**
*Rhamnus crocea* – spiny redberry

**Rosaceae – Rose Family**
*Heteromeles arbutifolia* – toyon, Christmas berry

**Rubiacceae – Madder Family**
*Galium aparine* – goose grass

**Salicaceae – Willow Family**
*Populus fremontii* – alamo or Fremont cottonwood
*Salix gooddingii* – Goodding’s black willow
*Salix lasiolepis* – arroyo willow
*Salix laevigata* – red willow

**Simaroubaceae – Quassia Family**
*Ailanthus altissima* – tree of heaven

**Solanaceae – Nightshade Family**
*Datura wrightii* – jimson weed
*Nicotiana glauca* – tree tobacco
*Solanum douglasii* – Douglas’ nightshade
*Solanum elaeagnifolium* – silverleaf nightshade
*Solanum parishii* – Parish’s nightshade

**Tamaricaceae – Tamarisk Family**
*Tamarix spp.* – tamarisk

**Verbenaeeae – Vervain Family**
*Verbena lasiostachys var. lasiostachys* – western verbena

**Angiosperms (Monocots)**

**Areceae – Palm Family**
*Phoenix canariensis* – Canary Island date palm
*Washingtonia robusta* – Mexican fan palm

**Asphodelaceae – Asphodeline Family**
*Asphodelus fistulosus* – hollow-stem aspodel

**Cyperaceae – Sedge Family**
*Carex sp.* – sedge
*Cyperus esculentus* – yellow nutsedge
*Cyperus involucratus* – African umbrella plant
*Eleocharis macrostachya* – pale spike-sedge
**JUNCAEAE – RUSH FAMILY**
- *Juncus acutus* ssp. *leopoldii* – southwestern spiny rush
- *Juncus bufonius* var. *bufonius* – toad rush
- *Juncus xiphioides* – iris-leaf rush

**IRIDACEAE – IRIS FAMILY**
- *Iris* sp. – iris

**POACEAE – GRASS FAMILY**
- *Achnatherum coronatum* – giant stipa
- *Agrostis pallens* – small-leaf bent
- *Agrostis stolonifera* – creeping bentgrass
- *Arundo donax* – giant reed
- *Avena barbata* – slender wild oat
- *Avena fatua* – wild oat
- *Brachypodium distachyon* – purple falsebrome
- *Bromus diandrus* – ripgut grass
- *Bromus hordeaceus* – soft chess
- *Bromus madritensis* – foxtail chess
- *Cortaderia selloana* – pampas grass
- *Crypsis schoenoides* – swamp prickle grass
- *Cynodon dactylon* – Bermuda grass
- *Distichlis spicata* – saltgrass
- *Echinochloa crus-galli* – common barnyard grass
- *Gastridium ventricosum* – nit grass
- *Hordeum murinum* – barley
- *Leymus condensatus* – giant wild rye
- *Leymus tritocoides* – beardless wild ryegrass
- *Lolium multiflorum* – Italian ryegrass
- *Lolium perenne* – perennial ryegrass
- *Melica imperfecta* – coast range melic
- *Nassella pulchra* – purple needlegrass
- *Pennisetum clandestinum* – kikuyugrass
- *Pennisetum setaceum* – African fountain grass
- *Piptatherum miliaceum* – smilagrass
- *Phalaris* sp. – Phalaris
- *Poa secunda* ssp. *secunda* – one-sided bluegrass
- *Polypogon monspeliensis* – annual beard grass
- *Vulpia myuros* – rattail fescue

**THEMIDACEAE – BROADIAEA FAMILY**
- *Brodiaea orcuttii* – Orcutt’s brodiaea
- *Dichelostemma capitatum* ssp. *capitatum* – blue dicks

**TYPHACEAE – CATTAIL FAMILY**
- *Typha* spp. – cattail
- *Typha domingensis* – slender cattail
URTICACEAE – NETTLE FAMILY

*Urtica dioica* ssp. *holosericea* – hoary nettle

Note: * Signifies non-native species.
Appendix B
Mid-Coast Observed Wildlife Species
APPENDIX B MID-COAST OBSERVED WILDLIFE SPECIES

WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

PLETHODONTIDAE – LUNGLESS SALAMANDERS
   * Batrachoseps major – garden slender salamander

PIPIDAE – TONGUELESS FROGS
   * Xenopus laevis – African clawed frog

BUFONIDAE – TRUE TOADS
   * Anaxyrus boreas – western toad

HYLIDAE – TREEFROGS
   * Pseudacris hypochondriaca – Baja California treefrog

REPTILES

EMYDIDAE – BOX AND POND TURTLES
   * Pseudemys scripta – red-eared slider

IGUANIDAE – IGUANID LIZARDS
   * Sceloporus occidentalis – western fence lizard
   * Uta stansburiana – common side-blotched lizard

COLUMBRIDAE – COLUBRID SNAKES
   * Pituophis cantifer – gopher snake

VIPERIDAE – VIPERS
   * Crotalus oreganus – western rattlesnake

FISHES

CYPRINIDAE – CARP
   * Cyprinidae sp. – carp

BIRDS

PODICIPEDIDAE – GREBES
   * Podilymbus podiceps – pied-billed grebe

PHALACROCORACIDAE – CORMORANTS
   * Phalacrocorax auritus – double-crested cormorant
   * Phalacrocorax sp. – cormorant
ARDEIDAE – HERONS
   Ardea herodias – great blue heron
   Butorides virescens – green heron
   Ardea alba – great egret
   Egretta thula – snowy egret
   Nycticorax nycticorax – black-crowned night-heron

ANATIDAE – DUCKS, GEESE, AND SWANS
   Anas platyrhynchos – mallard

ACCIPITRIDAE – HAWKS
   Accipiter cooperii – Cooper’s hawk
   Buteo jamaicensis – red-tailed hawk
   Buteo lineatus – red-shouldered hawk
   Elanus leucurus – white-tailed kite

FALCONIDAE – CARACARAS AND FALCONS
   Falco sparverius – American kestrel

ODONTOPHORIDAE – NEW WORLD QUAILS
   Callipepla californica – California quail

RALLIDAE – RAILS, GALLINULES, AND COOTS
   Fulica americana – American coot
   Gallinula chloropus – common moorhen
   Porzana carolina – sora

CHARADRIIDAE – LAPWINGS AND PLOVERS
   Charadrius vociferus – killdeer

SCOLOPACIDAE – SANDPIPERS, PHALAROPES, AND ALLIES
   Numenius americanus – long-billed curlew

LARIDAE – GULLS, TERNS, AND SKIMMERS
   Larus sp. – gull
   Sterna sp. – tern

COLUMBIDAE – PIGEONS AND DOVES
*  Columba livia – rock dove
    Zenaida macroura – mourning dove

TYTONIDAE – BARN OWLS
   Tyto alba – barn owl

APODIDAE – SWIFTS
   Aeronautes saxatalis – white-throated swift
**TROCHILIDAE – HUMMINGBIRDS**
   *Calypte anna* – Anna’s hummingbird
   *Calypte costae* – Costa’s hummingbird

**ALCEDINIDAE – KINGFISHERS**
   *Ceryle alcyon* – belted kingfisher

**PICIDAE – WOODPECKERS**
   *Colaptes auratus* – northern flicker
   *Melanerpes formicivorus* – acorn woodpecker
   *Picoides nuttallii* – Nuttall’s woodpecker

**TYRANNIDAE – TYRANT FLYCATCHERS**
   *Contopus cooperi* – olive-sided flycatcher
   *Empidonax difficilis* – Pacific-slope flycatcher
   *Myiarchus cinerascens* – ash-throated flycatcher
   *Sayornis nigricans* – black phoebe
   *Tyrannus vociferans* – Cassin’s kingbird
   *Tyrannus verticalis* – western kingbird

**HIRUNDINIDAE – SWALLOWS**
   *Petrochelidon pyrrhonota* – cliff swallow
   *Stelgidopteryx serripennis* – northern rough-winged swallow
   *Tachycineta bicolor* – tree swallow

**CORVIDAE – JAYS AND CROWS**
   *Aphelocoma californica* – western scrub-jay
   *Corvus brachyrhynchos* – American crow
   *Corvus corax* – common raven

**PARIDAE – TITMICE**
   *Baeolophus inornatus* – oak titmouse

**AEGITHALIDAE – BUSHTITS**
   *Psaltriparus minimus* – bushtit

**TROGLODYTIDAE – WRENS**
   *Thryomanes bewickii* – Bewick’s wren
   *Troglodytes aedon* – house wren

**REGULIDAE – KINGLETS**
   *Regulus calendula* – ruby-crowned kinglet

**Sylviidae – Sylviid Warblers**
   *Chamaea fasciata* – wrentit

**MIMIDAE – THRASHERS**
   *Mimus polyglottos* – northern mockingbird
   *Toxostoma redivivum* – California thrasher
STURNIDAE – STARLINGS
* Sturnus vulgaris – European starling

PARULIDAE – WOOD WARBLERS
Dendroica coronata – yellow-rumped warbler
Dendroica petechia – yellow warbler
Dendroica towndsendi – Townsend’s warbler
Geothlypis trichas – common yellowthroat
Icteria virens – yellow-breasted chat
Vermivora celata – orange-crowned warbler
Wilsonia pusilla – Wilson’s warbler

EMBERIZIDAE – BUNTINGS AND SPARROWS
Junco oreganus – Oregon junco
Melospiza melodia – song sparrow
Pipilo crissalis – California towhee
Pipilo maculatus – spotted towhee
Spizella passerina – chipping sparrow
Zonotrichia leucophrys – white-crowned sparrow

CARDINALIDAE – CARDINALS AND ALLIES
Pheucticus melanocephalus – black-headed grosbeak

ICTERIDAE – BLACKBIRDS AND ORIOLES
Agelaius phoeniceus – red-winged blackbird
Euphagus cyanocephalus – Brewer’s blackbird
Icterus cucullatus – hooded oriole
Icterus bullockii – Bullock’s oriole
Molothrus ater – brown-headed cowbird
Quiscalus mexicanus – great-tailed grackle

POLIOPTILIDAE – GNATCATCHERS AND GNATWRENS
Polioptila californica – coastal California gnatcatcher

TURDIDAE – THRUSHES AND BABBLERS
Sialia mexicana – western bluebird
Turdus migratorius – American robin

VIREONIDAE – VIREOS
Vireo gilvus – warbling vireo
Vireo huttoni – Hutton’s vireo

THRAUPIDAE – TANAGERS
Piranga ludoviciana – western tanager

FRINGILLIDAE – FINCHES
Carpodacus mexicanus – house finch
Carduelis psaltria – lesser goldfinch
Carduelis tristis – American goldfinch

PSITTACIDAE – PARROTS
* Amazona viridigenalis – red-crowned parrot

MAMMALS

DIDELPHIDAE – NEW WORLD OPOSSUMS
Didelphis virginiana – Virginia opossum

LEPORIDAE – HARES AND RABBITS
Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS
Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS
Thomomys bottae – Botta’s pocket gopher

MURIDAE – RATS AND MICE
Microtus californicus – California vole
Neotoma sp. – woodrat
* Rattus rattus – roof rat
* Rattus norvegicus – brown rat

CANIDAE – WOLVES AND FOXES
* Canis lupus familiaris – domestic dog
Canis latrans – coyote

PROCYONIDAE – RACCOONS AND RELATIVES
Procyon lotor – common raccoon

FELIDAE – CATS
* Felis catus – domestic cat
Lynx rufus – bobcat

CERVIDAE – DEERS
Odocoileus hemionus – mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

PAPILIONIDAE – SWALLOWTAILS
Papilio rutulus – tiger swallowtail
Papilio zelicaon – anise swallowtail

PIERIDAE – WHITES AND SULFURS
Pieris rapae – European cabbage butterfly
Pontia protodice – checkered white

**LYCAENIDAE – BLUES, HAIRSTREAKS AND COPPERS**
Brephidium exile – western pygmy blue
Plebejus acmon – acmon blue

**NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES**
Adelpha bredowii – California sister
Danaus gilippus – queen
Nymphalis antiopa – mourning cloak
Vanessa annabella – west coast lady

**CRUSTACEANS**

**ASTACOIDEA – CRAYFISH**
*Procambarus clarkii* – red swamp crayfish

**OTHER INVERTEBRATES**

**ORDER ANOSTRACA**
Branchinecta lindahli – versatile fairy shrimp
Branchinecta sandiegonensis – San Diego fairy shrimp
Appendix C
Special-Status Species Not Observed and With Low Potential or Not Expected to Occur On Site
APPENDIX C  SPECIAL-STATUS SPECIES NOT OBSERVED AND WITH LOW POTENTIAL OR NOT EXPECTED TO OCCUR ON SITE

Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Federal/State/Other Status</th>
<th>CRPR/ List</th>
<th>Primary Habitat Associations/Life Form/Blooming Period</th>
<th>Status On Site or Potential to Occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthomintha ilicifolia</td>
<td>San Diego thornmint</td>
<td>FT/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools, clays/annual herb/ April–June</td>
<td>Low potential. Limited suitable clay soils on site; vernal pools absent; focused survey negative.</td>
</tr>
<tr>
<td>Adolphia californica</td>
<td>California adelphia</td>
<td>None/ None/ None</td>
<td>2.1</td>
<td>Chaparral, coastal sage scrub, valley and foothill grassland, clays/ shrub/ December–April</td>
<td>Not expected. Shrub likely to have been detected during focused survey.</td>
</tr>
<tr>
<td>Agave shawii</td>
<td>Shaw's agave</td>
<td>None/ None/ MSCP</td>
<td>2.1</td>
<td>Coastal bluff scrub, coastal sage scrub/ shrub/ May–July</td>
<td>Not expected. Shrub likely to have been detected during focused survey.</td>
</tr>
<tr>
<td>Ambrosia chenopodiifolia</td>
<td>San Diego bur-sage</td>
<td>None/ None/ None</td>
<td>2.1</td>
<td>Coastal sage scrub/ shrub/ April–June</td>
<td>Not expected. Shrub likely to have been detected during focused survey.</td>
</tr>
<tr>
<td>Ambrosia monogyra</td>
<td>Single whorl burrobrush</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Chaparral, Sonoran desert scrub; sandy/ shrub/ August-November</td>
<td>Not expected. Shrub likely to have been detected during focused survey.</td>
</tr>
<tr>
<td>Ambrosia pumila</td>
<td>San Diego ambrosia</td>
<td>FE/None/ MSCP NE</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools, clays/ perennial herb/ June–September</td>
<td>Low potential. Limited suitable clay soils on site; vernal pools absent; focused survey negative.</td>
</tr>
<tr>
<td>Aphanisma blitoides</td>
<td>Aphanisma</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Coastal bluff scrub, coastal sage scrub, sandy soils/ annual herb/ April–May</td>
<td>Low potential. Limited suitable soils on site; not observed during focused surveys.</td>
</tr>
<tr>
<td>Arctostaphylos glandulosa ssp. crassifolia</td>
<td>Del Mar manzanita</td>
<td>FE/None/ MSCP</td>
<td>1B.1</td>
<td>Southern maritime chaparral, sandy mesas and bluffs/ shrub/ December–April</td>
<td>Not expected. Shrub likely to have been detected during focused survey.</td>
</tr>
<tr>
<td>Arctostaphylos otayensis</td>
<td>Otay manzanita</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Chaparral, cismontane woodland; metavolcanic/ evergreen shrub/ January-March/ 900–5600 feet</td>
<td>Not expected. Outside of known geographic and elevation range.</td>
</tr>
<tr>
<td>Astragalus deanei</td>
<td>Dean’s milk-vetch</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub, riparian forest/ perennial herb/ March–May</td>
<td>Not expected. Outside of known geographic and elevation range.</td>
</tr>
<tr>
<td>Astragalus tener var. titi</td>
<td>Coastal dunes milk-vetch</td>
<td>FE/SE/ MSCP</td>
<td>1B.1</td>
<td>Coastal bluff scrub, coastal dunes/ annual herb/ March–May</td>
<td>Not expected. No suitable vegetation.</td>
</tr>
</tbody>
</table>
Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Federal/State/Other Status</th>
<th>CRPR List</th>
<th>Primary Habitat Associations/Life Form/Blooming Period</th>
<th>Status On Site or Potential to Occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atriplex coulteri</td>
<td>Coulter’s saltbush</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grassland, alkaline or clay soils/ perennial herb/ March–October</td>
<td>Low potential. Limited suitable soils on site; not observed during focused surveys.</td>
</tr>
<tr>
<td>Atriplex pacifica</td>
<td>South Coast saltscale</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Coastal bluff scrub, coastal sage scrub, playas/ annual herb/ March–October</td>
<td>Low potential. Distinctive plant, suitable habitat openings in scrub areas relatively disturbed; not observed during focused surveys.</td>
</tr>
<tr>
<td>Atriplex serenana var. davidsonii</td>
<td>Davidson’s saltscale</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Coastal bluff scrub, coastal sage scrub, alkaline soils/ annual herb/ April–October</td>
<td>Low potential. Limited suitable soils on site; not observed during focused surveys.</td>
</tr>
<tr>
<td>Berberis nevinii</td>
<td>Nevin’s barberry</td>
<td>FE/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Chaparral, cismontane woodland, coastal scrub, riparian scrub; sandy or gravelly/ shrub/ March–April/ 900–2700 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td>Bergerocactus emoryi</td>
<td>Golden-spined cereus</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Closed-cone conifer forest, chaparral, coastal sage scrub, sandy soils/ shrub/ May–June</td>
<td>Not expected. Shrub likely to have been detected during focused surveys.</td>
</tr>
<tr>
<td>Baccharis vanessae</td>
<td>Encinitas baccharis</td>
<td>FT/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Chaparral, cismontane woodland; sandstone/ deciduous shrub/ August–November/ 200–2400 feet</td>
<td>Low potential. Limited suitable soils and habitat on site. Shrub likely to have been detected during focused surveys.</td>
</tr>
<tr>
<td>Bloomeria clevelandii</td>
<td>San Diego goldenstar</td>
<td>None/ None/ MSCP</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools/perennial herb/ May</td>
<td>Not expected. Likely to have been detected during surveys.</td>
</tr>
<tr>
<td>Brodiaea filifolia</td>
<td>Thread-leaved brodiaea</td>
<td>FT/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Chaparral (openings) cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/bulbiferous herb/ March–June/ 400–2800 feet.</td>
<td>Low potential. Focused surveys targeted suitable habitat during peak blooming period. If present, species is readily detectable in years of at least average rainfall, but survey results negative.</td>
</tr>
</tbody>
</table>
Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)

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<th>Status On Site or Potential to Occur</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Calochortus dunnii</em></td>
<td>Dunn’s mariposa lily</td>
<td>None/ SR/ MSC P NE</td>
<td>1B.2</td>
<td>Closed-cone conifer forest, chaparral; gabbroic or metavolcanic/bulbiferous herb/ April–June/ 1250–6000 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td><em>Camissonia lewisi</em></td>
<td>Lewis’s evening primrose</td>
<td>None/ None/ None</td>
<td>3</td>
<td>Coastal bluff scrub, cismontane woodland, coastal dunes, coastal sage scrub, valley and foothill grassland, sandy or clay soils/ annual herb/ March–June</td>
<td>Low potential. Limited suitable soils and habitat on site. Not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Caulanthus stenocarpus</em></td>
<td>Slender-pod jewelflower</td>
<td>None/ None/ MSCP</td>
<td>None</td>
<td>Chaparral, coastal sage scrub/ annual herb, fire follower/ annual herb/ April–May</td>
<td>Low potential, but not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Ceanothus cyaneus</em></td>
<td>Lakeside ceanothus</td>
<td>None/ None/ MSCP NE</td>
<td>1B.2</td>
<td>Closed-cone conifer forest, chaparral/ evergreen shrub/ April–June/ 770–2,500 feet</td>
<td>Not expected; outside of known elevation range. Shrub would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Ceanothus verrucosus</em></td>
<td>Wart-stemmed ceanothus</td>
<td>None/ None/ MSCP</td>
<td>2.2</td>
<td>Chaparral/ shrub/ January-April</td>
<td>Not expected. Limited suitable habitat on site. Shrub would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Centromadia parryi spp.</em></td>
<td>Southern tarplant</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/ annual herb/May–November/ &lt; 400 feet</td>
<td>Low potential. Limited suitable habitat on site. Not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Chaenactis glabriuscula var.</em></td>
<td>Orcutt’s pincushion</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Coastal bluff and dune scrub/ annual herb/ January–August</td>
<td>Not expected. No suitable vegetation.</td>
</tr>
<tr>
<td><em>Chloropyron maritimum ssp.</em></td>
<td>Salt marsh bird’s-beak</td>
<td>FE/ SE/ MSCP</td>
<td>1B.2</td>
<td>Coastal dunes, coastal saltwater marshes and swamps/ annual herb/ May–October</td>
<td>Not expected. No suitable vegetation.</td>
</tr>
<tr>
<td><em>Chorizanthe orcuttiana</em></td>
<td>Orcutt’s spineflower</td>
<td>FE/ SE/ None</td>
<td>1B.1</td>
<td>Chaparral, closed-cone conifer forest, coastal sage scrub/ annual herb/ March–April</td>
<td>Low potential, species only recorded from 11 occurrences in County, suitable sandy sites and openings in study area associated with disturbance. Not observed during focused surveys.</td>
</tr>
</tbody>
</table>
### Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><em>Chorizanthe polygonoides var. longispina</em></td>
<td>Long-spined spineflower</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Chaparral, coastal sage scrub, meadows and seeps, valley and foothill grassland, often clay/ annual herb/ April-July</td>
<td>Low potential. Limited suitable clay soil on site; not detected during focused surveys.</td>
</tr>
<tr>
<td><em>Comarostaphylis diversifolia ssp. diversifolia</em></td>
<td>Summer-holly</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Chaparral shrub/ April–June</td>
<td>Not expected. Limited suitable habitat on site. Shrub would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Corethrogyne flaginifolia var. incana</em></td>
<td>San Diego sand aster</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Coastal sage scrub/perennial herb/ June–August</td>
<td>Not expected. Perennial herb would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Corethrogyne flaginifolia var. linifolia</em></td>
<td>Del Mar Mesa sand aster</td>
<td>None/ None/ MSCP</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub/ perennial herb/ July–September</td>
<td>Not expected. Perennial herb would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Deinandra conjugens</em></td>
<td>Otay tarplant</td>
<td>FT/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Coastal sage scrub, valley and foothill grassland, clays/ annual herb/ May–June</td>
<td>Low potential. Limited suitable clay soil on site; not detected during focused surveys.</td>
</tr>
<tr>
<td><em>Dicranostegia orcuttiana</em></td>
<td>Orcutt’s bird’s-beak</td>
<td>None/ None/ MSCP</td>
<td>2.1</td>
<td>Coastal sage scrub/annual herb/ March–July</td>
<td>Low potential. Would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Dudleya attenuata ssp. orcuttii</em></td>
<td>Orcutt’s dudleya</td>
<td>None/ None/ None</td>
<td>2.1</td>
<td>Coastal bluff scrub, chaparral, coastal sage scrub/perennial herb/ May–July</td>
<td>Low potential. Outside of current known range (only known from Border Field State Park).</td>
</tr>
<tr>
<td><em>Dudleya blochmaniae ssp. blochmaniae</em></td>
<td>Blochman’s dudleya</td>
<td>FSC/ None/ MSCP NE</td>
<td>1B.1</td>
<td>Coastal bluff scrub, coastal sage scrub, valley and foothill grassland, rocky, often clay or serpentinite soil/ perennial herb/ April–June</td>
<td>Low potential. No suitable rocky soils.</td>
</tr>
<tr>
<td><em>Dudleya brevifolia</em></td>
<td>Short-leaved dudleya</td>
<td>None/SE/ MSCP</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub; Torrey sandstone/ perennial herb/ April</td>
<td>Not expected. No suitable Torrey sandstone soils.</td>
</tr>
<tr>
<td><em>Dudleya variegata</em></td>
<td>Variegated dudleya</td>
<td>None/ None/ MSCP NE</td>
<td>1B.2</td>
<td>Chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland, vernal pools/perennial herb/ May–June</td>
<td>Low potential. Limited clay soil on site, few historical records of species in coastal areas. Not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Dudleya viscida</em></td>
<td>Sticky dudleya</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Coastal bluff scrub, chaparral, coastal sage scrub, rocky areas/ perennial herb/May–June</td>
<td>Low potential. No suitable rocky areas.</td>
</tr>
</tbody>
</table>
### Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Federal/State/Other Status</th>
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<th>Primary Habitat Associations/Life Form/Blooming Period</th>
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</tr>
</thead>
<tbody>
<tr>
<td><em>Ericameria palmeri</em> ssp. <em>palmeri</em></td>
<td>Palmer’s goldenbush</td>
<td>None/ None/ MSCP NE</td>
<td>2.2</td>
<td>Coastal sage scrub/ shrub/ September–November</td>
<td>Not expected. Shrub likely to have been detected during surveys.</td>
</tr>
<tr>
<td><em>Eryngium aristulatum var. parishii</em></td>
<td>San Diego button-celery</td>
<td>FE/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Coastal sage scrub, valley and foothill grassland, vernal pools, mesic areas/ annual-perennial herb/April–June</td>
<td>Not expected. Suitable (vernal pool) microhabitat lacking.</td>
</tr>
<tr>
<td><em>Erysimum ammophillum</em></td>
<td>Coast wallflower</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Coastal dunes perennial herb/ February–June</td>
<td>Not expected. No suitable coastal dune vegetation.</td>
</tr>
<tr>
<td><em>Euphorbia misera</em></td>
<td>Cliff spurge</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Coastal bluff scrub, coastal sage scrub, rocky areas/ shrub/ January–August</td>
<td>Not expected. No suitable rocky areas. Shrub likely to have been detected during focused surveys.</td>
</tr>
<tr>
<td><em>Ferocactus viridescens</em></td>
<td>San Diego barrel cactus</td>
<td>None/ None/ MSCP</td>
<td>2.1</td>
<td>Chaparral, coastal sage scrub, valley and foothill grassland, vernal pools/ shrub/ May–June</td>
<td>Not expected. Conspicuous cactus species likely to have been detected during surveys.</td>
</tr>
<tr>
<td><em>Frankenia palmeri</em></td>
<td>Palmer’s frankenia</td>
<td>None/ None/ None</td>
<td>2.1</td>
<td>Coastal dunes, saltwater marsh and swamps, playas/ perennial herb/May–July</td>
<td>Not expected. No suitable vegetation.</td>
</tr>
<tr>
<td><em>Fremontodendron mexicanum</em></td>
<td>Mexican flannelbush</td>
<td>FE/SR/ None</td>
<td>1B.1</td>
<td>Closed-cone conifer forest, chaparral, cismontane woodland, gabbroic or serpentinite soils/ shrub/ March–June</td>
<td>Not expected. Shrub would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Geothallus tuberosus</em></td>
<td>Campbell’s liverwort</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Coastal scrub (mesic), vernal pools; soil/ ephemeral liverwort/ N/A</td>
<td>Low potential. No suitable (mesic) microhabitat.</td>
</tr>
<tr>
<td><em>Githopsis diffusa</em> ssp. <em>filicaulis</em></td>
<td>Mission Canyon bluecup</td>
<td>None/ None/ None</td>
<td>3.1</td>
<td>Chaparral (mesic, disturbed areas)/ annual herb/May/1,476–2,297 feet</td>
<td>Not expected. Outside of known elevation and geographical range.</td>
</tr>
<tr>
<td><em>Hesperocyparis forbesii</em></td>
<td>Tecate cypress</td>
<td>None/ None/ MSCP</td>
<td>1B.1</td>
<td>Closed-cone conifer forest, chaparral/ evergreen tree/ NA/ 800–5900 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td><em>Heterotheca sessiliflora</em> ssp. <em>sessiliflora</em></td>
<td>Beach goldenaster</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Coastal dunes, coastal scrub, (coastal) chaparral/ annual herb</td>
<td>Low potential. Limited suitable habitat on site. Not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Lasthenia glabra</em> ssp. <em>coulteri</em></td>
<td>Coulter’s goldfields</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Saltwater marsh and swamps, playas, vernal pools/ annual herb/ February–June</td>
<td>Not expected. No suitable vegetation or microhabitat (vernal pools).</td>
</tr>
</tbody>
</table>
## Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)

<table>
<thead>
<tr>
<th>Scientific Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td><em>Lepechinia ganderi</em></td>
<td>Gander's pitcher sage</td>
<td>None/ None/ MSCP NE</td>
<td>1B.3</td>
<td>Closed-cone conifer forest, chaparral, coastal scrub, valley and foothill grassland; gabbroic or metvolcanic shrub/ June–July/ 1,000–3,300 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td><em>Leptosyne maritima</em></td>
<td>Sea dahlia</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Coastal bluff scrub, coastal sage scrub/perennial herb/ March–May</td>
<td>Low potential. Would have been observed during surveys.</td>
</tr>
<tr>
<td><em>Lotus nuttallianus</em></td>
<td>Nuttall's lotus</td>
<td>None/ None/ MSCP</td>
<td>1B.1</td>
<td>Coastal dunes, coastal sage scrub/ annual herb/ March–June</td>
<td>Low potential. Limited suitable habitat on site. Not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Mobergia calciformis</em></td>
<td>Light gray lichen</td>
<td>None/ None/ None</td>
<td>—</td>
<td>Coastal scrub?; abundant on cobbles/ lichen/ N/A</td>
<td>Low potential to occur due to lack of suitable microhabitat.</td>
</tr>
<tr>
<td><em>Monardella hypoleuca</em> ssp. lanata</td>
<td>Felt-leaved monardella</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Chaparral, cismontane woodland/ rhizomatous herb/ June–August/ 1,000–3,600 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td><em>Monardella viminea</em></td>
<td>Willow monardella</td>
<td>FE/SE/ MSCP</td>
<td>1B.1</td>
<td>Closed-cone conifer forest, chaparral, riparian forest, woodland, and scrub/ perennial herb/ June–August</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td><em>Navarretia prostrata</em></td>
<td>Prostrate navarretia</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools/ annual herb/ April–July</td>
<td>Low potential, suitable alkaline or vernal pool microhabitat not present. Not observed during focused surveys.</td>
</tr>
<tr>
<td><em>Myosurus minus</em> ssp. apus</td>
<td>Little mouse-tail</td>
<td>None/ None/ None</td>
<td>3.1</td>
<td>Vernal pools (alkaline)/ annual herb/ March–June</td>
<td>Not expected. No suitable vernal pool microhabitat.</td>
</tr>
<tr>
<td><em>Nama stenocarpum</em></td>
<td>Mud nama</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Marsh and swamps, lake margins and riverbanks/ annual-perennial herb/ January–July</td>
<td>Not expected. No suitable habitat.</td>
</tr>
<tr>
<td><em>Navarretia fossalis</em></td>
<td>Spreading navarretia</td>
<td>FT/None/ MSCP</td>
<td>1B.1</td>
<td>Chenopod scrub, shallow freshwater marsh and swamps, vernal pools/ annual herb/ April–June</td>
<td>Low potential. Limited suitable freshwater marsh vegetation.</td>
</tr>
<tr>
<td><em>Nemacaulis denudata</em> var. denudata</td>
<td>Coast woolly-heads</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Coastal dunes/ annual herb/ April–September</td>
<td>Not expected. No suitable coastal dune habitat.</td>
</tr>
<tr>
<td><em>Nemacaulis denudata</em> var. gracilis</td>
<td>Slender woolly-heads</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Coastal dunes, desert dunes, Sonoran Desert scrub/ annual herb/ March–May</td>
<td>Not expected. No suitable habitat.</td>
</tr>
</tbody>
</table>
Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)

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</thead>
<tbody>
<tr>
<td>Nolina interrata</td>
<td>Dehesa nolina</td>
<td>None/SE/ MSCP</td>
<td>1B.1</td>
<td>Chaparral; gabbroic, metavolcanic or serpentinite/ perennial herb/ June–July/ 600–2800 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td>Opuntia californica var. californica</td>
<td>Snake cholla</td>
<td>None/ None/ MSCP NE</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub/ shrub/ April–May</td>
<td>Not expected. Shrub would have been observed during surveys.</td>
</tr>
<tr>
<td>Orcuttia californica</td>
<td>California Orcutt grass</td>
<td>FE/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Vernal pools/ annual herb/ April–June</td>
<td>Not expected. No suitable vernal pool habitat.</td>
</tr>
<tr>
<td>Ornithostaphylos oppositifolia</td>
<td>Baja California birdbrush</td>
<td>None/SE/ None</td>
<td>2.1</td>
<td>Chaparral/ shrub/ January–April</td>
<td>Not expected. Shrub would have been observed during surveys.</td>
</tr>
<tr>
<td>Packera ganderi</td>
<td>Gander’s ragwort</td>
<td>None/SR/ MSCP</td>
<td>1B.2</td>
<td>Chaparral (burns and gabbroic outcrops)/ perennial herb/ April–June/ 1300–4000 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td>Phacelia stellaris</td>
<td>Brand’s phacelia</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Coastal dunes, coastal sage scrub/annual herb/ March–June</td>
<td>Low potential. Limited suitable habitat on site. Not observed during focused surveys.</td>
</tr>
<tr>
<td>Pinus torreyana spp. torreyana</td>
<td>Torrey pine</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Closed-cone conifer forest, chaparral, sandstone/ tree/ NA</td>
<td>Not expected. Tree would have been observed during surveys.</td>
</tr>
<tr>
<td>Pogogyne abramsii</td>
<td>San Diego mesa mint</td>
<td>FE/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Vernal pools/ annual herb/ April–June</td>
<td>Not expected. No suitable vernal pool habitat.</td>
</tr>
<tr>
<td>Pogogyne nudiuscula</td>
<td>Otay Mesa mint</td>
<td>FE/SE/ MSCP NE</td>
<td>1B.1</td>
<td>Vernal pools/ annual herb/ May–June</td>
<td>Not expected. No suitable vernal pool habitat.</td>
</tr>
<tr>
<td>Quercus dumosa</td>
<td>Nuttall’s scrub oak</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Chaparral, coastal sage scrub, sandy and clay loam soils/ shrub/ February–March</td>
<td>Not expected. Shrub likely to have been detected during surveys.</td>
</tr>
<tr>
<td>Ribes viburnifolium</td>
<td>Santa Catalina Island currant</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Chaparral, cismontane woodland/evergreen shrub/ February–April</td>
<td>Not expected. Shrub likely to have been detected during surveys.</td>
</tr>
<tr>
<td>Rosa minutifolia</td>
<td>Small-leaved rose</td>
<td>None/SE/ MSCP</td>
<td>2.1</td>
<td>Chaparral/shrub/ January–June</td>
<td>Not expected. Shrub likely to have been detected during focused surveys.</td>
</tr>
<tr>
<td>Satureja chandleri</td>
<td>San Miguel savory</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic or metavolcanic/ shrub/ March–July/ 400-3,550 feet</td>
<td>Not expected. Shrub likely to have been detected during focused surveys.</td>
</tr>
<tr>
<td>Senecio aphanactis</td>
<td>Rayless ragwort</td>
<td>None/ None/ None</td>
<td>2.2</td>
<td>Cismontane woodland, coastal sage scrub, alkaline soils/ annual herb/ January–April</td>
<td>Low potential. Alkaline soils limited on site.</td>
</tr>
</tbody>
</table>
**Table C-1. Special-Status Plants Not Observed and with Low Potential or not Expected to Occur On Site (continued)**

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</thead>
<tbody>
<tr>
<td><em>Solanum tenuilobatum</em></td>
<td>Narrow-leaved nightshade</td>
<td>None/ None/ MSCP</td>
<td>None</td>
<td>Chaparral; dry open places/ herb or shrub/ March–April/ 3,300–9,000 feet</td>
<td>Not expected. Outside of known elevation range.</td>
</tr>
<tr>
<td><em>Stemodia durantifolia</em></td>
<td>Purple stemodia</td>
<td>None/ None/ None</td>
<td>2.1</td>
<td>Sonoran desert scrub (often mesic, sandy)/ perennial herb/ January–December</td>
<td>Not expected. No suitable Sonoran desert scrub.</td>
</tr>
<tr>
<td><em>Stylocline citroleum</em></td>
<td>Oil neststraw</td>
<td>None/ None/ None</td>
<td>1B.1</td>
<td>Chenopod scrub, coastal scrub, valley and foothill grassland; clay/ annual herb/ March–April</td>
<td>Not expected. Thought to be extirpated in San Diego County.</td>
</tr>
<tr>
<td><em>Suaeda esteroa</em></td>
<td>Estuary seablite</td>
<td>None/ None/ None</td>
<td>1B.2</td>
<td>Saltmarsh/ perennial herb/ July–October</td>
<td>Not expected. No suitable saltmarsh habitat.</td>
</tr>
<tr>
<td><em>Tetracoccus dioicus</em></td>
<td>Parry’s tetracoccus</td>
<td>None/ None/ MSCP</td>
<td>1B.2</td>
<td>Chaparral, coastal sage scrub/ shrub/ April–May</td>
<td>Not expected. Shrub likely to have been detected during surveys.</td>
</tr>
</tbody>
</table>

**Status Designations:**
- FE: Federally listed as endangered
- FT: Federally listed as threatened
- SE: State-listed as endangered
- SR: State rare
- MSCP: Covered Species
- MSCP NE: Narrow endemic species

**CNPS CRPR:**
- 1A: Plants Presumed Extinct in California
- 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
- 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
- 3: Plants About Which We Need More Information—A Review List
- 4: Plants of Limited Distribution—A Watch List

**Threat Ranks:**
- 0.1: Seriously threatened in California (high degree/immediacy of threat)
- 0.2: Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known)
### Table C-2. Special-Status Wildlife Species Not Expected to Occur or Rarely Occurring in the Study Area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status Federal/ State/Other</th>
<th>Primary Habitat Associations</th>
<th>Status in or Potential to Occur in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amphibians</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Anaxyrus californicus</em></td>
<td>Arroyo toad</td>
<td>FE/CSC/ MSCP</td>
<td>Stream channels for breeding (typically 3rd order); adjacent stream terraces and uplands for foraging and wintering</td>
<td>Not expected to occur. Although stream channels occur in the study area, the closest recorded location is approximately 14 miles to the southeast (CDFG, 2012a). Species is no longer known to occur within city limits.</td>
</tr>
<tr>
<td><em>Ensatina klauberi</em></td>
<td>Large-blotched salamander</td>
<td>None/ CSC/ None</td>
<td>Oak woodland, chaparral, coastal sage scrub, coastal dunes, conifer forest</td>
<td>No potential. This species is found in the Peninsular Ranges of Southern California (Nafis, 2010) and does not occur in the study area.</td>
</tr>
<tr>
<td><em>Rana draytoni</em></td>
<td>California red-legged frog</td>
<td>FT/CSC/ MSCP</td>
<td>Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby, or emergent vegetation associated with deep, still, or slow-moving water; uses adjacent uplands</td>
<td>Not expected to occur. Suitable habitat exists in the study area within wetland areas; however, the closest recorded location for this species is approximately 48 miles to the northeast in Riverside County (CDFG, 2012a).</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Emys marmorata</em></td>
<td>Western pond turtle</td>
<td>None/ CSC/ MSCP</td>
<td>Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter</td>
<td>Low potential to occur. Some suitable perennial water in the San Diego River; however, this species has not been documented in the vicinity. The non-native red-slider was observed, but western pond turtles were not. There is one record in the Escondido quadrangle approximately 13 miles northeast (date unknown) (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Salvadora hexalepis virgultea</em></td>
<td>Coast patch-nosed snake</td>
<td>None/ CSC/ None</td>
<td>Chaparral, washes, sandy flats, rocky areas</td>
<td>Low potential to occur. Some patches of suitable habitat occur in the study area, but species is uncommon.</td>
</tr>
<tr>
<td><em>Thamnophis sirtalis ssp.</em></td>
<td>South coast garter snake</td>
<td>None/ CSC/ None</td>
<td>Marshes, meadows, sloughs, ponds, slow-moving water courses</td>
<td>Low potential. Suitable habitat along San Diego River limited due to extent of disturbance; this species has not been documented within the CNDDB nine quad search (CDFG, 2012a).</td>
</tr>
</tbody>
</table>
Table C-2. Special-Status Wildlife Species
Not Expected to Occur or Rarely Occurring in the Study Area (continued)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status Federal/ State/Other</th>
<th>Primary Habitat Associations</th>
<th>Status in or Potential to Occur in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Agelaius tricolor</em></td>
<td>Tricolored blackbird</td>
<td>BCC/ CSC/ ABC/ MSCP</td>
<td>Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture.</td>
<td>Low potential to occur. Not observed during surveys; some suitable habitat in San Diego River, but habitat in study is too small and patchy and adjacent to human activities. Although not recorded in the vicinity, this species is known to breed in San Diego County and migrants or dispersers may occur near the study area in the San Diego River (Unitt, 2004).</td>
</tr>
<tr>
<td><em>Aquila chrysaetos</em></td>
<td>Golden eagle</td>
<td>BCC/ WL, P/ MSCP</td>
<td>Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest.</td>
<td>Not expected to occur or very rarely (e.g., by a juvenile). The study area is too urbanized and not suitable for nesting; not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Asio flammeus</em></td>
<td>Short-eared owl</td>
<td>None/ CSC/ ABC</td>
<td>Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands.</td>
<td>Low potential to occur due to poor habitat quality and urbanized environment. Not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Asio otus</em></td>
<td>Long-eared owl</td>
<td>None/ CSC/ None</td>
<td>Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest.</td>
<td>Low potential to occur due to lack of suitable habitat and urbanized environment. Not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Athene cunicularia</em></td>
<td>Burrowing owl</td>
<td>BCC/ CSC/ MSCP</td>
<td>Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas.</td>
<td>Low potential to occur. Some suitable habitat in the study area. This species was recorded on Fiesta Island in Mission Bay (date unknown); however, this location is probably extirpated (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Buteo regalis</em></td>
<td>Ferruginous hawk</td>
<td>BCC/ WL/ None</td>
<td>Open, dry country, grasslands, open fields, agriculture.</td>
<td>Low potential to occur. Does not nest in Southern California and study area too urbanized for this species. Not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Buteo swainsoni</em></td>
<td>Swainson’s hawk</td>
<td>BCC/ST/ ABC, MSCP</td>
<td>Open grassland, shrublands, croplands.</td>
<td>Low potential to occur. Study area too urbanized for this species. Not recorded in nine quad search (CDFG, 2012a). Species may migrate through area on occasion but nesting in California is limited to Central Valley and Antelope Valley.</td>
</tr>
</tbody>
</table>
### Table C-2. Special-Status Wildlife Species Not Expected to Occur or Rarely Occurring in the Study Area (continued)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status Federal/State/Other</th>
<th>Primary Habitat Associations</th>
<th>Status in or Potential to Occur in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Campylorhynchus brunneicapillus sandiegensis</em></td>
<td>Sand Diego cactus wren</td>
<td>BCC/ CSC/ MSCP</td>
<td>Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub</td>
<td>Not expected to occur. Not detected within scrub areas during coastal California gnatcatcher surveys. No suitable patches of cactus were observed in the study area.</td>
</tr>
<tr>
<td><em>Charadrius montanus</em> (wintering)</td>
<td>Mountain plover</td>
<td>PT, BCC/ CSC, ABC, MSCP</td>
<td>Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts</td>
<td>Low potential to occur due to lack of suitable habitat. Not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Chlidonias niger</em> (nesting colony)</td>
<td>Black tern</td>
<td>None/ CSC/ None</td>
<td>Freshwater lakes, marshes, ponds, coastal lagoons</td>
<td>Low potential to occur. No suitable nesting areas and study area unlikely to support fish species for foraging.</td>
</tr>
<tr>
<td><em>Coccyzus americanus occidentalis</em> (nesting)</td>
<td>Western yellow-billed cuckoo</td>
<td>FC, BCC/SE/ None</td>
<td>Dense, wide riparian woodlands and forest with well-developed understories</td>
<td>No expected to occur due to lack of suitable large stands of riparian vegetation. Not recorded in the vicinity (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Falco mexicanus</em> (nesting)</td>
<td>Prairie falcon</td>
<td>BCC/ WL/ None</td>
<td>Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs</td>
<td>Low potential to occur in study area based on lack of open foraging habitat and suitable nesting habitat. Not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Haliaeetus leucocephalus</em> (nesting and wintering)</td>
<td>Bald eagle</td>
<td>(FD), BCC/ SE, P/ MSCP</td>
<td>Seacoasts, rivers, swamps, large lakes; winters at large bodies of water in lowlands and mountains</td>
<td>Not expected to occur due to lack of suitable roosting trees near open bodies of water in the study area. Not recorded in nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Ixobrychus exilis</em> (nesting)</td>
<td>Least bittern</td>
<td>BCC/ CSC/ None</td>
<td>Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water</td>
<td>Low potential to occur. Some potential marsh habitat near Mission Bay and San Diego River, but not recorded in the vicinity.</td>
</tr>
<tr>
<td><em>Laterallus jamaicensis coturniculus</em></td>
<td>California black rail</td>
<td>BCC/ ST, P/ ABC</td>
<td>Saline, brackish, and fresh emergent wetlands</td>
<td>Very low potential to occur in the marsh habitat near Mission Bay and San Diego River. Observed approximately one mile north of the study area in 1952 (CDFG, 2012a), but the last observed individual in the county was in 1983. It is assumed to be extirpated in San Diego County (Unitt, 2004).</td>
</tr>
<tr>
<td><em>Pandion haliaetus</em> (nesting)</td>
<td>Osprey</td>
<td>None/ WL/ None</td>
<td>Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely</td>
<td>Not recorded in the vicinity. Not expected to nest in the study area due to lack of roosting trees and highly urbanized environment.</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Status Federal/ State/Other</td>
<td>Primary Habitat Associations</td>
<td>Status in or Potential to Occur in the Study Area</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------</td>
<td>----------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Passerculus sandwichensis beldingi</td>
<td>Belding’s Savannah sparrow</td>
<td>None/ SE/ MSCP</td>
<td>Saltmarsh, pickleweed</td>
<td>Low potential to occur. Surveys in 2009 were negative and the saltmarsh habitat (0.5 acre) assessed was not large enough to support this species.</td>
</tr>
<tr>
<td>Passerculus sandwichensis rostratus (wintering)</td>
<td>Large-billed Savannah sparrow</td>
<td>None/ CSC/ MSCP</td>
<td>Saltmarsh, pickleweed</td>
<td>Low potential to occur. Some suitable habitat near Mission Bay or San Diego River; however, it has not been recorded in the nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td>Pelecanus erythrorhynchos (nesting colony)</td>
<td>American white pelican</td>
<td>None/ CSC/ None</td>
<td>Open water, coastal bays, large inland lakes</td>
<td>Not expected to occur in the study area due to lack of open water foraging or resting habitat.</td>
</tr>
<tr>
<td>Pelecanus occidentalis californicus (nesting colony and communal roosts)</td>
<td>California brown pelican</td>
<td>(FD)/ (SD), P/ MSCP</td>
<td>Open sea, large water bodies, coastal bays and harbors</td>
<td>Not expected to occur in the study area due to lack of open water foraging or resting habitat.</td>
</tr>
<tr>
<td>Piranga rubra (nesting)</td>
<td>Summer tanager</td>
<td>None/ CSC/ None</td>
<td>Nests in riparian woodland; winter habitats include parks and residential areas</td>
<td>Not expected to occur. Does not nest along coastal southern California.</td>
</tr>
<tr>
<td>Sterna antillarum browni (nesting colony)</td>
<td>California least tern</td>
<td>FE/ SE, P/ ABC, MSCP</td>
<td>Coastal waters, estuaries, large bays and harbors, mudflats; nests on sandy beaches</td>
<td>Low potential to occur in the study area, but recorded in the general vicinity (CDFG, 2012a). Has a moderate potential to breed at Mission Bay or San Diego Bay and may forage in shallow waters of Rose Creek, San Clemente Creek, Tecolote Creek, and San Diego River.</td>
</tr>
</tbody>
</table>
### Table C-2. Special-Status Wildlife Species Not Expected to Occur or Rarely Occurring in the Study Area (continued)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Status Federal/State/Other</th>
<th>Primary Habitat Associations</th>
<th>Status in or Potential to Occur in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Thalasseus elegans</em> (nesting colony)</td>
<td>Elegant tern</td>
<td>None/WL/ABC, MSCP</td>
<td>Coastal waters, estuaries, large bays and harbors, mudflats</td>
<td>Low potential to forage in shallow waters of Rose Creek, San Clemente Creek, Tecolote Creek, and San Diego River. It has not been recorded in the vicinity (CDFG, 2012a).</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Antrozous pallidus</em></td>
<td>Pallid bat</td>
<td>None/CSC/WBWG</td>
<td>Rocky outcrops, cliffs, and crevices with access to open habitats for foraging</td>
<td>Not expected to occur due to lack of roosting habitat nearby.</td>
</tr>
<tr>
<td><em>Choeronycteris mexicana</em></td>
<td>Mexican long-tongued bat</td>
<td>None/CSC/WBWG</td>
<td>Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings</td>
<td>Low potential to occur. Outside of suitable desert habitat for this species; however, it has been recorded in the vicinity.</td>
</tr>
<tr>
<td><em>Corynorhinus townsendii</em></td>
<td>Townsend’s big-eared bat</td>
<td>None/CSC/WBWG</td>
<td>Mesic habitats, gleans from brush or trees or feeds along habitat edges</td>
<td>Low potential to occur. Some foraging habitat within the study area; but this species was not recorded in the nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Onychomys torridus ramona</em></td>
<td>Southern grasshopper mouse</td>
<td>None/CSC/None</td>
<td>Grassland, sparse coastal sage scrub</td>
<td>Low potential to occur in the study area. There is some suitable habitat in the study area, but this species is uncommon. The study area is highly urbanized and this species was not recorded in the nine quad search (CDFG, 2012a).</td>
</tr>
<tr>
<td><em>Perognathus longimembris pacificus</em></td>
<td>Pacific pocket mouse</td>
<td>FE/CSC/MSCP</td>
<td>Grassland, coastal sage scrub with sandy soils; along immediate coast</td>
<td>Very low potential to occur within the study area. Recorded historically in the vicinity, however, assumed to be extirpated in southern San Diego County. Currently only known to occur in northern San Diego County and southern Orange County coastal areas.</td>
</tr>
<tr>
<td><em>Puma concolor</em></td>
<td>Mountain lion</td>
<td>None/None/MSCP</td>
<td>Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky areas, and on cliffs and ledges that provide cover</td>
<td>Not expected to occur or extremely rare due to urbanized setting.</td>
</tr>
<tr>
<td><em>Taxidea taxus</em></td>
<td>American badger</td>
<td>None/CSC/MSCP</td>
<td>Dry, open treeless areas, grasslands, coastal sage scrub</td>
<td>Low potential to occur due to urbanization and habitat fragmentation. Some suitable habitat in Rose Canyon and along Rose Creek north of Santa Fe</td>
</tr>
</tbody>
</table>
### Table C-2. Special-Status Wildlife Species
**Not Expected to Occur or Rarely Occurring in the Study Area (continued)**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
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<th>Primary Habitat Associations</th>
<th>Status in or Potential to Occur in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branchinecta lynchii</td>
<td>Vernal pool fairy shrimp</td>
<td>FT/ None/ None</td>
<td>Vernal pools; cool-water pools with low to moderate dissolved solids</td>
<td>Not expected to occur. Focused surveys in 2010-2011, 2011-2012, and 2013-2014 were negative. While suitable depressions were observed along the existing tracks in Rose Canyon, with evidence of clay soils and seasonal inundation, this species has not been recorded in the area.</td>
</tr>
<tr>
<td>Euphydryas editha quino</td>
<td>Quino checkerspot butterfly</td>
<td>FE/ None/ None</td>
<td>Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant <em>Plantago erecta</em> and nectar plants must be present</td>
<td>Not expected to occur, although it was likely historically present. The species is considered extirpated from this portion of its range by urban development.</td>
</tr>
<tr>
<td>Streptocephalus woottoni</td>
<td>Riverside fairy shrimp</td>
<td>FE/ None/ MSCP</td>
<td>Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids</td>
<td>Not expected to occur. Focused surveys in 2010-2011, 2011-2012, and 2013-2014 were negative. While suitable depressions were observed along the existing tracks in Rose Canyon, with evidence of clay soils and seasonal inundation, this species has not been recorded in the area.</td>
</tr>
</tbody>
</table>

Sources: CDFG, 2012a; City of San Diego, 2004; Unitt, 2004; Nafis, 2010.

Status Designations:

**Federal Designations:**
- BCC Fish and Wildlife Service: Birds of Conservation Concern
- FC Federal candidate for listing
- (FD) Federally delisted; monitored for 5 years
- PT Proposed for federal listing as threatened
- FE Federally listed endangered
- FT Federally listed as threatened

**State Designations:**
- CSC California Special Concern Species
- P CDFW Protected and Fully Protected Species
- SE State-listed as endangered
- ST State-listed as threatened
- WL CDFW Watch List

**Other Designations:**
- MSCP MSCP Covered Species
- WBWG Western Bat Working Group High-Priority species
- ABC American Bird Conservancy; United States Watch List of Birds of Conservation Concern (The United States *WatchList* is a joint project between the American Bird Conservancy and the National Audubon Society)

CNDDB = California Natural Diversity Database; CDFW = California Department of Fish and Wildlife
Appendix D
Focused Survey Reports
2010 California Gnatcatcher Focused Survey Results for the Mid-Coast Corridor Transit Project, City of San Diego, California
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September 22, 2010

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, California 92011

Subject: 2010 California Gnatcatcher Focused Survey Results for the Mid-Coast Corridor Transit Project, City of San Diego, California.

Dear Recovery Permit Coordinator:

This report documents the results of three protocol-level presence/absence surveys for the coastal California gnatcatcher (Polioptila californica californica; gnatcatcher) that were conducted within approximately 116-acre of suitable gnatcatcher habitat within the proposed project study area. Surveys were conducted in Spring of 2010. The surveys were conducted in all areas of suitable habitat, including coastal sage scrub, disturbed coastal sage scrub, and southern mixed chaparral adjacent to coastal sage scrub habitat.

The coastal California gnatcatcher is a federally listed threatened species and a California Department of Fish and Game species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below elevations of 950 feet above mean sea level (amsl) and on slopes less than 40%, but gnatcatchers have been observed at elevations greater than 2,000 feet amsl. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat and is also thought to be impacted by brown-headed cowbird (Molothrus ater) nest parasitism.

LOCATION AND EXISTING CONDITIONS

The Mid-Coast Corridor Transit Project study area extends from Old Town Transit Center (OTTC) north to the University City in the western portion of the City of San Diego, San Diego County, California. The following communities are included in this area: University City, La Jolla, Clairemont Mesa, Pacific Beach, Mission Beach, Linda Vista, and Old Town. The project study area is bounded by the Pacific Ocean to the west, the I-5 and I-805 junction to the north, I-805 and SR-163 to the east, and OTTC and Mission Valley to the south (Figure 1). The proposed light rail transit (LRT) alternative alignments within the project study area generally run along I-5 from just south of I-8 at OTTC north to Genesee Avenue in University City, situated on the
VEGETATION COMMUNITIES

Vegetation communities on site that are suitable for coastal California gnatcatcher include Diegan coastal sage scrub and disturbed Diegan coastal sage scrub.

According to Holland (1986), Diegan coastal sage scrub (coastal sage scrub) vegetation is composed of a variety of soft, low shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). It typically develops on xeric slopes.

Disturbed coastal sage scrub is characterized by a lower percent cover of native species such as California sagebrush and flat-top buckwheat, and a higher percent cover of non-native forbs and grasses.

Coastal sage scrub subassociations include California sagebrush co-dominance with other seral sage scrub community species such as coyote bush scrub (*Baccharis pilularis*), broom baccharis (*Baccharis sarothroides*), or black sage (*Salvia mellifera*). These subassociations are considered suitable for gnatcatcher. The coastal sage scrub on site is dominated by California sagebrush, coyote brush (*Baccharis pilularis*), coastal goldenbush (*Isocoma menziesii*), and flat-top buckwheat with scattered black sage (*Salvia mellifera*).

METHODS

Suitable habitat within the project study area was surveyed three times by Dudek wildlife biologists Kamarul J. Muri (Permit # TE051250-3) and Paul M. Lemons (Permit # TE051248-4) according to the schedule provided in Table 1 (Figure 3). The surveys were conducted in conformance with the currently accepted protocol of the USFWS (1997). A map of the survey areas is provided in Figure 3.

A tape of recorded California gnatcatcher vocalizations played approximately every 50–100 feet was used to induce responses from potentially present California gnatcatchers. If a California gnatcatcher was detected, tape-playback would be terminated to minimize potential for harassment. A 200-scale (1 inch = 200 feet) aerial map of the site was used to conduct focused California gnatcatcher surveys. Binoculars (8×42 and 10×50) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of California gnatcatchers. Survey routes were digitized by Dudek using ArcGIS.
Table 1  
California Gnatcatcher Survey Details and Conditions

<table>
<thead>
<tr>
<th>Date</th>
<th>Biologist's Initials</th>
<th>Time</th>
<th>Survey Conditions (skies, wind, temp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/6/2010</td>
<td>Kam Muri</td>
<td>0730–1235</td>
<td>100–10% cloud cover (% cc), 0-6 mile per hour (mph) winds, 65-70 degrees Fahrenheit (°F).</td>
</tr>
<tr>
<td>8/13/2010</td>
<td>Kam Muri</td>
<td>0730–1235</td>
<td>100–30% cc, 1-8 mph winds, 66-72°F</td>
</tr>
<tr>
<td>8/20/2010</td>
<td>Paul Lemons</td>
<td>0630–1330</td>
<td>0% cc, 0-5 mph winds with 6-10 mph gusts, 62-68°F</td>
</tr>
</tbody>
</table>

RESULTS

The survey area results are shown in Figure 4 to Figure 6. Two California gnatcatcher pairs were observed within the Mid-Coast Corridor Transit Project during focused surveys (Figures 5–6).

As shown in Figure 6, on August 6, 2010, biologist Kamarul Muri observed an individual male gnatcatcher within suitable habitat northeast of the I-5 and SR-52 interchange. On August 13, 2010, Mr. Muri observed a non-capped individual gnatcatcher within the same suitable habitat area as the previous visit’s individual male observation. Biologist Paul Lemons observed a gnatcatcher pair within this same area on August 20, 2010. It is, therefore, assumed that this area is occupied by a single gnatcatcher pair.

A second gnatcatcher pair was observed in the north portion of the study area by Mr. Lemons on August 20, 2010. This pair was observed foraging within suitable habitat just south of Caminito Cassis Street, near the La Jolla Colony exit of I-5 (Figure 5).

Twenty-seven species of wildlife were observed during the surveys. A full list of wildlife species observed during the survey is provided in Appendix A. Please feel free to contact me at 760.942.5147 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                  Kamarul Muri
Permit # TE051248-4          Permit # TE051250-3

Att: Figures 1–6
Appendix A, List of Wildlife Species Observed or Detected at the Project Site
REFERENCES CITED


FIGURE 1
Regional Map


Proposed LRT Alternative Alignments
FIGURE 2
Vicinity Map

SOURCE: USGS 7.5 Minute Series Del Mar, La Jolla and Point Loma Quadrangles.
FIGURE 3
California Gnatcatcher Survey Area

SOURCE: DigitalGlobe 2008; Parsons Brinckerhoff 2008; SANDAG 2007

Mid-Coast Corridor Transit Project - 2010 CAGN Survey Report
FIGURE 4
California Gnatcatcher Survey Results


CAGN Locations
CAGN Survey Routes
CAGN Survey Area
CAGN Use Areas
FIGURE 5
California Gnatcatcher Survey Results

SOURCE: DigitalGlobe 2008; Parsons Brinckerhoff 2008; SANDAG 2007

Parc - Non-capped - 8/2010
FIGURE 6
California Gnatcatcher Survey Results

SOURCE: DigitalGlobe 2008; Parsons Brinckerhoff 2008; SANDAG 2007

CAGN Locations
CAGN Survey Routes
CAGN Survey Area
CAGN Use Areas
APPENDIX A

List of Wildlife Species
Observed or Detected at the Project Site
APPENDIX A
List of Wildlife Species Observed or Detected at the Project Site

WILDLIFE SPECIES – VERTEBRATES

**REPTILES**

**IGUANIDAE – IGUANID LIZARDS**
Sceloporus occidentalis – western fence lizard

**BIRDS**

**ACCIPITRIDAE – HAWKS**
Buteo jamaicensis – red-tailed hawk

**COLUMBIDAE – PIGEONS AND DOVES**
* Columba livia – rock dove
  Zenaida macroura – mourning dove

**TROCHILIDAE – HUMMINGBIRDS**
Calypte anna – Anna’s hummingbird

**TYRANNIDAE – TYRANT FLYCATCHERS**
Sayornis nigricans – black phoebe
Sayornis saya – Say's phoebe
Tyrannus vociferans – Cassin's kingbird

**CORVIDAE – JAYS AND CROWS**
Aphelocoma californica – western scrub-jay
Corvus corax – common raven

**AEGITHALIDAE – BUSHTITS**
Psaltriparus minimus – bushtit

**TROGLODYTIDAE – WRENS**
Thryomanes bewickii – Bewick's wren
Troglodytes aedon – house wren

**SYLVIIDAE – GNATCATCHERS**
Polioptila californica – California gnatcatcher

**TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT**
Chamaea fasciata – wrentit
EMBERIZIDAE – BUNTINGS AND SPARROWS
   Melospiza melodia – song sparrow
   Pipilo crissalis – California towhee

ICTERIDAE – BLACKBIRDS AND ORIOLES
   Molothrus ater – brown-headed cowbird

FRINGILLIDAE – FINCHES
   Carpodacus mexicanus – house finch
   Carduelis psaltria – lesser goldfinch

MAMMALS

LEPORIDAE – HARES AND RABBITS
   Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS
   Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS
   Thomomys bottae – Botta's pocket gopher

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

PAPILIONIDAE – SWALLOWTAILS
   Papilio rutulus – tiger swallowtail

PIERIDAE – WHITES AND SULFURS
   Pieris rapae rapae – cabbage butterfly
   Pontia protodice – checkered white

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS
   Icaria acmon acmon – acmon blue

* signifies introduced (non-native) species
2012 California Gnatcatcher Focused Survey Results for the Mid-Coast Corridor Transit Project, City of San Diego, California
October 4, 2012

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, California 92011

Subject: 2012 California Gnatcatcher Focused Survey Results for the Mid-Coast Corridor Transit Project, City of San Diego, California

Dear Recovery Permit Coordinator:

This report documents the results of three protocol-level presence/absence surveys for the coastal California gnatcatcher (Polioptila californica californica; gnatcatcher) conducted within approximately 18 acres of suitable gnatcatcher habitat within a portion of the study area located south of State Route (SR) 52. The surveys were conducted in all areas of suitable habitat, including coastal sage scrub, disturbed coastal sage scrub, and southern mixed chaparral adjacent to coastal sage scrub habitat.

The coastal California gnatcatcher is a federally listed threatened species and a California Department of Fish and Game species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below elevations of 950 feet above mean sea level (amsl) and on slopes less than 40 percent, but gnatcatchers have been observed at elevations greater than 2,000 feet amsl. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat and is thought to be affected by brown-headed cowbird (Molothrus ater) nest parasitism.

LOCATION AND EXISTING CONDITIONS

The study area extends from the Old Town Transit Center (OTTC) north to University City in the western portion of the City of San Diego, San Diego County, California. The study area is generally bounded by the Pacific Ocean to the west, the Interstate (I-) 5/I-805 junction to the north, I-805 and State Route 163 to the east, and the OTTC and Mission Valley to the south (Figure 1). The proposed alignment of the Build Alternative within the study area generally runs along the east side of I-5 from just south of I-8 at the OTTC north to University City, through the University of California, San Diego campus, and along Genesee Avenue. The survey area, which is located just south of SR 52, is situated on the U.S. Geological Survey 7.5 minute La Jolla quadrangle, Township 15 South, Range 3 West, in Sections 30 and 31 (Figure 2).
VEGETATION COMMUNITIES

Vegetation communities on site that are suitable for coastal California gnatcatcher include Diegan coastal sage scrub and disturbed Diegan coastal sage scrub.

According to Holland (1986), Diegan coastal sage scrub (coastal sage scrub) vegetation is composed of a variety of soft, low shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). It typically develops on xeric slopes.

Disturbed coastal sage scrub is characterized by a lower percent cover of native species such as California sagebrush and flat-top buckwheat, and a higher percent cover of non-native forbs and grasses.

Coastal sage scrub subassociations include California sagebrush co-dominance with other seral sage scrub community species such as coyote bush scrub (*Baccharis pilularis*), broom baccharis (*Baccharis sarothroides*), or black sage (*Salvia mellifera*). These subassociations are considered suitable for gnatcatcher. The coastal sage scrub on site is dominated by California sagebrush, coyote brush (*Baccharis pilularis*), coastal goldenbush (*Isocoma menziesii*), and flat-top buckwheat with scattered black sage (*Salvia mellifera*).

METHODS

Approximately 18 acres of suitable habitat within the 2012 survey area was surveyed three times by Dudek wildlife biologist Kamarul J. Muri ( Permit # TE051250-3) according to the schedule provided in Table 1. The survey area was limited to suitable habitat areas south of SR 52 within 500 feet of the project that were not included in the focused survey conducted for the project in 2010. The surveys were conducted in conformance with the currently accepted protocol of the U.S. Fish and Wildlife Service (FWS) (1997). A map of the survey area is provided in Figure 3.

A tape of recorded California gnatcatcher vocalizations played approximately every 50 to 100 feet was used to induce responses from potentially present California gnatcatchers. If a California gnatcatcher was detected, tape-playback was terminated to minimize potential for harassment. A 200-scale (1 inch = 200 feet) aerial map of the site was used to conduct focused California gnatcatcher surveys. Binoculars (10×50) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of California gnatcatchers. Survey routes were digitized by Dudek using ArcGIS.
Table 1
California Gnatcatcher Survey Details and Conditions

<table>
<thead>
<tr>
<th>Date</th>
<th>Biologist</th>
<th>Time</th>
<th>Survey Conditions (skies, wind, temp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/10/2012</td>
<td>Kam Muri</td>
<td>0930-1200</td>
<td>90-100% cloud cover (% cc), 2-4 mile per hour (mph) winds,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>65-68 degrees Fahrenheit (°F).</td>
</tr>
<tr>
<td>5/22/2012</td>
<td>Kam Muri</td>
<td>0645-0930</td>
<td>0-100% cc, 1-2 mph winds, 61-69°F</td>
</tr>
<tr>
<td>06/15/2012</td>
<td>Kam Muri</td>
<td>0835-1145</td>
<td>100% cc, 1-2 mph winds, 61-65°F</td>
</tr>
</tbody>
</table>

Source: Dudek, 2012

RESULTS

The survey results are shown in Figure 3. A single male California gnatcatcher was observed during the visit on May 22, 2012; no other gnatcatcher observations were made during the other survey visits. The male was detected near the top of the slope to the east of Rose Creek in the southern portion of the survey area. The male appeared briefly in response to tape playback, then flew northeast into habitat areas outside of the survey area in the adjacent side canyon. Although a female gnatcatcher was not observed, the gnatcatcher detection likely indicates the presence of a gnatcatcher pair and is assumed to represent an occupied gnatcatcher territory.

Thirty-six species of wildlife were observed during the surveys. A full list of wildlife species observed during the survey is provided in Appendix A. Please feel free to contact me at 760.942.5147 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,

Kamarul Muri
Permit # TE051250-3

Att: Figures 1–3
Appendix A, List of Wildlife Species Observed or Detected at the Project Site
REFERENCES CITED


FIGURE 2
Vicinity Map

California Gnatcatcher Survey Area

- - - - Build Alternative

SOURCE: USGS 7.5-Minute Series La Jolla Quadrangle.
California Gnatcatcher Survey Results

Source: Aerial PB 2010; Project Data PB 2012.

Mid-Coast Corridor Transit Project - 2012 California Gnatcatcher Survey Report
APPENDIX A

List of Wildlife Species
Observed or Detected at the Project Site
APPENDIX A
List of Wildlife Species Observed or Detected at the Project Site

WILDLIFE SPECIES – VERTEBRATES

REPTILES

**PHRYNOSOMATIDAE—IGUANID LIZARDS**
*Sceloporus occidentalis* – western fence lizard

**BIRDS**

**ACCIPITRIDAE – HAWKS**
*Buteo jamaicensis* – red-tailed hawk

**CARDINALIDAE—CARDINALS & ALLIES**
*Pheucticus melanocephalus*—black-headed grosbeak

**COLUMBIDAE – PIGEONS AND DOVES**
* *Columba livia* – rock dove
  *Zenaida macroura* – mourning dove

**STURNIDAE—STARLINGS**
* *Sturnus occidentalis* – European starling

**TROCHILIDAE – HUMMINGBIRDS**
*Calypte anna* – Anna's hummingbird

**TYRANNIDAE – TYRANT FLYCATCHERS**
*Sayornis nigricans* – black phoebe
  *Sayornis saya* – Say's phoebe
  *Tyrannus vociferans* – Cassin's kingbird

**CORVIDAE – JAYS AND CROWS**
*Aphelocoma californica* – western scrub-jay
  *Corvus corax* – common raven

**AEGITHALIDAE – BUSHTITS**
*Psaltriparus minimus* – bushtit

**TROGLODYTIDAE – WRENS**
*Thryomanes bewickii* – Bewick's wren
  *Troglodytes aedon* – house wren
SYLVIIDAE – GNATCATCHERS
   Polioptila californica – California gnatcatcher

TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT
   Chamaea fasciata – wrentit

EMBERIZIDAE – BUNTINGS AND SPARROWS
   Melospiza melodia – song sparrow
   Pipilo crissalis – California towhee
   Pipilo maculatus - spotted towhee

HIRUNDINIDAE—SWALLOWS
   Petrochelidon pyrrhonota - Cliff swallow

ICTERIDAE – BLACKBIRDS AND ORIOLES
   Molothrus ater – brown-headed cowbird

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

PICIDAE—WOODPECKERS & ALLIES
   Picoides nuttallii—Nuttall’s woodpecker

FRINGILLIDAE – FINCHES
   Carpodacus mexicanus – house finch
   Carduelis psaltria – lesser goldfinch

MAMMALS

CANIDAE—WOLVES & FOXES
   Canis latrans — Coyote (scat)

LEPORIDAE – HARES AND RABBITS
   Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS
   Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS
   Thomomys bottae – Botta’s pocket gopher
PROCYONIDAE—RACCOONS & RELATIVES

Procyon lotor—raccoon (track)

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

PAPILIONIDAE – SWALLOWTAILS

Papilio rutulus – tiger swallowtail

PIERIDAE – WHITES AND SULFURS

Pieris rapae rapae – cabbage butterfly
Pontia protodice – checkered white

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS

Icaria acmon acmon – acmon blue

* signifies introduced (non-native) species
2010 Least Bell’s Vireo and Southwestern Willow Flycatcher Focused Survey Results for the Mid-Coast Corridor Transit Project, City of San Diego, California
September 22, 2010

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road, Suite 100
Carlsbad, California 92011

Subject: 2010 Least Bell’s Vireo and Southwestern Willow Flycatcher Focused Survey Results for the Mid-Coast Corridor Transit Project, City of San Diego, California

Dear Recovery Permit Coordinator:

This report documents the results of eight 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). These focused surveys were conducted within approximately 103 acres of suitable habitat within a portion of the Mid-Coast Corridor Transit Project study area between the Old Town Transit Center (OTTC) in the south and La Jolla Colony Drive in the north. The surveys were conducted in all areas of suitable vireo and flycatcher habitat located within 500 feet of the proposed light rail transit (LRT) alternative alignments.

The southwestern willow flycatcher and least Bell’s vireo 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

The Mid-Coast Corridor Transit Project study area extends from OTTC north to University City, in the western portion of the City of San Diego, San Diego County, California. The following communities are included in this area: University City, La Jolla, Clairemont Mesa, Pacific Beach, Mission Beach, Linda Vista, and Old Town. The project study area is bounded by the Pacific Ocean to the west, the I-5/I-805 junction to the north, I-805 and SR-163 to the east, and OTTC and Mission Valley to the south (Figure 1). The proposed LRT alternative alignments
within the project study area generally run along I-5 from just south of I-8 at OTTC north to Genesee Avenue in University City, situated on the U.S. Geological Survey 7.5 minute Del Mar and La Jolla quadrangles, Township 15 South, Range 3 West, in Section 17 (Figure 2).

VEGETATION COMMUNITIES

Based on existing vegetation community data from the Multiple Species Conservation Program (MSCP) (SANGIS 2006), the 103-acre survey area in the project study area contains four southern riparian vegetation communities: southern cottonwood-willow riparian forest, southern riparian forest, southern riparian scrub and southern sycamore-alder riparian woodland (Figure 3). Native uplands communities and disturbed habitat also occur throughout the survey area. Suitable riparian vegetation communities occurring within the 103-acre survey area are described below.

Southern Cottonwood-willow Riparian Forest

Southern cottonwood–willow riparian forest is a southern riparian forest community. This community is a tall, open, broad-leaved winter deciduous riparian forest dominated by Fremont’s cottonwood (Populus fremontii) and several different species of willow (Salix spp.) (Holland 1986). It occurs in frequently overflowed lands along rivers and streams. This community is mapped along the San Diego River, northeast of the I-5/I-805 junction at the southernmost end of the project study area. Southern cottonwood-willow riparian forest represents less than 10 acres of the total survey area.

Southern Riparian Forest

Southern riparian forest occurs in deep canyons and along stream and valley bottoms. This community type occurs where the water table is not far below the soil surface. Southern riparian forest is dominated by winter deciduous trees such as cottonwoods (Populus fremontii, P. trichocarpa) or arroyo willow (Salix lasiolepis), but can also be dominated by the evergreen coast live oak (Quercus agrifolia). Riparian vegetation provides important habitat for many wildlife species. Southern riparian forest occurs in Rose Canyon along La Jolla Colony Drive. Southern riparian forest is represented by less than 0.1 acres in the total survey area.

Southern Riparian Scrub

Southern riparian scrub occurs where the water table is not far below the soil surface in deep canyons and along stream and valley bottoms. Southern riparian scrub is dominated by mulefat (Baccharis salicifolia) or several willow species with scattered emergent Fremont’s cottonwood.
and western sycamore (*Platanus racemosa*). Riparian vegetation supports a wide array of wildlife species. Within the survey area, southern riparian scrub is dominated by willows and significant patches of giant reed (*Arundo donax*), and it occurs primarily along Rose Creek parallel to and east of I-5, south of SR-52 and north of Balboa Avenue. This community is also mapped in the project study area along the San Diego River. There is a total of 30.5 acres of southern riparian scrub within the project study area.

**Southern Sycamore–Alder Riparian Woodland**

Southern sycamore–alder riparian woodland is described by Holland (1986) as a tall, open, broadleafed, winter-deciduous streamside woodland dominated by well-spaced western sycamore and often also white alder (*Alnus rhombifolia*). Seldom forming closed canopy forests, these stands may appear as trees scattered in a shrubby thicket of sclerophyllous 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*). This community stretches along Rose Creek parallel to and east of I-5, near the I-5/SR-52 interchange. It is the most prominent riparian community in the survey area (63.7 acres).

**METHODS**

Suitable habitat areas within the project study area were surveyed eight times (Table 1) by Dudek wildlife biologists Brock A. Ortega (BAO; Permit # TE 813545), Paul M. Lemons (PML, Permit # TE 051248), Kamarul J. Muri (KJM), and Patricia C. Schuyler (PCS) for vireo and flycatcher. Focused surveys for these species were initiated on May 14, 2010, and continued through July 29, 2010.

**Table 1**

Survey Conditions

<table>
<thead>
<tr>
<th>Survey Pass</th>
<th>Survey Area</th>
<th>Date</th>
<th>Hours</th>
<th>Personnel</th>
<th>Focus</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North</td>
<td>5/14/10</td>
<td>0630–1000</td>
<td>PCS</td>
<td>LBVI</td>
<td>80% cc, 0–5 mph wind, 55°F–65°F</td>
</tr>
<tr>
<td>1</td>
<td>South</td>
<td>5/14/10</td>
<td>0745–1130</td>
<td>KJM</td>
<td>LBVI</td>
<td>70%–10% cc, 1–5 mph wind, 62°F–66°F;</td>
</tr>
<tr>
<td>2</td>
<td>North</td>
<td>5/24/10</td>
<td>0530–1100</td>
<td>BAO</td>
<td>LBVI/SWFL</td>
<td>100% cc, 0 mph wind, 53°F–63°F</td>
</tr>
<tr>
<td>2</td>
<td>South</td>
<td>5/24/10</td>
<td>0700–1040</td>
<td>PML</td>
<td>LBVI/SWFL</td>
<td>0% cc, 0–4 mph wind, 57°F–72°F</td>
</tr>
<tr>
<td>3</td>
<td>North</td>
<td>6/4/10</td>
<td>0530–0915</td>
<td>BAO</td>
<td>LBVI/SWFL</td>
<td>100%–20% cc, 0 mph wind, 62°F–67°F</td>
</tr>
<tr>
<td>3</td>
<td>South</td>
<td>6/3/10</td>
<td>0715–1045</td>
<td>KJM</td>
<td>LBVI</td>
<td>10%–100% cc, 1–7 mph wind, 68°F–66°F</td>
</tr>
</tbody>
</table>
Areas surveyed in 2010 included suitable habitat within the San Diego River, mainly to the east of I-5, and Rose Creek, approximately parallel to and east of I-5 from Balboa Avenue north to La Jolla Colony Drive (Figure 3). A total of 13,800 linear feet of suitable habitat is within the survey area. The entire linear length of suitable habitat surveyed was approximately 4.2 kilometers.

Surveys for flycatcher were conducted concurrently with the vireo surveys. All surveys consisted of slowly walking a methodical, meandering transect within and adjacent to all riparian habitat on site. The perimeter also was surveyed. This route was arranged to cover all suitable habitat on site (depicted on Figures 4–6). A vegetation map (1:2,400 scale; 1 inch=200 feet) of the project site 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 (Sogge et al., 1997 in conjunction with the 2000 Southwestern Willow Flycatcher Protocol Revision issued by the U.S. Fish and Wildlife Service (USFWS)), 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 during the period from May 15–31, one survey from June 1–21, and three surveys between June 22 and July 17. A tape of recorded flycatcher vocalizations was used, approximately every 50–100 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 during the period from April 10 to 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 1200 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 1).

RESULTS

No least Bell’s vireo or southwestern willow flycatcher were observed during the focused surveys. Other 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 Game (CDFG) Species of Special Concern, yellow warbler (*Dendroica petechia*), a CDFG Species of Special Concern, and white-tailed kite (*Elanus leucurus*), a CDFG Fully Protected species (Figures 4–6). In addition, brown-headed cowbird (*Molothrus ater*) was observed in the San Diego River and along Rose Creek.

Ninety-six 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 (USFWS 2004) for willow flycatcher are included as Appendix B.

Please feel free to contact me at 760.479.4254 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,

Brock A. Ortega  
Senior Wildlife Biologist

Paul Lemons  
Wildlife Biologist

Kamarul Muri  
Wildlife Biologist

Patricia Schuyler  
Wildlife Biologist

Att:  Figures 1–6  
Appendices A–B
REFERENCES


FIGURE 2
Vicinity Map

SOURCE: USGS 7.5 Minute Series Del Mar, La Jolla and Point Loma Quadrangles.

Mid-Coast Corridor Transit Project - 2010 LBVI and WIFL Survey Report
FIGURE 4
Least Bell's Vireo/Southwestern Willow Flycatcher
Survey Results - San Diego River

SOURCE: DigitalGlobe 2008; Parsons
Brinckerhoff 2010; SANDAG 2007

Survey Route
LBVI/WIFL Survey Area
Special-Status Species
- California Gnatcatcher
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat
FIGURE 5
Least Bell’s Vireo/Southwestern Willow Flycatcher Survey Results - Rose Creek South

5

FIGURE 5
Least Bell’s Vireo/Southwestern Willow Flycatcher Survey Results - Rose Creek South

SOURCE: DigitalGlobe 2008; Parsons Brinckerhoff 2010; SANDAG 2007

Survey Route
LBVI/WIFL Survey Area

Special-Status Species
California Gnatcatcher
White-tailed Kite
Yellow Warbler
Yellow-breasted Chat
FIGURE 6

Least Bell’s Vireo/Southwestern Willow Flycatcher
Survey Results - Rose Creek North

SOURCE: DigitalGlobe 2008; Parsons Brinckerhoff 2010; SANDAG 2007

Special-Status Species
- California Gnatcatcher
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat
APPENDIX A

Wildlife Species Observed in Study Area
WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

**PLETHODONTIDAE** – LUNGLESS SALAMANDERS  
*Batrachoseps pacificus* – Channel Islands slender salamander

**PIPIDAE** – TONGUELESS FROGS  
*Xenopus laevis* – African clawed frog

**BUFONIDAE** – TRUE TOADS  
*Anaxyrus boreas* – Western toad

**HYLIDAE** – TREEFROGS  
*Hyla regilla* – Pacific treefrog

REPTILES

**EMYDIDAE** – BOX AND POND TURTLES  
*Pseudemys scripta* – red-eared slider

**IGUANIDAE** – IGUANID LIZARDS  
*Sceloporus occidentalis* – western fence lizard  
*Uta stansburiana* – common side-blotched lizard

**COLUBRIDAE** – COLUBRID SNAKES  
*Pituophis cantifer* – gopher snake

**VIPERIDAE** – VIPERS  
*Crotalus viridis helleri* – southern pacific rattlesnake

FISHES

**CYPRINIDAE** – CARP  
*Cyprinidae* sp. – carp
BIRDS

**PODICIPEDIDAE – GREBES**
*Podilymbus podiceps* – pied-billed grebe

**PHALOCROCORACIDAE – CORMORANTS**
*Phalacrocorax auritus* – double-crested cormorant
*Phalacrocorax* sp. – cormorant

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

**ANATIDAE – DUCKS, GEESE, AND SWANS**
*Anas platyrhynchos* – mallard

**ACCIPITRIDAE – HAWKS**
*Buteo jamaicensis* – red-tailed hawk
*Elanus leucurus* – white-tailed kite

**FALCONIDAE – CARACARAS AND FALCONS**
*Falco sparverius* – American kestrel

**ODONTOPHORIDAE – NEW WORLD QUAILS**
*Callipepla californica* – California quail

**RALLIDAE – RAILS, GALLINULES AND COOTS**
*Fulica americana* – American coot
*Gallinula chloropus* – common moorhen
*Porzana carolina* – sora

**CHARADRIIDAE – LAPWINGS AND PLOVERS**
*Charadrius vociferus* – killdeer

**SCOLOPACIDAE – SANDPIPERS, PHALAROPES AND ALLIES**
*Numenius americanus* – long-billed curlew
LARIDAE – GULLS, TERNs, AND SKIMMERS
   *Larus* sp. – gull
   *Sterna* sp. – tern

COLUMBIDAE – PIGEONS AND DOVES
   *Columba livia* – rock pigeon
   *Zenaida macroura* – mourning dove

TYTONIDAE – BARN OWLS
   *Tyto alba* – barn owl

APODIDAE – SWIFTS
   *Aeronautes saxatalis* – white-throated swift

TROCHILIDAE – HUMMINGBIRDS
   *Calypte anna* – Anna’s hummingbird
   *Calypte costae* – Costa’s hummingbird

ALCEDINIDAE – KINGFISHERS
   *Ceryle aleyon* – belted kingfisher

PICIDAE – WOODPECKERS
   *Picoides nuttallii* – Nuttall’s woodpecker
   *Picoides pubescens* – downy woodpecker

TYRANNIDAE – TYRANT FLYCATCHERS
   *Empidonax difficilis* – Pacific-slope flycatcher
   *Myiarchus cinerascens* – ash-throated flycatcher
   *Sayornis nigricans* – black phoebe
   *Tyrannus vociferans* – Cassin’s kingbird

HIRUNDINIDAE – SWALLOWS
   *Petrochelidon pyrrhonota* – cliff swallow
   *Stelgidopteryx serripennis* – northern rough-winged swallow

CORVIDAE – JAYS AND CROWS
   *Aphelocoma californica* – western scrub-jay
   *Corvus brachyrhynchos* – American crow
   *Corvus corax* – common raven
**AEGITHALIDAE – BUSHTITS**

*Psaltriparus minimus* – bushtit

**TROGLODYTIDAE – WRENS**

*Thryomanes bewickii* – Bewick’s wren

*Troglodytes aedon* – house wren

**REGULIDAE – KINGLETS**

*Regulus calendula* – ruby-crowned kinglet

**SYLVIIDAE – SYLVIID WARBLERS**

*Chamaea fasciata* – wrentit

**MIMIDAE – MOCKINGBIRDS AND THRASHERS**

*Mimus polyglottos* – northern mockingbird

**STURNIDAE – STARLINGS**

*Sturnus vulgaris* – European starling

**PARULIDAE – WOOD WARBLERS**

*Dendroica petechia* – yellow warbler

*Geothlypis trichas* – common yellowthroat

*Icteria virens* – yellow-breasted chat

*Oreothlypis celata* – orange-crowned warbler

**EMBERIZIDAE – EMBERIZIDS**

*Melospiza melodia* – song sparrow

*Melozone crissalis* – California towhee

*Pipilo maculatus* – spotted towhee

**CARDINALIDAE – CARDINALS AND ALLIES**

*Pheucticus melanocephalus* – black-headed grosbeak

**ICTERIDAE – BLACKBIRDS**

*Agelaius phoeniceus* – red-winged blackbird

*Euphagus cyanocephalus* – Brewer’s blackbird

*Icterus cucullatus* – hooded oriole

*Icterus bullockii* – Bullock’s oriole

*Molothrus ater* – brown-headed cowbird
FRINGILLIDAE – FINCHES
   Carpodacus mexicanus – house finch
   Spinus psaltria – lesser goldfinch
   Spinus tristis – American goldfinch

PSITTACIDAE – PARROTS
* Amazona viridigenalis – red-crowned parrot

MAMMALS

DIDELPHIDAE – NEW WORLD OPOSSUMS
   Didelphis virginiana – Virginia opossum

LEPORIDAE – HARES AND RABBITS
   Sylvilagus bachmani – brush rabbit

SCIURIDAE – SQUIRRELS
   Spermophilus beecheyi – California ground squirrel

GEOMYIDAE – POCKET GOPHERS
   Thomomys bottae – Botta’s pocket gopher

MURIDAE – RATS AND MICE
   Microtus californicus – California vole
   Neotoma sp. – woodrat
* Rattus rattus – roof rat
* Rattus norvegicus – brown rat

CANIDAE – WOLVES AND FOXES
* Canis lupus familiaris – domestic dog
   Canis latrans – coyote

PROCYONIDAE – RACCOONS AND RELATIVES
   Procyon lotor – common raccoon

FELIDAE – CATS
* Felis catus – domestic cat
   Lynx rufus – bobcat

PHOCIDAE – SEALS
   Phoca vitulina – harbor seal
WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

PAPILIONIDAE – SWALLOWTAILS
   Papilio rutulus – tiger swallowtail

PIERIDAE – WHITES AND SULFURS
   Pieris rapae – European cabbage butterfly

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS
   Brephidium exile – western pygmy blue
   Plebejus acmon – acmon blue

NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES
   Adelpha bredowii – California sister
   Danaus gilippus – queen
   Nymphalis antiopa – mourning cloak
   Vanessa annabella – west coast lady

CRUSTACEANS

ASTACOIDEA – CRAYFISH
*   Procambarus clarkii – red swamp crayfish

*   signifies introduced (non-native) species
APPENDIX B

Willow Flycatcher Data Forms
Willow Flycatcher Survey and Detection Form (revised April, 2004)

Site Name: Mid-Coast Transit Project - South  
USGS Quad Name: La Jolla Point Loma

Is copy of USGS map marked with survey area and WFL sightings attached (as required)?  Yes  No  N/A

Site Coordinates: Start: N 48°19'44".86" / W 117°24'40".50"  
Stop: N 48°51'2".49" / W 117°32'35".3002"

UTM Datum: NAD27 (NAD27 preferred)  
Zone: 11

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

<table>
<thead>
<tr>
<th>Survey #</th>
<th>Observer(s)</th>
<th>Date (m/d/y) Survey time</th>
<th>Number of Adult WIFLs</th>
<th>Estimated Number of Pairs</th>
<th>Estimated Number of Territories</th>
<th>Nest(s) Found?</th>
<th>Cowbirds Detected?</th>
<th>Livestock</th>
<th>Presence of Nest(s)</th>
<th>Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)</th>
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Overall Site Summary (Total resident WIFLs only)

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<tr>
<th>Adults</th>
<th>Pairs</th>
<th>Territories</th>
<th>Nests</th>
<th>Were any WIFLs color-banded?</th>
<th>Yes No</th>
<th>If yes, report color combination(s) in the comments section on back of form</th>
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Total survey hrs 21

Reporting Individuals: Paul Lemons, Brock Ortega  
Date Report Completed

US Fish and Wildlife Service Permit # T605248.4  
AZ Game and Fish Department (or other state) Permit # 16913545

Submit original form by August 1st. Retain a copy for your records.
Fill in the following information completely. Submit original form by August 1st. Retain a copy for your records.

Reporting Individual: Paul Lemos / Brock Ortega
Affiliation: Consultant
Site Name: Mid-Coast Transit Project - South
Phone #: 760-942-5147
E-mail: plemons@dixek.com
Date Report Completed:

Did you verify that this site name is consistent with that used in previous years? Yes / No (circle one)
If name is different, what name(s) was used in the past?

If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below.
Did you survey the same general area during each visit to this site this year? Yes / No If no, summarize in comments below.

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

Length of area surveyed: ___________ (specify units, e.g., miles = mi, kilometers = km, meters = m)

Vegetation Characteristics: Overall, are the species in tree/shrub layer at this site comprised predominantly of (check one):

☐ Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
☐ Mixed native and exotic plants (mostly native)
☐ Mixed native and exotic plants (mostly exotic)
☐ Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: Salix lasiolepis, Baccharis salicifolia, Toxicodendron diversilobum

Average height of canopy (Do not put a range): ___________ (specify units)

Was surface water or saturated soil present at or adjacent to site? Yes / No (circle one)
Distance from the site to surface water or saturated soil: ___________ (specify units)

Did hydrological conditions change significantly among visits (did the site flood or dry out)? Yes / No (circle one)
If yes, describe in comments section below.

Remember to attach a copy of a USGS quad/topographical map (REQUIRED) of the survey area, outlining the survey site and location of WIFL detections. Also include a sketch or aerial photograph showing details of site location, patch shape, survey route in relation to patch, and location of any willow flycatchers or willow flycatcher nests detected. Such sketches or photographs are welcomed, but DO NOT substitute for the required USGS quad map. Please include photos of the interior of the patch, exterior of the patch, and overall site and describe any unique habitat features.

Comments (attach additional sheets if necessary)

WIFL Detection Locations:

<table>
<thead>
<tr>
<th>Date Detected</th>
<th>N UTM</th>
<th>E UTM</th>
<th>Date Detected</th>
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<th>E UTM</th>
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<tbody>
<tr>
<td></td>
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</table>
Willow Flycatcher Survey and Detection Form (revised April, 2004)

Site Name: MDCoast Transit Project - North  State: CA  County: San Diego
USGS Quad Name: Del Mar, La Jolla  Elevation: feet / meters (circle one)

Is copy of USGS map marked with survey area and WIFI sightings attached (as required)?  □ Yes  □ No  N/A

Site Coordinates: Start: N 47°19'51.7" W 30°22'13.5" UTM Datum NAD27  Zone 11
Stop: N 47°19'51.7" W 30°22'13.5" UTM Datum NAD27  Zone 11

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

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<th>Survey #</th>
<th>Observer(s)</th>
<th>Date (m/d/y)</th>
<th>Start</th>
<th>Stop</th>
<th>Total hrs</th>
<th>Number of Adult WIFIls</th>
<th>Estimated Number of Pairs</th>
<th>Estimated Number of Territories</th>
<th>Nest(s) Found</th>
<th>Y or N</th>
<th>Cowbird Detected?</th>
<th>Y or N</th>
<th>Presence of Livestock, Recent sign, If Yes, Describe Y or N</th>
<th>Comments about this survey (e.g., bird behavior, evidence of pairs or breeding, number of nests, nest contents or number of fledges seen; potential threats)</th>
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Overall Site Summary
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</tbody>
</table>

Were any WIFIls color-banded?  Yes □ No □
If yes, report color combination(s) in the comments section on back of form

Reporting Individuals: Paul Lemos, Brock Ortega
Date Report Completed  7/20/10
US Fish and Wildlife Service Permit # 72051248-4  AZ Game and Fish Department (or other state) Permit # N/A

Submit original form by August 1st. Retain a copy for your records.
Fill in the following information completely. Submit original form by August 1st. Retain a copy for your records.

Reporting Individual: [NAME] Phone # [NUMBER]
Affiliation: [AFFILIATION] E-mail: [EMAIL]
Site Name: [SITE NAME] Date: [DATE]

Did you verify that this site name is consistent with that used in previous years? Yes / No (circle one)
If name is different, what name(s) was used in the past?

If site was surveyed last year, did you survey the same general area this year? Yes / No If no, summarize in comments below.
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Management Authority for Survey Area (circle one): Federal Municipal/County State Tribal Private
Name of Management Entity or Owner (e.g., Tonto National Forest)

Length of area surveyed: [LENGTH] (specify units, e.g., miles = mi, kilometers = km, meters = m)

Vegetation Characteristics: Overall, are the species in tree/shrub layer at this site comprised predominantly of (check one):

- [ ] Native broadleaf plants (entirely or almost entirely, includes high-elevation willow)
- [X] Mixed native and exotic plants (mostly native)
- [ ] Mixed native and exotic plants (mostly exotic)
- [ ] Exotic/introduced plants (entirely or almost entirely)

Identify the 2-3 predominant tree/shrub species: [SPECIES]

Average height of canopy (Do not put a range): [HEIGHT] (specify units)

Was surface water or saturated soil present at or adjacent to site? Yes / No (circle one)
Distance from the site to surface water or saturated soil: [DISTANCE] (specify units)

Did hydrological conditions change significantly among visits (did the site flood or dry out)? Yes / No (circle one)
If yes, describe in comments section below.

Remember to attach a copy of a USGS quad/topographical map (REQUIRED) of the survey area, outlining the survey site and location of WIFL detections. Also include a sketch or aerial photograph showing details of site location, patch shape, survey route in relation to patch, and location of any willow flycatchers or willow flycatcher nests detected. Such sketches or photographs are welcomed, but DO NOT substitute for the required USGS quad map. Please include photos of the interior of the patch, exterior of the patch, and overall site and describe any unique habitat features.

Comments (attach additional sheets if necessary)

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</table>
2011 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods,
Mid-Coast Corridor Transit Project,
San Diego County, California
THIS PAGE INTENTIONALLY LEFT BLANK
U.S. Fish and Wildlife Service  
Attn: Recovery Permit Coordinator  
6010 Hidden Valley Road  
Carlsbad, California 92011

Subject: 2011 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Mid-Coast Corridor Transit Project, San Diego County, California

Dear Recovery Permit Coordinator:

This report is intended to fulfill reporting requirements in accordance with the Section 10(a)(1)(A) permit and documents the results of a wet season presence/absence survey for vernal pool branchiopods conducted for the Mid-Coast Corridor Transit Project (project), located in the City of San Diego, San Diego County, California. According to the U.S. Fish and Wildlife Service (USFWS) survey guidelines, a complete survey for vernal pool branchiopods consists of sampling for two full wet season surveys within a five-year period or two consecutive seasons of one wet season survey and one dry season survey. This report documents the first wet season survey for this project.

The 2011 survey was performed by Dudek Biologist, Thomas S. Liddicoat (Permit # TE139634-2) between March 1 and June 6, 2011. The survey focused on the determination of the presence/absence of two federally listed endangered vernal pool branchiopod species: Riverside fairy shrimp (Streptocephalus woottoni) and San Diego fairy shrimp (Branchinecta sandiegonensis) according to the April 19, 1996, Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. The survey consisted of an inspection of all potential suitable habitat within the proposed project study area (i.e., approximately 1,672 acres) and sampling of all water-filled depressions within the survey area. A total of 42 suitable depressions were identified and surveyed during this 2011 wet season survey. Of the 42 depressions sampled, 7 depressions were found to be occupied with vernal pool branchiopods and all branchiopod individuals observed were identified as versatile fairy shrimp (Branchinecta lindahlii). No listed special-status vernal pool branchiopods were observed on site.
PROJECT LOCATION AND EXISTING CONDITIONS

The 1,672-acre project study area (study area) is located in the western portion of the City of San Diego and extends from Old Town Transit Center (OTTC) north to the University City, San Diego County, California (Figure 1). The following communities are included in this area: University City, La Jolla, Clairemont Mesa, Pacific Beach, Mission Beach, Linda Vista, and Old Town. The project study area is bounded by the Pacific Ocean to the west, the I-5 and I-805 junction to the north, I-805 and SR-163 to the east, and OTTC and Mission Valley to the south. The proposed light rail transit (LRT) alternative alignments within the project study area generally run along I-5 from just south of I-8 at OTTC north to Genesee Avenue in University City, situated on the U.S. Geological Survey 7.5 minute Del Mar and La Jolla quadrangles, Township 15 South, Range 3 West, in Section 17 (Figure 2).

The study area consists of the existing railroad right-of-way (ROW); adjacent disturbed and developed lands; and native and non-native upland, riparian, and wetland vegetation communities. Soil series on site (Bowman 1973) include: Altamont, Carlsbad, Chesterton, Corralitos, Gaviota, Huerhuero, Lagoon water, Made land, Salinas, Terrace escarpments, and Urban land. Soils that are potentially suitable to support vernal pool type-scenarios (i.e., ephemeral ponding) are those series that predominantly contain clay particles and are not well draining such as: Altamont clay, Salinas clay loam, made land, and urban land complexes.

Land uses within and adjacent to the study area include suburban residential, commercial development, educational, designated open space, the Rose Canyon bike trail, and roads.

VEGETATION COMMUNITIES, BASINS, AND LAND COVER TYPES

The study area supports twenty-four vegetation communities (twenty native/naturalized and four non-native) and was mapped by Dudek biologists in July through August 2010. These communities are characterized by Holland (1986) and Oberbauer et al. (2008) and include: disturbed wetland, disturbed habitat, ornamental, urban/developed, Diegan coastal sage scrub (including disturbed), southern mixed chaparral, non-native grassland, cismontane alkali marsh, coastal and valley freshwater marsh (including disturbed), herbaceous wetland, southern riparian forest (including disturbed), southern coast live oak riparian, southern arroyo willow riparian forest, southern riparian scrub, mulefat scrub (including disturbed), southern willow scrub (including disturbed), arundo-dominated riparian, non-vegetated channel/floodway, and eucalyptus woodland.
Potentially suitable habitats for vernal pool branchiopods in the study area include: dirt areas in the existing ROW, within relatively flat (less than 10%) vegetation areas adjacent to the ROW, and within the dirt roads/trails that traverse the area to provide vehicular access to utilities (e.g., railroad, electrical poles, and sewer/storm water manholes). Descriptions of the potentially suitable vernal pool habitats (i.e., developed disturbed land, disturbed wetland, herbaceous wetland, and grassland communities) are described below.

**Disturbed Land**

Disturbed land refers to areas that typically lack native vegetation, support non-native vegetation, often contains bare ground, and is generally the result of severe or repeated mechanical perturbation. Within the study area disturbed land occurs throughout the study area, is generally associated with the existing rail ROW, and includes dirt access roads/trails that traverse the study area.

**Disturbed Wetland**

Disturbed wetlands are areas permanently or periodically inundated by water that have been severely modified by human activity. Disturbed wetlands are often unvegetated, but may include some scattered non-native vegetation such as giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), eucalyptus (*Eucalyptus* spp.), palms (*Phoenix* spp., *Washingtonia* spp.), pampas grass (*Cortaderia* spp.), and Bermuda grass. Native wetland species, such as willow (*Salix* spp.) and cattails (*Typha* spp.) may also occur. Disturbed wetlands occur throughout the study area within and adjacent to the existing rail ROW.

**Herbaceous Wetland**

Herbaceous wetland is not recognized by Holland (1986), but is included in Oberbauer et al. (2008). This community is a seasonal wetland that primarily supports annual species, such as seep monkey flower (*Mimulus guttatus*) and annual beard grass (*Polypogon monspeliensis*). Herbaceous wetlands occur in swale areas or along drainages. Herbaceous wetlands usually do not include species such as cattails, bulrushes, and rushes that constitute freshwater marsh. As a seasonal community in San Diego County, herbaceous wetland may only occur during wetter than average years. A few herbaceous wetlands occur in the study area adjacent to the existing rail ROW.

**Non-Native Grasslands**

According to Holland (1986), non-native grassland is characterized by a dense to sparse cover of annual grasses with flowering culms generally between 0.2 and 0.5 meter (0.7 and 1.6 feet) high, and sometimes up to 1 meter (3 feet) high. Some characteristic species include wild oat (*Avena* spp.),
bromes (*Bromus diandrus*, *B. madritensis*, *B. hordeaceus*), filaree (*Erodium* spp.), and fescue (*Vulpia* spp.). In addition, non-native grassland is often associated with numerous species of wildflowers. Non-native grassland typically occurs on fine-textured clay soils that are moist to waterlogged during the winter rainy season and very dry during the summer and fall (Holland 1986). The majority of non-native grassland on site occurs in the northeastern portion of the study area along Rose Canyon.

**PREVIOUS BRANCHIOPOD STUDIES**

To our knowledge, no focused surveys for vernal pool branchiopods have been conducted within the proposed project study area prior to this 2011 wet season presence/absence branchiopod survey. A general habitat assessment to evaluate the potential for vernal pool branchiopods within the study area was conducted by Dudek in early February 2011, prior to conducting field surveys. No surveys were conducted during the initial habitat assessment due to the observed depressions not meeting the federal inundation requirement for implementing wet surveys (i.e., holding water at minimum 3 cm depth for at least two weeks).

**SURVEY METHODS**

The survey methodology consisted of an initial field reconnaissance survey (conducted February 4, 2011) following rain events to detect areas of ponded water and follow-up traditional ground surveys. The entire project study area was surveyed on-foot to provide 100% visual coverage of the site (Figure 3).

Onset of significant rain events (i.e., greater than 0.20 inch) for the 2010/11 wet season began during the end of December (i.e., 17th–29th) 2010. Although the initial pooling for the 2010/11 wet season was not surveyed (depressions possibly inundated from the onset of rain events mentioned above), a reconnaissance field assessment to detect inundated depressions was performed on February 4, 2011, following the rains on January 31, 2011. During this initial field assessment all potentially suitable depressions were mapped and protocol level branchiopod sampling was performed where appropriate. Please note that no surveys were conducted during the initial assessment due to the observed depressions not meeting the federal inundation requirement for implementing wet surveys (i.e., holding water at minimum 3 cm depth for at least two weeks).

Protocol-level sampling for the 2010/11 wet season was initiated approximately two weeks following the significant rain event on February 16th. The site was visited approximately every two weeks, until all unoccupied basins were observed to be dried on April 29, 2011. Subsequent rains in mid-May commenced ground surveys which were observed to be dry on June 6, 2011. During the survey period the site was surveyed 7 times. A schedule of the survey season and site conditions are presented in Table 1.
Table 1
2010/11 Schedule of Surveys and Conditions

<table>
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<tr>
<th>Visit Number</th>
<th>Date</th>
<th>Avg. Air Temp (°C)</th>
<th>Avg. Water Temp (°C)</th>
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<td>April 29, 2011</td>
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<td>6</td>
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<tr>
<td>7</td>
<td>June 6, 2011</td>
<td>NR</td>
<td>NR</td>
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</tbody>
</table>

NR – not recorded

The surveys were conducted by Dudek biologist, Thomas S. Liddicoat (Permit # TE139634-2). All identified basins within the study area were evaluated during each site visit to determine inundation levels and sampling was performed where appropriate. When subsequent rains occurred during the survey season, all of the basin areas were re-evaluated and protocol sampling was implemented where appropriate. Daily precipitation, as recorded by Weather Underground, was recorded for Clairemont, California (i.e., N. Clairemont weather station KCASANDI106) and is attached as Appendix A to this report (Weather Underground, 2010–11).

Protocol-level sampling was performed within all basins that were deemed suitable for use by fairy shrimp and any depressions meeting the USFWS inundation requirement (ponding at least 3 cm deep). The locations of detected basins sampled were recorded using a Global Positioning System (GPS) unit and were alphabetically labeled. GPS data was downloaded into an ArcGIS file and digitized by Dudek Geographic Information Specialist (GIS) Jeff Kubran.

During each survey all depressions were inspected for inundation depth, surface area of water, air and water temperature, level of disturbance, and presence of aquatic wildlife. An aquarium net was passed through every basin that met the USFWS inundation requirement. Nearly all portions of ponded water were surveyed from the bottom to the surface. Mr. Liddicoat is not familiar with all aquatic invertebrates, but is able to identify fairy shrimp, some aquatic invertebrates, and tadpoles where present.

All information was recorded in the field onto a data sheet as provided in the survey protocol with most pertinent information (e.g., inundation, fairy shrimp presence/absence, and species identification) recorded onto a spreadsheet Survey Log (Appendix B). Data sheets were completed for every depression which met the minimum inundation requirement at the time of sampling (Appendix C). Photographs of the basins sampled are attached to this report as Appendix D.
Samples were collected when needed using the aquarium net and a 40 milliliter glass vial. Specimens were stored in the vial with water collected from where the specimen was found. Specimens were taken into the laboratory within 24 hours of collection and placed in a 90% ethyl alcohol solution for preservation. Each specimen was inspected thoroughly using a microscope at 3× magnification and the key found in Eriksen and Belk (1999).

SURVEY RESULTS

Basin Descriptions

A total of 42 depressions were identified as suitable habitat for vernal pool branchiopods and sampled during the 2010/2011 wet survey season. The majority of depressions sampled were distributed randomly (i.e., not clustered in a particular area of the study site) in and adjacent to the existing railway ROW. The locations of the depressions are depicted on Figures 3a–j. The depressions detected on site were either: (1) road ruts: 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; or (2) ephemeral basins: surface depressions that retain sufficient water level, support aquatic vegetation, and generally lack vehicle disturbance. Of the 42 depressions sampled, 27 were considered road ruts and 15 were considered ephemeral basins (12 of the ephemeral basins were heavily disturbed and did not support native vegetation).

Fairy Shrimp Presence/Absence

Seven of the forty-two depressions sampled in the study area were found to be occupied by vernal pool branchiopods and all individuals were identified as versatile fairy shrimp (*Branchinecta lindahli*). Specifically, the depressions with fairy shrimp include depressions: WW, XX, ZZ, H, I, J, and K. No special-status vernal pool branchiopods were detected during the surveys. A summary of the survey results is provided below in Table 2 and the full Survey Log is included to this report as Appendix B.

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<tr>
<th>Basin ID</th>
<th>Branchiopod Species Observed</th>
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### Table 2

**2010/11 Vernal Pool Branchiopods Survey Results**

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<td>Fairy Shrimp Present; <em>Branchinecta lindahli</em>. Magnitude of individuals = 10's</td>
</tr>
<tr>
<td>J</td>
<td>Fairy Shrimp Present; <em>Branchinecta lindahli</em>. Magnitude of individuals = 100's</td>
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<td>K</td>
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Protocol-level sampling for the 2010/11 wet season was initiated approximately two weeks following the significant rain event on February 16, 2011. During this first sampling effort (March 1, 2011) 41 depressions were detected suitable for sampling; of which 7 yielded positive results for branchiopods. Although a few minor rain events occurred between the first visit and the second visit (March 18, 2011), there was a drastic reduction in the number of inundated depressions and only 14 depressions were sampled of the 41 initially detected (not including the 7 already determined positive from the first sampling visit) with no branchiopods detected.

During the third sampling visit on April 1, 2011, a total of 7 depressions were sampled with no branchiopods detected. A few rain events occurred between the third and fourth visit (April 15, 2011) resulting in 5 depressions sampled with no branchiopods detected. With the increase in air temperatures and continued lack of significant precipitation in the study area, all previously sampled depressions were dry during the fifth visit on April 29, 2011, consequently ending the surveys until subsequent precipitation events.

Significant rain storms in mid-May commenced ground surveys in which 3 depressions were sampled during the sixth visit on May 23, 2011, with no branchiopods detected. A new road rut type of depression was detected during the sixth visit increasing the total of depressions in the study area to 42. All depressions were observed dry during the seventh and final visit on June 6, 2011.

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

Please feel free to contact Kam Muri or myself at 760.942.5147 if you have any questions regarding the contents of this report.

Sincerely,

[Signature]

Thomas S. Liddicoat, Biologist
Permit # TE139634-2

Att: Figure 1, Regional Map
   Figure 2, Vicinity Map
   Figure 3, Survey Area Index
   Figures 3A–3J, Basin Locations
   Appendix A – Precipitation Log
   Appendix B – Survey Log
   Appendix C – Survey Data Forms
   Appendix D – Photo Exhibits

cc: Kamarul Muri, Dudek
    Brock Ortega, Dudek
REFERENCES CITED


FIGURE 1
Regional Map

Proposed LRT Alternative Alignments


Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
FIGURE 3
Survey Area

- **Basin Location**
- **Map Grid**
- Vegetation (See Map Book for Vegetation Data)
  - CSS = Diegan Coastal Sage Scrub
  - dCSS = disturbed Diegan Coastal Sage Scrub
  - DEV = Urban/Developed
  - dFWM = disturbed Coastal and Valley Freshwater Marsh
  - DH = Disturbed Habitat
  - dHW = disturbed Herbaceous Wetland
  - dSRF = disturbed Southern Riparian Forest
  - DW = Disturbed Wetland
  - EUC = Eucalyptus Woodland
  - NNG = Non-Native Grassland
  - NVC = Non-Vegetated Channel or Floodway
  - ORF = Southern Coast Live Oak Riparian Forest
  - ORN = Ornamental
  - SMX = Southern Mixed Chaparral
  - SRF = Southern Riparian Forest
  - SWS = Southern Willow Scrub

**SOURCE:** Bing Maps 2011.

Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
FIGURE 3C
Basin Locations
Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods

FIGURE 3H
Basin Locations


Basin Location
Map Grid
Vegetation (See Index Map for Vegetation Codes)

0 50 100 Feet

Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
FIGURE 3I
Basin Locations

Mid-Coast Corridor Transit Project - Wet Season Presence/Absence Survey for Vernal Pool Branchiopods

APPENDIX A

Precipitation Log
## 2010/11 Wet Season FS Precipitation Log

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APPENDIX C

Survey Data Forms
Survey Data Forms were provided to the U.S. Fish and Wildlife Service on October 10, 2011 and are available upon request.
APPENDIX D

Photo Exhibits
APPENDIX D
Photo Exhibits

Photo Exhibit 1
Basin AA - Photo taken 3/1/11

Photo Exhibit 2
Basin BB – Photo taken 3/1/11
Photo Exhibit 5
Basin EE – Photo taken 3/1/11

Photo Exhibit 6
Basin FF – Photo taken 3/1/11
Photo Exhibit 9
Basin II – Photo taken 3/1/11

Photo Exhibit 10
Basin JJ – Photo taken 3/1/11
Appendix D

Photo Exhibit 11
Basin KK – Photo taken 3/1/11

Photo Exhibit 12
Basin LL – Photo taken 3/1/11
Photo Exhibit 13
Basin MM – Photo taken 3/1/11

Photo Exhibit 14
Basin NN – Photo taken 3/1/11
Appendix D

Photo Exhibit 15
Basin OO – Photo taken 3/1/11

Photo Exhibit 16
Basin PP – Photo taken 3/1/11
Appendix D

Photo Exhibit 17
Basin QQ – Photo taken 3/1/11

Photo Exhibit 18
Basin RR – Photo taken 3/1/11
Appendix D

Photo Exhibit 19
Basins SS and TT – Photo taken 3/1/11

Photo Exhibit 20
Basin UU - Photo taken 3/1/11
Photo Exhibit 25
Basin A – Photo taken 3/1/11

Photo Exhibit 26
Basin B – Photo taken 3/1/11
Appendix D

Photo Exhibit 27
Basin C – Photo taken 3/1/11

Photo Exhibit 28
Basin D – Photo taken 3/3/11
Photo Exhibit 29
Basin E – Photo taken 3/3/11

Photo Exhibit 30
Basin F – Photo taken 3/3/11
Photo Exhibit 33
Basin I – Photo taken 3/3/11

Photo Exhibit 34
Basin J – Photo taken 3/3/11
Photo Exhibit 35
Basin K – Photo taken 3/3/11

Photo Exhibit 36
Basin L – Photo taken 3/3/11
Appendix D

Photo Exhibit 37
Basin M – Photo taken 3/3/11

Photo Exhibit 38
Basin N – Photo taken 3/3/11
Photo Exhibit 39
Basin O – Photo taken 3/3/11

Photo Exhibit 40
Basin P – Photo taken 5/23/11
2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods,
Mid-Coast Corridor Transit Project,
San Diego County, California
October 4, 2012

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
6010 Hidden Valley Road
Carlsbad, California 92011

Subject: 2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Mid-Coast Corridor Transit Project, San Diego County, California

Dear Recovery Permit Coordinator:

This report is intended to fulfill reporting requirements in accordance with the Section 10(a)(1)(A) permit and documents the results of a wet season presence/absence survey for vernal pool branchiopods conducted for the Mid-Coast Corridor Transit Project (project), located in the City of San Diego, San Diego County, California. According to the U.S. Fish and Wildlife Service (FWS) survey guidelines, a complete survey for vernal pool branchiopods consists of sampling for two full wet season surveys within a five-year period or two consecutive seasons of one wet season survey and one dry season survey. This report documents the second wet season survey for this project.

The 2012 survey was performed by Dudek biologists Paul Lemons (Permit # TE051248) and Thomas Liddicoat (Permit # TE139634) between November 17, 2011 and July 23, 2012. The survey focused on the determination of the presence/absence of two federally listed endangered vernal pool branchiopod species, Riverside fairy shrimp (Streptocephalus woottoni) and San Diego fairy shrimp (Branchinecta sandiegonensis), and was conducted according to the Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (FWS, 1996). The survey consisted of an inspection of all potential suitable habitat within the survey area, defined as the area within approximately 100 feet of the proposed project, and sampling of all water-filled depressions within the survey area. A total of 54 suitable depressions were identified and surveyed during this 2012 wet season survey. Of the 54 depressions sampled, nine depressions were found to be occupied with vernal pool branchiopods. San Diego fairy shrimp were identified in one depression. Versatile fairy shrimp (Branchinecta lynchi) were identified in the eight other occupied depressions within the survey area.
PROJECT LOCATION AND EXISTING CONDITIONS

The study area is located in the western portion of the City of San Diego and extends from the Old Town Transit Center (OTTC) north to University City, San Diego County, California (Figure 1). The study area is generally bounded by the Pacific Ocean to the west, the Interstate (I-) 5/I-805 junction to the north, I-805 and State Route 163 to the east, and the OTTC and Mission Valley to the south. The proposed alignment of the Build Alternative within the study area generally runs along the east side of I-5 from just south of I-8 at the OTTC north to University City, through the University of California, San Diego campus, and along Genesee Avenue (Figure 2). The survey area is situated on the U.S. Geological Survey 7.5 minute La Jolla quadrangle, Township 15 South, Range 3 West, in Sections 19, 30, and 31, and Township 16 South, Range 3 West, in Sections 5, 6, 8, 9, 16, 17, 20, 21, and 28.

The survey area consists of the existing railroad right-of-way; adjacent disturbed and developed lands; and native and non-native upland, riparian, and wetland vegetation communities. Soil series on site (Bowman, 1973) include: Altamont, Carlsbad, Chesterton, Corralitos, Gaviota, Huerhuero, Lagoon water, Made land, Salinas, Terrace escarpments, and Urban land. Soils that are potentially suitable to support vernal pool type-scenarios (i.e., ephemeral ponding) are those series that predominantly contain clay particles and are not well draining such as: Altamont clay, Salinas clay loam, Made land, and Urban land complexes.

Land uses within and adjacent to the survey area include single-family and multifamily residential, commercial, light industrial, park, and transportation uses.

VEGETATION COMMUNITIES, BASINS, AND LAND COVER TYPES

The study area supports twenty-four vegetation communities (twenty native/naturalized and four non-native communities) and was mapped by Dudek biologists in July through August 2010. These communities are characterized by Holland (1986) and Oberbauer et al. (2008) and include: disturbed wetland, disturbed habitat, ornamental, urban/developed, Diegan coastal sage scrub (including disturbed), southern mixed chaparral, non-native grassland, cismontane alkali marsh, coastal and valley freshwater marsh (including disturbed), herbaceous wetland, southern riparian forest (including disturbed), southern coast live oak riparian, southern arroyo willow riparian forest, southern riparian scrub, mulefat scrub (including disturbed), southern willow scrub (including disturbed), arundo-dominated riparian, non-vegetated channel/floodway, and eucalyptus woodland.

Potentially suitable habitats for vernal pool branchiopods in the survey area include: dirt areas in the existing right-of-way, relatively flat (less than 10 percent slope) vegetation areas adjacent to
the right-of-way, and dirt roads/trails that traverse the area to provide vehicular access to utilities (e.g., railroad, electrical poles, and sewer/storm water manholes). Descriptions of the potentially suitable vernal pool habitats (i.e., developed disturbed land, disturbed wetland, herbaceous wetland, and grassland communities) are described below.

**Disturbed Land**

Disturbed land refers to areas that typically lack native vegetation, support non-native vegetation, often contain bare ground, and is generally the result of severe or repeated mechanical perturbation. Disturbed land occurs throughout the survey area, is generally associated with the existing rail right-of-way, and includes dirt access roads/trails that traverse the survey area.

**Disturbed Wetland**

Disturbed wetlands are areas permanently or periodically inundated by water that have been severely modified by human activity. Disturbed wetlands are often unvegetated, but may include some scattered non-native vegetation such as giant reed (Arundo donax), tamarisk (Tamarix spp.), eucalyptus (Eucalyptus spp.), palms (Phoenix spp., Washingtonia spp.), pampas grass (Cortaderia spp.), and Bermuda grass. Native wetland species, such as willow (Salix spp.) and cattails (Typha spp.) also may occur. Disturbed wetlands occur throughout the survey area within and adjacent to the existing rail right-of-way.

**Herbaceous Wetland**

Herbaceous wetland is not recognized by Holland (1986), but is included in Oberbauer et al. (2008). This community is a seasonal wetland that primarily supports annual species, such as seep monkey flower (Mimulus guttatus) and annual beard grass (Polypogon monspeliensis). Herbaceous wetlands occur in swale areas or along drainages. Herbaceous wetlands usually do not include species such as cattails, bulrushes, and rushes that constitute freshwater marsh. As a seasonal community in San Diego County, herbaceous wetland may only occur during wetter than average years. A few herbaceous wetlands occur in the survey area adjacent to the existing rail right-of-way.

**Non-Native Grasslands**

According to Holland (1986), non-native grassland is characterized by a dense to sparse cover of annual grasses with flowering culms generally between 0.2 and 0.5 meter (0.7 and 1.6 feet) high, and sometimes up to 1 meter (3 feet) high. Some characteristic species include wild oat (Avena spp.), bromes (Bromus diandrus, B. madritensis, B. hordeaceus), filaree (Erodium spp.), and fescue (Vulpia...
spp.). In addition, non-native grassland is often associated with numerous species of wildflowers. Non-native grassland typically occurs on fine-textured clay soils that are moist to waterlogged during the winter rainy season and very dry during the summer and fall (Holland, 1986). The majority of non-native grassland on site occurs in the northeastern portion of the survey area along Rose Canyon.

PREVIOUS BRANCHIOPOD STUDIES

Dudek conducted wet season presence/absence surveys for vernal pool branchiopods within the survey area in early 2011. A general habitat assessment to evaluate the potential for vernal pool branchiopods within the survey area was conducted by Dudek in February 2011 prior to conducting protocol-level surveys. To our knowledge, no focused surveys for vernal pool branchiopods have been conducted within the survey area prior to the 2011 wet season survey.

SURVEY METHODS

The entire survey area was evaluated on-foot to provide 100 percent visual coverage of the site (Figure 3). Onset of significant rain events (i.e., greater than 0.20 inch) for the 2011/12 wet season began on November 12, 2011, thus wet season surveys commenced on November 17 and 18, 2011. During this initial survey, all potentially suitable depressions were mapped (or confirmed from previous mapping) and protocol level branchiopod sampling was performed.

All inundated basins were surveyed at approximately 2-week intervals until basins dried up or until 120 days elapsed. Basins that dried up, then refilled were surveyed within 7 days of refilling and surveys were re-initiated. During the 2011/12 wet season survey, the project was surveyed 21 times. A schedule of the survey season is presented in Table 1.

Table 1

2011/12 Schedule of Surveys and Conditions

<table>
<thead>
<tr>
<th>Survey Number</th>
<th>Biologist</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>TSL</td>
<td>November 17 and 18, 2011</td>
</tr>
<tr>
<td>2</td>
<td>TSL</td>
<td>November 30 and December 1, 2011</td>
</tr>
<tr>
<td>3</td>
<td>PML</td>
<td>December 14 and 19, 2011</td>
</tr>
<tr>
<td>4</td>
<td>PML</td>
<td>December 28, 2011</td>
</tr>
<tr>
<td>5</td>
<td>PML</td>
<td>January 11, 2012</td>
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<tr>
<td>6</td>
<td>PML</td>
<td>January 19, 2012</td>
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<td>7</td>
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<td>8</td>
<td>PML</td>
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<td>9</td>
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<td>February 22, 2012</td>
</tr>
<tr>
<td>10</td>
<td>PML</td>
<td>March 5, 2012</td>
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</table>
The surveys were conducted by Dudek biologists Paul Lemons (PML; Permit # TE051248) and Thomas Liddicoat (TSL; Permit # TE139634). All identified basins within the survey area were evaluated during each site visit to determine inundation levels and sampling was performed where appropriate. Daily precipitation was monitored for weather station KCASANDI106 in Clairemont, California (Weather Underground Inc., 2011-2012).

Protocol-level sampling was performed within all basins that were deemed suitable for use by fairy shrimp and any depressions meeting the FWS inundation requirement (ponding at least 3 centimeters deep). The locations of detected basins sampled were recorded using a Global Positioning System (GPS) unit and were alphabetically labeled (Figure 3A to Figure 3I). GPS data were downloaded into an ArcGIS file and digitized by Dudek Geographic Information Systems (GIS) specialist Jeff Kubran.

During each survey all depressions were inspected for depth, surface area of water, air and water temperature, level of disturbance, and presence of aquatic wildlife. An aquarium net was passed through every basin that met the FWS inundation requirement. All portions of ponded water were surveyed from the bottom to the surface.

All information was recorded in the field onto a data sheet as provided in the survey protocol with the most pertinent information (e.g., inundation, fairy shrimp presence/absence, and species identification) recorded onto a spreadsheet Survey Log (Appendix A). Data sheets were completed for every depression that met the minimum FWS inundation requirement at the time of sampling (Appendix B). Photographs of the basins sampled are attached to this report as Appendix C.

Source: Dudek, 2012
Samples were collected, when needed, using the aquarium net and a 40 milliliter glass vial. Specimens were stored in the vial with water collected from where the specimen was found. Specimens were taken to the laboratory within 24 hours of collection and placed in a 90 percent ethyl alcohol solution for preservation. Each specimen was inspected thoroughly using a dissecting microscope. Eriksen and Belk (1999) was used to determine the species of each specimen collected.

SURVEY RESULTS

Basin Descriptions

A total of 54 depressions were identified as suitable habitat for vernal pool branchiopods and sampled during the 2011/2012 wet survey season. The majority of depressions sampled were distributed randomly (i.e., not clustered in a particular area) in and adjacent to the existing railway right-of-way. The locations of the depressions are depicted in Figure 3A to Figure 3I. The depressions detected on site were either: (1) road ruts: 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; or (2) ephemeral basins: surface depressions that retain sufficient water level, support aquatic vegetation, and generally lack vehicle disturbance. Of the 54 depressions sampled, 32 were considered road ruts and 22 were considered ephemeral basins.

Fairy Shrimp Presence/Absence

Nine of the 54 depressions sampled in the survey area were found to be occupied by vernal pool branchiopods. San Diego fairy shrimp were found in one depression (Pool BB, see Figure 3H). All other fairy shrimps found on site were identified as versatile fairy shrimp. Depressions with versatile fairy shrimp include depressions: G, H, J, K, XX, ZZ, FFF, and GGG. A summary of the survey results is provided below in Table 2 and the full Survey Log is included in this report (Appendix A).

Table 2

<table>
<thead>
<tr>
<th>2011/12 Vernal Pool Branchiopods Survey Results</th>
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<td><strong>Basin ID.</strong></td>
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<tr>
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<tr>
<td>CC</td>
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<td>EE</td>
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Table 2
2011/12 Vernal Pool Branchiopods Survey Results

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<th>Branchiopod Species Observed</th>
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</thead>
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<td>None</td>
</tr>
<tr>
<td>II</td>
<td>None</td>
</tr>
<tr>
<td>JJ</td>
<td>None</td>
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<td>KK</td>
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<td>VV</td>
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<tr>
<td>WW</td>
<td>None</td>
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<td>XX</td>
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<tr>
<td>YY</td>
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<tr>
<td>F</td>
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</tr>
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<td>G</td>
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<td>H</td>
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<tr>
<td>I</td>
<td>None</td>
</tr>
<tr>
<td>J</td>
<td>Fairy Shrimp Present; <em>Branchinecta lindahli</em>. Magnitude of individuals = 100’s</td>
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<td>K</td>
<td>Fairy Shrimp Present; <em>Branchinecta lindahli</em>. Magnitude of individuals = 100’s</td>
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<td>M</td>
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## Table 2

### 2011/12 Vernal Pool Branchiopods Survey Results

<table>
<thead>
<tr>
<th>Basin ID</th>
<th>Branchiopod Species Observed</th>
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<tr>
<td>CCC</td>
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<td>None</td>
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<tr>
<td>EEE</td>
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<tr>
<td>FFF</td>
<td>Fairy Shrimp Present; <em>Branchinecta lindahlia</em>. Magnitude of individuals = 100's</td>
</tr>
<tr>
<td>GGG</td>
<td>Fairy Shrimp Present; <em>Branchinecta lindahlia</em>. Magnitude of individuals = 10's</td>
</tr>
<tr>
<td>HHH</td>
<td>None</td>
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<tr>
<td>III</td>
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<td>JJJ</td>
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<td>KKK</td>
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</tr>
<tr>
<td>LLL</td>
<td>None</td>
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</tbody>
</table>

All required data collection information per the survey guidelines (FWS, 1996) was recorded and is included as Appendices A through C of this report.

I certify that the information presented in this survey report and attached exhibits fully and accurately represents my work. Please feel free to contact Kam Muri or Paul Lemons at 760.942.5147 if you have any questions regarding the contents of this report.

Sincerely,

Paul Lemons
TE051248

Thomas Liddicoat
TE139634

Att:  Figure 1, Regional Map  
   Figure 2, Vicinity Map  
   Figure 3A, Survey Area Index  
   Figures 3B–3I, Basin Locations  
   Appendix A – Survey Log  
   Appendix B – Survey Data Forms  
   Appendix C – Photo Exhibits

cc:  Kamarul Muri, Dudek
REFERENCES CITED


FIGURE 1
Regional Map

Survey Area

2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project, San Diego County California
FIGURE 2
Vicinity Map

-source: USGS 7.5-Minute Series Del Mar, La Jolla, and Point Loma Quadrangles.

Dudek
6099-3-3
September 2012

2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project, San Diego County California
2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopoda
Mid-Coast Corridor Transit Project, San Diego County, California

FIGURE 3B
Fairy Shrimp Basins Map Book


\HQTR-DATA1\Gisdata\Projects\j609901\MAPDOC\MAPS\2012 Fairy Shrimp\Survey Report\Figure 3B Fairy Shrimp Map Series.mxd

6099-3-3
SEPTEMBER 2012

GGG = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 10's
H = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 100's
J = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 1000's
K = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 10000's

Limits of Work
Basin Location
Basin Location with Species
2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project, San Diego County, California

FIGURE 3C

Fairy Shrimp Basins Map Book

Basin Location
Basin Location with Species
G = Versatile Fairy Shrimp (Branchinecta Lindahli), Magnitude of Individuals = 10's
Limits of Work


\HQTR-DATA1\Gisdata\Projects\j609901\MAPDOC\MAPS\2012 Fairy Shrimp\Survey Report\Figure 3C Fairy Shrimp Map Series.mxd

SEPTEMBER 2012
6099-3-3

G = Versatile Fairy Shrimp (Branchinecta Lindahli), Magnitude of Individuals = 10's
Basin Location

Basin Location with Species

FFF = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 100's
XX = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 100's
ZZ = Versatile Fairy Shrimp (Branchinecta lindahli), Magnitude of Individuals = 100's

Limits of Work

2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project, San Diego County, California.

FIGURE 3E
Fairy Shrimp Basins Map Book
FIGURE 3G

Fairy Shrimp Basins Map Book


2012 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods
Mid-Coast Corridor Transit Project, San Diego County, California
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Basin Location
Basin Location with Species
BB = San Diego Fairy Shrimp (Branchinecta sandiegoensis), Magnitude of Individuals = 2 Males

Limits of Work

FIGURE 3H
Fairy Shrimp Basins Map Book


10212 Wet Season Presence/Absence Survey for Vernal Pool Branchiopoda
Mid-Coast Corridor Transit Project, San Diego County, California
APPENDIX A

Survey Log
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- **Pass #1:** 11/17-18/2011
- **Pass #2:** 11/30-12/1/2011
- **Pass #3:** 12/14 & 12/19
- **Pass #4:** 12/28 & 12/29/11
- **Pass #5:** 1/11/2012
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**Notes:**
- **R** indicates the station is within the River system.
- **W** indicates the station is within the Watershed system.
- **G** indicates the station is within the Watershed/g3 system.
- **L** indicates the station is within the Lindahli system.

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**Notes:**
- Wet/Dry: Indicates dryness status (Dry/Wet).
- Notes: Additional notes for specific conditions or observations.
APPENDIX B

Survey Data Forms
Survey Data Forms were provided to the U.S. Fish and Wildlife Service on October 4, 2012 and are available upon request.
APPENDIX C
Representative Photos
<table>
<thead>
<tr>
<th>Pool A (basin)</th>
<th>Pool BB (basin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pools AAA and BBB (road rut)</td>
<td>Pool CC (basin)</td>
</tr>
<tr>
<td>Pool DD (road rut)</td>
<td>Pool E (road rut)</td>
</tr>
<tr>
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</tr>
<tr>
<td>Pool EE (road rut)</td>
<td>Pools CCC, DDD, and EEE (basin)</td>
</tr>
<tr>
<td>Pool FF (road rut)</td>
<td>Pool G (basin)</td>
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<tr>
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<tr>
<td>Pool GGG (road rut)</td>
<td>Pool HH (basin)</td>
</tr>
<tr>
<td>Pool HHH (basin)</td>
<td>Pool III (basin)</td>
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<tr>
<td>Pool J (road rut)</td>
<td>Pool JJJ (basin)</td>
</tr>
<tr>
<td>Pool L (road rut)</td>
<td>Pool LL (road rut)</td>
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<tr>
<td>Pool MM (road rut)</td>
<td>Pool NN (basin)</td>
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<tr>
<td>Pool O (basin)</td>
<td>Pool OO (basin)</td>
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</tr>
<tr>
<td>Pool P (basin)</td>
<td>Pool PP (basin)</td>
</tr>
<tr>
<td>Pool QQ (basin)</td>
<td>Pool XX (road rut)</td>
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<td>-------------------</td>
</tr>
<tr>
<td>Pool YY (road rut)</td>
<td>Pool ZZ (road rut)</td>
</tr>
</tbody>
</table>
Appendix C
USFWS Notification Correspondence
From: Paul Lemons  
To: Carmen Jhori Nuri  
Subject: FW: Notification of presence of San Diego fairy shrimp- Mid-Coast Corridor Transit Project  
Date: Friday, March 28, 2014 9:45:36 AM

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From: Paul Lemons  
Sent: Tuesday, March 18, 2014 8:10 AM  
To: stacey_love@fws.gov  
Subject: Notification of presence of San Diego fairy shrimp- Mid-Coast Corridor Transit Project

Dear Recovery Permit Coordinator,

In accordance with the April 19, 1996, Interim Survey Guideline to Permittees for Recovery Permits under Section 10(o)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods, this email serves as notification of presence of San Diego fairy shrimp (Branchinecta sandiegoensis) within one inundated basin (Pool ii) at the Mid-Coast Corridor Transit Project.

Four voucher specimens (3 males and 1 female) were collected on March 10, 2014 (within 10 days of this email) and positively identified as San Diego fairy shrimp. These four individuals will be properly accessioned with the Natural History Museum of Los Angeles County.

If you require any additional information regarding this notification, please contact me at 760-479-4238 or plemons@dudek.com.

Thank you,

Paul Lemons  
Wildlife Biologist  
DUDEK  
605 Third Street  
Encinitas, CA 92024  
T: 760.479.4238  
F: 760.632.8710  
www.dudek.com