Appendix B

B.1 Biological Assessment
B.2 Biological Evaluation
B.3 Biological Opinion
Appendix B.1

Biological Assessment

(Appendices Not Included with the Final Environmental Impact Statement)
Biological Assessment

Tehachapi Renewable Transmission Project

KERN, LOS ANGELES, AND SAN BERNARDINO COUNTIES
CALIFORNIA

CEQA Lead Agency
California Public Utilities Commission
Energy Division

NEPA Lead Agency
USDA Forest Service
Angeles National Forest

Prepared by:
USDA FOREST SERVICE
ARMY CORPS OF ENGINEERS

December 2009
TEHACHAPI RENEWABLE TRANSMISSION PROJECT
BIOLOGICAL ASSESSMENT

KERN, LOS ANGELES, AND SAN BERNARDINO COUNTIES
CALIFORNIA

USDA FOREST SERVICE
ARMY CORPS OF ENGINEERS
CALIFORNIA PUBLIC UTILITIES COMMISSION

December 2009

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TEHACHAPI RENEWABLE TRANSMISSION PROJECT
BIOLOGICAL ASSESSMENT

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Project Manager, California Public Utilities Commission
# Tehachapi Renewable Transmission Project Biological Assessment

## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Project Sponsor</td>
<td>2</td>
</tr>
<tr>
<td>1.2 Agency Coordination</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Management for the Angeles National Forest</td>
<td>3</td>
</tr>
<tr>
<td>1.4 Management for USACE Lands</td>
<td>4</td>
</tr>
<tr>
<td>2. Background</td>
<td>5</td>
</tr>
<tr>
<td>2.1 Project Location</td>
<td>6</td>
</tr>
<tr>
<td>2.2 Project Analysis Area and Scope of Analysis</td>
<td>6</td>
</tr>
<tr>
<td>2.3 Applicant Proposed Measures</td>
<td>7</td>
</tr>
<tr>
<td>2.4 Mitigation Measures</td>
<td>7</td>
</tr>
<tr>
<td>2.5 Best Management Practices</td>
<td>29</td>
</tr>
<tr>
<td>2.6 Sedimentation Analysis on the ANF</td>
<td>29</td>
</tr>
<tr>
<td>2.7 Proposed Action</td>
<td>32</td>
</tr>
<tr>
<td>3. Affected Environment</td>
<td>51</td>
</tr>
<tr>
<td>4. Federally Listed Species</td>
<td>66</td>
</tr>
<tr>
<td>5. Effects of the Proposed Action and Determination Statements</td>
<td>81</td>
</tr>
<tr>
<td>5.1 Federally Listed Plants</td>
<td>81</td>
</tr>
<tr>
<td>5.2 Federally Listed Wildlife</td>
<td>92</td>
</tr>
<tr>
<td>6. Preparers and Reviewers</td>
<td>159</td>
</tr>
<tr>
<td>7. References</td>
<td>160</td>
</tr>
</tbody>
</table>

## Appendices

A. Vegetation Maps
B. Habitat Suitability and Assessment
   B.1 Habitat Assessment for the Southwestern Willow Flycatcher and Yellow-Billed Cuckoo
   B.2 Habitat Assessment for the California Condor
   B.3 Habitat Assessment for the Coastal California Gnatcatcher
   B.4 Habitat Assessment for the Least Bell’s Vireo
   B.5 Habitat Assessment for the Arroyo Toad
   B.6 Habitat Assessment for the California Red-Legged Frog and Mountain Yellow-Legged Frog
   B.7 Habitat Assessment for the Desert Tortoise
   B.8 Habitat Assessment for the Santa Ana Sucker and Unarmored Threespine Stickleback
C. SCE’s Survey Reports from 2007 through 2009
D. Discussion Regarding Development of the Tehachapi Wind Resource Area
# List of Tables

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
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<tr>
<td>19</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>21</td>
</tr>
</tbody>
</table>

# List of Figures

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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</tr>
</tbody>
</table>
1. INTRODUCTION

This biological assessment (BA) was prepared to support the permitting and approval process for the construction and maintenance of the proposed Tehachapi Renewable Transmission Project (TRTP) in Kern, Los Angeles, and San Bernardino Counties. The purpose of this BA is to review the proposed TRTP in sufficient detail to determine to what extent the proposed action may affect any threatened, endangered, proposed, and candidate (TE) wildlife, fish, and plant species of record for the project area. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)). In addition, Forest Service Manual 2672.4 specifies that a biological evaluation be prepared to determine if a project may affect any US Fish and Wildlife Service (FWS) threatened, endangered, candidate, proposed species, or its listed critical habitat.

Coordination with regulatory and resource agency personnel, field surveys, consultation with technical experts, and review of pertinent biological and management literature occurred as part of the analysis. The species considered in this document are identified in Table 1 and are federally listed threatened, endangered, and candidate species. There are no known federally proposed species within the project analysis area. Several species identified in Table 1 including the San Bernardino kangaroo rat, Stephen’s kangaroo rat, Riverside fairy shrimp, Delhi sands flower-loving fly, and Quino checkerspot butterfly have not been carried forward for analysis as they have been determined to either occur outside the range of the proposed Project or have no known historic or currently occupied habitat within the Project analysis area. Each of the species carried forward for analysis are presented in detail in Section 5 (Federally Listed Species).

Table 1. Species Considered for Analysis in this BA

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Critical Habitat</th>
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<tr>
<td><strong>PLANTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Braunton’s Milk-Vetch</td>
<td>Astragalus brauntonii</td>
<td>E</td>
<td>Designated</td>
</tr>
<tr>
<td>Nevin’s Barberry</td>
<td>Berberis nevini</td>
<td>E</td>
<td>Designated</td>
</tr>
<tr>
<td>Thread-leaved Brodiaea</td>
<td>Brodiaea filifolia</td>
<td>T</td>
<td>Designated</td>
</tr>
<tr>
<td>Slender-horned Spineflower</td>
<td>Dodecaphila leptoceras</td>
<td>E</td>
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</tr>
<tr>
<td><strong>BIRDS</strong></td>
<td></td>
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<tr>
<td>Southwestern Willow Flycatcher</td>
<td>Empidonax trailli extimus</td>
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<td>Designated</td>
</tr>
<tr>
<td>California Condor</td>
<td>Gymnogyps californianus</td>
<td>E</td>
<td>Designated</td>
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<tr>
<td>Coastal California Gnatcatcher</td>
<td>Poliopilia californica californica</td>
<td>T</td>
<td>Designated</td>
</tr>
<tr>
<td>Least Bell’s Vireo</td>
<td>Vireo bellii pusillus</td>
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<td><strong>MAMMALS</strong></td>
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<tr>
<td>San Bernardino Kangaroo Rat</td>
<td>Dipodomys merriami parvus</td>
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<tr>
<td>Stephen’s Kangaroo Rat</td>
<td>Dipodomys stephensi</td>
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<td><strong>AMPHIBIANS</strong></td>
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<tr>
<td>Arroyo Toad</td>
<td>Bufo californicus (microscaphus)*</td>
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<td>California Red-legged Frog</td>
<td>Rana aurora draytonii **</td>
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<tr>
<td>Southern Mountain Yellow-legged Frog (southern California DPS)</td>
<td>Rana muscosa</td>
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<td><strong>REPTILES</strong></td>
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<tr>
<td>Desert tortoise</td>
<td>Gopherus agassizii</td>
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<td>Designated</td>
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</table>
**Table 1. Species Considered for Analysis in this BA**

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<thead>
<tr>
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</thead>
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<td><strong>FISH</strong></td>
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<td></td>
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<td>Santa Ana Sucker</td>
<td><em>Catostomus santaanae</em></td>
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<tr>
<td>Unarmored Threespine Stickleback</td>
<td><em>Gasterosteus aculeatus williamsoni</em></td>
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<tr>
<td><strong>INVERTEBRATES</strong></td>
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<td></td>
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<td>Quino Checkerspot Butterfly</td>
<td><em>Euphydryas editha quino</em></td>
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<td>Delhi Sands Flower-Loving Fly</td>
<td><em>Rhaphiomidas terminatus abdominalis</em></td>
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</tr>
<tr>
<td>Riverside Fairy Shrimp</td>
<td><em>Streptocephalus woottoni</em></td>
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<tr>
<td><strong>PLANTS</strong></td>
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<tr>
<td>San Fernando Valley Spineflower</td>
<td><em>Chorizanthe parryi var. fernandina</em></td>
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<tr>
<td>Brand’s phacelia</td>
<td><em>Phacelia stellaris</em></td>
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<td><strong>BIRDS</strong></td>
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<tr>
<td>Western Yellow-billed Cuckoo</td>
<td><em>Coccyzus americanus</em></td>
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</tbody>
</table>

E = Federally Endangered  
T = Federally Threatened  
C = Federal Candidate Species  
*Has been scientifically renamed to *Anaxyrus californicus.*  
**Has been scientifically renamed to *Rana draytonii.*

### 1.1 Project Sponsor

The United States Department of Agriculture (USDA) Forest Service is the Lead Agency under the National Environmental Policy Act (NEPA) and the California Public Utilities Commission (CPUC) is the Lead Agency under the California Environmental Quality Act (CEQA). The United States Army Corps of Engineers (USACE) is considered a Cooperating Agency and Southern California Edison (SCE) has been granted Applicant Status by the Forest Service. For the purposes of this BA, the USDA Forest Service is the Lead Agency for Consultation under the Endangered Species Act (ESA).

### 1.2 Agency Coordination

Coordination and informal consultation with the FWS has been initiated to discuss biological concerns related to the TRTP. A summary of the coordination and consultation to date is provided below.

- Forest Service met with a representative from the Carlsbad and one from Ventura Field Offices of the USFWS on August 9, 2008. The purpose of the meeting was to describe an overview of the project and inquire on any new direction that the USFWS may have for the species found within the project. Forest Service received concurrence on the species to be addressed within the project.
- Forest Service received detailed information on species direction on December 17, 2008 from the Ventura Field Office.
- Forest Service confirmed on March 30, 2009 with the Ventura Field Office that the Carlsbad Field Office would be the lead contact office, and the Carlsbad Field Office would coordinate with the Ventura Field Office for Formal Review. Informal contact will still be coordinated with both the Carlsbad and Ventura Field Offices.
- Forest Service received confirmation from the Carlsbad Field Office that an informal review of the project area may not be necessary on April 23, 2009.
- On May 27, 2009, Forest Service sent a draft Biological Assessment to the Carlsbad and Ventura Field Office of the FWS and requested an informal review of the material.
• On June 2, 2009, Forest Service scheduled a conference call with the Carlsbad and Ventura Field Offices of the FWS to determine the extent of the concerns with the draft Biological Assessment.

• On June 15 and 17, Forest Service and FWS preliminarily discussed the concerns with the draft Biological Assessment. Agreement was to meet in the field to look at the key species and areas of concern.

• On July 1, 2009, Forest Service contacted the Ventura Office of the FWS to discuss specific concerns regarding the desert tortoise and impacts to this species from common ravens.

• Forest Service, USACE, SCE, and Aspen met in the field with representatives from the Carlsbad Office of the FWS to review and discuss concerns for coastal California gnatcatcher, least Bell’s vireo, western yellow-billed cuckoo, and southwestern willow flycatcher on July 13, 2009.

• Forest Service, SCE, and Aspen met in the field with representatives from the Carlsbad and Ventura Offices of the FWS to review and discuss concerns for the arroyo toad, California condor, and desert tortoise on July 15, 2009.

• Forest Service, SCE, and Aspen had a conference call with representatives from the Carlsbad and Ventura Offices of the FWS to discuss the potential for the California gnatcatcher on the Angeles National Forest on August 20, 2009.

• On September 11 and 14, 2009, the Forest Service contacted the Carlsbad and Ventura offices of the FWS regarding the Station Fire. FWS determined no field trip was necessary to view the fire area with respect to the TRTP.

• On October 29, 2009, the Forest Service contacted the Carlsbad Office of the FWS regarding the newly discovered population of California red-legged frog in Aliso Canyon.

• On November 2, 16, and 17, 2009, Forest Service contacted the Carlsbad office of the FWS to discuss concerns regarding the potential for Delhi Sands flower-loving fly in the project area.

• On December 2, 2009, Forest Service sent a revised draft Biological Assessment to the Carlsbad and Ventura Field Office of the FWS and requested an informal review of the material.

• Forest Service, SCE, and Aspen met in the field and in the office with representatives from the Carlsbad and Ventura Offices of the FWS to review and discuss the draft Biological Assessment on December 15, 2009.

1.3 Management for the Angeles National Forest

Specific management direction for the area of the Proposed Action located within the Angeles National Forest can be found within the Angeles National Forest Land and Resources Management Plan (2005). The decision to perform these land management activities on these specific areas was included in the Environmental Impact Statement (EIS) for the Angeles National Forest FLMP (USDA Forest Service 2005). Specific direction includes:

• The Southern California National Forests Plan, Standard 5 states: Treat all freshly cut live or recently dead conifer stumps with a registered fungicide to prevent the establishment of annosus root disease.

• The Southern California National Forests Plan, Standard 6 states: Seed to be used on National Forest System lands will be certified to be free of noxious weeds. Where available, only locally collected native seed will be used, or seeds will be used from species that are noninvasive and nonpersistent. When available, wattles, mulch and livestock feed to be used on National Forest System lands will be certified to be free of noxious weeds.

• The Southern California National Forests Plan, Standard 11 states: When occupied or suitable habitat for a threatened, endangered, proposed, candidate or sensitive (TEPCS) species is present on an ongoing or proposed project site, consider species guidance documents to develop project-specific or activity-specific design criteria. This guidance is intended to provide a range of possible conservation measures that may be selectively applied during site-specific planning to avoid, minimize or mitigate negative long-term effects on
threatened, endangered, proposed, candidate or sensitive species and habitat. Involve appropriate resource specialists in the identification of relevant design criteria. Include review of species guidance documents in fire suppression or other emergency actions when and to the extent practicable.

- The Southern California National Forests Plan, Standard 12 states: When implementing new projects in areas that provide for threatened, endangered, proposed, and candidate species, use design criteria and conservation practices so that discretionary uses and facilities promote the conservation and recovery of these species and their habitats. Accept short-term impacts where long-term effects would provide a net benefit for the species and its habitat where needed to achieve multiple-use objectives.

- The Southern California National Forests Plan, Standard 18 states: Protect known active and inactive raptor nest areas. Extent of protection will be based on proposed management activities, human activities existing at the onset of nesting initiation, species, topography, vegetative cover, and other factors. When appropriate, a no-disturbance buffer around active nest sites will be required from nest-site selection to fledging.

- The Southern California National Forests Plan, Standard 22 states: Except where it may adversely affect threatened and endangered species, linear structures such as fences, major highways, utility corridors, bridge upgrades or replacements, and canals will be designed and built to allow for fish and wildlife movement.

- The Southern California National Forests Plan, Standard 24 states: Mitigate impacts of on-going uses and management activities on threatened, endangered, proposed, and candidate species.

- The Southern California National Forests Plan, Standard 25 states: Conduct road and trail maintenance activities during the season of year that would have the least impact on threatened, endangered, and proposed wildlife species in occupied habitats, except as provided by site-specific consultation.

- The Southern California National Forest Plan, Standard 28 is specific to condors. It states: Avoid or minimize disturbance to breeding and roosting California condors by prohibiting or restricting management activities and human uses within 1.5 miles of active California condor nest sites and within 0.5 miles of active roosts.

- The Southern California National Forests Plan, Standard 32 states: When surveys for species presence/absence are done for threatened, endangered, and proposed species, use established survey protocols, where such protocols exist.

- The Southern California National Forests Plan, Standard 42 states: Include provisions for raptor safety when issuing permits for new power lines and communication sites. Also implement these guidelines for existing permits within one year in identified high-use flyways of the California condor, and within five years in other high-use raptor flyways.

- Forest Service manual 2670.21 states: “Manage National Forest System habitats and activities for threatened and endangered species to achieve recovery objectives so that special protection measures provided under the Endangered Species Act are no longer necessary”

- Department Regulations 9500-4 states: (1) “Consideration will be given to fish and wildlife and their habitats in developing programs for these lands. Alternatives that maintain or enhance fish and wildlife habitat should be promoted. When compatible with use objectives for the area, management alternatives which improve habitat will be selected.” (2) “It is the policy of the Department to assure that the values of fish and wildlife are recognized, and that their habitats, both terrestrial and aquatic, including wetlands, are recognized, and enhanced, where possible, as the Department carries out its overall missions.” (3) “The Department will conduct its activities and programs to assist in the identification and recovery of threatened and endangered plant and animal species and to avoid actions which may cause a species to become threatened or endangered”.

### 1.4 Management for the USACE Lands

The U.S. Army Corps of Engineers (USACE) is responsible for the planning, design, construction and operation of water resources and other civil works projects, the design and construction management of military facilities for the U.S. Army and U.S. Air Force, and providing design and construction
management support for other U.S. defense departments and federal agencies (USACE, 2008). The Corps’ Los Angeles District encompasses 226,000 square miles in four states, protects 420 miles of Southern California, and supports nine military bases (USACE, 2008). Within the proposed Project area, the USACE holds jurisdiction over all “navigable waters of the United States,” as well as several flood control basins and dams and associated infrastructure. These flood control facilities include the Santa Fe Flood Control Basin, located along Segment 7 between approximately MP 2.7 and MP 4.4, and the Whittier Narrows Flood Control Dam and Basin, located along both Segment 7 between approximately MP 11.4 and MP 13.7 and Segment 8A between approximately MP 3.2 and MP 4.2. USACE lands are also traversed for an estimated 0.2 mile near the Rio Hondo Substation, located along Segment 7 near MP 4.8.

USACE manages Civil Works properties for several purposes. Flood control is the primary purpose, but recreation and environmental stewardship of natural and cultural resources on USACE-controlled lands are mandated by management plans. Under USACE requirements, master plans must focus on (1) regional and ecosystem needs, (2) project resource capabilities and suitability, and (3) expressed public interests and desires (USACE, 2009).

2. BACKGROUND

The purpose of the proposed TRTP is to provide the electrical facilities necessary to interconnect and integrate up to approximately 4,500 megawatts (MW) of new wind generation in the Tehachapi Wind Resource Area (TWRA) currently being planned and expected in the future, thereby enabling SCE and other California utilities to comply with the California Renewables Portfolio Standard in an expedited manner (i.e., 20 percent renewable energy by year 2010 per California Senate Bill 107); to address the reliability needs of the CAISO-controlled grid due to projected load growth in the Antelope Valley; and, to address the transmission constraints south of Lugo, an ongoing source of concern for the Los Angeles Basin. Approximately 173 miles of transmission lines would be installed, replaced or upgraded to accommodate the electrical load (Figure 1 located at the end of this report).

While one objective of the TRTP is to provide capacity for new wind generation sources in the TWRA, this line would be available and used to carry electricity from multiple other generation sources. Future wind development projects in the TWRA are not connected actions to TRTP and are outside the scope of the Proposed Action for this Biological Assessment (BA) and the environmental analysis under NEPA and CEQA. Approval of the proposed TRTP or any alternative would not result in approval of any wind generation projects, and any future wind generation projects would be subject to separate environmental review. Wind generation projects in the TWRA are actions that are not under the jurisdiction of the USDA Forest Service, California Public Utilities Commission, or US Army Corps of Engineers. Therefore, energy developments within the TWRA are not interrelated or interdependent actions to the TRTP, nor shall they be evaluated as effects of the Proposed Action in this BA.

The proposed TRTP traverses several geographical and ecological zones. From its northernmost extent near Tehachapi, the project passes through the City of Lancaster, the City of Palmdale, and the Antelope Valley in the western Mojave Desert, spans the Sierra Pelona and San Gabriel Mountains within the ANF, and extends through the San Gabriel Valley to the City of Ontario. Collectively, these areas contain a diversity of flora and fauna that include many rare, threatened, and endangered plants and animals, and comprise sensitive vegetation communities.
TRTP project impacts include construction of structures such as new towers and substations, and improvements to existing roads as well as construction of new roads that will be maintained throughout the project. Project impacts are considered permanent if they involve the conversion of land to a new use, such as with the construction of new roads or the footings of towers. Temporary project impacts are those effects that do not result in a permanent land use conversion. Temporary effects to vegetation communities or other ground disturbance activities restricted solely to the construction phase, such as grading roads and clearing vegetation within staging and pulling areas, are considered temporary provided that native vegetation is not replaced with infrastructure or the area is not maintained free of vegetation, and that restoration is deemed feasible prior to project implementation.

### 2.1 Project Location

The TRTP passes through the City of Lancaster, the City of Palmdale, and the Antelope Valley in the western Mojave Desert, spans the Sierra Pelona and San Gabriel Mountains within the Angeles National Forest (ANF), and extends through the San Gabriel Valley to the City of Ontario. We will discuss the TRTP in terms of seven named segments of transmission line that are to be replaced or installed over this geographic area (Figure 1). Furthermore, the TRTP is evaluated regionally with location-specific discussions of sensitive habitats, and special-status plant and animal species. Due to the diversity of habitats within the TRTP project area, and for purposes of simplifying discussions in this BA, the Project was divided according to dominant habitat characteristics, and the baseline conditions are described in relation to the following three regions:

- **Northern Region.** This region includes all portions of the TRTP located between the Windhub Substation south of Tehachapi in southern Kern County and the northern boundary of the ANF, located in northern Los Angeles County. This region includes Segments 4, 5, and 10, northern portions of 6 and 11, substation construction (Whirlwind), and substation improvements (Antelope and Vincent).

- **Central Region.** This region includes all portions of the TRTP located in the ANF, including Segment 6 and the majority of Segment 11.

- **Southern Region.** This region includes all portions of the TRTP located south of the ANF within Los Angeles County and San Bernardino County. This region includes Segments 7 and 8, southern portions of Segment 11, and all associated substation improvements (Gould, Mesa, and Mira Loma).

### 2.2 Project Analysis Area and Scope of Analysis

The project area is defined as the Project ROW plus a 1,000-foot buffer around the ROW. Where access roads or staging areas fall outside of the 1,000-foot corridor, those are included as part of the project area (this generally occurs on the ANF). The Project footprint includes only areas proposed for disturbance, such as tower sites, staging areas, and spur roads.

The area considered in the analysis of the effects to each species associated with the TRTP generally encompasses the project area. However, the analysis area was modified in some cases commensurate with the life history of the species being evaluated. For example, for some plant species the area of potential effects is limited to the actual disturbance areas (tower sites, etc.) and a small buffer around the proposed disturbance site. This buffer considers potential effects from fugitive dust and hydrological alterations from grading or vegetation clearing. For songbirds, a one-mile buffer around the Project was utilized as the analysis area because high mobility and potential disturbance from helicopter use could lead to effects to these species far from the actual Project alignment.
2.3 Applicant-Proposed Measures

Applicant-proposed measures (APMs) are environmental commitments that were identified by SCE as part of the proposed TRTP Project description. Table 2 presents the APMs that are relevant to the issue area of biological resources.

<table>
<thead>
<tr>
<th>Table 2. Applicant-Proposed Measures – Biological Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>APM BIO-1 Pre-construction biological clearance surveys would be performed to minimize impacts on special-status plants or wildlife species.</td>
</tr>
<tr>
<td>APM BIO-2 Every effort would be made to minimize vegetation removal and permanent loss at construction sites. If necessary, native vegetation would be flagged for protection. A project revegetation plan would be prepared for areas of native habitat temporarily affected during construction.</td>
</tr>
<tr>
<td>APM BIO-3 Construction crews would avoid affecting the streambeds and banks of any streams along the route to the extent feasible. If necessary, a Streambed Alteration Agreement (SAA) would be secured from California Department of Fish and Game. Impacts would be mitigated based on the terms of the SAA. No streams with flowing waters and or those capable of supporting special-status species would be expected to be adversely impacted from project implementation.</td>
</tr>
<tr>
<td>APM BIO-4 Construction and Operations Crews would be directed to use BMPs (BMPs) where applicable. These measures would be identified prior to construction and incorporated into the construction and maintenance operations.</td>
</tr>
<tr>
<td>APM BIO-5 Biological monitors would be assigned to the project. The monitors would be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors would flag the boundaries of areas where activities need to be restricted to protect native plants and wildlife, or special-status species. These restricted areas would be monitored to ensure their protection during construction.</td>
</tr>
<tr>
<td>APM BIO-6 A Worker Environmental Awareness Program (WEAP) would be prepared and all construction crews and contractors would be required to participate in WEAP training prior to starting work on the project. The WEAP training would include a review of the special-status species and other sensitive resources that could exist in the Project area, the locations of the sensitive biological resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained would be maintained.</td>
</tr>
<tr>
<td>APM BIO-7 Where significant and unavoidable impacts on any special-status resources cannot be avoided, SCE would conduct compensatory mitigation as determined by the regulatory agency.</td>
</tr>
<tr>
<td>APM BIO-8 SCE would conduct project-wide raptor surveys and remove trees, if necessary, outside of the nesting season (1 February – 31 August). If a tree or pole containing a raptor nest must be removed during the nesting season, or if work is scheduled to take place in close proximity to an active nest on an existing transmission tower or pole, SCE would coordinate with the CDFG and FWS and obtain written concurrence prior to moving the nest.</td>
</tr>
</tbody>
</table>

2.4 Mitigation Measures

The EIR/EIS completed for the TRTP identified several Biological Mitigation Measures that would reduce or avoid impacts to listed biological resources. The Mitigation Measures will be adopted as part of the approval process for the project and are identified below.

AQ-1a Implement Construction Fugitive Dust Control Plan. SCE shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The Plan shall be completed prior to construction and approved by the CPUC and FS. This Plan is in addition to any fugitive dust control plan required by the South Coast Air Quality Management District (SCAQMD). Measures to be incorporated into the plan shall include, but are not limited to the following:
- Non-toxic soil binders, equivalent or better in efficiencies than the CARB approved soil binders, shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. On NFS lands, SCE shall obtain FS approval of any soil binders to be used.

- Unpaved road travel will be limited to the extent possible by limiting the travel of heavy equipment in and out of the unpaved areas (move from construction site to construction site rather than back to marshalling or staging areas daily); through carpooling/busing construction workers to the maximum feasible extent; and by developing travel routes to each construction site that minimize unpaved road travel to the extent possible, according to USFS or other regulatory agency road use restriction. The FDECP will include a road travel plan applicable for construction sites with unpaved access greater than one mile.

- Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted.

- Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer’s specifications to exposed piles with a five percent or greater silt content.

- Maintain unpaved road vehicle travel to the lowest practical speeds, and no greater than 15 miles per hour (mph), to reduce fugitive dust emissions.

- All vehicle tires shall be inspected, are to be free of dirt, and washed as necessary prior to entering paved roadways.

- Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit unpaved access to the construction sites.

- Cover all trucks hauling soil and other loose material, or require at least two feet of freeboard.

- Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21 days after active construction operations have ceased.

- Increase the frequency of watering, if water is used as a soil binder for disturbed surfaces, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 mph.

SCAQMD Rule 403 Best Available Control Measures (BACM) are required to be proposed in the FDECP and implemented when and if the BACM are as strict, or stricter, than the control measures listed above. Additionally, mitigation measures provided on the SCAQMD CEQA website Tables XI-A through XI-E (http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html or as updated by SCAQMD) must be implemented in the FDECP were applicable. This mitigation measure covers construction work performed within all three local air quality jurisdictions.

**B-1a Provide restoration/compensation for impacts to native vegetation communities.** The intent of this mitigation measure is to require SCE to restore disturbed sites to pre-construction conditions or the desired future conditions per the Angeles National Forest (ANF), Land Management Plan (LMP). Prior to construction SCE shall have a qualified biologist, where concurrence on the biologist has been provided by the CPUC and FS, document the community type and acreage of vegetation that would be subject to project disturbance. Impacts to all oaks and native trees (with >3 inch diameter at breast height [DBH]) will be documented by identifying the species, number, location, and DBH. On non-Federal lands all protection and replacement measures shall be consistent with applicable local jurisdiction requirements, such as the Los Angeles County Oak Tree Ordinance. Tree removal shall not be permitted until replacement trees have been planted or transplanting sites are approved.

For NFS lands, the FS shall prepare a Habitat Restoration and Revegetation Plan in discussion with SCE for the Project, which shall include plans for restoration, enhancement/re-vegetation
and/or mitigation banking. For non-Federal lands SCE shall prepare the Habitat Restoration and Revegetation Plan. Both plans shall include at minimum: (a) the location of the mitigation site (off site mitigation may be required); (b) locations and details for top soil storage; (c) the plant species to be used; (d) seed and cutting collecting guidelines; (e) a schematic depicting the mitigation area; (f) time of year that the planting will occur and the methodology of the planting; (g) a description of the irrigation methodology for container, bare-root or other planting needing irrigation; (h) measures to control exotic vegetation on site; (i) success criteria; (j) a detailed monitoring program; (k) locations and impacts to all oaks and native trees (over 3 inches DBH), (l) locations of temporary or permanent gates, barricades, or other means to control unauthorized vehicle access on access and spur roads as deemed necessary by the FS (NFS lands only). FWS shall review the Habitat Restoration and Revegetation Plans.

SCE shall utilize a CPUC/FS/USACE-approved locally collected seed mix, locally collected cuttings, bare-root stock, etc. to revegetate areas disturbed by construction activities. All habitats dominated by non-native species prior to Project disturbance shall be revegetated using appropriate native species. FS approval is required for seeding on NFS land. The seed mix shall consist of native, locally occurring species collected from local seed sources. Cuttings and bare-root stock shall be of local origin. Restoration shall include the revegetation of stripped or exposed work sites and/or areas to be mitigated with vegetation native to the area. No commercially purchased seeds, stock, etc will be accepted without the approval of the FS on NFS lands and must be certified to be free of noxious weeds. Revegetation shall include ground cover, grass, shrub, and tree species in order to match disturbed areas to surrounding conditions and to restore or improve wildlife habitat quality to pre-project or higher levels. The Habitat Restoration and Revegetation Plan shall also include a monitoring element. Post seeding and planting monitoring will be yearly from years one to five and every other year from years six to ten, or until the success criteria are met. SCE shall restore temporarily disturbed areas, including existing tower locations that are to be removed by the Project, to pre-construction conditions or the desired future conditions per the LMP. If the survival and cover requirements have not been met, SCE is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements as previously mentioned.

The FS will conduct a preconstruction evaluation of the probable impacts to all oaks and native trees in all construction-related disturbance areas. This evaluation shall be incorporated into the Habitat Restoration Plan and shall include the species and number of individuals, their DBH, location and potential impact type. Construction within the driplines of all native trees and oak trees/shrubs, and incidental trimming or damage to trees along the proposed access/spur routes shall not occur until the trees are evaluated by an FS botanist or qualified arborist. This person shall identify appropriate measures to minimize tree loss, such as the placement of fence around the dripline, padding vehicles, minimizing soil removal or addition around driplines, and the placement of matting under the existing dripline during construction activities. On the ANF, if a tree must have any construction-related activities such as equipment or soil staging within the drip zone, root pruning, or excessive branch pruning (greater than 25% in one year), then the tree must be monitored for five years for tree mortality. If any of these identified trees dies during the monitoring period, then the tree must be mitigated at the rate appropriate to the DBH.

The replacement ratios (using rooted plants in liners or direct planting of acorns [for oaks]) for native trees or any oaks which are to be removed shall be as follows: trees from 3 to 5 inches
DBH shall be replaced at 3:1; trees from 5 to 12 inches shall be replaced at 5:1; trees from 12 to 24 inches shall be replaced at 10:1; trees from 24 to 36 inches shall be replaced at 15:1; and all oaks greater than 36 inches shall be replanted at a ratio of 20:1. The replacement ratio for damaged trees shall be 2:1 for trees with DBH less than 12 inches and a 5:1 ratio for trees with DBH greater than 12 inches. The DBHs for scrub oaks will be measured following DFG guidelines. On the ANF any oak or native tree which must be removed or killed as a result of construction or other Project-related activities shall be replaced in kind or mitigated at a comparable value. Compliance shall be evaluated annually for years one to five and bi-annually for years six to ten (years after tree planting). Trees shall be planted at locations acceptable to the landowner or managing agency. All planting locations, procedures, and results shall be evaluated by a qualified arborist and FS botanist. On non-Federal lands all protection and replacement measures shall be consistent with applicable local jurisdiction requirements, such as the Los Angeles County Oak Tree Ordinance.

Permanent impacts on federal lands shall be determined by the appropriate federal manager (FS and USACE) and on non-federal lands shall be determined by the CPUC at the ratios stated below or at a comparable value. On NFS lands impacts will be considered permanent if they are not likely to recover after ten years post-disturbance. Where onsite restoration is planned for mitigation of temporary impacts to vegetation communities, SCE shall identify a Habitat Restoration Specialist, where concurrence has been provided by the CPUC/FS, to implement the method of restoration outlined by the FS in the Habitat Restoration Plan.

The creation or restoration of habitat shall be monitored annually for years one to five on both FS lands and private/State/USACE lands and bi-annually for years six to ten on FS lands, or until the success criteria are met, after mitigation site construction to assess progress and identify potential problems with the restoration site. Remediation activities (e.g. additional planting, removal of non-native invasive species, or erosion control) shall be taken during the ten-year period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the ten-year maintenance and monitoring period, monitoring and remedial activities shall extend beyond the ten-year period until the criteria are met. If a fire occurs in a revegetation area within the ten year monitoring period, SCE shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by SCE activity. Off-site mitigation for NFS and non-NFS lands may be required if mitigation rates exceed what can be achieved on NFS land. This may be in the form of funding for land purchase for inclusion into the Angeles National Forest, mitigation banking, removing existing structures, or comparable restoration efforts.

During and after construction, FS-identified entrances to access roads on NFS lands shall be gated or blockaded in some manner and maintained to prevent the unauthorized use of these roads by the general public. Signs prohibiting unauthorized use of the access roads shall be posted on these gates.

### Mitigation Ratios for Impacts to Vegetation Communities

<table>
<thead>
<tr>
<th>Vegetation Community</th>
<th>Mitigation Ratios – Non-NFS Lands</th>
<th>Mitigation Ratios – NFS/Federal Lands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary Impacts</td>
<td>Permanent Impacts</td>
</tr>
<tr>
<td>Bigcone Douglas Fir-Canyon Oak Forest</td>
<td>1:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Canyon Oak Forest</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>California Bay Forest</td>
<td>1:1</td>
<td>2:1</td>
</tr>
</tbody>
</table>
## Mitigation Ratios for Impacts to Vegetation Communities

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<th>Mitigation Ratios – NFS/Federal Lands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary Impacts</td>
<td>Permanent Impacts</td>
</tr>
<tr>
<td>California Walnut Woodland</td>
<td>1:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Coast Live Oak Woodland</td>
<td>1:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Coulter Pine Forest</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Joshua Tree Woodland</td>
<td>1:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Mojavean Pinyon Woodland</td>
<td>1:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Non-native Woodland</td>
<td>1:1*</td>
<td>1:1*</td>
</tr>
<tr>
<td>Yellow Pine Forest (Plantation)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Shrub-dominated Vegetation

<table>
<thead>
<tr>
<th>Vegetation Community</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary Impacts</td>
<td>Permanent Impacts</td>
</tr>
<tr>
<td>Big Sagebrush Scrub</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Coastal Sage Scrub</td>
<td>1:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Desert Saltbush Scrub</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Chamise Chaparral</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mixed Chaparral</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Scrub Oak Chaparral</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interior Live Oak Scrub</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mojave Creosote Bush Scrub</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Mojave Mixed Woody Scrub</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Mojavean Juniper Woodland and Scrub</td>
<td>1:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Mojavean Pinyon and Juniper Woodland, Recently Burned</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mulefat Scrub</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Rabbitbrush Scrub</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Restoration – California Buckwheat Scrub</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Riversidean Alluvial Fan Sage Scrub</td>
<td>1:1</td>
<td>3:1</td>
</tr>
</tbody>
</table>

### Riparian Vegetation

<table>
<thead>
<tr>
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<th>Mitigation Ratios – NFS/Federal Lands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary Impacts</td>
<td>Permanent Impacts</td>
</tr>
<tr>
<td>Desert Wash</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Ruderal Wetland</td>
<td>1:1*</td>
<td>1:1*</td>
</tr>
<tr>
<td>Exotic-Giant Reed</td>
<td>1:1*</td>
<td>1:1*</td>
</tr>
<tr>
<td>Southern Arroyo Willow Riparian Forest</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Southern Coast Live Oak Riparian Forest</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Southern Cottonwood Willow Riparian Forest</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Southern Sycamore-Alder Riparian Forest</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Southern Willow Scrub</td>
<td>1:1</td>
<td>3:1</td>
</tr>
<tr>
<td>Sparsely Vegetated Streambed</td>
<td>1:1</td>
<td>3:1</td>
</tr>
</tbody>
</table>

### Herbaceous Vegetation

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary Impacts</td>
<td>Permanent Impacts</td>
</tr>
<tr>
<td>Bunchgrass Grassland</td>
<td>1:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>California Annual Grassland</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Deerweed and Chia Herbaceous Field, Recently Burned</td>
<td>1:1</td>
<td>1:1</td>
</tr>
<tr>
<td>Desert Bunchgrass Grassland</td>
<td>1:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>Wildflower Field</td>
<td>1:1</td>
<td>1:1</td>
</tr>
</tbody>
</table>
### Mitigation Ratios for Impacts to Vegetation Communities

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporary Impacts</td>
<td>Permanent Impacts</td>
</tr>
<tr>
<td>Anthropogenic Vegetation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>0:1</td>
<td>0:1</td>
</tr>
<tr>
<td>Barren/developed</td>
<td>1:1*</td>
<td>1:1*</td>
</tr>
<tr>
<td>Ruderal Grassland</td>
<td>1:1*</td>
<td>1:1*</td>
</tr>
</tbody>
</table>

Ratios on Non-NFS Lands may be adjusted based on existing site conditions and disturbance level. Ratios could range from 0.5 to maximum as noted based on site evaluation.

*Non-native habitats will be reseeded with a native seed mix. Barren areas will be mitigated at a 1:1 ratio if they are determined to support sensitive wildlife (i.e. burrowing owls, etc.).

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**B-1b Implement a Worker Environmental Awareness Program.** A Worker Environmental Awareness Program (WEAP) shall be implemented for construction crews by a qualified biologist(s) provided by SCE, where concurrence has been provided by the CPUC/FS prior to the commencement of construction activities. Training materials and briefings shall include but not be limited to: discussion of the Federal and State Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act; the consequences of non-compliance with these acts; identification and values of plant and wildlife species and significant natural plant community habitats; fire protection measures; sensitivities of working on NFS lands and identification of FS sensitive species; hazardous substance spill prevention and containment measures; a contact person in the event of the discovery of dead or injured wildlife; and review of mitigation requirements. The WEAP shall also include the protocol to be followed when road kill is encountered in the work area or along access roads to minimize potential for additional mortality of scavengers, including listed species such as the California condor. On NFS lands, road kill shall be reported to the FS or other applicable agency within 24 hours. On non-NFS lands, road kill shall be reported to the appropriate local animal control agency within 24 hours. Training materials and a course outline shall be provided to the CPUC and FS for review and approval at least 30 days prior to the start of construction. Maps showing the location of special-status wildlife, fish, or populations of rare plants, exclusion areas, or other construction limitations (i.e., limited operating periods) will be provided to the environmental monitors and construction crews prior to ground disturbance. SCE shall provide to the CPUC and FS a list of construction personnel who have completed training prior to the start of construction, and this list shall be updated by SCE as required when new personnel start work. No construction worker may work in the field for more than 5 days without participating in the WEAP.

**B-2 Implement RCA Treatment Plan.** SCE shall not construct or modify any structure, culvert, or bridge or modify any habitat without the appropriate permits from regulatory agencies. SCE shall not construct or modify any structure, culvert, or bridge or modify any habitat on NFS lands in Riparian Conservation Areas (RCAs) without the authorization of the FS. Vegetation removal or road construction shall not occur in RCAs during the breeding season for nesting birds (February 1-August 15), unless a nesting bird survey determines that there are no nesting birds. SCE shall prepare and implement a FS RCA Treatment Plan for the Project. This Plan shall include the specific activities that will occur at each of the RCA points crossed by the Project including the amount and type of vegetation to be cleared, the type of road crossing or improvement allowed for wet and dry crossings, and the methods that would be employed to reduce the effects of the Project on water quality. The Plan shall include timing restrictions for vehicle or equipment passage, restrictions on what activities may occur such as grading,
vegetation removal or tree trimming, monitoring requirements, seasonal restrictions, and restoration requirements. This Plan shall be submitted to the FS for approval prior to construction or the grading of any access road. The Plan shall also be submitted to the CPUC for review.

B-3a **Prepare and implement a Weed Control Plan.** SCE shall prepare and implement a comprehensive, adaptive Weed Control Plan on NFS lands for pre-construction and construction invasive weed abatement. The long term Weed Control Plan, including monitoring and eradication, will be defined as part of the 50 year Operations and Maintenance Permit. On the ROW easement lands administered by the FS, the Weed Control Plan shall incorporate all appropriate and legal agency-stipulated regulations. The Weed Control Plan shall be submitted to the FS for final authorization of weed control methods, practices, and timing prior to implementation of the Weed Control Plan on public lands. ROW easements located on private lands shall include adaptive provisions such as wheel and equipment washing for the implementation of the Weed Control Plan. FWS will review the Weed Control Plan. The Weed Control Plan shall include the following:

- A pre-construction weed inventory shall be conducted by surveying all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new or improved access and spur roads. Weed populations that: (1) are rated High or Moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006); and (2) aid and promote the spread of wildfires (such as cheatgrass, Saharan mustard, and medusa head); and (3) are considered by the FS as species of priority (for NFS lands only) shall be mapped and described according to density and area covered. In areas subject to ground disturbance, weed infestations shall be treated prior to construction according to control methods and practices for invasive weed populations designed in consultation with the FS. The Weed Control Plan shall be updated and utilized for eradication and monitoring post construction.

- Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods applied with the authorization of the FS. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), where concurrence has been provided by the CPUC/FS, and implemented by a Licensed Qualified Applicator. In all areas where herbicides will be used (including non-NFS lands), the following shall apply:
  - Herbicides shall not be applied during or within 72 hours of a scheduled rain event. Herbicides shall not be used within Riparian Conservation Areas (RCAs) on the ANF without approval of the FS. In riparian areas only water-safe herbicides shall be used. Herbicides shall not be applied when wind velocities exceed 5 mph. Where manual and/or mechanical methods are used, disposal of the plant debris will follow the regulations set by the FS. The timing of the weed control treatment shall be determined for each plant species in consultation with the FS (on NFS lands) with the goal of controlling populations before they start producing seeds.
  - No surfactants shall be used in the formulation of any herbicide used on the Project, and a benign marker dye shall be used to detect the area of application. Herbicide use shall be conducted between mid-September and 31 January to avoid the breeding season in known occupied areas for the least Bell’s vireo, southwestern willow flycatcher,
western yellow-billed cuckoo, and California gnatcatcher, and the spawning season for Santa Ana sucker. In areas known to be occupied by the California red-legged frog, herbicide application would not occur between 1 November and 31 March to avoid the breeding season. To reduce the chance of spillage, work crews shall only carry one gallon of herbicide into treatment areas at a time. A qualified botanist/biologist shall identify access paths to the treatment areas and check for threatened and endangered plant species prior to herbicide treatment. If listed species are located, they shall be flagged and avoided. Number of work crew members and trips to treatment areas shall be kept to a minimum. Crew members shall avoid wading through streams whenever possible.

- Cut *Arundo* stalks shall be stacked and dried away from streams or wet areas to prevent reinfestation.

For the preconstruction and construction of the Project, measures to control the introduction and spread of noxious weeds in the Project work area shall be taken as follows.

- On the ANF, from the time construction begins until ten years after construction is complete, surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required at all sites impacted by construction (tower pads, staging areas, landing zones, etc.), including access/spur roads disturbed during the Project. Surveying and monitoring for weed infestations shall occur annually for years one to five and bi-annually for years six to ten. Treatment of all identified weed populations shall occur at a minimum of once annually. When no new seedlings or resprouts are observed at treated sites for three consecutive, normal rainfall years, the weed population can be considered eradicated and weed control efforts may cease for that impact site.

- During Project preconstruction and construction, all seeds and straw materials shall be weed-free rice straw, and all gravel and fill material shall be certified weed free by the county Agriculture Commissioners’ Offices. Any deviation from this will be approved by a FS botanist. All plant materials used during restoration shall be native, certified weed-free, and approved by the CPUC and FS.

- During Project preconstruction and construction, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) before and after entering FS identified areas. On non-NFS lands vehicles and equipment shall be washed prior to commencing work in off road areas. Vehicles shall be cleaned at existing construction yards or legally operating car washes. SCE shall document that all vehicles have been washed prior to commencing project work. In addition, tools such as chainsaws, hand clippers, pruners, etc. shall be washed before and after entering all Project work areas. All washing shall take place where rinse water is collected and disposed of in either a sanitary sewer or landfill, unless otherwise approved by the FS. A written daily log shall be kept for all vehicle/equipment/tool washing that states the date, time, location, type of equipment washed, methods used, and staff present. The log shall include the signature of a responsible staff member. Logs shall be available to the CPUC and FS for inspection at any time and shall be submitted to the CPUC and FS on a monthly basis.

- During Project operation and maintenance activities, clear and dispose of weeds in assembly yards, helicopter landing areas, tower pads, spur roads, staging areas, and any other disturbance areas in a FS-approved method.
B-3b **Remove weed seed sources from construction access routes.** Prior to construction, SCE shall initiate invasive species eradication identified in the Table below. These populations were identified as small and isolated but having the potential to spread aggressively during construction. Post construction, these isolated populations will be included and treated according to the restoration plan. Per the FSM 2080 BMP guideline, SCE shall also remove or reduce sources of weed seed along the travel routes associated with Project construction identified in Figures A-2 through A-4 of Appendix A of the *Biological Specialist Report* (Aspen, 2008) to prevent the introduction or control the spread of noxious weeds by mowing or other control methods to substantially reduce seed production in these infestations during Project construction. Following Project approval and during the time of year when weed species can be observed and identified, SCE shall identify, using a qualified plant ecologist, any other weed seed sources that could contribute to Project-related weed spread on the ANF. The following weed populations, and any other target infestations identified by Project surveys, should be controlled prior to construction. SCE shall initiate eradication of the following weed populations and any other isolated, target infestations discovered during pre-construction surveys along construction routes.

<table>
<thead>
<tr>
<th>Weed Populations Along Construction Routes*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANF Road Location</strong></td>
</tr>
<tr>
<td>4N41</td>
</tr>
<tr>
<td>3N20</td>
</tr>
<tr>
<td>3N23</td>
</tr>
<tr>
<td>2N23</td>
</tr>
<tr>
<td>2N24</td>
</tr>
<tr>
<td>2N25.2</td>
</tr>
<tr>
<td>2N30.1</td>
</tr>
<tr>
<td>2N30.2</td>
</tr>
<tr>
<td>3N27 north of Big Tujunga Creek to Mt. Gleason Rd</td>
</tr>
<tr>
<td>2N45</td>
</tr>
<tr>
<td>2N65.1</td>
</tr>
<tr>
<td>2N65.2</td>
</tr>
<tr>
<td>2N66</td>
</tr>
<tr>
<td>2N75</td>
</tr>
<tr>
<td>2N79</td>
</tr>
<tr>
<td>1N36</td>
</tr>
<tr>
<td>Road west out of Shortcut Station</td>
</tr>
</tbody>
</table>

*Specific locations are found in Figures A-2 through A-4 of Appendix A of the Biological Specialist Report Noxious Weed Assessment. [Aspen, 2008]*

B-3c **Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads.** Prior to construction and during each year of use for
construction at all assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads within the ANF, weed infested areas should be mowed and/or treated as appropriate for the individual weed species under the guidance of a qualified plant ecologist or restoration ecologist, where concurrence on the ecologist has been provided by the FS. Weed control efforts in these areas shall be timed annually to reduce shortpod mustard, tocalote, and other noxious weed seed production, by mowing or weed-whacking infestations when flowering has just started, but before seeds have been produced. All plant debris shall be disposed of at a FS/CPUC-approved location. Weed control efforts shall commence in early spring (February – March), as indicated annually by a qualified plant ecologist or restoration ecologist in coordination with a FS botanist or Forest Weed Specialist.

B-5 Conduct pre-construction surveys and monitoring for breeding birds. SCE shall conduct pre-construction surveys for nesting birds if construction and removal activities are scheduled to occur during the breeding season. Surveys shall be conducted in areas within 500 feet of tower sites, laydown/staging areas, substation sites, and access/spur road locations. Surveys for birds shall be conducted for all areas from February 1 to August 15. The required survey dates may be modified based on local conditions (i.e., high altitude locations) with the approval of the CPUC, USACE, and/or FS. SCE shall be responsible for designating qualified biologists who can conduct pre-construction surveys and monitoring for breeding birds. The resume of the proposed biologists will be provided to the CPUC, USACE, and/or FS. SCE shall be responsible for designating qualified biologists who can conduct pre-construction surveys and monitoring for breeding birds. The resume of the proposed biologists will be provided to the CPUC, USACE, and FS for concurrence prior to ground disturbance. On NFS lands, the FS shall apply the FS Land Management Plan Standard S18 (Part 3 of the Land Management Plan), which states “Protect known active and inactive raptor nest areas. Extent of protection will be based on proposed management activities, human activities existing at the onset of nesting initiation, species, topography, vegetative cover, and other factors. When appropriate, a no-disturbance buffer around active nest sites will be required from nest-site selection to fledging.” On both NFS and non-NFS lands, if breeding birds with active nests are found, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and a one-mile buffer for helicopter use if helicopters are flying below 300 feet, and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. If nesting bald or golden eagles are identified, a 660-foot no activity buffer will be implemented. The 300-foot (660-foot eagle and one-mile helicopter) buffer may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the CPUC, USACE, or FS, as appropriate.

On NFS lands, the FS shall apply the FS Land Management Plan Standard S18 (Part 3 of the Land Management Plan), which states “Protect known active and inactive raptor nest areas. Extent of protection will be based on proposed management activities, human activities existing at the onset of nesting initiation, species, topography, vegetative cover, and other factors. When appropriate, a no-disturbance buffer around active nest sites will be required from nest-site selection to fledging.” On both NFS and non-NFS lands, if breeding birds with active nests are found, a biological monitor shall establish a 300-foot buffer around the nest for ground-based construction activities and a one-mile buffer for helicopter use if helicopters are flying below 300 feet, and no activities will be allowed within the buffer(s) until the young have fledged from the nest or the nest fails. If nesting bald or golden eagles are identified, a 660-foot no activity buffer will be implemented. The 300-foot (660-foot eagle and one-mile helicopter) buffer may be adjusted to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the CPUC, USACE, or FS, as appropriate. On NFS lands, the FS shall have the authority to define/redefine such buffers. The biological monitors shall conduct regular monitoring of the nest to determine success/failure and to ensure that Project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The biological monitors shall be responsible for documenting the results of the surveys and the ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies (e.g., On NFS lands documentation will be provided to the Forest Biologist). If for any reason a bird nest must be removed during the nesting season, SCE shall provide written documentation providing concurrence from the FWS and CDFG authorizing the nest relocation. On NFS lands, this will include coordination and written approval from the FS. On USACE lands, this will include coordination and written approval by the USACE. SCE shall provide a written report documenting the relocation efforts. The report shall include what actions were taken to avoid moving the nest, the location of the nest, what species is being relocated, the number and condition of the eggs taken from the nest, the location of where the eggs are incubated, the survival rate, the location of the nests where the chicks are relocated, and whether the birds were accepted by the adopted parent.
B-7 Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants. SCE shall conduct pre-construction surveys for State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate plants in all areas subject to ground-disturbing activity, including, but not limited to, tower pad preparation and construction areas, tower removal sites, pulling and tensioning sites, assembly yards, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/biologist according to protocols established by the FWS, CDFG, FS, and California Native Plant Society (CNPS). The resume of the proposed biologists will be provided to the CPUC and FS for concurrence prior to ground disturbance. All listed plant species found shall be marked and avoided. If a federally listed plant species cannot be avoided on private land, consultation with FWS will occur.

Prior to site grading, any populations of listed plant species identified during the surveys shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant’s ecological requirements (e.g., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by a qualified plant ecologist and/or Forest botanist. At minimum, the buffer shrub species shall be equal to twice the drip line (i.e., two times the distance from the trunk to the canopy edge) in order to protect and preserve the root systems of the plant. The buffer for herbaceous species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the FS, USACE, and CPUC. If impacts to listed plants are determined to be unavoidable, the FWS shall be consulted for authorization, through the context of a Biological Opinion.

B-8a Conduct protocol surveys for California red-legged frogs and implement avoidance measures. SCE shall conduct Fish and Wildlife Service (FWS)-approved protocol surveys for California red-legged frogs if suitable habitat is present near the proposed construction sites at the Amargosa Creek, Aliso Canyon (Segment 11), Monte Cristo Creek, Alder Creek, Big Tujunga Creek (Segment 6), and West Fork San Gabriel River within the Central Region. If surveys have been conducted to protocol within two years of start of construction and no red-legged frogs were identified, surveys would not need to be repeated at that location. Surveys will continue at least every two years until construction is completed in the identified potential habitat. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence prior to conducting the surveys.

- Prior to the onset of construction activities, SCE shall provide the following information to all personnel who will be present within work areas or adjacent to the project area:
  - A detailed description of the red-legged frog including color photographs;
  - The protection the red-legged frog receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;
  - The protective measures being implemented to conserve red-legged frogs and other species during construction activities associated with the Project; and
• A point of contact if red-legged frogs are observed.

• All trash that may attract predators of the red-legged frogs will be removed from work sites or completely secured at the end of each work day. At the Project crossing in Aliso Canyon, and anywhere California red-legged frogs are detected in or adjacent to the Project, the following shall apply:

• The Aliso Canyon Road Crossing on 4N24 will not be used, except if the road crossing is dry. A full-time monitor shall be present at the access road crossing when in use near the newly discovered population of California red-legged frog in Aliso Canyon. Use of the road will be restricted to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on the access road. Traffic speed shall be maintained at 15 mph or less in the work area. Use of this roadway during rain events shall not occur during the activity period for California red-legged frogs.

• Between 1 November and 31 March, no work will be authorized within one half mile of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized without an authorized monitor. Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road). No helicopter flights will occur over occupied California red-legged frog streams, while frogs are actively breeding. If the use of fly yards in Aliso Canyon is proposed during this time period, then SCE shall have an authorized biologist survey the reference population and the proposed use area to ensure that active breeding is not occurring.

• From 1 November thru 31 March, overflights will be restricted to a minimum altitude of 1000 feet from the stream bottom within 1 mile of a California red-legged frog occupied stream, unless surveys determine no breeding is occurring within 1 mile of the flight path.

• Between April 1 to 31 October, no access road work will be authorized within 500 feet of occupied habitat and no vehicular crossings at wet fords of those channels will be authorized without an authorized monitor. Use of paved public access roads will not be restricted (i.e. Aliso Canyon Road).

• SCE shall monitor all related construction activities and develop and implement a monitoring plan that includes the following measures in consultation with the CPUC and FS. FWS will review the monitoring plan.

• Prior to the onset of any construction activities, SCE shall meet on-site with the CPUC/FS-approved biologist (authorized biologist). The authorized biologist shall hold a current red-legged frog permit from FWS. SCE shall provide information on the general location of construction activities within habitat of the red-legged frog and the actions taken to reduce impacts to this species. Because red-legged frogs may occur in various locations during different seasons of the year, SCE, FS, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on red-legged frogs.

• Where construction can occur in habitat where red-legged frogs are widely distributed, work areas will be fenced in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be
fenced in consultation with the FS/CPUC. All workers will be advised that equipment and vehicles must remain within the fenced work areas.

- The authorized biologist will direct the installation of the fence and conduct a minimum of three nocturnal surveys to move any red-legged frogs from within the fenced area to suitable habitat outside of the fence. If red-legged frogs are observed on the final survey or during subsequent checks, the authorized biologist will conduct additional nocturnal surveys if he or she determines that they are necessary in concurrence with the FS/CPUC.

- Fencing to exclude red-legged frogs will be at least 24 inches in height.

- Construction activities that may occur immediately adjacent to breeding pools or other areas where large numbers of red-legged frogs may congregate will be conducted during times of the year (winter) when individuals have dispersed from these areas or the species is dormant. The authorized biologist will assist SCE in scheduling its work activities accordingly.

- If red-legged frogs are found within an area that has been fenced to exclude red-legged frogs, activities will cease until the authorized biologist moves the red-legged frogs.

- If red-legged frogs are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the red-legged frogs. The authorized biologist in consultation with FS/CPUC will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist.

- Any red-legged frogs found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.

- The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

- SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when red-legged frogs may be present on the access road. Traffic speed should be maintained at 15 mph or less in the work area.

- A qualified biologist must permanently remove, from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code.

- No stockpiles of materials will occur in areas occupied by California red-legged frogs.

- To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

- Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc) in areas that may contain California red-legged or mountain yellow-legged frogs will be reported to the FS and CPUC within one hour.
**B-8b  Conduct biological monitoring.** SCE shall provide a qualified biologist with demonstrated expertise with the listed wildlife species likely to occur in the Project area. This person(s) shall monitor all construction activities daily within suitable habitat for listed or sensitive wildlife. The resumes of the proposed biologists will be provided to the CPUC, USACE, and FS for concurrence prior to the onset of ground-disturbing activities.

**B-9  Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas.** In areas known to support arroyo toads (Lynx Gulch, Monte Cristo Creek, and Alder Creek) the following avoidance measures shall be implemented.

- SCE shall avoid ground disturbing activities (i.e., grading, stream crossing upgrades, parking) along access roads within the one mile buffer for arroyo toads during the activity period for arroyo toads (March-November). This date and buffer may be modified based on the existing temperature regime and habitat conditions with FS approval. An exception to this restriction may occur if the Forest Service determines that increased road maintenance or reconstruction would need to occur based upon dry ravel or debris torrents resulting from the Station Fire of 2009.

- SCE shall limit use of the access roads in this area within the one mile buffer to daylight hours only during the activity period for arroyo toads (generally March-November). Use of these roadways during rain events shall not occur during the activity period for arroyo toads. Vehicle speeds shall be limited to 15 MPH and no parking or loitering shall occur along the access roads.

- SCE shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in occupied arroyo toad habitat. The monitor shall inspect the roadway, all Arizona crossings, and work sites throughout the day and log the time and weather conditions in the area. If adult or juvenile arroyo toads are found on the roadway vehicle access shall be restricted until the animal has moved off the road or is relocated by a permitted arroyo toad biologist in accordance with the Biological Opinion.

**SCE shall conduct Fish and Wildlife Service-approved protocol surveys for arroyo toad at the following locations if suitable habitat is present near the proposed construction sites: Kentucky Wash, Aliso Canyon, and Big Tujunga Creek (Segment 6/11) within two years to the start of construction. If arroyo toads are detected, further surveys within the area will not be required and the avoidance measures detailed below will be followed. If no arroyo toads are detected, habitat assessments will be conducted every year until construction is completed. If the habitat assessment determines that suitable habitat exists, protocol surveys shall be conducted.**

- Prior to the onset of construction activities, SCE shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information:
  a. A detailed description of the arroyo toad including color photographs;
  b. The protection the arroyo toad receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;
  c. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the Project; and
  d. A point of contact if arroyo toads are observed.
For all areas in which this species has been documented SCE shall develop and implement a monitoring plan that includes the following measures in consultation with the FWS and Forest Service.

- SCE shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in occupied arroyo toad habitat and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad.

- All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day. Prior to the onset of any construction activities, SCE shall meet on-site with staff from the FS and the authorized biologist. SCE shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, SCE, FS, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads.

- Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.

- The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

- To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times.

- SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when arroyo toads may be present on the access roads. Traffic speed shall be maintained at 15 mph or less in the work area.

- A qualified biologist must permanently remove from within the Project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible and ensure that activities are in compliance with the California Fish and Game Code.

- No stockpiles of materials will occur in areas occupied by arroyo toads.

- Any spills of any fluids that may be hazardous to aquatic fauna (gasoline, hydraulic fluid, motor oil, etc) in areas that may contain arroyo toads will be reported to the FS and CPUC within one hour.

**B-10 Conduct presence or absence surveys for desert tortoise, preserve habitat, and implement avoidance measures.** SCE shall contract with a Fish and Wildlife Service (FWS)-authorized biologist to conduct FWS protocol-surveys for desert tortoise in the vicinity of the proposed Windhub Substation site at the northern terminus of Segment 10, where historic tortoise burrows were documented and habitat is suitable. The resumes of the FWS-authorized biologists...
will be provided to the CPUC for concurrence prior to conducting the surveys. This biologist will be referred to as the “authorized biologist” hereafter. Additionally, a qualified biologist shall conduct focused clearance surveys for desert tortoise prior to construction activities within Segment 10 and Segment 4 between the Cottonwind and Whirlwind substations. Clearance surveys shall be conducted 100 m into agricultural areas that are adjacent to suitable habitat. Clearance surveys shall follow the FWS’s desert tortoise survey protocol.

To mitigate potential permanent impacts to potentially occupied desert tortoise habitat from Project construction, SCE will acquire habitat occupied by desert tortoises. Disturbance occurring along Segment 10 and along Segment 4 between the Cottonwind and Whirlwind substations shall be mitigated through acquisition of occupied habitat at a ratio of 3:1 (acres of habitat acquired: acres of land permanently disturbed). Mitigation acquisition shall occur at a FWS- and CDFG-approved location and shall be coordinated through a FWS- and CDFG-approved entity. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Fee title acquisition of habitat lands or a conservation easement over these lands will be transferred to an entity approved by FWS and CDFG, along with funding for enhancement of the land and an endowment for permanent management of the lands. SCE will provide verification to the CPUC that FWS- and CDFG-approved lands have been acquired.

SCE shall develop and implement a mitigation and monitoring plan that includes the following measures in consultation with the FWS and CDFG.

• Prior to the onset of construction activities, SCE shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information:
  a. A detailed description of the desert tortoise including color photographs;
  b. The protection the desert tortoise receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;
  c. The protective measures being implemented to conserve the desert tortoise and other species during construction activities associated with the Project; and
  d. A point of contact if desert tortoises are observed.

• All trash that may attract predators of desert tortoises will be removed from work sites or completely secured at the end of each work day.

• During operations and maintenance activities, all vehicles shall remain on existing access and spur roads in potentially occupied desert tortoise habitat. Vehicle speeds in these areas shall not exceed 15 MPH. All vehicles shall have a minimum of two people, one of which will watch for desert tortoises on and near the roadway. No maintenance personnel shall handle a desert tortoise. Personnel shall check under parked vehicles prior to moving the vehicle. If a desert tortoise is found under a vehicle and does not leave on its own, an authorized biologist may be called to relocate the animal out of harm’s way, no more than 500 m from its original location.

• In construction areas in potentially occupied desert tortoise areas, work and staging areas, including the locations of towers under construction, will be fenced with FWS-approved desert tortoise fencing in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced in consultation with the FWS/CDFG/CPUC. All workers will be advised that equipment and vehicles must
remain within the fenced work areas. Installation of the fencing and any necessary surveys will be directed and/or conducted by the authorized biologist in concurrence with the FWS/CDFG/CPUC. The fencing shall remain in place for the duration of construction activities at a particular location, and shall be removed when construction activities are complete. The authorized biologist shall inspect the fencing on a bi-weekly basis to ensure that no holes develop that could allow tortoises to enter the work areas. If holes are found, they shall be repaired immediately.

- If desert tortoises are found within an area that has been fenced to exclude the species, activities will cease until the authorized biologist moves the desert tortoises out of harm’s way outside of the fence, no greater than 500 m away from their original location. At this time the fencing will be inspected for holes.

- If desert tortoises are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the individual(s) within 500 m of their original location. The authorized biologist in consultation with FWS/CFDG/CPUC will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist.

- Any desert tortoises found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat within 500 m of their original location. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area if the area is not fenced. If the area is fenced, only monitoring will need to be conducted.

- The authorized biologist shall follow the tortoise Handling Guidelines at all times if handling tortoises is required.

- The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

- SCE shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when desert tortoise may be present on the access road. Traffic speed shall be maintained at 15 mph or less in the work area.

- To reduce impacts from ravens, the following measures shall be implemented:
  
  - All trash that could attract predators of the desert tortoise, such as common ravens, shall be removed from work sites or completely secured at the end of each work day.
  
  - All potential corvid nests on Project facilities will be documented and reported to the Raven Management Group annually.
  
  - Water applied to dirt roads and construction areas for dust abatement, and for washing Project infrastructure, shall use the minimal amount needed in an effort to prevent the formation of puddles, which could attract desert tortoises and common ravens to construction sites.
• SCE will coordinate with the Raven Management Group to develop and implement measures to minimize impacts to desert tortoises from ravens during construction and operations.

B-12 Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms. On or near the West Fork Cogswell road, SCE shall pre-stage a complete Hazardous Material Spill kit(s) capable of containing the largest potential vehicle spill of gasoline, diesel, or other hazardous materials. The kit(s) shall be located and maintained in areas accessible to crews in the event a bridge or other road blockage has occurred. Contents of the kit(s) shall be approved by the FS. A biological monitor with knowledge of the special-status fishes known to occur in the area shall inspect the roadway a minimum of three times a day from October 1 to April 30 and one time a day from May 1 through September 30 during construction to inspect for leaks, spills, or other debris that may enter the San Gabriel River. Spills on the roadway will be logged and reported to the FS and CPUC monitor weekly and cleaned up immediately. Any spills along this road will be reported to the FS and CPUC within one hour.

No loitering, maintenance, refueling, or equipment staging shall occur on the West Fork Cogswell road. Prior to vehicle access, metal plates, bridges, or other FS-approved structures shall be placed above all wet crossings, if deemed necessary by the FS.

Prior to any work in the San Gabriel River, Big Tujunga River, or their tributaries where flowing or ponded water is present SCE shall conduct surveys for fish and other special-status aquatic organisms. The species noted in the project area shall be reported to the FS. No work shall be conducted in the flowing portion of the stream and water shall be diverted around the work area in a manner that does not restrict the movement of aquatic organisms. Block nets or other barriers may be required, if deemed necessary by the FS, and if fish or other special-status species are present. Block nets will not be used in areas supporting Santa Ana suckers. All activities that occur within ponded or flowing water shall be coordinated with the FS on NFS lands. Quarterly for duration of construction work in the San Gabriel and Big Tujunga Rivers, SCE shall prepare a report documenting the type and number of species located and any actions taken to relocate or exclude the species. This shall be reported to the FS and CPUC no later than 30 days following the completion of work at the San Gabriel or Big Tujunga Rivers.

If Santa Ana suckers occur in portions of the creek where construction activities are scheduled to occur, SCE shall retain a qualified biologist with a FWS permit for the Santa Ana sucker to monitor all construction activities in occupied Santa Ana sucker habitat and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologists will be provided to the CPUC and FS for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

B-14 Monitor construction in condor habitat and remove trash and micro-trash from the work area daily. SCE shall retain a qualified biologist with demonstrated knowledge of California condor identification to monitor all construction activities within the Project area and assist SCE in the implementation of the monitoring program. The resumes of the proposed biologist(s) will be provided to the CPUC and FS for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within known condor-occupied areas. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed in helicopter construction areas, SCE shall avoid further
helicopter use until the animals have left the area. The authorized biologist will have radio contact with the project foreman, who will be in radio contact with the helicopter pilot. The biologist will provide information to SCE to avoid conflicts with condors. All condor sightings in the Project area will be reported to the FWS and FS (on NFS lands). SCE will coordinate with FWS on the construction schedule and helicopter work areas to determine if any condors have been tracked or observed in the vicinity of the Project area. If condors are observed in helicopter construction areas, then SCE shall avoid further helicopter use until the animals have left the area and the FWS will be notified immediately. Should condors be found roosting within 0.5 miles of the construction area, no construction activity shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization from the FWS and FS on NFS lands.

**Microtrash.** All trash is required to be disposed of as written in the Proper Disposal of Construction Waste Plan for the Project. Additional language has been added to this Plan to address the disposal of microtrash. Workers will be trained on the issue of microtrash – what it is, its potential effects to California condors, and how to avoid the deposition of microtrash. In addition, daily sweeps of the work area will occur to collect and remove trash in locations with the potential for California condors to occur.

**Worker Education.** SCE will develop a flier that will be distributed to all workers on the project concerning information on the California condor. Information to be included consists of the following: species description with photos and/or drawings indicating how to identify the California condor and how to distinguish condors from turkey vultures and golden eagles; protective status and penalties for violation of the ESA; avoidance measures being implemented on the Project; and contact information for communicating condor sightings.

**Reporting.** All California condor sightings in the Project area will be reported directly to the FWS, FS, and CPUC. Prior to the commencement of helicopter activity, SCE will coordinate with a FWS condor biologist to determine if any condors have been tracked or observed in the vicinity of the Project area.

**B-15 Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat.** If construction activities occur during the breeding season at the Whittier Narrows Recreation Area, Whittier Narrows Nature Center, Puente Hills Landfill Native Habitat Preservation Authority lands, and/or the Rio Hondo, or other areas including the ANF that have the potential to support listed riparian species, a qualified ornithologist shall conduct protocol surveys of the Project and adjacent areas within 500 feet. Fish and Wildlife Service (FWS) protocol surveys will be conducted for southwestern willow flycatcher and least Bell’s vireo. In known occupied habitat for listed riparian birds, SCE shall only conduct focused surveys of the Project and adjacent areas within 500 feet. The surveys shall be of adequate duration to verify potential nest sites if work is scheduled to occur during the breeding season.

Protocol or focused surveys, as appropriate, should be conducted within one year of start of construction and will continue annually until completion of construction activities. However, on NFS lands, annual surveys in suitable habitat may be required during construction. These surveys may be modified through the coordination with the CDFG, FS, USACE, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of riparian areas during the breeding season.
If a territory or nest is confirmed in a previously unoccupied area, the FWS and CDFG shall be notified immediately. On NFS lands, USACE lands, these agencies would be notified immediately. In coordination with the FWS and CDFG, a 500-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be adjusted provided noise levels do not exceed 60 dB(A)hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician. Noise levels adjacent to nest locations shall be monitored for the duration of construction activities near the nest, while it is active. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. No construction or vehicle traffic shall occur within this buffer during the breeding season for these species.

B-16 Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures. SCE shall conduct protocol surveys for coastal California gnatcatchers in areas supporting coastal sage scrub habitat that may be affected by the Project. In known occupied habitat for the California gnatcatcher, SCE shall only conduct focused surveys for coastal California gnatcatchers to determine the locations of nests and territories. Survey areas shall include a 500-foot buffer around Project disturbance areas.

If a territory or nest is confirmed, the FWS shall be notified immediately. A 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. This buffer may be adjusted provided noise levels do not exceed 60 dB(A)hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician. Noise levels adjacent to nest locations shall be monitored for the duration of construction activities near the nest, while it is active. If the noise meets or exceeds the 60 dB(A) Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dB(A) Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. SCE shall obtain incidental take authorization from the FWS prior to further activities.

Protocol or focused surveys, as appropriate, shall be conducted within one year of start of construction and construction activities will be monitored in occupied habitat during breeding periods. These surveys may be modified through the coordination with the FS on NFS lands, USACE on USACE lands, and the CPUC based on the condition of habitat, the observation of the species, or avoidance of nesting areas during the breeding season. Non-protocol nesting bird surveys for California gnatcatcher shall also occur in the Aliso Canyon in chaparral/scrub.
communities. This area shall also require a qualified gnatcatcher biologist to be present during any construction activities conducted during the breeding season.

Construction activities in occupied gnatcatcher habitat will be monitored by a full-time qualified biologist. The monitoring shall be of a sufficient intensity to ensure that the biologist could detect the presence of a bird in the construction area. At a minimum one full-time monitor shall be present for every two miles of active construction within occupied habitat.

SCE shall retain a FWS-permitted biologist to monitor construction activities within 100 feet of an active California gnatcatcher nests in the Montebello Hills area only and assist SCE in the implementation of the monitoring program. In the Montebello Hills, grading and vegetation management, including activities conducted during Project operations and maintenance, shall be conducted outside of the breeding season (March – August) unless otherwise authorized by the USFWS. A 300-foot buffer is required for all other areas. A biologist with applicable avian experience with the California gnatcatcher will monitor all construction activities within 300 feet of occupied California gnatcatcher habitat. The resumes of the permitted biologists will be provided to the CPUC for concurrence. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.

**B-17** Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher.

To mitigate effects from Project construction, SCE shall acquire habitat occupied by the coastal California gnatcatcher and/or restore unoccupied coastal sage scrub. Mitigation acquisition shall occur at a 3:1 ratio for permanent effects. Temporary impacts will be mitigated at a 1:1 ratio on site. SCE shall enter into a binding legal agreement regarding the preservation of off-site lands describing the terms of the acquisition, enhancement, and management of those lands. Management of coastal California gnatcatcher mitigation areas will be necessary to maintain habitat suitability over time. Activities that need to be addressed in the management plan include disturbances that reduce shrub cover, such as frequent fire, mechanical disruption, livestock grazing, off-highway vehicle use, and military training activities. Fee title acquisition of these habitat lands or a conservation easement shall be transferred to an entity approved by the CPUC, along with funding for enhancement of the land and an endowment for management of the land in perpetuity.

**B-27** Monitoring, avoidance, and minimization measures for special-status terrestrial herpetofauna.

A qualified biologist with demonstrated expertise with special-status terrestrial herpetofauna shall monitor all construction activities and assist SCE in the implementation of the monitoring efforts. The resume of the proposed biologist will be provided to the CPUC, USACE, and FS (as appropriate) for concurrence prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of the special-status terrestrial herpetofauna. Any special-status terrestrial herpetofauna found within a Project impact area shall be salvaged by the authorized biologist and relocated to suitable habitat outside the impact area. If the installation of exclusion fencing is deemed necessary by the authorized biologist, the authorized biologist will direct the installation of the fence. Clearance surveys for special-status herpetofauna shall be conducted by the authorized biologist prior to the initiation of construction each day.

**H-1a** Implement an Erosion Control Plan and demonstrate compliance with water quality permits.

SCE shall develop and submit to the CPUC and FS for approval 30 days prior to
construction an Erosion Control Plan, and implement Best Management Practices (BMPs), as described below. (Note: The Erosion Control Plan may be part of the same document as the Stormwater Pollution Prevention Plan.) Within the Erosion Control Plan, the applicant shall identify the location of all soil-disturbing activities, including but not limited to new and/or improved access and spur roads, the location of all streams and drainage structures that would be directly affected by soil-disturbing activities (such as stream crossings by access roads), and the location and type of all BMPs that would be installed to protect aquatic resources. The Erosion Control Plan shall include a proposed schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details. As part of the Erosion Control Plan, SCE shall maintain a logbook of all precipitation events within the Project area that produce more than one inch of precipitation within a 24-hour period. The logbook shall contain the date of the precipitation event, the approximate duration of the event, and the amount of precipitation (measured as the largest amount recorded by a rain gage or weather station within one mile of the Project). Additionally, the logbook shall include a narrative evaluation (and/or a numerical evaluation, if required by the FS or other jurisdictional agency) of the erosion-prevention effectiveness of the existing BMPs, as well as a description of any post-storm modifications to those BMPs. The logbook shall be submitted to the CPUC and FS for review within 30 days following the first storm event (after construction has begun) that produces greater than one inch of precipitation within a 24-hour period. SCE shall re-submit the logbook annually after the first storm of the rainy season that produces more than one inch of precipitation within a 24-hour period. The logbook shall be retired 5 years after completion of construction.

In addition to the Erosion Control Plan, the applicant shall submit to the CPUC and the FS evidence of possession of all required permits before engaging in soil-disturbing construction/demolition activities, before entering flowing or ponded water, or before constructing a crossing at flowing or ponded water. Such permits may include, but are not limited to, a Streambed Alteration Agreement from the California Department of Fish and Game, a Clean Water Act (CWA) Section 404 permit from the USACE, a CWA Section 402 NPDES General Permit for Storm Water Discharges Associated with Construction Activities (General Permit) from the applicable Regional Water Quality Control Board(s) (RWQCBs), and/or a CWA Section 401 certification from the applicable RWQCBs. In addition, if construction-related excavation activities on National Forest System (NFS) lands encounter perched groundwater, triggering the need for dewatering activities to occur in compliance with Applicant-Proposed Measure HYD-6 (Drilling and Construction Site Dewatering Management), SCE shall notify the Forest Service at the onset of dewatering and, upon the completion of dewatering activities at the affected site(s), SCE shall submit to the Forest Service written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface.

**H-1b Dry weather construction.** Any construction activities within the ANF and/or Chino Hills State Park (CHSP) (CHSP is only included as part of this measure for Alternative 4 [Routes A through D]) shall be scheduled to avoid anticipated precipitation events that are predicted to produce more than one-half inch of precipitation over a 24-hour period, unless expressly authorized by the FS. If an unexpected precipitation event occurs while construction activities are already underway, SCE shall contact the FS and/or State Parks for guidance. The FS and/or State Parks may require cessation of construction activities within their jurisdiction during any precipitation event in order to prevent excessive erosion and to protect aquatic resources. On NFS lands, SCE shall also observe any criteria promulgated by the FS regarding construction
during precipitation events. SCE shall provide documentation to the CPUC monitor of all wetweather coordination with the FS and/or State Parks.

2.5 Best Management Practices

Best management practices (BMPs) are applied to reduce impacts of an action to resources of concern. Specific BMPs have not yet been identified for the TRTP, but typical types of BMPs that would be followed for this project include (CalTrans, 2003):

- Temporary soil stabilization through techniques including timing of construction activities, preservation of existing vegetation, soil binders, mulch, and streambank stabilization;
- Temporary sediment control through techniques including silt fence, fiber rolls, gravel bag berm, and sandbag or straw bale barriers;
- Tracking control through techniques including stabilized construction roadways and exit/entrance areas and entrance/outlet tire wash;
- Non-stormwater management including temporary stream crossings; vehicle and equipment cleaning, fueling, and maintenance practices; and concrete curing and finishing practices; and
- Waste management and materials pollution control including stockpile management; spill prevention and control; and management of solid, hazardous, liquid, contaminated soil, concrete, and septic waste.

2.6 Sedimentation Analysis on the ANF

To support the analysis of potential effects of the Proposed Action to hydrological and biological resources, a soil erosion and sedimentation analysis was prepared (see the GIS-Based Soil Erosion & Sedimentation Analysis Report [Appendix A of the Hydrology and Water Quality Specialist Report for the TRTP; Aspen, 2008a]). The sediment analysis was conducted using a combined Revised Universal Soil Loss Equation (RUSLE) and Spatially-Explicit Sediment Delivery Model (SEDMOD). The analysis was conducted for Alternative 2 (SCE’s proposed Project) and Alternative 6 (Maximum Helicopter Construction in the ANF) because only Alternative 6 differs from the proposed Project or other alternatives with regard to soil-disturbing activities that would occur on NFS lands.

The Analysis Area for this analysis was defined by the watersheds within the ANF that would be affected by Project activities. These watersheds fall within three Hydrologic Units (HUs), as defined by the Inter-Watershed Mapping Committee (IWMC) otherwise referred to as CalWater and include the Santa Clara-Calleguas HU, the Los Angeles River HU, and the San Gabriel HU. Project-related soil disturbance within these HUs is contained by one Hydrologic Sub-Area (HSA) within each HU, including the Acton HSA within the Santa Clara-Calleguas HU, the Tujunga HSA within the Los Angeles River HU, and the Upper Canyon HSA within the San Gabriel River HU.

Table 3 identifies the sediment delivery points used in the erosion and sedimentation analysis. Tables 4 and 5 contain the results of the combined RUSLE and SEDMOD analysis conducted for the TRTP. It should be noted that results for Alternative 2 would be applicable to Alternatives 3 through 5 and 7, as these alternatives are identical to Alternative 2 in the Analysis Area for the sediment analysis.
### Table 3. Modeled Sediment Delivery Points (Catchment Output)

<table>
<thead>
<tr>
<th>Catchment ID</th>
<th>Location</th>
<th>Hydrologic Unit</th>
<th>Hydrologic Sub-Area</th>
<th>Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lynx Gulch @ Big Tujunga</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>1,879</td>
</tr>
<tr>
<td>2</td>
<td>Big Tujunga below Alder Creek</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>18,147</td>
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<tr>
<td>3</td>
<td>Alder Creek above Big Tujunga</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
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<td>4</td>
<td>Big Tujunga near Wickipup Canyon</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>24,939</td>
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<tr>
<td>5</td>
<td>Big Tujunga east of Big T. Reservoir</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>55,471</td>
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<tr>
<td>6</td>
<td>Mill Creek below Monte Cristo Creek</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>6,263</td>
</tr>
<tr>
<td>7</td>
<td>North Fork Mill Creek</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>2,039</td>
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<tr>
<td>8</td>
<td>Big Tujunga @ Fall Creek</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
<td>44,738</td>
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<td>9</td>
<td>Big Tujunga below Clear Creek</td>
<td>Los Angeles River</td>
<td>Tujunga HSA</td>
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<td>10</td>
<td>West Fork San Gabriel @ Shortcut Canyon</td>
<td>San Gabriel River</td>
<td>Upper Canyon HSA</td>
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<tr>
<td>11</td>
<td>W.F. San Gabriel above Cogswell Res.</td>
<td>San Gabriel River</td>
<td>Upper Canyon HSA</td>
<td>11,519</td>
</tr>
<tr>
<td>12</td>
<td>W.F. San Gabriel @ Butterfield Canyon</td>
<td>San Gabriel River</td>
<td>Upper Canyon HAS</td>
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<tr>
<td>13</td>
<td>Aliso Canyon @ Santa Clara River</td>
<td>Santa Clara River</td>
<td>Acton HSA</td>
<td>5,726</td>
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<td>14</td>
<td>Kentucky Springs @ Santa Clara River</td>
<td>Santa Clara River</td>
<td>Acton HSA</td>
<td>15,564</td>
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</tbody>
</table>

### Table 4. Sedimentation: Annual Sediment Delivery at Catchment Outlets (tons/year)

<table>
<thead>
<tr>
<th>Catchment ID</th>
<th>Baseline</th>
<th>Alternative 2 (SCE’s Proposed Project)</th>
<th>Alternative 6 (Maximum Helicopter Construction in the ANF)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>no BMPs</td>
<td>with BMPs vs. Baseline</td>
<td>no BMPs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>with BMPs vs. Baseline</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>vs. Alt. 2 with BMPs</td>
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<tr>
<td>1</td>
<td>8,075</td>
<td>8,373</td>
<td>8,179</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ 104</td>
<td>8,143</td>
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<td>25,719</td>
<td>26,301</td>
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<td></td>
<td></td>
<td>+ 204</td>
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</tr>
<tr>
<td>3</td>
<td>18,653</td>
<td>18,812</td>
<td>18,717</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ 63</td>
<td>18,705</td>
</tr>
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<td>31,880</td>
<td>32,457</td>
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<td>46,002</td>
<td>48,377</td>
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<td>+ 950</td>
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<td>+ 370</td>
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<td>47,718</td>
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<td></td>
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<td>44,165</td>
<td>46,573</td>
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<td>+ 843</td>
<td>44,511</td>
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<td>47,109</td>
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<td>+ 577</td>
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<td></td>
<td></td>
<td>+ 106</td>
<td>6,276</td>
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</tbody>
</table>

Average: 25,333 26,398 25,737 + 404 25,921 25,555 + 222 -183

1 Baseline sedimentation conditions represent the amount of sediment delivery that occurs under existing, undisturbed conditions within each catchment area. The effect that Project activities would have on sedimentation is best assessed in comparison to baseline conditions.

2 The values in this column represent the difference between baseline conditions and Project conditions with BMPs implemented.

3 The values in this column represent the difference between Alternative 2 conditions with BMPs and Alternative 6 conditions with BMPs.
Table 5. Percentage Differences in Erosion and Sedimentation (Baseline/Alternative 2 with BMPs/Alternative 6 with BMPs)

<table>
<thead>
<tr>
<th>Catchment ID</th>
<th>EROSION</th>
<th>SEDIMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alt. 2 vs. Baseline</td>
<td>Alt. 6 vs. Baseline</td>
</tr>
<tr>
<td>1</td>
<td>+1.0</td>
<td>+0.8</td>
</tr>
<tr>
<td>2</td>
<td>+0.5</td>
<td>+0.2</td>
</tr>
<tr>
<td>3</td>
<td>+0.2</td>
<td>+0.1</td>
</tr>
<tr>
<td>4</td>
<td>+0.5</td>
<td>+0.4</td>
</tr>
<tr>
<td>5</td>
<td>+1.2</td>
<td>+0.9</td>
</tr>
<tr>
<td>6</td>
<td>+2.3</td>
<td>+2.1</td>
</tr>
<tr>
<td>7</td>
<td>+4.4</td>
<td>+4.3</td>
</tr>
<tr>
<td>8</td>
<td>+1.2</td>
<td>+0.9</td>
</tr>
<tr>
<td>9</td>
<td>+1.1</td>
<td>+0.8</td>
</tr>
<tr>
<td>10</td>
<td>+1.0</td>
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<tr>
<td>11</td>
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<td>+0.3</td>
</tr>
<tr>
<td>12</td>
<td>+1.3</td>
<td>+0.6</td>
</tr>
<tr>
<td>13</td>
<td>+2.5</td>
<td>+1.1</td>
</tr>
<tr>
<td>14</td>
<td>+1.6</td>
<td>+0.8</td>
</tr>
</tbody>
</table>

Baseline conditions represent the natural processes of sediment transport and delivery that are currently and naturally occurring in the project area, absent any Project-related disturbance. The results presented in Table 5 indicate that neither Alternative 2 nor Alternative 6 would result in substantially greater rates of sediment delivery, or sedimentation, compared to baseline conditions.

Do note that baseline sedimentation conditions represent the amount of sediment delivery that occurs under existing, undisturbed conditions within each catchment area. The effect that Project activities would have on sedimentation is best assessed in comparison to baseline conditions.

As indicated in the tables above, the implementation of BMPs during Project construction activities would reduce sediment transport and delivery in the Analysis Area. Table 5 (Percentage Differences in Erosion and Sedimentation [Baseline/Alternative 2 with BMPs/Alternative 6 with BMPs]), provides a summary of differences between baseline conditions, Alternative 2 with BMPs, and Alternative 6 with BMPs. Additionally, as reflected in Table 4, the rates of sediment transport and delivery under Alternative 2 would be greater than under Alternative 6, both with and without the implementation of BMPs.

The natural variation in sediment delivery to streams in the Analysis Area is substantially greater than the modeled sedimentation increases that would result from Project activities. For example, most precipitation in the Analysis Area occurs during a four-month period in response to winter storms and periodic summer monsoon events, with storm events that generally tend to be both large and intense. During most of the year, little to no sediment is delivered to waterways in the Analysis Area. But during a large storm event, a substantial amount of sediment may be transported and delivered directly into aquatic habitat. This variation is completely independent of human activity and is part of the natural variation within the Analysis Area. Therefore, the increase in annual average sediment delivery (approximately 1.8 percent for Alternative 2 and 1.1 percent for Alternative 6) would not be considered substantial, in comparison with the magnitude of natural variation of sediment transport and delivery that presently occurs in the Analysis Area. Offsite sediment transport associated with a two-year storm event is
substantially lower compared to a five- seven- or ten-year storm event. For example, a single large winter storm event could result in the vast majority of the erosion and sedimentation in a given year.

2.7 Proposed Action

Project Description

The Proposed Action includes a combination of Alternatives 2, 3, 6, and 7 (Option 1) (See Figure 1). Analysis for each Alternative was considered in detail in both the TRTP Biological Specialist report (Aspen, 2008b) and within the CEQA/NEPA analysis (Aspen, 2009). The following discussion provides a summary of each of the alternatives that comprise the Proposed Action that is analyzed in this BA.

Alternative 2: SCE’s Proposed Project

SCE’s proposed Project would involve new and upgraded transmission infrastructure along approximately 173 miles of new and existing rights-of-way (ROW) from the TWRA in southern Kern County south through Los Angeles County and the Angeles National Forest (ANF) and east to the existing Mira Loma Substation in Ontario, San Bernardino County, California. The major components of SCE’s proposed Project have been separated into eight distinct segments. Under separate application to the CPUC, SCE previously requested approval for Segments 1, 2, and 3 of the Antelope Transmission Project, which would also enhance transmission and related infrastructure serving the TWRA. Consequently, the description of major components for the TRTP begins with Segment 4. Segments 4 through 8, as well as Segments 10 and 11 of the TRTP are transmission facilities, while Segment 9 addresses the addition and upgrade of substation facilities. The segments begin numerically (not geographically) with Segment 4 (S4) and continue through Segment 11 (S11); however the discussion throughout this document has been presented geographically beginning with the northernmost point located in the TWRA (Segment 10) and ending at the southern/easternmost point in Ontario (Segment 8). Mileages along each segment are denoted first by the segment number (Sx, where x is between 4 and 11), followed by MP (for milepost) and then the mileage. A summary of the proposed TRTP’s components, by segment, are provided in Table 6.

<table>
<thead>
<tr>
<th>Table 6. Summary of Alternative 2 (SCE’s Proposed Project) Components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Project Construction</strong></td>
</tr>
<tr>
<td>• Proposed construction duration of 59 months (estimated to begin in December 2009 and end in October 2014)</td>
</tr>
<tr>
<td>• Transmission facility construction generally scheduled for Monday through Friday, 7:00 a.m. to 5:00 p.m.; however, if extended hours are necessary, such as 24-hour construction, a variance would be acquired</td>
</tr>
<tr>
<td>• Substation construction generally scheduled for Monday through Friday, 7:00 a.m. to 5:00 p.m.; however, if extended hours are necessary a variance would be acquired</td>
</tr>
<tr>
<td>• Workforce ranging in size from 10 to 300 persons, with daily average workforce of approximately 75 persons</td>
</tr>
<tr>
<td>• Disturbance during construction of approximately 1,612 acres with a ±15% range of 1,370-1,854 acres, resulting in permanent land disturbance of approximately 349 acres with a ±15% range of 297-402 acres</td>
</tr>
<tr>
<td><strong>Segment 10: New Whirlwind – Windhub 500-kV T/L</strong></td>
</tr>
<tr>
<td>• Initiates at the approved Windhub Substation (not part of Project) and ends at the new Whirlwind Substation</td>
</tr>
<tr>
<td>• Construct new approximately 16.8-mile single-circuit Whirlwind – Windhub 500-kV T/L</td>
</tr>
<tr>
<td>• All proposed permanent infrastructure to be located within new 330-foot-wide ROW (approx. 16.8 miles)</td>
</tr>
<tr>
<td>• Erect approximately 96 new single-circuit 500-kV lattice steel towers (LSTs) (90-200 feet tall)</td>
</tr>
<tr>
<td>• Would require approximately 16 new wire setup sites for pulling/tensioner/splicing of conductor wire</td>
</tr>
</tbody>
</table>
### Table 6. Summary of Alternative 2 (SCE’s Proposed Project) Components

#### Segment 4: Whirlwind 500/220 kV T/L Elements
- Initiates at the proposed Cottonwind Substation (not part of Project) and ends at the existing Antelope Substation
- Construct two new parallel 4.0-mile single-circuit 220-kV T/Ls (Cottonwind – Whirlwind 220-kV No. 1 & No. 2)
- Construct new approximately 15.6-mile single-circuit Antelope – Whirlwind 500-kV T/L
- All proposed permanent infrastructure to be located within new 200-foot-wide ROW (approx. 19.6 miles total)
- Erect approximately 165 new transmission structures, including:
  - 88 single-circuit 220-kV LSTs (73-138 feet tall)
  - 77 single-circuit 500-kV LSTs (113-188 feet tall)
- Would require approximately 28 wire setup sites for pulling/tensioner/splicing of conductor wire

#### Segment 5: Antelope – Vincent No. 2 500-kV T/L
- Initiates at the existing Antelope Substation and ends at the existing Vincent Substation
- Remove the existing Antelope – Vincent 220-kV T/L and the existing Antelope – Mesa 220-kV T/L
- Construct new approximately 17.4-mile single-circuit Antelope – Vincent No. 2 500-kV T/L
- Most of the proposed permanent infrastructure (with the exception of side board width requirements of the new cutovers) to be located within existing ROW (approx. 17.4 miles)
- Erect approximately 67 new single-circuit 500-kV LSTs (90-193 feet tall)
- Would require approximately 37 wire setup sites for pulling/tensioner/splicing of conductor wire

#### Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L
- Initiates at the existing Vincent Substation and ends at the existing Mesa Substation
- Remove approximately 4 miles of the existing Pardee – Vincent No. 1 220-kV T/L
- Remove approximately 15 miles of the existing Eagle Rock – Pardee 220-kV T/L
- Construct new approximately 18.7-mile 500-kV single-circuit T/L between Vincent and Gould Substations (initially energized at 220 kV)
- Re-route portions of two existing 220-kV lines into Vincent Substation using currently idle towers.
- String approximately 17.5 miles (approximately 3.3 miles are located on National Forest System [NFS] lands) of new 220-kV conductor on the vacant side of the existing double-circuit structures of the Eagle Rock-Mesa 220-kV T/L (10 existing structures are located on NFS lands)
- Most of the proposed infrastructure would be located within existing ROW; however, the ROW may need to be expanded by up to approximately 250 feet to the west along the approximately 16 miles north of Gould Substation to maintain safe clearances from the edge of the ROW due to wire swing of the new 500-kV T/L under wind loading conditions
- Erect approximately 76 total new transmission structures (59 LSTs on NFS lands), including:
  - 2 single-circuit 220-kV poles (120 feet tall)
  - 7 single-circuit 220-kV LSTs (120-160 feet tall)
  - 67 single-circuit 500-kV LSTs (100-198 feet tall), of which 17 are configured as delta towers (10 on NFS lands)
- Construction of 16 structures by helicopter (all on NFS lands), supported by 7 helicopter staging areas (4 on NFS lands)
- Would require approximately 36 wire setup sites for pulling/tensioner/splicing of conductor wire (11 on NFS lands)
- Approximately 40 miles (±15% range of 34 to 46 miles) of roads, of which approximately 33 miles (±15% range of 28 to 38 miles) would be on NFS lands, would be created (new), reconstructed, or require some amount of maintenance
- The majority of this segment would be located on NFS lands including: S11 MP 1.5-3.5, 3.75-18.5, 19.25-20.3, 20.8-21.3, 21.8-22.6, 23.05-24.15, and 24.35-24.55 (in-holdings or other non-NFS lands are located between the mileposts listed)

#### Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L
- Initiates at the existing Vincent Substation and ends at the southern boundary of the ANF
- Remove approximately 5 miles of the existing Rio Hondo – Vincent No. 2 220-kV T/L between Vincent Substation and the “crossover” span (S6 MP 5.0)
- Construct new approximately 5-mile single-circuit Mira Loma – Vincent 500-kV T/L from the Vincent Substation to the “crossover” span (S6 MP 5.0)
- Remove approximately 26.9 miles of the existing Antelope – Mesa 220 kV T/L from Vincent Substation to the southern boundary of the ANF
- Construct new approximately 26.9-mile single-circuit Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV)
- Eliminate the existing crossing of the Rio Hondo – Vincent No. 2 220-kV T/L over the Antelope – Mesa 220-kV T/L
- All proposed permanent infrastructure to be located within existing ROW (approx. 27 miles)
Table 6. Summary of Alternative 2 (SCE’s Proposed Project) Components

- Erect approximately 138 total new transmission structures (105 on NFS lands – 99 LSTs and 6 tubular steel poles [TSPs]), including:
  - 2 single-circuit 220-kV LSTs (90-120 feet tall)
  - 26 single-circuit 500-kV TSPs (75-200 feet tall)
  - 106 single-circuit 500-kV LSTs (85-193 feet tall)
  - 4 three-pole dead-end 500-kV structures (75-80 feet tall) [all off NFS lands]
- Construction of 17 structures by helicopter (all on NFS lands), supported by 6 helicopter staging areas (5 on NFS lands)
- Would require approximately 19 wire setup sites for pulling/tensioner/splicing of conductor wire (16 on NFS lands – In addition, 5 alternate sites have been identified on NFS lands)
- Approximately 60 miles (±15% range of 51 to 69 miles) of roads, of which approximately 57 miles (±15% range of 49 to 66 miles) would be on NFS lands, would be created (new), reconstructed, or require some amount of maintenance
- The majority of this segment would be located on NFS lands including: S6 MP 1.45-1.7, 2.75-5.3, 5.65-6.7, 6.7-6.95, 7.05-24.8 (in-holdings or other non-NFS lands are located between the mileposts listed)

Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L

- Initiates at the southern boundary of the ANF and ends at the existing Mesa Substation
- Remove approximately 15.8 miles of the existing Antelope – Mesa 220-kV T/L between the southern boundary of the ANF and the Mesa Substation
- Construct new approximately 15.8-mile 500-kV double-circuit T/L to include the Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and the new Mira Loma – Vincent 500-kV T/L
- Connect the new Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) into the Rio Hondo Substation
- Relocate several existing 66-kV subtransmission lines between the existing Rio Hondo Substation and the existing Mesa Substation
- All proposed permanent infrastructure to be located within existing ROW (approx. 15.8 miles)
- Erect approximately 85 new transmission structures, including:
  - 1 double-circuit 220-kV LST (185 feet tall)
  - 2 double-circuit 500-kV TSPs (195-200 feet tall)
  - 3 single-circuit 500-kV LSTs (113-175 feet tall)
  - 79 double-circuit 500-kV LSTs (147-262 feet tall)
- Erect approximately 150 new double-circuit 66-kV subtransmission Light Weight Steel Poles (LWSPs) and TSPs
- Would require approximately 16 wire setup sites for pulling/tensioner/splicing of conductor wire

Segment 8: Section of New Mira Loma – Vincent 500-kV T/L

- Initiates near the existing Mesa Substation and ends at the existing Mira Loma Substation
- Remove various 220-kV T/L structures between the existing Mesa Substation and the existing Mira Loma Substation
- Construct approximately 33 miles of new double-circuit 500-kV T/L to include approximately 33 miles of the new Mira Loma – Vincent 500-kV T/L (Segments 8A/8C)
- Construct approximately 7 miles of new double-circuit 220-kV T/L from the Chino Substation to the Mira Loma Substation (Segment 8B)
- Relocate several existing 66-kV subtransmission lines in the area of the Mesa and Chino Substations
- Most of the proposed infrastructure would be located within existing ROW, except for the following:
  - Rose Hills Memorial Park ROW relocation (existing: 1.1-mile, 150-foot-wide; future: 1.4-mile, 240-foot-wide)
  - Hacienda Heights ROW expansion (existing: 2.15-mile, 150 to 230-foot-wide; future: 250 to 330-foot-wide)
  - Fullerton Road new ROW (existing: none; future: 0.4-mile, 100-foot-wide)
  - Ontario (near Mira Loma Substation) ROW expansion (existing: 0.45-mile, 175-foot-wide; future: 325-foot-wide)
- Erect approximately 226 new transmission structures, including:
  - 2 single-circuit 220-kV LSTs (65-75 feet tall)
  - 57 double-circuit 220-kV LSTs (113-180 feet tall)
  - 3 single-circuit 500-kV LSTs (128-149 feet tall)
  - 92 double-circuit 500-kV LSTs (147-255 feet tall)
  - 2 single-circuit 220-kV TSPs (85-95 feet tall)
  - 11 double-circuit 220-kV TSPs (75-115 feet tall)
  - 5 three-pole dead-end 220-kV structures (75-110 feet tall)
  - 4 single-circuit 500-kV TSPs (120-170 feet tall)
  - 50 double-circuit 500-kV TSPs (150-195 feet tall)
Table 6. Summary of Alternative 2 (SCE’s Proposed Project) Components

<table>
<thead>
<tr>
<th>Components</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>• Erect approximately 55 new double-circuit 66-kV subtransmission LWSPs and 6 TSP riser poles</td>
<td></td>
</tr>
<tr>
<td>• Would require approximately 33 wire setup sites for pulling/tensioner/splicing of conductor wire</td>
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</tr>
</tbody>
</table>

Segment 9: Substation Facilities

<table>
<thead>
<tr>
<th>Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Construct new Whirlwind Substation; activity would require acquisition of a new approximately 106-acre substation property</td>
<td></td>
</tr>
<tr>
<td>• Expand and upgrade existing Antelope and Vincent Substations to accommodate new 500-kV and 220-kV equipment; activity would require acquisition of additional substation property – approximately 20 acres for Antelope upgrade and approximately 0.2 acre for Vincent upgrade; Vincent expansion would disturb approximately 20 acres</td>
<td></td>
</tr>
<tr>
<td>• Upgrade existing Mesa and Gould Substations to accommodate new 220-kV equipment</td>
<td></td>
</tr>
<tr>
<td>• Upgrade existing Mira Loma Substation to accommodate new 500-kV equipment</td>
<td></td>
</tr>
</tbody>
</table>

Source: SCE, 2007a. Updated per GIS data submitted by SCE during EIR/EIS development.

Please note that the information provided herein is based on SCE’s preliminary design for the TRTP and is subject to change during final engineering. For land disturbance numbers, a deviation factor of ±15 percent has been incorporated to provide a range allowing for the error associated with a project that has only gone through preliminary engineering. Furthermore, all mileages are approximate due to differences between engineering miles, which take into account topography, and map miles, which assume no variation in topography.

**Alternative 3: West Lancaster Alternative**

The West Lancaster Alternative would deviate from the proposed route (Alternative 2) at approximately S4 MP 14.9, where the new 500-kV T/L would turn south down 115th Street West for approximately 2.9 miles and turn east for approximately 0.5 mile, rejoining the proposed route at S4 MP 17.9. This re-route would increase the overall distance of Segment 4 by approximately 0.4 mile; however, the number of overall structures would decrease by one due to greater spacing between structures compared to Alternative 2.

Alternative 3 would be identical to Alternative 2 with respect to Segments 5, 6, 7, 8, 10, and 11. All substation and information technology facilities would be identical to Alternative 2. Construction of Alternative 3 would generally be the same as Alternative 2; however, there would be a decrease in the land disturbance total by a factor of one structure within Segment 4. As such, the acres disturbed during construction along this segment would continue to be approximately 166 acres, and the acres permanently disturbed would continue to be approximately 20 acres.

New access and spur roads would need to be created in the area of the re-routed portion of Alternative 3, similar to the Alternative 2 Segment 4 route. Ideally, down-line access roads would follow the route within the ROW, and would parallel the route with spur roads going to one or more structure locations when down-line access is not possible. SCE would attempt to use existing roads to the extent possible and would only need to build new access or spur roads where the existing roads do not provide the required access.

Operations and maintenance of Alternative 3, including T/L and substation components, would be identical to Alternative 2.
Alternative 6: Maximum Helicopter Construction in the ANF Alternative

This alternative would utilize helicopter construction within the ANF to the maximum extent feasible. Helicopter construction would be required for 33 structures under Alternative 2. Alternative 6 would increase the number of structures constructed by helicopter to 148. Potential helicopter staging and landing areas for both alternatives, specifically medium- to large-sized sites required for helicopter assembly and materials storage, have been identified within the vicinity of Segments 6 and 11 to facilitate helicopter construction within the ANF. All the locations appear to have existing access roads to them or within close proximity and should be accessible for the delivery and staging of materials, equipment, and personnel.

Tables 7 and 8 below provide detailed overviews of each candidate helicopter construction staging/support area or marshalling yard, including a description of the site, approximate size, and necessary improvements. Smaller landing areas generally used for personnel drop-off/pick-up, emergency landing, and construction landing pads require less acreage. As such sites are considered to be abundant throughout the ANF, siting of these helicopter sites was not considered a limiting factor in developing this alternative. Examples of such sites may include road pull-outs, ANF facility parking lots, and other previously disturbed areas. Same as SCE’s proposed Project (Alternative 2), it has been assumed that two support yards (100-feet by 100-feet) would be utilized per staging area and that a landing pad (40-feet by 40-feet) would be required for each tower constructed by helicopter. The siting of these smaller helicopter staging areas would be conducted with the input of the helicopter contractor, and affected private landowners and land management agencies, such as the Forest Service, during final engineering.

<table>
<thead>
<tr>
<th>Site #</th>
<th>Location (Proximity to the T/L)</th>
<th>Description of Site (Ownership / Existing Conditions / Accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCE#0</td>
<td>Adjacent to Beartrap Canyon, south of Aliso Canyon Road, and approximately 0.45 mile east of S11 MP 3.9</td>
<td>Located off NFS land. Site is just south of Aliso Canyon Rd, 2.5 miles northwest of the junction with Angeles Forest Highway. The area proposed for use includes a disturbed upland and an adjacent slope. All or part of the upland may have been used for agriculture in the past. It now supports a mix of native and non-native species that are recolonizing since the site was last cleared. Common species are annual ragweed, one or more mustard species, and a few scattered native shrubs. The adjacent slope is below the upland and facing southwest. The sloped area represents more than half of the site and is covered by chaparral that appears to have burned in the last ca. five years. Native vegetation on the slope includes chamise, bush poppy, yerba santa, and other native shrubs.</td>
</tr>
<tr>
<td>SCE#1</td>
<td>Along north side of Mt. Gleason Road, approximately 0.3 mile east of S11 MP 7.6</td>
<td>Located on NFS land. Site is north of Forest Road 3N17 and east of the junction with Forest Road 4N24. The area includes mature chaparral, a stand of rabbitbrush scrub, and a disturbed roadside turnout. Chaparral occupies the western half of the site and is dominated by manzanita and oaks. Rabbitbrush scrub occupies the eastern half of the site and is dominated by rabbitbrush and yerba santa. The disturbed area is forty feet square, at the junction of Forest Road 4N24. Manzanitas present on this site could possibly be San Gabriel Manzanita (CNPS List 1B.2); however, positive identification cannot occur at this time of year (November 2008).</td>
</tr>
<tr>
<td>SCE#2</td>
<td>Along and south of Forest Road 3N27, immediately west of S11 MP 9.3 near Structure #36</td>
<td>Located on NFS land. Site is off Forest Road 3N27, 1.3 miles south of the junction with Forest Road 3N17. It is situated on a south-facing ridgeline, and the road crosses it along the contours of the east and west-facing slopes. Except for the road, the site is covered by chaparral, dominated by oaks, manzanitas, and chamise. Steep slopes are located both above and below the road. A new road would need to be built to allow access to the site.</td>
</tr>
</tbody>
</table>
### Table 7. Proposed Project Helicopter Staging Areas for Construction of Towers Within the ANF

<table>
<thead>
<tr>
<th>Site #</th>
<th>Location (Proximity to the T/L)</th>
<th>Description of Site (Ownership / Existing Conditions / Accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCE#3</td>
<td>Along and north of Forest Road 3N27, west of S11 MP 10.75</td>
<td>Located on NFS land. Site is off Forest Road 3N27, approximately 2.3 miles south-southwest of the junction with Forest Road 3N17. The site is situated on a ridgeline above the road, which wraps around the slope just below. Vegetation is chaparral as described above for SCE#2. A new road would need to be built to allow access to the site.</td>
</tr>
<tr>
<td>SCE#3B</td>
<td>Terraced area near Big Tujunga Dam approximately 0.15 mile west-southwest of Big Tujunga Canyon Road and S11 MP 14.5</td>
<td>Located on NFS lands. Site is a currently disturbed area, located on the plateau on top of a bench and graded hillside. The plateau is bounded to the east by Big Tujunga Canyon Road, to the north by a steep rocky slope, to the south by vegetated hills, and open space to the west (where the benchled hillside stretches down into Big Tujunga Canyon). Direct access provided via Big Tujunga Canyon Road, which would be temporarily closed during helicopter operations.</td>
</tr>
<tr>
<td>SCE#4</td>
<td>Adjacent to and west of Mt Lukens Road (Forest Road 2N76.3), Angeles Crest Station, and S11 MP 18.0</td>
<td>Located off NFS lands. Site is off Forest Road 2N76.3, about 0.75 mile west of Angeles Crest Highway. This site is apparently on private land and is in use as an apiary (dozens of active hives within a fenced area). The entire site is covered by perennial grassland (dominated by <em>Elymus</em>) with a few scattered native shrubs including elderberry and oaks. The surrounding slopes are covered with chaparral shrubs. The site appears to have been scraped in the past and probably seeded with grasses.</td>
</tr>
<tr>
<td>SCE#5</td>
<td>Along Forest Road 2N69 just north of Gould Substation and west of S11 MP 18.6</td>
<td>Located off NFS lands. Site is east of Angeles Crest Highway at the Gould substation. The majority of the site is chaparral (dominated by oaks, chamise, and laurel sumac). There is a large cleared area near the center of the site that has only sparse, weedy plant cover and there is a dense stand of Spanish broom at the roadside. There is no potential for rare species within the disturbed portion of the site.</td>
</tr>
<tr>
<td>SCE#6</td>
<td>West of Shortcut Station adjacent to Upper Big Tujunga Canyon Road (Forest Road 3N19), approximately 0.35 mile west of S6 MP 16.5</td>
<td>Located on NFS lands. The site is on an unnamed road behind the Shortcut Fire Station near the upper end of Upper Big Tujunga Road, approximately 0.6 mile northeast of the junction with Angeles Crest Highway. Roughly half of the site is developed with two small reservoirs, a small building, a large open storage area and the access road. The remainder of the site, southeast of the developed area, is covered by chaparral (dominated by manzanita, oaks, and chamise). There are also scattered Coulter pines throughout the site. Much of the site has apparently been thinned for brush clearance in the past year, but much of the chaparral is still dense. No rare species were observed.</td>
</tr>
<tr>
<td>SCE#6B</td>
<td>Barley Flats (former US Air Force Nike missile site), 0.5 mile north of Angeles Crest Hwy and 1.75 miles west-NW of intersection with Upper Big Tujunga Canyon Rd, approximately 1.8 miles west of S6 MP 16.75</td>
<td>[Same as Alternative 6 Site #7] Located on NFS lands. This is a split site which includes an existing helipad (operated and maintained by the Los Angeles County Sheriff’s Department) located to the south of Barley Flats Road, used in conjunction with a portion of the former US Air Force Nike missile site known as “Barley Flats”. The Barley Flats area encompasses two lots located at the western end of Barley Flats Road; because the western lot is currently occupied by numerous abandoned buildings which may have potential for Historical designation, only the eastern lot is included as part of this helicopter staging site. No existing structures in the western lot would be removed. The eastern lot of Barley Flats, as included in this split site, is currently bordered to the west by several small abandoned structures, to the north by mature natural-growth trees, to the east by what appears to be an abandoned stormwater detention basin, and to the south by an earth embankment and another abandoned structure (possibly an old office). The existing entrance to this lot is located in the southwestern corner. The Los Angeles County Sheriff’s helipad that would be used in conjunction with the eastern Barley Flats lot is considered large enough to accommodate the sky crane required for helicopter construction. The helipad area is surrounded by mature trees, some of which may need to be removed to land the sky crane. Use of this site as a helicopter staging area would include helicopters and a sky crane landing at the helipad, with tower laydown and assembly taking place at the eastern Barley Flats lot. Access provided via Barley Flats Road, which is accessed from Angeles Crest Highway (approximately 300 feet west of Upper Big Tujunga Canyon Road). Barley Flats Road is just over three miles long, heading in a west-northwest direction towards the proposed helicopter site. Barley Flats Rd is currently gated at Angeles Crest Highway.</td>
</tr>
</tbody>
</table>
## Table 7. Proposed Project Helicopter Staging Areas for Construction of Towers Within the ANF

<table>
<thead>
<tr>
<th>Site #</th>
<th>Location (Proximity to the T/L)</th>
<th>Description of Site (Ownership / Existing Conditions / Accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCE#7</td>
<td>Adjacent to Rincon-Redbox Road in the Newcomb Pass area, approximately 0.36 mile west of junction with Shortcut-Edison Road, just west of S6 MP 19.5</td>
<td>[Same as Alternative 6 Site #9] Located on NFS lands. Site is a currently disturbed area used by Forest Service fire personnel as a helicopter landing site. Site is relatively flat and in some areas supports large populations of nonnative grasses and Spanish broom. Mature oaks and potential spotted owl habitat surround the site. Native vegetation has recruited in many areas and includes California buckwheat, ceanothus, and manzanita. A small depression occurs near the middle of the site which collects seasonal rainfall. This area supports wetland plant species such as spikerush. Several recreational trails cross or pass near to the site, and are used extensively by recreationists during the summer months. Access to the site is via two points along Rincon-Redbox Road just west of the intersection with Shortcut-Edison Road.</td>
</tr>
<tr>
<td>SCE#8</td>
<td>West of Van Tassel Road, north of Duarte, west of S6 MP 26</td>
<td>[Same as Alternative 6 Site #11] Located on NFS lands. Site is adjacent to Forest Road 1N36, about 0.5 mile southwest of Mount Bliss. Roughly half of the site is disturbed due to the road, a dirt turnout, and a water tower. The remaining half is covered by native vegetation. A knoll near the center is covered by coastal sage scrub (dominated by California buckwheat and black sage), surrounded on all sides are chaparral (dominated by manzanita, ceanothus, and laurel sumac). There is a woodland of California bay laurel and canyon live oak immediately north of the site. <em>Quercus durata</em> var. <em>gabrielensis</em> (CNPS List 4.2) is present on the site. There is no potential for rare species in the disturbed portion of the site.</td>
</tr>
<tr>
<td>SCE#9</td>
<td>Fish Canyon Rifle Range, 1.2 miles east of S7 MP 0.6 accessed via Fish Canyon Road in Azusa</td>
<td>Located off NFS lands. Site is at the end of Fish Canyon Road near the mouth of Fish Canyon. It is on an abandoned gun club shooting range. The site is entirely disturbed and is covered almost entirely by concrete. There is a small area of bare soils where the actual firing range was that is sparsely covered by non-native <em>Pennisetum</em> and a few native weedy annual plants. There is no potential for rare plants on this site.</td>
</tr>
<tr>
<td>SCE#10</td>
<td>Southwest of Cogswell Reservoir, accessed via Highway 39, San Gabriel Canyon Road</td>
<td>Located on NFS lands. The site is located just southwest of the Cogswell Reservoir dam on FS road 2N25. This area has been previously disturbed as part of the construction of Cogswell Reservoir. It consists of Cogswell Main and Cogswell Annex, two open graded areas at the top of a fill slope that was apparently created by placing sediment from the reservoir into a side canyon. The site is accessed by a paved, switchback road that climbs the steep fill slope. The fill slope and the site at the top have apparently been seeded with a variety of native species, dominated by California buckwheat (<em>Eriogonum fasciculatum</em>). Various nonnative annual grasses and forbs are also present. The site is surrounded by native vegetation, and San Gabriel scrub oak was found present adjacent to the site. An unidentified mariposa lily, possibly Plummer’s mariposa lily, was also observed adjacent to the site.</td>
</tr>
</tbody>
</table>

## Table 8. Alternative 6 Helicopter Staging Areas for Construction of Towers Within the ANF

<table>
<thead>
<tr>
<th>Site #</th>
<th>Location (Proximity to the T/L)</th>
<th>Description of Site (Ownership / Existing Conditions / Accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adjacent to the west of Angeles Forest Highway at the intersection with Mount Emma Road, approximately 0.1 mile east of S6 MP 3.0</td>
<td>Located on National Forest System (NFS) lands. Site is level and undeveloped. This area appears to have burned recently (based on site visit in June 2008); there is currently moderate vegetative cover, with possible invasive species beginning to establish. A rise of approximately 5 to 6 feet separates the site from Angeles Forest Highway. Direct access provided via Angeles Forest Highway, which would be temporarily restricted during helicopter operations.</td>
</tr>
<tr>
<td>2</td>
<td>Adjacent to the south of Aliso Canyon Road, 0.5 mile NW of Price Ranch Rd, within 0.1 mile to the east of S11 MP 3.75</td>
<td>Located on a private in-holding (this is a private site which SCE plans to use for Alternative 2 as a pulling/stringing site). Site is relatively level with vegetation cover. Scattered homes are nearby, to the south. Direct access provided via Aliso Canyon Road, which would be temporarily restricted during helicopter operations.</td>
</tr>
<tr>
<td>Site #</td>
<td>Location (Proximity to the T/L)</td>
<td>Description of Site (Ownership / Existing Conditions / Accessibility)</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>South of Aliso Canyon Road and east of Price Ranch Road, roughly equidistance between Segments 6 and 11</td>
<td>Located on NFS lands. Site is currently undeveloped with dense vegetation cover. Site is adjacent to the north of Aliso Creek, and is in a Riparian Conservation Area (RCA). Direct access provided via Aliso Canyon Road, which would be temporarily restricted during helicopter operations.</td>
</tr>
<tr>
<td>4</td>
<td>Along south side of a non-Forest system road, near where road ends. Approximately 0.15 mile north of Mt. Gleason Road, approximately 1.7 miles west of S11 MP 7.8</td>
<td>Located on NFS lands. The site appears to have been graded in the past and is relatively flat for those portions along the existing access road. The site drops off rapidly as you head down slope (west). The site is undeveloped except for a small weather station near the middle of the parcel. There is evidence of a past revegetation effort with some seedlings remaining. Site is long and narrow and stretches along southern side of road. On the northern side of the road are the remnants of a stone and concrete outbuilding of indeterminate age. Also on the north side of the road just east of the site is a water tank and associated buildings. There is a microwave tower at the intersection of the non-system access road and Mt. Gleason Road. Mt. Gleason Indian Paintbrush, a State-listed Rare and Forest Service Sensitive plant, was identified adjacent to the site.</td>
</tr>
<tr>
<td>5</td>
<td>Within 0.1 mile to the west of Forest Road 4N18 and 0.3 mile NW of Rabbit Peak, within 0.1 mile to the west of S6 MP 9.75</td>
<td>Located on NFS lands. This is a currently undeveloped area which is occupied by moderate vegetation and a population of medium- to mature pine trees. Access would be provided via a new temporary spur road from Forest Road 4N18, which would be temporarily restricted during helicopter operations.</td>
</tr>
<tr>
<td>6</td>
<td>Adjacent to the west of Upper Big Tujunga Canyon Road and 0.8 mile SE of Lynx Gulch, approximately 0.25 mile west of S6 MP 14.0</td>
<td>Located on NFS lands. This site is currently undeveloped and populated by moderate vegetation with some small- to medium-sized pine trees (natural growth). Site is currently fairly narrow, but could be expanded with grading. Slopes vary throughout the site. This site is near Lynx Gulch Road, a sensitive resource for multiple amphibian species. Site encroaches upon Big Tujunga Creek, located to the west. Access provided via Upper Big Tujunga Canyon Road, which would be temporarily restricted during helicopter operations. After improvements, the site would connect with Upper Big Tujunga Canyon Road via a new access road.</td>
</tr>
<tr>
<td>7</td>
<td>Barley Flats (former US Air Force Nike missile site), 0.5 mile north of Angeles Crest Hwy and 1.75 miles west-NW of intersection with Upper Big Tujunga Canyon Rd, approximately 1.8 miles west of S6 MP 16.75</td>
<td>[Same as SCE#6B] Located on NFS lands. This is a split site which includes an existing helipad (operated and maintained by the Los Angeles County Sheriff’s Department) located to the south of Barley Flats Road, used in conjunction with a portion of the former US Air Force Nike missile site known as “Barley Flats”. The Barley Flats area encompasses two lots located at the western end of Barley Flats Road; because the western lot is currently occupied by numerous abandoned buildings which may have potential for Historical designation, only the eastern lot is included as part of this helicopter staging site. No existing structures in the western lot would be removed. The eastern lot of Barley Flats, as included in this split site, is currently bordered to the west by several small abandoned structures, to the north by mature natural-growth trees, to the east by what appears to be an abandoned stormwater detention basin, and to the south by an earth embankment and another abandoned structure (possibly an old office). The existing entrance to this lot is located in the southwestern corner. The Los Angeles County Sheriff's helipad that would be used in conjunction with the eastern Barley Flats lot is considered large enough to accommodate the sky crane required for helicopter construction. The helipad area is surrounded by mature trees, some of which may need to be removed to land the sky crane. Use of this site as a helicopter staging area would include helicopters and a sky crane landing at the helipad, with tower laydown and assembly taking place at the eastern Barley Flats lot. Access provided via Barley Flats Road, which is accessed from Angeles Crest Highway (approximately 300 feet west of Upper Big Tujunga Canyon Road). Barley Flats Road is just over three miles long, heading in a west-northwest direction towards the proposed helicopter site. Barley Flats Rd is currently gated at Angeles Crest Highway.</td>
</tr>
</tbody>
</table>
### Table 8. Alternative 6 Helicopter Staging Areas for Construction of Towers Within the ANF

<table>
<thead>
<tr>
<th>Site #</th>
<th>Location (Proximity to the T/L)</th>
<th>Description of Site (Ownership / Existing Conditions / Accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Terraced area near Big Tujunga Dam approximately 0.15 mile west-southwest of Big Tujunga Canyon Road and S11 MP 14.5</td>
<td>Located on NFS lands. Site is a currently disturbed area, located on the plateau on top of a benched and graded hillside. The plateau is bounded to the east by Big Tujunga Canyon Road, to the north by a steep rocky slope, to the south by vegetated hills, and open space to the west (where the benched hillside stretches down into Big Tujunga Canyon). Direct access provided via Big Tujunga Canyon Road, which would be temporarily closed during helicopter operations.</td>
</tr>
<tr>
<td>9</td>
<td>Adjacent to Rincon-Redbox Road in the Newcomb Pass area, approximately 0.36 mile west of junction with Shortcut-Edison Road, just west of S6 MP 19.5</td>
<td>[Same as SCE#7] Located on NFS lands. Site is a currently disturbed area used by Forest Service fire personnel as a helicopter landing site. Site is relatively flat and in some areas supports large populations of nonnative grasses and Spanish broom. Mature oaks and potential spotted owl habitat surround the site. Native vegetation has recruited in many areas and includes California buckwheat, ceanothus, and manzanita. A small depression occurs near the middle of the site which collects seasonal rainfall. This area supports wetland plant species such as spikrus. Several recreational trails cross or pass near the site, and are used extensively by recreationists during the summer months. Access to the site is via two points along Rincon-Redbox Road just west of the intersection with Shortcut-Edison Road.</td>
</tr>
<tr>
<td>10</td>
<td>Adjacent to the north of Angeles Forest Hwy, ~0.25 mile north of intersection with Big Tujunga Canyon Road, 0.8 mile east of S11 MP 13.25</td>
<td>Located on NFS lands. Site is an old, abandoned Forest Service overlook site that includes a flattened area (probably the old parking lot), some remnant retaining walls, and other stone/masonry walls. Above the flat area, there is a knob approximately 8 to 10 feet higher than the flat. The flat is covered with Spanish broom; the knob has brush and scattered trees. The site is accessible by an existing access road, but it is gated at the intersection of Angeles Forest Highway to prohibit vehicular access by the public.</td>
</tr>
<tr>
<td>11</td>
<td>West of Van Tassel Road, north of Duarte, west of S6 MP 26</td>
<td>[Same as SCE#8] Located on NFS lands. Site is adjacent to Forest Road 1N36, about 0.5 mile southwest of Mount Bliss. Roughly half of the site is disturbed due to the road, a dirt turnout, and a water tower. The remaining half is covered by native vegetation. A knob near the center is covered by coastal sage scrub (dominated by California buckwheat and black sage), surrounded on all sides are chaparral (dominated by manzanita, ceanothus, and laurel sumac). There is a woodland of California bay laurel and canyon live oak immediately north of the site. <em>Quercus durata var. gabielenis</em> (CNPS List 4.2) is present on the site. There is no potential for rare species in the disturbed portion of the site.</td>
</tr>
<tr>
<td>12</td>
<td>Roadside turnout adjacent to Angeles Forest Highway, east of S6 MP 6.6</td>
<td>Located on NFS lands. This is a roadside turnout adjacent to Angeles Forest Highway north of Mill Creek Summit Station. The site is open graded road turnout approximately 0.60 acres in size. Transmission lines pass over the site. Much of the site is open with very little vegetative cover. The vegetation that does occur within the site includes non-native annual grasses and some native annuals and perennial herbs. The fill slope beneath the turnout is covered by rabbittail scrub. There is no natural habitat and minimal potential for special-status species to occur in the turnout area, but the surrounding natural vegetation has the potential to provide habitat for several special-status plants, including San Gabriel manzanita (<em>Arctostaphylos gabrielenis</em>), Plummer’s mariposa lily (<em>Calochortus plummerae</em>), Mount Gleason Indian paintbrush (<em>Castilleja gleasonii</em>), San Gabriel Mountains sunflower (<em>Hulsea vestita subsp. gabielenis</em>), short-jointed beavertail cactus (<em>Opuntia basilaris var. brachyclada</em>), chickweed oxycantha (<em>Oxycantha caryophylloides</em>), Transverse Range phacelia (<em>Phacelia exilis</em>), and Lemmon’s syntrichopappus (<em>Sytrichophappus lemmonii</em>).</td>
</tr>
<tr>
<td>13</td>
<td>Existing helicopter landing area located off 3N17.4, east of S6 MP 7.5</td>
<td>Located on NFS lands. Existing helicopter landing area southeast of Mill Creek Summit Station. The site is a flat dirt area approximately 0.38 acres in size. The helipad has very minimal cover of non-native annual grasses surrounded by native vegetation. Vegetation on the site includes non-native annual grasses and some native herbs such as perennial woollystar and sandaster (<em>Corethrogyn flaviginolia</em>). Most of the surrounding vegetation is chaparral dominated by chamise, San Gabriel manzanita, chaparral whitethorn (<em>Ceanothus leucodermis</em>) and desert ceanothus (<em>Ceanothus greggii</em>). There also is a Coulter pine (<em>Pinus coulteri</em>) plantation adjacent to the site. San Gabriel manzanita is a CNPS list 1B.2 and Forest Service Sensitive plant. It was observed immediately adjacent to the helipad. There is no natural habitat and minimal potential for special-status species to occur on the helipad site, but the surrounding natural vegetation has the potential to provide habitat for several special-status plants, including Plummer’s mariposa lily, Mount Gleason Indian paintbrush, <em>Arctostaphylos gabrielenis</em>, and Mount Plummer’s mariposa lily.</td>
</tr>
</tbody>
</table>
Due to the weight of the loads to be carried by the helicopters (namely sky cranes), and limitations on the quantity of fuel carried by each helicopter, only those towers located within an approximately 2.5-mile radius of the helicopter staging areas or marshalling yards were considered to be candidates for helicopter construction. All towers within these zones located within the ANF on NFS lands have been assumed to be helicopter constructed for the purposes of this alternative. Those towers which fell within the 2.5-mile radius, but were located outside of the ANF (at the north end near Vincent Substation) were not included in this alternative as there is a well established existing roadway network to allow for ground-based construction.

Furthermore, outside of the ANF there are fewer restrictions with respect to the use of the existing roadways, unlike within the ANF where use of USDA Forest Service roads must be in compliance with Operational Maintenance Levels (OMLs) and other requirements of the Angeles National Forest 2005 Land Management Plan.

Alternative 6 would be identical to Alternative 2 with respect to Segments 4, 5, 7, 8, and 10. All substation and information technology facilities would be identical to Alternative 2.

**Alternative 7: 66-kV Subtransmission Alternative**

This alternative is comprised of four 66-kV subtransmission line elements including the following: (1) Undergrounding the existing 66-kV subtransmission line in Segment 7 through the Woodland Duck Farm/River Commons at the Duck Farm Project (Duck Farm Project) between Valley Boulevard (S7 MP 8.9) and S7 MP 9.9 as requested by the Board of Supervisors County of Los Angeles to minimize the Project’s effects to passive recreation opportunities in the planned Duck Farm Project area; (2) Re-routing and undergrounding the existing 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7 (S7 MP 11.4 to 12.025) to provide habitat enhancement for least Bell’s vireos, as identified by SCE; (3) Re-routing the existing 66-kV subtransmission line through the Whittier Narrows Recreation Area in Segment 7 (S7 MP 12.0 to 13.6) immediately north of the existing 220-kV ROW to reduce the number of structures required (20-foot expanded ROW required); and (4) Re-routing the existing 66-kV subtransmission line around the Whittier Narrows Recreation Area in Segment 8A between the San Gabriel Junction (S8A MP 2.2) and S8A MP 3.8 to provide habitat enhancement for least Bell’s vireos, as identified by SCE.

**Duck Farm 66-kV Underground (Segment 7)**

This element of Alternative 7 would consist of undergrounding the Rio Hondo-Amador-Jose-Mesa 66-kV subtransmission line along Segment 7 through the River Commons at the Duck Farm Project (“Duck Farm Project”). Beginning at the north side of Valley Boulevard (S7 MP 8.9), the 66-kV subtransmission line would be placed underground along the west edge of the ROW for a distance of approximately 6,000 feet to just south of S7 MP 9.9, at which point the 66-kV subtransmission line would transition...
aboveground and continue overhead to Peck Road, as proposed under Alternative 2 (SCE’s Proposed Project). Approximately 14 fewer 66-kV LWSPs would be required as a result of undergrounding the 66-kV subtransmission line through the Duck Farm Project.

**Whittier Narrows 66-kV Underground Re-Route (Segment 7)**

This element of Alternative 7 would consist of re-routing and undergrounding the Jose-Mesa 66-kV subtransmission line around the Whittier Narrows Recreation area in Segment 7. Beginning at Peck Road (S7 MP 11.4) the 66-kV subtransmission line, which under SCE’s Proposed Project (Alternative 2) would be re-located to the western edge of the ROW, would leave the existing ROW at Peck Road and be placed underground. The new underground 66-kV subtransmission line would proceed approximately 300 feet north along Peck Road, then turn west and continue on Durfee Road for approximately 3,000 before rejoining SCE’s proposed alignment (Alternative 2) at S7 MP 12.025 (just north of Structure 58). Approximately eight fewer 66-kV LWSPs would be required as a result of undergrounding the 66-kV subtransmission line through the Duck Farm Project.

**Whittier Narrows 66-kV Overhead Re-Route (Segment 7)**

This element of Alternative 7 would consist of relocating the existing Rio Hondo – Amador – Jose – Mesa 66-kV subtransmission line to the north side of the existing 220-kV ROW, requiring a 20-foot expansion of the existing ROW, beginning at Durfee Avenue (S7 MP 12.0) through Legg Lake Park and the Whittier Narrows Recreation Area to the San Gabriel Junction (S7 MP 13.6). The expanded ROW would provide the additional clearance for conductor sway required by the new double-circuit 500-kV structures thereby allowing taller 66-kV LWSPs to be installed in a one-for-one configuration with the new 500-kV structures. As such, fewer, but taller, 66-kV structures would be required along this portion of the Segment 7 alignment compared to the proposed Project.

**Whittier Narrows 66-kV Overhead Re-Route (Segment 8A – Option 1)**

This element of Alternative 7 would consist of relocating two 66-kV circuits (Mesa-Narrows 66-kV and Walnut-Hillgen-Industry-Mesa-Reno 66-kV), approximately 1.63 miles of overhead 66-kV lines (x2 lines), and vacating the southern end of the existing Project ROW from San Gabriel Boulevard (just west of the San Gabriel Junction, S8A MP 2.2) to the east side of the San Gabriel River (S8A MP 3.8). The existing 66-kV subtransmission lines currently split at the San Gabriel Junction (S8A MP 2.2) with one line proceeding along the existing 220-kV ROW and the other line proceeding southwest along San Gabriel Boulevard. As such, between the San Gabriel Junction and Lincoln Avenue existing infrastructure would be utilized. These 66-kV circuits would be relocated beginning at the intersection of San Gabriel Boulevard and Lincoln Avenue and proceed southeast approximately 1,880 feet along San Gabriel Boulevard until Rosemead Boulevard, at which point the street name changes to Durfee Avenue.

For Option 1, the 66-kV lines would continue for approximately 700 feet southeast across Durfee Avenue utilizing new LWSPs and then continue approximately 2,100 feet southeast along Siphon Road to the San Gabriel River replacing existing idle 66-kV structures with new TSPs. A new ROW, approximately 1,600-feet long and 60-feet wide, would be required to cross from the existing 66-kV ROW on the west side of the San Gabriel River to the existing 220-kV ROW located on the east side of the San Gabriel River (near Structure 9), thereby allowing the new 66-kV lines to tie back into the 66-kV lines within the Project ROW (S8A MP 3.8) completing the circuit. In Segment 8A, the two 66-kV lines would transition
within the existing ROW to underground for approximately 200 feet across the width of the ROW from
the south side and then rise up on the north side of the ROW to join the existing lines.

For Option 1, approximately eight new LWSPs and ten bolt based TSPs at either side of the channel
crossing (14 total) would be installed beginning at the intersection of Lincoln Avenue to Siphon Road
(approximately 2,580 feet) and within the new approximately 1,600-foot ROW at the San Gabriel River
crossing. These additional LWSPs would be installed to accommodate the new 66-kV subtransmission
lines. While this 66-kV re-route would require approximately 14 new 66-kV poles (LWSPs and TSPs),
approximately 1.63 miles of 66-kV line would be eliminated from the 220-kV ROW or approximately 20
66-kV LWSPs, resulting in a reduction of approximately six 66-kV LWSPs that would otherwise be
required by the proposed Project (Alternative 2). Other than the minor 66-kV re-routes and underground
construction described above for the four elements of Alternative 7, this alternative would be identical to
Alternative 2.

Helicopter Construction on the ANF

Helicopter staging areas have been preliminarily identified to support the helicopter construction of
approximately 33 towers along Segments 6 and 11 on the ANF under Alternative 2. However, up to 148
new towers would be constructed by helicopter under Alternative 6. As the Proposed Action includes a
combination of Alternatives 2 and 6, the actual number of towers constructed by helicopter would be
between 33 and 148 towers. Without final engineering, the exact number of towers that will be
constructed by helicopters is still unknown, thus the proposed action will include the maximum amount of
road improvements that would be associated with ground-based construction (as identified under
Alternative 2) as well as the maximum number of helicopter staging areas (as identified under Alternatives
2 plus 6) and the maximum number of helicopter trips (as identified under Alternative 6). Figure 2
(located at the end of this report) identifies the locations of all potential helicopter staging areas on the
ANF. It has been assumed that each helicopter staging area would be approximately 4 acres in size (on
average). These staging areas are described in Tables 7 and 8.

Final siting of all helicopter staging and support areas for the TRTP would be conducted with the input of
the helicopter contractor, and affected private landowners and land management agencies, such as the
Forest Service. The size of each helicopter staging and support area would be dependent upon the size and
number of towers to be installed.

SCE provided estimates of the minimum and maximum number of helicopter round trips required for
each activity (wreck-out, construction, or stringing conductor) by structure type, as follows:

- The minimum number of helicopter trips required to wreck out a 220-kV single-circuit tower would be
  approximately 55 for suspension towers and 64 for dead-end towers, and the maximum estimated number
  of trips would be 89 for suspension towers and 105 for dead-end towers; and

- The minimum number of helicopter trips required to construct a 500-kV single-circuit tower would be
  approximately 146 for suspension towers and 380 for dead-end towers, and the maximum estimated number
  of trips would be 194 for suspension towers and 480 for dead-end tower.

Based on the above assumptions, and as shown in Tables 9 and 10, it has been estimated that a minimum
of 19,817, and a maximum of 27,724 helicopter round trips would be required to complete Segment 6
under Alternative 6, which is substantially more trips than would be required under Alternative 2 (min.
3,417; max. 4,811); and a minimum of approximately 11,577 and maximum of 16,185 helicopter trips
would be required to complete Segment 11 under Alternative 6, which is substantially more trips than would be required under Alternative 2 (min. 3,216; max. 4,528). It should be noted that the number of trips would vary due to other factors, such as distance, weather, altitude, site conditions, etc.

### Table 9. Alternative 2 (SCE’s proposed Project) Helicopter Trip Estimate

<table>
<thead>
<tr>
<th>Structure Type (Activity)</th>
<th>Number of Structures in ANF Using Helicopters</th>
<th>Minimum Helicopter Round Trips Per Tower</th>
<th>Maximum Helicopter Round Trips per Tower</th>
<th>Total Minimum Helicopter Round Trips</th>
<th>Total Maximum Helicopter Round Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220-kV Suspension (Wreck Out) 1</td>
<td>17</td>
<td>55</td>
<td>89</td>
<td>935</td>
<td>1,513</td>
</tr>
<tr>
<td>220-kV Dead End (Wreck Out)</td>
<td>0</td>
<td>64</td>
<td>105</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>500-kV Suspension (Construct)</td>
<td>17</td>
<td>146</td>
<td>194</td>
<td>2,482</td>
<td>3,298</td>
</tr>
<tr>
<td>500-kV Dead End (Construct)</td>
<td>0</td>
<td>380</td>
<td>480</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL Helicopter Round Trips Segment 6 =</td>
<td>3,417</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segment 11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220-kV Suspension (Wreck Out) 1</td>
<td>16</td>
<td>55</td>
<td>89</td>
<td>880</td>
<td>1,424</td>
</tr>
<tr>
<td>220-kV Dead End (Wreck Out)</td>
<td>0</td>
<td>64</td>
<td>105</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>500-kV Suspension (Construct)</td>
<td>16</td>
<td>146</td>
<td>194</td>
<td>2,336</td>
<td>3,104</td>
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<tr>
<td>500-kV Dead End (Construct)</td>
<td>0</td>
<td>380</td>
<td>480</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL Helicopter Round Trips Segment 11 =</td>
<td>3,216</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL Helicopter Round Trips (Segments 6 &amp; 11) =</td>
<td>6,633</td>
<td></td>
<td></td>
<td></td>
<td>9,339</td>
</tr>
</tbody>
</table>

### Table 10. Alternative 6 (Maximum Helicopter Construction in the ANF) Helicopter Trip Estimate

<table>
<thead>
<tr>
<th>Structure Type (Activity)</th>
<th>Number of Structures in ANF Using Helicopters</th>
<th>Minimum Helicopter Round Trips Per Tower</th>
<th>Maximum Helicopter Round Trips per Tower</th>
<th>Total Minimum Helicopter Round Trips</th>
<th>Total Maximum Helicopter Round Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 6</td>
<td>92 (plus 2 wreck-out only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220-kV Suspension (Wreck Out) 1</td>
<td>89</td>
<td>55</td>
<td>89</td>
<td>4,895</td>
<td>7,921</td>
</tr>
<tr>
<td>220-kV Dead End (Wreck Out)</td>
<td>5</td>
<td>64</td>
<td>105</td>
<td>320</td>
<td>525</td>
</tr>
<tr>
<td>500-kV Suspension (Construct)</td>
<td>87</td>
<td>146</td>
<td>194</td>
<td>12,702</td>
<td>16,878</td>
</tr>
<tr>
<td>500-kV Dead End (Construct)</td>
<td>5</td>
<td>380</td>
<td>480</td>
<td>1,900</td>
<td>2,400</td>
</tr>
<tr>
<td>Total Helicopter Round Trips Segment 6 =</td>
<td>19,817</td>
<td></td>
<td></td>
<td></td>
<td>27,724</td>
</tr>
<tr>
<td>Segment 11</td>
<td>56 (3 with no wreck-out required)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220-kV Suspension (Wreck Out)</td>
<td>51</td>
<td>55</td>
<td>89</td>
<td>2,805</td>
<td>4,539</td>
</tr>
<tr>
<td>220-kV Dead End (Wreck Out)</td>
<td>2</td>
<td>64</td>
<td>105</td>
<td>128</td>
<td>210</td>
</tr>
<tr>
<td>500-kV Suspension (Construct)</td>
<td>54</td>
<td>146</td>
<td>194</td>
<td>7,884</td>
<td>10,476</td>
</tr>
<tr>
<td>500-kV Dead End (Construct)</td>
<td>2</td>
<td>380</td>
<td>480</td>
<td>760</td>
<td>960</td>
</tr>
<tr>
<td>Total Helicopter Round Trips Segment 11 =</td>
<td>11,577</td>
<td></td>
<td></td>
<td></td>
<td>16,185</td>
</tr>
<tr>
<td>TOTAL Helicopter Round Trips (Segments 6 &amp; 11) =</td>
<td>31,394</td>
<td></td>
<td></td>
<td></td>
<td>43,909</td>
</tr>
</tbody>
</table>

To accommodate the amount of helicopter construction required within the ANF and to reduce extending the schedule more than is absolutely necessary for these activities, nighttime construction may be implemented. Nighttime construction activities within the ANF would require the approval of the Forest Service.
Access and Spur Roads

Transmission line roads are classified into two groups: access roads and spur roads. Access roads are through roads that run between tower sites along a ROW and serve as the main transportation route along line ROWs. Spur roads are roads that lead from line access roads and terminate at one or more tower sites.

This Project includes construction on both existing and new ROW. Where construction would take place on existing ROW, it is assumed that most of the existing access roads as well as spur roads would be used. However, it is also assumed that alterations to these roads would be necessary in some locations to accommodate construction activities. This work may include:

- Re-grading and repair of existing access and spur roads to SCE standards. These roads would be cleared of vegetation, blade-graded to remove potholes, ruts, and other surface irregularities, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The graded road would have a minimum drivable width of 12 feet and preferably a shoulder width of an additional 2 feet. An average 50-foot radius would be required for turns, resulting in additional road width.
- Drainage structures such as wet crossings, water bars, overside drains, pipe culverts, and concrete bridges would be installed or reconstructed to allow for construction traffic usage and prevent erosion and associated road damage due to uncontrolled water flow.
- Slides, washouts, and other slope failures would be repaired and stabilized by installing retaining walls or other means necessary to prevent future failures. The type of structure to be used would be based on specific site conditions.

Where construction would take place in a new ROW, which is particularly applicable to Segments 4 and 10, new access and spur roads built to SCE standards would be necessary to access the transmission line structure locations. New access and spur roads would be considered permanent features of the Project and would be maintained throughout the life of the Project; however, roads having a grade of 25 percent or more would generally be considered temporary (for construction purposes only) and would be restored (put to bed) upon completion of construction. Once the location of access and spur roads have been selected, biological and cultural resource reviews, as well as a visual resources review for those located on NFS lands, would be conducted prior to final site selection.

Within the ANF (Segments 6 and 11), SCE would use, maintain, or improve a complex network of paved and unpaved roads, both Forest Service (FS) system and non-system roads, as well as primary highways that cross NFS lands but are under the jurisdiction of other transportation agencies. The Proposed Action would also require the construction of approximately 4.4 miles of new (per Forest Service designation) permanent spur roads to facilitate construction and maintenance at various tower locations.

The roads that have been proposed for use, upgrade, or new construction within the ANF have been classified into three categories defined in Forest Service Engineering Manuals: (1) maintenance, (2) reconstruction, and (3) new construction. Table 11 provides a list of roads that are expected to be used for the Project. While some of these roads are in suitable condition for vehicular use, many would require extensive maintenance or improvement to accommodate large, heavy equipment during construction of the proposed Project. It is difficult to quantify these requirements; therefore, all unpaved roads within the ANF were assumed to need at least some degree of maintenance. It is anticipated that most of the roads constructed or reconstructed to accommodate new construction would be left in place (permanent) to facilitate future access for operations and maintenance purposes. Special Use authorizations for long term
use and maintenance of these roads would be issued after construction is completed. The required gates would be installed to restrict general and recreational vehicular access to road ROWs. Construction roads across areas that are not required for future operations and maintenance access would be removed and restored after construction is completed. An example of this type of road would be a road constructed to provide access to a splice location during wire-stringing operations. Support facilities such as helicopter assembly yards and pulling/tensioner/splicing sites may require construction of spur roads to them when they are not accessible from an existing access or spur road.

Table 11. Roads in the ANF to be Utilized by the Proposed Action

<table>
<thead>
<tr>
<th>Forest System #</th>
<th>Forest System Name</th>
<th>Length (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paved Roads – potential maintenance/reconstruction required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A  Angeles Forest Highway</td>
<td>21.5</td>
<td></td>
</tr>
<tr>
<td>N/A  Tujunga Canyon Road</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>N/A  Upper Big Tujunga Road</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>N/A  Angeles Crest Highway</td>
<td>16.5</td>
<td></td>
</tr>
<tr>
<td>N/A  Aliso Canyon Road</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>N/A  Barley Flats Road</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>N/A  Maple Canyon</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>N/A  West Fork Road</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>N/A  Santa Clara Divide/Mount Gleason Road</td>
<td>9.6</td>
<td></td>
</tr>
<tr>
<td>2N65.2 Chaney Trail</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>3N19A Shortcut Station</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal = 76.3 miles

ANF Unpaved System Roads – maintenance/reconstruction required

1N36  Van Tassel  3.3
2N23  Shortcut Edison  8.9
2N24.2 Rincon/Redbox  5.1
2N24.3 Rincon/Redbox  1.6
2N25.2 West Fork/Cogswell  5.3
2N30.1 Sawpit  3.1
2N45.3 Mount Wilson/Henninger Flats  0.3
2N75  CCC Ridge  0.6
2N76.3 Mount Lukens  0.4
2N79.1 Grizzly Flat  0.7
3N20  Powerline Road  2.6
3N23  Monte Cristo  1.6
3N27  Edison/Fall Creek  13.3
4N18.1 Lynx Gulch  6.2
4N18.2 Lynx Gulch  3.7
4N24.1 Edison  7.1
4N24.2 Edison  1.9

Subtotal = 65.5 miles

ANF Unpaved Non-System Roads – maintenance/reconstruction required

N/A  Non-FS roads  36.3

Subtotal = 36.3 miles

Total  178.1 miles
Land Disturbance

Land disturbance would be associated with the construction activities that are part of the TRTP. Some disturbance would be temporary in nature, such as disturbance associated with the laydown areas and crane pads associated with tower assembly and erection, and the land would be restored following construction. Other disturbance would be permanent in nature, as the land would remain in a designated use following completion of construction. Examples of permanent disturbance would include tower footings and access roads. The Proposed Action would disturb a total of approximately 1,612 acres during construction and result in permanent disturbance to a total of approximately 349 acres. Earth-disturbing activities would occur in areas such as along new access and spur roads, at each foundation installation site, at staging areas, at pulling and stringing locations, and at several substation locations.

Maintenance and Operations

Once all elements of the Project are constructed, SCE would operate and maintain all of the components of the Project in accordance with existing SCE procedures and terms and conditions of authorizations. No additional personnel would be required during operations of the new T/L and substation facilities.

Operations and maintenance of the 500-kV and 220-kV T/Ls would involve periodic inspection approximately once per year via helicopter, truck, and/or on foot (to access more remote locations), as required by current SCE Transmission Operations and Maintenance Policies and Procedures (TOM). As noted in SCE’s TOM, aerial inspection of overhead transmission lines can be used to enhance the assessment of spacers, conductors and insulators, etc.; however, these inspections do not permit detailed analysis of other components such as foundations, anchors, etc., and therefore cannot be used exclusively to satisfy routine patrol requirements. As such, aerial inspections may be substituted for ground inspection only on alternate years. These policies and procedures are in accordance with the maintenance practices SCE filed with the California Independent System Operator (CAISO), which require that transmission lines be patrolled annually, with more intrusive inspections being performed under abnormal conditions. Routine inspections are inspections that assess the general condition of the transmission facility and are normally conducted by ground patrols, which may be done from a truck, on foot, or by other means. Helicopters are used occasionally for routine work; however, they are primarily used for emergency patrols or infrared scanning. Emergency patrols are performed to ensure that the transmission facilities do not present a danger to the general public and are not intended to take the place of a routine patrol. Detailed (climbing) inspections, such as checking LSTs for loose steel or worn hardware, are performed on an as-needed basis.

Recurring maintenance identified in the inspection process would include vegetation management, invasive plant survey and control, wood pole management, insulator washing, insulator replacement, repair of ground wires, tighten/replacement of guy wires, and adjustments to switch mechanisms. Vegetation management includes pruning and removal of trees, where only those trees that require trimming before the next planned trim cycle would be pruned. Pruning shall achieve clearance requirements plus one year’s growth at time of trimming. Tree removal is the preferred method of vegetation management; however, consideration is given with respect to growth rates, species, environmental and regulatory constraints, property owner approval, and budgetary allowances. Vegetation clearances shall comply with regulations included in GO-95 Rule 35 and related appendices and the required clearances specified in the California Public Resources Code, Section 4292. Within the ANF it is
assumed an approximately 20-foot radius from each tower footprint would be kept clear of vegetation. Herbicides, nationally approved by the Forest Service, would be used within the ANF within and along areas of Project disturbance (access/spur roads, laydown and assembly areas, helicopter landing sites, etc.) for control of invasive species, subject to all applicable laws and regulations. ANF-approved herbicides include: Chorsulfuron, Clopyralid, Dicamba, Glyphosate (Accord, Rodeo, Roundup, Roundup Pro), Imazapyr (Arsenal, Chopper, Stalker), Picloram, and Triclopyr (Garlon 3A, Garlon 4). SCE would utilize these same herbicides (or an equivalent tested and approved herbicide), in consultation with the respective landowner such as the USACE, to control vegetation around transmission structures in other project areas. Wood pole management includes a structural assessment, which includes a visual inspection of all poles and an intrusive inspection on poles more than 20 years old. Chemical treatment of poles is used when appropriate. Insulator washing is to be performed as dictated by local environmental conditions and operating experience. Lines or line sections that have a history of insulator contamination and flashovers due to insulator contamination would be candidates for insulator washing. Insulator replacement would occur as the need is identified during the inspection process and would be scheduled when resources are available and clearances have been given by the CAISO. When a ground wire problem is identified during an inspection, it would be recorded and scheduled for repair. Similarly, loose or worn hardware, guy wires, and switch mechanisms discovered during an inspection would be recorded and scheduled for repair or repaired during the inspection.

Maintenance of Project facilities would generally be performed on an as-needed basis, including maintenance of the access roads to the final widths that would result from the construction of the Project (final widths are expected to range from 12 to 16 feet), and maintenance of erosion/drainage control structures. Existing road permits within the ANF would be amended or updated to address long-term access needs following project construction. Preventative maintenance of telecommunications equipment would be scheduled approximately every six months to ensure system reliability and performance. General operations and maintenance activities within the ANF would occur according to the terms and conditions of the Special Use authorization to be issued by the Forest Service for the Project; however, more extensive maintenance determined by an authorized officer to be outside the scope of approved operation and maintenance plans would require additional approvals/permits from the Forest Service. This level of maintenance may include but is not limited to: drainage repairs, replacement of tower components, or additional slope stabilizations measures undertaken after construction. Operation and maintenance activities on the ANF are expected to change little from what is currently occurring.

Summary of the Proposed Action

Table 12 contains a summary of Project components included in the Proposed Action. See the TRTP EIR/EIS, Chapter 2 (Description of Alternatives) (Aspen, 2009) for detailed descriptions of each alternative.

<table>
<thead>
<tr>
<th>Table 12. Summary Comparison of Components of the Proposed Action</th>
<th>Proposed Action (Alts. 2, 3, 6, and 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Project Construction</td>
<td></td>
</tr>
<tr>
<td>Total length of 500-kV and 220-kV T/L (miles)</td>
<td>172.9</td>
</tr>
<tr>
<td>Total number of new transmission structures (not including 66-kV sub-T/Ls)</td>
<td>852</td>
</tr>
<tr>
<td>Total disturbance during construction (acres)</td>
<td>1,612 (±15%: 1,370 to 1,854)</td>
</tr>
<tr>
<td>NFS lands (acres)</td>
<td>268 (±15%: 228 to 308)</td>
</tr>
</tbody>
</table>
Table 12. Summary Comparison of Components of the Proposed Action

<table>
<thead>
<tr>
<th>Proposed Action (Alts. 2, 3, 6, and 7)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USACE lands (acres)</td>
<td>38</td>
</tr>
<tr>
<td>(±15%: 32 to 44)</td>
<td></td>
</tr>
<tr>
<td>Total permanent disturbance (acres)</td>
<td>349</td>
</tr>
<tr>
<td>(±15%: 297 to 402)</td>
<td></td>
</tr>
<tr>
<td>Total permanent disturbance on NFS lands (acres)</td>
<td>109</td>
</tr>
<tr>
<td>Total permanent disturbance on USACE lands (acres)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Duration of Construction</td>
<td>62 months</td>
</tr>
<tr>
<td>Segment 10: New Whirlwind – Windhub 500-kV T/L</td>
<td></td>
</tr>
<tr>
<td>Distance of new ROW [1 s-c 500-kV T/L]</td>
<td>16.8 miles</td>
</tr>
<tr>
<td>No. new transmission structures</td>
<td>96</td>
</tr>
<tr>
<td>(s-c 500-kV LSTs)</td>
<td></td>
</tr>
<tr>
<td>Miles of new access roads</td>
<td>4.85</td>
</tr>
<tr>
<td>Miles of new spur roads</td>
<td>2.25</td>
</tr>
<tr>
<td>Miles of existing roads to be upgraded</td>
<td>8.25</td>
</tr>
<tr>
<td>Segment 4: Whirlwind 500/220 kV T/L Elements</td>
<td></td>
</tr>
<tr>
<td>Distance of new ROW</td>
<td>20.0 miles</td>
</tr>
<tr>
<td>2 s-c 220-kV T/Ls</td>
<td>4.0 miles (each)</td>
</tr>
<tr>
<td>1 s-c 500-kV T/L</td>
<td>16.0 miles</td>
</tr>
<tr>
<td>No. new transmission structures</td>
<td>164</td>
</tr>
<tr>
<td>Miles of new access roads</td>
<td>0</td>
</tr>
<tr>
<td>Miles of new spur roads</td>
<td>2.86 (Cottonwind-Whirlwind 220-kV)</td>
</tr>
<tr>
<td></td>
<td>4.33 (Vincent-Whirlwind 500-kV)</td>
</tr>
<tr>
<td>Miles of existing roads to be upgraded</td>
<td>14.66 (Cottonwind-Whirlwind 220-kV)</td>
</tr>
<tr>
<td></td>
<td>18.44 (Vincent-Whirlwind 500-kV)</td>
</tr>
<tr>
<td>Segment 5: Antelope – Vincent No. 2 500-kV T/L</td>
<td></td>
</tr>
<tr>
<td>Distance of existing ROW [1 s-c 500-kV T/L]</td>
<td>17.4 miles</td>
</tr>
<tr>
<td>Existing T/Ls to be removed</td>
<td>Antelope-Vincent 220-kV; Antelope-Mesa 220-kV</td>
</tr>
<tr>
<td>No. new transmission structures</td>
<td>67</td>
</tr>
<tr>
<td>(s-c 500-kV LSTs)</td>
<td></td>
</tr>
<tr>
<td>Segment 11: New Mesa – Vincent (via Gould) 500/220-kV T/L</td>
<td></td>
</tr>
<tr>
<td>Distance of ROW [existing and expanded]</td>
<td>36.2 miles</td>
</tr>
<tr>
<td>New 220-kV conductor on existing towers</td>
<td>17.5 miles</td>
</tr>
<tr>
<td>1 s-c 500-kV T/L</td>
<td>18.7 miles</td>
</tr>
<tr>
<td>Distance of expanded ROW</td>
<td>16.0 miles</td>
</tr>
<tr>
<td>Distance of ROW on NFS lands</td>
<td>20.4 miles</td>
</tr>
<tr>
<td>Existing T/Ls to be removed</td>
<td>Pardee-Vincent No.1 220-kV; Eagle Rock-Pardee 220-kV</td>
</tr>
<tr>
<td>No. new transmission structures (total)***</td>
<td>76</td>
</tr>
<tr>
<td>(s-c 500 &amp; 220-kV LSTs)</td>
<td></td>
</tr>
<tr>
<td>(s-c 220-kV TSPs)</td>
<td></td>
</tr>
<tr>
<td>No. of helicopter staging areas (total)</td>
<td>11</td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>59</td>
</tr>
<tr>
<td>(s-c 500-kV LSTs)</td>
<td></td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>7</td>
</tr>
<tr>
<td>New Roads on NFS lands</td>
<td>1.31 miles</td>
</tr>
<tr>
<td>Reconstructed Roads on NFS lands</td>
<td>13.3 miles</td>
</tr>
<tr>
<td>Roads to be Maintained on NFS lands</td>
<td>18.0 miles</td>
</tr>
<tr>
<td>Private/Non-NFS Roads requiring upgrade</td>
<td>7.02 miles</td>
</tr>
<tr>
<td>Total new/upgraded roads</td>
<td>39.67 miles</td>
</tr>
<tr>
<td>(±15%: 34 to 46)</td>
<td></td>
</tr>
<tr>
<td>Total new/upgraded roads on NFS lands</td>
<td>32.65 miles</td>
</tr>
<tr>
<td>(±15%: 28 to 38)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 12. Summary Comparison of Components of the Proposed Action

<table>
<thead>
<tr>
<th>Segment 6: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L (initially energized at 220 kV) and Section of New Mira Loma – Vincent 500-kV T/L</th>
<th>Proposed Action (Alts. 2, 3, 6, and 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance of existing ROW [s-c 500-kV T/L]</td>
<td>26.9 miles</td>
</tr>
<tr>
<td>Distance of NFS lands</td>
<td>21.85 miles</td>
</tr>
<tr>
<td>Existing T/Ls to be removed</td>
<td>Rio Hondo-Vincent No. 2 220-kV; Antelope-Mesa 220-kV</td>
</tr>
<tr>
<td>No. new transmission structures (total)</td>
<td>138 (s-c 500 &amp; 220-kV LSTs s-c 500-kV TSPs)</td>
</tr>
<tr>
<td>No. on NFS lands</td>
<td>105 (99 s-c 500-kV LSTs 6 s-c 500-kV TSPs)</td>
</tr>
<tr>
<td>No. of helicopter staging areas (total)</td>
<td>12</td>
</tr>
<tr>
<td>New Roads on NFS lands</td>
<td>3.06 miles</td>
</tr>
<tr>
<td>Reconstructed Roads on NFS lands</td>
<td>9.99 miles</td>
</tr>
<tr>
<td>Maintenance Roads on NFS lands</td>
<td>44.25 miles</td>
</tr>
<tr>
<td>Private/Non-NFS Roads requiring upgrade</td>
<td>2.66 miles</td>
</tr>
<tr>
<td>Total new/upgraded roads</td>
<td>59.96 miles (±15%: 51 to 69)</td>
</tr>
<tr>
<td>Total new/upgraded roads on NFS lands</td>
<td>57.30 miles (±15%: 49 to 66)</td>
</tr>
<tr>
<td>Segment 7: Section of New Replacement Rio Hondo – Vincent No. 2 500-kV T/L and Section of New Mira Loma – Vincent 500-kV T/L</td>
<td></td>
</tr>
<tr>
<td>Distance of existing ROW [d-c 500-kV T/L]</td>
<td>15.8 miles</td>
</tr>
<tr>
<td>Existing T/L to be removed</td>
<td>Antelope-Mesa 220-kV</td>
</tr>
<tr>
<td>No. new transmission structures</td>
<td>85 (d-c 500-kV LSTs/TSPs s-c 500-kV LSTs d-c 220-kV LST)</td>
</tr>
<tr>
<td>No. new subtransmission structures</td>
<td>150 (d-c 66-kV LWSPs and TSPs)</td>
</tr>
<tr>
<td>Segment 8: Section of New Mira Loma – Vincent 500-kV T/L</td>
<td></td>
</tr>
<tr>
<td>Distance of ROW [existing and expanded/new]</td>
<td></td>
</tr>
<tr>
<td>Segment 8A/8C [d-c 500-kV T/L]</td>
<td>33.0 miles</td>
</tr>
<tr>
<td>Segment 8B [d-c 220-kV T/L]</td>
<td>6.8 miles</td>
</tr>
<tr>
<td>Distance of expanded/new ROW</td>
<td>4.4 miles</td>
</tr>
<tr>
<td>Distance of underground 500-kV T/L</td>
<td>None</td>
</tr>
<tr>
<td>Existing T/Ls to be removed</td>
<td>Various 220-kV T/L structures</td>
</tr>
<tr>
<td>No. new transmission structures</td>
<td>226 (d-c 500-kV LSTs/TSPs d-c 220-kV LST/TSPs s-c 500-kV LSTs/TSPs s-c 220-kV LST/TSPs 220-kV 3-pole dead-end)</td>
</tr>
<tr>
<td>No. new subtransmission structures</td>
<td>55 (d-c 66-kV LWSPs)</td>
</tr>
<tr>
<td>Components within CHSP</td>
<td>None</td>
</tr>
<tr>
<td>Segment 9: Substation Facilities</td>
<td></td>
</tr>
<tr>
<td>New Whirlwind Substation</td>
<td></td>
</tr>
<tr>
<td>Total temporary disturbance</td>
<td>96.8 acres</td>
</tr>
<tr>
<td>Total acres to be restored</td>
<td>None</td>
</tr>
<tr>
<td>Total permanent disturbance</td>
<td>96.8 acres</td>
</tr>
</tbody>
</table>
Table 12. Summary Comparison of Components of the Proposed Action

<table>
<thead>
<tr>
<th>Substation Modifications</th>
<th>Proposed Action (Alts. 2, 3, 6, and 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope Substation</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
</tr>
<tr>
<td>Vincent Substation</td>
<td>Expand/upgrade for new 500-kV &amp; 220-kV equipment</td>
</tr>
<tr>
<td>Mesa Substation</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
</tr>
<tr>
<td>Gould Substation</td>
<td>Upgrade to accommodate new 220-kV equipment</td>
</tr>
<tr>
<td>Mira Loma Substation</td>
<td>Upgrade to accommodate new 500-kV equipment</td>
</tr>
</tbody>
</table>

Note: s-c: single-circuit; d-c: double-circuit

Information provided here is based on SCE’s preliminary design for the TRTP and is subject to change during final engineering. For land disturbance numbers, a deviation factor of ±15 percent has been incorporated to provide a range allowing for the error associated with a project that has only gone through preliminary engineering.

* Land disturbance under Alternative 3 would decrease by a factor of one structure within Segment 4. As such, the acres disturbed would continue to be almost identical to Alternative 2.

** Alternative 7 would have some additional temporary disturbance associated with underground construction of the 66-kV subtransmission lines in Segment 7 through the Duck Farm Project area and due to the overhead re-routing of the 66-kV line in the Whittier Narrows Recreation area in Segments 7 and 8A. New access and spur roads may result in additional permanent land disturbance compared to the proposed Project in the area of the new approximately 1,600 foot ROW for the San Gabriel River crossing within Segment 8A associated with the Whittier Narrows Overhead Re-Route (Option 1) or within the expanded ROW between Durfee Avenue and the San Gabriel River (Option 2).

*** Construction of Alternative 6 would be identical to Alternative 2, with the exception of Segments 6 and 11, where substantially more helicopter construction may result in a longer construction schedule due to the limited availability of specialized helicopters and personnel. The schedule for helicopter construction would be finalized as part of final design and pre-construction planning.

### 3. AFFECTED ENVIRONMENT

This section describes the biological resources that occur in the TRTP project area. It includes a general description of federally listed and candidate species of plants and wildlife, followed by an assessment of potential effects to these resources. Information used in preparing this section was derived from the following data sources:

- Aerial photographs, Geographic Information Systems (GIS) data, United States Geological Survey (USGS) topographic maps, the California Native Plant Society (CNPS) Inventory, and the California Natural Diversity Database (CNDDB)
- Previously prepared reports and regional planning documents (general plan policies, Habitat Conservation Plans [HCPs], and Environmental Impact Reports [EIRs])
- The PEA and SCE’s associated technical reports and data (including vegetation mapping and special-status species locations and survey data)
- Reconnaissance-level botanical surveys conducted on 10-22 June, 15-18 July, 17-21 September, and 1-5 October 2007 (HT Harvey and Aspen)
- Focused botanical surveys of the proposed right-of-way and tower locations completed by Aspen, HT Harvey, and AMEC in the spring and summer 2008
- Focused surveys of access roads for Segment 6 on the ANF conducted in May, 2009 (HT Harvey, AMEC, and FS)
- Protocol surveys for nesting riparian birds (least Bell’s vireo, southwestern willow flycatcher) and incidental surveys for western yellow-billed cuckoo conducted in 2007, 2008, and 2009 (AMEC)
- Protocol surveys for the coastal California gnatcatcher conducted in 2007, 2008, and 2009 (AMEC)
- Protocol surveys for California red-legged frog within Amargosa Creek completed by SCE in 2007 and 2008 for the Antelope Transmission Line Project; focused and protocol surveys for California red-legged frog and focused surveys for the mountain yellow-legged frog completed by AMEC in 2007, 2008, and 2009
Protocol and focused surveys conducted by AMEC for the arroyo toad in 2007, 2008, and 2009
Protocol surveys for desert tortoise north of Lancaster completed by SCE in 2007 and 2008 for the Antelope Transmission Line Project; additional protocol surveys conducted by SCE in 2009 for the TRTP
Local botanical experts were consulted for information regarding several taxa
Focused surveys for southwestern willow flycatchers, least Bell’s vireo, and coastal California gnatcatcher conducted by SCE in 2007 and 2008
California Department of Fish and Game California Natural Diversity Database, 2007, 2008 and 2009
Species known to occur within the planning area, based on historic range and field observations
Species likely to occur within the planning area, based on the distribution of the species and known habitat suitability
Species that could be affected by the Proposed Action, because of their presence in areas adjacent to the project area

3.1 Ecological Setting
3.1.1 General Description

Northern Region
The Northern Region extends from the Windhub Substation (currently under construction) at Oak Creek Road, six miles west of the city of Mojave to the northern boundary of the ANF, 1.2 miles south of the Vincent substation. The Windhub Substation is not part of the TRTP; it was approved and permitted as part of the Antelope Transmission Project, Segments 2 and 3. The region crosses the foothills of the Tehachapi Mountains to the north and northwest and portions of the cities of Palmdale and Lancaster and the northern slope of the San Gabriel Mountains to the south. The Northern Region ranges in elevation from approximately 2,580 feet in the center of the Antelope Valley, to approximately 3,500 feet at the northern terminus (Segment 10), and 3,850 feet at the southern terminus (Segment 11). This region receives an average of 4 to 9 inches of annual rainfall, and annual temperatures average 62°F. The Antelope Valley is an internally-drained basin bordered by the San Gabriel Mountains to the south and Tehachapi Mountains to the west. Surface flows from these mountainous watersheds drain into Rosamond Lake as sheet flow or within natural and artificial channels. Three main drainages appear on USGS quadrangles within the Northern Region of Proposed Action: Armargosa Creek, Oak Creek, and Cottonwood Creek.

The Northern Region of the proposed TRTP includes Segments 4, 5, 10 of the transmission line, and the northernmost portions of Segments 6 and 11 (Figure 1). These Tehachapi Foothills and Western Antelope Valley segments commence at the west end of the Mojave Desert, where the tip of the Antelope Valley rises west towards Tejon Pass at an elevation of approximately 3,100 feet. The composition of the vegetation in this area is strongly influenced by the geography and geology of the region.

Landform processes, such as uplift, bedrock decomposition, erosion-deposition, and alluvium stratification, have produced a semicircular fan along the western edges of the Antelope Valley. Some of the soil formations provide low competition habitats for a rich assemblage of native annual plant species. These specialized plant habitats include some of California’s most colorful wildflower displays.

The general region is botanically diverse, wedged between the desert, the Sierra Nevada, the Great Central Valley, and the Transverse Ranges. Though varied floristic influences exist in the Valley, this
area has been subject to repeated disturbance from historic land uses such as farming, grazing, and infrastructure development. Low-lying areas may support stream crossings and wetlands, particularly in the vicinity of the San Andreas Fault Zone, where groundwater-associated marshes and ponds are relatively common.

This area is located within the juncture of different ecological regions: the Northern Great Basin, Transverse and Coast Ranges, West Mojave and Sonoran deserts, Tehachapi Mountains, Sierra Nevada, and Great Central Valley, and supports a variety of native and introduced wildlife.

The western section of the region contains large areas of disturbed annual grasslands dominated by non-native grasses and forbs and is likely to be particularly important as raptor foraging and wintering habitat. Near the eastern edge of the region the area supports more xeric species. Some federally listed and candidate species for which there is suitable habitat in the Northern Region of the project area include least Bell’s vireo (*Vireo bellii pusillus*), California red-legged frog (*Rana draytonii*), and rare plants such as San Fernando Valley spineflower (*Chorizanthe parryi var. fernandina*).

**Central Region**

The Central Region lies north of the Los Angeles Basin and south of the Vincent substation near Forest Ridge Road and contains the portions of Proposed Action that lie within the ANF. Within the Central Region, elevations rise from 3,200 feet near Kentucky Springs and the northern portions of the ANF to 5,600 feet near Mount Gleason Road before descending to 1,500 feet in the southern portion of the ANF. This region receives an average of 25 inches of annual rainfall and annual temperatures average 57°F. This region is ecologically unique in that the slopes of the Transverse Ranges that get the greatest amount of precipitation are covered with drought-tolerant scrub vegetation. This is due to the south-facing position that subjects these areas to direct sunlight. As a result, the amount of evaporation is so high that moisture-loving plants cannot survive, a phenomenon known as slope-effect (Schoenherr, 1992). Conditions become drier on the northern end of the region due to a rain-shadow effect of the San Gabriel Mountains. Rivers and creeks within these mountainous watersheds, including Big Tujunga Creek, the San Gabriel River, and Arroyo Seco, create deep canyons and washes that cross the proposed TRTP.

The Central Region of Proposed Action includes Segment 6 and most of Segment 11 (Figure 1). Segments 6 and 11 cross rugged portions of the ANF. The San Gabriel Mountains are part of the Transverse Ranges, which lie on an east-west axis. These mountains are characterized by steep, rugged terrain and deep canyons, as well as numerous creeks, streams, and rivers. The ANF extends across most of the San Gabriel Mountains, and constitutes a regionally rare expanse of open space.

The 2005 Forest Plan states that the mountains and foothills of southern California are home to approximately nine native species of fish, 18 amphibians, 61 reptiles, 299 birds, 104 mammals, 2,900 vascular plants and an unknown number of species of invertebrate animals and non-vascular plants. Many of the 3,000-plus species have a large proportion of their distribution on National Forest System land, including the ANF. Some of these species are endemic to the national forests, and some have special status as federally listed threatened, endangered, proposed, candidate, or Forest Service sensitive species. Other species have wide geographic ranges and are found elsewhere in California, Mexico, the West or the Southwest, but are rare in southern California.
The project alignment crosses many areas that may provide suitable habitat for several Federally listed and candidate species including Braunton’s milk-vetch (Astragalus brauntonii), Nevin’s barberry (Berberis nevinii), San Fernando Valley spineflower, mountain yellow-legged frog (Rana muscosa), California red-legged frog, southwestern willow flycatcher (Empidonax traillii extimus), and the least Bell’s vireo. California condor (Gymnogyps californianus), eagles, and other raptor species may occur in the project area. Near Vetter Peak and Charlton Flat, the proposed alignment occurs close to the San Gabriel Wilderness area.

Southern Region

From the San Gabriel Mountains, Segments 7 and 11 continue south and southwest through numerous cities in the Los Angeles Basin, from the foothill communities of Azusa, Pasadena, and Altadena towards the city of Montebello in Los Angeles County. Segments 7 and 11 join Segment 8 near the Montebello Hills Oil Fields west of the Whittier Narrows Recreation Area. Segment 8 continues east through the Puente and Chino Hills and ends in developed and agricultural areas in the city of Ontario. Most of the Southern Region occurs below 1,500 feet elevation. Urbanization of the Los Angeles metropolitan area has eliminated much of the native habitats in the region. Only the Puente Hills, Chino Hills, and portions of the Montebello Hills remain as native, relatively intact habitat. This region receives an average of 16 inches of annual rainfall, and annual temperatures average 64°F. The primary drainage feature in the Southern Region is the San Gabriel River, which parallels Segment 7 through the San Gabriel Valley.

The Southern Region of Proposed Action occurs in the Los Angeles Basin and includes Segments 7, 8, and the southermost portion of Segment 11 (Figure 1). Ongoing urbanization and residential housing development continue to be the dominant feature for much of this area. However, the proposed transmission alignment would parallel or cross several major biological features including the San Gabriel River, the Whittier Hills open space, and the Puente and Chino Hills.

Much of Segment 8 is located along the spine of the Chino Hills. This area supports both highly urbanized areas and large sections of wild lands, such as Tonner and Carbon Canyons. Residential communities in some locations directly abut the existing utility corridor. Broad areas within the Chino Valley support activities including dairy farming, industrial, and residential. Portions of this area remain as a link for wildlife movement from the Cleveland National Forest and the Prado River basin. The diversity and productivity of the Santa Ana River riparian system and adjacent upland habitat provide opportunities for a variety of wildlife species, many of which are dependent on these ecosystems for some or all of their habitat requirements. Riparian and upland habitats provide a variety of foraging, nesting, and cover opportunities, as well as water resources, for a variety of wildlife species that occur both within the riparian habitat as well as adjacent upland habitats.

These areas have become increasingly important to wildlife as they provide large areas of habitat within an urban setting. In addition, these areas provide movement corridors between the Chino Hills and the Cleveland National Forest. One important species documented in these areas is the federally listed California gnatcatcher. In addition, the Puente-Chino Hills Wildlife Corridor supports over 100 different species including deer (Odocoileus hemionus), coyotes (Canis latrans), foxes (Urocyon cinereoargenteus), bobcats (Lynx rufus), hawks, and owls. Vegetation in this area is dominated by coastal sage scrub, California walnut woodlands, sycamore and oak forests, freshwater marsh, and non-native grasslands.

Wildlife corridors provide a variety of functions and can include habitat linkages between natural areas, provide greenbelts and refuge systems, and divert wildlife across permanent physical barriers to dispersal...
such as highways and dams by roadway underpasses and ramps. In the Chino Hills area, data indicate that fragmentation of habitat and a reduction in useable wildlife corridors can affect the population dynamics of predators including bobcat, coyote, and mountain lions (*Puma concolor*). The amount and distribution of suitable habitat is an essential element to consider for the management of wildlife. In fact, some species require, and are often limited to, unique vegetation types for breeding or foraging. Some of the federally listed species that may occur in this segment include Braunton’s milk-vetch, Nevin’s barberry, thread-leafed brodiaea (*Brodiaea filifolia*), San Fernando Valley spineflower, slender-horned spineflower (*Dodecahema leptoceras*), Brand’s phacelia (*Phacelia stellaris*), least Bell’s vireo, coastal California gnatcatcher, southwestern willow flycatcher, and California condor.

### 3.1.2 Vegetation/Plants

#### Northern Region

The most common vegetation type in the Northern Region of the proposed TRTP is Mojave Creosote Brush Scrub. Large areas of this habitat type are extremely disturbed, being grazed yearly by large herds of sheep (*Ovis aries*). Disturbed Annual Grassland is the second most common vegetation type in the region, especially south of Rosamond Boulevard in the southern Antelope Valley. These areas of grassland support wildflower fields with spectacular displays of color during good rainfall years (observed during the 2008 spring wildflower bloom). These grasslands were previously fallow agricultural fields dominated primarily by cheat grass (*Bromus tectorum*) and other non-native grasses and occasionally interspersed with rubber rabbit brush (*Chrysothamnus nauseosus*). The third most abundant vegetation type is Mojave Juniper Woodland and Scrub, especially in the Leona Valley west of the city of Palmdale. Other relatively common vegetation types within the region include Mojave Mixed Woody Scrub, Desert Bunchgrass Mix, and Desert Saltbush Scrub in the Antelope Valley, and Mixed Chaparral in the foothills of the San Gabriel Mountains. Disturbed areas in this region are often dominated by non-native species, although, in other cases, rubber rabbitbrush, (a native and early successional species) dominates disturbed areas.

Sensitive or regulated habitats that occur in the Northern Region include Southern Cottonwood Willow Riparian Forest (along Amargosa Creek), Joshua Tree Woodland, and Desert Wash. The USGS National Wetland Inventory (NWI) maps depict numerous, small (0.3 to 1.0 acre) inland marshes and wetlands that may be temporarily flooded, particularly within the northern portion of the Northern Region.

#### Central Region

The majority of Proposed Action in the Central Region consists of Mixed Chaparral. Canyon Oak Forest and Bigcone Douglas Fir-Canyon Oak Forest are the second and third most common vegetation types in the region, respectively. Both of these forests are especially common on the north-facing slopes in the ANF. The next most abundant vegetation type is Chamise Chaparral, followed by two vegetation types that were recently burned (Deerweed/Chia Herbaceous Field, Recently Burned and Mojavean Pinyon and Juniper Woodland, Recently Burned). Coastal vegetation types restricted to the southern slope of the ANF include Southern Coast Live Oak Riparian Forest and Coastal Sage Scrub. On the drier northern slope, desert vegetation is more common, including Mojave Pinyon Woodland, Mojave Juniper Woodland and Scrub, Desert Wash, and Big Sagebrush Scrub. Several riparian vegetation types are located in deeper canyons along rivers or creeks: Southern Willow Scrub, Southern Sycamore Alder Riparian Woodland,
Southern Cottonwood Willow Riparian Forest, and Southern Arroyo Willow Riparian Forest. Non-native plants dominate three relatively uncommon vegetation types in the project area: Nonnative Woodland, California Annual Grassland, and Barren/Developed. In addition, most of the access roads within the ANF, particularly near the Angeles Crest Highway and the Angeles Forest Highway, are easily accessed by off road vehicles and support large populations of invasive plant species along the road margins.

Sensitive or regulated habitats that occur in the Central Region include Southern Cottonwood Willow Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Desert Wash. Numerous blue-line drainages appear within the Central Region, including Mill Creek in the north and Big Tujunga Creek and the San Gabriel River in the south. The USGS NWI maps depict numerous, small (0.3 to 1.0 acre) inland marshes and wetlands that may be temporarily flooded, within the Central Region.

**Southern Region**

The majority of the proposed TRTP area in the Southern Region is developed. Undeveloped native vegetation is primarily located in the Whittier Narrows Recreation Area, San Gabriel River Channel, Montebello Hills, and Puente and Chino Hills. Within these areas, the most common vegetation type is Coastal Sage Scrub, followed by Ruderal Grassland, Coast Live Oak Woodland, and California Annual Grassland. Three vegetation types are dominated by nonnative plants: California Annual Grassland, Nonnative Woodland, and Exotic (giant reed; *Arundo donax*). Extensive portions of both grassland habitat types (Ruderal Grassland and California Annual Grassland) are dominated by impenetrable stands of nonnative plant species. Sensitive or regulated habitats that occur in the Southern Region include Southern Cottonwood Willow Riparian Forest, California Walnut Woodland, Southern Coast Live Oak Riparian Forest, and Southern Sycamore Alder Riparian Woodland. Numerous blue-line drainages appear within the Southern Region, primarily along the San Gabriel River. USGS NWI maps depict numerous, small (0.3 to 1.0 acre) temporarily flooded wetlands and marshes, primarily near Chino. Several lakes and ponds occur within the northern portions of Segments 7 and 11 in the Southern Region.

### 3.1.3 Wildlife

**Northern Region**

Common wildlife species occurring throughout the Northern Region are indicative of the high desert environments and agricultural centers of Southern California. These species are typically well-adapted to the arid conditions that define this portion of the project alignment or are generalists, capable of exploiting a broad spectrum of habitats. Species observed during surveys in the Northern Region include a variety of birds, such as common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), northern mockingbird (*Mimus polyglottos*), ash-throated flycatcher (*Myiarchus cinerascens*), and California quail (*Callipepla californica*). Other bird species that are likely to occur include western scrub jay (*Aphelocoma californica*), American kestrel (*Falco sparverius*), house finch (*Carpodacus mexicanus*), and killdeer (*Charadrius vociferus*). Mammal species that were observed during surveys include bobcat (*Lynx rufus*), black-tailed jackrabbit (*Lepus californicus*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), and desert cottontail (*Sylvilagus audubonii*). Common mammal species that would be expected to occur in the Northern Region include coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), and striped skunk (*Mephitis mephitis*). The Northern Region provides excellent habitat for a variety of reptiles. Reptile species observed during surveys or expected to occur include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*),
desert spiny lizard (*S. magister*), desert iguana (*Dipsosaurus dorsalis*), and western rattlesnake (*Crotalus viridis*). Chuckwalla (*Sauromalus ater*), red racer (*Coluber constrictor*), common kingsnake (*Lampropeltis getula*), gopher snake (*Pituophis catenifer*), and western whiptail lizard (*Aspidoscelis tigris*) are commonly found in the Northern Region.

**Central Region**

The mountains and foothills of southern California are home to roughly 400 wildlife species, many of these occurring on the ANF. Arguably, the most notable of these are the wide-ranging mammals, including black bear (*Ursus americanus*), mountain lion (*Felis concolor*), and mule deer (*Odocoileus hemionus*). These species utilize a variety of habitats throughout the Central Region for breeding, denning, and foraging. Other mammals that occur on the ANF include coyote, gray fox, California ground squirrel (*Sciurus beecheyi*), western gray squirrel (*S. griseus*), and Botta’s pocket gopher (*Thomomys bottae*). The diverse assemblage of vegetation communities on the ANF provides suitable breeding, nesting, and foraging habitat for an exhaustive number of bird species, including Steller’s jay (*Cyanocitta stelleri*), wren tit (*Chamaea fasciata*), mountain chickadee (*Poecile gambeli*), acorn woodpecker (*Melanerpes formicivorus*), and dark-eyed junco (*Junco hyemalis*). Red-tailed hawk, common raven, turkey vulture (*Cathartes aura*), and Cooper’s hawk (*Accipiter cooperii*) are relatively common in the Central Region. Among the reptile species commonly occurring on the ANF are side-blotched lizard, sagebrush lizard (*S. graciosus*), western fence lizard, and southern alligator lizard (*Elgaria multicarinata*). Many perennial and intermittent drainages occur on the ANF and provide suitable breeding habitat for several common amphibian species, including California tree frog (*Pseudacris cadaverina*), Baja California [Pacific] tree frog (*P. [regilla] hypochondriaca*), Western toad (*Anaxyrus [Bufo] boreas*), Western spadefoot toad (*Spea hammondii*), two-striped garter snake (*Thamnophus hammondii*), Monterey ensatina (*Ensatina eschscholzii eschscholzii*), and coast range newt (*Taricha torosa torosa*).

**Southern Region**

As the majority of the Southern Region encompasses areas dominated by development, common wildlife species occurring throughout the area represent of broad spectrum of animals adapted to urban conditions. These include mammals such as opossum (*Didelphus virginiana*), striped skunk, raccoon (*Procyon lotor*), and coyote. Given the proximity to heavily developed areas, domestic cat (*Felis catus*) and dog (*Canis familiaris*) are expected to frequent a majority of the areas throughout the Southern Region. Many of the bird species occurring in the Southern Region, including mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*) are commonly associated with urbanized areas. However, several areas throughout the Southern Region, particularly the Puente-Chino Hills Wildlife Corridor, support natural open space and suitable riparian habitat for a number of bird species, such as yellow-breasted chat (*Icteria virens*), yellow warbler (*Dendroica petechia*), red-winged blackbird (*Agelaius phoeniceus*), phainopepla (*Phainopepla nitens*), and hooded oriole (*Icterus cucullatus*). Reptile and amphibian species that are likely to be common in the Southern Region include western fence lizard, southern alligator lizard, side-blotched lizard, and western toad.
3.1.4 Change in the Central Region Due to Fires

As analysis of the TRTP was nearing completion, two fires impacted the Central Region. Due to the location of the fires within the Angeles National Forest portion of the Action Area, the following species have the potential to have been impacted by the fires: Santa Ana sucker, arroyo toad, and southwestern willow flycatcher. Species that were not recently documented in the Action Area, but for which potential habitat was present prior to the fires, include California red-legged frog, mountain yellow-legged frog, California condor, western yellow-billed cuckoo, least Bell’s vireo, and California gnatcatcher. In addition, while not detected during multiple years of protocol surveys, listed plant species such as Braunton’s milk-vetch have the potential to express in the post-fire landscape if a seedbank exists. All other species addressed in this BA would not be affected by the fires as they do not occur in the Angeles National Forest portion of the Action Area.

It is important to note that the full effects of the fires on populations of listed species in the Action Area will not be known for several years, as response to fire is highly variable and dependent on a species’ life history, the severity and intensity of the burn, time since last fire, pre-fire vegetation assemblages, colonization by non-native species, and a multitude of other factors. Therefore, the following discussion provides an overview of general plant and wildlife responses to fire.

The Station Fire started on August 26, 2009 at 3:30pm. It burned a total of 161,189 acres, of which 154,431 acres are on NFS lands and 6,758 acres are on non-Forest lands. The Station Fire was officially contained on Friday, October 16, 2009 at 7:00 pm. Containment means that a control line has been completed around the fire and any associated spot fires, which can reasonably be expected to stop the fire’s spread. Typically, portions of the fire may continue to burn, or have hot spots, within the containment line until after several days of rain. The fire has burned the majority of Segment 11 and a portion of Segment 6.

A variety of vegetation types have been impacted by the fire in varying intensity. Initial effects, such as burn intensity, were identified in the Burned Area Emergency Rehabilitation (BAER) Report that was completed for this fire. This report was published on September 23, 2009. Since the fire will continue to burn portions within the containment line, full effects to the burn area will not be known until winter, at the earliest.

An El Nino year is predicted for 2010; hence an increase in rainfall is expected over the burn area. Depending on the duration and amount of rainfall, rainfall effects could vary from beneficial to massive debris torrents with great loss of topsoil and stored seed bank. Full effects will not be known for several years.

A second fire, called the Morris Fire was started on August 25, 2009 at 2:27 pm. This fire was contained on September 2, 2009. The area affected totals 2,168 acres. The impact of this fire on the Proposed Action is potential delays or problems on Highway 39 as an access route for the TRTP. Access to the project area could be interrupted based on soil loss from the burned area onto Highway 39.

3.1.4.1 Fire Effects on Plants

Ecosystems within southern California experience fire as part of their natural life cycle. Time between natural fire events is one factor that determines the vegetative characteristics of a particular habitat.
Studies in yellow pine forests have shown that fires have been an ecological force to thin the tree stands, remove brush around the tree stands, eliminate young pines and or climax mixed-conifer species, and keep the forest open and park-like (Wright and Bailey, 1982). In California, it takes an average of eight to ten years to reach seral communities of yellow pine forests (Wright and Bailey, 1982). Seeds become established on bare mineral soil surfaces in open sunlight. Larger trees, charred remains, stumps, and fallen logs help to provide the seedlings with shade and partially thin them. In grassy areas it will take pine trees about five years to overcome competition with grasses, during which time they are susceptible to fire (Wright and Bailey, 1982). Following a fire, many shrubs vigorously resprout along with abundant annual plant seeds to come back quickly after a fire.

Chaparral is a fire-adapted community that needs fire periodically as part of its life history. Vegetative recovery to a seral stage of chaparral occurs rapidly, typically around five years. Within weeks after a fire, many of the shrubs will begin sprouting (Biswell, 1999). Other plant species have an extensive seed bank that is stimulated to germinate by fire, leachate from burned wood, or through reduced canopy cover.

The first wet season following a fire is crucial for burned chaparral sites since it is the period of greatest germination (Hanes, 1988; Horton and Kraebel, 1955; Keeley and Keeley, 1988; Patric and Hanes, 1964; Went et al., 1952). Herbaceous plants proliferate after a fire in chaparral. A flush of fire-following annual herbs will germinate the first wet season after fire from seeds that have accumulated in the soil and duff over decades (Keeley and Keeley, 1988; Sweeney, 1968). These seeds are long-lived and remain viable for many decades (Quick, 1959).

The first stage of secondary succession is an herbaceous cover with seedlings of shrubs and sprouting root crowns present (Quick, 1959; Hanes, 1971). The dispersal of seeds onto burns from unburned adjacent sites does not contribute materially to the herbaceous cover of chaparral burns (Sweeney, 1956). Many “pyrophyte endemics” of ephemeral herbs and forbs dominate up to several years following a fire (Hanes, 1988; Horton and Kraebel, 1955; Sampson, 1944; Sweeney, 1956). Due to increased light (Stone, 1951) and nutrients, especially nitrogen compounds (Christensen, 1973), a dramatic increase in flowering and seed production occurs at this stage of secondary succession (Ammirati, 1967; Stocking, 1966; Stone, 1951).

For species that sprout from root-crown burls after fire, reproduction by seed is facultative, whereas for nonsprouting species reproduction by seed is obligatory (Hanes, 1988). Both types of shrubs are heavy seed producers. Often shrub seedlings occur in great profusion, but attrition is high among them in early years of succession (Hanes, 1988). Summer drought is a major factor in seedling mortality, but other forms of competition are also factors (Hanes, 1988). Fires in chaparral should not occur more often than 15 years or the nonsprouting shrubs will gradually disappear (Biswell, 1969).

Short fire cycles (5-10 years or less) put the sustainability of woody ecosystems at risk (Keeley et al., 2009). The concern is that if reburning occurs before shrubs have developed sufficient stored carbohydrate reserves and/or soil seed banks to maintain their dominance; hence grassland or non-native communities develop (Keeley et al., 2009). Keeley (2006) found that it was marginally destructive to coastal sage scrub and destructive to chaparral. In areas that have experienced more than 4 fires in the last 100 years in what was originally chaparral or sage scrub, the area is a combination of scattered
remains of the former shrub cover and the rest is non-native grasses (Jacobson et al., 2004; Keeley, 2006).

### 3.1.4.2 Erosion and Sedimentation

Vegetation provides physical functions that help control soil erosion during winter rains. It intercepts rainfall to extend the time it takes for water to reach the ground and to absorb raindrop impact energy (Spittler, 1995, Biswell, 1999). Litter on the ground mulches the ground surface, providing temporary water storage, slope roughness, and energy absorption. Structural support of loose material is also provided. Roots of the vegetation reinforce the soil and increase the natural slope stability. Vegetation also creates the conditions necessary for soil communities that provide soil structure (Splitter, 1995).

Dry ravel or dry flows occur when sediment moves downslope in a dry condition because of loss of structural support. When high intensity fire occurs, the impacts of raindrops on an area increase due to the amount of exposed bare soil. When rain beats on bare soil, small particles are loosened and washed into the macropores, effectively sealing the soil surface against water filtration (Biswell, 1999). The water then runs off, and it might carry soil with it. Sheet and rill erosion occur when runoff flows over a bare surface. As the volume and velocity of flow increases, the size and quantity of sediment that can be transported also increases. The principal factors that contribute to debris torrent mobilization are: available sediment source; steep side slopes; bare soil (high percentage burned); development of water-repellent soils; and high volume (intensity/duration) rain storms (Splitter, 1995).

The geographic and geomorphic factors contributing to post fire channel-derived debris torrents include: friable bedrock units, including highly fractured hard bedrock and cohesionless soil, colluvium, and alluvium; long regular slopes inclined more steeply than 65% that are denuded of vegetation; concentration of dry ravel from steep slopes; development of a continuous layer or water-repellent soil; and removal of woody structural support from stream channels or riparian vegetation where sediment is stored in or adjacent to the channels (Spittler 1995).

Water repellency within southern California chaparral can increase based upon intensity of heat. Hydrophobic substances from decomposing materials of some plants resist wetting. When water is placed on soil affected by hydrophobic material, it balls up and remains for seconds or minutes before being absorbed or running off. Hydrophobic substances are volatilized by fires between soil temperatures of 392 degrees and 550 degrees Fahrenheit (Biswell, 1999). Above the latter figure they are destroyed; and below it some move downward in the soil as gas vapors. When these vapors come in contact with cooler soils (about 482 degrees Fahrenheit), they condense on the soil particles to form a nonwettable layer (Biswell, 1999). At the same time, the soil above is made permeable because the hydrophobic substances there either have been destroyed by heat or have moved downward in the form of vapors. When the soil layer above the nonwettable zone becomes fully saturated with rainwater, it can flow downslope, creating severe erosion problems.

Accelerated soil erosion has been observed to be particularly severe following intense wildfires in two situations: first, in southern California chaparral where the slopes are steep and the soils are granitic and unconsolidated; second, in coniferous forests where the fuels were heavy, the soils are friable, and the canopy is destroyed, leaving no source for the production or deposition of new materials to protect the soil surface (Biswell, 1999). Furthermore, a fire of uniformly high intensity aggravates the nonwettable conditions to a maximum.
Visual inspections of seeded slopes suggest that it is effective at reducing the rate of erosion from burned areas (Spittler 1995). Barrow and Conard (1987), Beyers et al. (1993), and Conard et al. (1991) all concluded that post-wildfire seeding of non-native grasses to reduce erosion and sedimentation is negatively correlated with cover of natural herbaceous species and with shrub and tree seedling density. Taskey et al. (1989) found that in subsequent years sediment yields from grass seeded plots were higher than unseeded areas because suppression of woody vegetation resulted in greater bare areas. If grass seeding is successful in converting a chaparral site to grassland, the debris flow potential can be increased many times due to the loss of root support (Spittler 1995).

To reduce the erosion potential and to not impact the natural recovery to the area, seeding with locally native species may be desirable. This may be desirable when a valuable recreational or private property is threatened by a debris torrent. However, if the slope is too steep to retain the seed due to the soils and geology of the area, seeding may not be a viable option.

Due to the anticipation of dry ravel and debris torrents, increased amounts of road maintenance and perhaps road reconstruction may occur for the project to proceed.

### 3.1.4.3 Fire Effects on Animals

Wildfire directly affects animals due to heat and smoke. The degree of this effect is dependent upon the size and intensity of the burn, the presence of slash piles, and animals’ size, mobility, and escape response. In general, few animals are directly killed by heat or smoke (Biswell 1999, Kramp et al. 1983), typically it only happens when they get cornered by a fire and lack escape routes (Hanes 1988; Wirtz 1974). Birds can fly away from the fire. Mammals escape these fires either by running away from them or by seeking shelter in burrows beneath the ground surface and in crevices of rock outcrops. Reptiles and amphibians, like small mammals, are known to burrow beneath the ground or crevice into rock outcrops in response to fire (Cunningham, 1960; Russell et al., 1999).

If the animal survives the fire, the concern is then dependant on whether food, water, or shelter are available to the animal. The negative effects of the fire is direct mortality, loss of suitable habitat or cover from predators, and the loss of plant and animal food resources (Babbitt and Babbitt, 1951; Rochester et al., 2009; Erwin and Stasiak, 1979; Whelan, 1995; Shaffer and Laudenslayer, 2006). If a shift in vegetation community occurs, for example from chaparral or coastal sage scrub, to a grassland or non-native grass community, species shifts are anticipated (Rochester et al., 2009).

The beneficial effects of fire on fire-dependent habitats usually compensates for any potential losses (Vogl 1977). Some increases in species may occur immediately to a few years following a fire based on open habitats, or creation of pyrogenic structures (Kennedy and Fontaine, 2009). Many large game species benefitted from fire such as mule deer, cougar, coyote, black bear, and hares (Lyon et al., 1978). Animals are a product of the habitat, which is often a product of fire (Wright and Bailey 1982). Therefore animals are generally well-adapted to fire in their environment.

Fire may temporarily displace or eliminate species that are dependent on late stages of plant community development (Biswell 1999). Animals require year-long food that is palatable and nutritious, and a suitable vegetation cover for loafing and resting, breeding, and escaping from predators. Some small animals, such as mice and salamanders, require that logs and other debris be on the ground.
Woodpeckers need dead trees and snags in which to feed and build their nest. Hence, if appropriate cover is not available, animals can be temporarily displaced or eliminated.

Fire increases foods for herbivores dependent on browse plants. The nutritional quality of browse is higher immediately after a fire. Several studies indicate burning increases yields of grass seeds (Kramp et al. 1983). An increase in seed availability favors increases in use of burned habitat by birds and small mammals. Early successional plants provided an abundant supply of seed (Lawrence 1966). Depending on the burn pattern, seeds and vegetable matter are not destroyed and unburned spots usually can be found within the boundaries of a fire.

Birds are most vulnerable during nesting and fledging periods. In grasslands, fire is often destructive to nesting habitat for songbirds (Renwald 1978). Fire can be devastating to ground-nesting birds because it destroys existing nests, removes protective cover, and temporarily reduces insect populations they feed on. However, for ground nesting species, an abundance of habitat following a burn will provide good nesting and feeding areas (Soutiere and Bolen 1972).

Some bird species are attracted to the burn due to the increased vulnerability of prey species as they attempt to escape the fire. Birds have been observed to fly in back of a fire and start feeding almost immediately, apparently on parched seeds and on insects killed by the fire. Edwards and Ellis (1969) found that mourning doves (Zenaidura macroura) are attracted to fresh burns as they find an abundant supply of dead insects and seeds. Common ravens have been seen flying low behind the flames of grassland fires, apparently searching for small mammals as they become exposed (Biswell 1999).

Bird populations shift in species composition after a fire. Seed-eating species, such as mourning dove, western meadowlark, and lark sparrow, should increase due to greater accessibility of more seeds. Birds that scratch for their foods will be more successful in recently burned areas. Bird species such as rufous-sided towhee, mountain quail, Nashville warbler, and hermit thrush, which require brush or dense shaded vegetation, will decrease following a burn. An intermediate fire could create more openness for timber-drilling birds and flycatching birds (Lowe et al. 1978) and raptors (McAdoo and Klebenow 1978). A severe fire would substantially reduce the number and diversity of tree-foliage-searching and timber gleaning birds (Bock and Lynch 1970). Bock and Lynch (1970) found that species that forage among the needles and twigs of conifers were less common in burned areas than in unburned. The number of bird species in chaparral areas treated with prescribed burning generally is not significantly reduced (Quinn 1983). In the opened chaparral, valley quail could find abundant herbaceous forage and seeds, with cover nearby. Late-summer populations of 250 per square mile were found in the opened chaparral, but in the dense mature chaparral the number was only 100 per square mile (Biswell 1999). Species that were restricted to chaparral or low brush cover disappeared after burning (Kilgore 1971). Overall, Kilgore (1971) found that burning the understory material changed the species composition, but not the total biomass of avifauna. Wirtz (1979, 1982) suggested that the number of individual birds increased for greater than 3 years post-fire in burned chaparral areas in the San Gabriel Mountains, yet avian species richness and trophic guild structure were roughly equivalent to unburned chaparral. Lawrence (1966) found number of individual bird species in chaparral was reduced in three years following a burn in the Sierra Nevada foothills. Mendelsohn et al. (2008) found relatively few changes in avian communities in the second and third year post-fire as compared to pre-fire sites.

Some birds will increase in abundance and others will decrease as they adjust to the altered habitat, but overall, the number of birds per 100 acres will remain about the same (Biswell 1999). Species favored by
past fires included sparrow hawk (*Falco sparverius*), roadrunner (*Geococcyx californianus*), screech owl (*Otus asio*), red-tailed hawk (*Buteo jamaicensis*), common nighthawk (*Chordeiles minor*), yellow-bellied sapsucker (*Sphyrapicus varius*), hairy woodpecker (*Dedrocopos villosus*), Cassin’s kingbird (*Tyrannus vociferans*), curve-billed thrasher (*Toxostoma curvirostre*), brown towhee (*Pipilo fuscus*), rufous-sided towhee (*P. erythrophthalmus*), purple martin (*Progne subis*), violet-green swallow (*Tachycineta thalassina*), robin (*Turdus migratorius*), western bluebird (*Sialia mexicana*), Mexican junco (*Junco phaeonotus*), gray-headed junco (*J. caniceps*), chirping sparrow (*Spizella passerine*), olive-sided flycatcher (*Nuttallornis borealis*), western wood pewee (*Contopus sordidulus*), rock wren (*Salpinctes obsoletus*), and house wren (*Troglogynes aedon*) (Wright and Bailey 1982). Some species, such as woodpeckers, have shown a rapid increase in abundance immediately following a fire, followed by a decrease beginning 2-4 years following a fire (Kennedy and Fontaine, 2009).

Mammals, depending on size, mobility, and escape response, react to a fire in a variety of ways. Ungulates often avoid injury during a fire except for the young that are frequently killed by large fires. Deer have been seen consuming ash the day after a fire (Krueger Pers. Obs. 1993 and 1997). Ash contains concentrated amounts of minerals and thus provides a form of dietary supplement. Mule deer prefer to forage in open areas over mature stands of chaparral (Biswell 1999). Due to their preference of grass and herbage, mule deer are attracted to early stages of secondary succession (Wirtz 1974). Many believe that mule deer foraging on shrub seedlings and sprouts may have a significant effect on the recovery rate and composition of chaparral (Biswell 1999; Biswell and Gilman 1961; Davis 1967; Kinucan 1965). Deer numbers increase following a burn compared to unburned areas due to an increase in abundance of succulent shoots of shrubs which results in higher ovulation rates and weight (Biswell 1963).

The intensity, uniformity, size, and duration of a burn plus the juxtaposition and mobility of the animal relative to the soil surface at the time of the passing fire, will determine the survival of small mammals (Buech et al. 1977). Most small mammals escape fires by hiding in burrows or rock crevices. There is documentation of the mortality of chipmunks, shrews, woodrats, and mice that were reluctant to leave burning woodpiles and grass stands (Kramp et al. 1983). Mature cotton rats and their young successfully retreated to safe refuge areas (Kramp et al. 1983). Thus, some small animals of limited mobility are capable of avoiding fire.

The most common cause of death during a fire is a combination of heat effects and asphyxiation. Caged mice and rats tolerated a maximum temperature of 63 degrees Celsius in shelters with adequate ventilation (Kramp et al. 1983). Mice can tolerate temperatures up to 63 degrees Celsius (145 degrees Fahrenheit) for short periods if the relative humidity is below 22 percent (Howard et al. 1959). However, if the temperature is above 49 degrees Celsius (120 degrees Fahrenheit) and the relatively humidity is above 60 percent, mice can die quickly (Lawrence 1966). Soil provides insulation for burrowing animals (Howard et al. 1977). Lawrence (1966) found that burrowing rodents and reptiles could survive a fire if they are several centimeters below the ground.

Small mammals can greatly benefit from fire in chaparral. Fire opens chaparral and creates generous amounts of herbaceous vegetation, along with the edge effect supplied by the scattered clumps of unburned brush. These features have been shown to encourage an increase in the number of small game species, such as jackrabbits and brush rabbits (Biswell 1999). However, small mammals can decrease dramatically in numbers within a few days following a fire because removal of the protective cover
exposes them to predators such as coyotes, house cats, red-tailed and sharp-shinned hawks, common ravens, and great horned owls. These predators are highly mobile and can concentrate on burned areas within a short time.

Some small mammals decrease in numbers the year following a fire (Chew et al. 1959; Cook 1959; Howard et al. 1959; Lawrence 1966; Wirtz 1974). Some may die of suffocation (Chew et al. 1959, Lawrence 1966, Tevis 1956). Slow moving mammals that happen to be above ground such as woodrats (Neotoma spp.) may be directly killed. Dusky-footed woodrats (Neotoma fuscipes) were found to disappear following a fire, but return within five years due to their habitat requirement of dense and continuous cover (Quinn, 1983). Other small mammal species, such as the Pacific kangaroo rat (Dipodomys agilis) and California mouse (Peromyscus californicus), have been shown to increase greatly in numbers in the first two to four years following chaparral fires (Kramp et al., 1983).

The change in the habitat, such as temporary loss of shelter and food, exposure to surface runways and burrow openings, and increased predation will decrease the overall number and diversity of small mammals following a fire for one to three years, perhaps longer (Cook 1959, Lawrence 1966, Klebenow and Beall 1977, Koehler and Hornocker 1977). Populations of small mammals build up rapidly after the start of new plant growth, and they may shift in species composition from those adapted to open-oak woodland chaparral to open oak woodland savannah (Lawrence 1966). Shifts in species following a fire have been documented in rodents in the California chaparral. For example, composition pre-fire consisted of dominate species such as chaparral mouse (Peromyscus truei) and the California mouse (Peromyscus californicus). A post-fire composition was documented that was similar to grassland species composition, including species such as pocket mouse (Perognathus californicus), field mouse (Microtus californicus), and western harvest mouse (Reinthrodontomys megalotis) (Cook 1959, Lawrence 1966).

Tree squirrel abundance did not change following ground fires, but was reduced when the fire was in the tree canopy (Gashwiler 1970, Wolf 1975). Ground squirrels, such as California ground squirrel (Spermophilus beecheyi), increased in density after burning (Gashwiler 1970, Beck and Vogl 1972, Lowe 1975). Shrew density was low on both burned and unburned sites (Gashwiler 1970). Chipmunk data varied based on species and dryness of sites. Fewer chipmunks were found on burned areas in xeric sites as compared to an increase in chipmunk abundance on mesic sites (Gashwiler 1970, Koehler and Hornocker 1977, Lowe 1975). Hares and cottontails, as long as there are pockets of unburned habitat, would not necessarily change in abundance. However, in moderate or high-intensity burns, cottontails would be expected to increase in number once vegetation returned (Ream and Gruell 1979), but numbers would be offset by the increase in predation.

Amphibians and reptiles have been found to show few changes in terms of recapture post-fire as compared to pre-fire events (Greenberg et al., 1994). This could be an artifact due to the difficulty of detection of amphibians and reptiles, or it occur based on the majority of detections occur in around riparian or wetlands which tend not to burn completely. Another effect is that large trees in woodlands and forests survive the fire, or as dead trees they continue to serve as refugia for many species (Rochester et al., 2009).

Reptiles apparently often survive fires because evidence of dead individuals is seldom found afterwards (Komarek 1969). Some snakes may detect and avoid fires by means of the heat-sensing pits they use to locate prey. A study showed that caged snakes could survive peak temperatures between 59-63 degrees Celsius when sheltered in burrows and rock crevices with adequate ventilation (Kramp et al. 1983).
Western fence lizards (*Sceloporus occidentalis*) survived a chaparral fire by remaining in the soil beneath rocks (Kahn 1960). Rochester et al. (2009) found that the indirect effects of the fire, such as changes in the habitat suitability and predator-prey dynamics, were largely responsible for the changes observed in the abundance and distribution of herpetofauna species. Pre- and post-fire surveys conducted in chaparral and coastal sage scrub in 2003 in San Diego County found that western fence lizards were the most abundant lizard both pre- and post-fire; western whiptail (*Aspidoscelis tigris*), coast horned lizard (*Phrynosoma coronatum*), and side-blotched lizard (*Uta stansburiana*) increased post fire in chaparral; whiptail (*Aspidoscelis hyperythra*) and side-blotched lizard increased post-fire in coastal sage scrub; post-fire decreases in chaparral and coastal sage scrub occurred for alligator lizard (*Elgaria multicarinata*), racer (*Coluber constrictor*), common kingsnake (*Lampropelis getula*), gopher snake (*Pituophis catenifer*), and striped racer (*Masticophis lateralis*) (Rochester et al., 2009).

Studies with prescribed fires found no discernible amphibian mortality, most likely due to adaptive behaviors (Komarek 1969). Frogs escaped a backing fire by travelling ahead of the fire, then burying themselves under wet leaves and soil in a small depression (Komarek 1969). Western toads similarly could survive fire by remaining in the soil beneath rocks, entering animal burrows, or by escaping to water; survival in retreats under flammable materials (logs, stumps, and boards) would depend on fire severity and moisture conditions. A review of literature regarding amphibian response to wildfire concluded that responses were highly variable and dependent on species, geographic area, and fire intensity and severity, among other variables, and in general short-term and long-term effects are poorly understood (Pilliod et al., 2003).

Pre- and post-fire surveys conducted in chaparral and coastal sage scrub in 2003 in San Diego County found that western toad (*Bufo boreas*) was detected less post-fire as well as salamanders (*Batrachoseps major*) (Rochester et al., 2009). However, toads have increased, or even preferred, burned habitat in other studies (Guscio, 2007; Kirkland et al., 1996).

### 3.1.4.4 Fire Effects on Aquatic Species

Aquatic species can often survive fire that burns across a stream area. Residual pools or pockets of water on intermittent streams may evaporate during a fire, thus reducing the amount of habitat aquatic species can survive in. Additionally, loss of stream-side vegetation and increased sediment load into the water may be detrimental to stream fauna by increasing water temperatures which decreases dissolved oxygen contents (Burns 1970, Lyon et al. 1978). Typically, there will be mortality of aquatic species, but the majority of aquatic species should survive the immediate effects of the fire providing they stay within the water.

Wildfires affect stream habitat in three ways: decreased vegetation cover, increased storm runoff, and increased sediment and debris. Storm runoff is dynamic because of topography, precipitation characteristics, vegetation cover, and evapotranspiration. Soil mantle capacity includes infiltration, storage, and transmission of ground water. In a wildfire, vegetation cover and root systems are destroyed which impacts infiltration and storage functions and can cause "hydrophobic" soils. Surface runoff is accelerated, peak runoff events are accelerated, and low summer flows decreases. The net effect is stronger peaks of floodwater (in the spring) and not as much water in the summer (Kaczynske 1994). Loss of summer flow increases summer stream temperatures and decreases stream habitat area and pool depth.
Following wildfires, streams receive a large pulse of small to large organic debris, sediment from silt to boulders, and nutrients including ammonia nitrogen. Complex chemical reactions occur in the stream and this results in a pulse of biochemical oxygen demand (BOD). The temperature of the stream can also rise dramatically. Increases of several degrees have been recorded in association with wildfires (Kaczynske 1994) and can result in increase incidences of fish diseases (Fish and Rucker 1945). The combination of increased temperature, increased sediments, and lowered dissolved oxygen (from the BOD pulse) often causes direct fish and aquatic insect death (Kaczynske 1994). Increases in turbidity and alterations of water chemistry associated with ash and soils further the impacts.

Sediment and ash particles clog and irritate fish gills and this can cause direct mortality, or stress and vulnerability to disease, which results in death. These particles smother the spawning gravels or deposit fine materials that smother eggs and prevents emergence of fry. Sediment also decreases the flow of water through the gravels, lowering the dissolved oxygen, and increasing the mortality of eggs and alevins (Cooper, 1965; Cordone and Kelly, 1961; Phillips, 1961). Success of spawning and rearing of young is dependent on the ability of aquatic species to locate proper spawning substrate and of the fertilized eggs to survive. Sediment could cover fertilized eggs and kill them if sedimentation occurred after spawning, thereby reducing reproductive success for these species.

Vegetation cover loss results in the loss of canopy and shade, which increases summer stream temperatures beyond just the hydrologic temperature impact caused by loss of summer flows. Loss of vegetation cover also means a temporary decrease in the input of needles, leaves, and stems that are a large part of the organic food chain. Concentration of nutrients in a stream following a fire can increase algae production which appears to sustain a greater biomass and a more diverse population of insect larvae (Fredriksen, 1978).

The extent of potential sedimentation includes lowered water quality, increased turbidity, changes in water chemistry (increases in pH and algae), lowered habitat quality and habitat types, loss of spawning and rearing habitats, lowered productivity of macroinvertebrates, and increase water temperature. These changes may result in direct mortality of aquatic species. Reproductive success is also at risk following wildfires.

4. FEDERALLY LISTED SPECIES

Table 13 summarizes the federally listed species with the potential to occur in the project area.
Focused floristic surveys of the project alignment and alternatives were conducted from 8 April to 15 June 2009 and in the spring and early summer of 2008. Surveys consisted of up to 3 visits, depending on site conditions.

Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September, and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE).

The Coal Canyon population was surveyed by AMEC (SCE) on 14 April 2009 as a reference.

The current distributional extent of the species ranges from the foothills of the San Gabriel Mountains of Los Angeles County to the foothills of the Peninsular Ranges of southwestern Riverside County at elevations of 900 to 2,000 feet. There are currently fewer than 30 scattered natural occurrences of this species remaining, in addition to several introduced horticultural plantings. There is some confusion concerning native versus introduced occurrences, as this species has been cultivated for many years. The total number of native individuals remaining is estimated to range from 500 to 1,000 plants. The CNDDB lists two extant occurrences of this species within the ANF: Lopez Canyon and San Francisquito Canyon. The range of this species does not extend north of the Mill Creek Summit Divide. A historical occurrence of this species occurs within the Arroyo Seco Wash, south of the Devil's Gate Reservoir.

Although there are no records of this species within the immediate vicinity of Segment 8, habitat exists within the Puente/Chino Hills.

The Coal Canyon population was surveyed by AMEC (SCE) on 14 April 2009 as a reference population. No individuals were observed at that time.

A single individual, likely of horticultural origin, was observed in the project area in Whittier Narrows along Segment 7 in 2009.
Table 13. Species Range, Habitats, and Surveys

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
<th>Range</th>
<th>Preferred Habitat</th>
<th>Potential Locations in Project Area and Known Occurrences</th>
<th>Surveys</th>
<th>Survey Results</th>
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<tr>
<td>Slender-Horned Spineflower</td>
<td>Dodecahema leptoceras</td>
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<td>The slender horned spineflower has currently known populations within nine watersheds: Santa Clara River, Bas Canyon, Big Tujunga Wash, Lytle Creek, Santa Ana River, Temescal Creek, San Jacinto River, Bautista Creek, and Yall Lake. Historically documented in Los Angeles, Riverside, and San Bernardino Counties. This species is known to occur in the south-facing slopes of the San Gabriel Mountains from Placencia Canyon to the San Gabriel River. Specific locations are Gleno Camp (West Fork San Gabriel River) (presumed extirpated), Santa Anita Wash, Rubio Wash, Big Tujunga Wash, Placencia Wash, Placencia Bridge, Mint Canyon, San Fernando Wash, Little Kits Canyon Wash, Bae Canyon Wash (tributary to Santa Clara Wash) (extant population at confluence with Salded Canyon), and Nuevo. Habitats are exitant populations within the project region which are presumed extirpated, and from the Little Tujunga Wash.</td>
<td>Phlebocone alluvial wash communities. Sandy soils of alluvial fans and sandy stream terraces with chaparral, cismontane woodland, and coastal sage scrub. Associated with elevated terraces. Below 2,000 feet elevation.</td>
<td>Southern foothills of the San Gabriel Mountains (near Segment 6). Historical populations occur where Segment 11 crosses the Rubio Wash (presumed extirpated), and between Segments 7 and 11 in the foothills of the San Gabriel Mountains north of Moreno. Although there are no historical records of this species within the immediate vicinity of Segment 8, sandy substrates in the Puente/Chino Hills may offer habitat.</td>
<td>Focused floristic botanical surveys of the project alignment and alternatives were conducted from April to 15 June 2009, and in the spring and early summer of 2008. Surveys consisted of up to 3 visits, depending on site conditions.</td>
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<td>Southwestern Willow Flycatcher</td>
<td>Empidonax traillii extimus</td>
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<td>This species is a neotropical migrant that breeds in riparian habitats and is known to nest as high as 9,000 feet in California. It is known to nest in the San Gabriel and San Bernardino Mountains and the South Fork Kern River. The breeding range for this species includes southern California, Arizona, New Mexico, southern Utah, southern Nevada, and western Texas. It is an uncommon spring migrant and a fairly common fall migrant in the Angeles National Forest and lowland portions of the TRF.</td>
<td>Occurs in densely vegetated riparian habitats, preferring streamside associations of cottonwood (Populus sp.), willow (Salix sp.), and other riparian vegetation. This species most often occurs in broad, open valley valleys or large mountain meadows with lush growth of shrubby willows. Dense willow thickets are required for nesting and roosting.</td>
<td>Amargosa Creek (Segment 5), Aliso Creek (Segment 11), Big Tujunga Creek at Falls Creek (Segment 11), upper Big Tujunga Canyon (Segment 6), Monte Cristo Creek (Segment 8), along West Fork Cogswell Road (access road for Segment 6 under Alts 2 through 5 and 7), Whittier Narrows (Segments 7 and 8), and Rio Hondo (Segment 7). Known to occur at various drainages within the ANF and the Whittier Narrows area.</td>
<td>Riparian habitat within the ANF is marginally suitable for this species. Individuals thought to be migrating through have been documented on the West Fork San Gabriel River and Littlebrook Creek. Surveys conducted by SCE detected individuals thought to be migrants at Aliso and Big Tujunga Canyons in the project area. Marginal habitat for this species does occur in</td>
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### Table 13. Species Range, Habitats, and Surveys

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<td>the southern reaches of the project including the Whittier Narrows, and foothills of the San Gabriel Mountains.</td>
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<td>in 2009 (22 May, 3 June, 24 June, 1 July, and 9 July) at a location along Segment 6 off of Angeles Forest Highway on the ANF.</td>
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<td>This location is along Aliso Creek, approximately 0.7 miles south of the intersection of Angeles Forest Highway and Aliso Canyon Road.</td>
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<td>A five-visit protocol survey was conducted in 2009 (22 May, 3 June, 24 June, 1 July, and 9 July) at North Fork Mill Creek. This site is along Segment 11 (Forest Road 3N27), south of Mt. Gleason Road on the ANF.</td>
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<td>A five-visit protocol survey was conducted in 2009 (22 May, 11 June, 2 July, 8 July, and 15 July) at lower Fall Creek. This site is near the confluence of Fall Creek and Big Tujunga Creek along Forest Road 3N27, north of Big Tujunga Canyon Road on the ANF.</td>
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<td>A five-visit protocol survey was conducted in 2009 (27 May, 9 June, 25 June, 1 July, and 13 July) at Mill Creek. This site is along Forest Road 4N18 near Segment 6, between Angeles Forest Highway and the transmission line on the ANF. This road is proposed as an access route for Segment 6.</td>
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<td>A five-visit protocol survey was conducted in 2009 (27 May, 9 June, 25 June, 1 July, and 13 July) at Monte Cristo Creek. This site is along Segment 6, between Monte Cristo Campground and the transmission line on the ANF.</td>
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<td>A five-visit protocol survey was conducted in 2009 (27 May, 4 June, 26 June, 1 July, and 7 July) at Lyre Gulch Road. This site is along Segment 6 on the ANF. The portion of Lyre Gulch Road near Segment 6 was surveyed for SMFL in 2007, with negative results. Surveys in 2009 focused on the portion of Lyre Gulch Road that is proposed as an access road.</td>
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<td>A five-visit protocol survey was conducted in 2009 (27 May, 4 June, 26 June, 1 July, and 7 July) at upper Big Tujunga. This site is along Segment 6, near the transmission line's intersection with Upper Big Tujunga Canyon Road on the ANF. The portions of upper Big Tujunga Creek near the transmission line were surveyed for SMFL in 2007, with negative results. The 2009 surveys focused on the access road, which leads from near the Forest Service Shortcut.</td>
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<td>Three willow flycatchers were detected in 2009 at the following locations in the Southern Region: Whittier Narrows Recreation Area (19 May); Brea Creek (8 June); Canyon Hills Road (19 June). None of the birds were detected on subsequent surveys.</td>
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December 2009
Table 13. Species, Range, Habitats, and Surveys

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<td>Station to the southern terminus of the 2007 survey area.</td>
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<td>• A five-visit protocol survey was conducted concurrently with an eight-visit LVB protocol survey in 2009 (23 April, 7 May, 18 May, 28 May, 6 June, 23 June, 6 July, and 16 July) along the West Fork Cogswell Road. This road is paved, and is proposed as an access route for Segment 6 on the ANF. Survey location includes the entire road from Highway 39 to Cogswell Reservoir (approximately 6.5 miles).</td>
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<td>• A five-visit protocol survey was conducted concurrently with an eight-visit LVB protocol survey in 2009 (27 April, 15 May, 26 May, 5 June, 16 June, 26 June, 7 July, and 17 July) at the segment 5 crossing of Amargosa Creek. This drainage is located west of Palmdale, along the northern edge of Elizabeth Lake Road.</td>
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<td>• A five-visit protocol survey was conducted concurrently with an eight-visit yellow-billed cuckoo protocol survey in 2009 (19 May, 10 June, 24 June, 29 June, 8 July, 20 July, 3 August, and 24 August) at the Rio Hondo. This drainage crosses both segments 7 and 8.</td>
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<td>• A five-visit protocol survey was conducted concurrently with an eight-visit yellow-billed cuckoo protocol survey in 2009 (16 May, 10 June, 24 June, 29 June, 8 July, 20 July, 3 August, and 24 August) at the Whittier Narrows Recreation Area. This area includes both segments 7 and 8.</td>
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<td>• A five-visit protocol survey was conducted concurrently with an eight-visit LVB protocol survey in 2009 (24 April, 13 May, 27 May, 8 June, 16 June, 25 June, 9 July, 15 July, and 20 July) at the Whittier Narrows Nature Center (Segment 7) and San Jose Creek (Segment 8).</td>
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<td>• A five-visit protocol survey was conducted concurrently with an eight-visit LVB protocol survey in 2009 (18 May, 28 May, 8 June, 19 June, 30 June, 10 July, 15 July, 21 July, and 31 July) at Tonner Canyon along Segment 8. Several isolated patches of habitat were identified along Segment 8 between the 57 freeway and the City of Chino Hills.</td>
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Table 13. Species Range, Habitats, and Surveys

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<th>Survey Results</th>
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| California Condor, Gymnogyps californianus   | E      | The last wild condors were captured in 1987 for captive breeding purposes in a last ditch effort to save the species from extinction. Reinroductions of condors were started on the Los Padres National Forest in 1993. Reinroductions have occurred on the Los Padres National Forest, Varmilion Cliffs in northern Arizona, and Baja California in Mexico. In California, the condors have expanded their range starting in the north in the Santa Lucia Mountains, down into the Sierra Madre Mountains, down south and east across the San Gabriel Mountains into the San Bernardino Mountains. The Baja California populations have been seen foraging into the greater San Diego area into the Cleveland National Forest. Prior to 1987, condors nested in the Angeles National Forest and were a frequent visitor. Habitat previously occupied by condors for nesting and foraging on the Forest prior to 1997, when all wild birds were captured, remains in good condition. Foraging typically occurs in open terrain of foothills, grasslands, pinetas with chaparral areas, or oak savannah habitats. Historically, foraging also occurred on beaches and large rivers along the Pacific coast. Typical roost sites include rock cliffs, dead conifers, and snags. Condors are known to most near the project area at Mount Lukens (approximately 3 miles west of Segment 11) and Bear Divide (approximately 14 miles west of Segment 11). However, condors are expanding their range. Over the life of the Project, they are expected to inhabit the northern and central regions, and the open space and agricultural areas within the southern region. Focused surveys for this species were not conducted. However, extensive avian surveys on the ANF conducted in 2007, 2008, and 2009 did not detect this species. | Protocol surveys were conducted in 2007 and 2008 at 9 locations:  
- Segment 7:  
  - Santa Fe Dam – 9 visits between 24 Aug 2007 and 16 Jan 2008  
  - Segment 8:  
  - Montebello Hills – 1 visit on 5 Sept 2007  
  - Puente Hills Landfill – 9 visits between 6 Sept 2007 and 14 Jan 2008  
  - Puente Hills Agricultural Fields – 9 visits between 21 Sept 2007 and 4 Feb 2008  
  - Tumbleweed Canyon Road-Holmes Circle – 9 visits between 5 Sept 2007 and 17 Jan 2008  
  - Colima-Hacienda – 9 visits between 7 Sept 2007 and 1 Feb 2008  
  - Powder Canyon – 9 visits between 13 Sept 2007 and 8 Feb 2008  
  - Tanner Canyon – 9 visits between 12 Oct 2007 and 15 Feb 2008 | Protocol surveys were not being conducted at the Montebello Hills in 2008 because a known FWS-monitored population exists there. Protocol surveys being conducted in 2009 include:  
- Segment 7:  
- Santa Fe Dam – 6 visits between 14 Dec 2009 and 1 Feb 2010  |
| Coastal California Gnatcatcher, Polioptila californica californica | T      | Core population areas supporting 30 or more pairs of California gnatcatchers include Montebello, Coyote Hills near Fullerton, and the Puente-Chino Hills. This species was observed in the Montebello and Puente Hills in 2005. One adult bird was observed in the Rose Hills Cemetery in 2007. Dugan and Riverisland coastal sage scrub. Some characteristic plants of these communities include coastal sage scrub (Artemisia californica), various species of sage (Salvia spp.), California buckwheat (Eriogonum fasciculatum), lemonade berry (Rhus integrifolia), California ericola (Erica californica), prickly pear and cholla cactus (Opuntia spp.), and coastal goldenbush (Isocoma menziesii). Other sites are dominated by California buckwheat. These types of sage scrub occur in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties at elevations below 3,000 feet on the coastal side of the mountains. Gnatcatchers are found primarily at elevations below 2,000 feet. This species is most numerous in low, dense coastal sage scrub habitat in sand washes, on mesas, and on slopes of coastal hills. The coastal California gnatcatcher is known to nest within the Southern Region along Segments 7 and 8 in the Montebello Hills, Santa Fe Dam Recreation Area east of Interstate 255, and the Puente-Chino Hills. Potential habitat within the project area is the foothills of the San Gabriel Mountains is too steep to support this species. This species was observed in the Montebello and Puente Hills in 2005. One adult bird observed in the Rose Hills Cemetery in 2007. Gnatcatcher was detected in the city of Arcadia, below the Forest boundary. Historic sightings include Big Santa Anita Wash and Monrovia (Garrett 1993). The CNDDB records this species at the Santa Fe Dam/Riverisland Regional Park near Segment 8 (both records are from 2007). | Protocol surveys were conducted in 2007 and 2008 at 9 locations:  
- Segment 7:  
  - Santa Fe Dam – 9 visits between 24 Aug 2007 and 16 Jan 2008  
  - Segment 8:  
  - Montebello Hills – 1 visit on 5 Sept 2007  
  - Puente Hills Landfill – 9 visits between 6 Sept 2007 and 14 Jan 2008  
  - Puente Hills Agricultural Fields – 9 visits between 21 Sept 2007 and 4 Feb 2008  
  - Tumbleweed Canyon Road-Holmes Circle – 9 visits between 5 Sept 2007 and 17 Jan 2008  
  - Colima-Hacienda – 9 visits between 7 Sept 2007 and 1 Feb 2008  
  - Powder Canyon – 9 visits between 13 Sept 2007 and 8 Feb 2008  
  - Tanner Canyon – 9 visits between 12 Oct 2007 and 15 Feb 2008 | Protocol surveys were not being conducted at the Montebello Hills in 2008 because a known FWS-monitored population exists there. Protocol surveys being conducted in 2009 include:  
- Segment 7:  
- Santa Fe Dam – 6 visits between 14 Dec 2009 and 1 Feb 2010  |

December 2009
Table 13. Species Range, Habitats, and Surveys

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<tr>
<td>Least Bell’s Vireo</td>
<td>E</td>
<td>Formerly, the least Bell’s vireo was known to breed from interior northern California near Red Bluff in Tehama County south through the Sacramento and San Joaquin valleys and Sierra Nevada foothills, and in the coastal ranges from Santa Clara County south to the approximate vicinity of San Fernando in Baja California. It also occurred in the Owens and Death valleys in Inyo County and at scattered oases and canyons throughout the Mojave Desert. Currently, its breeding range is in southern California, with large populations in Riverside and San Diego counties and smaller populations in Los Angeles, San Bernardino, Santa Barbara, Ventura, and San Diego counties and in northern Baja California. Its breeding range is restricted to southern California and northern Baja California, Mexico.</td>
<td>TYPICALLY BREDS IN LOW- ELEVATION RIPARIAN HABITATS BELOW APPROXIMATELY 2000 FEET. THEY UTILIZE WILLOWS AND OTHER LOW, DENSE VALLEY Foothill Riparian Habitat AND THE LOWER PORTIONS OF CANYONS. THE LEAST BELL’S VIREO IS A SUMMER RESIDENT OF COTTONWOOD-WILLOW FOREST, OAK WOODLAND, SHUBBY THICKETs, AND DRY WASHES WITH WILLOW THICKETS AT THE EDGES. LEAST BELL’S VIREOS ARE USUALLY FOUND NEAR WATER, BUT ALSO INHABIT THICKETS ALONG DRY, INTERMITTENT STREAMS. TYPICALLY ASSOCIATED WITH WILLOW, COTTONWOOD, MALATIT, WILD BLACKBERRY, OR MESQUITE IN DESERT LOCALITIES, THIS SPECIES TYPICALLY INHABITS STRUCTURED DIVERSE WOODLANDS ALONG WATERCOURSES. PREFERRED HABITAT FOR THIS VIREO IS WILLOW WOODLAND WITH A TRUE OASERY OF GOODE’S BLACK WILLOW AND A SHRUB UNDERSTORY DOMINATED BY ARROYO WILLOW, MALATIT, AND HARDY NIDIT. THE INTER-HABITAT EDGE (OPENINGS WITHIN OR ADJACENT TO VIREO TERRITORIES) IS COMPOSED OF HERBACEOUS AND AQUATIC VEGETATION WITH SEEDING OR SAPLING WILLOWS AND MALATIT INVEADING. VIREO- OCCUPIED HABITAT USUALLY CONTAINS A HIGH DEGREE OF STRATIFICATION: UNCOMMON AGE STAGES OF MATURE OASERY TREES AND SHRUB UNDERSTORY INTERMIX WITH OPENINGS WITHIN AND IMMEDIATELY ADJACENT TO THE VIREO TERRITORIES. TREES CANOPY COVER RANGES FROM 90 TO 75 PERCENT, AND SHRUB COVER RANGES FROM 90 TO 50 PERCENT.</td>
<td>THE LEAST BELL’S VIREO IS KNOWN TO NEST ALONG PORTIONS OF SEGMENT 8 AND DIRECTLY ADJACENT TO SEGMENT 7. NESTING LEAST BELL’S VIREOS HAVE BEEN CONFIRMED AT THE WHITTIER NARROWS NATURE CENTER, THE WHITTIER NARROWS RECREATION AREA, RIO HONDO, AND THE SANTA FE FLOOD CONTROL BASIN. LEAST BELL’S VIREOS WERE OBSERVED AT WHITTIER NARROWS IN 2007 AND 2008, WHERE THERE ARE SEVERAL HISTORICAL OCCURRENCES. A SINGLE MALE WAS OBSERVED IN SYCAMORE CANYON IN 2005. SUITABLE HABITAT OCCURS AT WHITTIER NARROWS AND IN SAN GABRIEL RIVER NEAR SANTA FE DAM. THERE ARE HISTORICAL RECORDS NEARBY IN BOTH CASES. SEVERAL TERRITORIES OBSERVED IN RIPARIAN AREAS WITHIN THE CHINO HILLS. HABITAT OCCURS IN DRAINAGES IN THE SAN GABRIEL FOOTHILLS AND MANY RIPARIAN AREAS OF THE ANF. SIGHTINGS OF VIREOS OCCURRED IN FISH CANYON IN 1974 AND VAN TASELL IN 1975 (US ARMY CORPS OF ENGINEERS 1994). NESTING OF VIREOS BELOW SAN GABRIEL RESERVOIR IN 1993 (FOREST RECORDS). IN 2000, VIREOS WERE OBSERVED IN LITTLECREEK CANYON. SUITABLE HABITAT OCCURS IN DRAINAGES IN THE SAN GABRIEL Foothills. IN 2000, SIGHTINGS OCCURRED IN BIG TUJUNGA CANYON. IN 1993, VIREOS WERE DETECTED AT THE SUNNY SIDE DELTAIS BASIN IN PASADENA. ALSO CREEK (SEGMENT 5) AND SEVERAL LOCATIONS WITHIN THE ANF, SUCH AS UPPER BIG TUJUNGA CREEK (SEGMENTS 5 AND 11), PROVIDE HABITAT. THIS SPECIES IS KNOWN FROM CHINO HILLS STATE PARK (ALTERNATIVE 4).</td>
<td>AN 8-VISIT PROTOCOL SURVEY WAS CONDUCTED BETWEEN 7 JUNE AND 30 JULY 2007 AT THE WHITTIER NARROWS NATURE CENTER AND RIO HONDO. AN 8-VISIT PROTOCOL SURVEY WAS CONDUCTED BETWEEN 8 JUNE AND 31 JULY 2007 AT THE WHITTIER NARROWS RECREATION AREA AND SAN JOSE CREEK. AN 8-VISIT PROTOCOL SURVEY WAS CONDUCTED CONCURRENTLY WITH A 5-VISIT SNFML PROTOCOL SURVEY IN 2003 (APRIL 15, MAY 26, MAY 8, JUNE 16, JUNE 26, JULY 7, JULY 17, JULY 17) AT THE SEGMENT 5 CROSSING OF AMARGOSA CREEK. THIS DRAINAGE IS LOCATED WEST OF PALMDALE, ALONG THE NORTHERN EDGE OF ELIZABETH LAKE ROAD. AN 8-VISIT PROTOCOL SURVEY WAS CONDUCTED CONCURRENTLY WITH A 5-VISIT SNFML PROTOCOL SURVEY IN 2009 (APRIL 24, MAY 13, MAY 26, MAY 8, JUNE 16, JUNE 26, JULY 9, JULY 10, JULY 20 AND JULY 30) AT THE WHITTIER NARROWS NATURE CENTER ALONG SEGMENT 7 AND SAN JOSE CREEK ALONG SEGMENT 8. AN 8-VISIT PROTOCOL SURVEY WAS CONDUCTED CONCURRENTLY WITH A 5-VISIT SNFML PROTOCOL SURVEY IN 2009 (MAY 26, AUGUST 30, JUNE 8, JUNE 19).</td>
<td>Whittier Narrows Nature Center – 1 territory detected in 2007. On 20-July, 3 birds were detected (one was a breeding juvenile). In 2009, an estimated 5 to 6 territories were detected.</td>
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## Table 13. Species Range, Habitats, and Surveys

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<td><strong>AMPHIBIANS</strong></td>
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| Arroyo Toad (Anaxyrus (Bufo) californicus (microscaphus)) | E      |       | Fairly low gradient (>10%) rivers that have shallow, gravelly pools adjacent to sandy terraces with willows, cottonwoods, and sycamores. Habitat used includes valley-footbelt and desert riparian as well as a variety of more arid habitats including desert wash, palm oases, Joshua trees, mixed chaparral, and sagebrush. Adults utilize overflow pools adjacent to the inflow channel of streams that are generally 3rd order or greater and generally free of predators. They prefer areas of the stream which are terraced and sandy and have shallow pools or slow-moving water with sandy or gravelly substrates surrounded by little woody vegetation. However, this species has been documented to breed in a variety of atypical habitats including narrow dry washes with rocky substrates and vegetated, sandy stream channels and terraces, which are used by adults and subadults for foraging and burrowing. Outside the breeding season, arroyo toads range more widely, using habitats in both upland (to a distance of at least 3,740 feet from the upland-riparian ecotone) and riparian areas. Upland habitats used by arroyo toads include coastal sage scrub, chaparral, oak woodland, grassland, riparian, and agricultural habitats. Habitat was assessed for potential to support this species at the following locations in 2007 (21 May) and 2008 (mid-April):  
  - Segment 6:  
    - Milepost (MP) 2.2-2.6 (Kentucky Springs) – No focused survey in 2007; habitat conditions at the time would not support breeding because water was not present. However, this area is downstream from a historic population, and sandy benches and streambed occur at this location. Protocol surveys in 2008 and 2009 at request of FS.  
    - MP 10.6-10.8 – No focused surveys, area is within a deep gorge and is inaccessible; nearest construction would be >700 ft. to the north (no impact at site; lines would span). Water was present both years and streambed was rocky with boulders.  
    - MP 12.2-12.4 – No focused surveys. No breeding habitat present at this location (no water present in 2007, water present in 2008). Habitat exists to the south. Area includes sandy streambed without benches.  
    - MP 13.3-13.6 (Alder Creek) – Focused survey on 29 May 2007 detected one individual. No focused surveys in 2008 because toads are known from this location.  
  - Segment 11:  
    - MP 2.2-2.6 – No focused surveys. No water present both years. No benches, rocky or gravelly streambed. Contains dry upland habitat.  
  - A 2007 survey in the Alder Creek area consisted of a single site visit as a toad was identified at that time. Therefore, additional follow-up surveys were not required.  
  - A 6-visit protocol survey for the toad was conducted in 2008 at Kentucky Springs. No toads were detected at this location.  
  - Although a protocol survey was not conducted, a single adult toad was found on June 5, 2008 within the “Arizona crossing” on Lyceum Gulch Road (Forest Service Route 4N11). In addition, a dead arroyo toad was found by FS personnel in July 2008 on Lyceum Gulch Road near the intersection with Upper Big Tujunga Road.  
  - A 6-visit protocol survey for the toad was conducted in 2009 (23 April through 11 June) at Kentucky Springs. No toads were detected at this location.  
  - A 6-visit protocol survey for the toad was conducted in 2009 (23 April through 11 June) at Aliso Canyon. No toads were detected at this location.  
|                               |        |       |                                                                                   |                                                            |         | **Detected at Alder Creek in 2007**  

**Detected at Lyceum Gulch in 2008**  
**Not detected during protocol surveys at Kentucky Springs in 2008 and 2009 or Aliso Canyon in 2009** |
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<td>2008, and 2009. Rocky with boulders, substrate in streambed silty/muddy with some sand. Vegetation along stream edges very dense. Two diurnal surveys and a night visit conducted for MYLF here in 2008 were negative for listed amphibians.</td>
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<td>MP 11.0-11.1 – No focused surveys. Limited water present both years. No sandy benches, gravelly/sandy streambed. Very dense vegetation on narrow channel sides.</td>
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<td>MP 14.7-14.8 – No focused surveys. No water present either year. Rocky with boulders, streambed could not be assessed due to inaccessible terrain.</td>
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<td>MP 24.0-24.2 – No focused surveys. Water present both years. Rocky with boulders, streambed rocky/gravel with some sand. Stream narrow and rocky with some areas of swift flow. Three diurnal surveys for MYLF performed here in 2008 as it is an historic locality.</td>
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<td>In addition, 24 riparian crossings were identified by the FS and Aspen and assessed by SCE in 2008 from 4 June through 20 June. Of these, eight surveys were conducted at two locations on 2 June, two locations on 5 June (1 toad observed at Lynx Gulch), and five locations on 11 June (see Attachment B-5 of Appendix B).</td>
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<td>All potential locations in the project area are within the ANF. Specific locations modeled as habitat by the FS include Kentucky Springs, Mill Creek, Monte Cristo Creek, Upper Big Tujunga Creek, Lynx Gulch, and Alder Creek (all along Segment 6). In addition, modeled habitat occurs at Alto Canyon, and potential habitat is present just downstream of the Falls Creek crossing on Upper Big Tujunga Creek (both along Segment 11)). This species has been detected in Alder Creek, Mill Creek, Upper Big Tujunga Creek, and Lynx Gulch. It is considered present in Monte Cristo Creek because records exist from 1991 at Monte Cristo Campground, although subsequent surveys in 1993 and 1994 were negative.</td>
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Habitat was assessed for potential to support this species at the following locations in 2007:

- **Segment 5:** Milepost (MP) 7.7-7.8 (Amargosa Creek crossing) – Focused survey in 2007, some pools present that could support this species. No focused survey in 2008 – site was surveyed by LSA in 2007 & 2008 with negative results for CRLF.

- **Segment 6:** MP 9.9 (Anaverde Creek crossing; 2007) – No focused survey, no water present and no riparian vegetation. 2007 and 2008.

Permanent water sources such as quiet pools of streams, marshes, and ponds. This species often occurs in natural lagoons, dune ponds, pools in or near streambeds, within streams, marshlands, sloughs, ponds, springs, human-created stock ponds, secondary and tertiary sewage treatment plant ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits containing water, and large reservoirs. It prefers streams with extensive vegetation and escapes to pools 3 feet deep or more. Haynes and Jennings (1988) characterize habitats in which the largest densities of red-legged frogs occur as having pools at least 27 inches deep, with overhanging willows (Salix spp.), and an intermixed fringe of narrow-leaved cattails (Typha latifolia), tulips (Sisyrinchium spp.), or sedges (Carex spp.). The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (>0.7 m) still or slow moving water.

Habitat was assessed for potential to support this species at the following locations in 2007 (15-20 December) and 2008 (14 April):

- **Segment 5:** Milepost (MP) 7.7-7.8 (Amargosa Creek crossing) – Focused survey in 2007, some pools present that could support this species. No focused survey in 2008 – site was surveyed by LSA in 2007 & 2008 with negative results for CRLF.

**Potential Locations in Project Area and Known Occurrences**

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<tr>
<td>California Red-legged Frog</td>
<td>T</td>
<td>Southern California only</td>
<td>Permanent water sources such as quiet pools of streams, marshes, and ponds. This species often occurs in natural lagoons.</td>
<td>Habitat exists in the Amargosa Creek system, and there is a CNDDB record located approximately 2.4 miles downstream of Segment 5.</td>
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<td><em>Rana draytonii</em></td>
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<td>Habitat exists in the Amargosa Creek system, and there is a CNDDB record located approximately 2.4 miles downstream of Segment 5.</td>
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<tr>
<td>Southern Mountain Yellow-legged Frog</td>
<td>E</td>
<td>(southern California DPS)</td>
<td>In Southern California, mountain yellow-legged frogs inhabit streams, lakes, and ponds in ponderosa pine, montane hardwood-conifer, and montane riparian habitat types from 1200 to 4700 feet elevation.</td>
<td>There are no known populations near the project area. The closest known population is approximately 5 miles away in upper Little Rock Creek. Within the project area, habitat was assessed for potential to support this species at the following locations in 2007 (31 May, 19 September, 9 October) and 2008 (15-16 April): Segment 6.</td>
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<tr>
<td><em>Rana muscosa</em></td>
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<td>In Southern California, mountain yellow-legged frogs inhabit streams, lakes, and ponds in ponderosa pine, montane hardwood-conifer, and montane riparian habitat types from 1200 to 4700 feet elevation.</td>
<td>There are no known populations near the project area. The closest known population is approximately 5 miles away in upper Little Rock Creek. Within the project area, habitat was assessed for potential to support this species at the following locations in 2007 (31 May, 19 September, 9 October) and 2008 (15-16 April): Segment 6.</td>
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**Survey Results**

- Focused surveys were conducted by SCE in 2007:
  - Segment 5: MP 14.0-16.6 (Big Tujunga Creek). Surveys were conducted during the day on 31 May, 19 September, and 9 October.
  - Focused surveys were conducted by SCE in 2008:
    - Segment 6: MP 14.0-16.6 (Big Tujunga Creek). Surveys were conducted during the day on 14 and 15 May, 26 June, and
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<td>(Upper 14.1-24.2) — No focused survey; no water present both years. Habitat not likely to support listed amphibians. Rocky with boulders, some sandy/gravely streamed.</td>
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<td>Segment 11: MP 2.2-2.6 — No focused survey; no water present both years. No benches, rocky/gravely streamed. Habitat not likely to support listed amphibians.</td>
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<td>MP 3.4-3.6 — No focused survey (2007); water present but habitat determined not likely to support MYLF. Focused survey (2008); limited water present and habitat determined to be marginal. Rocky with boulders, silty/muddy streamed with some sand.</td>
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<td>MP 11.0-11.1 — No focused survey; very little water present both years. No sandy benches, gravelly/silty streamed. Habitat not likely to support listed species.</td>
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<td></td>
<td>MP 14.7-14.8 — No focused survey; no water present both years. Rocky with boulders, could not evaluate streamed because of inaccessible terrain. Habitat not likely to support listed amphibians.</td>
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Although potential habitat exists in Upper Big Tujunga Canyon, Acter Creek, San Gabriel River, and several tributary drainages on the ANF, no recent records exist near the project. This species is thought to have been extirpated from >99% of its former range in Southern California. Recent range includes the upper reaches of Little Littlerock Creek approximately five miles from the ROW.
**Table 13. Species Range, Habitats, and Surveys**

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<tbody>
<tr>
<td>Tormento del desierto (Gopherus agassizii)</td>
<td>T</td>
<td>The Mojave population of this species is listed as Threatened by the FWS and includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, southwestern Utah, and in the Colorado Desert in California. Tortoises may occur in very low densities in the Antelope Valley.</td>
<td>Tortoises occur most commonly on gently sloping terrain with soils ranging from sand to sandy-gravel and with scattered shrubs, and where there is abundant inter-shrub space for growth of herbaceous plants. Throughout their range, however, tortoises can be found in steeper, rocky areas. This species normally excavates a burrow under bushes, overhanging soil or rock formations, or digs into soil in the open. The desert tortoise is most commonly found within the desert scrub vegetation type, primarily in creosote bush scrub vegetation, but also in succulent scrub, cheatgrass scrub, blackbrush scrub, hojascrub shrub, shadeclad shrub, microphyll woodland, and Mijita saltbush-alocalse scrub. Three sightings of this species were reported within two miles of Segment 10 in 2009. In addition, an individual was detected several miles south of the project area in January 2009, and a burrow that was presumed active was found west of Mijita and south of Oak Creek Road (M. Benjamins, SCE, pers. comm.; R. Bransfield, USFWS, pers. comm.). Creosote scrub and Joshua tree woodland habitat present along all of Segment 10 and Segment 4 between the Cottonwind and Whirlwind Substations could support this species.</td>
<td>• Protocol-level surveys completed by SCE in 2007 and 2008 for the Windhub Substation site, which is not a part of the TRTP but is located at the northern terminus of Segment 10, identified several burrows but no sign of recent use was noted.</td>
<td>Protocols surveys completed by SCE in 2006, 2007, 2008, and 2009. Not identified during surveys in 2006, 2007, and 2008.</td>
<td>Protocols surveys were conducted by SCE in 2009 along Segment 4 and 10 in June 2009 and September 2007. Although habitat is present, no sign of desert tortoise was detected. Protocols surveys were conducted by SCE in 2009 along Segment 4 (4 through 8 May), and Segment 10 and Whirlwind Substation (18 through 28 April). Surveys were conducted within the West Mojave Plan Clearance Survey Areas.</td>
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<tr>
<td>Ocote de Santa Ana (Catostomus santaanae)</td>
<td>T</td>
<td>Santa Ana suckers are native to the Los Angeles, San Gabriel, and Santa Ana River drainages in Southern California. Suckers remain in the upper San Gabriel River, Big Tujunga Creek (Los Angeles River), and tributaries of the Santa Ana River system. They were likely introduced into the Santa Clara River system in two drainages (Los Angeles, San Gabriel) the species once occurred well downstream (to Los Angeles and Whittier, respectively) but are now restricted to the larger stream sections that still exist in headwater areas. In the Santa Ana River they survive only in the lower portions, mainly in reaches with flows enhanced by waste water (Mt. Rubidoux downstream to a few km below Imperial Highway). They have been extirpated from the upper Santa Ana River drainage where they were once present in Pith and Santiago canyons and in Cajon and City creeks.</td>
<td>Santa Ana suckers inhabit small to medium sized streams, usually less than 20 feet in width with slight, moderate, or swift current or with clear, cool rocky pools. Preferred substrates are generally coarse and consist of gravel, rubble, and boulder, but occasionally Santa Ana suckers are found on sandy mud substrates. Often collections are associated with algae and Chara, though occasionally macroscopic vegetation (macrophytes) is apparent. Water depths range from a few inches to several feet. Santa Ana suckers utilize all areas and do not require streamside cover when larger, deeper holes and riffles are present for refuge, particularly for adult fish. Even though Santa Ana suckers seem to be quite generalized in their stream habitat requirements, they are intolerant of polluted or highly modified streams.</td>
<td>Santa Ana suckers were not detected during reconnaissance surveys conducted in 2007 and 2009 for the TRTP, however, this species is known to occur in Big Tujunga Creek (downstream of Big Tujunga Reservoir) and the San Gabriel River (downstream of Cogswell Reservoir) within the ANF.</td>
<td>Not identified during surveys in 2006, 2007, and 2008.</td>
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<tr>
<td>Unarmored Threespine Stickleback</td>
<td>E</td>
<td>Historically widespread and abundant in the Los Angeles basin, it is now restricted to three areas in the upper Santa Clara River watershed and an eight mile stretch of Soledad Canyon, a portion of upper San Francisquito Canyon, and in Escondido Canyon.</td>
<td>Unarmored threespine stickleback live in slow-moving streams and shallow pools containing abundant algae and other aquatic plants.</td>
<td>This subspecies is restricted to the Santa Clara watershed outside of the Project area, along stretches of Soledad Canyon, San Francisquito Canyon, Bouquet Creek, and Escondido Canyon in Los Angeles County.</td>
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<td>Not identified during surveys in 2006, 2007, and 2008.</td>
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<td>Gasterosteus aculeatus williamsoni</td>
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<td>Sandy coastal scrub and desert scrub below 2500 feet. In the currently known locations, it occurs in sparsely vegetated areas with thin or highly mineralized soils (low organic content). The plant does not persist in areas where it is shaded by taller plants or forced to compete for water and nutrients with other plants.</td>
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<tr>
<td>Spineflower</td>
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<td>Chorizanthe parryi var. fernandina</td>
<td>C</td>
<td>This taxon was collected in the late 1800s and early 1900s from Los Angeles County (Elizabeth Lake and Castaic, south through the San Fernando Valley including San Fernando Wash and Little Tujunga Wash), near the city of Santa Ana in Orange County (1902), and an unspecified area in San Bernardino County (1876). This plant is currently known from only two disjunct localities: in the southwestern portion of Ventura County on Ahmanson Ranch (Laskey Mesa) and on Newhall Ranch in northwestern Los Angeles County.</td>
<td>Sandy coastal scrub and desert scrub below 2500 feet. In the currently known locations, it occurs in sparsely vegetated areas with thin or highly mineralized soils (low organic content). The plant does not persist in areas where it is shaded by taller plants or forced to compete for water and nutrients with other plants.</td>
<td>Habitat may be present at the base of the San Gabriel Mountains (Segment 5). A historical population occurs 5 miles to the west in the vicinity of Elizabeth Lake. Habitat exists on the slopes within the San Gabriel River channel (Segment 7) and Puente/Chino Hills (Segment 8).</td>
<td>Focused floristic botanical surveys of the project alignment and alternatives were conducted from 8 April to 15 June 2009 and in the spring and early summer of 2008. Surveys consisted of up to 3 visits, depending on site conditions.</td>
<td>Not identified during surveys in 2007, 2008, or 2009.</td>
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<td>Brand's phacelia</td>
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<td>Phacelia stellaris</td>
<td>C</td>
<td>This species was historically known from 15 populations in Los Angeles, Riverside, and San Diego counties, and in Baja California. Currently, the species is known from only three populations in San Diego and Riverside counties and is considered extirpated from Los Angeles County.</td>
<td>Sandy coastal scrub and desert scrub below 2500 feet. In the currently known locations, it occurs in sparsely vegetated areas with thin or highly mineralized soils (low organic content). The plant does not persist in areas where it is shaded by taller plants or forced to compete for water and nutrients with other plants.</td>
<td>There is a historical population of this species that has been extirpated by development within Alternative 2 in the San Gabriel River east of El Monte near Segment 8 and some habitat for this species occurs in the Puente/Chino Hills area. This species is not known to occur in the foothills of the San Gabriel Mountains.</td>
<td>Focused floristic botanical surveys of the project alignment and alternatives were conducted from 8 April to 15 June 2009 and in the spring and early summer of 2008. Surveys consisted of up to 3 visits, depending on site conditions.</td>
<td>Not identified during surveys in 2007, 2008, or 2009.</td>
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<tr>
<td>Western Yellow-billed Cuckoo</td>
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<td>Coccyzus americanus</td>
<td>W</td>
<td>Western yellow-billed cuckoos have historically occurred and/or still occur in several distinct ecoregions including the Great Basin, Sonoran and Mohave Deserts, Northern-Pacific Rainforest, northern Rodies, southern Rodies, Colorado/Platte River, coastal California, and Sierra Madre Occidental ecoregions. Western yellow-billed cuckoos were once considered widespread and common throughout California, but numbers have declined due to loss of habitat. Now, western yellow-billed cuckoos are considered uncommon to rare summer residents of valley foothill and desert riparian habitats. River drainages that they are known to nest by include upper Sacramento Valley portions of the Sacramento River, the Feather River in Sutter County, Owens Valley, South Fork Kern River, Santa Ana River, Amargosa River, lower Colorado Rivers, and San Luis Rey River.</td>
<td>Western yellow-billed cuckoo breeds in large blocks of riparian habitat that contain a dense understory, and cottonwood trees appear to be an important component of foraging habitat. Willows are the dominant component of the vegetation for nesting and feeding, but they are noted to use walnut woodlands, orchards, and mesquite when willows are not present. Gaine's (1974b, 1977a) noted a preference for vegetated areas with a minimum size of 300 feet in width and 25 acres in size. Typically there is dense, low-level or understory foliage that abuts slow-moving watercourses, backwaters, or seeps.</td>
<td>Potential habitat in the project area would be the same as described for southwestern yellow flycatcher and includes Amargosa Creek (Segment 5), Alsco Creek (Segment 11), Big Tujunga Creek at Falls Creek (Segment 11), upper Big Tujunga Canyon (Segment 6), Monte Cristo Creek (Segment 6), along West Fork Cogswell Road (access road for Segment 6 under Alt 2 through 5 and 7), Whittier Narrows (Segments 7 and 8), and Rio Hondo (Segments 7 and 8). There is one historic record for yellow-billed cuckoo along the San Gabriel River in El Monte (1951; approximately 2.5 miles north of Segment 8) and two historic records along the Santa Ana River near the Prado Flood Control Basin (1977 and 1985; approximately 3.5 miles south of Segment 8).</td>
<td>Protocol surveys conducted for the southwestern yellow flycatcher in 2007, 2008, and 2009 did not detect this species.</td>
<td>Not identified during surveys in 2007, 2008, and 2009.</td>
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One western yellow-billed cuckoo was identified in the project area on June 28, 2009 during surveys unrelated to the TRTP. This individual was observed in the Whittier Narrows area along the Rio Hondo, just south of the transmission lines.

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E = Federally Endangered  
T = Federally Threatened  
C = Federal Candidate for Listing

1 Reconnaissance surveys = general surveys to document biotic and abiotic conditions  
2 Focused surveys = surveys conducted to identify a specific species or group of species  
3 Protocol surveys = surveys conducted in accordance with an accepted standard protocol for a particular species
5. EFFECTS OF THE PROPOSED ACTION AND DETERMINATION STATEMENTS

This section discusses the action and determination statements for those species that are listed by the USFWS as either threatened, endangered, or candidate species. Species included in this section are protected under the Endangered Species Act of 1973 (Federal Register 41(110):22915-22922. June 7, 1976), as amended (P.L. 94-325, P.L. 94-359, P.L. 95-212, P.L., 95-632, P.L. 96-159, P.L. 97-304). Section 3 of this legislation defines an endangered species as a species that is “...in danger of extinction throughout all or a significant portion of its range...” and a threatened species as a species that is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”

For Federally listed species, direct effects in this document are those effects which would lead to the "taking" of an individual of those species analyzed in this document and as defined in Section 9 and/or Section 10 of the Endangered Species Act of 1974, as amended (Act). Section 9 of the Act prohibits take (i.e. to harass, harm, pursue, hunt, wound, kill, etc.) of listed species of fish, wildlife, and plants without special exemption. "Harm" is further defined as the performance of an act that kills or injures wildlife, and includes significant habitat disturbance or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. "Harass" is further defined as actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering.

Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02).

Cumulative effects means those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02).

5.1 Federally Listed Plants

Based on reconnaissance data submitted by SCE and ground-truthed by Aspen and HT Harvey in 2007, an intensive effort to document the presence of rare plants was conducted along the entire Project ROW. Focused botanical surveys of the proposed Project were conducted during May through December, 2007. Additional focused surveys were conducted during February through July, 2008 and spring and summer of 2009. Due to scheduling constraints, the 2007 focused surveys of the proposed Project were conducted outside of the blooming period for the majority of the special-status plants in the area. Therefore, the proposed Project was surveyed for habitat capable of supporting these species based on factors such as soil type, disturbance regime, species composition of native vegetation, and known records in the vicinity of the proposed Project. The expression of plant species, particularly ephemeral annuals that cannot be detected in some years, was considered good to excellent in many portions of the alignment during the 2008 surveys due to high levels of annual rainfall received during the 2007-2008 rain year. The alignment was surveyed up to three times in 2008 and again in 2009, depending on local site conditions. All accessible impact locations were visited, including new and existing tower locations, spur roads, new
substation locations, line pulling locations, staging areas, and along existing and proposed access roads. Pre-construction surveys, as required by Mitigation Measure B-7, will be conducted at all areas of ground disturbance. Listed plant species were not observed in or adjacent to the Proposed Action route and its associated proposed access roads, with the exception of one individual Nevin’s barberry that is likely of horticultural origin. The following listed plants have the potential to occur within the project area based on habitat and/or proximity of nearby populations.

**San Fernando Valley Spineflower (Chorizanthe parryi var. fernandina).** Federal Listing Status: Candidate; State Listing Status: Endangered; CNPS List 1B.1. Forest Service Sensitive. San Fernando Valley spineflower is a federal candidate species for listing, was petitioned for federal listing on December 14, 1999, and continues to be a candidate for federal listing (70 FR 24869). It is a CNPS List 3 species. California has listed this species as State Endangered in August 2001. This taxon was collected in the late 1800s and early 1900s from Los Angeles County, near the city of Santa Ana in Orange County (1902), and an unspecified area in San Bernardino County (1876) (Goodman, 1934; Reveal and Hardham, 1989). More specifically, in Los Angeles County historic locations include Elizabeth Lake and Castaic, south through the San Fernando Valley including San Fernando Wash and Little Tujunga Wash. The majority of historical collections of this taxon from the greater Los Angeles metropolitan area were made in areas where urban, agricultural, and industrial development have replaced native habitat (Reveal and Hardham, 1989; Schierenbeck, 1995; Skinner and Pavlik, 1994). Prior to the disclosure of its rediscovery at Ahmanson Ranch in May 1999, the most recent collection was made in 1929 from Castaic in Los Angeles County. The plant currently is known from only two disjunct localities: the first is in the southeastern portion of Ventura County on a site known as Ahmanson Ranch (Laskey Mesa) and the second is in an area of northwestern Los Angeles County known as Newhall Ranch.

**Habitat Status**

San Fernando Valley spineflower habitat is sandy coastal scrub and desert scrub below 2500 feet (Reveal, 1979). Based on recent information from investigations conducted on the current known locations, it occurs in sparsely vegetated areas with thin or highly mineralized soils (low organic content) (Saphos Environmental, 2001a). The plant does not persist in areas where it is shaded by taller plants or forced to compete for water and nutrients with other plants (McGraw and Levin, 1998). Life form is an annual herb. Flowering period is April to June (Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994).

Pollination studies were completed and found that the flowers were most visited by ants (*Dorymyrmex pyramicus*) and secondly by honeybees (*Apis mellifera*) (Saphos Environmental, 2002). Next most visited species include another ant (*Solenopsis xylonii*), and two beetles (*Dasytinae* sp. and *Zabrotes* sp.). These results are consistent with similar flower types that have small flowers with a low nectar yield. Threats to the plant would include invasion of Argentine ants (*Linepithema humilis*) since they would compete with the native ants that pollinate the species (Saphos Environmental, 2002). Other threats to this species include development and nonnative and invasive species (CNPS, 2007).

**Survey Results**

Focused floristic botanical surveys of the Proposed Action alignment were conducted in the spring and early summer of 2008 and 2009. Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE). No San Fernando Valley spineflower were observed in the project area.
Slender-horned Spineflower (*Dodecahema leptoceras*). Federal Listing Status: Endangered; State Listing Status: Endangered; CNPS List 1B.1. The slender-horned spineflower was federally listed as endangered on September 28, 1987 (52 FR 36262). Slender horned spineflower was listed as California Endangered in 1982 as *Centrostegia leptoceras* and is a CNPS List 1B species (Skinner and Pavlik, 1994). The slender horned spineflower is currently known from populations within eight watersheds: Santa Clara River, Bee Canyon, Big Tujunga Wash, Lytle Creek, Santa Ana River, Temescal Creek, San Jacinto River, Bautista Creek, and Vail Lake.

Seven historically known populations are presumed extirpated. Historic documentation for this species includes Los Angeles, Riverside, and San Bernardino Counties. The Santa Ana River supports as many as 22 subpopulations, although eight of those have not been seen in recent years. The Vail Lake area may support 28 subpopulations. Protected populations occur on public lands at the Santa Ana River, Bautista Creek, and Arroyo Seco Creek in San Bernardino and Riverside counties.

University and Jepson Herbaria have five records from Los Angeles County prior to 1948 at Los Angeles, Pacoima Bridge, and Sunland. This species is known to occur in the south facing slopes of the San Gabriel Mountains from Pacoima Canyon to the San Gabriel River. Specific locations are Glenn Camp (West Fork San Gabriel River) (presumed extirpated) (P. Krueger, Pers. Obs; Angeles National Forest Records), Santa Anita Wash, Rubio Wash, Big Tujunga Wash, Pacoima Wash, Pacoima Bridge, Mint Canyon, San Fernando Wash, Lime Kiln Canyon Wash, Bee Canyon Wash (tributary to Santa Clara Wash) (extant population at confluence with Soledad Canyon) (Boyd, 1999), and Newhall (CNDDB, 2009). Historic records exist from the Newhall region (March 1893) which is presumed extirpated, and from Little Tujunga Wash.

An early collection (March 1893) from near Newhall is presumed extirpated, and an extant population near the confluence of Bee Canyon with Soledad Canyon remains unvouchedered (Boyd, 1999). Within the Angeles National Forest, surveys of historic and potential habitat on and adjacent to the Forest boundary were conducted by Rancho Santa Ana Botanic Gardens in 1989 (Minstretta, 1989). No slender-horned spineflowers were observed.

**Habitat Status**

Habitat includes silty and sandy places in coastal sage scrub, chaparral, cismontane woodlands, and stream banks and washes (alluvial fan) below 2200 feet. Population size and reproduction are highly variable and are influenced by climate patterns. The slender-horned spineflower exhibits multiple germination events tied to rainfall events, suggesting the presence of a stored soil seed bank. The flowers are most likely pollinated by insects, but floral visitation is extremely difficult to observe. A small wasp (*Plenoculus davisii*) carrying pollen has been collected. Spineflower soils typically are about 85 percent silt, with very low nitrogen levels. Populations often occur in shallow depressions. Dispersal to new sites may be aided by overland sheetflow. Sediments supporting spineflower are usually older than 100 years and may even be remnants of late to mid-Holocene deposits (1,000 to 5,000 thousand years old). Life form is an annual herb. Flowering period is from April to June (Hickman, 1993; Minstretta, 1989; Munz, 1974; Skinner and Pavlik, 1994).

Threats to this species include urbanization, development, stream channelization, flood control activities, mechanical equipment, vehicles, proposed reservoirs, sand and gravel mining, non-native plants, and biocides (Hickman, 1993; Skinner and Pavlik, 1994). Most of the remaining populations on private lands
are threatened by proposed development projects, flood control activities, sand and gravel mining, and recreational uses.

**Slender-horned Spineflower Critical Habitat**

No critical habitat has been listed for slender-horned spineflower.

**Survey Results**

Focused floristic botanical surveys of the Proposed Action alignment were conducted in the spring and early summer of 2008 and 2009. Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE). No slender-horned spineflowers were observed in the project area.

**Braunton’s Milk-vetch** (*Astragalus brauntonii*). **Federal Listing Status:** Endangered; **State Listing Status:** None; **CNPS List 1B.1.** Braunton’s milk-vetch is a perennial herb in the pea family (Fabaceae) that blooms from February to June. Braunton’s milkvetch was listed as endangered by USFWS on January 29, 1997 (62 FR 4172) and is a CNPS List 1B species. A recovery plan is in place (USFWS, 1999a).

This species is endemic to the foothills of the Santa Ana, San Gabriel, and Santa Monica Mountains (White, 1990). This plant was known from Los Angeles, Orange, and Ventura Counties. University and Jepson Herbaria document three historic occurrences within Los Angeles County prior to 1928 in Malibu, Cienega, and Monrovia. Four geographic metapopulations are known: the northwestern, central, northeastern, and southern region (USFWS, 1999a). The northwestern range includes: Bus Canyon; Silvernale Ranch; Oak Park Community Park; Palo Comado, Oak Park Deerhill Park; Oak Park III; Falling Star, and Dayton Canyon. The central range includes: Lower Malibu Creek, Los Liones Canyon, Trailer Canyon, Temescal Ridge/Topanga State Park; Temescal Canyon; and Lower Zuma Motorway. The northeastern range includes: Monrovia; South of Clamshell Truck Trail; Lower Clamshell Motorway; and East Clamshell Truck Trail. The southern range includes Coal/Gypsum Canyon and South Coal Canyon.

The Lower Malibu Creek site contained one plant that was thought to either represent a downstream wash of seed from the Simi Hills or it could be an expression of nearby occupied habitat (USFWS, 1999a). The single individual is noted along the banks of lower Malibu Creek. The southern region has two occurrences (one population), that are in the Coal and Gypsum Canyons, partially in a Tecate cypress forest in the Santa Ana Mountains, Orange County. Over 250 plants were recorded from the site in 1986 following a fire. The upper Coal-Gypsum occurrence is now on the Coal Canyon Ecological Reserve managed by the California Department of Fish and Game (USFWS, 1999a).

University and Jepson Herbaria document three known occurrences within Los Angeles County prior to 1928 in Malibu, Cienega, and Monrovia. Braunton’s milk-vetch is known to occur in the front range of the San Gabriel Mountains from Monrovia to the mouth of the San Gabriel River. Specific area of occurrence is around Trask Boy Scout Camp in Monrovia Canyon, Lower Clamshell Truck Trail, Clamshell Canyon, and Monrovia Fuelbreaks (CNDDB, 2009).

Within the Angeles National Forest, surveys for Braunton’s milk-vetch in 2001 occurred on 22 miles of roads in the San Gabriel Foothills. No Braunton’s milk-vetch was noted in any of the surveys. Survey locations were Lower Monroe Truck Trail, Arroyo Seco Canyon Road, El Prieto Truck Trail, Browns
Mountain Truck Trail, Johnstone Peak Truck Trail, Tanbark Road, and Big Dalton Canyon Road. Surveys after the Morgan Fire, above Glendora, and the Santa Anita II Fire above Arcadia, were conducted and no Braunton’s milk-vetch was found.

**Habitat Status**

This species occurs below 2000 feet elevation in disturbed areas of chaparral. It prefers dry open areas in chaparral with sandstone and rocky clay soils. Other habitats are coastal scrub, valley and foothill grasslands, and closed-coned coniferous forests (Skinner and Pavlik, 1994; USFWS, 1997a). This species is apparently restricted to carbonate or calcareous (limestone endemic) soils or in wash sites (Hollombe, 1997; USFWS, 1997a). The flowering period is from February to July (Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994). Pollinators are the native megachilid bees and a native bumblebee (USFWS, 1999a).

Braunton’s milk-vetch is a short-lived (2 to 3 years) fire-follower and dependent on fire-return intervals, and it may appear only once in 20 to 50 or more years (Hollombe, 1997; USFWS, 1997a). After the Gypsum Canyon Fire in 1982, several populations (~400 plants) appeared on the divide between Gypsum and Coal Canyons (White, 1990). These plants do not exist today. Fire is a natural requirement for the survival of the species (Hollombe, 1997; USFWS, 1997a). The entire protected habitat is located near expanding urban areas where alteration of natural fire regimes is likely to occur.

Threats to this plant include over-collection, development, vehicles, mechanical equipment, biocides, and alterations of local fire regime (Skinner and Pavlik, 1994). This species is considered by CNPS (2007) to be seriously endangered within California.

**Braunton’s Milk-vetch Critical Habitat**

Critical habitat for Braunton’s milk-vetch was last designated on November 14, 2006 (71 FR 66373). Unit 5 is located near the Project boundary in the City of Monrovia in Los Angeles County (Figure 3 located at the end of this report). A total of 282 acres is designated as critical habitat, which includes 218 acres of Monrovia Wilderness Preserve and 64 acres of private land. In 2004, approximately 700 plants were observed. The area contains all of the Primary Constituent Elements (PCEs), represents a unique and disjunct piece of the species range, is a relatively large, good-quality site, and the area likely incorporates a large existing seed bank (71 FR 66373). Threats that may require special management in this unit include maintenance of fire roads, the growth of nonnative plants that could crowd out Braunton’s milk-vetch, and recreation activities such as foot and bicycle traffic, which could result in the trampling of plants (71 FR 66373).

Another critical habitat unit is located in Coal Canyon (Unit 6; USFWS, 2006a), approximately eight miles from Segment 8.

PCEs for Braunton’s milk-vetch include (1) Calcium carbonate soils derived from marine sediment; (2) low proportion (less than 10 percent) of shrub cover directly around the plant; and (3) chaparral and coastal sage scrub communities characterized by periodic disturbances that stimulate seed germination (e.g., fire, flooding, erosion) and reduce vegetative cover (71 FR 66373).

As shown in the map of the Project alignment and Unit 5 of critical habitat (Figure 2), the Project does not intersect the critical habitat.
Survey Results

Focused floristic botanical surveys of the Proposed Action alignment were conducted in the spring and early summer of 2008 and 2009. Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September, and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE). No Braunton’s milk-vetch were observed in the project area. While not observed in the project area, there is an extant population of this species between Segments 7 and 11 just south of the ANF boundary. The Coal Canyon population, located approximately eight miles from Segment 8, was surveyed by AMEC (SCE) on 14 April 2009 as a reference population. No individuals were observed at that time.


Some populations on private lands are undergoing development. Occurrences protected on Forest Service lands are located near the Agua Tibia Wilderness (Cleveland National Forest) and in San Francisquito Canyon (Angeles National Forest). Less than 500 plants are estimated to occur at all known sites combined (USDA Forest Service, 1989a). It is believed that plants at San Francisquito Canyon were planted and are the only known individuals regenerating successfully from seed (USDA Forest Service, 1989a). The population on the Cleveland National Forest burned in a 1995 wildfire and has since been observed resprouting vigorously (Brown and Lardner, unpubl. notes 1998).

The current distributional extent of the species ranges from the foothills of the San Gabriel Mountains of Los Angeles County to the foothills of the Peninsular Ranges of southwestern Riverside County (USFWS, 1998a, 2008b) at elevations of 900 to 2,000 feet. There are currently fewer than 30 scattered natural occurrences of this species remaining, in addition to several introduced horticultural plantings (CNPS, 2007). There is some confusion concerning native versus introduced occurrences, as this species has been cultivated for many years. The total number of native individuals remaining is estimated to range from 500 to 1,000 plants (USFWS, 1998a).

In Los Angeles County, University and Jepson Herbaria have 11 records prior to 1941 at the locations of Garnsey, Fernando, Arroyo Seco, Pacoima Wash, Poconino Wash, and San Fernando Wash. Other known locations in Los Angeles County include San Francisquito Canyon, Arroyo Seco Canyon, Devils Gate Dam, Rose Bowl, San Antonio Wash, Lopez Canon, and Cobal Canyon (Boyd, 1999; P. Krueger, Pers. Obs. 1992–2001; Scott Eliason, Pers. Comm. 1997; Soza and Boyd, 2000a; CNDDB, 2009). The population east of the Rose Bowl in Pasadena was planted by the Theodore Payne Foundation and has maintained the same 5 plants with no apparent natural regeneration since 1992 (P. Krueger, Pers. Obs. 1992-2001). The San Antonio Wash population is in an area that is currently developed. A single plant was found in Lopez Canyon (Scott Eliason, Pers. Comm. 1997). Surveys in 2000 found the same individual plant, with no new occurrences within Lopez or Marek Canyons (Soza and Boyd, 2000a). The San Francisquito Canyon population appears to be stable from the monitoring data from 1992 to 2000,
with 185 individuals of both mature plants and seedlings (Soza and Boyd, 2000a). Within the Claremont Hills Wilderness Park, three individual plants exist at the mouth of Cobal Canyon; however, they appear to be introduced (Soza and Boyd, 2000a). The CNDDB reports a recent (2007) sighting of this species in Wildwood Canyon in Burbank (CNDDB, 2009).

Within the Angeles National Forest, surveys for Nevin’s barberry in 2001 occurred on 22 miles of roads in the San Gabriel Foothills. No Nevin’s barberry was noted in any of the surveys. Survey locations were Lower Monroe Truck Trail, Arroyo Seco Canyon Road, El Prieto Truck Trail, Browns Mountain Truck Trail, Johnstone Peak Truck Trail, Tanbark Road, and Big Dalton Canyon Road. Surveys were conducted after the Morgan Fire, above Glendora, and the Santa Anita II Fire above Arcadia, and no Nevin’s barberry was found (Forest Records).

In 2009, a single Nevin’s barberry was found near the Whittier Narrows Visitor Center. It is thought to be a cultivar due to its proximity to the Visitor Center.

**Habitat Status**

Habitat for Nevin’s barberry is coastal sage scrub, chaparral, cismontane woodland, riparian scrub, sandy and gravelly places, and in washes below 2150 feet elevation. This species occurs on coarse soils. Nevin’s barberry is found in chaparral and alluvial scrub associated with rocky slopes and sediments and sandy washes (USFWS, 1998a). Life form is a rhizomatous evergreen shrub. Flowering period is from March to April (Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994; USFWS, 1998a).

Threats to this plant include road maintenance operations, gold extraction activities, biocides, development, and invasion of currently occupied habitat by Spanish broom (Skinner and Pavlik, 1994; USDA Forest Service, 1989a). Viability of the species is threatened by lack of regeneration in the form of sporadic seed production. The one known individual at Dripping Springs has now successfully reproduced 56 years after it was first discovered (USDA Forest Service, 1989a).

**Nevin’s Barberry Critical Habitat**

Critical habitat for Nevin’s barberry was designated on February 13, 2008 (73 FR 8412). The only unit designated is in Riverside County and is not near the project area.

**Survey Results**

Focused floristic botanical surveys of the Proposed Action alignment were conducted in the spring and early summer of 2008 and 2009. Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE). A single individual, likely of horticultural origin, was observed in the project area in Whittier Narrows along Segment 7 in 2009.

**Thread-leaved Brodiaea** (*Brodiaea filifolia*). **Federal Listing Status:** Threatened; **State Listing Status:** Endangered; **CNPS List 1B.1.** The thread-leaved brodiaea is a State-listed endangered species known from Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. This species was federally listed as threatened on October 13, 1998 (63 FR 54975). The majority of known occurrences are located on private lands; however, three populations occur within the Cleveland National Forest and contain an estimated 20,000 plants (Brown and Winter, unpubl. notes 1998).
Thread-leaved brodiaea has been known in the Glendora-San Dimas area, but thought not to exist in the Sunland-Tujunga area (Soza and Boyd, 2000b). No known populations currently exist within the Forest boundary, although suitable habitat still exists.

There was a small population in the city of Glendora in 1991 (Wildwood and Morgan Canyon), but the area was scheduled to be a housing development (CNDDB, 2009). This population was relocated (Soza and Boyd, 2000b).

Surveys conducted in 1999 by Rancho Santa Ana Botanic Gardens did not find any thread-leaved brodiaea within suitable habitat within the Forest boundary (Soza and Boyd, 1999). A population just east of Morgan Canyon, extending from 1400 feet up to Ferguson Motorway at 1600 feet, was noted as containing a few thousand individuals in 2000 (Soza and Boyd, 2000b).

Surveys for thread-leaved brodiaea in 2001 occurred on 22 miles of roads in the San Gabriel Foothills. No thread-leaved brodiaea was noted in any of the surveys. Survey locations were Lower Monroe Truck Trail, Arroyo Seco Canyon Road, El Prieto Truck Trail, Browns Mountain Truck Trail, Johnstone Peak Truck Trail, Tanbark Road, and Big Dalton Canyon Road. Surveys after the Morgan Fire, above Glendora, and the Santa Anita II Fire above Arcadia, were conducted and no thread-leaved brodiaea was found.

**Habitat Status**

Habitat for thread-leaved brodiaea includes heavy clay soil below 2000 feet in coastal sage scrub, cismontane woodlands, valley and foothill grassland, vernal pools, and chaparral. Further study within the San Gabriel Mountains shows that thread-leaved brodiaea is associated with clay soils overlaying volcanic rock of Miocene age, relatively gentle topography, and vegetation of open grasslands bordered by coastal sage scrub below 3000 feet elevation (Soza and Boyd, 1999). Life form is a bulbiferous perennial herb. Its flowering period is from March to June (Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994).

Threats to this plant include development, agriculture, biocides, vehicles, and mechanical equipment (Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994). Threats also include the potential hybridization with *Brodiaea orcuttii* and *Brodiaea terrestris* (Brown and Winters, 1998, unpubl. notes).

**Thread-leaved Brodiaea Critical Habitat**

Critical habitat for thread-leaved brodiaea was designated on December 13, 2005 (70 FR 73820). None of the designated units are within or near the project area. Revised critical habitat was proposed on December 8, 2009 (74 FR 234). The nearest unit to the Proposed Action is located over 5.5 miles to the east of Segment 7, and would not be impacted by project activities.

**Survey Results**

Focused floristic botanical surveys of the Proposed Action alignment were conducted in the spring and early summer of 2008 and 2009. Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE). No thread-leaved brodiaea were observed in the project area.

As part of the focused floristic surveys in 2008, the Glendora population was surveyed in an effort to better understand the microhabitat requirements for the species. Although this critical habitat unit is nearby, thread-leaved brodiaea is considered unlikely to occur in the Central Region due to the lack of
suitable mesic grassland habitat and a preponderance of steep, well-drained grassland slopes within the project area.

**Brand’s Phacelia (Phacelia stellaris). Federal Listing: Candidate; State Listing: None; CNPS List 1B.1.** Brand’s phacelia was first listed as a Candidate species by the USFWS on May 4, 2004 (69 FR 24880). It is a CNPS List 1B.1 plant. This species occurs in sandy substrates within coastal dune and coast scrub communities at elevations below 1,113 feet (CNPS, 2007). There are intermediate plants to *P. douglasii var. douglasii*. This species is synonymous with *P. douglasii var. cryptantha* (CNPS, 2004; Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994). It was historically known from 15 populations in Los Angeles, Riverside, and San Diego counties, and in Baja California. The historical occurrences may have been extirpated by development. Currently, the species is known from only three populations in San Diego and Riverside counties and is considered extirpated from Los Angeles County.

There is a historical population of this species in the San Gabriel River east of El Monte near Segment 8.

**Habitat Status**

Habitat is open areas in coastal dunes or coastal scrub to 400 meters. Life form is an annual herb that blooms from March to June (CNPS, 2004; Hickman, 1993; Munz, 1974; Skinner and Pavlik, 1994).

Threats to the species include trampling by foot, vehicular traffic, and the spread of the non-native iceplant (*Carpobrotus edulis*) (USFWS, 2004).

**Survey Results**

Focused floristic botanical surveys of the Proposed Action alignment were conducted in the spring and early summer of 2008 and 2009. Reconnaissance-level botanical surveys were conducted on 10-22 June, 15-18 July, 17-21 September and 1-5 October 2007 (HT Harvey and Aspen) and between 30 May and 16 June, 2007 (AMEC and SCE). No Brand’s phacelia were observed in the project area.

**San Fernando Valley Spineflower, Slender-horned Spineflower, Braunton’s milk-vetch, Nevin’s Barberry, Thread-Leafed Brodiaea, and Brand’s Phacelia**

**Direct Effects:** Although there are records of San Fernando Valley spineflower five miles to the east of Segment 5 in the vicinity of Elizabeth Lake, recent surveys of suitable habitat in the area have failed to detect the species, and the population has likely been extirpated (CNDDB, 2009). It is considered unlikely to occur in the Northern Region because only marginal habitat is present. There are no known populations of San Fernando Valley spineflower within the ANF (Stephenson and Calcarone, 1999), and the species is unlikely to occur in the TRTP Central Region. In the Southern Region, the nearest record of San Fernando Valley spineflower is an extirpated population located approximately 11 miles south of Segment 8 (CNDDB, 2009). The species is therefore unlikely to occur in the Southern Region. In addition, appropriately timed focused surveys conducted in 2007, 2008, and 2009 did not detect this species. Therefore, direct effects to San Fernando Valley spineflower are not anticipated as a result of the Proposed Action.

Suitable habitat for slender-horned spineflower is not present in the Northern Region. In the Central Region, the CNDDB (2009) records four historical occurrences within five miles of the Proposed Action. Segment 11 bisects one of these populations in the foothills of the city of Altadena in Rubio Wash, but the population is presumed extirpated due to urbanization and modifications for flood control. Other
populations, possibly extirpated, occur three miles east of Segment 11 in La Crescenta and 3.5 miles west of Segment 11 along the West Fork of the San Gabriel River. This species was not identified during focused surveys conducted in 2007, 2008, and 2009. Any individuals or populations encountered during preconstruction surveys will be marked and avoided. In addition, most of the habitat that could support this species would not be subject to project disturbance. Therefore, no direct effects to slender-horned spineflower are expected to occur as a result of Project implementation.

There are no documented occurrences of Braunton’s milk-vetch within the ANF. However, the species is present north of the city of Monrovia in an area to the south of Clamshell Canyon and just south of the ANF boundary (CNDDB, 2009). This area, which lies in the foothills between Segments 7 and 11 of the proposed TRTP, has been designated critical habitat for this species (Unit 5: Monrovia Unit, USFWS, 2006a). However, project activities would not affect this area. Another critical habitat unit is located in Coal Canyon (Unit 6, USFWS, 2006a), approximately eight miles from Segment 8.

Braunton’s milk-vetch is an ephemeral fire-follower that typically persists for only a few years following a fire, and most populations may exist in the soil in the seed bank awaiting the next fire (Skinner, 1991). Therefore, a degree of uncertainty will remain regarding the absence of this species following surveys conducted during the blooming period, as the seed bank would not be detected by conventional survey techniques. Portions of Segment 10 were observed to be somewhat recently burned and supported some carbonate soils and portions of Segments 5 and 11 were more recently burned; however, no populations of Braunton’s milk-vetch were found to occur in these areas. If encountered during later clearance surveys, any Braunton’s milk-vetch individuals or populations encountered will be marked and avoided. Therefore, no direct effects to Braunton’s milk-vetch are expected to occur as a result of Project implementation.

The probability that Nevin’s barberry occurs naturally in the project area is low. In addition, this conspicuous plant would likely have been detected during the focused botanical surveys conducted in the spring of 2007, 2008, and 2009. One individual, likely of horticultural origin due to its location along a paved nature trail in the Whittier Narrows Nature Center, was observed near Segment 7 during the 2009 surveys. However, project activities would not affect this individual. Because of the proximity of the Project to its historical range, the possibility of natural occurrence in the project area cannot be ruled out. If any individuals or populations are encountered during clearance surveys they will be marked and avoided. Therefore, no effects to Nevin’s barberry are expected to occur as a result of Project implementation.

Thread-leafed brodiaea is considered absent from the Northern Region of the proposed TRTP because the region falls outside of the species’ known distribution, and no suitable habitat is present. In the Central Region, two populations of thread-leaved brodiaea occur just outside of the ANF boundary north of the cities of Glendora and San Dimas. This area has been designated as critical habitat for the species (USFWS, 2005a). As part of the focused floristic surveys in 2008, the Glendora population was surveyed in an effort to better understand the microhabitat requirements for the species. Although this critical habitat unit is nearby, thread-leaved brodiaea is considered unlikely to occur in the Central Region due to the lack of suitable mesic grassland habitat and a preponderance of steep, well-drained grassland slopes within the project area. Although very little suitable mesic grassland habitat occurs in the Southern Region of the Proposed Action, the potential occurrence of this species in the area cannot be ruled out. However, appropriately timed focused surveys conducted in 2007, 2008, and 2009 did not detect this species. Any individuals or populations encountered during preconstruction surveys will be marked and avoided.
Therefore, no direct effects to thread-leaved brodiaea are expected to occur as a result of Project implementation.

Brand’s phacelia is considered absent from the Northern and Central Regions of the proposed TRTP, which falls outside of the species’ known historical distribution. In the Southern Region, there are records of an extirpated occurrence in the San Gabriel River east of El Monte (CNPS, 2007; CNDDB, 2009), and the species may therefore occur in scrub communities underlain by sandy soils within the Proposed Action along Segments 7 and 8 south of the ANF. The species is unlikely to occur along Segment 11 where habitat conditions are marginal. Appropriately timed focused surveys for Brand’s phacelia conducted in 2007, 2008, and 2009 did not detect this species. Any individuals or populations encountered during preconstruction surveys will be marked and avoided. Therefore, no direct effects to Brand’s phacelia are expected to occur as a result of Project implementation.

Although no federally listed plant species are expected to occur in the project area, Mitigation Measures AQ-1a (Implement Construction Fugitive Dust Control Plan), B-1a (Provide restoration/compensation for impacts to native vegetation communities), and B-7 (Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants), will prevent the disturbance of any individuals or populations of these species through Project redesign and avoidance, if any are detected during future surveys.

**Indirect Effects:** San Fernando Valley spineflower, slender-horned spineflower, Braunton’s milk-vetch, Nevin’s barberry, thread-leafed brodiaea, and Brand’s phacelia are not known to occur in the project area, although suitable habitat for these species is present. However, Mitigation Measures AQ-1a (Implement Construction Fugitive Dust Control Plan), B-1a (Provide restoration/compensation for impacts to native vegetation communities), and B-7 (Conduct preconstruction surveys for State and federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and avoid any located occurrences of listed plants) will prevent the disturbance of any individuals or populations of these species through Project redesign and avoidance. Therefore, no indirect effects to listed plant species would occur.

**Cumulative Effects:** San Fernando Valley spineflower, slender-horned spineflower, Braunton’s milk-vetch, Nevin’s barberry, thread-leafed brodiaea, and Brand’s phacelia are not known to occur in the project area, although suitable habitat for these species is present. Cumulative effects are not anticipated.

**Determination:** It is my determination that implementation of the Proposed Action will have no effect on the federally listed San Fernando Valley spineflower, slender-horned spineflower, Braunton’s milk-vetch, Nevin’s barberry, thread-leafed brodiaea, or Brand’s phacelia on NFS lands, USACE lands, or private lands.

**Rationale:**
- Surveys have been conducted and no federally listed plant species have been found.
- Surveys will be conducted prior to construction for all areas that did not have prior surveys.
- Any located individual or population will be marked and avoided.
- Areas temporarily disturbed will be restored after construction.
- Project will remove and limit the spread of nonnative and invasive plant species.
Erosion and dust will be controlled.

Federally listed plants are not known to occur in the project area, and would not be impacted by Project activities. Therefore, implementation of the Project would not lead to a decline in the population size of any listed plant species, nor change the viability of any listed plant species.

5.2 Federally Listed Wildlife

Threatened and Endangered Fish

Santa Ana Sucker (*Catostomus santaanae*). Federal Status: Threatened; CDFG: Species of Special Concern. Santa Ana sucker was listed as threatened on April 12, 2000 (65 FR 19689). Santa Ana suckers are native to the Los Angeles, San Gabriel, and Santa Ana River drainages in Southern California. Within the species, however, there is little differentiation among populations from the four adjacent but isolated rivers (Smith, 1966). Suckers remain in the upper San Gabriel River, Big Tujunga Creek (Los Angeles River), and lowlands of the Santa Ana River system. They were introduced into the Santa Clara River system (Moyle, 1976; Swift et al., 1993). In the Sespe Creek area, some hybridization with dusky suckers, *Catostomus fumeiventris*, occurs; a few downstream Santa Ana suckers have allosymes of dusky suckers (Swift et al., 1993). Genetic contamination does not extend to the isolated Soledad Canyon area upstream.

The distribution of Santa Ana suckers was recorded by Swift (1980) and Swift et al. (1993). In two drainages (Los Angeles, San Gabriel) the species once occurred well downstream (to Los Angeles and Whittier, respectively) but are now restricted to the larger stream sections that still exist in headwater areas. In the Santa Ana River they survive only in the lower portions, mainly in reaches with flows enhanced by waste water (Mt. Roubidoux downstream to a few km below Imperial Highway). They have been extirpated from the upper Santa Ana River drainage where they were once present in Fish and Santiago canyons and in Cajon and City creeks. The historic Los Angeles Basin records are mostly at the California Academy of Sciences, University of Michigan, and the University of California, Los Angeles (UCLA). In the Santa Clara River to the north of the Los Angeles Basin, Santa Ana suckers were first collected in the 1930s and are considered to be introduced (Smith, 1966; Bell, 1978). They hybridize with another introduced species, *C. fumeiventris*, in the vicinity of Fillmore (Swift et al., 1993). Fish upstream in the Soledad Canyon area are pure Santa Ana suckers (Buth and Crabtree, 1982). This stream and the San Gabriel River have the largest populations of Santa Ana suckers.

Big Tujunga Creek, including all the tributaries within the Central Region of TRTP, have potentially been burnt in the Station Fire in 2009. Sedimentation from the Station Fire is anticipated to be high. See Section 3.1.4 for anticipated impacts due to the Station Fire.

**Habitat Status**

Santa Ana suckers inhabit small to medium sized streams, usually less than 20 feet in width with slight, moderate, or swift current or within clear, cool rocky pools (Deinstdt et al., 1990; Moyle, 1976; Page and Burr, 1991; Smith, 1966). Preferred substrates are generally coarse and consist of gravel, rubble, and boulder, but occasionally Santa Ana suckers are found on sand/mud substrates (Moyle, 1976; Moyle et al., 1995). Often collections are associated with algae and *Chara*, though occasionally microscopic vegetation (macrophytes) is apparently absent (Moyle et al., 1995; Smith, 1966). Water depths range from a few inches to several feet.
The best description of Santa Ana sucker habitat is provided by Deinstadt et al. (1990) for the West Fork of the San Gabriel River. The West Fork is a small (typical summer flow of 4 cfs, 5-8 m wide, depths mostly 15-30 cm), permanent stream that flows through a steep, rocky canyon with chaparral-covered walls. Overhanging riparian plants, mainly alders and sedges, provide cover for the fish. Santa Ana suckers utilize all areas and do not require streamside cover when larger, deeper holes and riffles are present for refuge, particularly for adult fish. Greenfield et al. (1970) reported that Santa Ana suckers were washed into the Santa Clara River from a recreational lake. However, Santa Ana suckers probably do not successfully inhabit reservoirs, as they are not known to occur in Piru, Morris, and San Gabriel reservoirs, or Hansen Dam (C. Swift, pers. comm.). Even though Santa Ana suckers seem to be quite generalized in their stream habitat requirements, they are intolerant of polluted or highly modified streams.

Streams in which Santa Ana suckers are found are generally subjected to periodic, severe flooding that results in drastic decreases in sucker population densities. Santa Ana suckers are adapted to living in such unpredictable environments and are able to repopulate the rivers following the floods. Such adaptations include short generation time (early maturity), high fecundity, and relatively prolonged spawning period. These characters enable Santa Ana suckers to rapidly recolonize rivers following a flood by producing more young over a longer time span. The short generation time allows Santa Ana suckers to reproduce early in life, as the probability of adult mortality is high. The small size probably enables individuals to utilize a greater range of instream refuges that would be unavailable to larger fish during high flows. The greater dependence on detritus, algae, and diatoms by juveniles has been viewed as another adaptation for survival in highly variable environments.

Santa Ana suckers feed mostly (97% of diet) on algae, especially diatoms, and detritus, which they presumably scrape from rocks and other surfaces (Greenfield et al., 1970; Moyle, 1976; Moyle et al., 1995). Aquatic insect larvae, fish scales, and fish eggs are eaten, and larger fish are known to consume insects.

Data suggest dual spawning in spring and fall, or protracted spawning (Smith, 1966). Spawning takes place from March until early July, but peaks from late May through early June, except in the Santa Clara River where it occurs mostly in March to April (Moyle, 1976; Moyle et al., 1995). Eggs hatch within 45 days (at 13 degrees Celsius) and are demersal and adhesive. Suckers become reproductively mature by their first year and spawn during their first and second years.

Life history of the sucker includes the combination of early maturity, protracted spawning period, and high fecundity (4400-16000 eggs) that allows the Santa Ana sucker to quickly repopulate streams following periodic severe floods which can decimate populations (Greenfield et al., 1970; Moyle, 1976). Greenfield et al. (1970) sampled the Santa Clara River one week following a flood in late January 1969 and collected only 120 Santa Ana suckers, compared to 225 collected the previous December. The short generation time allows Santa Ana suckers to reproduce early in life, as the probability of adult mortality is high. Santa Ana suckers are relatively short-lived; most suckers do not survive beyond the second year, although a few live three to four years (Moyle et al., 1995).

The Santa Ana sucker is threatened by elimination or alteration of its stream habitats, reduction or alteration of stream flows, pollution, and introduced species. The Santa Ana sucker is adapted for surviving extreme environmental perturbations, so populations can recover from disasters, provided there
is a source of colonists for whatever suitable habitat exists (Moyle et al., 1995). The fact that this fish is in such trouble is indicative of the poor state of the streams in the Los Angeles Basin, which suffer from multiple and cumulative effects of many agents of change. With the continual loss of habitat, local population reductions may prove to be permanent.

In lowland areas, virtually all of the habitats once used by this species have been channelized, frozen in concrete, dewatered, or otherwise altered. In upland areas, most streams have been either dammed and diverted, or are continually threatened by mass erosion of destabilized hillsides (from roadbuilding, off-road vehicle use, gravel extraction, forest fires, development, etc.), by gold dredging and other mining activities, and by grazing and other heavy uses of riparian areas. For example, mining activity has increased in recent years in Cattle Canyon, a tributary of the East Fork of the San Gabriel River, resulting in the apparent elimination of sucker populations in Cattle Canyon. The population in the West Fork of the San Gabriel River is constantly threatened by accidental high-water releases (with heavy sediment loads) from Cogswell Reservoir, which have devastated this stream several times in the past.

Introduced species are a constant threat to Santa Ana sucker populations. For example, the sucker formerly inhabited the upper Santa Ana River in the San Bernardino Mountains but seems to have been eliminated by introduced predatory brown trout, because it has not been detected there for many years. Large numbers of genetically pure Santa Ana suckers exist in the Soledad Canyon area of the upper Santa Clara River, but the potential exists for hybridization with introduced Owens suckers that inhabit the lower river (Swift et al., 1993). Other populations are continually threatened by introduced species such as red shiner, *Cyprinella lutrensis*, (a potential competitor and egg predator) and green sunfish, *Lepomis cyanellus* (a potential predator).

On the Angeles National Forest, threats to the Santa Ana sucker include habitat fragmentation, habitat degradation, streamflow alterations, and introduced species. Threats specific to the populations in the project area include variable releases of water from Big Tujunga and Cogswell Reservoirs (USDA, 2005a).

**Survey Results**

Santa Ana suckers were not detected during reconnaissance surveys conducted in 2007 and 2008 for the TRTP; however, this species is known to occur in Big Tujunga Creek and the San Gabriel River within the ANF (Moyle, 2002; USFWS, 2005b; CNDDB, 2009).

**Direct Effects:** The Santa Ana sucker is known to occur in the Santa Clara River, Big Tujunga Creek, and the San Gabriel River (Moyle, 2002; USFWS, 2005b; CNDDB, 2009). The species has been documented in the Santa Ana River and Aliso Creek near the Chino Hills State Park, but this population is over seven miles south of the proposed transmission line and is separated from the line by the Puente-Chino Hills and would not be directly affected by project activities. On Big Tujunga Creek this species occurs downstream of the dam and would not be directly affected by project activities.

For the Proposed Action, construction access to the Project would occur along a paved section of road that parallels and crosses the West Fork San Gabriel River from Highway 39 to Cogswell Dam. This road is located immediately adjacent to the river for seven miles and is consistently within the floodplain and riparian canopy. Numerous small ephemeral and intermittent drainages are present in the canyon and provide tributary flow into the river along this section of the San Gabriel River. In some areas, these
drainages cross the access road as Arizona crossings or small culverts, and in a few cases, water flows across the roadway unchannelized.

If fish are utilizing the Arizona crossings for movement into and out of the tributaries, vehicle access through the water crossings or culverts could result in mortality or disturbance to Santa Ana suckers. An inspection of each of the tributary drainages conducted by Aspen in May 2009 indicated that some of the tributaries have barriers (i.e. drop structures or other physical features) that would inhibit movement to upstream areas. In addition, the road areas lack habitat features that would support aggregations of fish on the roadway. Nonetheless, while this species is not expected to linger on the roadway it is possible that Santa Ana suckers could be present in some of the tributaries on an occasional basis while dispersing to upstream areas (Baskin pers. comm., 2009). However, to minimize or avoid direct effects, plates or other approved structures would be placed across the Arizona crossings or culverts to prevent direct vehicle contact with water (Mitigation Measure B-12), as deemed necessary by the FS. Suckers would be able to move or disperse into tributaries and drainages during high water or rain events when the main channel flows are higher. Mitigation Measure H-1b (Dry weather construction) would limit construction activity when more than 1/2 inch of rain is predicted to occur over a 24-hour period; ensuring that construction activities would not occur when suckers would be most likely to move onto the roadway.

Project-generated runoff could result in mortality or sublethal effects to all life stages of the Santa Ana sucker. Runoff could include erosional silt or spills of toxic chemicals that may be washed into aquatic habitats during rain events. Mud from vehicles working on off-road sections may be transported into the creek at road crossings and result in micro plumes of heavily silt-laden waters that could smother egg masses or disturb juvenile fish that occur along shallow edge areas of the creek. Fish could be adversely affected from exposure to toxic chemicals resulting from spillage and runoff of engine fuels (e.g., gasoline and diesel), motor oil, hydraulic fluid, and various other oils, greases, and solvents. However, SCE would conduct daily inspections of the roadway and crossings for excess mud or pollutants and have Hazardous Spill Kits pre-staged at the river (Mitigation Measure B-12). Implementation of this measure and placement of barriers at Arizona crossings or culverts to reduce contact of vehicles with flowing water would minimize potential effects to this species.

The use of herbicides to control nonnative and invasive plant species could result in the poisoning of the Santa Ana sucker should herbicides be used near or upstream of water supporting this species. For example, Triclopyr is one herbicide that could be used during the course of construction and maintenance and operations for the TRTP. This herbicide is known to cause decreased body size in fish at high concentrations, and lethargic behavior at low doses (USDA, 2009). Herbicides could enter water through direct overspray as well as through percolation, runoff, sediment transport, and wind erosion. At the West Fork San Gabriel River, only herbicides that are approved for use in or near water would be utilized, thus the effects to aquatic species would be minimized. Through the implementation of the Weed Control Plan (Mitigation Measure B-3a [Prepare and implement a Weed Control Plan]) only authorized staff trained in the application of herbicides would be utilized. Similarly, herbicides would only be applied under specific weather conditions to reduce the potential for overspray, spillage, and off-site transport of herbicides. See Mitigation Measure B-3a for other minimization measures that would be implemented when herbicides are used. Thus, direct effects to the Santa Ana sucker would be minimized.

Populations of the Santa Ana sucker occur more than 0.5 mile downstream of the nearest tower locations, and direct effects from road construction are not anticipated. However, to reduce any potential direct
effects to the Santa Ana sucker, SCE shall implement a series of measures that would avoid vehicle crossings of tributary drainages to the West Fork of the San Gabriel River along West Fork Cogswell Road through the placement of plates to prevent direct vehicle contact with the water, survey and monitor work in stream areas, implement best management practices to reduce the off-site transport of sediment-laden waters into adjacent water bodies, require the development of avoidance measures for riparian crossings, and develop a RCA treatment plan that identifies the specific measures that would be implemented to reduce effects to riparian-dependent species. These measures include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), Mitigation Measure H-1b (Dry weather construction), Mitigation Measure B-8b (Conduct biological monitoring), and Mitigation Measure B-12 (Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms). With the implementation of these measures, direct effects to the Santa Ana sucker are not anticipated.

Indirect Effects: The Santa Ana sucker occurs in the Santa Clara River, Big Tujunga Creek, San Gabriel River, and Santa Ana River (Moyle, 2002; USFWS, 2005b; CNDDB, 2009). In the project area, only the population occurring in the West Fork San Gabriel River and Big Tujunga Creek would be subject to potential indirect effects. Indirect effects to the Santa Ana sucker could include post-construction degradation of suitable breeding and spawning habitat due decreased water quality from sedimentation and erosion. Runoff could include erosional silt and spills of toxic chemicals that may be washed into aquatic habitats during rain events. Chemicals spilled during construction and mobilized into nearby creeks during subsequent storm events could adversely affect fish. Examples of toxic materials used during construction include engine fuels (e.g., gasoline and diesel), motor oil, hydraulic fluid, and various other oils, greases, and solvents. Project activities upslope from aquatic habitats could generate runoff, impacting Santa Ana sucker.

The project would result in soil disturbance in many areas. Data from the GIS-Based Erosion & Sediment Analysis Report (Appendix A of the Hydrology and Water Quality Specialist Report for the TRTP; Aspen, 2008a) conducted for this Project (see Section 2.6) indicate that with BMPs approximately 843 tons of sediment per year over baseline would be deposited at Big Tujunga Creek below Clear Creek due to tower construction and road improvements upslope of this area. This amount of sedimentation constitutes an increase of 1.9 percent over baseline (44,165 tons/year at this location). Data indicate that with BMPs approximately 577 tons of sediment per year over baseline would be deposited at Butterfield Canyon and the West Fork San Gabriel River due to road improvements upslope of this area. Under baseline conditions, 45,666 tons of sediment was modeled as being deposited annually at this location. This total amounts to an increase of approximately 1.2 percent, which, as described in Section 2.6, is within the natural variation of any given rain year. Although sedimentation can occur indirectly as a result of Project implementation, the effects are expected to be very low to negligible.

To reduce indirect effects of the Proposed Action, SCE shall implement a series of measures that would avoid vehicle crossings of tributary drainages to the West Fork of the San Gabriel River along West Fork Cogswell Road through the placement of plates to prevent direct vehicle contact with the water, survey and monitor work in stream areas, implement best management practices to reduce the off-site transport of sediment-laden waters into adjacent water bodies, require the development of avoidance measures for
riparian crossings, and develop a RCA treatment plan that identifies the specific measures that would be implemented to reduce effects to riparian-dependent species. These measures include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), Mitigation Measure H-1b (Dry weather construction), Mitigation Measure B-8b (Conduct biological monitoring), and Mitigation Measure B-12 (Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms). With the implementation of mitigation measures, indirect effects are not anticipated to occur, and project activities would not diminish the prey base for the Santa Ana sucker.

**Cumulative Effects:** Non-federal projects are not known to be proposed within the immediate vicinity of the Central Region. Therefore, cumulative effects are not anticipated.

**Determination:** It is my determination that the Proposed Action may affect, but is not likely to adversely affect Santa Ana sucker on NFS lands. It is my determination that the Proposed Action would have no effect on the Santa Ana sucker on USACE lands and private lands, as this species does not occur on these lands in the project area.

**Rationale:**

- In the vicinity of the Proposed Action, Santa Ana suckers are found in Big Tujunga Creek and the West Fork San Gabriel River. Sedimentation resulting from project implementation that could reach these water bodies is considered negligible.
- No direct contact is anticipated with any fish.
- Barriers, such as metal plates or bridges, will be placed on Arizona crossings on the West Fork Cogswell Road to prevent any crushing of suckers that could enter the roadway.
- No nets will be placed in any aquatic area where Santa Ana suckers are known to occur (i.e. Big Tujunga Creek, West Fork San Gabriel River, and main stem San Gabriel River).
- Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.
- Hazardous spill kits will be available near the West Fork San Gabriel River (i.e. Rincon Station, Cogswell Dam) throughout Project construction.
- West Fork Cogswell Road will only be used during Project construction, thus no effects in this area would occur after construction.
- At the West Fork San Gabriel River, only herbicides that are approved for use in or near water would be utilized, thus the effects to aquatic species would be minimized.
- Project will remove and limit the spread of nonnative and invasive plant species.
- No change in water temperature or chemistry is expected from Project implementation for Big Tujunga Creek, West Fork San Gabriel River, and main stem San Gabriel River.
No loitering, maintenance, refueling, or equipment staging shall occur on the West Fork Cogswell road.

Monitors will inspect the West Fork Cogswell Road three times per day from October 1 to April 30 and once per day from May 1 to September 30.

Implementation of the Proposed Action would not lead to a change in population size of Santa Ana sucker or result in a loss of viability.

**Santa Ana Sucker Critical Habitat**

Critical habitat for the Santa Ana sucker was designated on January 4, 2005 (70 FR 425). Revised Critical Habitat was proposed on December 9, 2009 (74 FR 235). No new units were proposed in the Action Area. Critical habitat Unit 2 is below Cogswell Reservoir on the West Fork of the San Gabriel River. Approximately 15 percent of the total remaining range of the listed Santa Ana sucker is in the San Gabriel River (65 FR 19686). Approximately 15 percent of its distribution in the San Gabriel River Basin occurs on private lands, and the remaining 85 percent occurs in the Angeles National Forest (65 FR 19686). Lands designated as critical habitat may require special management to avoid and minimize activities associated with recreational off-road vehicle use, grazing, road, bridge, or dam construction and/or maintenance in the Angeles National Forest.

Critical habitat Unit 3 is in Big Tujunga Canyon between Big Tujunga Dam and Hansen Dam. Approximately 25 percent of the total remaining range of the Santa Ana sucker is within Big Tujunga Creek (65 FR 19686). This unit contains one or more PCEs and is essential because it maintains habitat for the northernmost extent of the distribution of the Santa Ana sucker. The unit enhances the long-term viability of the sucker by maintaining its genetic adaptive potential and a well-distributed geographical range to buffer the sucker’s particular vulnerability to environmental fluctuations and catastrophe (Moyle, 2002).

Figure 4 (located at the end of this report) identifies critical habitat for the Santa Ana sucker in the project area.

Primary constituent elements (PCEs) are those physical and biological features of a landscape that a species needs to survive and reproduce. Each species has a unique set of PCEs related to the natural history of the organism. PCEs for the Santa Ana sucker include:

- A functioning hydrologic system that experiences peaks and ebbs in the water volume reflecting seasonal variation in precipitation throughout the year;
- A mosaic of loose sand, gravel, cobble, and boulder substrates in a series of riffles, runs, pools, and shallow sandy stream margins;
- Water depths greater than 3 cm (1.2 in) and bottom water velocities greater than 0.03 m per second (0.01 ft per second);
- Non-turbid water or only seasonally turbid water;
- Water temperatures less than 30 °C (86 °F); and
- Stream habitat that includes algae, aquatic emergent vegetation, macro-invertebrates, and riparian vegetation (USFWS, 2005b).
Critical Habitat. Designated critical habitat for the Santa Ana sucker occurs in Big Tujunga Canyon (Unit 3), and Unit 2 occurs below the Cogswell Reservoir on the West Fork of the San Gabriel River (Figure 4; USFWS, 2005b). Project activities would not affect PCEs within proposed or designated critical habitat for this species.

Direct Effects: Construction access to the Project would occur along a paved section of road that parallels and crosses the West Fork San Gabriel River from Highway 39 to Cogswell Dam (see further details under Santa Ana Sucker Direct Effects). Use of this access road could result in accidental spills and increased turbidity due to vehicles using wet crossings. Mud from vehicles working on off-road sections may be transported into the creek at road crossings and result in micro plumes of heavily silt-laden waters, thus locally decreasing water quality. Water quality could be further affected by toxic chemicals from spillage and runoff of engine fuels (e.g., gasoline and diesel), motor oil, hydraulic fluid, and various other oils, greases, and solvents. Implementation of Mitigation Measure B-12 (Implement avoidance and minimization measures for Santa Ana sucker and other aquatic organisms) will minimize or avoid the direct effects to water quality by placing plates or other approved structures across Arizona crossings or culverts to prevent direct vehicle contact with water and by staging Hazardous Materials Spill Kits at accessible locations along the West Fork Cogswell Road.

Indirect Effects: Sediment transport from upslope areas subject to grading and earth movement to water supporting Santa Ana suckers could result in the degradation of water quality. Data from the GIS-Based Erosion & Sediment Analysis Report (Appendix A of the Hydrology and Water Quality Specialist Report for the TRTP; Aspen, 2008a) conducted for this Project (see Section 2.6) indicate with BMPs approximately 843 tons of sediment per year over baseline would be deposited at Big Tujunga Creek below Clear Creek due to tower construction and road improvements upslope of this area. This amount of sedimentation constitutes an increase of 1.9 percent over baseline (44,165 tons/year at this location). Data indicate that with BMPs approximately 577 tons of sediment per year over baseline would be deposited at Butterfield Canyon and the West Fork San Gabriel River due to road improvements upslope of this area. Under baseline conditions, 45,666 tons of sediment was modeled as being deposited annually at this location. This total amounts to an increase of approximately 1.2 percent, which, as described above and in Section 2.6, is within the natural variation of any given rain year. Although sedimentation can occur indirectly as a result of Project implementation, the effects are expected to be very low to negligible.

Determination: It is my determination that the Proposed Action may affect, but is not likely to adversely affect Santa Ana sucker critical habitat on NFS lands. It is my determination that the Proposed Action would have no effect on Santa Ana sucker critical habitat on USACE lands and private lands, as this species does not occur on these lands in the project area.

Rationale:

- In the vicinity of the Proposed Action, Santa Ana suckers are found in Big Tujunga Creek, the West Fork San Gabriel River, and main stem San Gabriel River. Sedimentation resulting from project implementation that could reach these water bodies is considered negligible.
- Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.
- Hazardous spill kits will be available near the West Fork San Gabriel River (i.e., Rincon Station, Cogswell Dam) throughout Project construction.
- West Fork Cogswell Road will only be used during Project construction.
BIOLOGICAL ASSESSMENT
TEHACHAPI RENEWABLE TRANSMISSION PROJECT

- Project will remove and limit the spread of nonnative and invasive plant species.
- No change in water temperature, flow, or chemistry is expected from Project implementation for Big Tujunga Creek, West Fork San Gabriel River, and main stem San Gabriel River.
- No loitering, maintenance, refueling, or equipment staging shall occur on the West Fork Cogswell road.
- Monitors will inspect the West Fork Cogswell Road three times per day from October 1 to April 30 and once per day from May 1 to September 30.

**Unarmored Threespine Stickleback (Gasterosteus aculeatus williamsoni). Federal Status: Endangered; State Status: Endangered; CDFG: Fully Protected; USFS Sensitive.** The unarmored threespine stickleback was listed as endangered on October 13, 1970 (35 FR 16047). Historically widespread and abundant in the Los Angeles basin, it is now restricted to three areas in the upper Santa Clara River watershed: an eight mile stretch of Soledad Canyon, a portion of upper San Francisquito Canyon, and in Escondido Canyon (a tributary of Agua Dulce Canyon) (Swift et al., 1993). All of these populations are within or near the Angeles National Forest. A recovery plan exists for this species (USFWS, 1985) and a recovery team is in place that coordinates conservation activities. The Soledad Canyon unarmored threespine stickleback habitat was monitored annually from 1978 to 1985 and from 1989 to 2001 and appeared to be a stable population. A recent (2007) record for this species occurs in the Santa Clara River in Soledad Canyon, from Lang Canyon to Arrastre Canyon (CNDDB, 2009). This occurrence is within the range of the Soledad Canyon population. This population is prevented from further upstream colonization by the presence of a waterfall. The creek in this area is also undergoing restoration (CNDDB, 2009).

A genetically distinct form of unarmored threespine stickleback, coined the Shay Creek stickleback, occurs up in the eastern San Bernardino Mountains in Baldwin Lake and its main tributary, Shay Creek (Haglund and Buth, 1988). This stickleback is highly imperiled; Baldwin Lake is ephemeral thus Shay Creek is the primary refugia for the fish. However, Shay Creek is predominantly on private land and extraction of groundwater in this basin has reduced the availability of surface water in the creek. The one remaining population within Shay Creek exists in a small pool that must have water artificially pumped into it. A transplant population from Shay Creek has become established on the San Bernardino National Forest in a man-made pond in Sugarloaf Meadows. The Shay Creek stickleback is vulnerable to extinction and efforts are needed to establish additional populations.

Within the Central Region of TRTP, the Station Fire of 2009 burnt the watersheds on the South side of the Santa Clara River. Anticipated effects due to the Station Fire are defined in Section 3.1.4.

**Habitat Status**

Unarmored threespine sticklebacks live in slow-moving streams and shallow pools containing abundant algae and other aquatic plants. Areas that they occur in are Soledad Canyon, a portion of the upper Santa Clara River, and in San Francisquito Canyon. This species was once found in the Los Angeles, San Gabriel, Santa Ana, and Santa Clara Rivers, but habitat destruction and hybridization with armored subspecies of the stickleback has resulted in a reduction in range and abundance. In spring, males build a nest of algae and display an elaborate courtship behavior. Females will then deposit eggs in the nest. The male fertilizes the eggs and remains with them, guarding and ventilating the eggs until they hatch.

Unarmored threespine stickleback populations on NFS lands are threatened by disease, vehicle access and resultant sedimentation and turbidity in occupied habitat, water diversion, toxic chemicals, and invasive species.
Unarmored Threespine Stickleback Critical Habitat

Critical habitat was proposed for the unarmored threespine stickleback on November 17, 1980 (45 FR 76012). On September 17, 2002, the USFWS published a finding that the designation of critical habitat should not be made for this species (67 FR 58580).

Survey Results

Unarmored threespine sticklebacks were not detected during reconnaissance surveys conducted in 2007 and 2008 for the TRTP, and this species is not known to occur near the project area. The only known occurrences are in the Santa Clara River system (Swift et al., 1993).

Direct Effects: The unarmored threespine stickleback is currently limited to the upper Santa Clara River area primarily between the community of Fillmore and Bouquet Creek which is located several miles from the Proposed Action alignment (Moyle, 2002). However, this species also occurs in the Santa Clara River in Soledad Canyon in the vicinity of Arrastre Canyon, approximately six miles downstream of the nearest portion of the Project. Direct effects to this species from the Proposed Action are not likely to occur as this species does not occur in the project area.

Indirect Effects: Indirect effects to this species from the Proposed Action are not likely to occur as this species does not occur in the project area. Although the project area crosses tributary drainages of the Santa Clara River, including Aliso Creek and other unnamed drainages, there is limited potential for off-site sediment transport to indirectly affect this species downstream of the project area. Data from the GIS-Based Erosion & Sediment Analysis Report (Appendix A of the Hydrology and Water Quality Specialist Report for the TRTP; Aspen, 2008a) conducted for this Project indicate that the downstream contribution of sediments to the upper Santa Clara watershed, which remains dry most of the year, would be minimal (see Section 2.6). That is, with BMPs in place, the total maximum annual sedimentation in tons per year would contribute approximately 3.4 percent above baseline tonnage over any given storm event at Aliso Canyon and the Santa Clara River and 1.7 percent at Kentucky Springs and the Santa Clara River. This total is well within the natural variation that occurs within any given year and would not result in a large contribution of sediment or result in levels of turbidity substantially above those currently caused by natural storm events. In addition, where the Project crosses Aliso Canyon and Kentucky Springs are approximately 6.5 and 6 miles upstream from the area where this species is known to occur in Soledad Canyon. An important consideration regarding potential effects to this species is the contribution of sediment from other watersheds not considered in the analysis for this Project. For example, the total contribution of sediment that would be discharged at Aliso Canyon or Kentucky Springs as a result of the Proposed Action does not take into account the total amount of sediment that the numerous other creeks and tributary drainages with expansive watersheds contribute to the Santa Clara River watershed during storm events.

The unarmored threespine stickleback occurs 6 miles downstream of the project area and the implementation of BMPs would avoid indirect effects to this species.

Cumulative Effects: The unarmored threespine stickleback does not occur in the project area. Therefore, cumulative effects would not occur.

Determination: It is my determination that implementation of the Proposed Action will not affect the unarmored threespine stickleback on NFS lands, USACE lands, and private lands.
Rationale:

- No unarmored threespine stickleback occur within the project area.
- Erosion resulting from implementation is considered negligible. Hence, no sedimentation would reach the downstream area where unarmored threespine stickleback occur.
- Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.
- No change in water temperature, flow, or chemistry is expected from Project implementation for the Santa Clara River.

Implementation of the Proposed Action would not lead to a change in population size of unarmored threespine stickleback or result in a loss of viability.

**Threatened and Endangered Amphibians**

Amphibians have been declining worldwide. Because of their complex life cycles, amphibians require both terrestrial and aquatic environments, and because they breathe and absorb substances through their semi-permeable skin, amphibians are especially vulnerable to environmental contaminants in both of these environments. They are therefore often touted as indicators of environmental health. Several leading causes of decline that are dominant and relevant to Southern California include habitat loss and degradation, predation and competition from exotic species, anomalous weather patterns, and emerging infectious disease (chytrid fungus; Blaustein and Wake, 1990; Stebbins and Cohen, 1997). Alone or in combination, these processes play a role in the decline and loss of amphibian populations in Southern California (Hayes and Jennings, 1986; Knapp et al., 2007; Morgan et al., 2007). There is the potential for three listed amphibian species to occur within the project analysis area.

**Arroyo Toad (Bufo (microscaphus) californicus = Anaxyrus californicus). Federal Status: Endangered; State Status: Species of Special Concern.**

The arroyo southwestern toad was listed as endangered on December 16, 1994 by the USFWS (59 FR 64859). Based on the work completed by Gergis, this species was designated from a subspecies, *Bufo microscaphus californicus*, to a full species, *Bufo californicus*. The scientific community renamed this species *Anaxyrus californicus* in 2006 (Frost et al., 2006; Crother, 2008).

This species historically ranged from southwestern California into northwestern Baja California. The current range is limited to 22 drainages in the coastal and desert areas of nine counties along the southern coast of California (USFWS, 1998). At least 75 percent of the historic range of the arroyo toad in California no longer supports these animals (Jennings and Hayes, 1994).

Surveys conducted from 1996 to 2001 by the Forest Service found arroyo toads in Little Rock Canyon, Upper Big Tujunga Canyon, Alder Creek, and Castaic Creek (Forest Records). The survey method was the US Fish and Wildlife Service protocol with a minimum of three surveys to determine presence or absence. Piru Creek and Castaic Creek support populations of arroyo toads (CNDDDB, 2009).

Surveys were conducted in August 1992 in the Lower Arroyo Seco drainage by the California Department of Fish and Game, but no toads were discovered. Arroyo toads were heard within the Arroyo Seco drainage on June 10, 1999 from Oak Grove Park, but no visual evidence surveys occurred (P. Krueger, Pers. Obs., 1999). In 2001, surveys for arroyo toads in 4 miles of the Arroyo Seco occurred, yet no arroyo toads were documented (US Geological Survey and Forest Records).

Presence/absence surveys were conducted in 1999 in San Francisquito Canyon. No toads were found (Forest Records). Surveys for arroyo toads in 2000 were completed in Big Rock Creek, Lower Big Tujunga Canyon, Mill Creek, North Fork San Gabriel River, Pacoima Creek, San Francisquito Creek, and San Gabriel OHV Area. No toads were observed (Forest Records). Presence/absence surveys were conducted in 1999 in San Francisquito Canyon. No toads were found (Forest Records). Surveys for arroyo toads in 2000 were completed in Big Rock Creek, Lower Big Tujunga Canyon, Mill Creek, North Fork San Gabriel River, Pacoima Creek, San Francisquito Creek, and San Gabriel OHV Area. No toads were observed (Forest Records).

The Station Fire in 2009 potentially affected the entire population of arroyo toad within the project area. Anticipated effects due to fire are documented in Section 3.1.4.

**Habitat Status**

The arroyo southwestern toad is restricted to fairly low gradient (<10%) rivers that have shallow, gravelly pools adjacent to sandy terraces (C. Brown, 1993) with willows, cottonwoods, and sycamores (Campbell et al., 1996; Stebbins, 1985; Zeiner et al., 1988). Habitat used includes valley-foothill and desert riparian as well as a variety of more arid habitats including desert wash, palm oasis, Joshua tree, mixed chaparral, and sagebrush (Zeiner et al., 1988).

Adults require overflow pools adjacent to the inflow channel of streams that are generally 3rd order or greater and generally free of predators. They prefer areas of the stream which are terraced and sandy and have shallow pools or slow-moving water with sandy or gravelly substrates surrounded by little woody vegetation. Regular disturbance in the form of flooding is required to maintain areas of sparsely vegetated, sandy stream channels and terraces, which are used by adults and subadults for foraging and burrowing (USFWS, 2001). Outside the breeding season, arroyo toads range more widely using habitats in both upland (to a distance of at least 3,740 feet from the upland-riparian ecotone) and riparian areas (Holland and Sisk, 2001). Upland habitats used by arroyo toads include coastal sage scrub, chaparral, oak woodland, grassland, riparian, and agricultural habitats (Griffin and Case, 2001; USFWS, 2001).

From late March through mid-June, arroyo toads may appear nightly, emerging 30-40 minutes after sunset and remain active until the temperature drops below 13 degrees Celsius (Sweet, 1992). However, toads may be observed at night throughout the year provided weather conditions are favorable (i.e., moderate temperatures, precipitation). Newly metamorphosed toads are active during the day hours and can tolerate much higher temperatures than can adults (Zeiner et al., 1988). Adult toads excavate shallow burrows on the terraces where they shelter during the day when the surface is damp or during longer intervals in the dry season (C. Brown, 1993). Adults feed on snails, Jerusalem crickets, beetles, caterpillars, moths, and occasionally cannibalize newly metamorphosed individuals (Zeiner et al., 1988). These toads usually feed during the night, but may occasionally feed during the day (Zeiner et al., 1988). Individuals walk instead of hop when foraging for food.

In Camp Pendleton, adults are primarily nocturnal and usually active between the first major rains in January and February to early August (Cunningham, 1962). However, adults and metamorphs have been
observed during daylight hours on cool moist stream terraces. Males emerge from the stream terrace over-wintering sites before females and migrate to breeding pools where they call nightly from February or March through July (Holland and Goodman, 1998). Migrations continue through July (Holland and Goodman, 1998).

Breeding season is primarily from March to July, but sometimes into September (C. Brown, 1993; Stebbins, 1985; Zeiner et al., 1988). Eggs are laid from March to early July in tangled strings in the thousands and larvae develop in quiet parts of clear streams or shallow pools with sand or pea gravel substrate overlain with floculent silt, with minimal current and little or no emergent vegetation (C. Brown, 1993; Zeiner et al., 1988). Eggs hatch in 4-6 days at water temperatures of 12-16 degrees Celsius. The larval period lasts from 65-85 days (Sweet, 1992). Larvae are excellent swimmers, and once mobile, distribute themselves randomly or evenly along the shallow bottom of the breeding pool (Sweet, 1992). The toad larvae feed by sifting the substrate for organic detritus, interstitial algae, bacteria, and diatoms (Campbell et al., 1996). After metamorphosis (June-September), the juvenile toads remain on bordering gravel bars until the pool no longer persists (3 to 8 weeks, depending on site and year) (C. Brown, 1993). The young toads are diurnal for the first 4 to 5 weeks and feed primarily on ants. After this time the toads become nocturnal, feeding on small beetles. Juvenile toads seek refuge in small, loose, sandy ridges where they bury themselves 2 to 5 cm deep by day (Sweet, 1992). As juveniles reach 8 to 9 weeks, they disperse away from streamside habitat into nearby willows or other vegetation, marking a distinct shift in behavior and the beginning of subadulthood (Sweet, 1992). Juvenile toads reach 30 to 40 mm by the fall of their natal year and do not grow again until the following spring (Campbell et al., 1996).

Threats to the species include short- and long-term changes in the river hydrology, including construction of dams and water diversions; alterations of riparian wetland habitats by agricultural and urbanization; construction of roads; site-specific damage by off-highway vehicle use; development of campgrounds and other recreational activities; over-grazing; introduction of predatory exotic species; and mining activities (C. Brown, 1993; Campbell et al., 1996).

Jennings and Hayes (1994) stated that the arroyo toad has been extirpated from 76 percent of its total historic range in the United States (which is limited to California). They cite loss of habitat to agriculture and urbanization, changes to the hydrological regime in streams and rivers within their historic range, and predation from introduced aquatic species as significant factors in the decline of the arroyo toad. Those and other factors, such as human use and disturbance in and near aquatic habitats (e.g., campgrounds, off-road vehicle use), placer mining, and cattle grazing are threats to remaining populations (Jennings and Hayes, 1994). Additionally, fire and drought have produced severe declines in populations that are already stressed (Jennings and Hayes, 1994).

Small populations may, as a result of being geographically isolated, be particularly vulnerable to local extirpation due to stochastic events such as fire, drought, or flash floods with a reduced potential for recolonization (Campbell et al., 1996).

Fish native to drainages with arroyo toads do not seem to be significant predators of arroyo toad larvae (Sweet, 1992). Predation and trampling are believed to be primary mortality factors affecting newly metamorphosed and juvenile toads (Sweet, 1992). Birds, especially the killdeer (Charadrius vociferus) are suspected of occasionally significant predation on young arroyo toads. Other potential predators include two-striped garter snakes (Thamnophis hammondii), green-backed herons (Butorides striatus),
great blue herons (*Ardea herodias*), western pond turtles (*Clemmys marmorata*), raccoons (*Procyon lotor*), opossum (*Didelphus virginiana*), introduced bullfrogs (*Lithobates catesbeianus*), introduced fish, and a large native aquatic hemipteran (*Abedus indentatus*) (Campbell et al., 1996; Sweet, 1992).

Table 14 contains the total amount of arroyo toad habitat modeled by the Forest Service (USDA, unpublished data) that is present in the project area, and the estimated amount of modeled habitat that would be impacted by Project implementation. Not all modeled habitat is occupied by this species, and suitability for the arroyo toad may vary based on topographical features, presence of water, vegetation structure and composition, etc. Thus, modeled habitat likely represents an overestimate of suitable habitat for the arroyo toad in the project area. Estimated impacts to potential habitat were calculated using GIS data provided by SCE, and may not include all of the expected or potential disturbance from staging areas and other areas of potential disturbance that will be identified during final engineering.

<table>
<thead>
<tr>
<th>Table 14. Arroyo Toad Habitat within the Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modeled habitat in project area</td>
</tr>
<tr>
<td>Disturbance in acres to modeled habitat</td>
</tr>
</tbody>
</table>

**Survey Results**

Habitat assessments were conducted over multiple years (2007, 2008, and 2009) at several locations, as illustrated in Appendix B. However, every location where a road crossed an ephemeral, intermittent, or perennial drainage on the ANF was evaluated multiple times during the development of the Riparian Conservation Area Assessment for the proposed Project. During these evaluations, the potential for the presence of special-status species, including the arroyo toad, was assessed. Therefore, the entire area of potential impacts for the proposed Project has been evaluated for the presence of this species, and focused and protocol surveys were conducted only where habitat was determined to be capable of supporting this species. Potential habitat for the arroyo toad was not found outside of the Angeles National Forest in the Action area.

Surveys conducted for the proposed Project identified an individual toad on the Alder Creek access road in 2007. Another individual was observed on the Lynx Gulch access road (FS route 4N18) in 2008, and during the same year FS biologists found a dead arroyo toad on the Lynx Gulch access road at the intersection with the paved Upper Big Tujunga Road. This species was not detected during protocol surveys at Kentucky Springs in 2008 or 2009 or Aliso Canyon in 2009.

This species has been detected in Alder Creek, Mill Creek, Upper Big Tujunga Creek, and Lynx Gulch, and suitable habitat is present in several other unnamed drainages within the ANF including Monte Cristo Creek, portions of Mill and Alder Creeks, and upper Big Tujunga Creek.

**Direct Effects:** The arroyo toad is known to occur in the Central region of the Proposed Action at Alder Creek, Lynx Gulch, and Big Tujunga Creek and has the potential to occur at several additional locations within the ANF including Monte Cristo Creek, Aliso Canyon, and Kentucky Springs. This species is not known to occur on non-NFS lands in the project area. See Table 15 for detailed locations where arroyo toads could be affected on this Project.
### Table 15. Road locations within Arroyo Toad Habitat (Known and Modeled)

<table>
<thead>
<tr>
<th>Road</th>
<th>Section</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortcut Road (SCE Road)</td>
<td>From Shortcut Station to tower locations.</td>
<td>Low chance of arroyo toad occurring on the roadway or in the adjacent berms as no arroyo toads have been documented within the area, or within this section of Upper Big Tujunga Creek. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td></td>
<td>Maintenance and driving. Road crosses side streams that flow into Upper Big Tujunga Creek.</td>
<td></td>
</tr>
<tr>
<td>SCE Maintenance Road North of Upper Big Tujunga Road (Powerline Road 3N20)</td>
<td>Entirety. Maintenance and driving. Road is heavily compacted and goes from a side drainage stream to ½ mile away from Upper Big Tujunga Creek.</td>
<td>Low chance of arroyo toad occurring on the roadway or in the adjacent berms as no arroyo toads have been documented in this area, or within this section of Upper Big Tujunga Creek. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td>Alder Creek Road (SCE Permitted Road)</td>
<td>Lower Section. Maintenance and driving. This section parallels Alder Creek but is well outside of the high water mark.</td>
<td>Chance of arroyo toad occurring on the roadway or in the adjacent berms. Road is heavily compacted. Surveys have been conducted as part of this project. One arroyo toad found on this road in 2007. Estimated duration of construction use of the entire Alder Creek Road is 57 days, with an estimated total of 266 vehicle trips.</td>
</tr>
<tr>
<td></td>
<td>East of Alder Creek to Shortcut Station.</td>
<td>Very low chance of arroyo toad occurring on the roadway. Arroyo toads have not been found more than ¼ mile east of Alder Creek. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td></td>
<td>Road is paved and is above the high water mark. Driving only. Management under permit to LACO Dept. Public Works.</td>
<td></td>
</tr>
<tr>
<td>Upper Big Tujunga Road (3N19)</td>
<td>Lynx Gulch to Alder Creek. Road is above the high water mark and is paved. Driving only. Management under permit to LACO Dept. Public Works.</td>
<td>Chance of toad occurring on roadway. Arroyo toads could be found in the culverts under the road that are not impacted by this project. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td>Upper Big Tujunga Road (3N19)</td>
<td>West of Lynx Gulch Road. Road is paved and above the high water mark. Driving only. Management under permit to LACO Dept. Public Works.</td>
<td>Low chance of the arroyo toad occurring on the roadway since no toads have been found in the Upper Big Tujunga Creek beyond Colby Ranch Road (3N24). Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td>Upper Big Tujunga Road (3N19)</td>
<td>Creek Crossing at Mill Creek. Road is a paved bridge and abuts the high water mark. Driving only. Management under permit to LACO Dept. Public Works.</td>
<td>Low chance of the arroyo toad occurring on the roadway since no toads have been documented in this drainage since 1991. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td>Lynx Gulch Road (4N18)</td>
<td>From the Lynx Gulch trail to Upper Big Tujunga Road. Maintenance and driving.</td>
<td>Chance of arroyo toad occurring on the roadway. An arroyo toad was found near the Lynx Gulch Trailhead on the road. A dead arroyo toad was found near the entrance of Lynx Gulch from Upper Big Tujunga Road. There is a semi-permanent wet road crossing and a permanent wet road crossing, both of which would have a low potential to support breeding toads. Surveys have been conducted as part of this project. Estimated duration of construction use of this section of Lynx Gulch Road is 53 days, with an estimated total of 290 vehicle trips.</td>
</tr>
<tr>
<td>Lynx Gulch Road (4N18)</td>
<td>From Lynx Gulch trail to Mill Creek Summit. Maintenance and driving. Road is heavily compacted and ranges from ¼ mile to over a mile away from the stream bed.</td>
<td>Low chance of arroyo toad occurring on the roadway as no arroyo toads have been documented in this area. Surveys have been conducted as part of this project.</td>
</tr>
</tbody>
</table>
Table 15. Road locations within Arroyo Toad Habitat (Known and Modeled)

<table>
<thead>
<tr>
<th>Road</th>
<th>Section</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monte Cristo Road</td>
<td>From Angeles Forest Highway to Lynx Gulch Road. Maintenance and driving. Road is heavily compacted in some areas, and highly irregularly compacted within the stream bed and flowing channel area.</td>
<td>Chance of arroyo toad occurring in the roadway. Road parallels Monte Cristo Creek and is within the stream bed and flowing channel in multiple places. Last arroyo toad identified in 1991 at Monte Cristo Campground. Surveys have been conducted as part of this project. Use of this road is not anticipated during construction, but it may be used occasionally during maintenance and operations.</td>
</tr>
<tr>
<td>Aliso Canyon Road</td>
<td>Near crossing with Aliso Creek. Road is paved. Associated roads are compacted. Helicopter landing site is to be cleared and compacted for use.</td>
<td>Low chance of arroyo toad occurring on the roadway or associated roads around Aliso Creek as no arroyo toads have been documented within the area. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td>Angeles Forest Highway</td>
<td>Area that parallels Kentucky Springs. Driving. Associated dirt roads are compacted and would be subject to maintenance and driving.</td>
<td>Low chance of arroyo toad occurring on the roadway or associated roads around Kentucky Springs as no arroyo toads have been documented within the area. Surveys have been conducted as part of this project.</td>
</tr>
<tr>
<td>Fall Creek Road</td>
<td>From 3N17 to Big Tujunga Road. Reconstruction, maintenance, and driving.</td>
<td>Low chance of arroyo toad occurring on the roadway or associated roads as no arroyo toads have been documented within the area. Surveys have been conducted as part of this project.</td>
</tr>
</tbody>
</table>

Arroyo toads utilize aquatic habitats for breeding and rearing; however, this species spends the majority of its life cycle well away from aquatic habitat for foraging, dispersal, and aestivation (Cadre Environmental, 2002). Arroyo toads are small, cryptic, and easily subject to mechanical crushing by humans and construction equipment. Because of the cryptic nature of this species and its distribution in areas that would support construction activities and vehicle traffic, arroyo toads present in the ANF could be subject to injury or mortality especially where access roads run adjacent to riparian areas and within one mile of known toad habitat such as Alder Creek, Lynx Gulch, and Big Tujunga Creek.

Direct effects include the loss or disruption of breeding or rearing pools, temporary disruption of foraging or thermoregulation sites, and the disruption of egg masses. Vehicle traffic through areas supporting arroyo toads during the breeding season may result in the loss of individual toads, egg masses, or larval animals. Recruitment of metamorphic arroyo toads may occur in only a small section of the stream, even if breeding activity has been more widely distributed. Observations on the Los Padres National Forest (Sweet, 1992) and on other sites in Orange and San Diego Counties indicate that even brief human activities may result in mortality of metamorphic toads. This is usually not a deliberate act; the cryptic nature, very small size (<20 mm) and immobility (when on the surface) of metamorphic toads foster accidental trampling. To avoid or minimize this effect, travel during rain events or nighttime during peak breeding season in occupied areas would be avoided or heavily restricted (Mitigation Measures H-1b and B-9).

Breeding behavior could also be disrupted due to construction noise, human disturbance, and vehicle lighting. This disturbance would be associated with the temporary removal of vegetation, grading of new and existing access and spur roads, excavation of tower footings, diversion of water flow (if required for road crossing upgrades), and preparation and use of stringing and pulling locations and staging areas. Mitigation Measure B-9 requires vegetation removal and grading to occur outside of the activity period for arroyo toad to minimize effects to this species.

Because this species is largely nocturnal, impacts from vehicle use at dawn, dusk, and during the evening could result in mortality because this species is known to traverse roads between riparian and upland...
habitats, especially during rain events. However, large numbers of animals, both adults and juveniles, may be active at night during the spring and early summer under otherwise dry conditions. On some occasions, this species has been observed during daylight hours on moist sandy terraces. During active periods, toads may move onto and across roads, where they are subject to road kill by passing vehicles. Observations on Camp Pendleton in 1996-1998 indicate that this is a significant source of mortality; an estimated minimum of 100 to 200 toads per year are killed by traffic (USFWS, 1999). Road kill has been noted to be a problem in other areas as well (Sweet, 1992) and an arroyo toad was found crushed along the Lynx Gulch access road by FS biologists in 2008 (Forest Records). Mitigation Measure B-9 reduces nighttime travel in occupied arroyo toad areas to minimize effects to arroyo toads.

Populations occurring in Lynx Gulch and Alder Creek have not been extensively studied and no information exists on the size of these populations. Some mortality of arroyo toad is likely during construction of the Proposed Action even with the implementation of avoidance and minimization measures. However, direct effects to arroyo toads would be avoided and minimized through a series of measures that include, but are not limited to, avoiding grading roads in occupied habitat during the activity period for arroyo toads; limiting work in aquatic areas during the breeding period when toads may be present in the work area; restricting work in ponded or flowing water; limiting the use of roads during periods of rainfall and at night in occupied habitat; completing focused preconstruction surveys of work areas to locate and avoid toads; and construction monitoring by authorized biologists. In addition, areas subject to temporary project disturbance will be restored after the completion of construction. Due to the Station Fire of 2009, an unknown amount of road maintenance would occur based upon dry ravel and debris torrents. Therefore, there may be an increase in road maintenance associated with this Project.

Improvement of access roads, construction of spur roads, and construction of helicopter staging areas would result in the loss of approximately 16 acres of USDA Forest Service modeled arroyo toad habitat on the ANF. This amounts to approximately 3.2 percent of the modeled arroyo toad habitat in the project area. However, much of this acreage is upland habitat and consists of helicopter staging areas or pulling sites, which would be restored after Project construction. Therefore, loss of habitat would be temporary.

The use of herbicides to control non-native and invasive vegetation could also result in direct effects to arroyo toads. There are several exposure scenarios possible for herbicides and wildlife. These include: direct spray and overspray, contact through grooming or with affected vegetation, and ingestion of contaminated prey species and water. However, leaks, spills, and improper storage and handling of herbicides are the source of most herbicide-related contamination. Herbicides containing added surfactants are particularly dangerous for aquatic species. Surfactants are materials added to enhance the ability of the herbicide to adhere to the treated surface and have been shown to adversely affect aquatic life, including fish and amphibians. Amphibians may be particularly susceptible (Relyea, 2005), as they are often aquatic and readily absorb compounds through their skin. In addition, amphibians are particularly vulnerable to environmental contaminants because they have semi-permeable skin which absorbs materials from both the terrestrial and aquatic environments in which they live. Due to the inverse relationship of body weight to surface area, when small animals are exposed to pesticides they will generally receive a higher dose, in terms of body weight, than large animals will receive for a given type of exposure (Durkin, 2007). On NFS lands, direct effects to arroyo toads from herbicide application would be minimized or avoided through the implementation of Mitigation Measure B-3a. This measure limits the use of herbicides in areas supporting sensitive species, requires only water-safe herbicides be applied in riparian areas, restricts the application of herbicides during high winds or rain events, and requires that only licensed herbicide applicators implement the measure. In addition, pre-construction surveys and monitoring of
vegetation removal activities would further reduce potential effects to this species. Potential effects would be further avoided by the proper storage and disposal of herbicides. With the implementation of these measures the risk from an accidental spill of herbicide into a water body on the ANF is considered low.

Measures that would reduce direct effects to arroyo toad and its habitat during construction include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and Implement a Weed Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), Mitigation Measure H-1b (Dry weather construction), Mitigation Measure B-9 (Conduct protocol surveys for arroyo toads and implement avoidance measures in occupied areas), Mitigation Measure B-8b (Conduct biological monitoring), and Mitigation Measure AQ-1a (Implement dust control measures).

**Indirect Effects:** Indirect effects to this species from project activities may be caused by the diversion or modification of water flows and increased downstream sediment transport from the use of access roads that cross habitat occupied by this species. Water quality effects may occur from the proposed upgrades to stream crossings that are required to support construction access. The removal of vegetation from these crossings or in upslope areas may result in the deposition of sediment in areas supporting this species after major storm events without the implementation of BMPs. Off site sediment transport from road grading to areas supporting this species could occur on a local level without the implementation of BMPs. However, data from the *GIS-Based Erosion & Sediment Analysis Report* (Appendix A of the Hydrology and Water Quality Specialist Report for the TRTP; Aspen, 2008a) indicate that, with BMPs, the increase in sediment over baseline would range from 0.3 percent at Alder Creek above Big Tujunga to 4.7 percent at the North fork of Mill Creek. This data indicates that downstream contribution of sediment caused by the Project to areas supporting this species is minimal and within the natural variation that occurs within any given storm event.

Construction of the proposed Project may result in the establishment or spread of nonnative and invasive plants within arroyo toad habitat. Non-native and invasive plants quickly colonize recently disturbed soils and remain an ongoing concern on NFS lands (USDA, 2005). Other indirect effects could result from fuel, lubricant, or concrete spills near water, which could be mobilized into the water by a subsequent storm event. However, with the implementation of BMPs and inspecting equipment for leaks, these effects would be avoided or minimized. Human activities during construction can indirectly affect arroyo toads by increased noise or by attracting predators such as the common raven and coyote from trash and litter (Boarman, 2002).

The effects of corona noise on amphibians are not well understood, therefore, it is unknown whether corona noise from the new lines could interfere with the detection of predators or affect breeding by interfering with the high-pitched call arroyo toads depend on to attract females. Existing transmission lines already occur in the project area and noise levels associated with corona effects are not known to affect arroyo toads.

Indirect effects to arroyo toads would include soil compaction. Vehicle use on road edges may entrap animals that burrowed into friable soils along existing road berms or reduce native ant populations. While road grading and other construction activities could remove prey species such as native ants from portions of the project area, this effect would be localized and ant populations would be expected to re-colonize...
disturbed road areas. In addition, available foraging habitat within and outside of the project area is extensive, and Project activities would not appreciably interfere with access to food sources.

Indirect effects from herbicide use to arroyo toad prey base are not expected to occur. Lindsay and French (2004) did not identify any significant direct or indirect effects on leaf litter invertebrate abundance or community composition in the four months following glyphosate application. Sullivan and Sullivan (2003) reviewed literature on glyphosate and concluded the diversity of terrestrial invertebrates in glyphosate-treated areas is variable and that abundance and diversity of invertebrates in a treated area is primarily a function of the degree of vegetation control and changes in vegetation structure. Therefore, with the implementation of Mitigation Measure B-3a, following the proper application of herbicide treatment, an available prey base should continue to exist to support the arroyo toad.

Indirect effects to arroyo toads would be avoided and minimized through a series of actions. These measures include, but are not limited to, the implementation of BMPs to control off-site sediment transport and provide for the routine clean-up and removal of fuel or chemical leaks; worker training that educates staff to maintain work areas free from litter or debris; implementation of a weed control plan; and restoration of disturbed areas. Specific Mitigation Measures that would reduce indirect effects to arroyo toad include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and Mitigation Measure H-1b (Dry weather construction).

**Cumulative Effects:** Non-federal projects are not known to be proposed in the TRTP project area that encompasses arroyo toad habitat. Therefore, cumulative effects are not anticipated.

**Determination:** It is my determination that construction activities of the Proposed Action may affect, and are likely to adversely affect arroyo toads on NFS lands. It is my determination that the Proposed Action would have no effect on arroyo toads on USACE lands and private lands, as this species does not occur on these lands in the project area.

**Rationale:**

- Arroyo toad individuals could be crushed or buried on the roadways through either maintenance or driving on the roadway. Low chance of an egg mass or larvae being disturbed in wet crossings on the Lynx Gulch and Monte Cristo Roads.

- Road maintenance activities and the grading of fly yards and staging areas within the one-mile buffer for arroyo toads will not occur from March to November. An exception to this restriction may occur if the Forest Service determines that increased road maintenance or reconstruction would need to occur based upon dry ravel or debris torrents resulting from the Station Fire of 2009.

- Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.

- Project will remove and limit the spread of nonnative and invasive plant species.

- No change in water temperature, flow, or chemistry is expected from Project implementation for Big Tujunga Creek, Upper Big Tujunga Creek, Alder Creek, Lynx Gulch, Aliso Creek, or Kentucky Springs Creek.

- Change in water temperature, flow, and/or chemistry could occur from Project implementation on Monte Cristo Creek.

- Erosion resulting from implementation is considered negligible.
• No nighttime construction activities, including driving, will occur during the arroyo toad breeding season, unless arroyo toads are found not to occur within the area through protocol-level surveys.
• Maintenance of roadways could temporarily impact arroyo toad foraging by resulting in a disruption of native ants, the arroyo toad’s primary food source.
• Nearly all of the 16 acres of modeled arroyo toad habitat that will be disturbed due to Project implementation will be temporary disturbance and will be restored following construction.
• Area will be monitored for arroyo toads. If an arroyo toad has moved onto the roadway, vehicle access shall be restricted until the arroyo toad has moved off the road or is relocated by a permitted arroyo toad biologist in suitable habitat within ¼ mile of where the toad was found.
• FWS protocol surveys for arroyo toads will be conducted in areas where there is modeled or suitable habitat in which arroyo toads have not been documented.
• Non-native species, such as bullfrogs, crayfish, or cetrarchid fish, will be removed from the project area.
• No stockpiles of materials will occur in areas occupied by arroyo toads.
• All biologists and their assistants will follow the fieldwork code of practice developed by the Declining Amphibian Population Taskforce.

The population dynamics and size of the Upper Big Tujunga population (Alder Creek-Upper Big Tujunga-Lynx Gulch-Mill Creek-Monte Cristo) is unknown. Implementation of the Proposed Action may lead to a change in population size, but it should not affect the viability of the species.

**Arroyo Toad Critical Habitat**

Critical habitat for the arroyo toad was designated on April 13, 2005 (70 FR 19561). There is no currently designated critical habitat within or near the project area.

Revised critical habitat for the arroyo toad was proposed on October 13, 2009 (74 FR 52612).

PCEs are those physical and biological features of a landscape that a species needs to survive and reproduce. Each species has a unique set of PCEs related to the natural history of the organism. PCEs for the arroyo toad are (USFWS 2009c):

1. Rivers or streams with hydrologic regimes that supply water to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads. Breeding pools must persist for a minimum of 2 months for the completion of larval development. However, due to the dynamic nature of southern California riparian systems and flood regimes, the location of suitable breeding pools may vary from year to year. Specifically, the conditions necessary to allow for successful reproduction of arroyo toads are:
   • Breeding pools with areas less than 12 in (30 cm) deep;
   • Areas of flowing water with current velocities less than 1.3 ft per second (40 cm per second); and
   • Surface water that lasts for a minimum of 2 months during the breeding season (a sufficient wet period in the spring months to allow arroyo toad larvae to hatch, mature, and metamorphose).

2. Riparian and adjacent upland habitats, particularly low-gradient (typically less than 6 percent) stream segments and alluvial streamside terraces with sandy or fine gravel substrates that support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding
and rearing of tadpoles and juveniles; and adjacent valley bottomlands that include areas of loose soil where toads can burrow underground, to provide foraging and living areas for juvenile and adult arroyo toads.

(3) A natural flooding regime, or one sufficiently corresponding to natural, characterized by intermittent or near perennial flow that contributes to the persistence of shallow pools into at least mid-summer, and that maintains areas of open, sparsely vegetated, sandy stream channels and terraces by periodically scouring riparian vegetation; and also that modifies stream channels and terraces and redistributes sand and sediment, such that breeding pools and terrace habitats with scattered vegetation are maintained.

(4) Stream channels and adjacent upland habitats that allow for movement to breeding pools, foraging areas, overwintering sites, upstream and downstream dispersal, and connectivity to areas that contain suitable habitat.

The Project traverses proposed revised critical habitat Unit 7, including Mill Creek (Segment 6), Alder Creek (Segment 6) and Big Tujunga Creek (Segments 6 and 11) on the ANF (See Attachment B-5 of Appendix B, Habitat Suitability and Assessment). Proposed Unit 7 contains a total of 1,190 acres, of which 1,113 acres are NFS lands and 77 acres are private lands. Habitat within this unit is proposed because it is currently occupied and contains all of the features essential to the conservation of the arroyo toad (PCEs 1 through 4). Additionally, this unit supports an important high-elevation population of this species, as well as the only significant known remaining population of arroyo toads in the coastal foothills of the San Gabriel Mountains. The PCEs contained within this unit may require special management considerations or protection to minimize threats associated with nonnative predators such as crayfish, bullfrogs, and nonnative plants such as Arundo donax (74 FR 52612).

Direct Effects: The Proposed Action is located within portions of proposed revised critical habitat for this species on NFS and private lands. Construction of the Proposed Action would result in disturbance of approximately 6.4 acres of proposed critical habitat, with a total permanent disturbance of approximately 2.3 acres. This permanent disturbance calculation includes approximately one acre of disturbance associated with the proposed upgrades of the crossing of FS Road 3N27 with Big Tujunga Creek on Segment 11. Construction of the proposed line would replace an existing line and would not appreciably diminish or alter the physical and biological features of the habitat. However, the construction and improvement of access roads would permanently remove some proposed critical habitat. Because the Project would result in the loss of proposed critical habitat in an area that supports a unique high-elevation population of arroyo toad, even with the implementation of minimization measures, the Proposed Action would impact proposed critical habitat for this species.

Indirect Effects: Indirect effects could include the loss of habitat due to the colonization of nonnative and invasive species due to facilitated use of new or improved spur and access roads by the public. However, measures to remove and prevent the establishment of nonnative and invasive plant species would be required in accordance with Mitigation Measure B-3a, and Mitigation Measure B-1a includes the use of temporary or permanent gates, barricades, or other means to control unauthorized vehicle access on access and spur roads as deemed necessary by the FS.

Determination: It is my determination that the Proposed Action will have no effect on arroyo toad critical habitat on NFS lands, USACE lands and private lands, as this species does not occur on these lands in the project area. It is my determination that the Proposed Action would adversely affect proposed revised
critical habitat for the arroyo toad on NFS lands. It is my determination that the Proposed Action will have no effect on proposed revised critical habitat for the arroyo toad on private lands. Proposed revised critical habitat for the arroyo toad does not occur on USACE lands in the project area.

Rationale:

- There is no currently listed critical habitat for arroyo toad within the project area.
- Proposed revised critical habitat is within the project area in the ANF.
- Temporary or permanent gates, barricades, or other means will be used to control unauthorized vehicle access on access and spur roads.
- Implementation of the Proposed Action would result in the disturbance of approximately 6.4 acres (approximately 2.3 acres permanent) of proposed revised critical habitat for the arroyo toad.
- Road maintenance activities and the grading of fly yards and staging areas within the one-mile buffer for arroyo toads will not occur from March to November. An exception to this restriction may occur if the Forest Service determines that increased road maintenance or reconstruction would need to occur based upon dry ravel or debris torrents resulting from the Station Fire of 2009.
- Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.
- Project will remove and limit the spread of nonnative and invasive plant species.
- No change in water temperature, flow, or chemistry is expected from Project implementation for Big Tujunga Creek, Upper Big Tujunga Creek, Alder Creek, Lynx Gulch, Aliso Creek, or Kentucky Springs Creek.
- Change in water temperature, flow, and/or chemistry could occur from Project implementation on Monte Cristo Creek.
- Erosion resulting from implementation is considered negligible.
- Non-native species, such as bullfrogs, crayfish, or cetrarchid fish, will be removed from the project area.
- No stockpiles of materials will occur in areas occupied by arroyo toads.

**Southern Mountain Yellow-legged Frog, Southern California Distinct Population Segment (Rana muscosa); Federal Status: Endangered; State Status: Species of Special Concern; Forest Service Sensitive.** This species was proposed for federal listing as endangered on December 22, 1999 (64 FR 71714). On the basis of molecular, morphological, and acoustic evidence, the mountain yellow-legged frog was recently separated into two species (*R. sierrae* in the northern and central Sierra Nevada and *R. muscosa* in the southern Sierra Nevada and Southern California [Vredenburg et al., 2007]). The federal listing of the mountain yellow-legged frog is limited to populations in the San Gabriel, San Jacinto, and San Bernardino Mountains only. The Service determined that listing of the Sierra Nevada distinct population segment is “warranted but precluded” (USFWS, 2007).

The mountain yellow-legged frog (*R. muscosa*) is known from only nine locations from the San Gabriel, San Jacinto, and San Bernardino Mountains, five of which are in the ANF (Jennings, 1998-99; Backlin et al, 2003-2005; USFWS, 2009). Furthermore, the remaining populations of mountain yellow-legged frog are extremely small, with fewer than 10 pairs in most cases, which make them extremely vulnerable to extirpation (Pimm et al., 1988; Backlin et al., 2003-2005). Historically, mountain yellow-legged frogs were known to be common in these mountain ranges. One historical location for the mountain yellow-legged frog is Eaton Canyon (USFWS, 1999b) but is thought to be extirpated.
Surveys were conducted in the San Gabriel and Sheep Mountain Wilderness for mountain yellow-legged frog. The frog was seen in the upper reaches of Devil's Canyon and two other locations outside the analysis area (Upper Little Rock Creek and the mouth at Vincent's Gulch) (Jennings, 1993b). The frog was documented in thirteen sightings within the Sheep Mountain Wilderness. All sightings were within the middle and upper reaches of the East Fork San Gabriel River, mouth of the Fish Fork, mouth of Alder Gulch, the lower portion of Prairie Fork, and the mouth of Vincent’s Gulch (Jennings, 1995). Surveys conducted in 1998 found further locations in the Upper Little Rock drainage (Angeles National Forest Records). In 2001, monitoring of known populations occurred in Bear Gulch (1.25 miles), Little Rock (1 mile), South Fork Big Rock Creek (2 miles), Vincent Gulch (1.25 miles), and Devil’s Canyon (1.5 miles).

Twenty miles of new areas were surveyed in 2001 between September 1 and December 31 in the Angeles National Forest, and no mountain yellow-legged frogs were detected. Surveys were conducted in the following areas: 0.5 miles of Lower Big Rock Creek; 3.4 miles of Bouquet; 2 miles of Lower North San Gabriel; 2 miles of Main San Dimas; 1 mile of San Antonio Falls; 1 mile of La Paloma; 1 mile of Stonyvale; 1 mile of Vogel; 1 mile of Trail Canyon; 0.5 miles of Lower Big Tujunga; 0.5 miles of Millard Canyon; 3 miles of Big Santa Anita; and 1 mile of Roberts Canyon.

The closest known record of this species occurs in the upper reaches of Littlerock Creek approximately five miles from the closest section of the ROW. This species also occurs at Bear Gulch, approximately 20 miles to the east. While suitable habitat for this species occurs in many of the drainages and creeks located on NFS lands, it is not known to occur in the project area. However, many of the drainages in the Project region have not been extensively surveyed. Furthermore, the mountain yellow-legged frog has been recorded making movements of up to 1 km (Pope and Matthews, 2001), and 1.4 km (Backlin and Hitchcock, USGS, pers. comm.) with overland movements of up to 420 m (Pope and Matthews, 2001).

Habitat Status

In southern California, mountain yellow-legged frogs are restricted to streams, lakes, and ponds in ponderosa pine, montane hardwood-conifer, and montane riparian habitat types from 1200 to 7400 feet elevation (Stebbins, 2003). They are diurnal, highly aquatic frogs, occupying rocky and shaded streams with cool waters originating from springs and snowmelt (USFWS, 1999b). Males give weak vocalizations that may function in territorial defense (Zeiner et al., 1988). These frogs are usually found within a few feet of water. Frogs usually crouch on rocks or clumps of grass within a few jumps of water. When disturbed, they dive into water, take refuge under rocks, or rest exposed on the bottom. Less commonly, frogs bury themselves in bottom sediments (Zeiner et al., 1988). Summer aestivation has been reported in southern California (Zeiner et al., 1988). During winter, adults apparently hibernate beneath ice-covered streams, lakes, and ponds. Terrestrial hibernation has not been reported (Zeiner et al., 1988). This species feeds primarily on aquatic and terrestrial invertebrates and favors terrestrial insects. Tadpoles graze on algae and diatoms along rocky bottoms in shallow water of streams, lakes, and ponds. Adult mountain yellow-legged frogs may feed on tadpoles of Pacific treefrogs (Zeiner et al., 1988). Mountain yellow-legged frogs breed from March to August, depending on local conditions (Stebbins, 2003). Roundish clusters of up to 500 eggs (usually 200 to 300) are deposited in shallow water attached to gravel, rocks, or vegetation (USFWS, 1999b). Tadpoles may require up to two over-wintering periods to complete their aquatic development (Stebbins, 1985; Zeiner et al., 1988).
In the mountains of southern California, this species has been extirpated from 95 percent of its historic range (Jennings, 1993a). Adults and tadpoles are commonly preyed upon by garter snakes and introduced trout (Zeiner et al., 1988). Threats to mountain yellow-legged frogs on NFS lands include the introduction and spread of predatory non-native species, loss of breeding pools as a result of siltation or declining surface water, and disturbance by recreation and land use activities (USDA, 2005a).

Although this species was historically quite common in southern California, it has been extirpated from approximately 99 percent of its range in the San Gabriel, San Bernardino, and San Jacinto Mountains (Jennings and Hayes, 1994; Stebbins, 2003). Air pollution and predation by non-native fish and bullfrogs are the primary factors contributing to the decline of this species (Stebbins, 2003). Factors that have contributed to the decline of other ranid species (e.g., California red-legged frog) such as logging, mining, and habitat conversions, are minor factors contributing to the decline of mountain yellow-legged frogs in southern California (USFWS, 2002b, 2002c). In Sequoia National Park, recent declines in this species were attributed to airborne pesticides and a highly infectious and fatal disease (chytridiomycosis) caused by the fungus *Batrachochytrium dendrobatidis* (Fellers et al., 2008). Chytrid fungus and/or pesticides may have contributed to the decline of mountain yellow-legged frog populations in southern California.

**Southern Mountain Yellow-Legged Frog Critical Habitat**

Critical habitat was designated for mountain yellow-legged frog on September 14, 2006 (71 FR 54343). This Project is not within or near designated critical habitat.

**Survey Results**

Mountain yellow-legged frogs were not detected during focused surveys of nine locations along Segments 6 and 11 on the ANF conducted by SCE in 2007 and 2008 for the TRTP, and there are no known populations near the project area. The closest known population is approximately five miles away in upper Little Rock Creek.

**Direct Effects:** The mountain yellow-legged frog has not been recently documented to occur in the Proposed Action project area. Although many of the stream channels within the Central Region were historically known to support the mountain yellow-legged frog, it is thought to have been extirpated from more than 99 percent of its former range. The closest known record of this species occurs in the upper reaches of Little Rock Creek approximately five miles from the nearest section of the ROW. This species also occurs at Bear Gulch, approximately 20 miles to the east.

Direct effects to this species are not anticipated as this species is not known to currently occupy any streams in the project area. Nonetheless, mitigation has been recommended for the Proposed Action to reduce potential effects to the mountain yellow-legged frog. Measures such as focused pre-construction surveys, restriction of work within occupied habitat, worker awareness training, and construction monitoring by authorized biologists would reduce potential effects to mountain yellow-legged frogs. These measures include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance...
with water quality permits), Mitigation Measure H-1b (Dry weather construction), and Mitigation Measure B-8b (Conduct biological monitoring).

**Indirect Effects:** Mountain yellow-legged frogs are not expected to occur in the project area, and indirect effects to this species are not expected to occur. Nonetheless, mitigation has been recommended for the Proposed Action to reduce potential effects to the mountain yellow-legged frog. These measures include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), Mitigation Measure H-1b (Dry weather construction), and Mitigation Measure B-8b (Conduct biological monitoring).

Project activities would not diminish the prey base for mountain yellow-legged frogs. This species consumes prey such as insects and tadpoles, and Project activities would not appreciably interfere with access to food sources or cause a decline in the amount of prey available to this species.

**Cumulative Effects:** The mountain yellow-legged frog is not expected to occur within the project area. Therefore, cumulative effects are not anticipated for this species.

**Determination:** It is my determination that the Proposed Action will have no effect on the mountain yellow-legged frog or its listed critical habitat on NFS lands, USACE lands, and private lands, as they are not known to occur in the project area.

**Rationale:**
- No mountain yellow-legged frogs are known within the project or analysis area.
- No critical habitat is listed within the project area.
- Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.
- Project will remove and limit the spread of nonnative and invasive plant species.
- No change in water temperature, flow, or chemistry is expected from Project implementation in areas that could potentially support this species.
- Erosion resulting from implementation is considered negligible.
- Non-native species, such as bullfrogs, crayfish, or cetrarchid fish, will be removed from the project area.
- All biologists and their assistants will follow the fieldwork code of practice developed by the Declining Amphibian Population Taskforce.

The Proposed Action would not lead to a change in the population size of the mountain yellow-legged frog and would not affect the viability of this species.

**California Red-legged Frog (Rana draytonii). Federal Status: Threatened; State Status: Species of Special Concern.** The California red-legged frog was listed as threatened by the USFWS on May 23, 1996 (61 FR 25813). The red-legged frog ranges from coastal northern California to coastal Baja California (Behler and King, 1989). It is a California State Species of Special Concern. The California red-legged frog was formerly considered a subspecies of the northern red-legged frog (*R. aurora*);
However, Shaffer et al. (2004) concluded that the California red-legged frog should be elevated to full species and assigned the species name *draytonii* based on molecular evidence.

California red-legged frog was formally known as a common native frog in parts of Los Angeles, San Bernardino, Orange, Riverside, and San Diego Counties (Jennings et al. in litt. 1992). Numerous records of California red-legged frogs exist from the 1930s along the Mojave River near Victorville (San Bernardino County), as well as along the San Luis Rey River in San Diego County. Red-legged frogs were found in the southern transverse and peninsular ranges. Known historic watersheds include: Calleguas, Santa Monica Bay, Los Angeles, San Gabriel, Antelope-Fremont Valleys (partial), Santa Ana, San Jacinto, Seal Beach, Newport Bay, Aliso-San Onofre, Santa Margarita, San Luis Rey, San Diego, Cottonwood-Tijuana, Whitewater River, San Felipe Creek, and Salton Sea (partial). Red-legged frogs were found in the Mojave River, San Gabriel River, and Santa Clara River. There are historic locations in Los Angeles, Riverside, Santa Barbara and Ventura Counties in southern California.

In southern California, this species is currently known from only five locations south of the Tehachapi Mountains, and only one of these is south of the Santa Clara River (USFWS, 1996).

A recent discovery of California red-legged frogs was made in East Las Virgenes Creek (Ventura County) in the Simi Hills, adjacent to the Santa Monica Mountains National Recreation Area. No frogs were found in nearby streams (Las Virgenes Creek, Palo Comado, Cheesboro, and Liberty Canyons) (Sapphoss Environmental, 1999). Survey information suggests that this breeding population contains 20 to 25 adults, 10-15 juveniles, and several hundred tadpoles (R. Smith in litt., 2001).

Surveys were conducted in the San Gabriel Wilderness in 1993 for the California red-legged frog, but no California red-legged frogs were detected (Jennings, 1993b). Historical locations occur within the West Fork San Gabriel River and Bear Creek. Frogs were seen at Vincent's Gulch and Prairie Fork in 1993 (Jennings, 1993b). A single tadpole was found in South Fork Little Rock Creek in 1996, but since the tadpole was not captured for thorough investigation, some doubts exist on species identification (P. Krueger Pers. Obs., 1996).

In 1999, a California red-legged frog was observed in San Francisquito Canyon while conducting arroyo toad surveys (Forest Records). Follow-up surveys in 2000 continued to document red-legged frogs in San Francisquito Canyon in the Saint Francis Dam Reach (Forest Records).

Presence/absence surveys were conducted by US Geological Survey in 2000 for 2.6 miles of the East Fork San Gabriel River, 1 mile of the Lower West Fork San Gabriel River, 1 mile of Bear Creek, 4.5 miles of Upper West Fork San Gabriel River, and 4.1 miles of North Fork San Gabriel River. No California red-legged frogs were observed, nor was suitable habitat for red-legged frogs observed (Forest Record).

In 2001, surveys for California red-legged frogs occurred in 4 miles of the Arroyo Seco, 0.5 mile Lower Big Rock Creek; 3.4 miles Bouquet; 2 miles Lower North San Gabriel; 2 miles Main San Dimas; 1 mile San Antonio Falls; 1 mile La Paloma; 1 mile Stonyvale; 1 mile Vogel; 1 mile Trail Canyon; 0.5 mile Lower Big Tujunga; 0.5 mile Millard Canyon; 3 miles Big Santa Anita; and 1 mile Roberts Canyon, yet no California red-legged frogs were documented (Forest Records).

A newly discovered (September 2009) population of California red-legged frogs exists in the drainage within Aliso Canyon in the vicinity of Gleason Canyon, approximately 0.8 mile downstream of Segment
11 and the SCE access road crossing. It is assumed that this species is present at the Project crossing of this drainage; however, focused surveys at this location have not yet been conducted.

The California red-legged frog is currently known to occur in San Francisquito Creek and Amargosa Creek in the Leona Valley and has the potential to occur within the proposed TRTP at the Amargosa Creek crossing within the Northern Region. There is a CNDB record (1995) located approximately 2.4 miles from the Amargosa Creek crossing. It is unlikely that reaches of the drainage near the proposed crossing are occupied by red-legged frogs on a permanent basis. However, red-legged frogs may utilize this area as a movement/dispersal corridor at various times, especially during late winter and spring. While California red-legged frogs are presumed absent from the Southern Region and are unlikely to occur within the Central Region, suitable habitat is present at the following four drainages within the Central Region: Mill Creek, Alder Creek, Big Tujunga Creek (Segment 6), and West Fork San Gabriel River.

**Habitat Status**

The California red-legged frog can be found in permanent water sources such as quiet pools of streams, marshes, and ponds (Stebbins, 2003). Storer (1925) found larvae, juveniles, and adult frogs occur in natural lagoons, dune ponds, pools in or near streambeds, within streams, marshlands, sag ponds, springs, human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits containing water, and large reservoirs (USFWS, 2002c). It prefers shorelines with extensive vegetation and escapes to pools 3 feet deep or more. Hayes and Jennings (1988) characterize habitats in which the largest densities of red-legged frogs occur in those areas having pools at least 27 inches deep, with overhanging willows (*Salix* spp.), and an intermixed fringe of narrow-leaved cattails (*Typha latifolia*), tules (*Scirpus* sp.), or sedges (*Carex* spp.). The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (>0.7 m) still or slow moving water (USFWS, 1996). Generally, red-legged frogs are found in or near water, but disperse after rains and may appear in damp woods and meadows far away from water. This species takes refuge in small mammal burrows in vegetation, willow root wads, and the undersides of wood material and other debris within the riparian zone (Stebbins, 2003).

In addition to aquatic habitats, juvenile and adult California red-legged frogs use areas of riparian vegetation within a few feet of water and can be found much further from their perennial water sources during wet weather (Hitchcock, pers. obsv.). Radio-telemetry studies conducted in lagoons and the lower reaches of streams along the central coast of California indicate that adult red-legged frogs move within the riparian zone to pools in order to hydrate during periods when many reaches of streams are dry (Bulger et al., 2003; Rathbun et al., 1993). During wet periods red-legged frogs have been recorded making overland movements of over two miles in the Santa Cruz Mountains (Stebbins, 2003). Given the general aridity of the region, in southern California this species is generally found closer to water, although red-legged frogs have been observed well outside of the main stream channel during rain events (C. Hitchcock, pers. obsv.).

Red-legged frogs aestivate in small mammal burrows and moist leaf litter (Jennings and Hayes, 1994). Aestivating habitat is all aquatic and riparian areas within the range of the species and includes any landscape features that provide cover and moisture during the dry season within 300 feet of a riparian area (USFWS, 1996). Such landscape features may be boulders, rocks, downed trees or logs, industrial debris,
drains, water troughs, spring boxes, abandoned sheds, or hayricks. Juvenile frogs are active diurnally and nocturnally, whereas adult frogs are generally nocturnal (USFWS, 1996).

Adults take aquatic and terrestrial insects, crustaceans, and snails, as well as worms, fish, tadpoles, smaller frogs, and small mammals (Hayes and Tennant, 1985; Arnold and Halliday, 1986). Aquatic larvae are mostly herbivorous (Zeiner et al., 1988). Post-metamorphic frogs grow rapidly while feeding on a wide variety of invertebrates including Amphipoda, Isopoda, Orthoptera, Isoptera, Hemiptera, Homoptera, Neuroptera, Coleoptera, Lepidoptera, Diptera, Hymenoptera, Arachnida, and Gastropoda (Hayes and Tennant, 1985; Baldwin and Stanford, 1987).

Breeding period is short, often lasting only 1 to 2 weeks, usually between November and March (Stebbins, 1985; USFWS, 1996) to early May (Storer, 1925; Jennings and Hayes, 1994). Females lay 750 to 5000 eggs in clusters, which are deposited in permanent pools attached to vertical emergent vegetation (USFWS, 1996; Zeiner et al., 1988). Eggs hatch in 6 to 14 days. Larval development takes 11-20 weeks and requires permanent or nearly permanent water (Zeiner et al., 1988). Most larvae metamorphose into juvenile frogs between July and September. Sexual maturity is reached at 3 or 4 years of age. Life expectancy is 8 to 10 years (USFWS, 1996).

California red-legged frogs are probably subject to predation by aquatic invertebrates and vertebrates such as fishes, other amphibians, snakes, and occasionally birds and mammals, during all life history stages (Zeiner et al., 1988). Introduced species that prey upon California red-legged frogs, eggs, and larvae include crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), bullfrogs (*Lithobates [Rana] catesbeiana*), green sunfish (*Lepomys cyanellus*), bluegill (*L. macrochirus*), largemouth bass (*Micropterus salmoides*) and smallmouth bass (*M. dolomieu*). This frog has been eliminated from 75 percent of its historic range (Jennings, 1993a). Species decline is attributed to habitat loss, introduction of non-native species (predators and competitors), natural predation, and historically, use of frog legs as a food source. Threats to California red-legged frogs on NFS lands include predatory invasive species, crushing due to activities on roads and in campgrounds, disturbance from water play, disease, water diversions, and grazing (USDA, 2005a).

**California Red-legged Frog Critical Habitat**

Critical habitat for the California red-legged frog was designated on April 13, 2006 (71 FR 53491). A revision was proposed on September 16, 2008 (73 FR 53491), but has not been finalized. The Project is not within or near critical habitat.

**Survey Results**

California red-legged frogs were not observed at Amargosa Creek or on the ANF on any site visit or focused survey between 13 and 15 June 2006, or on 29 September 2007 when the stream was dry. Protocol surveys were conducted at the Amargosa Creek crossing in 2007 (22-23 March; 5 & 25 April; 15 May; and 5 July) and 2008 (16 & 27 March; 14 & 23 April; 5 May; 9-10 June; and 3 July) for the ATP Segments 2&3 project, and surveys were negative for CRLF both years. Reconnaissance surveys were conducted within Amargosa Creek on 19 December, 2007 and on 14 April, 2008, with negative results. Reconnaissance surveys were conducted throughout the project area within the ANF during 2007 and 2008 (AMEC, 2008) with negative results.
Protocol surveys were conducted for the 2009 survey season northeast of Monte Cristo Campground (Segment 6), at the Amargosa Creek Crossing (Segment 5), and in Tonner Canyon (Segment 8). Surveys at all locations in 2009 were negative for California red-legged frogs.

**Direct Effects:** California red-legged frogs may occur within the Amargosa Creek watershed in the vicinity of the Segment 5 alignment in the Northern Region, and are assumed present at the Segment 11 crossing of the Aliso Canyon drainage near Gleason Canyon. California red-legged frogs are presumed absent from the Southern Region and are not known to occur within the Central Region of the project area.

California red-legged frogs were not observed at Amargosa Creek on any site visit or focused survey between 13 and 15 June 2006, or on 29 September 2007; however, the stream was dry at that time. Protocol level surveys conducted by SCE between 22 March and 5 July 2007 and 16 March and 3 July 2008 had negative results. Protocol surveys conducted in 2009 northeast of Monte Cristo Campground (Segment 6), at the Amargosa Creek Crossing (Segment 5), and in Tonner Canyon (Segment 8) were also negative. Reconnaissance surveys were conducted within Amargosa Creek on 19 December 2007 and 14 April 2008 and did not detect the species. Reconnaissance surveys were conducted within the project area in the ANF during 2007 and 2008 (AMEC, 2008) with negative results. It is unlikely that reaches of Amargosa Creek near the proposed crossing are occupied by red-legged frogs on a permanent basis. During late winter and spring, and during wet weather, Amargosa Creek is thought to be an important area for movement and dispersal of any remnant individuals that are in the area. Ritter Ranch, along Amargosa Creek, contains one of four remaining locations for California red-legged frogs in the extreme southern limit of distribution in California.

In September of 2009, a population of California red-legged frogs was discovered in Aliso Canyon at Gleason Canyon, less than one mile downstream of the Segment 11 crossing of this drainage. Protocol or focused surveys have not yet been conducted at the Project crossing, but due to the proximity of the originally discovered individuals within the drainage that the Project crosses, it is assumed that this species is present at the crossing.

California red-legged frogs are not known from the Southern Region. Historically, California red-legged frogs occurred within the Central Region and suitable habitat is present at the following four drainages within the Central Region: Mill Creek, Alder Creek, Big Tujunga Creek, and West Fork San Gabriel River. Many of the streams, rivers, and tributary drainages that occur on NFS lands have not been extensively or recently surveyed for many species (N. Sandburg, FS, pers. comm.). Although this species was not identified during reconnaissance surveys of the area, the Ritter Ranch population identified in a stockpond adjacent to Amargosa Creek is likely to have originally come from a nearby natural water source. However, surveys for California red-legged frogs conducted for the TRTP and other nearby projects produced negative results in both up- and downstream sections of Amargosa Creek. Therefore, there is a low potential for this species to occur in or adjacent to the Proposed Action ROW at that location.

While this species is typically highly aquatic, California red-legged frogs have been documented to make overland movements of over two miles in the Santa Cruz Mountains (Stebbins, 2003). This is particularly true on nights with high humidity or precipitation. For example, red-legged frogs in San Francisquito Canyon have been found in the upland habitat during rainy nights (C. Hitchcock, pers. obsv.). Construction activity associated with vehicle access or tower preparation may directly affect this species.
Implementation of Mitigation Measure B-8a, which includes fencing around work areas in occupied habitat and no working within 500 feet/one mile (depending on season) of occupied sites, would reduce direct effects. Mitigation Measure H-1b, which limits construction during wet weather, would reduce effects to individuals that may be active during rain events.

Direct effects could include crushing from mechanized equipment or foot traffic as these frogs tend to seek refuge under rocks, downed woody debris, and bank undercuts; loss of breeding pools, larval pools or refugia; temporary disruption of foraging areas, basking sites, or calling perches; and the dislodging or disruption of egg masses. Breeding, foraging, and calling behavior could be disrupted due to construction noise, helicopter noise and vibration, human disturbance, vehicle lighting, ground vibration from equipment, and the timing of construction activities. Because adults of this species are mainly nocturnal, impacts from vehicle use at dawn, dusk, and during the evening would be of particular concern because this species is known to make forays between riparian and upland habitats, especially during rain events. Habitat disturbance would be associated with the temporary removal of vegetation at riparian areas, grading of new and existing access and spur roads, excavation of tower footings, diversion of water flow, and preparation and use of stringing, pulling, and staging areas (including helicopter staging areas). Implementation of Mitigation Measure B-8a will minimize effects to any California red-legged frogs within the area by requiring preconstruction surveys, avoidance if individuals are in the area, fencing, and daytime work hours only.

Construction activity required to upgrade road crossings within riparian areas may directly affect this species by smothering eggs or larval animals. While it is likely that road construction would involve the repair or maintenance of stream crossings, this work would not be conducted during periods of high flow. Monitoring and surveys would be conducted to ensure animals are not within the road crossing prior to any operations. Fencing would be placed, per Mitigation Measure B-8a, to provide protection to any California red-legged frog within the project area.

The use of herbicides would occur during construction, maintenance, and operation of the proposed Project and could be detrimental to amphibian species (Relyea, 2005). Amphibians are particularly vulnerable to environmental contaminants because they have semi-permeable skin which absorbs materials from both the terrestrial and aquatic environments in which they live. Due to the inverse relationship of body weight to surface area, when small animals are exposed to pesticides they will generally receive a higher dose, in terms of body weight, than large animals will receive for a given type of exposure (Durkin, 2007). Herbicides containing added surfactants are particularly dangerous for aquatic species. Surfactants are materials added to enhance the ability of the herbicide to adhere to the treated surface and have been shown to adversely affect aquatic life, including fish and amphibians. Herbicides such as Triclopyr are known to cause immobility or mortality to tadpoles. However, as described in Mitigation Measure B-3a, no herbicides containing surfactants would be used on the Proposed Action. See Mitigation Measure B-3a for other minimization measures that would be implemented when herbicides are used.

Mitigation has been recommended for the Proposed Action to reduce effects to California red-legged frog. Measures such as protocol and focused pre-construction surveys, restriction of work within occupied habitat, worker awareness training, exclusion fencing at select locations, a capture and release program, and construction monitoring by authorized biologists would reduce effects to California red-legged frogs. The removal of non-native and invasive species (a component of Mitigation Measure B-8a) would decrease predation and competition for California red-legged frogs. The specific measures that would
minimize potential impacts to the California red-legged frog include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), Mitigation Measure H-1b (Dry weather construction), Mitigation Measure B-8a (Conduct protocol surveys For California red-legged frogs and implement avoidance measures), and Mitigation Measure B-8b (Conduct biological monitoring).

**Indirect Effects:** The California red-legged frog has been recently documented in the project area near Segment 11 in Aliso Canyon, and another population has been documented in a stockpond adjacent to Amargosa Creek, approximately three miles downstream of the Segment 5 crossing with the creek. It is unlikely that this species is routinely present at the road crossing at Amargosa Creek in the project area; however, the population of frogs in this area is not well studied. The presence of this species in the project area is likely limited to episodic periods of increased annual precipitation. By conducting pre-construction surveys, removing non-native and invasive species, limiting work to the previously surveyed project areas, and using BMPs, potential indirect effects will be minimized.

Indirect effects to this species could include loss of suitable breeding habitat, changes in water temperature and light regimes due to removal of riparian and aquatic vegetation, and decreased water quality due to sedimentation and erosion. These impacts could occur through the removal of vegetation from clearing and grading for new tower locations, access and spur roads, pulling and stringing locations, and staging areas. Diversion or modification of water flows, increased downstream sediment transport, or the establishment of nonnative and invasive species could also indirectly affect California red-legged frogs. Other indirect effects could result from fuel, lubricant, or concrete spills into the water.

Data from the *GIS-Based Erosion & Sediment Analysis Report* (Appendix A of the Hydrology and Water Quality Specialist Report for the TRTP; Aspen, 2008a) conducted for this Project indicate that the downstream contribution of sediments to the upper Santa Clara watershed, which remains dry most of the year, would be minimal (see Section 2.6). That is, with BMPs in place, the total maximum annual sedimentation in tons per year would contribute approximately 3.4 percent above baseline tonnage over any given storm event at Aliso Canyon and the Santa Clara River. This total is well within the natural variation that occurs within any given year and would not result in a large contribution of sediment or result in levels of turbidity substantially above those currently caused by natural storm events.

The effects of potential sedimentation include decreased water quality, increased turbidity, changes in water chemistry (increased pH and algae), lowered habitat quality and habitat types, loss of breeding habitats, lowered productivity or macroinvertebrates, and increased water temperature. Off site sediment transport from road grading to areas supporting this species could occur on a local level without the implementation of BMPs. Implementation of BMPs would reduce the effects by limiting sediment travel overland and into streams systems.

Project activities would not diminish the prey base for California red-legged frogs. This species consumes algae as tadpoles, and adults consume prey such as insects, tadpoles, and small rodents. Project activities would be localized and short-term, and would not appreciably interfere with access to food sources or cause a decline in the amount of prey available to this species.
The removal of non-native and invasive species, both plants and wildlife (components of Mitigation Measures B-3a, B-3b, B-3c, and B-8a) would have some potential to decrease predation and competition for California red-legged frogs. Mitigation Measures that would reduce indirect effects to California red-legged frogs include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), Mitigation Measure H-1b (Dry weather construction), Mitigation Measure B-8a (Conduct protocol surveys for California red-legged frogs and implement avoidance measures), and Mitigation Measure B-8b (Conduct biological monitoring).

**Cumulative Effects:** Non-federal projects are not known to be proposed in the TRTP project area that encompasses habitat for California red-legged frogs in the Central Region. Therefore, cumulative effects are not anticipated for this species.

Foreseeable future non-federal actions that could impact California red-legged frog in the Northern Region include the Amargosa Creek Improvements Project, which includes road and flood control improvements. In addition, residential developments consisting of 131 lots are proposed in the Leona Valley in the vicinity of Amargosa Creek. Project impacts, should they occur, would contribute substantially to the incremental mortality of and loss of habitat for this species when combined with the effects of mortality and loss of habitat caused by other past and reasonably foreseeable projects. These impacts would be cumulatively considerable because past actions and natural events have so severely impacted the California red-legged frog in southern California.

**Determination:** It is my determination that construction activities of the Proposed Action may affect, and are likely to adversely affect the California red-legged frog on private lands and NFS lands. It is my determination that the Proposed Action will have no effect on its listed critical habitat on private lands and NFS lands as designated critical habitat does not occur on these lands in the Project area. It is my determination that the Proposed Action would have no effect on the California red-legged frog or its listed critical habitat on USACE lands, as this species is not expected to occur on these lands in the project area.

**Rationale:**
- California red-legged frogs may be handled if found within construction areas, thus harassment may occur. No mortality of California red-legged frogs would occur, with implementation of mitigation measures.
- California red-legged frogs are considered present at the Segment 11 crossing of the drainage in Aliso Canyon.
- Red-legged frogs are found approximately three miles upstream of the project area on Amargosa Creek. There is a chance that red-legged frogs could be dispersing through or washed down into the project area.
- There is no listed critical habitat within the project area.
- The project area will be monitored for red-legged frogs.
- If red-legged frogs are detected, no work within one mile of the occupied habitat and no vehicular crossings at wet fords of those channels will be authorized between November 1 and March 31. Between April 1 and October 31, no work will be authorized within 500 feet of occupied habitat and no vehicular crossings will be authorized at wet fords of occupied channels.
• If found to be widespread based on protocol-level surveys and within the construction area, a minimum of a 24-inch tall fence will be installed and a minimum of three nocturnal surveys will be conducted to move red-legged frogs outside of the fenced area. If red-legged frogs are found within the fenced areas, work activities will cease until the red-legged frog can be moved out of the fenced area.

• Protocol-level surveys will occur annually if water exists at the road crossing at Amargosa Creek.

• In areas known to be occupied by California red-legged frogs, work shall be restricted to daylight hours and traffic speeds will not exceed 15 mph.

• No stockpile of materials will occur in areas occupied by red-legged frogs.

• Mitigation Measure H-1b (Dry weather construction) limits construction activities when more than ½ inch of rain is predicted to occur over a 24-hour period.

• Project will remove and limit the spread of nonnative and invasive plant species.

• No change in water temperature, flow, or chemistry is expected from project implementation in areas that could potentially support California red-legged frogs.

• Erosion resulting from implementation is considered negligible.

• Non-native species, such as bullfrogs, crayfish, or cetrarchid fish, will be removed from the project area.

• All biologists and their assistants will follow the fieldwork code of practice developed by the Declining Amphibian Population Taskforce.

Implementation of the Proposed Action would not lead to a change in population size of California red-legged frog or result in a loss of viability.

**Threatened and Endangered Reptiles**

**Desert Tortoise (Gopherus agassizii). Federal Status: Threatened; State Status: Threatened.** On April 2, 1990, the USFWS determined the Mojave population of the desert tortoise to be threatened (55 FR 12178). The Mojave population includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, southwestern Utah, and in the Colorado Desert in California (a division of the Sonoran Desert). Reasons for the determination included loss of habitat from construction projects such as roads, housing and energy developments, and conversion of native habitat to agriculture. Grazing and off-road vehicles have degraded additional habitat. Also cited as threatening the desert tortoise’s continuing existence were illegal collection, upper respiratory tract disease (URTD), and predation on juvenile desert tortoises by common ravens (*Corvus corax*). Fire is an increasingly important threat to desert tortoise habitat. Over 500,000 acres of desert lands burned in the Mojave Desert in the 1980s. Fires in Mojave Desert scrub degrade or eliminate habitat for desert tortoises (Appendix D of USFWS, 1994).

Tortoises may occur in very low densities in the Antelope Valley. In January of 2009, an individual desert tortoise was detected along Bacchus Road trying to cross Hwy 14, and a burrow that was presumed active was located west of Mojave and south of Oak Creek Road (M. Benjamins, SCE, pers. comm.; R. Bransfield, USFWS, pers. comm.). In April 2009, two adult tortoises were observed approximately one mile from Segment 10. An additional individual was observed less than two miles from Segment 10 in spring of 2009.

Habitat for the desert tortoise occurs in Joshua tree woodlands and creosote scrub habitats present in the Northern Region of the proposed TRTP. Although thought to have been excluded from this area, the recent discovery of several tortoises in 2009 indicates the area should be considered occupied by desert tortoise in low densities.
Habitat Status

The desert tortoise is most commonly found within the desert scrub vegetation type, primarily in creosote bush scrub vegetation, but also in succulent scrub, cheesebush scrub, blackbrush scrub, hopsage scrub, shadscale scrub, microphyll woodland, and Mojave saltbush-allscale scrub (USFWS, 1994). Desert creosote bush is often present in occupied habitat (Stebbins, 1985). Creosote bush (\textit{Larrea tridentata}), burrobush (\textit{Ambrosia dumosa}), Mojave yucca (\textit{Yucca schidigera}), and blackbrush (\textit{Coleogyne ramosissima}) generally distinguish desert tortoise habitat. At higher elevations, Joshua tree (\textit{Yucca brevifolia}) and big galleta grass (\textit{Pleuraphis rigida}) are common indicators of tortoise habitat (USFWS, 1994). Within these vegetation types, desert tortoises potentially can survive and reproduce where their basic habitat requirements are met. Throughout most of the Mojave Region, tortoises occur most commonly on gently sloping terrain with soils ranging from sand to sandy-gravel and with scattered shrubs, and where there is abundant inter-shrub space for growth of herbaceous plants. Throughout their range, however, tortoises can be found in steeper, rockier areas. This species normally excavates a burrow under bushes, overhanging soil or rock formations, or digs into soil in the open.

Desert tortoises in the Mojave Desert are primarily active between May and June, with a secondary activity period from September through October. During inactive periods, tortoises hibernate, aestivate, or rest in subterranean burrows or caliche caves, spending as much as 98 percent of their time underground (Marlow, 1979; Nagy and Medica, 1986). During active periods, they usually spend nights and the hotter portion of the day in their burrow. Tortoises construct and maintain a series of single-opening burrows, which may average from 7 to 12 burrows at a given time (Barrett, 1990; Bulova, 1994).

Tortoises are herbivores feeding on annual forbs, herbs, cacti, and grasses; many species are taken but forbs are preferred over grasses and green vegetation is preferred over dry (Stebbins, 1985; Zeiner et al., 1988). Forage species selected by tortoises in the Mojave Desert include: \textit{Astragalus didymocarpus}, \textit{A. layneae}, \textit{Camissonia boothii}, \textit{Euphorbia albomarginatus}, \textit{Lotus humistratus}, and \textit{Mirabilis bigelovii} (Jennings, 1993). Annual plant species are very important to the desert tortoise. In an analysis area typical of the western Mojave Desert, Jennings (1997) noted that about 70 percent of the bites taken by observed tortoises were on annuals. As previously mentioned, desert tortoises are most active when annual plants are most common. When winter precipitation is sufficient, desert annuals produce the greatest amount of grass and forb biomass in the Mojave Desert (Oldemeyer, 1994). With adequate precipitation in the winter, annuals may have a life cycle of up to 8 months; when precipitation does not occur until late winter, the life cycle may be as short as 6 to 10 weeks (Beatley, 1967).

Tortoise activities are primarily concentrated in core areas or home ranges. Home ranges of tortoises overlap because they do not defend a specific or exclusive area. Home range sizes can range from 10 to 450 acres and vary with sex, age, season, and density or availability of resources (USFWS, 1994a). Females have long-term home ranges that are approximately half that of the average male, which range from 25 to 200 acres (Berry, 1986). Over its lifetime, each desert tortoise may require more than 1.5 square miles of habitat and make forays of more than 7 miles at a time (Berry, 1986). In drought years, the ability of tortoises to drink while surface water is available following rains may be crucial for tortoise survival. During droughts, tortoises forage over larger areas, increasing the likelihood of encounters with sources of injury or mortality including humans and other predators.
Tortoises may require 20 years to reach sexual maturity (Turner et al., 1984). Copulation begins in late March or early April; 1-15 eggs laid in late May to July, and 3-4 months to hatch (Stebbins, 1985; Zeiner et al., 1988). Multiple clutches (2 or rarely 3) occur in favorable years (Stebbins, 1985). Failure of rainfall and consequent scarcity of plants may result in reproductive failure (Zeiner et al., 1988).

Common ravens, gila monsters (*Heloderma suspectum*), kit foxes (*Vulpes macrotis*), badgers (*Taxidea taxus*), roadrunners (*Geococcyx californianus*), and coyotes are all natural predators of the desert tortoise. These predators typically prey upon 2- to 3-inch long juveniles, which have a thin, delicate shell (USFWS, 1994).

Desert tortoise decline is attributed to destruction and degradation of habitat by urbanization, agriculture, mining, livestock grazing, and off-road vehicle activity; predation; and disease.

**Desert Tortoise Critical Habitat**

Critical habitat for the desert tortoise was designated on February 8, 1994 (59 FR 5820). This Project is not within or near designated critical habitat.

**Survey Results**

Three sightings of this species were reported within two miles of Segment 10 in 2009. In addition, an individual was detected several miles south of the project area in January 2009, and a burrow that was presumed active was found west of Mojave and south of Oak Creek Road (M. Benjamins, SCE, pers. comm.; R. Bransfield, USFWS, pers. comm.). Protocol-level surveys completed by SCE in 2007 and 2008 for the Windhub Substation site, which is not a part of the TRTP but is located at the northern terminus of Segment 10, identified several burrows but no sign of recent use was noted.

Focused, non-protocol level surveys for desert tortoises conducted in support of the TRTP EIR/EIS occurred in June 2006 in portions of Segment 10 in the Northern Region where habitat is suitable for desert tortoise and where access had been granted. Reconnaissance-level surveys were conducted across Segments 4 and 10 in June 2006 and September 2007. Although the habitat within the area surveyed is suitable for desert tortoise, no sign of desert tortoise was detected.

Protocol-level surveys were conducted by SCE in 2009 along Segment 4 (4 through 8 May), and Segment 10 and Whirlwind Substation (18 through 28 April). Surveys were conducted within the West Mojave Plan Clearance Survey Areas. No desert tortoises were detected.

**Direct Effects:** Desert tortoise has been documented to occur in the vicinity of Segment 10. Three adult tortoises were observed in spring 2009 less than two miles from the proposed Segment 10 alignment. Although previously thought to have been extirpated from the area, this observation coupled with recent sightings near Highway 14 at Backus Road in 2009, indicate the species is present in very low densities. Habitat for the desert tortoise occurs in Joshua tree woodlands and creosote scrub in the Northern Region of the proposed TRTP. No sign of their presence was detected during focused surveys of the transmission line corridor. Focused, non-protocol level surveys conducted in support of the TRTP EIR/EIS for desert tortoise were conducted in June 2006 in portions of Segment 10 in the Northern Region where habitat is suitable for desert tortoise and where access had been granted. Reconnaissance-level surveys were conducted across Segments 4 and 10 in June 2006 and September 2007. Protocol-level surveys were conducted in 2009. Although the habitat within the area surveyed is suitable for desert tortoise, no sign of desert tortoise was detected. While no sign of their presence was detected during focused and protocol surveys, the potential occurrence of desert tortoise in Joshua tree woodland-creosote bush scrub habitats...
within the Proposed Action area is likely based upon the recent observations near the project area. In
addition, recent records of desert tortoises exist several miles south of Segment 10. A desert tortoise and a
burrow presumed to be active were detected in January, 2009 west of Highway 14 (M. Benjamins, SCE,
pers. comm.; R. Bransfield, USFWS, pers. comm.). Protocol-level surveys were completed by SCE in
2007 and 2008 for the Windhub Substation site, which is located at the northern terminus of Segment 10
and is not part of the proposed Project. In 2007, five potential tortoise burrows were identified, but no
sign of recent use was noted. In 2008, SCE biologists reassessed these burrows and found three of the
five burrows collapsed due to recent sheep activity. The remaining two burrows were determined at that
time not to be tortoise burrows due to the size and shape. If these burrows originally belonged to tortoises
they have likely been abandoned for decades.

Direct effects to desert tortoises could include mortality due to collisions with vehicles or heavy
equipment, fugitive dust, crushing of burrows, entrapment in uncovered excavations, illegal handling by
humans, and increased noise levels. Grading for roads or tower sites may alter topographical features or
remove depressions where seasonal rainfall accumulates. Tortoises use depressions, including ones
located in roadways, as drinking sites. Vehicular activity on unpaved roads following rains may preclude
tortoises from drinking water, which may be available for only brief periods. The use of herbicides
would occur during construction, maintenance, and operation of the proposed Project. Desert tortoises
may be exposed to herbicides through direct spray or contact with and ingestion of affected vegetation and
water. The effects of exposure to herbicides is not well studied for this species; however, it is possible
that exposure could lead to poisoning of individuals if appropriate care is not taken during application. See
Mitigation Measure B-3a for minimization measures that would be implemented when herbicides are
used.

To reduce impacts to desert tortoises SCE shall implement Mitigation Measure B-1a (Provide
restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b
(Implement a Worker Environmental Awareness Program), Mitigation Measure B-3a (Prepare and
implement a Weed Control Plan), Mitigation Measure B-10 (Conduct presence or absence surveys for
desert tortoises, preserve habitat, and implement avoidance measures), and Mitigation Measure AQ-1a
(Implement Construction Fugitive Dust Control Plan).

**Indirect Effects:** Desert tortoises have not been found during surveys conducted in support of the TRTP,
but three individuals and several active burrows were detected within two miles and on either side of
Segment 10 of the proposed Project during surveys conducted for another project in the area. Therefore,
desert tortoises likely occur in low densities in the project area.

Indirect effects to desert tortoises could include soil compaction, the introduction of non-native and
invasive plant species, and increased human presence along access roads. Construction of the Proposed
Action would increase the number of transmission towers and substation-associated structures that provide
potential nest and perch sites for common ravens, which are known predators of juvenile desert tortoises.
Perch sites and the availability of prey items have lead to substantial increases in raven populations in
desert regions, particularly near human development (Flat-Tailed Horned Lizard Interagency
Coordinating Committee, 2003; Steenhof et al., 1993). A total of 165 and 96 new towers are proposed for
Segments 4 and 10, respectively, and the Whirlwind substation is proposed at the southern terminus of
Segment 10 (SCE, 2007). The new towers would result in an increase in potential nesting and perching
sites for common ravens in the Antelope Valley where the desert tortoise occurs. However, raven
population increases appear to be more associated with increased food supplies made available via human disposal (e.g., landfills, dumpsters, water sources, and litter) than access to perch sites (Kristan et al., 2004). In addition, perch sites in the area do not appear to be a limiting factor as many of the existing towers are utilized by ravens and other birds as roosting sites and Joshua trees are relatively abundant in the northernmost portion of the Project where desert tortoises occur. Raven population increases, if they occur, are expected to be small and food supplies are not expected to change appreciably. Therefore, increased predation on the desert tortoise is not expected to result from additional towers. However, overwatering of roadways or the creation of large areas of standing water (from water storage reservoirs or soil compaction efforts) during summer months can lead to increased raven use of the area.

Overspray of herbicides could indirectly affect desert tortoises by reducing habitat or forage for this species. Increased human presence due to new access and spur roads could lead to illegal collecting and spread of disease due to abandonment of captive tortoises infected with upper respiratory tract disease (URTD).

The removal of nonnative and invasive plant species, as specified in Mitigation Measure B-3a, would remove competition for native species that provide forage for the desert tortoise. To further reduce indirect effects to desert tortoise SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-10 (Conduct presence or absence surveys for desert tortoise, preserve habitat, and implement avoidance measures), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Cumulative Effects:** Past actions and natural events within the Northern Region (e.g., development, urbanization, and drought) have resulted in impacts to desert tortoises. Current and foreseeable future actions that could impact desert tortoises in the Northern Region include projects such as the PdV, Alta-Oak Creek Mojave Project, Pacific Wind, and Pine Tree wind farms; the Antelope Transmission Project Segments 2 and 3, the El Paso Line 1903 Pipeline Conversion Project; Route 58 Mojave Alignment Project; Hyundai Corporation Test Track Facility and Habitat Conservation Plan; California High-Speed Train System; and at least 12 separate small- and large-scale residential and planned community developments in southern and central Kern County. In additional, there are several wind and solar energy projects in the early planning stages in the western Mojave Desert for which project details are currently unknown, and have not yet been determined feasible for development. Any projects developed in this area will result in incremental impacts to desert tortoises. Project impacts, should they occur, would contribute to the incremental mortality of, and loss of habitat for, desert tortoises when combined with the effects of mortality and loss of habitat caused by other past and reasonably foreseeable projects, and therefore, would be cumulatively considerable. The effects to desert tortoise have the potential to combine with similar impacts of other projects and would be cumulatively significant.

**Determination:** It is my determination that the Proposed Action may affect, and is likely to adversely affect the desert tortoise on private lands. It is my determination that the Proposed Action will have no effect on the desert tortoise on NFS lands and USACE lands. It is my determination that the Proposed Action will have no effect on designated critical habitat.
Rationale:

- Desert tortoises may be handled if found within construction areas, thus harassment may occur. No mortality of desert tortoise would occur, with implementation of mitigation measures.
- Desert tortoises have been found in low density near the project area. Surveys for the Proposed Action have not found desert tortoise within the project area.
- No listed critical habitat occurs within the project area.
- FWS protocol surveys will occur within the project and analysis area.
- Clearance surveys will continue during project construction.
- If desert tortoises or active burrow sites are found with the project area, work will be halted within 500 feet of the burrow or tortoise location until FWS-approved desert tortoise fencing can be installed and tortoises moved out of the area (within 500 meters of the original location).
- A construction monitoring plan will be developed prior to the onset of construction for desert tortoise which will include details of fencing and movement of individual desert tortoises.
- All trash will be removed and or secured in the project area each day.
- Project will remove and limit the spread of nonnative and invasive plant species.
- Implementation of the Proposed Action would not lead to a change in population size of desert tortoise or result in a loss of viability.

**Threatened and Endangered Birds**

**California Condor (Gymnogyps californianus). Federal Status: Endangered; State Status: Endangered.** The California condor was listed as endangered by the USFWS on March 11, 1967 (32 CFR 4001) and critical habitat was designated on September 24, 1976 (41 CFR 41914). The last wild condors were captured in 1987 for captive breeding purposes in a last ditch effort to save the species from extinction. Reintroductions of condors were started on the Los Padres National Forest in 1992.

Reintroductions have occurred on the Los Padres National Forest, Vermillion Cliffs in northern Arizona, and Baja California in Mexico. In California, the condors have expanded their range starting in the north in the Santa Lucia Mountains, down into the Sierra Madre Mountains, down south and east across the San Gabriel Mountains into the San Bernardino Mountains. The Baja California populations have been seen foraying into the greater San Diego area into the Cleveland National Forest.

As of July 31, 2009, the total California condor population was 356 birds of varying ages. There are 176 in the captive population and 180 in the wild (including 75 in Arizona, 89 in California, and 16 in Baja California).

Prior to 1987, condors nested in the Angeles National Forest and were a frequent visitor. Habitat previously occupied by condors for nesting and foraging on the Forest prior to 1987, when all wild birds were captured, remains in good condition. In 1906, William Finley discovered an egg in a nest in Eaton Canyon and photographed its progression until the nestling was 3½ months old (USDA, 1971).

Within the Angeles National Forest, known roosting areas include Bear Divide and Mt. Lukens. Condors have been sighted from the Los Padres National Forest across into the San Bernardino National Forest at Lake Arrowhead; hence, the entire Angeles National Forest, including the northern and southern thermals, would be within the range of the condor’s flight path.
The entire project area is within the historic and potential range of the California condor. The only known historic nesting and roosting sites within the project area were within the Angeles National Forest. The Central Region of the TRTP has been affected by several fires in 2009. The anticipated effects of these fires are documented in Section 3.1.4; however, the total effects will not be known for several years.

Habitat Status

The California condor ranges in elevation from sea level to 9000 feet. California condors commonly feed in groups and almost exclusively on mammalian carrion including domestic animals, hunter-shot mule deer, shot or poisoned coyotes, and ground squirrels (Snyder and Schmitt, 2002). Condors require approximately 1 kg of food per day (Zeiner et al., 1990a). It has been found that they can remain without feeding for several days and can convert food to fat rapidly after gorging (California Condor Recovery Plan, 1980; Wilbur, 1978). Typically, the California condor forages in relatively open grassland regions, where primary foraging areas are separated from the primary nesting areas, necessitating substantial travel (Meretsky and Snyder, 1992; Snyder and Schmitt, 2002). Most foraging occurs in open terrain of foothills, grasslands, potreros with chaparral areas, or oak savannah habitats. Historically, foraging also occurred on beaches and large rivers along the Pacific coast (USFWS, 2005e).

In photographic and telemetric tracking of California condors from 1982 to 1987, it was found that an individual could fly more than 200 km during a day (Meretsky and Snyder, 1992; Polite, 2005). Birds were variably social in movements. Pair members tended to stay together during long-distance travels. Immature and unpaired birds sometimes traveled with other condors but often moved singly (Meretsky and Snyder, 1992).

Typical roost sites include rock cliffs, dead conifers, and snags. Roost sites are located in an isolated, or at least a semi-secluded area (California Condor Recovery Plan, 1980). Traditional roost sites include cliffs and large trees and snags (roost trees are often conifer snags 40 to 70 feet tall), often near feeding and nesting areas. Condors may remain at the roost site until midmorning, and generally return in mid- to late afternoon (USDA, 2005b). Condors nest in caves, crevices, and potholes in isolated areas (Snyder and Schmitt, 2002). No nest is built; the single egg is laid on the bare or sand-covered cave floor (California Condor Recovery Plan, 1980). One pair normally lays an egg every two years (USDA Forest Service, 1971; Wilbur, 1973). Courtship is observed as early as October; one egg is laid February to May; incubation is 59 days; and the young remains in the nest for 5 months. Even after flying begins, the fledgling depends on parental care for at least a few months (Zeiner et al., 1990a). The birds are thought to mate for life and do not reach maturity until at least six years of age (USDA, 1971; Wilbur, 1973). The life span of a condor is quite long. One bird is known to have lived 46 years in captivity (USDA, 1971).

Threats to the California condor include lead poisoning of animals via lead bullets, antifreeze consumption, collisions with overhead wires or electrocution, and lack of suitable habitat (Fry, 2004; Pattee et al., 1990; Snyder and Schmitt, 2002). Noise, human, motorized or other disturbances can cause a condor to flush the area, thus eggs could be crushed or knocked off a shelf or ledge (California Condor Recovery Plan, 1980).

Collisions and electrocutions with electrical distribution structures were a significant mortality factor for the reintroduced population of California condors during the first several years of release efforts (Snyder
and Snyder, 2000). Seven condors died due to collisions or electrocutions in California from December 1988 to June 1999 (Meretsky et al., 2000). This threat was thought to have largely resulted from the tendency of young birds to associate with human structures (Snyder and Snyder, 2000). This hazard has been avoided by releases of birds that have been trained to avoid perching on mock utility poles fitted with electroshock mechanisms (Snyder and Snyder, 2005). All recorded instances of collisions and electrocutions have been with distribution structures, and transmission lines and structures have not represented a collision or electrocution threat to the California condor (J. Burnett, personal communication). Condors have excellent eyesight (Snyder and Snyder, 2005) and do not fly during inclement weather, factors which may explain why they readily avoid transmission lines.

The 2009 fires may enhance California condor habitat by creating snags for future roost sites and improving foraging habitat. Dodds (1966) documented that roost trees were lost within fires; however, fires also create new snags that could provide future roost trees. Fires open up areas that would allow the condor to use a greater majority of the habitat for foraging. Condors need a long runway to achieve flight in still air, thus with openings in chaparral, condors would be able to utilize more area for feeding. Miller et al. (1965) found that condors cannot achieve flight after gorging themselves and will spend a night in a tree before returning to young. If the birds can take off in the mountains where there are strong thermals and adequate runway to achieve flight, the condors will probably return to their young (Miller et al. 1965). Hence, the fire could increase the condors’ use of the Central Region.

Cowles (1958, 1967) hypothesized that the near-extinction of the condor might be due to fire exclusion from its territory, which has brought about intolerable conditions in its habitat, particularly its food supply. Cowles hypothesized that fire exclusion results in the chaparral growing older, taller, and thicker. In areas of old chaparral, there are only a few rabbits, thought to be one of the condor’s favorite foods. Condors were sometimes forced to go long distances for food, which did not furnish enough calcium for eggshell formation or sufficient nutrients for young birds. Bones of small animals were needed to supply the calcium (Eastman 1976).

**California Condor Critical Habitat**

Critical habitat for the California condor was designated on September 22, 1977 (42 FR 47840). This Project is not within or near critical habitat for the California condor. Critical habitat for this species occurs over five miles west of Segment 4.

**Survey Results**

Focused surveys for this species were not conducted. However, extensive avian surveys on the ANF conducted in 2007, 2008, and 2009 did not detect this species. Condors are known to roost near the project area at Mount Lukens (approximately 3 miles to the west of Segment 11) and Bear Divide (approximately 14 miles to the west of Segment 11).

**Direct Effects:** The California condor is considered present within the Northern and Central Regions and may soar over portions of the Southern Region of the Proposed Action. Although condors are not known to regularly use any particular site within the Proposed Action, they do occur broadly over the Proposed Action area during foraging trips. The closest roost sites to the project area include Mt. Lukens, which is approximately three miles from Segment 11. California condors are also known to roost at Bear Divide and Whittaker Peak, each located over ten miles from the Project. To date there are no known condor roost sites that would be affected by the proposed transmission line. However, as not all the animals are
radio-tagged, it is not possible to determine the movement patterns of all the birds at this time. There are
perch sites available in the dense forested areas of the ANF that are crossed by the line. It is anticipated
that the expansion of condors back into their historical range will continue, thus impacting the entire
project area within the life of the Project.

Direct effects to condors could occur through the loss of or disruption of foraging habitat, collision with
the transmission line, the introduction and ingestion of micro-trash, or exposure to ethylene glycol
antifreeze. Noise from helicopter operation could disrupt foraging and/or roosting for this species up to
one mile away from the proposed TRTP area, depending on terrain. Implementation of Mitigation
Measure B-14 will reduce the effects to condors.

The loss of foraging habitat from the Proposed Action is expected to be minimal, and restoration of
temporarily disturbed sites would be completed at the conclusion of construction. Most foraging occurs in
open terrain of foothills, grasslands, potreros within chaparral areas, or in oak savannah habitats.
Historically, foraging also occurred on beaches and large rivers along the Pacific coast (USFWS, 2005e).
Construction activities would result in the permanent loss of approximately 349 acres of habitat within the
entire Proposed Action area. This consists of relatively small amounts of habitat compared to what is
regionally available. Condors that occur in the region forage on carrion at feeding stations in the Los
Padres National Forest well outside the project area. However, condors are increasing their current range
and moving into areas not recently inhabited by this species. Therefore, condors could move into and
utilize the Proposed Action area.

Bird collisions with power lines generally occur when a power line or other aerial structure transects a
daily flight path used by a concentration of birds and when migrants travel at lower altitudes and
encounter tall structures in their path (Brown, 1993). All recorded instances of collisions and
electrocutions have been with distribution structures, and transmission lines and structures have not
represented a collision or electrocution threat to the California condor (J. Burnett, personal
communication). Condors have excellent eyesight (Snyder and Snyder, 2005) and do not fly during
inclement weather; a factor which may explain why they readily avoid transmission lines. However, the
possibility remains that a condor could collide with a transmission line, tower, conductor, or guard wire.

Construction debris, litter, leaking equipment, or road kill can attract this species to the project area.
Condors are curious birds and have been documented in close association with oil pumps and human
activity on the Los Padres and Angeles National Forests. During cleanup activities at trash sites, condors
have been observed sitting on guard rails adjacent to the cleanup crews. Near Castaic this species has been
noted landing on equipment and vehicles. Impacts to condors have been documented by the animals’
collection of micro-trash (i.e., broken glass, paper and plastic waste, small pieces of metal). This waste is
often brought back to nest sites where young birds ingest the material. This can lead to mortality of young
birds. Ethylene glycol, a component in antifreeze and petroleum products, can also be ingested by
condors, ultimately leading to death. Implementation of Mitigation Measure B-14 will reduce the effects
to condors.

Construction with the use of helicopters may result in harassment to condors should they fly over the
project area. This effect would likely be localized and would not result in direct harm to the birds. The
nearest known condor roost is approximately three miles from the Proposed Action at Mt. Lukens.
However, if condors move into the vicinity of the Proposed Action during construction, they could be
subjected to harassment from the use of helicopters. Helicopter use could affect condors up to one mile
away, depending on topography. Examples of helicopter use that could affect condors include periods of hovering at tower sites and travel between tower sites and staging areas. Travel would likely impact condors to a greater degree because condors could avoid areas where hovering occurs, but helicopters traveling between sites could impact a larger area. Mitigation Measure B-14 includes provisions to stop work until condors have left the area, if they are observed within the construction zone. This will reduce impacts to condors.

Herbicides would be used during construction, maintenance, and operation of the Proposed Action. The use of herbicides could be detrimental to California condors. These curious birds could be exposed to herbicides through windborne drift of chemicals, ingestion of prey items exposed to herbicides, and contact with affected vegetation or indirect contact through grooming. Dicamba is known to affect eye development in birds and is generally thought to be toxic to them. Implementation of Mitigation Measure B-3a would ensure that only licensed herbicide applicators would use herbicides on the Project, and herbicides would be applied according to all State and federal regulations. Herbicides would be applied in such a way as to minimize overspray or contact with water. See Mitigation Measure B-3a for other minimization measures that would be implemented when herbicides are used. Therefore, the risk to California condors resulting from herbicide use would be minimized.

SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-8b (Conduct biological monitoring), and Mitigation Measure B-14 (Monitor construction in condor habitat and remove trash and micro-trash from the work area daily) to avoid or mitigate direct effects to condors, including the loss of habitat and the potential for micro-trash ingestion.

**Indirect Effects:** Indirect effects associated with the Proposed Action could include disruption of breeding and feeding activities through the use of new roadways and subsequent increases in human disturbance and the removal of large trees that may be suitable for future nesting or perching. In addition, increased public use of new and/or improved access and spur roads could lead to an increase in trash and micro-trash in the project area after construction is complete. However, public access to access and spur roads used on the Project would be minimized through the installation of gates or other approved vehicular barricades (Mitigation Measure B-1a).

Project activities would not diminish food sources for the California condor. This species is an opportunistic scavenger, and feeds on the carcasses of dead animals. Available foraging habitat is widespread in the project area and the region in general, and project activities would not interfere with access to food sources or cause a decline in the amount of food available to this species.

SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-8b (Conduct biological monitoring), and Mitigation Measure B-14 (Monitor construction in condor habitat and remove trash and micro-trash from the work area daily) to minimize indirect effects to the California condor.
Cumulative Effects: Non-federal projects are not known to be proposed in the Central Region where this species is most likely to occur. Condors are currently expanding their range in the vicinity of the Northern Region. Current and foreseeable future actions that could impact condors in the Northern Region include projects such as the PdV, Alta-Oak Creek Mojave Project, Pacific Wind, and Pine Tree wind farms; the Antelope Transmission Project Segments 2 and 3, the El Paso Line 1903 Pipeline Conversion Project; Route 58 Mojave Alignment Project; Hyundai Corporation Test Track Facility and Habitat Conservation Plan; California High-Speed Train System; and at least 12 separate small- and large-scale residential and planned community developments in southern and central Kern County. In additional, there are several wind and solar energy projects in the early planning stages in the western Mojave Desert for which project details are currently unknown, and have not yet been determined feasible for development. Any projects developed in this area will result in incremental impacts to condors. Project impacts, should they occur, would contribute to the potential loss of habitat and harassment of condors when combined with the effects of other past and reasonably foreseeable projects, and therefore, would be cumulatively considerable.

Determination: It is my determination that the Proposed Action may affect but is not likely to adversely affect California condors on NFS lands, USACE lands, and private lands. It is my determination that the Proposed Action will have no effect on California condor designated critical habitat.

Rationale:
- Condors currently use areas to the west and north of the project area, and will likely use the project area as their range expands.
- There is no designated critical habitat within the project area.
- Trash and microtrash will be removed and/or secured each day within the work sites.
- If condors are seen flying in or near the project area, helicopter use will cease until condors leave the area.
- If condors are found roosting within the project area, no construction activities shall occur between 1 hour before sunset to 1 hour after sunrise, or until the condors leave the area.
- If condors are found nesting within 1.5 miles of the project area, no construction activity will occur until nesting stops and fledglings leave the area.
- Project will remove and limit the spread of nonnative and invasive plant species.
- APLIC guidelines for construction of powerlines will be followed.

Implementation of the Proposed Action would not lead to a change in population size of California condor or result in a loss of viability.

Southwestern Willow Flycatcher (Empidonax traillii extimus). Federal Status: Endangered; State Status: Endangered. The southwestern willow flycatcher was federally listed as endangered on February 27, 1995 (60 FR 10693). Critical habitat correction designations were made on July 22, 1997 (62 FR 39129) and August 20, 1997 (62 FR 44228). This species is a neotropical migrant that breeds in riparian habitats and is known to nest as high as 8,000 feet (Grinnell and Miller, 1944); in California it is known to nest in the San Gabriel and San Bernardino Mountains and the South Fork Kern River (Unitt, 1987; USFWS, 1995; S. Myers, pers. obs.; R. L. McKernan, pers. comm.). The breeding range for this
species includes southern California, Arizona, New Mexico, southern Utah, southern Nevada, and western Texas (USFWS, 1995). A precipitous decline in the abundance of this subspecies led to its federal listing as endangered in 1995. Extensive loss of low-elevation riparian habitat across its range and brood parasitism by the brown-headed cowbird were identified as the primary causes of its decline (USFWS, 1995).

The southwestern willow flycatcher is an uncommon spring migrant and a fairly common fall migrant in the Angeles National Forest and lowland portions of the TRTP (Garrett and Dunn, 1981). In 1988, one bird was seen in the West Fork of the San Gabriel River at the confluence of Big Mermaids Canyon (W. Brown 1993). In late May 1989, a singing male was detected along the West Fork San Gabriel River (US Army Corps of Engineers, 1994). In 1988 and again in 1990, one bird was seen at Lynx Gulch and Upper Big Tujunga Canyon. Other sightings of single birds occurred at Stoneyvale Picnic Area (1991), the confluence of Upper Big Tujunga Road and Angeles Forest Highway (1990), and at Monte Cristo Campground (1992). It is thought that these birds may be migrating northward to breed in the Sierra Nevadas.

One breeding pair was observed at a remote site in upper Bear Creek, a tributary to the West Fork San Gabriel River, in 1997. Surveys during the 1998 breeding season did not detect flycatchers at this location (Forest Records).

In 1999, surveys were conducted in Little Rock Creek, Santiago Creek, Soledad Canyon, Upper Big Tujunga Canyon, San Francisquito Canyon, and Elizabeth Lake Canyon. Willow flycatchers were observed in Little Rock on May 27 (1 bird) and June 10 (3 birds); in Soledad Canyon on May 21 (4 birds), June 11 (3 birds), and June 24 (1 bird); in Upper Big Tujunga on May 17 (1 bird), May 28 (1 bird), June 7 (2 birds), and June 11 (1 bird); in San Francisquito Canyon on May 17 (1 bird) and May 19 (1 bird); and in Elizabeth Lake Canyon on June 18 (2 birds) (Tierra Madre Consultants, 1999).

On the Angeles National Forest, surveys for Recreational Residence tracts in 2000 were conducted in Barrett Canyon, Icehouse Canyon, Glacier Tract, Lower West Fork San Gabriel, Main San Dimas Creek, Santa Anita Canyon, Millard Canyon, Lower Big Tujunga Canyon, Trail Canyon, Big Tujunga Canyon at Vogel and Stoneyvale, Lower Big Rock Creek, Bouquet Canyon, and Soledad Canyon (Ecosphere Environmental, 2000). Two migrant willow flycatchers were noted in Big Tujunga Canyon (one on May 18 and one on May 28) (Ecosphere Environmental, 2000).

In 2001 on the Angeles National Forest, surveys were conducted in the Mt. Baldy Ski Area, San Gabriel River at the OHV Area, Burro Canyon, Arroyo Seco, Upper Big Tujunga, Alder Creek, Soledad Canyon, and San Francisquito Canyon. No southwestern willow flycatchers were detected in the Mt. Baldy Ski Area, San Gabriel River at the OHV Area, Burro Canyon, Arroyo Seco, Upper Big Tujunga and Alder Creek (PCR, 2001).

In San Francisquito Canyon in 2001, two birds were observed during the second protocol period (June 1-21), but not detected at other survey times. Even though the birds appeared to be paired, no nesting behavior was observed (PCR, 2001). In Soledad Canyon in 2001, six birds were observed during the second protocol period (June 1-21), but not detected at other survey times. Even though the birds appeared to be paired, no nesting behavior was observed (PCR, 2001). Due to the timing of the observation, it is unclear which subspecies of willow flycatcher was noted.
Surveys conducted in 2002 on the Angeles National Forest found no nesting willow flycatchers in Liebre Gulch, Lower Piru Creek, West Fork San Dimas Creek, Roberts Canyon, or Lower North Fork San Gabriel River (Jones and Stokes, 2002). Non-breeding willow flycatchers were detected in Liebre Gulch and Lower Piru Creek. At Liebre Gulch, 15 detections occurred on May 29 and 31 during the first survey period, 33 were detected on June 8 and 10 during the second survey period, and 2 were detected on June 22 during the third survey period. At Lower Piru Creek, 3 willow flycatchers were observed during the first survey on May 28, 2002, 9 were detected on June 7 and 9 during the second survey period, and none were detected during the third survey period (Jones and Stokes, 2002).

Based on willow flycatcher migration patterns and periods, the flycatchers observed cannot be confidently identified to subspecies because all subspecies of northbound willow flycatchers may potentially move through the survey area within all three protocol survey periods (Sogge et al., 1997; PCR, 2001; and S. Myers, unpub. data [field notes]).

The TRTP is within the historical range of the species, and suitable nesting habitat is present within many drainages of the Angeles National Forest, the Whittier Narrows Recreation Area, at the Whittier Narrows Nature Center, and at the Rio Hondo.

The 2009 fires in the Central Region affected the habitat within the TRTP analysis area. Anticipated effects due to fires are disclosed in Section 3.1.4.

**Habitat Status**

The willow flycatcher is a rare to uncommon resident in wet and montane riparian habitat from sea level to approximately 8000 feet elevation (Unitt, 1987). Willow flycatchers have primarily been sighted under 4,000 feet elevation. Willow flycatchers are common spring and fall migrants at lower elevations, primarily in riparian habitats (Zeiner et al., 1990a). Willow flycatchers tend to migrate north in April and May and arrive in breeding colonies at the end of April. Nest building begins mid-May with secondary nests in July and eggs and incubation from the end of May. Chicks are in the nest from mid-June, fledging from nest occurs from the end of June, and migration south occurs in August and September (Sogge et al., 1997).

The southwestern willow flycatcher occurs in densely vegetated riparian habitats, preferring streamside associations of cottonwood (*Populus* sp.), willow (*Salix* sp.), and other riparian vegetation (USFWS, 1993a; Sogge et al., 1997). Tamarisk is being utilized in the absence of native vegetation in Arizona (DeLoach et. al, 2000). This species most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows (Zeiner et al., 1990a). Dense willow thickets are required for nesting and roosting (Zeiner et al., 1990a). Low, exposed branches are used for singing posts and hunting perches. The willow flycatcher is diurnal and active yearlong. Willow flycatchers eat flying insects and occasionally berries and seeds. An open cup nest is placed in an upright fork of a willow or other shrub, or occasionally on a horizontal limb (Zeiner et al., 1990a). Willows, nettles, and the lower branches of cottonwoods have been used for nesting (Sogge and Marshall, 2000). The nesting site is usually near a languid stream, standing water, or seep. Willow flycatchers are monogamous. They lay 3-4 eggs in June, incubate 12-13 days, and fledge at 13-14 days (Sogge et al., 1997; Zeiner et al., 1990a). Both sexes care for altricial young.

Willow flycatcher nests are frequently parasitized by brown-headed cowbird (*Molothrus ater*). This species formerly bred in willow thickets throughout most of lowland and in montane California, but
numbers have declined drastically in recent decades because of cowbird parasitism and habitat destruction. Heavy grazing of willows by livestock apparently reduces numbers (Zeiner et al., 1990a).

Population decline is primarily due to habitat loss and disturbance. Other factors include brood parasitization by brown-headed cowbirds, replacement of native vegetation by exotic vegetation, livestock grazing, pesticide contamination, predation, and probable loss of winter habitat due to tropical deforestation (USFWS, 1993a; Sogge et al., 1997).

Many riparian birds including southwestern willow flycatcher and other neo-tropical migrants are impacted by noise and human disturbance. Reijnen et al. (1995) demonstrated that for two species of European warbler (Phylloscopus spp.), sound levels between 26 dB(A) and 40 dB(A) reduced breeding density by up to 60 percent compared to areas without disturbance. In addition, while current sound thresholds for most birds in California are considered to be approximately 60 dB(A), this level may still impact breeding success for least Bell’s vireo and southwestern willow flycatcher. W. Haas (personal communication, 2007) reported that in 1999, sound levels were recorded at 87 locations containing similar habitat conditions in the vicinity of the San Luis Rey River, the most robust and stable population of willow flycatchers in California. Data indicate that noise levels were the most important factor for occupancy. Based on sound levels, 90 percent of territories were occupied at levels at 49 dB(A), 75 percent at 51 dB(A), 50 percent at 53 dB(A), 25 percent at 55 dB(A), and no territories were occupied at 60 dB(A) (W. Haas, personal communication, 2007). These data suggest disturbance from adjacent road noise and urban development may be a contributing factor in the use of habitat adjacent to developed areas.

Table 16 contains a summary of the potentially suitable habitat that is present within the proposed Project area and the estimated impacts to potential southwestern willow flycatcher habitat (southern cottonwood-willow riparian forest, southern coast live oak riparian forest, southern sycamore-alder riparian woodland, southern willow scrub, and southern arroyo willow riparian forest). Potentially suitable habitat identified in the project area may not currently support this species or may not provide the primary constituent elements required to support successful breeding. Nonetheless, some areas could support breeding or the habitat may provide elements that support some portion of the species life history such as foraging, temporary refugia, or dispersal. Many factors contribute to the use of habitat by this species and include the size and structure of the habitat, proximity to water or disturbance, level of competition of predator abundance, or other biotic/abiotic conditions. Much of the vegetation in this table does not contain the PCEs for this species. Estimated impacts to potential habitat were calculated using GIS data provided by SCE, and may not include all the expected or potential disturbance from road improvement and construction (off the ANF), staging areas, and other areas of potential disturbance that will be identified during final engineering.

| Table 16. Potential Southwestern Willow Flycatcher Habitat within the Project Area |
|----------------------------------------|-----------|
| Acres of habitat in project area       | 411.8     |
| Disturbance in acres to habitat        | 4.2       |
Southwestern Willow Flycatcher Critical Habitat

Critical habitat was designated for the southwestern willow flycatcher on October 19, 2005 (70 FR 60886). No critical habitat is designated within or near the project area.

Survey Results

Protocol surveys were conducted at 5 locations in 2007, 4 locations in 2008, and 12 locations in 2009 (see Table 13). Three willow flycatchers were detected in 2007 along Segment 6 in upper Big Tujunga Canyon (5 June). Four willow flycatchers were detected in 2007 along Segment 11 in Aliso Canyon (4 June). Three willow flycatchers were detected in 2008 in the Whittier Narrows Recreation Area along Segment 8 (8 June). Two willow flycatchers were detected in 2009 in Amargosa Creek at Segment 5 (15 May). Seven willow flycatchers were detected in 2009 on the ANF at the following locations: North Fork Mill Creek (22 May); Mill Creek (27 May); Monte Cristo Creek (27 May); Lynx Gulch (27 May); West Fork San Gabriel River (28 May); Upper Big Tujunga (4 June); and lower Fall Creek (11 June). Three willow flycatchers were detected in 2009 at the following locations in the Southern Region: Whittier Narrows Recreation Area (19 May); Brea Creek (8 June); Canyon Hills Road (19 June). None of the birds identified in 2009 were detected on subsequent surveys.

Direct Effects: Willow flycatchers have been detected numerous times on the ANF, including at the following locations in and near the project area: West Fork of the San Gabriel River, Lynx Gulch at Upper Big Tujunga Canyon, Upper Big Tujunga Road at Angeles Forest Highway, Monte Cristo Campground, and Big Tujunga Canyon. In addition, there is a record of a southwestern willow flycatcher building a nest just north of the ANF border in Soledad Canyon, approximately 7 miles from the northern portion of Segment 11 (Stephenson and Calcarone, 1999), and nesting southwestern willow flycatchers have been documented at upper Bear Creek, a tributary to the West Fork San Gabriel River. Surveys conducted by SCE in 2007 detected a total of seven willow flycatchers in Segments 6 and 11. Three willow flycatchers were detected in 2008 in the Whittier Narrows Recreation Area along Segment 8. A total of 12 willow flycatchers were documented throughout the Project area in 2009. The Project does not fall within critical habitat for the southwestern willow flycatcher (USFWS, 2005c). However, the Project is within the historical range of the species, and suitable nesting habitat is present within portions of the Whittier Narrows Recreation Area, at the Whittier Narrows Nature Center, at the Rio Hondo, and at several locations on the ANF.

Direct effects to the southwestern willow flycatcher, as a result of construction activities for the proposed TRTP, could include the removal or disturbance of vegetation that supports nesting birds, increased noise levels from heavy equipment and helicopter operations, increased human presence, and exposure to fugitive dust. Construction immediately adjacent to riparian habitats may affect nesting southwestern willow flycatchers by resulting in the incidental loss of fertile eggs or nestlings, or otherwise leading to nest abandonment. Preconstruction surveys will occur and occupied areas will be avoided, thus effects to individuals and nests would be avoided (Mitigation Measure B-15).

Herbicides would be used during construction, maintenance, and operation of the Proposed Action to control nonnative and invasive plant species. Birds could be exposed to herbicides through direct spraying, contact with vegetation that has been treated, ingestion of prey items that have been exposed, or accidental ingestion through preening. When small animals are exposed to pesticides they will generally receive a higher dose, in terms of body weight, than large animals will receive for a given type of exposure because of the relationship of body weight to surface area versus the consumption of food and
water (Durkin, 2007). See Mitigation Measure B-3a for minimization measures that would be implemented when herbicides are used.

Measures that would reduce direct effects to the southwestern willow flycatcher include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-3b (Remove weed seed sources from construction access routes), B-3c (Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads), Mitigation Measure B-15 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan). These measures would restore habitat disturbed during construction, educate workers on the special-status species potentially present in the project area, ensure a treatment plan is developed and implemented for Riparian Conservation Areas (RCAs) on the ANF, ensure SCE conducts focused surveys for the southwestern willow flycatcher and avoids occupied habitat, implements BMPs, and minimizes the amount of fugitive dust produced during construction.

Indirect Effects: Ten southwestern willow flycatchers were documented in the TRTP project area during surveys for this project. Indirect effects could include the loss of habitat due to the colonization of nonnative and invasive species and a disruption of breeding activity due to facilitated use of new or improved spur and access roads by the public. However, measures to remove and prevent the establishment of nonnative and invasive plant species would be required in accordance with Mitigation Measures B-3a, B-3b, and B-3c. Overspray of herbicides may also indirectly affect nesting birds by reducing habitat and foliage supporting prey items. However, Lindsay and French (2004) did not identify any significant direct or indirect effects on leaf litter invertebrate abundance or community composition in the four months following herbicide (glyphosate) application. Sullivan and Sullivan (2003) reviewed literature on glyphosate and concluded the diversity of terrestrial invertebrates in glyphosate-treated areas is variable and that abundance and diversity of invertebrates in a treated area is primarily a function of the degree of vegetation control and changes in vegetation structure. Hence, following herbicide treatment, available prey base should continue to exist to support the southwestern willow flycatcher.

Project activities would not diminish food sources for the southwestern willow flycatcher. This species is an insectivore that forages in riparian areas. Potential available foraging habitat in the project area is large compared to the amount of habitat that would be impacted (see Table 16), and Project activities would not interfere with access to food sources or cause a decline in the amount of prey available to this species.

Measures that would reduce indirect effects to the southwestern willow flycatcher include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-3b (Remove weed seed sources from construction access routes), B-3c (Remove weed seed sources from assembly yards, staging areas, tower pads, pull sites, landing zones, and spur roads), Mitigation Measure B-15 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat), Mitigation Measure H-1a (Implement an Erosion Control Plan and
demonstrate compliance with water quality permits), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Cumulative Effects:** Non-federal projects are not known to be proposed in the TRTP project area in the Central Region. Therefore, cumulative effects in this region are not anticipated. However, development in the Northern and Southern Regions of the proposed TRTP is rapid and ongoing, which is impacting biological resources at a regional scale. Potential habitat for southwestern willow flycatchers occurs at several locations in the Southern Region, and within the southern portion of the Northern Region near the boundary of the ANF. Projects proposed and under construction in these areas include large housing and commercial developments. Construction and post-construction impacts, when combined with past, present, and reasonably foreseeable future projects in the area, would be considerable and unavoidable.

**Determination:** It is my determination that the Proposed Action may affect but is not likely to adversely affect southwestern willow flycatchers on NFS lands, USACE lands, and private lands. It is my determination that the Proposed Action will have no effect on southwestern willow flycatcher critical habitat on NFS lands, USACE lands, and private lands.

**Rationale:**
- Southwestern willow flycatchers may migrate through the project area. However, no nesting southwestern willow flycatchers have been found within the project area. Protocol-level surveys have been conducted.
- There is no designated critical habitat within the project area.
- FWS protocol surveys will occur in suitable habitat within 500 feet of the project area within one year of the start of construction.
- If a nesting or territorial southwestern willow flycatcher is detected, a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. No construction shall occur within this buffer during the breeding season.
- Road maintenance activities and grading of fly yards and staging areas, will occur outside of the breeding season.
- Project will remove and limit the spread of nonnative and invasive plant species.
- APLIC guidelines for construction of powerlines will be followed.

Implementation of the Proposed Action would not lead to a change in population size of southwestern willow flycatchers or result in a loss of viability.

**Least Bell’s Vireo (Vireo bellii pusillus). Federal listing status: Endangered; State Status: Endangered.** A range-wide decline of least Bell’s vireo resulted in its being federally listed as endangered on May 2, 1986 (51 FR 16474). The State of California listed the least Bell’s vireo as endangered on June 27, 1980. The decline was attributed to extensive habitat loss and degradation and brood parasitism by brown-headed cowbirds.

Excerpt from Garrett (1993):

Formerly a breeding summer resident “in the willow regions of the lowlands, and along streams up to the foothills” (Grinnell, 1989). Grinnell and Miller (1944) alluded to a decline beginning in the late 1920s caused by cowbird brood parasitism. This decline continued, abetted by the destruction of willow bottomlands, over the next several decades, and the species was eliminated as a regular nesting species in the drainage by the 1970s. Cowbird trapping programs have been successful in aiding vireo reproductions in some southern California areas (see Collins et al., 1988, which contains an excellent discussion of
This subspecies of the Bell’s vireo is quite similar in appearance to the Arizona Bell’s vireo. Formerly, the least Bell’s vireo was known to breed from interior northern California near Red Bluff in Tehama County south through the Sacramento and San Joaquin valleys and Sierra Nevada foothills, and in the coastal ranges from Santa Clara County south to the approximate vicinity of San Fernando in Baja California. The bird also occurred in the Owens and Death valleys in Inyo County and at scattered oases and canyons throughout the Mojave Desert. Currently, its breeding range is in southern California, with large populations in Riverside and San Diego counties and smaller populations in Los Angeles, San Bernardino, Santa Barbara, Ventura, and San Diego counties and in northern Baja California. Its breeding range is restricted to southern California and northern Baja California, Mexico (USFWS, 1998a; CNDDDB, 2009; S. Myers, pers. obs.).

In Los Angeles County, many documented sightings have occurred on public lands where intensive surveys have been conducted. Documented sightings have occurred at Castaic Creek, Santa Clara River, and Van Norman Dam (CNDDDB, 2009). A singing male was observed in San Francisquito Canyon in 1987, and another during a survey of the Knapp Ranch, previously a private inholding acquired by the Forest Service in 1995 (Angeles National Forest Records). Least Bell’s vireos were observed in Little Rock Creek on July 1, 1999 (1 singing), on July 2, 1999 (1 singing), and again in 2000. One singing bird was observed on July 14, 1999 in Soledad Canyon (Tierra Madre Consultants, 1999). Two migrant least Bell’s vireos were noted in Big Tujunga Canyon (2 on June 5, 2000) and one at Soledad Canyon (May 30, 2000) (Ecosphere Environmental 2000).

In 1974, a sighting occurred at the mouth of Fish Canyon and in 1975, a sighting occurred at the mouth of Van Tassel Canyon (CNDDDB, 2009; US Army Corps of Engineers, 1994). There was a sighting of a single individual in 1993 at the Sunnyside Debris Basin off of Sunnyside Drive near Hasting Debris Basin near the Los Angeles River Ranger District (Angeles National Forest Records). In addition, two pairs of least Bell’s vireos were observed nesting below San Gabriel Reservoir in 1983 on the San Gabriel River (Angeles National Forest Records).

On the Angeles National Forest in 1999, surveys were conducted in Little Rock Creek, Santiago Creek, Soledad Canyon, Upper Big Tujunga Canyon, San Francisquito Canyon, and Elizabeth Lake Canyon (Tierra Madre Consultants, 1999).

On the Angeles National Forest, surveys for Recreational Residence tracts in 2000 were conducted in Barrett Canyon, Icehouse Canyon, Glacier Tract, Lower West Fork San Gabriel, Main San Dimas Creek, Santa Anita Canyon, Millard Canyon, Lower Big Tujunga Canyon, Trail Canyon, Big Tujunga Canyon at Vogel and Stoneyvale, Lower Big Rock Creek, Bouquet Canyon, and Soledad Canyon (Ecosphere Environmental, 2000). Two migrant least Bell’s vireos were noted in Big Tujunga Canyon (on June 5) and one at Soledad Canyon (May 30) (Ecosphere Environmental, 2000).

In 2001 on the Angeles National Forest, surveys were conducted in the Mt. Baldy Ski Area, San Gabriel River at the OHV Area, Burro Canyon, Arroyo Seco, Upper Big Tujunga, Alder Creek, Soledad Canyon, and San Francisquito Canyon. No least Bell’s vireos were detected (PCR, 2001). A single male was observed in Sycamore Canyon in 2005.
Surveys conducted in 2002 on the Angeles National Forest found least Bell’s vireo in Liebre Gulch, Lower Piru Creek, West Fork San Dimas Creek, Roberts Canyon, or Lower North Fork San Gabriel River (Jones and Stokes, 2002).

Within Riverside County, cowbird trapping has been occurring and appears to be successful. Least Bell’s vireos have been documented at Weir Canyon at both the north side and south side of the Weir (Santa Ana Canyon River Habitat Management Plan, 2002). Griffith Wildlife Biology (1999) found 25 pairs between Prado Dam and two miles downstream (Santa Ana Canyon River Habitat Management Plan, 2002). Also within the Prado Basin, Pike et al. (2004) detected 590 territories and 413 pairs.

At the Santa Fe Dam detention basin in 2007, 12 sites occupied by vireos were identified, including 9 pairs and 3 single males. None of the vireos were banded. The 9 pairs attempted at least 13 nests, of which 7 were successful and produced at least 20 young. Two cowbird traps were operated in the detention basin in 2006-2007. None of the 13 known nests were parasitized. At the Santa Fe Dam drop structure area upstream of I-210, 9 sites occupied by vireos were identified, including 7 pairs and 2 transient males. None of the vireos were banded. Six of the pairs completed 11 nests, all of which were parasitized. Two of the vireo nests from which cowbird eggs were removed were successful and produced at least 5 young. Cowbirds were absent from the detention basin but were among the most abundant birds in the drop structure area (LACDA Vireo/Flycatcher Surveys, 2007; John Griffith, Biologist. A Contract with the US Army Corps of Engineers Operations Branch; C. Bass, USACE, Pers. Comm.).

As noted, brown-headed cowbird trapping was performed at Santa Fe Dam detention basin and Hansen Dam from 1 April to 30 June in 2007. At Santa Fe Dam two traps removed 29 male, 15 female, and one juvenile cowbirds. At Hansen Dam, 10 male and 13 female cowbirds were removed. In addition, a single trap was operated at Sepulveda Basin on a volunteer basis from 24 April to 7 May, during which period 17 male and 20 female cowbirds were removed. Female cowbirds lay approximately 40 eggs each breeding season (Lowther, 1993); removing 48 female cowbirds precluded approximately 1,920 parasitism events in these areas. In trapped areas in 2007, the vireo parasitism rate was 0% and vireo productivity was 3 per pair. In untrapped areas, the parasitism rate was 100% and per-pair productivity was 0.4 (despite removing all cowbird eggs found in vireo nests) (LACDA Vireo/Flycatcher Surveys, 2007; John Griffith, Biologist; A Contract with the US Army Corps of Engineers Operations Branch; C. Bass, USACE, Pers. Comm.).

The 2007 Santa Fe Dam study area included all riparian habitat within the detention basin and the drop structure portion of the flood control channel from I-210 upstream approximately 5 km, and the coastal sage habitat in the northwest and northeast parts of the detention basin and the spillway west of I-605 (LACDA Vireo/ Flycatcher Surveys, 2007; John Griffith, Biologist; A Contract with the US Army Corps of Engineers Operations Branch; C. Bass, USACE, Pers. Comm.).

Least Bell’s vireo has declined drastically or vanished entirely throughout California’s range in recent decades, apparently from cowbird parasitism and habitat destruction and degradation (Garrett and Dunn, 1981; Zeiner et al., 1990a). The increase in cowbird populations has been caused by the expansion of cattle ranching in California (Franzreb, 1989). Another important factor in the decline of the least Bell’s vireo is the destruction and fragmentation of riparian habitat as a result of residential and industrial development, which have increased the demand for water projects in least Bell’s vireo habitat (Olson and Gray, 1989). In 1986, only 397 territorial male least Bell’s vireos, 275 of which were paired, were estimated to exist in the species’ entire U. S. range; in 1997, at least 1,700 territorial males were
estimated to exist (Pike et al., 1997). This reflects an overall increase of more than 400 percent since 1986, when the species was federally listed.

The 2009 fires in the Central Region affected the habitat within the TRTP analysis area. Anticipated effects due to fires are disclosed in Section 3.1.4.

**Habitat Status**

The least Bell’s vireo is a neotropical migrant that typically breeds in low-elevation riparian habitats below approximately 2000 feet; however, Grinnell and Miller (1944) list the elevational range from 175 feet below sea level to 4,100 feet amsl. They utilize willows and other low, dense valley foothill riparian habitat and the lower portions of canyons (Zeiner et al., 1990a). The least Bell’s vireo is a summer resident of cottonwood-willow forest, oak woodland, shrubby thickets, and dry washes with willow thickets at the edges. The cottonwood-willow habitat is the more commonly used habitat although this species has been commonly observed in mulefat. Its breeding range is restricted to southern California and northern Baja California, Mexico (USDI-Fish and Wildlife Service, 1998a). The least Bell’s vireo migrates and arrives from Mexican wintering areas as early as late March (Pike et al., 2004). This species leaves by the end of August or early September (Zeiner et al., 1990a). Males usually arrive several days to a week prior to females (Barlow, 1962).

Least Bell’s vireos are usually found near water, but also inhabit thickets along dry, intermittent streams. Typically associated with willow, cottonwood, mulefat, wild blackberry, or mesquite in desert localities (Zeiner et al., 1990a), this species typically inhabits structurally diverse woodlands along watercourses (USFWS 1998a). Preferred habitat for the vireo are willow woodland with a tree overstory of Gooding’s black willow and a shrub understory dominated by arroyo willow, mulefat, and hoary nettle. The inter-habitat edge (openings within or adjacent to vireo territories) is composed of herbaceous and aquatic vegetation with seedling or sapling willows and mulefat invading. Vireo-occupied habitat usually contains a high degree of stratification: uneven age stands of mature overstory trees and shrub understory intermixed with openings within and immediately adjacent to the vireo territories. Tree canopy cover ranges from 50 to 75 percent, and shrub cover ranges from 50 to 90 percent.

Least Bell’s vireo is diurnal and active yearlong. The least Bell’s vireo primarily consumes insects by foliage glean ing (picking prey from leaf or bark substrates), and hovering (removing prey from vegetation surfaces while fluttering in the air) often less than 12 feet from the ground (Zeiner et al., 1990, Kus, 2002). Caterpillars, beetles, grasshoppers, and moths are frequently consumed; and they sometimes eat fruit (Zeiner et al., 1990a). An open cup nest is often placed on a slender branch of willow, other shrub, mesquite, or other small tree and is made of pieces of bark, fine grasses, plant down, and horse hair (Zeiner et al., 1990a). Individuals build nests in dense shrubs two to four feet above the ground, often in early to mid-successional riparian habitat with a dense understory that provides sufficient cover for nest concealment (Kus, 2002). Least Bell’s vireos exhibit high fidelity to nest sites (USFWS, 1994b) and are monogamous. They lay 3-5 eggs in May to early June, incubate 14 days by both sexes, and fledge 11-12 days after hatching (Zeiner et al., 1990a). Both sexes care for altricial young.

The least Bell’s vireo has declined drastically or vanished entirely throughout California’s range in recent decades, apparently from cowbird parasitism and habitat destruction and degradation (Garrett and Dunn, 1981; McWilliams, 2004; Zeiner et al., 1990a). Restored riparian habitats in the coastal lowlands of
southern California can support breeding least Bell’s vireos within three to five years, particularly if they are adjacent to established riparian areas (Kus, 1998).

Table 17 contains a summary of the potentially suitable habitat that is present within the Proposed Action area and the estimated impacts to potential least Bell’s vireo habitat (mulefat scrub, southern arroyo willow riparian forest, southern cottonwood willow riparian forest, and southern willow scrub below 2,000 feet elevation). Potentially suitable habitat identified in the project area may not currently support this species or may not provide the primary constituent elements required to support successful breeding. Nonetheless, some areas could support breeding or the habitat may provide elements that support some portion of the species life history such as foraging, temporary refugia, or dispersal. Many factors contribute to the use of habitat by this species and may include the size and structure of the habitat, proximity to water or disturbance, level of continuity to occupied habitat, level of competition or predator abundance, or other biotic/abiotic conditions. Estimated impacts to potential habitat were calculated using GIS data provided by SCE, and may not include all of the expected or potential disturbance from road improvement and construction (off the ANF), staging areas, and other areas of potential disturbance that will be identified during final engineering.

<table>
<thead>
<tr>
<th>Table 17. Potential Least Bell’s Vireo Habitat within the Project Area</th>
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<tbody>
<tr>
<td>Acres of habitat under 2000 feet elevation in project area</td>
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<tr>
<td>Disturbance in acres to habitat</td>
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</table>

**Least Bell’s Vireo Critical Habitat**

Critical habitat for least Bell’s vireo was designated on February 2, 1994 (59 FR 4845; USFWS, 1998a). No critical habitat is designated within or near the project area.

**Survey Results**

The least Bell’s vireo is known to nest along portions of Segment 8 and directly adjacent to Segment 7. Protocol surveys were conducted at four locations in 2007 and at four locations in 2009. Nesting least Bell’s vireos have been confirmed at the Whittier Narrows Nature Center (2007 and 2009), the Rio Hondo (2007), the Whittier Narrows Recreation Area (2007 and 2009), and Tonner Canyon/Chino Hills (2009). This species has also been documented at the Santa Fe Flood Control Basin.

**Direct Effects:** The least Bell’s vireo is known to nest along portions of Segment 8 and directly adjacent to Segment 7. Nesting least Bell’s vireos have been confirmed at the Whittier Narrows, the Santa Fe Flood Control Basin, and Tonner Canyon in the Chino Hills. There is potential least Bell’s vireo habitat in riparian areas along Segments 6 and 11 on the ANF. In addition, least Bell’s vireos have been detected at numerous locations on the ANF, including Big Tujunga Canyon and the mouths of Fish and Van Tassel Canyons. Habitats suitable for least Bell’s vireo within the project area include Southern Arroyo Willow Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Willow Scrub, and Mule Fat Scrub. Construction activities may result in the loss of least Bell’s vireo habitat due to installation of permanent structures and/or roads and disturbance from construction activities. In the Whittier Narrows area large tracts of riparian habitat occur and only limited vegetation removal is expected.
Direct effects to the least Bell’s vireo as a result of construction activities for the Proposed Action could include the removal or disturbance of vegetation that supports nesting birds, increased noise levels from heavy equipment and helicopter operations, increased human presence, and exposure to fugitive dust.

Construction immediately adjacent to riparian habitats may affect nesting least Bell’s vireos. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. The construction and use of access roads in riparian areas could disturb nesting riparian birds from noise, fugitive dust, and vehicle lighting. Noise from helicopter operation could affect this species by causing it to flush from roosting or nest sites. Flushing of birds from nest sites could result in eggs or juveniles being knocked out of the nest or could result in improper incubation of eggs, if flushing occurs repeatedly. Preconstruction surveys will occur and occupied areas will be avoided during the breeding season, thus effects to individuals and nests would be avoided (Mitigation Measure B-15).

Herbicides would be used during construction, maintenance, and operation of the Proposed Action to control nonnative and invasive plant species. Birds could be exposed to herbicides through direct spraying, contact with vegetation that has been treated, ingestion of prey items that have been exposed, or accidental ingestion through preening. When small animals are exposed to pesticides they will generally receive a higher dose, in terms of body weight, than large animals will receive for a given type of exposure because of the relationship of body weight to surface area versus the consumption of food and water (Durkin, 2007). See Mitigation Measure B-3a for minimization measures that would be implemented when herbicides are used.

To reduce direct effects of the Proposed Action to least Bell’s vireo, SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-15 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

While this species is known to occur in the project area, by timing construction activities to avoid the breeding season, effects to this species from construction activities would be avoided. In addition, while some habitat utilized by this species would be affected, this would constitute only a limited portion of the nesting and foraging habitat available to the birds. In addition, all habitat affected by project construction would be replaced or mitigated to replace lost functional values. Further, by conducting pre-construction surveys, removing and preventing the establishment of nonnative and invasive plant species, limiting work to the previously surveyed project areas, and using BMPs, potential effects will be minimized or avoided.

**Indirect Effects:** Indirect effects could include the loss of habitat due to the colonization of nonnative and invasive species and a disruption of breeding activity due to facilitated use of new or improved spur and access roads by the public. However, measures to remove and prevent the establishment of nonnative and invasive plant species would be required in accordance with Mitigation Measures B-3a, B-3b, and B-3c. Overspray of herbicides may also indirectly affect nesting birds by reducing habitat and foliage supporting prey items. However, Lindsay and French (2004) did not identify any significant direct or indirect effects
on leaf litter invertebrate abundance or community composition in the four months following glyphosate application. Sullivan and Sullivan (2003) reviewed literature on glyphosate and concluded the diversity of terrestrial invertebrates in glyphosate-treated areas is variable and that abundance and diversity of invertebrates in a treated area is primarily a function of the degree of vegetation control and changes in vegetation structure. Hence, following herbicide treatment, available prey base should continue to exist to support least Bell’s vireo.

Project activities would not diminish the prey base for the least Bell’s vireo. This species is an insectivore that forages in riparian areas. Potential available foraging habitat in the project area is large compared to the amount of habitat that would be impacted (see Table 17), and project activities would not interfere with access to food sources or cause a decline in the amount of prey available to this species.

To reduce indirect effects of the Proposed Action to least Bell’s vireo, SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-15 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Cumulative Effects:** Non-federal projects are not known to be proposed in the TRTP project area in the Central Region. Therefore, cumulative effects in this region are not anticipated. However, development in the Northern and Southern Regions of the proposed TRTP is rapid and ongoing, which is impacting biological resources at a regional scale. Projects proposed and under construction in these areas include large housing and commercial developments. Construction and post-construction impacts, when combined with past, present, and reasonably foreseeable future projects in the area, would be considerable and unavoidable.

**Determination:** It is my determination that the Proposed Action may affect but is not likely to adversely affect the least Bell’s vireo on NFS lands, USACE lands, and private lands. It is my determination that the Proposed Action will have no effect on least Bell’s vireo critical habitat on NFS lands, USACE lands, and private lands.

**Rationale:**

- Least Bell’s vireo may be migrating through the project area.
- Nesting least Bell’s vireos have been confirmed at the Whittier Narrows and the Santa Fe Flood Control Basin.
- There is no designated critical habitat within the project area.
- FWS protocol surveys will occur in suitable habitat within 500 feet of the project area within one year of the start of construction.
- If a nesting or territorial least Bell’s vireo is detected, a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. No construction shall occur within this buffer during the breeding season.
- Road maintenance activities, and grading for fly yards and staging areas, will occur outside of the breeding season.
- Project will remove and limit the spread of nonnative and invasive plant species.
• APLIC guidelines for construction of powerlines will be followed.

Implementation of the Proposed Action would not lead to a change in population size of least Bell’s vireo or result in a loss of viability.

**Western Yellow-billed Cuckoo (*Coccyzus americanus*). Federal Status: Candidate; State Status: Endangered.** The western yellow-billed cuckoo was warranted but precluded from listing on July 25, 2001 (66 FR 38611). The western yellow-billed cuckoo is a mobile species, migrating to South America during the non-breeding season. Western yellow-billed cuckoos have historically occurred and/or still occur in several distinct ecoregions including the Great Basin, Sonoran and Mohave Deserts, Northern Pacific Rainforest, northern Rockies, southern Rockies/Colorado Plateau, coastal California, and Sierra Madre Occidental ecoregions (Graham, 1993; NABCI, in litt, 2000; Pashley et al., 2000) (USFWS, 2001).

Western yellow-billed cuckoos are California State endangered and were once considered widespread and common throughout lowland California, but numbers have declined due to loss of habitat (Grinnell and Miller, 1944; Gaines and Laymon, 1984; Garrett and Dunn, 1981). Now, western yellow-billed cuckoos are considered uncommon to rare summer residents of valley foothill and desert riparian habitats. River drainages that they are known to nest by include upper Sacramento Valley portions of the Sacramento River, the Feather River in Sutter County, Owens Valleys, South Fork Kern River, Santa Ana River, Amargosa River, lower Colorado Rivers, and San Luis Rey River. Gaines (1977a) estimated breeding populations along the California side of the Colorado River to be around 180 pairs.

Excerpt from Garrett (1993):

Numerous egg sets from the lower drainage are in the collections of the Western Foundation of Vertebrate Zoology. A few pairs probably persisted in the San Gabriel River drainage in the Whittier Narrows area as late as 1952 (Garrett and Dunn, 1981). The most recent documented nesting from the Los Angeles River drainage was an egg set taken on the “LA River in Long Beach” in 1923. All but two of the 18 egg sets taken from the drainage mentioned “willow” as a nest tree; sites included “Watson’s Pasture,” “Dominguez,” “Cienega,” “near Compton,” and “San Fernando.” Currently the yellow-billed cuckoo is restricted as a breeder in southern California to a few pairs at the Prado Basin on the Santa Ana River and perhaps along the San Luis Rey River in San Diego County. The only remaining population of any size in California is along the South Fork of the Kern River. The only recent record for the Los Angeles River drainage is of a single bird at O’Melveny Park in lower Bee Canyon, Granada Hills, on 10 July 1991 (American Birds).

In 1996, 14 pairs occurred along the south fork of the Kern River; the recorded high was 24 pairs found in 1992. The 12-year mean from 1985, when studies of the cuckoo began at the Kern River, through 1996 is 11 pairs. The CDFG has preliminary information for 1997 indicating that, as of late July, only four to five pairs occurred along the river. On February 15, 1997, the National Audubon Society assumed operation of the Kern River Preserve, a TNC property along the South Fork of the Kern River which is important for the cuckoo and other riparian species.

California Department of Parks and Recreation (CDPR) reported that an employee heard a calling cuckoo at Picacho State Recreation Area, Imperial County, on July 21, 1997. The ecologist related that a contractor for a revegetation effort at Picacho had heard a cuckoo call several times in the previous two
weeks from a plot of cottonwoods planted in 1989. These are the first known records of the cuckoo at Picacho in at least 10 years.

There is one historic record for yellow-billed cuckoo along the San Gabriel River in El Monte (1951; approximately 2.5 miles north of Segment 8) and two historic records along the Santa Ana River near the Prado Flood Control Basin (1977 and 1989; approximately 3.5 miles south of Segment 8) (CNDDDB, 2009).

Western yellow-billed cuckoo has been documented within American Birds not far from the project area at the following locations: Santa Clara River East of Bouquet Canyon Bridge (June 19, 1997); Santa Clarita (May 22, 1994); Big Pines (June 2, 1997); Brea Canyon (June 23, 2000); and San Timoteo Creek (August 12, 2006) (Chrissy Howell, Pers. Comm.).

One western yellow-billed cuckoo was identified in the project area on June 28, 2009 during surveys unrelated to the Proposed Action. This individual was observed in the Whittier Narrows area along the Rio Hondo, just south of the transmission lines.

The Project is within the historical range of the species, and marginal nesting habitat is present within the Whittier Narrows Recreation Area, at the Whittier Narrows Nature Center, and at the Rio Hondo.

The 2009 fires in the Central Region affected the habitat within the TRTP analysis area. Anticipated effects due to fires are disclosed in Section 3.1.4.

**Habitat Status**

Western yellow-billed cuckoos breed in large blocks of riparian habitat that contain a dense understory, and cottonwood trees appear to be an important component of foraging habitat (USFWS, 2001c). Willows are the dominant component of the vegetation for nesting and foraging, but they are noted to use walnut woodlands, orchards, and mesquite when willows are not present. Gaines (1974b, 1977a) noted a preference of vegetated areas with a minimum size of 300 feet in width and 25 acres in size. Typically there is dense, low-level or understory foliage that abuts slow-moving watercourses, backwaters, or seeps. This species returns from South American wintering areas in June, and departs by late August or early September (Small, 1994).

Yellow-billed cuckoos are diurnal and active yearlong. They glean grasshoppers, cicadas, caterpillars, and other larger insects from foliage, but occasionally prey on frogs or lizards, or feed on fruit (Bent, 1940; Preble, 1957). Western yellow-billed cuckoos breed in large blocks of riparian habitats, particularly woodlands with cottonwoods and willows (Ehrlich et al., 1988) and are restricted to river bottom or mesic areas where humidity is high. Dense understory foliage appears to be an important factor in nest site selection, while cottonwood trees are an important foraging habitat (Laymon et al., 1993). The nest is a flimsy, open cup of twigs built 2 to 25 feet off the ground on a horizontal limb of a tree or shrub in willows or dense foliage. Nesting tends to be close to water, potentially due to the humidity requirements for successful hatching and rearing of young (Hamilton and Hamilton, 1965; Rosenberg et al., 1991). This species is monogamous. Most eggs are laid mid-June to August, with a clutch range of 1 to 5. Both parents incubate for 9 to 11 days, and hatching is asynchronous. Altricial young are cared for by both parents and young fledge at 6 to 9 days (Bent, 1940; Hamilton and Hamilton, 1965). Yellow-billed cuckoos can be facultative brood parasites (Hughes, 1997). Breeding timing is thought to correspond with an abundance of the cicadas, katydids, caterpillars, or other large prey which form the bulk of the species’ diet (Hamilton and Hamilton, 1965; Rosenberg et al., 1982). In the Sacramento River Valley, occupied
home ranges include 25 acres or more of riparian habitat (Gaines, 1974; Laymon et al., 1993). Home ranges in the South Fork Kern River average 42 acres (Laymon et al., 1993). Nesting densities range from 1 to 15 pairs per 99 acres in New Mexico (Howe, 1986) and three plots in Arizona had densities ranging of 8.2, 19.8, and 26.5 pairs per 99 acres (Hughes, 1999).

Threats to the western yellow-billed cuckoo include riparian habitat loss due to conversion to agriculture, urban development, replacement of native riparian habitat by invasive non-native plants (tamarisk), groundwater pumping, dams and river flow management, stream channelization and stabilization, flood control, and livestock grazing (Groschupt, 1987; Rosenberg et al., 1991; Gaines, 1974; Gaines and Laymon, 1984; Laymon and Halterman, 1987 and 1987b; Launer et al., 1990; Hughes, 1999)(USFWS, 2001). Loss due to deforestation of neotropical forests and woodlands of its wintering grounds (Morton, 1992) may impact the species for those that migrate to Central and northern South America (Hartshorn, 1992; Brown and Lomolino, 1998). River channelization, construction of levees close to the river, and riprap along the levees have fragmented riparian habitat along the Sacramento River and disrupted the ecological processes which both renew and restore riparian and aquatic habitats (Laymon and Halterman, 1987a; Halterman, 1991; Service, 2000; USFWS, 2001).

Western yellow-billed cuckoos are preyed upon by falcons, jays, grackles and various snake and mammal species (Hector, 1985; Launer et al., 1990; Nolan and Thompson, 1975; Nolan, 1963) (USFWS, 2001).

Table 18 contains a summary of the potentially suitable habitat that is present within the Proposed Action area and the estimated impacts to potential western yellow-billed cuckoo habitat (southern cottonwood-willow riparian forest, southern coast live oak riparian forest, southern sycamore-alder riparian woodland, southern willow scrub, and southern arroyo willow riparian forest). Potentially suitable habitat identified in the project area may not currently support this species or may not provide the primary constituent elements required to support successful breeding. Nonetheless, some areas could support breeding or the habitat may provide elements that support some portion of the species life history such as foraging, temporary refugia, or dispersal. Many factors contribute to the use of habitat by this species and may include the size and structure of the habitat, proximity to water or disturbance, level of competition or predator abundance, or other biotic/abiotic conditions. Estimated impacts to potential habitat were calculated using GIS data provided by SCE, and may not include all of the expected or potential disturbance from road improvement and construction (off the ANF), staging areas, and other areas of potential disturbance that will be identified during final engineering.

| Table 18. Potential Western Yellow-billed Cuckoo Habitat within the Project Area |
|---------------------------------|----------------|
| Acres of habitat in project area | 411.8          |
| Disturbance in acres to habitat  | 4.2            |

Survey Results

Protocol surveys conducted for the southwestern willow flycatcher in 2007, 2008, and 2009 did not detect the western yellow-billed cuckoo. An eight-visit protocol survey is being conducted concurrently with a five-visit SWFL protocol survey in 2009 (19 May, 10 June, 24 June, 29 June, 8 July, 20 July, 3 August, and 24 August) at the Rio Hondo. This drainage crosses both Segments 7 and 8. One western yellow-billed cuckoo was identified in the project area on June 28, 2009 during surveys unrelated to the Proposed
Action. This individual was observed in the Whittier Narrows area along the Rio Hondo, just south of the transmission lines. However, surveys conducted for the TRTP have not detected this species.

**Direct Effects:** There is only one recent known yellow-billed cuckoo occurrence in the TRTP alignment, although the Project is within the historical range of the species and marginal nesting habitat is present within the Whittier Narrows Recreation Area, at the Whittier Narrows Nature Center, at several locations on the ANF, and at the Rio Hondo. The single individual detected at the Rio Hondo in 2009 was not nesting. As this species is not known to nest in the analysis area, direct effects are not anticipated. Nonetheless, by conducting pre-construction surveys, removing and preventing the establishment of nonnative and invasive plant species, limiting work to the previously surveyed project areas, and mitigation such as avoiding the nesting season, potential effects to this species will be minimized or avoided. Mitigation that would avoid or reduce effects to this species include Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-5 (Conduct pre-construction surveys and monitoring for breeding birds), Mitigation Measure B-15 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Indirect Effects:** There is no indication that this species routinely occurs or nests in the project area and only marginal habitat occurs in the project area. Therefore, indirect effects are not anticipated. However, mitigation has been proposed for the Proposed Action that would minimize indirect effects to riparian birds, including the yellow-billed cuckoo. This mitigation includes Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-2 (Implement RCA Treatment Plan), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-5 (Conduct pre-construction surveys and monitoring for breeding birds), Mitigation Measure B-15 (Conduct protocol or focused surveys for listed riparian birds and avoid occupied habitat), Mitigation Measure H-1a (Implement an Erosion Control Plan and demonstrate compliance with water quality permits), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Cumulative Effects:** The western yellow-billed cuckoo is not known to regularly occur or breed in the project area and no cumulative effects are expected to occur.

**Determination:** It is my determination that the Proposed Action would have no effect on the western yellow-billed cuckoo on NFS lands, USACE lands, and private lands.

- No nesting western yellow-billed cuckoos have been found within the project area. Protocol-level surveys have been conducted.
- Surveys will occur in suitable habitat within 500 feet of the project area within one year of the start of construction.
- If a nesting or territorial western yellow-billed cuckoo is detected, a 300-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. No construction shall occur within this buffer during the breeding season.
- Project will remove and limit the spread of nonnative and invasive plant species.
- APLIC guidelines for construction of powerlines will be followed.
Implementation of the Proposed Action would not lead to a change in the population size of the western yellow-billed cuckoo and would not affect the viability of this species.

**Coastal California Gnatcatcher (Polioptila californica californica). Federal Status: Threatened; State Status: Species of Special Concern.** The coastal California gnatcatcher was federally listed as threatened on March 30, 1993 (58 FR 16742). Critical habitat was designated on October 24, 2000 (65 FR 63679). Revised critical habitat was designated on December 19, 2007 (72 FR 72010). This species is threatened by habitat loss and fragmentation resulting from urban and agricultural development, and cowbird parasitism and predation (USFWS, 1999a).

Gnatcatchers have been documented in Day Canyon and East Etiwanda Canyon in Eastern Los Angeles County, and have been seen in Arcadia (CNDDB, 2009). In surveys completed for the San Gabriel Canyon Sediment Management Plan (US Army Corps of Engineers, 1994) in San Gabriel Canyon where Riversidian habitat exists, no California gnatcatchers were detected.

Excerpt from Garrett (1993):

> Formerly a common but local resident in coastal sage scrub and alluvial wash vegetation, principally on the Palos Verdes Peninsula and in the San Fernando Valley (Grinnell, 1898; Atwood, 1980; Atwood, 1990). Sites documented by specimens or egg sets include the vicinity of Redondo and Ballona on the coast, Tujunga Wash, Highland Park, Rubio Wash (near Altadena), Arroyo Seco Wash, Pasadena, Arcadia, Big Santa Anita Wash, Monrovia, and El Monte. Despite thorough searches (Atwood, 1990), this species was not located at any of the above sites in the 1980s; it was still present at some of them in the 1970s (Atwood, 1980). The only extant population in Los Angeles County is on the coastal slope of the Palos Verdes Peninsula (Heindel and Morton, 1992), with approximately 28 pairs censused in March 1992. About half of these pairs were believed by Heindel and Morton to be in immediate jeopardy from habitat loss. A sighting of 1-2 birds in Big Tujunga Wash in March 1991 (MC Long and J Pepin, pers comm.), if correct, would suggest occasional wandering along the San Gabriel Mountain foothills, although source populations have seemingly been extirpated. The decline of this species in southern California is almost entirely due to habitat loss or the effects of habitat fragmentation (Atwood, 1990).

Core population areas supporting 30 or more pairs of California gnatcatchers include Montebello, Coyote Hills near Fullerton, and the Puente-Chino Hills (Mock, 2004). This species was observed in the Montebello and Puente Hills in 2005. One adult bird was observed in the Rose Hills Cemetery in 2007.

The coastal California gnatcatcher is known to nest within the Southern Region along Segments 7 and 8 in the Montebello Hills, Santa Fe Dam Recreation Area east of Interstate 605 (CNDDB, 2009; M. Long, pers. comm.), and the Puente-Chino Hills. Suitable coastal sage scrub habitat within the proposed TRTP exists along the San Gabriel River within and near the Whittier Narrows Recreation Area. In addition, a recent (2007) record of this species exists from Schabarum Regional Park near Segment 8 (CNDDB, 2009).

Excerpts from (FWS-LA-08B0500-08F0552):

> Approximately 170 pairs of gnatcatchers are distributed in Unit 9 of designated critical habitat including the Montebello Hills, Puente-Chino Hills, West Coyote Hills, and East Coyote Hills. In addition, ongoing coastal sage scrub restoration projects in Chino Hills State Park and the
Puente Hills Native Habitat Authority property are anticipated to support many additional pairs of gnatcatchers within Unit 9 in the near future.

The Montebello Hills contain a core population of gnatcatchers (72 FR 72010) at the far western extent of Unit 9. The critical habitat designated over the Montebello Hills and the adjacent Rio Hondo and San Gabriel River, however, is not contiguous with other larger blocks of critical habitat in Unit 9 to the east. The Montebello Hills and adjacent river systems are isolated from areas to the east by urban developments, including freeways, roads, and industrial warehouses. Riparian habitat along the San Gabriel River is separated from the nearest open space and critical habitat in the Puente-Chino Hills to the east by a distance of approximately 1 mile. The closest documented gnatcatcher pair to the Montebello Hills is located approximately 5 miles to the south-east on property managed by the Puente Hills Landfill Native Habitat Preservation Authority within the Puente-Chino Hills, which comprises the largest portion of Unit 9. At least 10 individual gnatcatchers have been observed in the Whittier Narrows Recreation Area between 1954 and 2002, with the majority of observations recorded between the months of September and December. These observations are likely dispersing juveniles from the Montebello Hills gnatcatcher population.

The 2009 fires in the Central Region affected the habitat within the TRTP analysis area. Anticipated effects due to fires are disclosed in Section 3.1.4.

Habitat Status

California gnatcatcher does not migrate and is strongly associated with Diegan and Riversidian coastal sage scrub (Atwood, 1988; USFWS, 2000). Some characteristic plants of these communities include coastal sagebrush (Artemesia californica), various species of sage (Salvia spp.), California buckwheat (Eriogonum fasciculatum), lemonade berry (Rhus integrifolia), California encelia (Encelia californica), prickly pear and cholla cactus (Opuntia spp.), and coast goldenbush (Isocoma menziesii) (Atwood, 1980; Mock, 2004; USFWS, 1999a). Other sites are dominated by California buckwheat (Braden et al., 1997). These types of sage scrub occur in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties at elevations below 3,000 feet on the coastal side of the mountains. Gnatcatchers are found primarily at elevations below 2,000 feet. This species may still occur along lower, coastal slopes of the San Gabriel Mountains, but status is uncertain (Zeiner et al., 1990a). It is most numerous in low, dense coastal scrub habitat in arid washes, on mesas, and on slopes of coastal hills (Zeiner et al., 1990a). Gnatcatchers do not use recently burned coastal sage scrub because shrub cover is too low (<50%), although they usually recolonize burned sites four to five years following the burn (Beyers and Wirtz, 1997). Home ranges for the California gnatcatcher range from 13 to 39 acres (USFWS, 2000). Average territory size of the coastal California gnatcatcher is between 2 and 25 acres (Mock, 2004).

California gnatcatcher is diurnal and active yearlong. It eats insects, spiders, and seeds. Nests are restricted to areas with less than 40% slope gradient (Mock, 2004) and are vulnerable to brood parasitism by brown-headed cowbirds and predation by a variety of mammals, birds, and reptiles (Atwood and Bontrager, 2001). The nest is a weave of a small, deep cup from hemp-like fibers, leaves, plant down, and spider silk, in a shrub 2 to 3 feet above the ground (USFWS, 2000; Zeiner et al., 1990a). The California gnatcatcher is monogamous, with peak egg laying in April and May. Clutches range 3 to 5 eggs, incubation lasts 14 to 15 days (by both sexes), and the young fledge at 9 to 10 days (fledge within
25 days [Atwood and Bontrager, 2001]) (Zeiner et al., 1990a). Both sexes feed and care for altricial young. Edges of human development do not appear to reduce occurrence or nest success (Mock, 2004).

The decline of this species has been attributed to destruction of habitat for human development, but cowbird parasitism apparently has been equally, if not more, important (Atwood, 1980; USFWS, 1999a; Zeiner et al., 1990a).

Noise monitoring studies suggest that California gnatcatchers are tolerant of high noise levels (Hunsaker et al., 2007, but see Awbrey and Hunsaker, 1997). However, disturbances that reduce shrub cover (grazing, off-road vehicle use, mechanical disruption, fire) can reduce habitat suitability for the species (Awbrey, 1993; Famorlaro and Newman, 1998).

Table 19 contains a summary of the potentially suitable habitat that is present within the Proposed Action area and the estimated impacts to potential California gnatcatcher habitat (coastal sage scrub below 3,000 feet elevation). Potentially suitable habitat identified in the project area may not currently support this species or may not provide the primary constituent elements required to support successful breeding. Nonetheless, some areas could support breeding or the habitat may provide elements that support some portion of the species life history such as foraging, temporary refugia, or dispersal. Many factors contribute to the use of habitat by this species and may include the size and structure of the habitat, proximity to water or disturbance, level of competition or predator abundance, or other biotic/abiotic conditions. Estimated impacts to potential habitat were calculated using GIS data provided by SCE, and may not include all of the expected or potential disturbance from road improvement and construction (off the ANF), staging areas, and other areas of potential disturbance that will be identified during final engineering.

<table>
<thead>
<tr>
<th>Table 19. Potential California Gnatcatcher Habitat within the Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of coastal sage scrub below 3000 feet in the project area</td>
</tr>
<tr>
<td>Disturbance in acres to coastal sage scrub below 3000 feet</td>
</tr>
</tbody>
</table>

Survey Results

Coastal California gnatcatchers were detected at several locations during protocol-level surveys conducted for the Proposed Action. The Montebello Hills supports a known population that is monitored annually by the FWS, and at least 9 individuals were detected here on 5 Sept 2007 (Segment 8 MP 1.3-2.1). Because this is a known population, and to limit disturbance to the species at this location, surveys were not conducted in the Montebello Hills after 2007. In the Puente Hills Landfill, a female was observed on 15 Aug 2007 and 12 Nov 2007 (Segment 8 MP 5.6-5.7), and a male was observed at the same general location on 20 May 2009. Just south of Turnbull Canyon Road, a pair was observed on 5 Sept 2007 and 30 Oct 2007 (Segment 8 MP 7.9-8.0). In Powder Canyon, a female was observed on 4 June 2009 north of the ROW, in contiguous habitat.

Direct Effects: The coastal California gnatcatcher is known to nest within the Southern Region along Segments 7 and 8 in the Montebello Hills, in the Santa Fe Dam Recreation Area east of Interstate 605, and in the Puente-Chino Hills. Suitable coastal sage scrub habitat within the proposed TRTP also exists along the San Gabriel River within the Whittier Narrows Recreation Area. During protocol surveys conducted in August 2007 through January 2008 and in April through June 2009, gnatcatchers were
detected in the Montebello Hills along Segment 8, at the Puente Hills Landfill near Segment 8, just south of Turnbull Canyon Road along Segment 8, and in Powder Canyon near Segment 8. Steep slopes at the southern end of the Central Region support marginal habitat for this species; however, it has not been detected in the foothills of the San Gabriel Mountains in the project area (M. San Miguel, pers. communication to SCE).

A small area of chamise chaparral with elements of coastal sage scrub occurs in the vicinity of Aliso Canyon at the northern portion of Segment 11 on the ANF. This area was identified by the FWS as potential habitat for the California gnatcatcher. While the area supports many of the same structural habitat components associated with gnatcatcher usage, the area occurs in a region characterized by weather conditions not commonly associated with this species. For example, most of the area occurs at or above 3,400 feet of elevation and within the rain shadow of Mount Gleason. Rainfall in this area is low and the area is subject to winter snowfall and elevated summer temperatures exceeding 100 degrees Fahrenheit. Based on the climatic conditions of the site and the distance from known populations, it is unlikely that a breeding population would persist here. Nonetheless, dispersing or transient individuals could utilize this area on a temporary basis. Therefore, a biologist permitted by the FWS for California gnatcatchers shall conduct the pre-construction nesting bird surveys required by Mitigation Measure B-5 (Conduct pre-construction surveys and monitoring for breeding birds) at this location. In addition, a FWS-permitted biologist will monitor all construction activities at this location, regardless of season. If gnatcatchers are identified, FWS will be notified immediately and a 300-foot construction-free buffer will be established, as required under Mitigation Measure B-16 (Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures).

Direct effects to the coastal California gnatcatcher as a result of construction activities for the Proposed Action could include the removal or disturbance of vegetation in the Montebello Hills and the Puente-Chino Hills. A total of 67.3 acres of coastal sage scrub below 3000 feet will be disturbed as part of the construction, most of which will be restored following construction. This equates to less than 8 percent of all the coastal sage scrub available within the project area. Additional direct effects would include increased noise levels from heavy equipment and helicopter operations, increased human presence, and exposure to fugitive dust.

Construction within and immediately adjacent to coastal sage scrub habitats could affect nesting California gnatcatchers. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. The construction and use of access roads in coastal sage scrub areas could disturb nesting California gnatcatchers from noise, fugitive dust, and vehicle lighting. Noise from helicopter operation could affect this species by causing it to flush from roosting or nest sites. Flushing of birds from nest sites could result in eggs or juveniles being knocked out of the nest or could result in improper incubation of eggs, if flushing occurs repeatedly. In addition, birds could collide with vehicles. Mitigation Measure B-16 requires a 300-foot disturbance-free buffer around any occupied nest, thus reducing the effects to territories, breeding, nesting, and young. A full-time monitor will be present at a minimum of every two miles of active construction in occupied habitat. Within the Montebello Hills area only, a full-time FWS-permitted biologist will monitor all construction activities.

To reduce the potential for direct effects to California gnatcatchers, vegetation removal and grading and construction would be limited to the non-breeding season in occupied areas, such as the Montebello Hills (Mitigation Measure B-16). This would ensure that there would be no net loss of individuals in the
Montebello Hills, as required by FWS. The duration of construction activities in the Montebello Hills is estimated to be 5 months. In addition, in the Montebello Hills SCE would replace the existing insulators on the 66-kV subtransmission line in this area with polymer insulators, which would reduce washing frequency during operations and maintenance. Washing would also be scheduled to occur outside of the breeding season to further reduce impacts to nesting California gnatcatchers in the Montebello Hills.

If construction activities are proposed in other occupied areas during the nesting season, avoidance of occupied habitat would occur and the work areas would be monitored by qualified biologists. Construction monitoring studies suggest California gnatcatchers are tolerant of adjacent construction activities (Atwood and Bontrager, 2001) and high noise levels in some circumstances (Famarlaro and Newman, 1998; Awbrey, 1993; Awbrey et al., 1995; Awbrey and Hunsaker, 1997).

Herbicides would be used during construction, maintenance, and operation of the Proposed Action to control nonnative and invasive plant species. Birds could be exposed to herbicides through direct spraying, contact with vegetation that has been treated, ingestion of prey items that have been exposed, or accidental ingestion through preening. When small animals are exposed to pesticides they will generally receive a higher dose, in terms of body weight, than large animals will receive for a given type of exposure because of the relationship of body weight to surface area versus the consumption of food and water (Durkin, 2007). See Mitigation Measure B-3a for minimization measures that would be implemented when herbicides are used.

To minimize direct effects to the coastal California gnatcatcher, SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-5 (Conduct pre-construction surveys and monitoring for breeding birds ), Mitigation Measure B-16 (Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures), Mitigation Measure B-17 (Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Indirect Effects:** Indirect effects could include the loss of habitat due to the colonization of nonnative and invasive species and a disruption of breeding activity due to facilitated use of new or improved spur and access roads by the public. However, measures to remove and prevent the establishment of nonnative and invasive plant species would be required in accordance with Mitigation Measure B-3a. Overspray of herbicides may also indirectly affect nesting birds by reducing habitat and foliage supporting prey items. Lindsay and French (2004) did not identify any significant direct or indirect effects on leaf litter invertebrate abundance or community composition in the four months following glyphosate application. Sullivan and Sullivan (2003) reviewed literature on glyphosate and concluded the diversity of terrestrial invertebrates in glyphosate-treated areas is variable and that abundance and diversity of invertebrates in a treated area is primarily a function of the degree of vegetation control and changes in vegetation structure. Hence, following herbicide treatment, available prey base should continue to exist to support gnatcatcher.

Project activities would not diminish the prey base for the coastal California gnatcatcher. This species is an insectivore that forages primarily in coastal sage scrub. Potential available foraging habitat in the project area is large compared to the amount of habitat that would be impacted (see Table 19), and project
activities would not interfere with access to food sources or cause a decline in the amount of prey available to this species.

To minimize or avoid indirect effects to the coastal California gnatcatcher, SCE shall implement Mitigation Measure B-1a (Provide restoration/compensation for impacts to native vegetation communities), Mitigation Measure B-1b (Implement a Worker Environmental Awareness Program), Mitigation Measure B-3a (Prepare and implement a Weed Control Plan), Mitigation Measure B-5 (Conduct pre-construction surveys and monitoring for breeding birds), Mitigation Measure B-16 (Conduct protocol or focused surveys for coastal California gnatcatcher and implement avoidance measures), Mitigation Measure B-17 (Preserve off-site habitat and/or habitat restoration for the coastal California gnatcatcher), and Mitigation Measure AQ-1a (Implement Construction Fugitive Dust Control Plan).

**Cumulative Effects:** Development in the Southern Region of the proposed TRTP is rapid and ongoing, which is impacting biological resources at a regional scale. Projects proposed and under construction in this area include large housing and commercial developments. In addition, critical habitat for coastal California gnatcatchers is designated in the Southern Region of the Project. Construction and post-construction impacts, when combined with past, present, and reasonably foreseeable future projects in the area, would be considerable and unavoidable.

**Determination:** It is my determination that the Proposed Action may affect but is not likely to adversely affect coastal California gnatcatcher on USACE lands and private lands. It is my determination that the Proposed Action would have no effect on coastal California gnatcatchers on NFS lands as this species is not known to occur on these lands in the project area.

**Rationale:**
- Nesting California gnatcatchers have been found in the Montebello, Puente, and Chino Hills.
- FWS protocol surveys will occur in suitable habitat within 500 feet of the project area within one year of the start of construction.
- If nesting or territorial California gnatcatchers are detected, a 300-foot disturbance free buffer shall be established and demarcated by fencing or flagging (100-foot buffer for Montebello Hills). No construction shall occur within this buffer during the breeding season.
- Construction shall not occur in the Montebello Hills during the breeding or nesting season.
- A full-time monitor will be present throughout construction in occupied areas.
- Road maintenance activities, and grading for fly yards and staging areas, will occur outside of the breeding season.
- Project will remove and limit the spread of nonnative and invasive plant species.
- APLIC guidelines for construction of powerlines will be followed.

Implementation of the Proposed Action would not lead to a change in population size of California gnatcatcher or result in a loss of viability.

**California Gnatcatcher Critical Habitat**

Critical habitat for California gnatcatchers was designated on December 19, 2007 (72 FR 72010).
PCEs are those physical and biological features of a landscape that a species needs to survive and reproduce. Each species has a unique set of PCEs related to the natural history of the organism. PCEs for the California gnatcatcher are:

1. Dynamic and successional sage scrub habitats: Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties that provide space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal and foraging; and

2. Non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats as described for PCE 1 above that provide space for dispersal, foraging, and nesting (USFWS, 2003).

The Project traverses critical habitat Unit 9, including two areas along Segment 7 (Montebello Hills and Whittier Narrows Recreation Area) and several portions along Segment 8A in the Montebello, Puente, and Chino Hills (Figure 5 located at the end of this report). Unit 9 contains a total of 17,552 acres, of which 2,700 acres is State lands and 14,852 acres is private lands. Habitat within this unit is designated because it was occupied at the time of listing, is currently occupied, and contains all of the features essential to the conservation of the coastal California gnatcatcher (PCEs 1 and 2). Additionally, this unit provides for primary connectivity and genetic interchange between significant gnatcatcher populations and sage scrub habitat in the Orange County Central-CoastaNCCP (Unit 7), the Western Riverside County MSHCP (Unit 10), and the Bonelli Regional Park populations within East Los Angeles (Unit 12). The PCEs contained within this unit may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development (72 FR 72040).

Table 20 contains a summary of estimated impacts to California gnatcatcher critical habitat Unit 9. Table 21 includes impacts to critical habitat by vegetation community. Estimated impacts to potential habitat were calculated using GIS data provided by SCE, and may not include all the expected or potential disturbance from road improvement and construction (off the ANF), staging areas, and other areas of potential disturbance that will be identified during final engineering.

<table>
<thead>
<tr>
<th>Table 20. California Gnatcatcher Critical Habitat Unit 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of critical habitat in project area</td>
</tr>
<tr>
<td>Acres of critical habitat impacted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 21. Impacts in Acres to California Gnatcatcher Critical Habitat by Vegetation Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
</tr>
<tr>
<td>Barren/Developed</td>
</tr>
<tr>
<td>California Annual Grassland</td>
</tr>
<tr>
<td>California Walnut Woodland</td>
</tr>
<tr>
<td>Coast Live Oak Woodland</td>
</tr>
<tr>
<td>Coastal Sage Scrub</td>
</tr>
<tr>
<td>Exotic - Giant Reed</td>
</tr>
<tr>
<td>Nonnative Woodland</td>
</tr>
</tbody>
</table>
The FWS designated 13 critical habitat units for the coastal California gnatcatcher, including two areas along Segment 7 (Montebello Hills and Whittier Narrows Recreation Area) and several portions along Segment 8A in the Montebello, Puente, and Chino Hills (Figure 5). The proposed transmission line would traverse 0.5 mile of designated critical habitat in Segment 7 and 8 miles of critical habitat in Segment 8.

**Direct Effects:** The Proposed Action is located within portions of designated critical habitat for this species on private lands. This includes 8.5 miles within Unit 9. Construction of the Proposed Action would result in disturbance of approximately 2.4 (Segment 7) and 44.8 (Segment 8) acres of critical habitat, with a total permanent disturbance of approximately 4.4 acres. Critical habitat was developed to include core gnatcatcher populations, sage scrub, and areas providing connectivity between core populations and sage scrub. Therefore, while areas identified as critical habitat may support degraded habitats they provide important areas that link contiguous areas of coastal sage scrub. However, construction of the proposed line would replace an existing line in many areas and would not appreciably diminish or alter the physical and biological features of the habitat. Nonetheless, because the Project would result in the loss of critical habitat in an area that has been subject to large-scale urbanization and the amount of habitat able to support this species within this area is considered limited, even with the implementation of minimization measures including the acquisition of occupied habitat, the Proposed Action would impact critical habitat for this species.

Within Los Angeles County, one of the densest core populations of California gnatcatchers occurs in the Montebello Hills, the western-most portion of critical habitat Unit 9. This is a fairly isolated population surrounded by urbanization, with the closest documented gnatcatcher pair to the Montebello Hills located approximately 5 miles to the southeast on property managed by the Puente Hills Landfill Native Habitat Preservation Authority within the Puente-Chino Hills, which comprises the largest portion of Unit 9. Due to its importance as a core population, the FWS has indicated that there can be no net loss of critical habitat or individuals within the Montebello Hills. As such, SCE has engineered construction activities related to the five towers in this area to minimize temporary and permanent impacts. Specific activities in this area include the removal of five existing transmission towers and the construction of five new towers adjacent to the locations of the towers that would be removed. The locations of the removed towers would be restored, as would several existing access/spur roads that would not be needed for operations and maintenance of the new line. Permanent disturbance in this area would be limited to the footings of the new towers and a small clearing around each tower necessary for operations and maintenance access and compliance with regulations regarding vegetation management around transmission structures. A total of 0.34 acre of permanent disturbance would occur in association with the five towers in Montebello Hills. Construction-related ground disturbance, including crane pads and pulling/stringing locations, would total approximately 1.45 acres and would be restored following construction. To ensure that there is no net loss in this area, SCE has identified approximately 4.51 acres of habitat within and immediately adjacent to the ROW that is dominated by weedy non-native vegetation and constitutes low-quality habitat that is not suitable for breeding. SCE would restore these areas to high-quality coastal sage scrub after the

### Table 21. Impacts in Acres to California Gnatcatcher Critical Habitat by Vegetation Type

<table>
<thead>
<tr>
<th>Vegetation Type</th>
<th>Impact in Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruderal Grassland</td>
<td>13.64</td>
</tr>
<tr>
<td>Southern Arroyo Willow Riparian Forest</td>
<td>0.67</td>
</tr>
<tr>
<td>Southern Sycamore Alder Riparian Woodland</td>
<td>0.84</td>
</tr>
<tr>
<td>Southern Willow Scrub</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>47.24</strong></td>
</tr>
</tbody>
</table>
completion of construction. In addition, 1.12 acres of existing roads would be restored following construction. Therefore, there would be no net loss of habitat for this species in the Montebello Hills. Figure 6 identifies the location of construction activities, permanent disturbance, and restoration areas associated with the replacement of the five towers in the Montebello Hills.

Construction of the TRTP would impact both sage scrub and non-sage scrub habitats described as PCEs for the California gnatcatcher. However, as described above, construction of the proposed line would replace an existing line in existing ROW for most areas within critical habitat. In addition, the acreage of disturbance is low compared to the amount of critical habitat in Unit 9 (approximately 47 acres impacted [4.4 acres permanent] versus 17,552 acres total within Unit 9). The overall functionality of critical habitat Unit 9 would not be altered by construction or operation of the Proposed Action.

Indirect Effects: Indirect effects could include the loss of habitat due to the colonization of nonnative and invasive species due to facilitated use of new or improved spur and access roads by the public. However, measures to remove and prevent the establishment of nonnative and invasive plant species would be required in accordance with Mitigation Measure B-3a.

Determination: It is my determination that the Proposed Action would adversely affect critical habitat for the coastal California gnatcatcher on private lands. Critical habitat for the coastal California gnatcatcher does not occur on NFS lands or USACE lands in the project area.

Rationale:
- Critical habitat is within the project area in the Montebello, Puente, and Chino Hills.
- Project will remove and limit the spread of nonnative and invasive plant species.
- Implementation of the Proposed Action would result in the disturbance of approximately 47 acres (approximately 4.4 acres permanent) of critical habitat for the coastal California gnatcatcher.

6. PREPARERS AND REVIEWERS

Multiple individuals contributed to the preparation and review of this Biological Assessment, including the following:

- USDA Forest Service
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  - Justin Seastrand
- U.S. Army Corps of Engineers
  - Carvel Bass
  - Phil Serpa
- California Public Utilities Commission
  - Jon Boccio
- Aspen Environmental Group
  - Chris Huntley
  - Jennifer Lancaster
  - Cindy Hitchcock
  - Jamie Miner
- Southern California Edison
  - Tracy Alsobrook
  - Maija Benjamin
  - Jennifer Leung
  - Laura Verdugo
  - Geoffrey Rabone
- Tom Flynn
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BIOLOGICAL ASSESSMENT

TEHACHAPI RENEWABLE TRANSMISSION PROJECT


Coastal California Gnatcatcher Critical Habitat

Aspen Environmental Group

Proposed Routes
- Orange
- Kern
- Los Angeles
- San Bernardino

1" = 1.5 miles
1: 95,040

Segment 7
Segment 8A
Segment 11

Coastal California Gnatcatcher Critical Habitat

Figure 5

Coastal California Gnatcatcher Critical Habitat

December 2009
Figure 6
California Gnatcatcher Impacts and Restoration in the Montebello Hills