

**APPENDIX C**  
*Biological Technical Report*



**Biological Technical Report  
for the  
Master Storm Water System Maintenance Program**

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**UPDATED JANUARY 2019**



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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
amsl	above mean sea level
BLM	Bureau of Land Management
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CRPR	California Rare Plant Rank
DRECP	Desert Renewable Energy Conservation Plan
DSOD	Division of Safety of Dams
ESA	federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FLOD	First Line of Defense
HCP	habitat conservation plan
I-	Interstate
ITP	Incidental Take Permit
LOPP	local overlapping permitting process
MCV2	Manual of California Vegetation, 2nd edition
NEPA	National Environmental Policy Act
RIP	Rehabilitation and Inspection Program
RWQCB	Regional Water Quality Control Board
SOP	standard operating procedure
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

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# Biological Technical Report for the Master Storm Water System Maintenance Program

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## 1 INTRODUCTION

This biological resources technical report has been prepared to support the San Bernardino County Flood Control District's (District's) Master Storm Water System Maintenance Program (proposed program) which covers routine maintenance activities for flood control facilities within the County of San Bernardino. As part of the proposed program, a comprehensive Maintenance Plan has been developed to guide future routine maintenance of facilities by describing and mapping maintenance work to be accomplished within the flood control facility and identifying appropriate standard operating procedures (SOPs) that allow the District to provide flood control protection while preserving environmental resources to the greatest degree possible. The Maintenance Plan also includes a resource agency notification and permit compliance process to allow the District to effectively maintain its facilities countywide.

The District routinely maintains approximately 500 flood control facilities within the County. The District's flood control responsibilities include significant portions of the Santa Ana River and its tributaries, the Mojave River and its tributaries, portions of the Lower Colorado River, and many smaller desert watersheds that drain into isolated endorheic<sup>1</sup> basins. Currently the District maintains its facilities as needed and as authorized under regulatory approvals on a case-by-case basis. The District receives authorization in two ways, through the approval of 5-year routine maintenance permits, agreements, or certifications (permits), or through the receipt of emergency permits. Emergency permits are obtained as needed prior to or following storm events to address imminent threats to life and property. Depending on District and agency staff availability, the District has routine maintenance permits for approximately 10% to 25% of its facilities in a given year. The proposed program would provide for the maintenance of approximately 30% of the facilities each year over the life of the long-term permit. This would allow the District to meet its flood control responsibility more efficiently, minimizing the need for emergency permits and reducing staff workload.

This report includes the methods and results of field reconnaissance surveys and desktop analyses that have been used to document the existing biological baseline. Additionally, this report evaluates the potential impacts of the maintenance activities to special-status biological resources and identifies specific mitigation measures to reduce significant impacts to less than significant levels.

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<sup>1</sup> A body of water that loses water only by evaporation (i.e., no stream flows from it).

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This document includes the following chapters:

- Chapter 1 consists of an introduction describing the proposed program and regions within San Bernardino County.
- Chapter 2 summarizes laws, regulations, policies, and planning pertinent to the biological resources component of the proposed program.
- Chapter 3 provides the methods by which the existing biological conditions were determined, including a summary of literature sources, database queries, aerial review, definitions, and vegetation mapping.
- Chapter 4 discusses the physical and biological conditions of the Valley Region, including climate, geology and soils, watersheds, topography, vegetation communities, special-status species, wildlife corridors, and conservation plans. An analysis of potential impacts of the proposed program on special-status biological resources pursuant to the California Environmental Quality Act (CEQA) and recommended mitigation measures to reduce potential significant impacts to less than significant are also provided.
- Chapter 5 discusses the physical and biological conditions within the Mountain Region, including climate, geology and soils, watersheds, topography, vegetation communities, special-status species, wildlife corridors, and conservation plans. An analysis of potential impacts of the proposed program on special-status biological resources pursuant to CEQA and recommended mitigation measures to reduce potential significant impacts to less than significant are also provided.
- Chapter 6 discusses the physical and biological conditions within the Desert Region, including climate, geology and soils, watersheds, topography, vegetation communities, special-status species, wildlife corridors, and conservation plans. An analysis of potential impacts of the proposed program on special-status biological resources pursuant to CEQA and recommended mitigation measures to reduce potential significant impacts to less than significant are also provided.
- Chapter 7 contains a list of references cited in this document.

## 1.1 Program Location

The County of San Bernardino is approximately 20,105 square miles and is divided into three distinct geographic regions: Valley, Mountain, and Desert (Figure 1-1, Program Area). Approximately 80% of the geographic extent of the County is within the Desert Region; however, the Valley Region is the most developed, and approximately 77% of the District facilities are in the Valley Region.

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The Valley Region is the most populated of all three geographic regions. This region occupies the southwest portion of the County and extends to Riverside County to the south, Orange County to the southwest, and Los Angeles County to the west. This area contains the San Bernardino and San Gabriel Mountain foothills and valley floors. The most conspicuous water feature is the Santa Ana River, spanning over 50 miles within San Bernardino County. There are three facilities that extend into Riverside County that are included as part of the Valley Region in this document.

The Mountain Region is situated between the Valley and Desert Regions and is composed of the San Gabriel and San Bernardino Mountain Ranges, separated by the Cajon Pass, a defining feature of the San Andreas Fault Zone. Communities in the Mountain Region include Mount Baldy and Wrightwood to the west, the City of Big Bear Lake to the east, and Forest Falls to the southeast. Runoff from the mountains provides the main water source for both the Santa Ana River and the Mojave River. Fluvial landforms consist of a series of creeks, streams, and rivers that drain into mountain lakes and the Valley and Desert Regions.

The Desert Region is the largest of the three geographic regions. This region is north of the San Bernardino and San Gabriel Mountains and extends east to the Arizona state line. Kern and Los Angeles Counties are located to the west, with Inyo County and the Nevada state line to the north. Within this region there is an assemblage of low mountain ranges and desert floors, with the Mojave and Colorado Rivers being the most conspicuous water features.

## **1.1.1 Flood Control District Zones**

The District has a flood control facility indexing system in which each facility has a unique system number that refers to a subunit of a drainage course with specific upstream and downstream limits. There are approximately 1,100 indexed facilities in the District system, of which approximately 500 are routinely maintained and are the subject of the proposed program. The District's flood control system is organized into six zones. With a few exceptions, facilities within Flood Control Zones 1, 2, and 3 fall within the Valley Region; facilities within Zone 5 are located in the Mountain Region; and facilities within Zones 4 and 6 are primarily within the Desert Region. Although 80% of the County is located within the Desert Region of Zones 4 and 6, Zones 1 and 2 in the Valley Region contain the largest number of maintained facilities. The breakdown by percentage of maintained facilities by zone is as follows: Zone 1 (28%), Zone 2 (29%), Zone 3 (20%), Zone 4 (11%), Zone 5 (<1%), and Zone 6 (12%). Table 1-1 summarizes the extent of each zone within the County. The locations of the facilities and watersheds described in Table 1-1 are depicted on figures provided in this report.

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**Table 1-1  
District Zones**

Flood Control Zone	Area (square miles)	City/Community
Zone 1	275	<p>The western portion of the San Bernardino Valley extending from Beech Avenue in the Fontana area to the Los Angeles County line, all south of the San Gabriel Mountains. This includes the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland, and the community of Etiwanda.</p> <p>Watersheds: Middle and Upper Santa Ana watershed (Reach 4), with subwatersheds that include San Antonio Creek, Cucamonga and West Cucamonga Creek, and portions of Day Creek/Etiwanda Creek/San Sevaine.</p>
Zone 2	318	<p>The central area of the San Bernardino Valley, east of Zone 1 to approximately the Santa Ana River and City Creek demarcations. This includes the cities of Colton, Fontana, Grand Terrace, Highland, Loma Linda, Redlands, Rialto, and San Bernardino, and the communities of Bloomington, Devore, and Muscoy.</p> <p>Watersheds: Middle and Upper Santa Ana watershed (Reaches 4 and 5), with subwatersheds that include Lytle/Cajon Creek, Twin/Warm Creek, and portions of Day Creek/Etiwanda Creek/San Sevaine, Rialto, Grand Terrace, and City/Plunge/Mill Creeks.</p>
Zone 3	366	<p>The eastern end of the San Bernardino Valley, east of Zone 2, including the cities of Highland, Loma Linda, Redlands, San Bernardino, and Yucaipa, and the community of Mentone.</p> <p>Watersheds: Upper Santa Ana watershed (Reach 5), with subwatersheds that include San Timoteo Creek, Mission/Zanja, Upper Santa Ana River, City/Plunge /Mill Creeks, and portions of Big Bear/Santa Ana Headwaters and Twin/Warm Creek.</p>
Zone 4	1,783	<p>The Mojave River Valley from the San Bernardino Mountains to Silver Lakes. This includes the cities/towns of Adelanto, Apple Valley, Barstow, Hesperia, and Victorville, and all or portions of the communities of Baker, Baldy Mesa, Daggett, Desert Knolls, El Mirage, Helendale, Hinkley, Hodge, Lenwood, Oro Grande, Phelan, Piñon Hills, Silver Lakes, Spring Valley Lake, Wrightwood, and Yermo.</p> <p>Watersheds: Mojave River (Upper, Middle, Lower Reaches), Sheep Creek, and portions of Mojave/Baker.</p>
Zone 5	163	<p>The mountainous watershed of the Mojave River on the crest and north slopes of the San Bernardino Mountains, including the communities of Arrowbear Lake, Blue Jay, Cedar Glen, Crestline, Green Valley Lake, Lake Arrowhead, Lake Gregory, Rimforest, Running Springs, Silverwood Lake, Skyforest, Snow Valley, and Twin Peaks.</p> <p>Watersheds: Upstream portion of the Mojave River (Upper Reach) and upstream portion of the Santa Ana River (Reach 5), which includes upstream sections of the subwatersheds of Lytle/Cajon, Twin/Warm, Upper Santa Ana, and City/Plunge/Mill Creeks.</p>
Zone 6	17,200	<p>The remainder of the County not embraced by other zones, including portions of the San Bernardino Mountains and the semi-desert portion of the County. This includes the cities/towns of Big Bear, Needles, Yucca Valley, and Twentynine Palms, and the communities of Amboy, Joshua Tree, Lucerne Valley, Morongo Valley, and Trona.</p>

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**Table 1-1  
District Zones**

Flood Control Zone	Area (square miles)	City/Community
		Watersheds: Little Morongo Creek, Yucca Creek, Lucerne Valley Storm Drain, Trona, Needles/Sacramento and a portion of Mojave/Baker, Upper Mojave River, and Big Bear Santa Ana River headwaters.

## 1.1.2 Facility Types

The subsections that follow define the types of flood control features that exist throughout the system.

### 1.1.2.1 Natural Drainages

These are natural waterways which are maintained for flood control purposes; they may have received some level of improvement within certain areas but remain primarily in their historic location and in a natural or semi-natural state. These include creeks, canyons, washes, and rivers. There are approximately 29 natural drainages in the proposed program area.

#### Creeks

These drainage courses generally follow historic streams and drainage; they may be channelized. See definition for channels in this section.

#### Canyons

These are deep, steep gullies caused by extensive persistent erosion such as that typical of a river, or often in the desert, a wash. Canyons form the headwaters of creeks and rivers, with the canyon mouth being where the gullies widen out.

#### Washes

Washes are constricting, dry beds of intermittent streams that only briefly carry water after a rain event. These features rarely hold water at or near the surface and therefore are subject to flash flooding during heavy rain storms. Upstream sediment is gradually weathered and moved further downstream within the wash, usually depositing in an alluvial fan or dry lakebed.

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## Rivers

Rivers are major drainage courses that are fed by numerous streams, collecting water from a large combined drainage area.

### **1.1.2.2 Channels**

Channels are constructed to collect and convey runoff flows, generally along historic stream paths. These facilities range from fully developed concrete channels, earthen channels, or semi-improved channels. Semi-improved channels are a combination of engineered and natural features and may have, but are not limited to, the following: concrete bottom or walls, riprap, revetment, and/or earthen side slopes or bottoms. Channels are subdivided into reach segments for operational purposes. There are 240 channels in the program area.

### **1.1.2.3 Spreading Grounds**

These facilities are typically large areas of native ground that contain above-ground-surface embankments (levees), or basins (below ground surface) with earthen bottoms, some of which may be used by private and public water purveyors to impound water to recharge groundwater aquifers. Generally, spreading grounds are constructed in conjunction with a channel. The channel diverts flows into a spreading ground to impound the water for groundwater recharge. The District maintains 32 spreading grounds.

### **1.1.2.4 Dams**

A dam is usually a large embankment that blocks an existing watercourse. The embankment is used to control the release of stormwater downstream via an outlet pipe that limits the amount of water that can exit the dam. Any flows in excess of the capacity of the dam outlet are stored behind the dam. Dams also contain an overflow emergency spillway to carry outflows in excess of the design capacity. Larger dams are regulated by the Department of Water Resources, Division of Safety of Dams (DSOD). Some of the District's larger and more prominent dams are also regulated by the U.S. Army Corps of Engineers (USACE), including the Seven Oaks Dam and the Mojave River Forks Dam. Smaller dams can be found functioning as basins. Dams contain sediment as water impounds at the embankment. This sediment is removed annually or as necessary to maintain design capacity. The District currently maintains 15 facilities that are certified by the DSOD, 14 of which are designated as basins by the District.

# Biological Technical Report for the Master Storm Water System Maintenance Program

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## 1.1.2.5 Levees

In general, a levee is a manmade barrier such as an embankment, floodwall, or similar structure designed to provide flood protection to adjacent land areas during major storm events. A levee is usually constructed of earthen, concrete, or rock material to control or divert flood waters and ensure that the structure is not compromised. The design and construction of levee embankments are integral to the performance of a flood damage reduction system and undergo regular inspections to maintain their certification. Inspections are performed by U.S. Federal Emergency Management Agency (FEMA) and/or the USACE under the Levee Safety Program and/or the Rehabilitation and Inspection Program (RIP). Of the 70 facilities maintained by the District that are part of a federal levee program, 37 are classified as levees in the District's Maintenance Plan.

## 1.1.2.6 Basins

The District maintains approximately 134 basins. District basins are generally either detention basins or debris basins. Many water districts throughout San Bernardino County use the San Bernardino County Flood Control District's basins for groundwater recharge and conservation efforts. In an effort to improve the water conservation and recharge efforts into the District's basins, maintenance activities like disking, scarifying, ripping, and/or removing clay/silt layers from the basin floors take place on more regular intervals over the long term. The surface area of an average basin is approximately 20 acres. The following are examples of the types of basins within the District.

### **Detention Basins**

A detention basin's primary purpose is to detain peak flows and release them over a longer period of time. A basin typically will have an outlet pipe and overflow spillway that is typically designed to detain the 1,000-year storm event (defined as a storm event with a 0.1% chance of happening in any year). Any flows that exceed the pipe's outflow capacity and remain below the spillway elevation are temporarily detained in the basin. Detention basins can be sized to store some sediment and debris, but their primary function is to reduce peak flows.

### **Debris Basins**

Debris basins are usually located at the mouth of a canyon where there is a potential for large sediment and debris yields. The purpose of the debris basin is to capture sediment and debris, not water. Sediment and debris can reduce the capacity of downstream channels, if not contained, as well as block culverts and road crossings. In addition to spillways and outlet pipes, debris basins also have intake towers, which are designed to allow water to flow through the outlet pipes while retaining the sediment.

# Biological Technical Report for the Master Storm Water System Maintenance Program

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## 1.1.2.7 Groins

Groins are typically designed as a component of a levee system and are elongated berms with one end on the bank of the stream and the other end projecting into the flow. Groins are designed to direct or deflect flows into the desired watercourse without having to construct a continuous bank. Groins protect a system's main levees from the erosive action of stream currents by kicking the water away from the main levee. The orientation of the groin angle from the bank of a river or channel varies depending on the nature of the site. Deposition or sedimentation may occur, also depending on the site and the tributary watershed. A groin may be armored with rock or other materials, depending on the potential velocity of the storm flow, to prevent erosion and deterioration.

## 1.1.2.8 Storm Drains

Storm drains are generally smaller channels, or reinforced concrete boxes and pipes, which receive flows primarily from urban runoff. These small facilities drain to a larger channel, stream, or watercourse. There are 22 facilities identified as storm drains in the program area.

Table 1-2 describes the types of flood control facilities within the District's system and lists the facility names and general locations.

**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
San Antonio Creek System – Zone 1, Valley Region	College Heights Spreading Grounds Ely Basin No. 1 San Antonio Heights Basin, West Frankish San Antonio Heights Basin Nos. 1–3	Carbon Canyon Creek Channel Chino Creek Chino Storm Drain Cypress Channel English Canyon Channel Grove Avenue Basin Drain Lake Los Serranos Channel Lower Los Serranos Channel San Antonio Channel –USACE* San Antonio Heights Intercept – USACE* Soquel Canyon Channel Sultana–Cypress Storm Drain West Cucamonga Channel West State Street Storm Drain	Chino Chino Hills Montclair Ontario Upland
Cucamonga/West Cucamonga Creek System – Zone 1, Valley Region	8th Street Basin Nos. 1-3 Alta Loma Basin Nos. 1–3 Chris Basin Cucamonga Basin Nos. 6, 7, and 8	19th Street Storm Drain Almond Intercept Channel Alta Loma Storm Drain County Line Channel	Chino Ontario Rancho Cucamonga

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
	Cucamonga Dam – USACE, DSOD* Cucamonga Spreading Grounds Day Creek Spreading Grounds Day Creek Spreading Basin No. 1 Deer Creek Debris Basin – USACE* Demens Basin No. 1 – USACE, DSOD* Ely Basin Nos. 1–2 Hillside Basin – USACE* Lower Cucamonga Spreading Grounds San Antonio Heights Basins Nos. 3–6 Turner Basins Nos. 1–5	Cucamonga Channel Deer Creek Channel – USACE* Deer Creek Reception Levee Demens Basin Channel Demens Creek Channel -- USACE* Hillside Channel – USACE* Lower Deer Creek Channel San Antonio Heights Intercept – USACE* West Cucamonga Channel	Upland
Day Creek/Etiwanda-San Sevaine System – Zone 2, Valley Region	Banana Basin Day Creek Dam – DSOD* Day Creek Spreading Basin Nos. 1–5 Day Creek Spreading Grounds Decléz Basin – DSOD* Etiwanda Debris Basin (Dam) Etiwanda Spreading Grounds Hickory Basin – DSOD* Jurupa Basin – DSOD* Rich Basin Riverside Basin San Sevaine Basin Nos. 1–5 San Sevaine Spreading Grounds Victoria Basin Wineville Basin	24th Street Storm Drain Day Creek Channel Decléz Channel Etiwanda Creek Channel Hawker-Crawford Channel Henderson Channel Henderson Channel (Wardman Channel) Highland Channel Lower Etiwanda Creek Channel Mulberry Channel San Sevaine Channel San Sevaine Spreading Grounds–West and East Levees West Fontana Channel	Bloomington Colton Chino Chino Hills Fontana Ontario Rancho Cucamonga
Lytle/Cajon Creeks System – Zone 2, Valley Region	Badger Spreading Grounds – Upper Baseline Basin Nos. 1–3 Devil Basin Nos. 2–3, 5–7 Devil Canyon Dam North Badger Basin Sweetwater Basin West Badger Basin Wiggins Basin No. 1	Badger Channel Cable Creek Channel Devil Creek Devil Creek Diversion Channel – USACE* Devil Creek Levee – USACE* Island Levee – USACE* Lower Devore Levee – USACE* Lytle Creek Channel – USACE* Lytle Creek Gatehouse – USACE* Lytle Creek Levee – USACE* Lytle-Cajon Channel, USACE* Macy Storm Drain	Devore Fontana Lytle Creek Rialto San Bernardino

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		Muscoy Groin Nos. 1-5 – USACE* Muscoy Levee – USACE* Nealey’s Corner Drain Riverside Groin Nos 1-5 – USACE* Sweetwater Channel Upper Devore Levee – USACE*	
Twin/Warm Creeks System – Zone 2, Valley Region	29th Street Basin Nos. 1-3 Badger Spreading Grounds, Lower and Upper Brush Canyon Basin Daley Basin East Badger Basin and Spillway Harrison Basin Lemon Basin Little Mountain Dam – DSOD* Little Sand Canyon Basin Lynwood Basin Nos. 1-4 MacQuiddy Basin Macy Basin North Badger Basin Patton Basin Perris Hill Basin Sand Canyon Basin Sand Canyon Dam Small Canyon Dam – DSOD* South Badger Basin Twin Creek Spreading Grounds Warm Creek Conservation Basin Nos. 2-4 Waterman Basin Nos. 1-4 Wiggins Basin No. 1	Baldrige Creek Brush Canyon Storm Drain City Creek Channel City Creek City Creek Levee -- USACE* City Creek Levee, West Bank – USACE* Del Rosa Channel (Daley Channel) Devil Creek Channel Duffy Street Storm Drain Elm Storm Drain Little Mountain Channel Little Sand Creek Lytle Creek Channel – USACE* Lytle Creek Gatehouse – USACE* Lytle-Cajon Channel – USACE* Macy Storm Drain McGlothlen Storm Drain McQuiddy-Severance Diversion Channel Muscoy Levee – USACE* Sand Creek Santa Ana River – USACE* Santa Ana River Small Canyon Channel Small Canyon Diversion Channel Sycamore Diversion Channel Twin Creek Twin Creek Channel Improved – USACE* Twin Creek Levees – USACE* Upper Warm Creek Channel Warm Creek Channel Warm Creek – USACE*	Colton Highland San Bernardino

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		Warm Creek Levee – USACE* Waterman Creek Waterman Levee – USACE* Western Avenue Channel	
Rialto System – Zone 2, Valley Region	Cactus Basin Nos. 1–2 Linden Basin Merrill Basin Mill Basin Pepper Basin Randall Basin	East Fontana Storm Drain East Rialto Storm Drain East Rialto Storm Drain No. 1 Rancho Avenue Storm Drain Lytle-Cajon Channel – USACE* Reche Canyon Creek Randall Channel Turnout Rialto Channel Riverside Groin No. 3 – USACE* Santa Ana River – USACE* Santa Ana River Warm Creek Levee – USACE* Warm Creek – USACE*	Colton Fontana Rialto San Bernardino
Grand Terrace System – Zone 2, Valley Region		Grand Terrace Storm Drain Santa Ana River – USACE* Santa Ana River Reche Canyon Creek	Grand Terrace Colton
Upper Santa Ana System – Zone 3, Valley Region	Seven Oaks Dam – USACE, DSOD*		
City Creek/Plunge Creek/Mill Creek System – Zones 2 and 3, Valley Region	Cook Canyon Basin Dynamite Basin Elder Creek Basin Oak Creek Basin Plunge Creek Spreading Grounds	Bledsoe Creek City Creek City Creek Channel City Creek Levee – USACE* City Creek Levee, East Bank – USACE* City Creek Levee, West Bank – USACE* East Highland Storm Drain Elder Creek Mill Creek Mill Creek Levee – USACE* Mission Channel Oak Creek Plunge Creek Santa Ana River Santa Ana River (incl. USACE*) Small Canyon Diversion Channel	Forest Falls Highland Loma Linda San Bernardino Mountain Home Village Redlands Yucaipa

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
Zanja/Mission Creek System – Zone 3, Valley Region	San Timoteo Sediment Basins Nos. 3–5	Mission Channel Morrey Arroyo Redlands Storm Drain No. 1 San Timoteo Creek – USACE* Santa Ana River Santa Ana River – USACE* Zanja Creek	Loma Linda Mentone Redlands San Bernardino Yucaipa
San Timoteo Creek System – Zone 3, Valley Region	Brown Ditch Basin Oak Glen Creek Basin Nos. 1–3 Potato Creek Spreading Grounds San Timoteo Sediment Basin Nos. 1–18 Wildwood Debris Basin Wilson Creek Basin Nos. 1–4 Wilson Creek Spreading Grounds	Birch Creek Gateway Wash Loma Linda Storm Drain Oak Glen Creek Reche Canyon Creek San Bernardino Avenue Storm Drain San Timoteo Creek San Timoteo Creek – USACE* Santa Ana River – (incl. USACE*) Water Canyon Creek (Wildwood tributary) Wildwood Creek Wilson Creek Yucaipa Creek	Colton Grand Terrace Loma Linda Redlands San Bernardino Yucaipa
Big Bear/Headwaters Santa Ana River System – Zone 6, Mountain Region		Grout Creek Knickerbocker Creek Rathbone Creek Sand Canyon Creek Van Dusen Creek (low flow)	Big Bear City Big Bear Lake Fawnskin
Sheep Creek System – Zone 4, Desert and Mountain Regions		Flume Creek Heath Creek Swarthout Creek	Phelan Pinion Hills Wrightwood
Upper Mojave River System – Zones 4 and 5, Desert and Mountain Regions		Antelope Creek Wash Desert Knolls Wash Mojave River – Forks Dam to I-15 Oro Grande Wash Green Valley Creek Hesperia East Channel Hunsicker Drain Seeley Creek Sequoia Drain	Apple Valley Hesperia Victorville Cedarpines Park Green Valley Lake Running Springs Valley of Enchantment
Middle Mojave River System – Zone 4, Desert Region		Adelanto East Channel Buckthorn Wash D Street SD	Adelanto Apple Valley Barstow

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		El Evado Channel Fremont Wash Mojave Drive Channel Mojave River – I-15 to Lenwood Road Turner Ditch	Helendale Hesperia Hinkley Lenwood Mountain View Silver Lakes Victorville
Lower Mojave River System – Zone 4, Desert Region	Waterman Road Basin	Arrowhead Channel Daggett Channel Lenwood Channel Mojave River – Lenwood Road to Mineola Crossing North Barstow Channel Southwest Barstow Channel Waterman Road Channel Yermo Flood Channel	Barstow Daggett Lenwood Mineola Nebo Yermo
Mojave–Baker System – Zone 6, Desert Region		Baker Levee East Baker Channel	Baker
Lucerne Storm Drain System – Zone 6, Desert Region		Lucerne Valley Channel	Lucerne Valley
Yucca Creek System – Zone 6, Desert Region	49 Palms Spreading Grounds Donnell Basin Long Canyon Basin Old Woman Springs Basin	Twentynine Palms Flood Channel Burnt Mountain Wash Church Street Channel Covington Wash Channel High School Channel Hospital Channel Joshua Tree Wash Juanita Drainage Ditch Long Canyon Channel Oasis Creek Channel Old Woman Springs Creek Pinto Cove Creek Quail Wash Quail Wash Levee – USACE* Yucca Creek	Twentynine Palms Joshua Tree Pioneer Town Yucca Valley
Little Morongo Creek – Zone 6, Desert Region		Little Morongo Creek	Little Morongo Heights Yucca Valley
Needles/Sacramento Wash System – Zone 6, Desert Region	Needles Basins Nos 1–5 North Needles Basin	Eagle Pass Levee – USACE* Needles Flood Channel	Needles

# Biological Technical Report for the Master Storm Water System Maintenance Program

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**Table 1-2  
District-Maintained Facilities**

Watershed	Basins and Dams	Channels, Storm Drains, and Levees	Communities
		Needles Riverview Levee Needles S Street Channel – USACE* S Street Channel Inlet Levee	
Trona		Argus Channel Borosolvay Channel Cemetery Channel Rockcrusher Channel South Trona Channel Trona Flood Channel	Argus South Trona Trona

**Notes:** USACE = U.S. Army Corps of Engineers; DSOD = Division of Safety of Dams.

\* These facilities, although maintained by the District, are under the jurisdiction of other entities (USACE or DSOD, as noted in the table) and must comply with USACE/DSOD requirements.

## 1.2 Program Description

The proposed program includes the preparation and implementation of a Maintenance Plan and the execution of maintenance activities within flood control facilities in San Bernardino County. The Maintenance Plan describes the maintenance activities that would be performed on a regular basis for each facility including general description of work performed, description of vehicle and equipment needs, and description of activity timing and/or frequency. The Maintenance Plan lists all SOPs and provides management plans implemented by the District during routine maintenance activities including an Integrated Pest Management Plan, vegetation management plan, and nesting bird and burrowing owl management plan. Finally, the Maintenance Plan describes a streamlined compliance and reporting process to resource agencies<sup>2</sup> with regulatory oversight and will provide a copy of all the proposed program’s resource agency permits.

The goal of the Integrated Pest Management Plan is to manage rodents while also minimizing negative effects to special-status biological resources through environmentally acceptable and resource agency-approved approaches. The vegetation management plan identifies invasive species control methods, types of herbicides authorized for use and proper application methods; seasonal timing; and avoidance and minimization measures. Finally, the agency-approved Nesting Bird and

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<sup>2</sup> *Resource agencies* are defined as the U.S. Army Corps of Engineers (USACE), the State Water Resources Control Board, the Regional Water Quality Control Boards (RWQCBs), the California Department of Fish and Wildlife (CDFW), and the U.S. Fish and Wildlife Service (USFWS). The CDFW and USFWS are also referred to in this document as *wildlife agencies*.

# Biological Technical Report for the Master Storm Water System Maintenance Program

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Burrowing Owl Management Plan outlines the process by which the District avoids impacts to nesting birds in accordance with regulations protecting nesting and migratory birds.

The proposed program objectives, activities, schedule, and SOPs relevant to biological resources are provided in the following subsections.

## 1.2.1 Program Objectives

The proposed program objectives are as follows:

- Meet the District’s mission to protect life and property by maintaining facilities in such a way as to allow existing facilities or structures to function at the current/designed capacity, to update facilities or structures through minor alterations to meet current standards, and to maintain structural integrity in a manner that is environmentally sensitive.
- Develop a formalized plan that would provide a systematic and scheduled approach to maintenance activities.
- Provide a comprehensive guide for the maintenance of existing stormwater infrastructure.
- Provide the basis for acquisition of long-term maintenance permits from a number of state and federal agencies for regulated maintenance activities.
- Obtain long-term resource agency permits to streamline the CEQA and permitting process and execute projects on a regular and timely basis.

## 1.2.2 Program Activities and Schedule

Table 1-3 summarizes the proposed program activities and estimated schedule and equipment to be used in each activity. In general, approximately 30% of flood control facilities are expected to be maintained each year. Maintenance activities in each flood control facility may occur more or less often as needed. Some facilities may only require maintenance once every several years following large storm events, while others may require maintenance more than once a year. The timing of flood control maintenance is dictated by the following:

- **Weed Abatement Notices** – June through September. Chemical and mechanical treatment may be needed twice per year—once before spring, and again before fall—to adequately control and remove dry brush and weeds in accordance with local fire code requirements.
- **Storm Season** – Varies, but generally October through April. Work typically occurs only after the wetted portions of a channel or basin are dry enough to safely operate equipment. During monsoon season in the desert areas, storms can also occur in July, August, and September.

## **Biological Technical Report for the Master Storm Water System Maintenance Program**

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- **Nesting Season for Migratory Birds** – Depending on specific location and weather patterns, nesting season is generally January 15 through August 31. For areas with sensitive biological resources, the District avoids conducting maintenance during nesting season if practicable. For all facilities, the District applies avoidance measures during the nesting season to ensure compliance with regulations protecting nesting birds.

Routine maintenance activities typically occur Monday through Friday from 7:00 a.m. to 7:00 p.m. Weed abatement is conducted on Saturdays and Sundays by crews of approximately 12 to 18 people. Additionally, on Saturdays and Sundays, one operations staff member is present for 9 hours a day for each zone and conducts minor maintenance such as manual debris removal, is available for emergency situations, and oversees weed abatement work. Maintenance activities beyond minor maintenance would occur on the weekends only in urgent situations, which typically occurs less than 10% of the time (approximately six times a year). Maintenance activities outside the limits described above would occur only in emergency situations.

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-3  
Typical Flood Control Maintenance Activities**

Activity	Description	Activity Duration/Timing	Equipment
<i>Ground-Disturbing Activities</i>			
Federal maintenance	This activity refers to areas where a federal agency has jurisdiction over maintenance activities (as described in Section 1.2.4.1 of this report). Maintenance activities generally consist of vegetation management. It is listed as a separate activity because federal jurisdiction requires removal of all vegetation except for grasses. The District's maintenance approach for vegetation management for non-federal facilities allows for avoidance and minimization measures such that some vegetation may remain in place.	5–15 days	Dump truck Excavator Gradall Grader Loader Service truck Skidsteer loader Speed loader Sprayer trucks Water truck Tractor mowers Disk trailer Boom mowers
Vegetation management	Ground-disturbing vegetation management activities include mowing and disking to remove vegetation within facilities that prevents the proper conveyance of storm flows downstream. Dense vegetation can be uprooted in heavy storms and damage downstream facilities. Dense vegetation can trap sediment rather than transporting the material downstream, damage levees, reduce water quality, and inhibit wildlife feeding and movement. Vegetation management activities such as mowing and disking result in thinning and involve shallow soil disturbance, which encourages seed germination, soil aeration, and insect populations. Equipment used includes, but is not limited to, tractor mowers, tractor and disk trailer, and boom mowers.	5–15 days	Dump truck Excavator Gradall Grader Loader Service truck Skidsteer loader Speed loader Sprayer trucks Water truck Tractor mowers Disk trailer Boom mowers Scraper

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-3  
Typical Flood Control Maintenance Activities**

Activity	Description	Activity Duration/Timing	Equipment
<p>Mechanized land clearing/sediment removal</p>	<p>Mechanized land clearing includes centerflow (the establishment and maintenance of a smaller center channel within a channel and/or basin) to convey and guide low-volume storm and dry weather (urban runoff) flows within the center of an earthen channel or basin to keep flows away from the slopes and for guiding flows. A centerflow channel is established by clearing sediment and vegetation within the center of the channel or basin. The centerflow generally represents a width of up to 20%–50% of the channel and a depth of approximately 2–3 feet.</p> <p>Mechanized land clearing includes grading the channel inverts or basin bottoms to properly convey flows downstream.</p> <p>Mechanized land clearing includes debris removal for flood control, water quality control, and groundwater recharge. Debris removal includes removal of sediment, dead vegetation such as fallen boughs and leaves, and illegally dumped trash. Material is removed to maintain conveyance capacity of each facility as necessary. High-priority facilities must be maintained at 100% capacity at all times. Sand and gravel operators often contract with the District to remove sediment. Basin bottom silt and clays are removed and soil is typically broken up and kept free of vegetation to enhance groundwater recharge. Illegally dumped trash, vehicles, and homeless camps are removed from District facilities, and material is taken to a landfill or appropriate recycling facility for disposal.</p> <p>Mechanical vegetation clearing includes the removal of vegetation with equipment such as dozers, graders, loaders, and excavators to allow conveyance of storm flows downstream and to remove large areas of growth from regulated facilities that are certified/inspected by FEMA, USACE, and DSOD. Mechanical vegetation clearing is also required for fuel modification purposes per state and local fire codes.</p>	<p>5–15 days</p>	<p>Dozer Dump truck Loader Excavator Service truck Skidsteer loader Speed loader Water truck Scraper</p>

## Biological Technical Report for the Master Storm Water System Maintenance Program

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**Table 1-3  
Typical Flood Control Maintenance Activities**

Activity	Description	Activity Duration/Timing	Equipment
Ingress/egress	Maintenance of access roads includes, but is not limited to, fencing and gate repairs, signage, road grading, and pavement repair.	5–7 days	Grader Loader Service truck Skidsteer loader Water truck Broom (asphalt roads only) Pneumatic roller
Flood control structure repair	Flood control structure repair or in-kind replacement include, but are not limited to, appurtenant structures such as inlets, outlets, culverts, spillways, bottom controls, water quality structures, riprap, and channel inverts.	12–20 days	Dump truck Grader Loader Scraper Service truck Water truck Cement truck
Bank repair	Bank repairs include, but are not limited to, removal of excess sediment and sand from the bottom (invert) of the channel or basin or on-site/off-site stockpile location and placing it onto the side slopes. Sometimes, additional and incidental riprap rock or gabion placement may be required for banks that experience frequent erosion resulting in high frequency of maintenance. Riprap repair includes repositioning, replacement, or placement of incidental riprap to stabilize the slopes. It also includes the repair of grouted and ungrouted sections of rock. Bank repair can also include the repair or replacement of steel revetment with more revetment or riprap rock.	5–15 days	Dozer Dump truck Gradall Grader Loader Scraper Service truck Water truck
Stockpiling	Maintenance of stockpile locations includes placement of material (i.e., debris and sediment from District facilities) at specific locations for use in repairs and temporary storage. Stockpiles are often treated to avoid the spread of invasive plants.	5–10 days	Grader Loader Dump truck Water truck

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-3  
Typical Flood Control Maintenance Activities**

Activity	Description	Activity Duration/Timing	Equipment
<i>Non-Ground-Disturbing Vegetation Management</i>			
Manual vegetation management	The District employs manual vegetation management where sensitive resources are present or where ground-disturbing vegetation management is not necessary for flood control purposes. It consists of trimming and pruning vegetation with hand tools such as power trimmers, weed eaters, pruning loppers, saws, and clippers to trim and thin vegetation so it does not clog downstream facilities or reduce water quality.	5–15 days	Power trimmers Weed eaters Manual tools (pruning loppers, saws, clippers)
<i>Non-Ground-Disturbing Activities</i>			
Sand and gravel operations	The County coordinates with sand and gravel operations vendors to sort the materials into different size materials and sells the surplus material that has been stockpiled through maintenance. The duration of sand and gravel operations varies. The average is 2 years, but there are situations where it can extend up to 5 years. This is a result of material sitting for a period of time until a buyer is found, which can occur during depressed economic years. Duration of the activity is market driven and also dependent on the amount of material that is stockpiled on site. When the economy is good and there is a lot of construction activity, sand and gravel operations move quickly.	2 years (average)	Front-end loader Water truck Dump truck Grizzly Portable power screen Portable power crusher
Ingress/egress	Maintenance of access roads includes, but is not limited to, fencing and gate repairs and signage.	5–7 days	Service truck

## Biological Technical Report for the Master Storm Water System Maintenance Program

**Table 1-3  
Typical Flood Control Maintenance Activities**

Activity	Description	Activity Duration/Timing	Equipment
Herbicide and rodenticide	Herbicide application, sometimes referred to as chemical vegetation clearing, is accomplished by trained and licensed applicators to manage vegetation. Herbicides are used to allow for proper conveyance of flows, and to prevent the spread of invasive species and aquatic weeds, such as algae and grasses considered detrimental to flood control facilities. Typical aquatic herbicides applied include, but are not limited to, glyphosate, copper, triclopyr, and diquat. Equipment used includes backpack sprayers or sprayers mounted on a service truck.	5–15 days	Sprayer truck Service truck Water truck
	Rodenticide is applied by a licensed applicator to control burrowing rodents and prevent them from destabilizing banks and levees. California ground squirrels ( <i>Spermophilus beecheyi</i> ) are generally the targeted species. Rodenticide used in areas containing protected rodents such as the threatened Mohave ground squirrel ( <i>S. mohavensis</i> ) or the endangered San Bernardino kangaroo rat ( <i>Dipodomys merriami parvus</i> ) is applied using special traps, and in accordance with applicable federal and state laws, regulations, and policies and the County's agency-approved Integrated Pest Management Plan.	Rodenticide is ongoing on an as-needed basis throughout the year	
Graffiti removal	Graffiti is removed by spraying paint on the concrete facility. Graffiti removal also includes cleanup of discarded spray paint cans.	1–4 days	Hand tools Service truck
Vector control	Vector control primarily involves mosquito control to reduce the spread of disease, including West Nile Virus. Vector control typically includes biopesticides. Historically it has also included introduction of mosquito-larva-eating fish and this method may be utilized again in the future.	1–2 days	Service truck Sprayer truck/equipment
Stream gage maintenance	Maintenance of stream gages and stream gage sites, as well as maintenance of other scientific measurement devices to measure and record scientific data, including, but not limited to, water quality monitoring, wells, and sampling stations.	1–3 days	Service truck Water truck

# Biological Technical Report for the Master Storm Water System Maintenance Program

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The timing of flood control maintenance is dictated by the following:

- **Weed Abatement Notices** – June through September. Chemical and mechanical treatment may be needed twice per year—once before spring and again before fall—to adequately control and remove dry brush and weeds in accordance with local fire code requirements.
- **Storm Season** – Varies, but generally from October through April. Work typically occurs only after the wetted portions of a channel or basin are dry enough to safely operate equipment. During monsoon season in the desert areas, storms can occur in July, August, and September.
- **Nesting Season for Migratory Birds** – Depending on specific location and weather patterns, nesting season is generally January 15 through August 31. For areas with sensitive biological resources, the District avoids conducting maintenance during nesting season, if practicable. For all facilities, the District applies avoidance measures during the nesting season to ensure compliance with regulations protecting nesting birds.
- **Unforeseen and Urgent Maintenance Repairs Discovered** – Sometimes during maintenance inspections or, as a result of outside agency notification to the District, damage to facilities is discovered that was not known prior, and the nature of the damage is such that immediate attention is required for public safety purposes. Examples of work requiring immediate attention includes slope erosion that undermines an access road known to be used by the public, or adjacent to a railroad or other public structure, or imminent failure of concrete structures or revetment requiring in-kind repairs. Emergency work is exempt under CEQA Guidelines Section 15269, Emergency Projects. In these circumstances, the District processes environmental clearance as required by the resource agencies.

## 1.2.3 Standard Operating Procedures

The District implements SOPs to avoid and minimize potential impacts to sensitive resources. SOPs relevant to biological resources are as follows.<sup>3</sup>

**SOP-BIO-1 Least Bell's Vireo.** To avoid direct harm to least Bell's vireo (*Vireo bellii pusillus*), maintenance activities within suitable riparian areas occur outside the typical nesting period for this species (March 15–August 15). If maintenance activities in riparian areas must be conducted during this period, a pre-activity survey is conducted by a qualified biologist within 3 days of the start of the

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<sup>3</sup> SOPs may be modified based on conditions in the proposed program's permits, to be obtained from the resource agencies.

## Biological Technical Report for the Master Storm Water System Maintenance Program

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activity. If a least Bell's vireo nest or territorial individuals are identified, a minimum 300-foot activity-free buffer is established to avoid direct and indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting the active nest. If the qualified biologist determines that maintenance activities are adversely affecting the nest, maintenance activities immediately cease until the nest is no longer active or additional measures have been put in place to avoid impacts to the active nest.

**SOP-BIO-2 Coastal California Gnatcatcher.** To avoid direct harm to coastal California gnatcatcher (*Polioptila californica californica*), maintenance activities within suitable sage scrub areas occur outside the typical nesting period for this species (February 15–August 31). If maintenance activities are required in suitable habitat for coastal California gnatcatcher during the nesting period, a pre-activity survey is conducted by a qualified biologist within 3 days prior to the activity. If coastal California gnatcatcher nests are identified, a minimum 300-foot buffer is established where no maintenance activities may occur to avoid potential indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting active nests. If the qualified biologist determines that maintenance activities are adversely affecting nests, maintenance activities immediately cease until the nests are no longer active or additional measures have been put in place to avoid impacts to active nests.

**SOP-BIO-3 Southwestern Willow Flycatcher.** To avoid impacts to southwestern willow flycatcher (*Empidonax traillii extimus*), maintenance activities within suitable riparian habitat occur outside the typical nesting period for this species (May 1–August 31). If maintenance activities in suitable riparian areas are required during the nesting period, a pre-activity survey is conducted by a qualified biologist within 3 days of the start of the activity. If southwestern willow flycatcher nests are identified, a minimum 1,000-foot buffer is established where no maintenance activities may occur to avoid potential direct and indirect impacts. A qualified biologist monitors maintenance activities as needed to confirm that activities are not impacting active nests. If the qualified biologist determines that maintenance activities are adversely affecting nests, maintenance activities immediately cease until the nests are no longer active or additional measures have been put in place to avoid impacts to active nests.

To determine southwestern willow flycatcher presence or absence within suitable habitat, protocol focused surveys for southwestern willow flycatcher

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are conducted prior to maintenance events within suitable habitat or as determined by the proposed program's resource agency permits.

**SOP-BIO-4 Native Fish Avoidance.** Maintenance activities within the facilities suitable for native fish occur when the applicable portion of the facility is dry to the maximum extent practicable. If activities occur when water is present, a water diversion plan is developed that includes measures to avoid impacts to native fish.

**SOP-BIO-5 Nesting Birds.** Potential impacts to nesting birds are avoided through implementation of the District's Nesting Bird and Burrowing Owl Management Plan. Generally, no more than 3 days prior to implementation of maintenance activities during the nesting bird season (defined broadly to include January 15–August 31), a qualified biologist completes a nesting bird survey within the maintenance footprint and appropriate buffer for nesting bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code. If active nests are found, they are protected in place with an adequate activity-free buffer until the nest is determined by a qualified biologist to be inactive. Limits of the buffer are established in the field with stakes, flagging, or other highly visible method. Maintenance personnel are instructed on the sensitivity of nest areas and are made aware of flagging that demarks buffers. Summary results of the nesting bird surveys are provided to the CDFW in an annual report.

**SOP-BIO-6 Burrowing Owl.** Prior to implementation of maintenance activities in suitable burrowing owl (*Athene cunicularia*) habitat, the District implements the measures described in the District Nesting Bird and Burrowing Owl Management Plan, which states that if burrowing owls are present, the District will consult with CDFW prior to any maintenance and any agreed-upon measures will be implemented. Measures include establishment of an activity-free buffer zone; eviction, if required and approved by CDFW; and/or creation of permanent artificial burrows to replace any occupied burrows that have been removed. Replacement of occupied burrows is typically completed at a minimum 2:1 ratio. If eviction and/or replacement of burrows is required, a management plan is prepared and approved by CDFW. The management plan would include forced dispersal (eviction) methods, post-eviction data, and construction timing/specifications/requirements for creating permanent artificial burrows.

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- SOP-BIO-7**      **Bat Roosts.** Maintenance activities in suitable bat roost habitat, including bridges and mature riparian forests and woodlands, generally occur outside the bat maternity season (generally between April 1 and July 31). If maintenance activities must occur during the bat maternity season, pre-activity surveys are conducted by a qualified biologist to confirm absence of bat roosts. If bat roosts are present, a qualified biologist implements avoidance measures including establishing an avoidance buffer, monitoring the roost, and stopping or adjusting maintenance activities in coordination with the operations supervisor to ensure that impacts do not occur to the roost.
- SOP-BIO-8**      **Western Spadefoot.** Implementation of maintenance activities within basins and other temporary pools that are considered suitable for western spadefoot (*Spea hammondi*) breeding (i.e., basins/pools that hold water temporarily and have adjacent native habitats) occurs only when the basins are completely dry to minimize the potential for direct harm to eggs, tadpoles, metamorphs, or adults. If avoidance is not practicable, an avoidance plan is prepared and coordinated with CDFW prior to implementation of maintenance activity.
- SOP-BIO-9**      **Arroyo Toad.** To avoid potential direct harm to arroyo toad (*Anaxyrus californicus*) adults, juveniles, and larvae that may be within surface waters from upstream occupied areas, maintenance activities along the upper Mojave River (generally upstream of Hesperia Lake Park) occur either when no surface waters are present or outside the breeding window (March–July) and the period when tadpoles or metamorphs could be present (April–September).
- SOP-BIO-10**      **Desert Tortoise.** Within 24 hours prior to initiation of maintenance activities in desert tortoise (*Gopherus agassizii*) habitat, a pre-activity survey is conducted by a qualified desert tortoise biologist. Any occupied and potentially suitable desert tortoise burrows are flagged and avoided. If individuals or other sign of desert tortoise are observed during the pre-activity survey, a biological monitor is present during maintenance activities unless exclusion fencing is utilized. The biological monitor stops maintenance activities as needed to avoid impacts to desert tortoise.
- SOP-BIO-11**      **Mojave Fringe-Toed Lizard.** To reduce the potential for any impacts to Mojave fringe-toed lizard (*Uma scoparia*) or their eggs or hibernating individuals, maintenance activities in desert dune habitat are scheduled to occur in April, or between August and October, when individuals are most likely to be active on the surface. If maintenance activities are required in suitable habitat

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from April to October, a qualified biologist familiar with Mojave fringe-toed lizard conducts a pre-activity survey no more than 24 hours prior to the maintenance activity. If individuals or sign of Mojave fringe-toed lizard are detected during the survey, biological monitoring of the maintenance activity is conducted to reduce the potential for direct harm. The biological monitor stops maintenance activities as needed to avoid impacts to Mojave fringe-toed lizard.

**SOP-BIO-12**     **Western Pond Turtle.** Prior to the initiation of any maintenance activities, areas where ponded waters occur and have the potential to support western pond turtle (*Actinemys marmorata*) on the Mojave River are mapped and documented by a qualified biologist as described in the Maintenance Plan. For maintenance activities within documented ponded areas, a qualified biological monitor is present to ensure that the pond is first drained and that any western pond turtles that may be present are able to leave the area that is to be maintained.

**SOP-BIO-13**     **Southern Rubber Boa.** To avoid the potential for direct harm to southern rubber boa (*Charina umbratica*), the District completes maintenance activities within suitable habitat within Green Valley Creek and Grout Creek between November 1 and April 1, when boas are likely in hibernation and deep in the ground within upland rock outcrops or in association with large, down logs.

To avoid the potential for direct harm and permanent loss of habitat for southern rubber boa, riparian vegetation within Green Valley Creek and Grout Creek is removed by hand crews only between November 1 and April 1. By restricting the work to this time frame, the District helps ensure that the habitat is suitable for southern rubber boa by the summer.

To further minimize potential harm to southern rubber boa during vegetation management activities, hand crews will receive training specific to southern rubber boa prior to beginning work in habitat suitable for southern rubber boa.

**SOP-BIO-14**     **Special-Status Plants Pre-Activity Surveys and Avoidance.** Prior to maintenance activities within facilities that provide suitable habitat for special-status plant species, the District completes pre-activity surveys for special-status plant species during the blooming period prior to the anticipated maintenance activity. For facilities within the Narrow Endemic Plant Species Survey Area of the Western Riverside County Multiple Species Habitat Conservation Plan, pre-activity surveys include the narrow endemic plants as target species. Due to the program's proposed schedule of maintenance occurring on average at 30% of

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facilities each year, special-status plant surveys are anticipated approximately every 3 years for facilities supporting suitable habitat.

Surveys are conducted by a qualified botanist during a time when the plant species with potential to occur are identifiable (i.e., during their blooming period for annual species) within the maintenance area that would be subject to direct or indirect impacts. Surveys conform to the California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFG 2009), and the Endangered Species Recovery Program's General Rare Plant Survey Guidelines (Cypher 2002) or the most current accepted protocol. Plant species encountered during the field surveys are identified to subspecies or variety, if applicable, to determine sensitivity status.

Populations and individuals of any special-status plant species found during pre-activity surveys are mapped with GPS and documented in accordance with the Maintenance Plan. Mapped populations of listed species are avoided unless take authorization has been obtained from the respective resource agency. Non-listed special-status plants are avoided during maintenance activities as practicable. Installation of protective fencing and erosion and sediment control measures, as appropriate, is implemented to protect special-status plant populations found near maintenance sites.

**SOP-BIO-15 Worker Environmental Awareness Program.** If special-status biological resources are determined to potentially occur within or immediately adjacent to any of the maintenance activities during the environmental compliance review described in the Maintenance Plan, the following steps are implemented. A qualified biologist conducts a pre-activity survey for special-status species. The pre-activity survey includes all maintenance activity areas and an appropriate buffer (i.e., 300–500 feet for nesting birds, 100 feet for kit fox and badger). The qualified biologist conducts a training/education session for operations staff members and/or District contractors. The biologist addresses any resources that could occur within avoided habitat and measures to minimize adverse impacts to avoided habitat areas. The biologist gives direction outlining actions to be taken should any special-status species or community be observed within or adjacent to maintenance areas. As applicable, the biologist reviews and/or designates the vegetation management area in the field with maintenance personnel. When there is a high potential for special-status species to be present during maintenance activities, as determined by the pre-activity review and the

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pre-activity survey, the qualified biologist monitors maintenance activities and moves wildlife out of harm's way as appropriate. The qualified biologist stops maintenance activities as needed to avoid harm to special-status species. If kit fox dens are present, dens are identified as inactive, potentially active, or definitely active and coordination is undertaken with CDFW prior to collapsing dens. The biologist discusses with maintenance personnel that any vehicles or equipment driven and/or operated adjacent to natural open space areas is to be checked and maintained daily to prevent leaks of materials/liquids into these areas. When working in areas with potential to support special-status wildlife, maintenance vehicles travel at no more than 15 miles per hour.

**SOP-BIO-16**     **Best Management Practices.** The District uses best management practices to ensure that no trash, debris, oil, petroleum products, or other organic material from any maintenance activity is allowed to enter into watercourses or is placed where it may be washed by rainfall or runoff into adjacent natural habitat areas or watercourses. When maintenance operations are completed, any debris or excess materials are removed from all work areas.

**SOP-BIO-17**     **Monitoring.** As described in the Maintenance Plan, qualified District staff (or their designee) confirm implementation of SOPs and other relevant mitigation measures and permit conditions as described in the Maintenance Plan. The District submits occurrences of special-status species to the California Natural Diversity Database.

**SOP-BIO-18**     **Restoration of Temporary Impacts.** Temporary impacts to special-status vegetation communities from bank stabilization are revegetated as determined by District ecologists with an application of a native seed mix to promote passive restoration of the area to pre-project conditions. Prior to seeding temporary ground-disturbance areas, District ecologists review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory, occurs.

**SOP-BIO-19**     **Herbicide Application.** The District applies pesticides, herbicides, and related surfactants within its facilities in accordance with the District's Vegetation Management Plan, which complies with the Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications, General Permit No. CAG990005, Order No. 2013-0002-DWQ (Permit), dated 2013, and the

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District Weed Control Aquatic Pesticide Application Plan, dated 2014. The District's Vegetation Management Plan seeks to reduce the amount of herbicides used by using selective herbicides and application techniques, timing applications for maximum effect, avoiding fixed application schedules, using mechanical control techniques where appropriate, and encouraging natural controls. For areas within USFWS-designated Critical Habitat for desert tortoise or areas identified as suitable for desert tortoise by a qualified biologist, herbicide use is coordinated with a qualified desert tortoise biologist prior to application. Any measures identified by the qualified biologist, including avoidance or biological monitoring, are implemented.

### **1.2.4 Other Jurisdictions**

Some facilities within the proposed program fall under federal or state jurisdiction, with maintenance requirements dictated by the respective agency. Additionally, certain facilities and/or activities fall within local plans or are conditioned by existing permits received by the District. Federal, state, and local jurisdiction of facilities that affect the type of maintenance activities prescribed are described below.

#### **1.2.4.1 Federal Programs**

Some of the facilities in the proposed program are subject to federal program maintenance requirements. These facilities were either constructed and/or funded by a federal agency or are certified under a federal program and, as a result, must comply with applicable federal requirements pertaining to maintenance. Federal programs and/or certifications that may be applicable to the District's facilities include the USACE Levee Safety Program, the USACE RIP, or FEMA levee certification. The USACE and FEMA have different roles and responsibilities related to levees. FEMA addresses mapping and floodplain management issues related to levees, and accredits levees as meeting requirements set forth by the National Flood Insurance Program. The USACE addresses a range of operations and maintenance, risk communication, risk management, and risk reduction issues as part of its responsibilities under the Levee Safety Program.

#### **USACE Levee Safety Program**

The District maintains 38 levees that are in the USACE Levee Safety Program. The USACE, under the Dam and Levee Safety Division, performs periodic inspections of U.S. levees that are part of the USACE Levee Safety Program. The goal of the Levee Safety Program is to maintain the integrity and viability of these levee systems so they are structurally sound in the event of severe weather. This minimizes risk to the public, property, and the environment. The inspections identify

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deficiencies that need to be corrected to maintain structural integrity, and effectively track the condition of the levees over time. Periodic inspections are a requirement to keep USACE levees active in the Levee Safety Program.

In order to pass the USACE inspection, the facility must be maintained in accordance with the USACE requirements, including the federal Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures (USACE Vegetation Guidelines; USACE 2014). Guidelines include a vegetation-free zone both wide and tall enough to accommodate all likely access requirements. The minimum height of the vegetation-free zone corridor is 8 feet and the minimum width is 15 feet on each side of the structure, measured from the outer edge of the outermost critical structure. No vegetation other than approved grasses may penetrate the vegetation-free zone. Other aspects inspected include the following:

- Encroachments
- Good condition of closure structure, culverts, and/or discharge pipes
- Slope stability
- Freedom of structure from erosion, bank caving, depressions/rutting, and cracking
- Absence of settlement that could affect integrity of the levee
- Existence of an animal control program

### **USACE Rehabilitation and Inspection Program**

The District maintains 16 levee facilities within the federal RIP. The RIP was enacted through Public Law 84-99. The goal of the RIP is to help local communities rehabilitate flood control facilities that have sustained damage in a flood. Under the RIP, the USACE, under the Emergency Management Division, provides federal funds to supplement local funds needed for repairs. In order for a flood control facility to qualify for the RIP, the facility must be maintained in accordance with the RIP Levee Owner's Manual for Non-Federal Flood Control Works maintenance manual prepared by USACE (2006). According to the manual, each qualifying facility must be maintained in accordance with the USACE Vegetation Guidelines, as discussed previously for the USACE Levee Safety Program.

### **FEMA-Certified Levees**

The District maintains 39 levees that have been or are in the process of being certified by FEMA. FEMA provides flood risk information to communities via Flood Insurance Rate Maps. In order to update these maps, FEMA requires levee owners to provide professional-engineer-certified documentation proving that their levees can protect their designated areas from a 100-year flood

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event and are compliant with Title 44 of the Code of Federal Regulations, Section 65.10. If the levee in question has previously been accredited and its owner cannot provide the required documentation right away, it becomes a Provisionally Accredited Levee, and the required documentation must be delivered within 24 months. This will either fully certify or decertify the levee system. Once a licensed engineer has signed off on the certification, the levee system owner needs to prepare an adequate maintenance manual to be considered fully accredited. The maintenance manual is specific to the facility.

### **1.2.4.2 State Facilities**

The proposed program includes 14 facilities that fall under the jurisdiction of the DSOD but are not subject federal maintenance requirements, as discussed above. The DSOD has a process in place for constructing (or enlarging) dams or reservoirs that would be under its jurisdiction (DWR 2008). Once constructed, the facility must be maintained to meet the design capacity and function. The DSOD conducts inspections of facilities for which it is responsible, including periodic evaluations of operational dams, inspections for in-depth review of an entire dam or a specific feature, and special inspections in response to an unusual condition, incident, or emergency (Baines 1999). The operational inspection involves a thorough walk-over of all of the accessible features of the dam near abutment slopes and toe areas. Special attention is given to previously noted defects or areas of distress and any changed conditions. Noticing changes is the single most important aspect of any inspection; once a change is noted, an engineer will make a determination of required or necessary remediating action. Further comments on judgment and actions will be made when discussing the inspection report. By far the most common or widespread problems found in earth dams are undesirable vegetation and burrowing rodents; for concrete structures, the most common issue is surface deterioration (Baines 1999).

### **1.2.4.3 Local Overlapping Permitting Processes**

Some of the facilities maintained by the District are also subject to local permits or regulatory processes described below.

#### **Wash Plan**

The District will be a Permittee of the Upper Santa Ana Wash Land Management and Habitat Conservation Plan (Wash Plan). The purpose of the Wash Plan is to allow for the coordinated development and management of multiple resources in the Wash Plan Area. The Wash Plan designates specific areas within the Wash Plan Area for public services and aggregate mining to balance ground-disturbing activities and habitat preservation. The Wash Plan includes certain District routine maintenance activities. The official draft of the Wash Plan was approved in May

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2015 and has since been reviewed and edited multiple times. The implementation of the Wash Plan began on December 1, 2015. Two bills—H.R. 4024 and S. 3080—have been introduced into the House of Representatives and the Senate that will allow for the land transfer needed for the successful implementation of the Wash Plan. Both bills are currently being looked over in committee. The Draft Wash Plan is complete, and the CEQA/National Environmental Policy Act (NEPA) draft environmental documents are currently being finalized. The Wash Plan and environmental documents are pending publication in the Federal Register, which will be followed by a 90-day public comment period. Finalization of these documents, including the Implementation Agreements, is currently scheduled for 2019.

Maintenance activities included in the Wash Plan are proposed in the program; however, regulatory clearance and mitigation for these activities are expected to be covered by the Wash Plan and its associated regulatory approvals. Conditions of the Wash Plan and its permits relevant to the District will be incorporated into the Maintenance Plan.

### **First Line of Defense Basins**

The First Line of Defense basins are approximately 40 basins located in the foothills of the Valley Region that capture storm and debris flow as it runs off the mountains during and after storm events. The District is in the process of securing 5-year permits from the USACE under Section 404 of the Clean Water Act (404 Permit), a Water Quality Certification under Section 401 of the Clean Water Act from the Santa Ana Regional Water Quality Control Board (RWQCB), and a Streambed Alteration Agreement from the CDFW for the maintenance of these facilities. The proposed program covers long-term maintenance of these facilities, and conditions of the 5-year permit, once finalized, will be incorporated into the Maintenance Plan.

### **El Niño Maintenance Area**

In 2015–2016, El Niño, a series of large storm events, was predicted to take place; in preparation, the District determined that a portion of the Santa Ana River needed to be maintained in order to restore capacity and prevent any flooding that could take place in the surrounding areas. The District prepared the necessary Regional General Permit 63 for the proposed emergency activities and obtained a Notice to Proceed from the USACE (SPL 2015-00758-SLP) for the emergency activities. As part of the Regional General Permit 63 process, the District also prepared an Attachment D, which was submitted to the Santa Ana RWQCB, as well as CDFW's 1610 emergency notification application. Currently, the District is working with the USACE and the USFWS to obtain a Biological Opinion for potential impacts to regulated species in the emergency impact area. Because the District has determined that the emergency impact area is the same as

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what is needed as part of routine maintenance activities for the area, the conditions of the Biological Opinion, once finalized, will be incorporated by reference into the Maintenance Plan.

### **Lenwood Facilities**

The District is in the process of obtaining separate 5-year maintenance and new construction permits for two Lenwood facilities, which include Lenwood Channel and Lenwood Spreading Grounds. These facilities encompass an area of more than 200 acres. The Lenwood facilities are located southwest of the City of Barstow. Permits include a Section 404 permit from the USACE and related USFWS consultation leading to a Biological Opinion, a Water Quality Certification under Section 401 of the Clean Water Act from the RWQCB, and a Streambed Alteration Agreement from the CDFW. Currently, the District does not have resource agency permits to conduct maintenance in these facilities and as a result, there has been a lack of maintenance. Within the spreading grounds, sediment and debris has built up over time, resulting in a decreased capacity for storm flow containment and groundwater recharge. In some areas, the sediment buildup is 7 to 9 feet deep. In addition to maintenance, the District proposes to upgrade the spillway between the channel and spreading grounds damaged during the 2014 storm season. Due to the size of the Lenwood facilities, the extent of maintenance required, and nature of the scope of work, which combines maintenance with new construction elements, it was decided that these facilities would receive CEQA clearance and be permitted under a separate environmental process. Conditions of the 5-year maintenance permit, once finalized, will be incorporated into the Maintenance Plan.

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## 2 REGULATORY FRAMEWORK

This section outlines the federal, state, and local regulations pertinent to the biological resources located in the proposed program site.

### 2.1 Federal

#### Clean Water Act

The federal Water Pollution Control Act Amendment of 1972 (Clean Water Act) (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987 (PL 1000-4), is the major federal legislation governing water quality. The purpose of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Discharges into waters of the United States are regulated under Section 404 of the Clean Water Act. Waters of the United States include (1) all navigable waters (including all waters subject to the ebb and flow of tides); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, and natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. In California, the State Water Resources Control Board and its nine RWQCBs are responsible for implementing the Clean Water Act. Important applicable sections of the Clean Water Act are as follows:

- **Section 401** requires an applicant for any federal permit for an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Clean Water Act. Certification is provided by the respective RWQCB.
- **Section 402** establishes the National Pollutant Discharge Elimination System, a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. The National Pollutant Discharge Elimination System program is administered by the RWQCB. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401.
- **Section 404** provides for issuance of dredge/fill permits by the USACE. Permits typically include conditions to minimize impacts on water quality. Common conditions include (1) USACE review and approval of sediment quality analysis before dredging, (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and (3) required compensation for loss of waters of the United States.
- **Section 14 of the Rivers and Harbors Act of 1899** (33 U.S.C. 408, or Section 408) provides that the Secretary of the Army may, on recommendation of the Chief of Engineers, grant

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permission for the alteration or permanent occupation of a public work (e.g., a levee or dam) so long as that alteration or occupation is not injurious to the public interest and will not impair the usefulness of the work. Permission for certain alterations (which include changes to the authorized purpose, scope, or functioning of a project) must be granted by USACE Headquarters. The primary focus of the USACE's Section 408 review is to ensure that there will be no adverse impacts on the flood risk reduction system.

### **Federal Endangered Species Act**

The Endangered Species Act of 1973 (ESA) provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA regulates federally listed endangered or threatened wildlife and plant species, proposed listed species, and critical habitat. A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become an endangered species within the foreseeable future.

The ESA defines critical habitat as “the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary to be essential for the conservation of the species.” The critical habitat designation only applies to projects involving federal funding, permits, or projects.

Under Section 7 of the ESA, all federal agencies are required to consult with the USFWS if they determine that any action that they fund, authorize, or carry out may affect a listed species or USFWS-designated critical habitat. Section 10(a) allows the USFWS to authorize “take” of a listed species that is incidental to otherwise lawful activities. Approval criteria are specified in the ESA and federal regulations. Further guidance is provided in the Habitat Conservation Planning and Incidental Take Permitting Process Handbook (USFWS 1996) and the Five-Point Policy (an addendum to the handbook) (USFWS 2000).

### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and is listed in 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of “migratory bird” is broad and includes any mutation or

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hybrid of a listed species, as well as any part, egg, or nest of such bird (50 CFR 10.12). Migratory birds are not necessarily federally listed as endangered or threatened birds under the ESA. The MBTA, which is enforced by USFWS, makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory bird or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

### **Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668–668(d)) provides for protection of bald and golden eagles by prohibiting, except under certain specified conditions, the taking and possession of or commerce in such birds (or the parts, eggs, or nests of the birds). The USFWS is responsible for implementing BGEPA. BGEPA identifies certain conditions under which permits may be issued for incidental take of bald or golden eagles.

### **Federal Land Policy and Management Act of 1976**

Portions of the proposed program area are on public lands managed by the Bureau of Land Management (BLM); therefore, the proposed program would need to be consistent with guidelines established by the BLM. The Federal Land Policy and Management Act of 1976, as amended, establishes public lands policy and management guidelines on public lands managed by the BLM. The act includes land use planning, range management, rights-of-way, and designated management areas.

The California Desert Conservation Area (CDCA) Plan was approved in 1980 in accordance with the Federal Land Policy and Management Act. The CDCA Plan provides for multiple-use management of approximately 25 million acres, of which 10 million acres are managed by the BLM, falling within San Bernardino County and six other counties. The CDCA Plan has been amended numerous times and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA Plan aims to protect biological, geological, paleontological, scenic, and cultural resources while allowing for a variety of land uses and activities.

Several major amendments to the CDCA Plan have been made in San Bernardino County, including the BLM Northern and Eastern Colorado Desert Coordinated Management Plan, the BLM Northern and Eastern Mojave Desert Management Plan, the BLM West Mojave Plan, and the Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment.

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## U.S. Forest Service

Portions of the proposed program area are within the San Bernardino National Forest; therefore, the proposed program would need to be consistent with guidelines established by the U.S. Forest Service (USFS). The Southern California National Forests (Angeles National Forest, Cleveland National Forest, Los Padres National Forest, and San Bernardino National Forest) include more than 3.5 million acres of federally managed public land, extending from Big Sur to the north to the international border with Mexico to the south. The revised land and resource management plans (forest plans) for the Southern California national forests describe the strategic direction at the broad program level for managing the land and its resources over the next 10 to 15 years. The strategic direction was developed by an interdisciplinary planning team working with national forest staff, using extensive public involvement and the best science available. The revised forest plans are outcome-based and are focused on the condition of the land after project completion. Each forest plan is directed toward the realization of the desired conditions using strategies that are consistent with the concept of adaptive management and sustainable resource use.

The revised forest plans are grounded in the concepts described by the Committee of Scientists in their report *Sustaining the People's Lands* (1999). Paraphrasing the committee's report, the term "sustainability" includes three components: ecological, social, and economic. Sustainability means meeting the needs of the present generation without compromising the ability of future generations to meet their needs. The concept of sustainability is old; its broadened interpretation and redefinition should be viewed as a continuation of the attempt by Gifford Pinchot and others that followed him to articulate the meaning of "conservation" and "conservative use" of the lands and waters of the national forests. Therefore, the revised forest plans are designed so that managers have the flexibility to adapt management strategies to the constantly changing demands that are inherent to natural resource management. The strategic direction is expressed through an overall vision of what is desired, the strategy for accomplishment, and the design criteria that will be used as activities are proposed, analyzed, and implemented (USFS 2005).

## 2.2 State

### California Fish and Game Code

According to Sections 3511 and 4700 of the California Fish and Game Code, which regulate birds and mammals, respectively, a "fully protected" species may not be taken or possessed and incidental takes of these species are not authorized. However, CDFW may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock. Fully protected species include but are

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not limited to the golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), white-tailed kite (*Elanus leucurus*), and peregrine falcon (*Falco peregrinus anatum*).

Pursuant to Section 3503.5 of the California Fish and Game Code, it is also unlawful to take, possess, or destroy any birds of prey, or to take, possess, or destroy any nest or eggs of such birds. “Birds of prey” refer to species in the orders *Falconiformes* and *Strigiformes*. Active nests of all other birds (except English sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*)) are similarly protected under Sections 3503 and 3513 of the Fish and Game Code.

Pursuant to Section 1602 of the Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. Diversion, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by means of entering into an agreement pursuant to Section 1602 of the Fish and Game Code.

The Fish and Game Commission and the CDFW regulate hunting and fishing activities, pursuant to Fish and Game Code 3000 et seq. The Fish and Game Commission establishes policies and CDFW administers the implementation of these policies through the adoption of regulations, management of licensing activities, and enforcement.

California Fish and Game Code Section 5650 prohibits the discharge of substances including petroleum, acid, coal, refuse, many other specified compounds, and “materials deleterious to fish, plant life, mammals, or bird life” into waters of the state, except when authorized as part of waste discharge requirements or water quality certification from the State Water Resources Control Board or the appropriate California RWQCB. The CDFW Office of Spill Prevention and Response is responsible for investigating potential violations of Section 5650. If a discharge is determined to be a violation of Section 5650, civil penalties are imposed.

### **California Endangered Species Act**

The California Endangered Species Act (CESA) (California Fish and Game Code, Section 2050 et seq.) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike the ESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to the ESA and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFW under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, applicants consult with CDFW to develop a set of measures and

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standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

### **California Native Plant Protection Act**

The Native Plant Protection Act of 1977 directed CDFW to carry out the legislature’s intent to “preserve, protect and enhance rare and endangered plants in this State.” The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, CESA created the categories of “threatened” and “endangered” species. It converted all “rare” animals to threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are typically included within a proposed project’s CEQA analysis and as a condition of discretionary permits, which require preparation and approval of mitigation plans that contain assurances of implementation, monitoring, and maintenance.

### **California Environmental Quality Act**

CEQA requires identification of a project’s potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. The act also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose “survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors.” A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists “in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or ... [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered ‘threatened’ as that term is used in the federal Endangered Species Act.” Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

CDFW has developed a list of “Special Species” as “a general term that refers to all of the taxa the California Natural Diversity Database is interested in tracking, regardless of their legal or

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protection status.” This is a broader list than those species that are protected under the ESA, CESA, and other California Fish and Game Code provisions, and includes lists developed by other organizations, including for example the Audubon Watch List Species. Guidance documents prepared by other agencies, including the Bureau of Land Management (BLM) Sensitive Species and USFWS Birds of Special Concern, are also included on this CDFW Special Species list. Additionally, CDFW has concluded that plant species designated by the California Native Plant Society as California Rare Plant Rank (CRPR) 1 and 2, and potentially some designated as CRPR 3, are covered by CEQA Guidelines Section 15380.

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to “any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.”

## 2.3 Local

The San Bernardino County Development Code, Chapter 88.01 (Plant Protection and Management) provides regulations and guidelines for the management of plant resources in the unincorporated areas of the County on property or combinations of property under private or public ownership. A regulated tree or plant shall be any of those trees or plants identified in: (1) Section 88.01.060(c) (Regulated desert native plants), (2) Section 88.01.070(b) (Regulated trees), or (3) Section 88.01.080(b) (Regulated riparian plants). However, Section 88.01.030 (Exempt activities) states that the provisions in Chapter 88.01 (except tree protection from insects) shall not apply to the removal of regulated trees or plants that may occur on government owned lands, including local governmental entities such as the District. Therefore, the District is exempt from the plant protection and management regulations and guidelines.

## 2.4 Regional Resource Planning Context

Several conservation planning documents have been completed or are being planned in San Bernardino County. Some of these are limited to municipal limits or federal lands and do not apply to the District. Additionally, the District maintains a few facilities that are within the County of Riverside and are within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan (Western Riverside County MSHCP). The following is a summary of the plans that overlap the proposed program area. Figure 2-1, Conservation Planning Efforts, depicts the location of these plans relative to the proposed program area.

**West Mojave Plan.** The West Mojave Plan, which covers the western portion of the Desert Region, was originally envisioned as an MSHCP and a land use plan amendment for BLM-

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administered lands. The habitat conservation plan (HCP) component of the plan was not approved as part of this planning effort, but the West Mojave Plan does serve as a land use plan amendment under the CDCA Plan for BLM lands (see Federal Land Policy and Management Act in Section 2.1, Federal Regulatory and Planning Context).

**North Fontana Conservation Program.** This planning effort was initiated in 2004 and concentrates on the northern portion of the City of Fontana, adjacent to the foothills of the San Gabriel Mountains. Under the approved North Fontana Conservation Program, the City has collected mitigation fees for 12 years to offset the loss of Riversidean Alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with USFWS and CDFW to identify conservation properties for acquisition.

**City of Colton West Valley HCP.** In 2015 the USFWS issued a 30-year Incidental Take Permit (ITP) to the City of Colton for the West Valley HCP, which covers impacts to Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) for proposed projects north of Interstate 10 (I-10) over approximately 416 acres. As part of the ITP, the City is responsible for enforcing a fee-based ordinance to finance the protection, restoration, and management of 50.3 acres. The proposed program does not overlap the West Valley HCP; therefore, the West Valley HCP is not discussed further in this document.

**Upper Santa Ana River HCP.** The Upper Santa Ana River HCP is a collaborative effort among the water resource agencies of the Santa Ana River Watershed, in partnership with USFWS, CDFW, and several other government agencies and stakeholder organizations. The Upper Santa Ana River HCP is in the development phase with an HCP team, which consists of nine participating water resource agencies (including the District) and the wildlife agencies (the CDFW and USFWS). The purpose of the Upper Santa Ana River HCP is to enable the water resource agencies to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed. The projects included in the Upper Santa Ana River HCP span the majority of the Valley Region of San Bernardino County, as well as the eastern portion of San Bernardino National Forest. The goal is to ensure the conservation of the covered species, particularly the Santa Ana sucker (*Catostomus santaanae*), while still allowing for increased water conservation through new infrastructure for infiltration and increased effluent recycling. This HCP is currently in the developmental stage and is provided for informational purposes.

**Wash Plan.** This plan will primarily cover expanded gravel mining in an area downstream of the Seven Oaks Dam, in the southern extent of the City of Highland and the northern extent of the City of Redlands. The covered species include California gnatcatcher (*Poliophtila californica*), San

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Bernardino kangaroo rat, Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), and slender-horned spineflower (*Dodecahema leptoceras*). Once fully approved, the Wash Plan covered activities will include the District's maintenance of flood control facilities including a portion of the maintenance in Elder Creek, Mill Creek, Plunge Creek, City Creek, and the Santa Ana River. With implementation of the fee schedule and avoidance and minimization measures within the Wash Plan for the District's routine maintenance activities, the District will be fully covered for impacts (take) of species covered under the Wash Plan.

According to the website for the San Bernardino Valley Water Conservation District (the Wash Plan's lead agency), progress has been steady towards finalizing the Wash Plan. The Wash Plan includes an HCP, a CEQA/NEPA joint EIR and Environmental Impact Statement, and two Implementing Agreements that include Memorandums of Understanding between the Task Force and participating stakeholders (SBVWCD 2017). One Implementing Agreement is specific to the County Flood Control District. The HCP draft is complete, and the CEQA/NEPA draft environmental documents are currently being finalized. The HCP and environmental documents are pending publication in the Federal Register, which will be followed by a 90-day public comment period. Finalization of these documents, including the Implementation Agreements, is currently scheduled for 2019.

**Desert Renewable Energy Conservation Plan.** The Draft Desert Renewable Energy Conservation Plan (DRECP) was originally developed as a habitat conservation plan/natural community conservation plan (HCP/NCCP) and a BLM Land Use Plan Amendment covering both public and private lands across seven counties, including the entire Desert Region of San Bernardino County. In October 2015, the DRECP BLM Land Use Plan Amendment and Final Environmental Impact Statement, which addresses renewable energy, land use, and conservation on BLM lands only, was released (BLM 2015). The DRECP does not provide HCP/NCCP coverage for private lands in San Bernardino County.

**Lower Colorado River MSCP.** The Lower Colorado River Multi-Species Conservation Program (MSCP) was created to balance the use of Colorado River water resources with the conservation of native species and their habitats. The MSCP works toward the recovery of species currently listed under the ESA. It also reduces the likelihood of additional species listings. Implemented over a 50-year period, the MSCP accommodates current water diversions and power production and will optimize opportunities for future water and power development by providing ESA compliance through the implementation of an HCP. The MSCP area extends over the main stem and historic 100-year floodplain of the Lower Colorado River within San Bernardino County, and includes Lake Havasu.

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**Western Riverside County MSHCP.** The Western Riverside County MSHCP is a comprehensive, multi-jurisdictional HCP focusing on conservation of species and their associated habitats in Western Riverside County. The Western Riverside County MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the ESA (16 U.S.C. 1531 et seq.), as well as an NCCP under the Natural Community Conservation Planning Act of 2001 (California Fish and Game Code, Section 2800 et seq.). The Western Riverside County MSHCP allows the participating jurisdictions to authorize “take” of plant and wildlife species identified within the plan area. The Western Riverside County MSHCP is a “criteria-based plan” and does not rely on a hardline preserve map. Instead, within the Western Riverside County MSHCP area, the Western Riverside County MSHCP reserve will be assembled over time from a smaller subset of the Plan Area referred to as the Criteria Area. The Criteria Area consists of Criteria Cells or Cell Groupings, and flexible guidelines (Criteria) for the assembly of conservation within the Cells or Cell Groupings. Cells and Cell Groupings also may be included within larger units known as Cores, Linkages, or Non-Contiguous Habitat Blocks (Dudek & Associates 2003). The District is not a Permittee under the Western Riverside County MSHCP; however, three facilities within the proposed program fall within the Western Riverside County MSHCP boundary.

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## 3 METHODS

Data regarding biological resources present on and adjacent to the proposed program area were obtained through a review of pertinent literature, field reconnaissance, and focused surveys, which are described in detail below.

### 3.1 Study Area

The study area for the proposed program includes the maintained portions of the facilities described in Table 1-2, District-Maintained Facilities, adjacent District right-of-way, and access roads where maintenance activities would occur. To ensure an appropriate geographic scope of analysis, the following areas in the County were included in a geographic information systems (GIS) geodatabase that delineates the entire study area:

- All District access roads with a 10-foot-wide buffer applied to either side of the approximate centerline of the roads, for a total buffer width of 20 feet
- Activity-specific polygons delineating the footprint of the locations of maintenance activities identified as part of the proposed program and extending to the limits of fee properties and easements where the footprint is less than that area

### 3.2 Watershed Mapping

The District created a program-specific watershed map which is utilized in this report when discussing watersheds. The goal of the mapping was to follow watershed mapping currently accepted by RWQCB while more accurately delineating subwatersheds within which District facilities are located. The proposed program's watershed maps were reviewed and approved by the State Water Resources Control Board.

### 3.3 Literature Review

An extensive data and literature review of all special-status biological resources within the study area was conducted. The following sources were used during the literature review process:

- California Natural Diversity Database RareFind (CDFW 2016)
- CNPS Inventory of Rare, Threatened, and Endangered Plants of California, 8th online edition (CNPS 2016)
- USFWS Carlsbad GIS species occurrence database (USFWS 2016)
- U.S. Department of Agriculture Web Soil Survey (USDA 2017)

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- District’s biological geodatabase (District 2015a; described in more detail below)
- Upper Santa Ana River HCP species occurrence database (District 2015b)
- Tricolored blackbird data portal (UCD 2017)
- U.S. Geological Survey National Hydrography Dataset (USGS 2016)
- Google Earth aerial imagery 2009–2016 (Google Earth 2000–2016)

This report also incorporates information from the Results of Implementation of Take Methodologies in Support of the San Bernardino County Master Stormwater System Maintenance Program (Dudek 2016), which summarizes the implementation of methodologies for identifying habitat and potential impacts to federally and/or state-listed threatened or endangered species. The methodologies were developed in coordination with the wildlife agencies in support of the proposed program for the following species: coastal California gnatcatcher (*Polioptila californica californica*), San Bernardino kangaroo rat, least Bell’s vireo (*Vireo bellii pusillus*), desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Xerospermophilus mohavensis*), and Delhi sands flower-loving fly.

An assessment for southern rubber boa (*Charina umbratica*) completed by Steve Loe (2015) was also reviewed for preparation of this report.

### **District’s Biological Geodatabase**

The District’s internal biological resource geodatabase was reviewed and incorporated into the analysis as applicable. This geodatabase was created by the District by reviewing biological documents from 2000 to 2015 that were present in digital and hard copy at the District office. These documents included but were not limited to focused surveys, general biological surveys, biological opinions, streambed alteration agreements, Natural Environment Studies, and emergency maintenance reports. Any files found to contain survey reports were scanned into an electronic document. Consultants who had provided biological documents to the District within the last 5 years (2010 to 2015) were requested to provide any GIS data available. For those reports where GIS data was not available, survey areas and species points were manually digitized onto an aerial map in ArcPad to create a GIS shapefile.

In addition, the County’s internal desert tortoise geodatabase was incorporated into the biological geodatabase. The desert tortoise geodatabase includes locational information for desert tortoise individuals, as well as sign (such as scat, tracks, and carcasses) and potential burrows that occur in the proposed program area as documented by County biologists.

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## 3.4 Vegetation Community and Land Cover Mapping

Dudek's vegetation and land cover mapping effort was conducted in four phases: (1) data and literature review, (2) desktop mapping, (3) field mapping, and (4) data interpretation and analysis. Provided below is the methodology for each of the phases, along with information on the vegetation classification systems and how special-status communities are defined.

### 3.4.1 Data and Literature Review

#### Vegetation Classification System

In September 2010, the California Department of Fish and Game (CDFG)<sup>4</sup> published the List of Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form (Natural Communities List; CDFG 2010) based on the Manual of California Vegetation, 2nd edition (MCV2; Sawyer et al. 2009), which is the California expression of the National Vegetation Classification System developed by the Nature Conservancy (Grossman et al. 1998). This classification system focuses on a quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed (as opposed to predicting climax or successional stages). The system was designed to apply an updated uniform hierarchical structure to the state's vegetation types that again followed quantifiable classification rules in alliance and association groups.

In the Natural Communities List (CDFG 2010), physiognomy is described in the upper levels of the classification hierarchy, whereas floristics are described by the lowest two levels.<sup>5</sup> The floristic levels are alliances and associations, and the upper levels are described as formations and divisions. Table 3-1 provides an example of the hierarchy used in the Natural Communities List, including the community hierarchy in parentheses.

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<sup>4</sup> The California Department of Fish and Game (CDFG) was officially renamed the California Department of Fish and Wildlife (CDFW) as of January 1, 2013. Where references in this document are made to the department for background information, documents, permits, consultations, etc. (guidance) prior to January 1, 2013, CDFG is used, and for references to guidance after January 1, 2013, CDFW is used.

<sup>5</sup> Physiognomic classifications are based on the physiognomy (i.e., the set of functional and morphological attributes) of the dominant plants in the community. Floristic classifications take, as the basis for defining community types, the taxonomic identity of the plants in the community (IAVS 2014).

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**Table 3-1**  
**Example Hierarchy of the Natural Communities List**

1. Forests and Woodlands ( <i>Formation Class</i> )
1.C. Temperate Forest ( <i>Formation Subclass</i> )
1.C.1. Warm Temperate Forest ( <i>Formation</i> )
C.1.c. Madrean Forest and Woodland ( <i>Division</i> )
MG009. California Forest and Woodlands ( <i>Macrogroup</i> )
California Walnut Groves ( <i>Alliance</i> )
California Walnut/annual herbaceous ( <i>Association</i> )

Source: CDFG 2010.

*Alliance* represents a level of uniformity in plant structure and dominant species in the uppermost layer. The alliance is a representation of broad-scale environmental differences that result in distinguishable vegetation communities in terms of overall structure and dominant species. *Associations* take into account more detailed floristic patterns, including species that co-occur with the dominant of the uppermost layer. As such, associations “reflect more localized differences related to microclimate and soil” (Sawyer and Keeler-Wolf 1995).

The nomenclature for vegetation communities mapping in the study area follows MCV2 (Sawyer et al. 2009) and the Natural Communities List (CDFG 2010). Each natural community was mapped to the alliance level and association level where feasible, with a few exceptions. Disturbed forms of these communities consist of the same indicator species, but have a non-native cover of 20% to 50% and/or have been disturbed by anthropogenic causes; thus, disturbed forms are not described separately. Non-native grasslands were not mapped by semi-natural stand type because none of these stand types are considered high priority for inventory, or special status, by CDFW (CDFG 2010). The term semi-natural stands versus alliance is used in MCV2 to distinguish between natural vegetation communities and vegetation types dominated by non-native plants (Sawyer et al. 2009). Non-natural land covers (including disturbed land, deciduous orchards and vineyards, irrigated row and field crops, and urban) and unvegetated communities (including concrete channel, dry lake bed, perennial stream, riverine, unvegetated channel, unvegetated wash, lacustrine, and open water) were classified.

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Vegetation alliances and other land covers were grouped by the generalized habitat types which were developed from the List of California Terrestrial Communities (CDFG 2003) hierarchy. Specifically, general habitat types follow the general habitat as denoted in the numerical coding where feasible. The following provides an example of the hierarchy used in the Natural Communities List, including the community hierarchy in parentheses.

- 30.000.00 Scrub and Chaparral (general physiognomic and physical location)
  - 32.000.00 Coastal scrub (general habitat)
    - 32.010.00 California sagebrush–California buckwheat scrub (floristic alliance)
      - 32.110.02 California sagebrush–California buckwheat–white sage (association)

The California Terrestrial Natural Communities is based on the classification system in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), and MCV2 (Sawyer and Keeler-Wolf 1995); therefore, the general habitat types are familiar with the Holland (1986) numerical coding system and have general similarity in the upper levels of the hierarchy. Land covers that were not recognized by the List of California Terrestrial Communities (CDFG 2003) were grouped into generalized habitat types by Dudek (e.g., open water was classified as open water, disturbed land was classified as non-natural land covers). Additionally, minor revisions to the general habitat types were made in order to easily identify vegetation communities that are considered sensitive in the County but are not grouped together under the List of California Terrestrial Communities (CDFG 2003). For example, the scale broom scrub alliance is recognized under the general habitat type of coastal scrub under the List of California Terrestrial Communities; however, it was included under the Riversidean alluvial fan sage scrub habitat type in the Valley Region in order to facilitate analysis of Riversidean alluvial fan sage scrub in the County. Finally, the macrogroup<sup>6</sup> listed in the Natural Communities List (CDFG 2010) associated with each generalized habitat type was included where applicable.

### Data Review

Dudek reviewed available relevant data on vegetation communities and land covers to determine those resources that were applicable and of appropriate quality for use during the current mapping effort. Specifically, the following data was reviewed to prepare the program-specific vegetation map:

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<sup>6</sup> A *macrogroup* is a vegetation classification unit of intermediate rank (5th level) defined by combinations of moderate sets of diagnostic plant species and diagnostic growth forms that reflect geographic differences in composition and sub-continental to regional differences in mesoclimate, geology, substrates, hydrology, and disturbance regimes (Federal Geographic Data Committee 2008).

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(1) the vegetation map in support of the DRECP (CDFW 2013), (2) Fire and Resource Assessment Program GIS vegetation data (CAL FIRE 2002), (3) California GAP Vegetation Data (UCSB 1998), and (4) District-provided GIS vegetation data, including data for Riversidean alluvial fan sage scrub, Riversidean sage scrub, and riparian communities (District 2017).

### **3.4.2 Desktop Mapping**

In 2012, when the District was preparing to conduct desktop mapping of vegetation communities, the District selected 2009 as the baseline aerial photograph against which to conduct desktop mapping of vegetation communities. The selection of 2009 as the baseline year was undertaken in coordination with the resource agencies including the USACE, RWQCB, CDFW, and USFWS. The 2009 aerial was selected as it most accurately represented “normal circumstances” with a low to moderate rainfall year preceding the aerial photograph. To choose a period that represents “normal circumstances,” District staff analyzed rainfall data from six rainfall gages—three within the Mojave Desert area and three within the San Bernardino Valley. District staff also analyzed archived records of years in which emergency declarations were made for areas damaged by heavy storm flows or significant forest fires. Aerial imagery taken subsequent to a large storm event would not be representative of normal circumstances as large storm events typically wash out vegetation in its flow path. Large storm events resulting in local emergency proclamations occurred in December 2010, January 2010, and July 2007; therefore, aerial imagery from 2011, 2010, and winter 2007 was excluded. In addition, the Old Fire and Grand Prix Fire of October/November 2003 burned over 750 acres, therefore, 2004 was excluded. Storm seasons following large wildfire events can result in greater than average debris-laden flows, which in turn result in increased erosion and sediment/debris transport, removing vegetation and obscuring aerial signatures.

Vegetation mapping was conducted in 2013; the 2008/2009 storm season was the most recent year that was not preceded by a large storm event, large fire event, or drought conditions. Therefore, 2009 aerial imagery was the most recent imagery representing normal circumstances and was selected as the baseline year. The District provided a high resolution orthophotograph generated by 2009 County flight data (District 2009).

Dudek created a GIS vegetation geodatabase incorporating the existing databases reviewed. Program-specific GIS project files (mxd format) were created using ArcGIS software. Dudek GIS specialists incorporated the existing, available vegetation community and land cover data including the digital, vector-based boundaries of vegetation communities and land covers from the previous mapping efforts. These were then compiled into a program-specific GIS layer for each region. The DRECP dataset (CDFW 2013) was selected as the baseline vegetation layer for the Desert and Mountain Regions because of its recent development and use of the MCV2 classification system. For the Valley Region, vegetation communities were generated based on the 2009 aerial imagery

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and mapped to MCV2. Additional sources used as part of the review process for the Valley Region vegetation mapping included the Fire and Resource Assessment Program GIS vegetation data, GAP vegetation data, and the District's vegetation mapping.

Dudek botanists then reviewed the baseline dataset against the 2009 aerial at a 1:2,400 scale (1 inch = 200 feet). More recent current aerial photographs and photographs available in Google Maps street view were also used to provide information and context to the community signature observed on the 2009 aerial. Obvious errors and/or omissions (e.g., urban land uses mapped as natural, vegetated communities) observed during the aerial interpretation were corrected in the geodatabase. The District's vegetation mapping in the Valley Region was used to confirm the mapping of Riversidean alluvial fan sage scrub, Riversidean sage scrub, and riparian communities.

### **3.4.3 Field Mapping**

The field verification mapping effort encompassed a selected subset of the study area based on initial aerial photograph mapping. Facilities were selected for field verification based on the following criteria: (1) facilities that lacked previous vegetation data, (2) facilities with baseline that appeared to be inconsistent with the 2009 aerial, (3) facilities that contained aerial signatures that were difficult to interpret (i.e., dense canopy cover, unclear signatures, on-site disturbances), and (4) facilities that appeared to be within sensitive resource areas such as wetlands or riparian habitats. Once these facilities were identified, Dudek biologists conducted on-site field investigations. For Desert and Mountain Regions, field investigations were conducted May 13 and 14, 2013. For the Valley Region, field investigations were conducted concurrently with the jurisdictional delineation from February through March 2015 (Dudek 2017). Dominant plant species were used to determine the appropriate vegetation community or land cover. Each polygon was labeled according to the appropriate habitat alliance, association, or subtype using MCV2 (Sawyer et al. 2009). Vegetation community classification confirmations, corrections, and edits were made directly onto hard copy maps in the field and were later digitized into the proposed program's geodatabase by Dudek biologists.

### **3.4.4 Data Analysis**

Once the field mapping and aerial interpretation phases were complete, the boundaries of the vegetation communities and land uses were digitized by the biologists into geo-referenced polyline features within ArcGIS. Dudek GIS specialists converted the polylines into polygons, and an analysis was performed on the dataset for quality assurance/quality control. Duplicate and overlapping polygons were corrected. Vegetation community and land cover attributes were rechecked and corrected, as appropriate. The analysis also included the removal of vegetation

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communities outside of the project boundary, verifying name and code attributions, and merging adjacent polygons with the same attributes. Senior biologist Linda Archer conducted a final review of the vegetation community classifications and a review of the original hard-copy field maps in tandem with the digital data.

### **3.4.5 Special-Status Communities**

In September 2010, CDFW published the Natural Communities List (CDFG 2010), which uses the scientific name of the dominant species in that alliance as the alliance name and includes a global and state rarity rank based on the NatureServe Standard Heritage Program methodology (NatureServe 2015). The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, N = national, and S = subnational). The numbers have the following meaning:

- 1 = critically imperiled
- 2 = imperiled
- 3 = vulnerable to extirpation or extinction
- 4 = apparently secure
- 5 = demonstrably widespread, abundant, and secure

For example, G1 would indicate that a vegetation community is critically imperiled across its entire range (i.e., globally). A rank of S3 would indicate the vegetation community is vulnerable and at moderate risk within a particular state or province, although it may be more secure elsewhere (NatureServe 2015). Because NatureServe ranks vegetation communities at the global level, it has few rankings at the state or province level available. However, the Natural Communities List (CDFG 2010) includes state-level rarity rankings (i.e., the subnational (S) rank) for vegetation communities. The Natural Communities List (CDFG 2010) is considered the authority for ranking the conservation status of vegetation communities in California.

CDFW's guidelines for determining high priority vegetation types includes considering any communities listed with a ranking of S1–S3 and ascertaining whether the specific stands of the community type within the study area are “considered as high-quality occurrences of a given community.” The consideration of stand quality includes cover of non-native invasive species, human-caused disturbance, reproductive viability, and insect or disease damage (CDFG 2012).

Vegetation communities considered special-status are those with an “S” ranking of 1, 2, or 3 (CDFG 2010) or associations that are considered a high priority for inventory, or were considered

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special-status under Holland (1986). Special-status vegetation communities also include those with protection under the existing Development Code, which includes compliance with the Desert Native Plant Act for the Desert Region and compliance with Oak Woodland protection. Additionally, some wetland habitat types may be considered special status.

### **3.4.6 Limitations**

Desert and Mountain Regions vegetation communities and land cover field investigations were conducted May 13 and 14, 2013 and the Valley Region was conducted concurrently with the jurisdictional delineation from February through March 2015 (Dudek 2017). Field visits and surveys were conducted during daylight hours under weather conditions that did not preclude observation of common or special-status plant and wildlife species (e.g., surveys were not conducted during heavy fog or rain). Since field observations were conducted in May for the Desert and Mountain Region, early spring-blooming herbaceous plants would not have been detected. In the Valley Region, field observations were conducted in February through March, therefore, late spring blooming and summer herbaceous plants would not have been detected. A number of conspicuous, woody shrubs or perennial herbs would have been detected during these site visits if present on site. However, determining the presence or absence of other potentially occurring special-status plant species (e.g., annuals, inconspicuous perennial herbs) would require the completion of a spring/summer focused survey timed to coincide with the respective blooming periods to maximize detectability. The goal of the field visits was to confirm vegetation communities as mapped by the desktop mapping effort; therefore, the absence of detection of special-status plant species would not have significantly affected this effort.

As discussed in Section 3.4.2, Desktop Mapping, vegetation communities and land cover mapping was conducted using the 2009 baseline aerial photograph. These limitations may have resulted in discrepancies with current conditions. For example, basins were largely found to have been recently disked/graded for vegetation and sediment management activities within the 2009 baseline aerial photograph; therefore, the basins were lacking vegetation signatures.

Additionally, as described in Section 3.4.3, Field Mapping, a limited number of field visits on a selected subset of the study area based on initial aerial photograph mapping were conducted to confirm vegetation communities and land covers. Due to the size of the proposed program's study area, field visits to every community within each region were not feasible. Baseline databases, aerial signatures, and results from the limited field visits were used to complete the mapping effort, as described in the introductory paragraph of Section 3.4. These limitations may have resulted in inaccuracies at the alliance level of the vegetation mapping. For example, current conditions within the study area may include more alliances within the undifferentiated chaparral scrub generalized habitat type than what was mapped, due to aerial signatures within these communities not being

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distinguishable between species. These would need on-site investigations to distinguish the dominant species present in order to accurately map to the MCV2 membership rules (Sawyer et al. 2009). Furthermore, the limitations discussed above may have also resulted in an over- or under-estimation of mapped special-status vegetation communities.

## 3.5 Special-Status Species

### 3.5.1 Definition of Special-Status Plants and Wildlife

Special-status plant species are those plant species that are:

- Classified as state endangered, threatened or rare and/or classified as endangered or threatened by the USFWS (federally listed), or candidates for future listing.
- Considered by the California Native Plant Society to be “rare, threatened, or endangered in California” (CRPR 1 and 2).
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated in local or regional plans, policies, or ordinances. Within the County, this would apply to species regulated in the Development Code as described in Section 2.3, Local. Although the District is exempt from the Development Code, it is their standard practice to avoid regulated trees or plants when practicable.
- Designated by the BLM as sensitive species.
- Designated by the USFS as sensitive species.

Special-status wildlife species are those wildlife species that are:

- Listed as threatened or endangered or candidates for future listing under the federal ESA or CESA.
- Designated as a species of concern by the CDFW.
- Fully protected species protected under California Fish and Game Code Sections 3511, 4700, 5050, and 5515.
- Species protected by California Code of Regulations, Title 14 (Natural resources), Division 1, Subdivision 2, Chapter 5 (fur-bearing animals), Section 460 (for example, kit fox (*Vulpes macrotis*)).
- Designated by the BLM as sensitive species.
- Designated by the USFS as sensitive species.

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## 3.5.2 Summary of Habitat Assessments

The analysis of existing conditions and potential impacts to biological resources was primarily based on a review of existing available data and literature; field surveys were not conducted with the exceptions noted in this section. A preliminary assessment was conducted to determine which state or federally listed endangered species may be impacted by the proposed program. In lieu of focused surveys, methods were developed in coordination with the wildlife agencies (CDFW and USFWS) to assess potentially suitable habitat for those species within the study area and/or potential of occupation by those species. More details regarding these assessments can be found in Appendix A, Results of Implementation of Take Methodologies in Support of the San Bernardino County Master Storm Water System Maintenance Program. Habitat assessments were conducted for San Bernardino kangaroo rat, least Bell’s vireo, Mohave ground squirrel, and Delhi sands flower-loving fly. The assessment for San Bernardino kangaroo rat included focused surveys in selected areas. Desert tortoise was analyzed based on information provided by the District and data collected in the field by District biologists during monitoring of maintenance activities. Additionally, the District conducted a habitat assessment for southern rubber boa (Loe 2015), provided in Appendix B, and focused surveys for arroyo toad (*Anaxyrus californicus*), provided in Appendix C. Although southwestern willow flycatcher (*Empidonax traillii eximius*) was not analyzed in Appendix A, this Biological Technical Report assumes that habitat ranked as 4 or higher (low, moderate, or high) for least Bell’s vireo is suitable for southwestern willow flycatcher. Table 3-2 lists the personnel, dates, and species focus for the habitat assessments.

**Table 3-2  
Summary of Biological Habitat Assessment Survey Efforts**

Personnel	Focal Species and Survey Type	Dates
Kim Romich, <sup>1</sup> Theresa Sims, <sup>1</sup> Brandy Wood <sup>1</sup>	Arroyo toad focused survey	April 31, May 21, and May 28, 2015
Steve Loe <sup>2</sup>	Southern rubber boa habitat assessment	September 23 and November 18, 2015
Kathy Simon <sup>2</sup>	Mohave ground squirrel habitat assessment	April 19, 21, and 22, 2016 May 1, 4, 5, 9, and 13, 2016
Dale Ritenour <sup>3</sup>	Delhi sands flower-loving fly habitat assessment	June 20 and 26, 2016
Mikael Romich <sup>3</sup>	San Bernardino kangaroo rat habitat assessment	April 19, 20, 21, 28, and 29, 2016 May 16 and 27, 2016 June 6 and 8, 2016 December 1 and 2, 2016
Dana McCloughlin, <sup>2</sup> Anna Cassady <sup>3</sup>	San Bernardino kangaroo rat focused surveys	October 10, 11, and 13, 2016 November 13, 14, 15, and 16, 2016
Mikael Romich <sup>3</sup>	Least Bell’s vireo habitat assessment	April 19 and 20, 2016 May 2, 5, 6, 11, and 18, 2016

<sup>1</sup> District ecologist.

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<sup>2</sup> Independent biological consultant.

<sup>3</sup> Dudek biologist.

## 3.5.3 Desert Tortoise

The District maintains an internal database of desert tortoise individuals, as well as sign (such as scat, tracks, and carcasses) and potential burrows that have been observed by District ecologists within or in the vicinity of its facilities. Based on the District's knowledge of desert tortoise, habitat conditions at the facilities, and the District's desert tortoise database, each facility was individually ranked for desert tortoise habitat quality using the following criteria:

- High quality: where tortoise are expected at medium to high density; areas essential to the maintenance of large, viable populations.
- Moderate quality: low to medium density; area important to the maintenance of large, viable populations.
- Low quality: trace to low density; not essential to maintenance of viable populations.
- Not suitable: not expected to support any tortoises.

To calculate the amount of suitable habitat with corresponding habitat quality for each facility, the study area was queried in GIS for suitable desert tortoise vegetation categories.

A full breakdown of the methodology used to calculate habitat suitability and impacts to desert tortoise is provided in Appendix A.

## 3.5.4 Mohave Ground Squirrel

To determine what facilities provide potentially suitable habitat for Mohave ground squirrel, a multistep process was followed. The facilities within the historic range of Mohave ground squirrel (Leitner 2008) were selected. Within these facilities, suitable habitat for Mohave ground squirrel was queried from the vegetation communities map. To make a determination of habitat suitability, these facilities were field-verified by Mohave ground squirrel expert Kathy Simon of Sunrise Consulting.

The field assessment was used to classify habitat into two categories, (1) areas likely to support Mohave ground squirrel and (2) areas unlikely to support Mohave ground squirrel, which are described below.

Areas likely to support Mohave ground squirrel were categorized as either excellent or good. Excellent areas included those where suitable vegetation and soils are present to support Mohave ground squirrel and for which there are recent records (less than 20 years old) of the Mohave

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ground squirrel within 5 miles. Good areas included areas where suitable vegetation and soils are present, and there is either a recent record of Mohave ground squirrel between 5 miles and 10 miles from the area or an older record within 10 miles of the area (i.e., more than 20 years old). Areas unlikely to support Mohave ground squirrel were categorized as either fair or poor. Fair areas include those where either suitable vegetation or soils conditions are present but not both, and there are no recent records of Mohave ground squirrel within 5 miles. Poor areas include those where no suitable vegetation or soils are present on site or adjacent to the area, or where vegetation or soils do exist, but there are no records of Mohave ground squirrel within 10 miles, or the area is outside of the species' known range.

A full breakdown of the methodology used to calculate suitability and impacts to Mohave ground squirrel is provided in Appendix A.

### 3.5.5 Arroyo Toad

Due to historical and more current arroyo toad records in the Mojave River near the Mojave Forks Dam, a breeding habitat assessment and focused surveys were conducted by District ecologists Theresa Sims, Brandy Wood, and Kimberly Romich on April 31, May 21, and May 28, 2015. The USFWS protocol for arroyo toad surveys were followed (USFWS 1999). Surveys ceased once it was determined that the area was occupied. Additional details are provided in Appendix C.

### 3.5.6 Least Bell's Vireo

The habitat assessment analysis was completed for areas where the footprint overlaps the range of the least Bell's vireo and potentially suitable riparian habitat. A standardized ranking of breeding suitability was calculated using predetermined characteristics of riparian communities known to be important for least Bell's vireo, including patch size, habitat species composition, habitat composition relating to understory, habitat composition relating to overstory, presence of surface water, and width of the riparian vegetation. Each of these characteristics were scored for the habitat assessment areas and then combined to generate a habitat suitability score, as defined in Table 3-3.

**Table 3-3**  
**Least Bell's Vireo Habitat Suitability Score**

Definition	Habitat Suitability Score
Not suitable – Not likely to be used by least Bell's vireo for foraging or nesting	0–3
Low suitability – Contains some habitat elements usable for foraging by least Bell's vireo but does not contain all necessary components for nesting	4
Moderate suitability – Contains potentially suitable nesting habitat but lacks one factor, which reduces the overall quality	5
High suitability – Includes dense vegetation with proper structure for nesting and foraging	6

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Field visits and aerial interpretation were completed by Dudek biologist Mikael Romich to confirm the extent of the riparian vegetation and to document the factors discussed in the habitat assessment ranking.

A full breakdown of the methodology used to calculate suitability and impacts to least Bell’s vireo is provided in Appendix A.

### **3.5.7 San Bernardino Kangaroo Rat**

A habitat assessment was completed for areas where the proposed program study area overlaps the range of the San Bernardino kangaroo rat and potentially suitable alluvial fan sage scrub habitat. The first step was a review of the study area within the range of San Bernardino kangaroo rat to identify potentially suitable habitat. Areas determined to be on the fringe or outside of the current known range were classified as outliers because the potential presence of San Bernardino kangaroo rat would not be easily predicted using a suitability classification system. Vegetation types in the study area that were in the range of San Bernardino kangaroo rat and within potentially suitable Riversidean alluvial fan sage scrub were refined into four subclassifications based on existing aerial imagery and field work: pioneer, intermediate, mature, and pioneer-disturbed. These subclassifications were used to further refine the suitability of mapped Riverside alluvial fan sage scrub for San Bernardino kangaroo rat. To assess these subclassifications for suitability for San Bernardino kangaroo, a total of 36 vegetation plots were investigated. Each plot was assessed using a standardized qualitative assessment that included evaluating soil compaction, soil composition (surface coarse fragments), vegetative cover, vegetative type, and connectedness to a core population of San Bernardino kangaroo rat.

Each of the habitat suitability parameters identified were assigned a score, with 1 representing habitat that would be the least desirable to San Bernardino kangaroo rat and 4 representing habitat that is most desirable to San Bernardino kangaroo rat (Table 3-4). The summation of each of the four habitat suitability scores was then calculated for each sample plot to produce a San Bernardino kangaroo rat habitat suitability rank. The ranks were applied to the corresponding plant community types that demonstrated similar traits during field work or aerial interpretation.

**Table 3-4  
San Bernardino Kangaroo Rat Parameter Integration to Determine Habitat Suitability**

<b>Rank</b>	<b>Soil Compaction (%)</b>	<b>Soil Composition (Sand and Cryptogamic Crust %)</b>	<b>Vegetative Cover (%)</b>	<b>Total Exotic Annual Cover (%)</b>	<b>Connectedness</b>
1	Only high	<10	<10	>50	3+ constraints
2	<15 moderate	10–25	10–24	40–50	2 constraints
3	15–50 moderate	25–50	25–45	30–40	1 constraint

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**Table 3-4**

## San Bernardino Kangaroo Rat Parameter Integration to Determine Habitat Suitability

Rank	Soil Compaction (%)	Soil Composition (Sand and Cryptogamic Crust %)	Vegetative Cover (%)	Total Exotic Annual Cover (%)	Connectedness
4	>50 moderate	>50	>45	<30	No constraints

Selective focused trapping sampling to estimate relative abundance of San Bernardino kangaroo rat was completed to corroborate the assignment of habitat suitability categories. In order to estimate relative abundance of San Bernardino kangaroo rat, focused trapping occurred at 12 sampling plots in October and November 2016. For the relative abundance calculation, the minimum of San Bernardino kangaroo rat known to be alive during a single 3-day trap session was used as an index at each sampling divided by the area of each sampling plot.

A full breakdown of the methodology used to calculate suitability and impacts to San Bernardino kangaroo rat is provided in Appendix A.

### 3.5.8 Delhi Sands Flower-Loving Fly

A habitat assessment for Delhi sands flower-loving fly occurred where the proposed program study area overlaps mapped Delhi sands. A Delhi sands flower-loving fly habitat assessment report was prepared for the District in 2008 (MBA 2008), and a desktop aerial analysis was performed to confirm these areas remained in a similar condition. Where the aerial analysis suggested a land use change, or for areas not included in the 2008 Delhi sands flower-loving fly assessment, follow-up field mapping was completed by Dudek biologist Dale Ritenour, who is permitted for Delhi sands flower-loving fly surveys, on June 20 and 26, 2016, using the suitability classification system described below.

The habitat suitability classification system for Delhi sands flower-loving fly developed by Ken Osborne and Greg Ballmer in 2003 (Osborne 2003 and Osborne et al. 2003, as cited in Osborne 2006) was used. The classification system is based on two main factors: (1) the presence and abundance of loose, unconsolidated Delhi sands with low organic contamination and (2) the degree of habitat disturbance, indicated by plant species composition and disposition of soils surface. The following ranks were developed by Osborne and Ballmer: 1 = not suitable, 2 = very low quality, 3 = low quality, 4 = moderate quality, and 5 = high quality. Under this classification system, soils ranked 1 or 2 were not considered suitable for Delhi sands flower-loving fly occupation. Soils ranked 3 were considered restorable for Delhi sands flower-loving fly. Soils ranked as 4 or 5 were considered suitable for Delhi sands flower-loving fly.

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A full breakdown of the methodology used and the results of the Delhi sands flower-loving fly habitat assessment are provided in Appendix A.

### **3.5.9 Southern Rubber Boa**

The proposed program study area in the Mountain Region overlaps the range of the southern rubber boa. A site-specific habitat assessment was conducted by Steve Loe between September 23 and November 18, 2015, for this species. Prior to conducting the habitat assessment, Mr. Loe visited some newer documented southern rubber boa occurrences north and northeast of Baldwin Lake, as well as in the Erwin Lake and Gocke Valley area south of Baldwin Lake. The purpose of that habitat assessment was to compare the habitats at the new southern rubber boa location to those found to the west that have been documented for some time and were reflected in the literature as southern rubber boa habitat. Site-specific evaluations included identifying the following: vegetation cover and distribution, presence of moisture indicating plants, rock outcrops; surface rock, downed logs, forest litter and debris, and the abundance of rodent burrows both in and adjacent to the channel. The final determination for the suitability of a channel and associated flood control facilities was based on the site-specific suitability of the channel and the connection to adjacent habitat capable of supporting southern rubber boas over the long term. If the channel itself appears suitable, but was so small and isolated by development that it cannot support boas over time, it was not considered suitable.

A full breakdown of the methodology used and the results of the southern rubber boa habitat assessment are provided in Appendix B.

### **3.5.10 Limitations**

Habitat suitability for special-status wildlife species was primarily determined using relevant existing data and literature. In lieu of focused surveys, methodologies determined in coordination with the resource agencies were used to assess the potential occupation of suitable habitat for listed species. Several of these methodologies (least Bell's vireo, Delhi Sands flower-loving fly, San Bernardino kangaroo rat, Mohave ground squirrel, southern rubber boa, and arroyo toad) included field checks where suitable habitat was determined in the field and later digitized in GIS. The results of these habitat assessments included vegetation mapping at a finer scale than what was employed by the desktop analysis mapping done for the entire proposed program area described in Section 3.4, Vegetation Community and Land Cover Mapping. Therefore, there are areas where the vegetation communities mapped do not match up with suitable habitat described for each species (for example, an urban land cover may be mapped as suitable for least Bell's vireo).

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## 3.6 Jurisdictional Delineations

A formal delineation of waters of the United States, waters of the state, and streambeds under CDFW jurisdiction (jurisdictional waters) was completed for the proposed program study area. The delineation of jurisdictional waters is provided under separate cover (Dudek 2017), and jurisdictional waters are not discussed further in this biological technical report.

## 3.7 Habitat Linkages and Wildlife Corridors

Wildlife species generally inhabit suitable habitat patches distributed across a landscape. These habitat blocks, which may make up the species' home range or breeding territory, support most, if not all, of the species' life history needs (e.g., food resource, mates, refuge). Critical to the survival of most wide-ranging species is the ability to access or move between various habitat blocks to allow for juvenile dispersal, to access food and/or shelter during the winter months, to escape catastrophic events (e.g., flood, fire), and to ward against genetic inbreeding (Rosenberg et al. 1997). In undisturbed or unfragmented landscapes, such movements by some species may occur throughout the landscape without a defined movement route (e.g., between mosaics of suitable habitat patches). However, where landscapes have movement constraints related to either natural conditions, such as vegetation types or topography (e.g., steep slopes) or man-made obstacles (e.g., urban areas, roads), wildlife may have to move along defined landscape linkages or movement corridors.

“Wildlife movement corridors,” as used in this report, are generally linear landscape features that permit species to disperse between favorable habitats. Wildlife crossings are not habitats per se, but are identifiable locations within a constrained landscape through which wildlife must pass to negotiate physical constraints, such as roads and development. These crossings may occur within a landscape habitat linkage or a wildlife corridor, but, in either case, represent potential bottlenecks in the movement landscape.

To identify potential wildlife corridors present in the study area, existing resources documenting habitat linkages and wildlife corridors in San Bernardino County were reviewed. The following paragraphs describe the sources reviewed, organized by the agency leading the effort and then by the document title and author. In addition to these resources, the County Open Space Overlay was reviewed. Finally, because watercourses typically facilitate wildlife movement, District facilities have the potential to serve as wildlife corridors. An aerial review of District facilities was conducted to determine whether facilities connect habitat patches and therefore serve as wildlife movement corridors.

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## Caltrans and CDFG

**California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (Spencer et al. 2010).** For San Bernardino County (portions of the South Coast and Mojave ecoregions), this effort identifies at a broad scale, large, relatively natural habitat blocks that support native biodiversity (natural landscape blocks) and areas essential for ecological connectivity between them (essential connectivity areas). The California Desert Connectivity Project discussed below is a newer, more regionally focused effort and replaces the areas where it overlaps with the California Essential Habitat Connectivity Project.

## South Coast Wildlands

South Coast Wildlands is a non-profit organization working to maintain and restore essential wildlife corridors connecting wildlands throughout California. South Coast Wildlands has studied and modeled wildlife movement in several areas within San Bernardino County with four major efforts: South Coast Missing Linkages Project, Joshua Tree–Twentynine Palms Connection, California Desert Connectivity Project, and California Essential Habitat Connectivity.

**South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion (South Coast Wildlands 2008).** The South Coast Missing Linkages Project provides a network of essential linkages and corridors within the region that are the core to conservation strategies for Southern California. This is a collaborative, interagency project with the focus being to conserve the highest priority linkages within San Bernardino County and the rest of Southern California.

**A Linkage Design for the Joshua Tree–Twentynine Palms Connection. South Coast Wildlands, Fair Oaks, California (Penrod et al. 2008).** The linkage design for the Joshua Tree–Twentynine Palms Connection was part of the South Coast Missing Linkages discussed above but with a focus for a specific geographic area. Penrod et al. (2008) conducted various landscape analyses to identify those areas necessary to accommodate continued movement of selected focal species through this landscape. Their collaborative and interdisciplinary approach included selecting focal species, a landscape permeability analysis, a patch size and configuration analysis, field investigations to ground-truth results and identify barriers, and an overall linkage design.

**A Linkage Network for the California Deserts (Penrod et al. 2012).** The primary objective is to identify lands essential to maintain or restore functional connectivity among wildlands for all species or ecological processes of interest in the California deserts. Their collaborative and interdisciplinary approach included selecting focal species, defining 22 analysis areas (one for each pair of landscape blocks to be connected), least-cost modeling to identify habitat that support

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multiple species potentially using each linkage, analyzing connectivity in a changing climate, a patch size and configuration analysis, field investigations to ground-truth results and identify barriers, and an overall linkage design.

### **3.8 Impacts Analysis**

The District created a GIS layer of ground-disturbing maintenance activities included in the proposed program. Many of the maintenance activities overlap with each other; therefore, an impact footprint was created to capture the cumulative geographic extent of all maintenance activities. When impacts in this document are identified by maintenance layer, the acreage for each layer represents the portion of that maintenance layer that does not overlap other maintenance layers. In order to calculate these acreages without counting impacts more than once, overlapping maintenance layers were clipped such that there was no overlap. In determining which maintenance layer had the largest geographic extent, overlapping areas were removed in the following order: federal maintenance, mechanized land clearing, stockpiles, vegetation management, ingress/egress, herbicide, and bank repair. For example, the impacts provided for mechanized land clearing include only impacts that do not overlap the federal maintenance layer; the vegetation management impacts include only those that do not overlap the federal maintenance, mechanized land clearing, or stockpile layers.

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## 4 VALLEY REGION: EXISTING CONDITIONS, IMPACTS, AND MITIGATION MEASURES

The Valley Region consists of portions of Zones 1, 2, and 3 and is the most populated of all three geographic regions (see Figure 1-1). Appendix D (Maintained Facilities Biological Conditions) lists each maintained facility and the biological resources within each facility, including soils, vegetation communities, and habitat for federally and/or state-listed species. This section provides a summary of biological resources within the Valley Region. There are three District facilities located in Riverside County that are included as part of the Valley Region.

### 4.1 Existing Conditions

#### 4.1.1 Climate

The Valley Region falls within a Mediterranean climate, with hot and dry summers and cool, moist winters. Winters can be colder than other areas within the Southern California region; morning frost is a common occurrence, with rare snow flurries. Summers are very hot, with numerous days over 100°F. Within the Valley Region, the County of San Bernardino receives an average of 16 inches of rain annually, with most of the rainfall occurring November through April and occasional thunderstorms during the summer months. The Santa Ana winds are common within the Valley Region, as warm and dry winds blow from the desert in the east.

#### 4.1.2 Soils

The Valley Region has soil types that are primarily composed of alluvial deposits with several areas of dune sand (USDA 2017). Appendix D identifies the soil types mapped at each facility. Soil types that support special-status biological resources are outlined in this section.

#### **Alluvial Fans**

Alluvial fans and their associated vegetation, Riversidean alluvial fan sage scrub, form one of the most imperiled communities in Southern California. Three phases of Riversidean alluvial fan sage scrub associated with alluvial fans have been recognized based on differences in flooding frequency and intensity: pioneer, intermediate, and mature. Soils in the pioneer phase are primarily friable open sands, allowing specialty plants and wildlife to persist. Soils in the intermediate phase can also be sandy and friable, but may have more structure with additional plant root systems and the development of a cryptogamic crust, as well as more surface loam. Vegetation is denser in the intermediate phase compared to the pioneer. In the mature phase, some sandy soils may be present, but surface loam can be common, as well as pockets of cryptogamic crust. The loam tends to promote the growth of grasses, and overall the shrub vegetation can be tall and dense with few open areas.

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## **Delhi Soil Series**

The Delhi soil series is found in the southern portion of the valley and overlapping the study area. The Delhi soil series supports a number of endemic insect species, including the Delhi sands flower-loving fly, a federally listed endangered species. The Colton Dunes compose the extent of the Delhi soil series within the study area. The Colton Dunes were created from wind-blown sand and currently occur only in fragmented areas in Ontario, Fontana, Rialto, and Colton.

### **4.1.3 Watersheds**

The dominant aquatic feature within the Valley Region is the Santa Ana River. Watershed-specific mapping completed as part of the proposed program identified 10 watersheds within the Valley Region (see Figure 4-1, Watersheds in the Valley Region). The major aquatic features within each watershed are described herein.

#### **Lytle Creek/Cajon Creek System**

Maintenance areas located within the Lytle Creek/Cajon Creek System consist primarily of levees that capture flows from the San Gabriel Mountains as they travel southeast towards the Santa Ana River. The geographic boundaries of this watershed are the San Gabriel Mountains to the west and the San Bernardino Mountains to the east. Runoff from these two mountain ranges flows into Lytle Creek and Cajon Creek, the two main river systems within this watershed. These rivers capture flows from numerous other tributaries, including Devil Creek and Cable Creek, before converging in the foothills and continuing south through Colton to a confluence with the Santa Ana River.

#### **Twin/Warm System**

The Twin/Warm System is located along the southern side of the San Bernardino Mountains at lower elevations and within the foothills of the Valley Region. The northern boundary for this watershed is the topographic break where tributary streams flow south towards the valley instead of north to the desert. Twin Creek and Warm Creek are the primary river systems within this watershed, each conveying flows southwest through Highland and San Bernardino. They capture flows from numerous tributaries, including Sand Creek and Baldrige Creek, before reaching their confluence with the Santa Ana River.

#### **City Creek/Plunge Creek/Mill Creek**

The City Creek/Plunge Creek/Mill Creek watershed is located along the southern side of the San Bernardino Mountains and along the valley floor. It appears to capture flows coming south from the San Bernardino Mountains before they converge west toward the Santa Ana River. The Santa Ana

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River is the primary river system within this watershed; however, this watershed also contains three major tributaries to the Santa Ana River: City Creek, Plunge Creek, and Mill Creek. City Creek forms the western geographic boundary for this watershed, capturing flows from the foothills in Highland and conveying them southwest to the Santa Ana River. Mill Creek captures flows from the very eastern range of the watershed and conveys them west to the Santa Ana River. Plunge Creek runs southwest from the northeastern portion of the watershed into the Santa Ana River.

### **Zanja/Mission System**

The Zanja/Mission System is located in a heavily urbanized portion of the Valley Region, primarily in Redlands and the community of Mentone. It captures flows from the Crafton Hills, which form the eastern boundary of the watershed, and conveys them west to Zanja Creek. Zanja Creek forms a confluence with Mission Channel in Redlands. These two features, which flow northwest towards the Santa Ana River, are the dominant river systems within the watershed.

### **San Timoteo**

The San Timoteo watershed is located along the southern border of San Bernardino County, overlapping the cities of Loma Linda, Yucaipa, and Oak Glen. The main water feature is San Timoteo Creek. This feature captures flows from the Badlands located to the south. In addition, San Timoteo Creek captures flows from the San Gorgonio Mountains in the northeastern part of the watershed. Prominent tributaries in the northeast include Oak Glen Creek, Wildwood Creek, and Wilson Creek. San Timoteo Creek flows northwest through the watershed to its confluence with the Santa Ana River.

### **Day Creek/Etiwanda–San Sevaine**

Day Creek/Etiwanda–San Sevaine is located within a heavily urbanized area within the Valley Region; flood control features within this watershed are primarily channelized. San Sevaine Channel and Day Creek are the two dominant water features within this watershed, both capturing runoff associated with the east side of Cucamonga Creek in the San Gabriel Mountains. Day Creek forms the western geographic boundary of this watershed. This creek contains a prominent tributary, Etiwanda Channel. Together, these features flow south through eastern Rancho Cucamonga to a confluence with the Santa Ana River. San Sevaine Channel and its tributaries form the eastern boundary of the watershed.

### **Rialto**

The Rialto watershed is located within a heavily urbanized area within the Valley Region and flood control features within this watershed are primarily channelized. Rialto Channel is the dominant

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water feature within this watershed, beginning just south of East Etiwanda Avenue. This feature captures flows from Cactus Channel and development within the Cities of Fontana and Rialto. It passes through the Cactus Basins before crossing through a culvert beneath East Etiwanda Avenue. This feature continues south until its confluence with the Santa Ana River, just south of I-10.

## **Grand Terrace**

The Grand Terrace watershed is located south of the Santa Ana River within the Valley Region and primarily captures flows from Reche Canyon and the City of Grand Terrace. The primary feature within this watershed is Reche Canyon Creek, which lies north of the City of Moreno Valley. This feature makes up the eastern and northern boundary of the watershed while flowing northwest to its confluence with the Santa Ana River.

## **Cucamonga/West Cucamonga Creek System**

The Cucamonga/West Cucamonga Creek System extends south from the San Gabriel Mountains in the north to the San Bernardino County border in the south. This watershed is located within an urbanized area of the Valley Region with flood control features that primarily consist of concrete channels. This watershed is defined by two water systems: Cucamonga Creek and Deer Creek. Both water features begin within the San Gabriel Mountains. Specifically, Cucamonga Creek originates as runoff associated with Ontario Peak, whereas Deer Creek is fed by waters flowing from the west side of Cucamonga Peak. The creeks join within the City of Ontario and flow south, eventually joining the Santa Ana River approximately 8 miles away.

## **San Antonio Creek System**

The San Antonio Creek System is the westernmost watershed within San Bernardino County. This watershed is located within a heavily urbanized area of the Valley Region, with flood control features that consist of concrete channels and underground storm drains. San Antonio Creek Channel, the dominant river system within this watershed, forms the western geographic boundary. This feature captures flows from Potato Mountain to the west, as well as runoff associated with Mount Baldy to the north. Prominent tributaries to San Antonio Creek Channel include Cypress Channel and Carbon Canyon Creek Channel, which capture flows from the urbanized landscape of the Cities of Ontario and Chino. San Antonio Creek Channel and its tributaries flow south to the Santa Ana River.

### **4.1.4 Topography and Geomorphology**

The Valley Region is composed of a number of valleys and foothills. The inland valleys within San Bernardino County are bounded on the northeast and northwest by the San Bernardino and San Gabriel mountain ranges, and to the south from east to west by the Badlands, Jurupa Hills, and Chino Hills. Associated with the foothill areas and spreading to the valley floor are a number

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of relatively flat alluvial fans, which are landforms created by the buildup of stream sediments and debris flows (Harden 2004). Elevation within the heavily urbanized valley/foothills ranges from 500 feet above mean sea level (amsl) near Prado to 3,000 feet amsl in Yucaipa.

### 4.1.5 Vegetation Communities/Land Cover Types

Table 4-1 provides a summary of acreages for each vegetation community and land cover identified within the study area in the Valley Region. Figures 4-2A through 4-2E, Vegetation Communities in the Valley Region, depict the distribution of general habitat types within the Valley Region and Appendix D identifies vegetation communities occurring at each facility. Descriptions of the vegetation communities and land covers are included in Sections 4.1.5.1 through 4.1.5.12. Disturbed forms of these communities consist of the dominant native species the community was mapped to, but have a non-native cover of 20% to 50% and/or have been disturbed by anthropogenic causes; thus, disturbed forms are not described separately.

**Table 4-1  
Vegetation Communities and Land Cover Types within the Study Area  
in the Valley Region**

Generalized Habitat Type (Macrogroup) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Valley Region in San Bernardino County	Total Acres in Valley Region in Riverside County
Coastal scrub <i>(California coastal scrub), Vancouverian coastal dune and bluff, and Mojavean–Sonoran Desert scrub)</i>	Brittle bush scrub alliance*	17.6	—
	California buckwheat scrub alliance	223.2	—
	California sagebrush scrub alliance	221.1	—
	California sagebrush–California buckwheat scrub alliance*	407.7	—
	Coyote brush scrub alliance	0.6	—
	Deer weed scrub alliance	0.6	—
	Disturbed brittle bush scrub alliance*	7.3	—
	Disturbed California buckwheat scrub alliance	29.1	—
	Disturbed California sagebrush scrub alliance	34.9	—
	Disturbed California sagebrush–California buckwheat scrub alliance	19.4	—
	Disturbed deer weed scrub alliance	2.3	—
<i>Subtotal</i>		963.8	—
Eucalyptus naturalized forest <i>(introduced North American Mediterranean woodland and forest)</i>	Eucalyptus groves semi-natural woodland stands	43.8	—
<i>Subtotal</i>		43.8	—

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**Table 4-1  
Vegetation Communities and Land Cover Types within the Study Area  
in the Valley Region**

Generalized Habitat Type (Macrogroup) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Valley Region in San Bernardino County	Total Acres in Valley Region in Riverside County
Grasslands <i>(California annual and perennial grassland)</i>	Non-native grassland	230.5	2.5
<i>Subtotal</i>		233.0	2.5
Marsh <i>(western North American freshwater marsh)</i>	Cattail marshes alliance*	10.4	—
<i>Subtotal</i>		10.4	—
Oak woodlands and forests <i>(California forest and woodland)</i>	Coast live oak woodland*	7.5	—
	Disturbed coast live oak woodland alliance*	4.0	—
<i>Subtotal</i>		11.5	—
Riparian forest and woodland <i>(Southwestern North American riparian, flooded and swamp forest)</i>	Arroyo willow thickets alliance	107.2	—
	Black willow thickets alliance*	13.4	—
	California sycamore woodlands alliance*	1.7	—
	Disturbed arroyo willow thickets alliance	18.2	—
	Disturbed black willow thickets alliance*	0.0	—
	Disturbed Fremont cottonwood forest alliance*	0.0	—
	Fremont cottonwood forest alliance*	200.7	—
	Red willow thickets alliance*	0.3	—
White alder groves forest alliance	0.6	—	
<i>Subtotal</i>		342.1	—
Riparian scrub (southwestern North American riparian, flooded and swamp forest/scrubland)	Disturbed mulefat thickets alliance	60.1	—
	mulefat thickets alliance	102.9	—
<i>Subtotal</i>		163.0	—
Riversidean alluvial fan sage scrub <i>(Madrean warm semi-desert wash woodland/scrub)</i>	Disturbed scale broom scrub alliance*	25.2	—
	Scale broom scrub alliance*	548.2	—
<i>Subtotal</i>		573.4	—
Undifferentiated chaparral scrubs <i>(California chaparral)</i>	Chamise chaparral alliance	20.5	—
	Hoary leaf ceanothus chaparral alliance	0	1.1
	Laurel sumac scrub alliance	2.9	—
	Scrub oak chaparral alliance	0.3	—
<i>Subtotal</i>		24.9	1.1

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**Table 4-1  
Vegetation Communities and Land Cover Types within the Study Area  
in the Valley Region**

Generalized Habitat Type (Macrogroup) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Valley Region in San Bernardino County	Total Acres in Valley Region in Riverside County
Waterway	Concrete channel	600.7	22.0
	Unvegetated channel	182.1	—
	Unvegetated wash	197.6	—
<i>Subtotal</i>		<i>1,002.4</i>	<i>22.0</i>
Open water	Open water	<0.1	—
	<i>Subtotal</i>		<i>&lt;0.1</i>
Non-natural land covers	Basin†	1,317.3	105.0
	Disturbed land	1,282.6	—
	Agriculture	21.8	1.9
	Ornamental plantings	26.2	—
	Ruderal	102.2	—
	Upland mustard	17.5	—
	Urban	1,587.6	40.8
<i>Subtotal</i>		<i>4,502.9</i>	<i>147.7</i>
<b>Total</b>		<b>7,871.1</b>	<b>173.3</b>

As discussed in Chapter 3, Methods, of this report, there are limitations to vegetation community mapping on a programmatic level and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status communities present not captured on this table or acreages may vary from existing conditions.

\* Denotes a special-status plant community. Due to the limitations of the vegetation mapping, there may be special-status vegetation communities that were not captured on this table or acreages may vary from existing conditions. As described in the Maintenance Plan, special-status communities will be mapped prior to maintenance activities. Impacts and mitigation for special-status communities will be based on actual conditions at time of maintenance.

### 4.1.5.1 Coastal Scrub

Within the study area, the following alliances, including disturbed forms, are in the California coastal scrub macrogroup: the California buckwheat scrub, California sagebrush scrub, California sagebrush–California buckwheat scrub, and deer weed alliances. The brittle bush scrub alliance is within the Mojavean–Sonoran desert scrub macrogroup and the coyote brush scrub alliance is within the Vancouverian coastal dune and bluff macrogroup. Each of these alliances is described in this section.

Six coastal scrub alliances were mapped in the Valley Region, including disturbed forms of some of the alliances. The brittle bush scrub, disturbed brittle bush scrub, and California sagebrush–California buckwheat scrub alliances are considered special status under CEQA (CDFG 2010).

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## Brittle Bush Scrub Alliance

The brittle bush scrub alliance (*Encelia farinosa* scrub alliance) includes brittle bush (*Encelia farinosa*) as the dominant or co-dominant shrub in the canopy. This alliance has an open to intermittent shrub canopy less than 2 meters (7 feet) in height with an open ground layer with seasonal annuals (Sawyer et al. 2009). The brittle bush scrub alliance often occurs on alluvial fans, bajadas, slopes of small washes and rills, colluvium, and rocky hillsides containing well-drained, rocky soils (Sawyer et al. 2009).

Species associated with the alliance include desert agave (*Agave deserti*), white bursage (*Ambrosia dumosa*), California sagebrush (*Artemisia californica*), teddy bear cholla (*Cylindropuntia bigelovii*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), thickleaf yerba santa (*Eriodictyon crassifolium*), California buckwheat (*Eriogonum fasciculatum*), California barrel cactus (*Ferocactus cylindraceus*), chaparral yucca (*Hesperoyucca whipplei*), California four o'clock (*Mirabilis laevis* var. *crassifolia*), and white sage (*Salvia apiana*) (Sawyer et al. 2009).

## California Buckwheat Scrub Alliance

The California buckwheat scrub alliance (*Eriogonum fasciculatum* scrub alliance) includes California buckwheat as the dominant or co-dominant shrub in the canopy. This alliance has a continuous or intermittent shrub canopy less than 7 feet (2 meters) in height with a variable ground layer that may be grassy (Sawyer et al. 2009). The California buckwheat scrub alliance occurs on dry slopes, washes, and canyons as well as coastal bluffs (Gordon and White 1994). The alliance occurs on relatively gentle, south-facing lower slopes and toe-slopes. The California buckwheat scrub alliance occupies mostly shallow and moderately deep, well-drained and somewhat excessively drained soils. Soils range from coarse sand to moderately fine sandy clay loam (Klein and Evens 2005).

Species associated with the alliance include California sagebrush, bush mallow (*Malacothamnus fasciculatus*), Menzies' goldenbush (*Isocoma menziesii*), coyote brush (*Baccharis pilularis*), common deerweed (*Acmispon glaber* var. *glaber*), black sage (*Salvia mellifera*), and white sage (Sawyer et al. 2009).

## California Sagebrush Scrub Alliance

The California sagebrush scrub alliance (*Artemisia californica* scrub alliance) includes California sagebrush as the dominant or co-dominant shrub in the canopy. This alliance has a continuous or intermittent shrub canopy less than 2 meters (7 feet) in height with a variable ground layer (Sawyer et al. 2009). The California sagebrush scrub alliance often occurs on steep, north-facing slopes and

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rarely flooded low-gradient deposits along streams in shallow alluvial or colluvial-derived soils (Sawyer et al. 2009).

Species associated with the alliance include black sage, white sage, brittle bush, chaparral yucca, Menzies' goldenbush, coyote brush (*Baccharis pilularis*), common deerweed, and poison oak (*Toxicodendron diversilobum*) (Sawyer et al. 2009).

### **California Sagebrush–California Buckwheat Scrub Alliance**

The California sagebrush–California buckwheat scrub alliance (*Artemisia californica*–*Eriogonum fasciculatum* scrub alliance) includes California sagebrush and California buckwheat as co-dominant shrubs in the canopy. California sagebrush–California buckwheat scrub has a two-tiered continuous or intermittent shrub canopy with most shrubs less than 2 meters (7 feet) in height while others reach up to 5 meters (16 feet) in height. This alliance has a seasonally present herbaceous layer. The California sagebrush–California buckwheat scrub alliance most often occurs on steep, south-facing slopes with colluvial-derived soils (Sawyer et al. 2009).

Species associated with the California sagebrush–California buckwheat scrub alliance include chamise (*Adenostoma fasciculatum*), narrowleaf goldenbush (*Ericameria linearifolia*), chaparral yucca, bush monkeyflower (*Mimulus aurantiacus*), common deerweed, laurel sumac (*Malosma laurina*), sugarbush (*Rhus ovata*), and white sage (Sawyer et al. 2009).

### **Coyote Brush Scrub Alliance**

The coyote brush scrub alliance (*Baccharis pilularis* scrub alliance) includes coyote brush as the dominant or co-dominant shrub in the canopy. Coyote brush scrub has a variable shrub canopy less than 3 meters (10 feet) in height with a variable ground layer. This alliance occurs on stream sides, stabilized dunes of coastal bars, river mouths, spits along the coastline, coastal bluffs, open slopes, ridges, and terraces (Sawyer et al. 2009).

Species associated with the coyote brush scrub alliance include common deerweed, California buckwheat, California sagebrush, and white sage (Sawyer et al. 2009).

### **Deer Weed Scrub Alliance**

The deer weed scrub alliance (*Acmispon glaber* scrub alliance) includes common deerweed as dominant or co-dominant in the canopy. Deer weed scrub has a two-tiered open to intermittent shrub canopy less than 2 meters (7 feet) in height with a sparse ground layer. This alliance occurs in areas that have recently been disturbed by clearing, fire, intermittent flooding, or other disturbances (Sawyer et al. 2009).

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Some species associated with the deer weed scrub alliance include chamise, California sagebrush, coyote brush, brittle bush, California buckwheat, and white sage (Sawyer et al. 2009).

### **4.1.5.2 Eucalyptus Naturalized Forest**

Eucalyptus groves semi-natural stands is in the introduced North American Mediterranean woodland and forest macrogroup and was mapped in the Valley Region. Eucalyptus groves semi-natural stands are not considered special status under CEQA (CDFG 2010) and are described in more detail in this section.

#### **Eucalyptus Groves Semi-Natural Woodland Stands**

The eucalyptus groves semi-natural woodland stand (*Eucalyptus globulus*, *camaldulensis*) includes various eucalyptus species as the dominant tree in the canopy. Eucalyptus groves have an intermittent to continuous canopy less than 50 meters (164 feet) in height with a sparse to intermittent shrub layer and herbaceous layer. This semi-natural stand occurs as planted trees, groves, and windbreaks as well as naturalized on uplands and stream courses (Sawyer et al. 2009).

### **4.1.5.3 Grasslands**

Non-native grasslands are in the California annual and perennial grassland macrogroup and were mapped within the Valley Region. Non-native grasslands are not considered special status under CEQA (CDFG 2010) and are described in more detail in this section.

#### **Non-Native Grassland**

Non-native grasslands were mapped to the general habitat type because the CDFW does not consider any of the semi-natural stands<sup>7</sup> special-status biological resources under CEQA (CDFG 2010). Non-native grassland has a sparse to dense cover of annual grasses that is typically 0.2 meters (0.7 feet) to 0.5 meters (1.6 feet) tall and can be up to 1 meter (3 feet) tall.

Grasses that occur in non-native grassland include oats (*Avena* spp.), bromes (*Bromus* spp.), fescue (*Festuca* spp.), and Italian ryegrass (*Festuca perennis*). Forbs that occur with these grasses include California poppy (*Eschscholzia californica*), stork's bill (*Erodium* ssp.), goldfields (*Lasthenia* spp.), phacelias (*Phacelia* spp.), gilians (*Gilia* spp.), and baby blue eyes (*Nemophila menziesii*) (Holland 1986). Non-native grassland also includes land that is used as pasture for grazing

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<sup>7</sup> Semi-natural stands are invasive naturalized plant groups where “plants are sufficiently dominant to have replaced most of the natives, and, in many situations, the associates are themselves non-native species” (Sawyer et al. 2009).

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purposes. Grasses such as barley (*Hordeum* spp.) and wild oats may grow in these areas. Areas mapped as non-native grassland have very few native species.

### **4.1.5.4 Marsh**

The cattail marsh alliance is within the Western North American freshwater marsh macrogroup and was mapped in the Valley Region. The cattail marsh alliance is not a designated sensitive community by CDFW; however, cattail marsh alliance is a wetland community, which is typically afforded protection under CEQA and the Clean Water Act. This vegetation alliance is described in more detail below.

#### **Cattail Marshes Alliance**

The cattail marshes alliance (*Typha* spp. alliance) includes cattail species (*Typha* spp.) as the dominant or co-dominant herb in the herbaceous layer. Cattail marshes alliance has an intermittent to continuous canopy less than 1.5 meters (5 feet) in height (Sawyer et al. 2009). This alliance occurs on semi-permanently flooded freshwater or brackish marshes that contain clayey or silty soils (Sawyer et al. 2009).

Species associated with the cattail marshes alliance include creeping bentgrass (*Agrostis stolonifera*), flatsedge (*Cyperus* spp.), salt grass (*Distichlis spicata*), barnyardgrass (*Echinochloa crus-galli*), pale spike rush (*Eleocharis macrostachya*), giant horsetail (*Equisetum telmateia*), rushes (*Juncus* spp.), least duckweed (*Lemna minuta*), perennial pepper weed (*Lepidium latifolium*), water-parsley (*Oenanthe sarmentosa*), smartweed (*Persicaria lapathifolia*), dotted smartweed (*Persicaria punctata*), common reed (*Phragmites australis*), American bulrush (*Schoenoplectus americanus*), California bulrush (*Schoenoplectus californicus*), and cocklebur (*Xanthium strumarium*) (Sawyer et al. 2009).

### **4.1.5.5 Oak Woodlands and Forest**

The coast live oak woodland alliance is in the California forest and woodland macrogroup and it was mapped in the Valley Region, including in its disturbed form. Coast live oak woodland, including disturbed forms, is considered special status in this document because of its protection under the County Development Code.

#### **Coast Live Oak Woodland Alliance**

The coast live oak woodland alliance (*Quercus agrifolia* alliance) includes coast live oak as the dominant or co-dominant tree in the canopy. Coast live oak woodland has a continuous to open canopy less than 30 meters (98 feet) in height with a sparse to intermittent shrub canopy and sparse

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or grassy ground layer (Sawyer et al. 2009). The coast live oak woodland alliance occurs on alluvial terraces, canyon bottoms, stream banks, slopes, and flats. Soils in which this alliance is generally found are characterized by deep sands or loams with a high content of organic matter (Sawyer et al. 2009).

Species associated with the coast live oak woodland alliance include bigleaf maple (*Acer macrophyllum*), blue oak (*Quercus douglasii*), box-elder (*Acer negundo*), California bay (*Umbellularia californica*), Engelmann oak (*Quercus engelmannii*), California sycamore, California walnut, valley oak (*Quercus lobata*), arroyo willow (*Salix lasiolepis*), California black oak (*Quercus kelloggii*), and madrone (*Arbutus menziesii*) (Sawyer et al. 2009).

### **4.1.5.6 Riparian Forest and Woodland**

The white alder groves alliance is in the Western Cordilleran montane–boreal riparian scrub macrogroup and the remainder of the riparian forest and woodland alliances are in the Southwestern North American riparian, flooded and swamp forest macrogroup.

Six riparian forest and woodland alliances were mapped in the Valley Region, including disturbed forms of some of the alliances. The following alliances are considered special status under CEQA (CDFG 2010): the black willow thickets, California sycamore woodlands, Fremont cottonwood forest, and red willow thickets alliances.

#### **Arroyo Willow Thickets Alliance**

The arroyo willow thickets alliance (*Salix lasiolepis* alliance) includes arroyo willow as the dominant or co-dominant shrub or tree in the canopy. Arroyo willow thickets have a continuous to open canyon less than 10 meters (33 feet) in height with a variable ground layer. This alliance occurs along slope seeps, streambanks and benches, and along drainages (Sawyer et al. 2009).

Some species associated with arroyo willow thickets include bigleaf maple, coyote brush, mulefat (*Baccharis salicifolia*), button willow (*Cephalanthus occidentalis*), red osier (*Cornus sericea*), California sycamore, cottonwoods (*Populus* spp.), willows (*Salix* spp.), and blue elderberry (Sawyer et al. 2009).

#### **Black Willow Thickets Alliance**

The black willow thickets alliance (*Salix gooddingii* alliance) includes black willow (*Salix gooddingii*) as the dominant or co-dominant tree in the canopy. Black willow thickets have an open to continuous tree canopy less than 30 meters (98 feet) in height with an open to continuous shrub canopy, and variable ground layer. The black willow thickets alliance occurs on terraces

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along large rivers and along rocky floodplains of small, intermittent streams, seeps, and springs, as well as in canyons (Sawyer et al. 2009).

Species associated with the black willow thickets alliance include white alder (*Alnus rhombifolia*), Fremont cottonwood (*Populus fremontii*), blue elderberry, and willows (*Salix laevigata*, *S. lasiolepis*, *S. lucida* ssp. *lasiandra*). Associated shrubs include coyote brush, mulefat, and red osier (Sawyer et al. 2009).

### California Sycamore Woodlands Alliance

The California sycamore woodlands alliance (*Platanus racemosa* alliance) includes California sycamore (*Platanus racemosa*) as the dominant or codominant tree in the canopy. This alliance forms an open to intermittent tree canopy less than 35 meters (115 feet) with an open to intermittent shrub layer and sparse or grassy ground layer. The alliance is found in a variety of wetland and riparian locations, including gullies, intermittent streams, springs, stream and river banks, and seeps. It can also be found on terraces next to floodplains that are subject to high-intensity flooding (Sawyer et al. 2009).

Species associated with the California sycamore woodlands alliance include white alder, California walnut, coast live oak, valley oak, Fremont cottonwood, California bay, arroyo willow, black willow, and red willow (*Salix laevigata*) (Sawyer et al. 2009).

### Fremont Cottonwood Forest Alliance

The Fremont cottonwood forest alliance (*Populus fremontii* alliance) includes Fremont cottonwood as the dominant or co-dominant tree in the canopy. Fremont cottonwood forest alliance has a continuous to open canopy cover less than 25 meters (82 feet) in height, intermittent to open shrub layer, and variable herbaceous layer (Sawyer et al. 2009). This alliance occurs along low-gradient rivers, floodplains, perennial or seasonally intermittent streams, lower canyons of the desert mountains, alluvial fans, springs, and valleys with a dependable surface water supply (Sawyer et al. 2009).

Species associated with the Fremont cottonwood forest alliance include box-elder, Oregon ash (*Fraxinus latifolia*), Northern California black walnut and hybrids (*Juglans* ssp.), California sycamore, coast live oak, narrowleaf willow (*Salix exigua*), black willow, red willow, arroyo willow, shining willow (*Salix lasiandra*), and yellow willow (*Salix lutea*) (Sawyer et al. 2009).

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## Red Willow Thickets Alliance

The red willow thickets alliance (*Salix laevigata* alliance) includes red willow as the dominant or co-dominant tree in the tree canopy. The red willow thickets alliance has an open to continuous tree canopy cover less than 20 meters (66 feet) in height, open to intermittent cover in the shrub layer, and variable herbaceous layer. Red willow thickets communities are found in ditches, floodplains, lake edges, and low-gradient deposits along streams (Sawyer et al. 2009).

Species associated with the red willow thickets alliance include box-elder, California buckeye (*Aesculus californica*), white alder, incense cedar (*Calocedrus decurrens*), Jeffrey pine (*Pinus jeffreyi*), ghost pine (*Pinus sabiniana*), California sycamore, Fremont cottonwood, coast live oak, canyon live oak (*Quercus chrysolepis*), black willow, arroyo willow, shining willow, and blue elderberry (Sawyer et al. 2009).

## White Alder Groves Forest Alliance

The white alder forest alliance (*Alnus rhombifolia* alliance) includes white alder as the dominant or co-dominant tree in the tree canopy. The white alder forest alliance has an open to continuous tree canopy cover less than 35 meters (114 feet) in height, sparse to continuous cover in the shrub layer, and variable herbaceous layer. White alder forest communities are found in riparian corridors, seeps, stream banks, incised canyons, floodplains, mid-channel bars, and terraces (Sawyer et al. 2009).

Species associated within the white alder groves forest alliance include bigleaf maple, Port Orford cedar (*Chamaecyparis lawsoniana*), Oregon ash, tanoak (*Notholithocarpus densiflorus*), California sycamore, Fremont cottonwood, bigcone Douglas-fir (*Pseudotsuga macrocarpa*), valley oak, and willows (*Salix* spp.) (Sawyer et al. 2009).

### 4.1.5.7 Riparian Scrub

The mulefat thickets alliance is within the Southwestern North American riparian, flooded and swamp forest macrogroup and was mapped in the Valley Region, including its disturbed form. The mulefat thickets alliance, including its disturbed form, is not considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

## Mulefat Thickets Alliance

The mulefat thickets alliance (*Baccharis salicifolia* alliance) includes mulefat as the dominant or co-dominant shrub in the canopy. Mulefat thickets have a continuous shrub canopy with the first tier less than 2 meters (7 feet) in height and the second tier less than 5 meters (16 feet) in height

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with a sparse ground layer (Sawyer et al. 2009). The mulefat thickets alliance occurs in canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels on mixed alluvium soils (Sawyer et al. 2009).

Species associated with the mulefat thickets alliance include willows, California sagebrush, coyote brush, tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), and laurel sumac. Emergent sycamore, Fremont cottonwood, and oaks (*Quercus* spp.) may be present (Sawyer et al. 2009).

### **4.1.5.8 Riversidean Alluvial Fan Sage Scrub**

Three phases of vegetation associated with Riversidean alluvial fan sage scrub have been recognized based on differences in flooding frequency and intensity: pioneer, intermediate, and mature.

Pioneer areas are the most frequently flooded areas where vegetation is sparse, and tend to be located adjacent to the active creek channel. Soils are characterized by high sand and low organic and clay content. Intermediate areas occur on terraces at mid-elevated locations above the active floodplain, are less frequently flooded, and can support rather dense vegetative cover (49% to 65% (Smith 1980, as cited in USFWS 2010a)). Open areas may have cryptogamic crusts (Burk et al. 2007). Mature areas occur on the highest infrequently flooded elevated terraces and support mature plants with dense vegetative cover (66% to 88% (Smith 1980 and Hanes et al. 1989, as cited in USFWS 2010a)).

The scale broom scrub alliance is within the Madrean warm semi-desert wash woodland/scrub macrogroup and was mapped in the Valley Region, including its disturbed form. The scalebroom scrub alliance, including its disturbed forms, is considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

### **Scale Broom Scrub Alliance**

The scale broom scrub alliance tends to occur in pioneer and intermediate Riversidean alluvial fan sage scrub, and much less so in mature phases. This community is identified by a dominance of scalebroom (*Lepidospartum squamatum*). Co-dominants may include California buckwheat, California sagebrush, white sage, brittlebush (*Encelia* spp.), pricklypear (*Opuntia* spp.), chaparral yucca, lemonade berry (*Rhus integrifolia*), sugarbush, and California juniper (*Juniperus californica*).

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### **4.1.5.9 Undifferentiated Chaparral Scrub**

Within the study area, the undifferentiated chaparral scrub is in the California chaparral macrogroup. None of the undifferentiated chaparral scrub alliances are considered special-status under CEQA (CDFG 2010).

#### **Chamise Chaparral Alliance**

The chamise chaparral alliance (*Adenostoma fasciculatum* alliance) includes chamise as the dominant shrub in the canopy. Chamise chaparral has an intermittent to continuous shrub canopy less than 4 meters (13 feet) in height and a sparse to intermittent herbaceous layer (Sawyer et al. 2009). This alliance often occurs on all slopes and aspects in shallow soils that commonly form over colluvium and many types of bedrock (Sawyer et al. 2009).

Species associated with the chamise chaparral alliance include redshank (*Adenostoma sparsifolium*), Eastwood manzanita (*Arctostaphylos glandulosa*), whiteleaf manzanita (*Arctostaphylos manzanita*), sticky whiteleaf manzanita (*Arctostaphylos viscida*), ceanothus (*Ceanothus* spp.), California yerba santa (*Eriodictyon californicum*), California buckwheat, chaparral yucca, toyon (*Heteromeles arbutifolia*), interior live oak (*Quercus wislizeni*), white sage, purple sage (*Salvia leucophylla*), black sage, scrub oak (*Quercus berberidifolia*), and poison oak. Emergent trees may be present, but at a low cover (Sawyer et al. 2009).

#### **Hoary Leaf Ceanothus Chaparral Alliance**

The hoary leaf ceanothus chaparral alliance (*Ceanothus crassifolius* alliance) includes hoary leaf ceanothus (*Ceanothus crassifolius*) as the dominant or co-dominant shrub in the canopy. Hoary leaf ceanothus chaparral has an intermittent to continuous shrub canopy less than 5 meters (16 feet) in height with an open ground layer (Sawyer et al. 2009).

Some species associated with the hoary leaf ceanothus chaparral alliance include chamise, bigberry manzanita (*Arctostaphylos glauca*), chaparral white thorn (*Ceanothus leucodermis*), bush monkeyflower, California buckwheat, chaparral yucca, toyon, bush penstemon (*Keckiella antirrhinoides*), laurel sumac, scrub oak, sugarbush, and black sage. There may also be sparse, emergent trees, including coast live oak (*Quercus agrifolia*) (Sawyer et al. 2009).

#### **Laurel Sumac Scrub Alliance**

The laurel sumac scrub alliance (*Malosma laurina* alliance) includes laurel sumac as the dominant or co-dominant shrub in the canopy. Laurel sumac scrub has an open to continuous shrub canopy

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less than 5 meters (16 feet) in height with a sparse or grassy ground layer and sparse cover of emergent trees (Sawyer et al. 2009).

Some species associated with the laurel sumac scrub alliance include California sagebrush, bush monkeyflower, California brittle bush (*Encelia californica*), California buckwheat, chaparral yucca, toyon, bush penstemon, hollyleaf redberry (*Rhamnus ilicifolia*), lemonade berry, sugarbush, purple sage, black sage, Parry's tetracoccus (*Tetracoccus dioicus*), and poison oak. There may also be sparse, emergent trees and shrubs present such as California walnut (*Juglans californica*), California sycamore, coast live oak, or blue elderberry (*Sambucus nigra*) (Sawyer et al. 2009).

### **Scrub Oak Chaparral Alliance**

The scrub oak chaparral alliance (*Quercus berberidifolia* alliance) is dominated or co-dominated by scrub oak, generally exceeding 60% cover. Scrub oak chaparral has a continuous shrub canopy less than 6 meters (20 feet) in height with a sparse herbaceous layer (Sawyer et al. 2009).

Species associated with scrub oak chaparral alliance include chamise, redshank, Eastwood manzanita, bigberry manzanita, desert ceanothus (*Ceanothus perplexans*), chaparral white thorn, California coffee berry (*Frangula californica*), California ash (*Fraxinus dipetala*), toyon, holly leaf cherry (*Prunus ilicifolia*), interior live oak (*Quercus wislizeni*), holly leaf redberry, sugarbush, and poison oak. There may also be sparse, emergent trees, including California buckeye, coast live oak, California walnut, or ghost pine (Sawyer et al. 2009).

#### **4.1.5.10 Waterway**

Waterways consist of the following: concrete-lined channels, unvegetated channels, and unvegetated washes. Waterways are not considered special status under CEQA (CDFG 2010).

#### **4.1.5.11 Open Water**

The open water mapping unit is not recognized by the Natural Communities List (CDFG 2010) but is described by Jones & Stokes (1993). Open water consists of standing water with no emergent vegetation. Open water is not considered a riparian habitat because it lacks hydrophytic vegetation.

#### **4.1.5.12 Non-Natural Land Covers**

Non-natural land covers include the following communities and land cover types: agriculture, basin, disturbed land, ornamental plantings, ruderal, upland mustard, and urban. None of the non-natural land covers are considered special status under CEQA (CDFG 2010).

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## **Agriculture**

Agricultural land includes the following agricultural types: agriculture (general), nurseries, orchard agriculture, pastures and crop agriculture, tilled earth, and vineyard–shrub agriculture.

## **Basin**

Areas classified as basin are the bottoms of District flood control basins that tend to be historically and regularly disturbed through vegetation and sediment management activities. These can include debris basins and recharge basins (if not regularly filled with water). Basins often contain wetland and riparian vegetation, Riversidean alluvial fan sage scrub, and semi-natural stands such as non-native grasslands and upland mustards; however, vegetation communities within the proposed program area were mapped based on the 2009 baseline aerial, as discussed in Section 3.4.2 of this report. Areas mapped as basin lacked any vegetation signatures.

## **Disturbed Land**

Disturbed land refers to areas that are not developed yet lack vegetation, and generally are subject to severe or repeated mechanical perturbation. Disturbed land within the Valley Region includes dirt roads and vacant lots devoid of vegetation.

## **Ruderal**

Ruderal lands refer to areas dominated by non-native weeds. Generally, ruderal lands are characterized by forbs such as Maltese star thistle (*Centaurea melitensis*) and sweet-fennel (*Foeniculum vulgare*). As described here, lands dominated by non-native mustard species were categorized separately.

## **Upland Mustard**

The upland mustard community occurs in fallow fields, disturbed areas, roadsides, and levee slopes, and is characterized by a number of mustard species, such as black mustard (*Brassica nigra*) and shortpod mustard (*Hirschfeldia incana*), and wild radish (*Raphanus sativus*) being dominant in the herbaceous layer.

## **Urban and Ornamental Plantings**

Urban and associated ornamental plantings are mapped in developed portions of the Valley Region. Urban areas consist of buildings, structures, homes, parking lots, paved roads, and maintained areas and do not support native vegetation.

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## 4.1.6 Special-Status Species

Appendix E provides a summary of the special-status species that have been documented in the Valley Region of San Bernardino County, and includes information on status, distribution, habitat associations, and likelihood of occurrence within the study area. A brief summary of those species potentially occurring in the Valley Region is described in this section with further details provided for those species that are federally listed and/or state-listed.

### 4.1.6.1 Critical Habitat

Within the Valley Region, the USFWS has designated critical habitat for several wildlife species. There is no critical habitat designated for plant species in the Valley Region. The acreage of critical habitat in the study area in the Valley Region is summarized in Table 4-2 and locations are depicted on Figure 4-3, Critical Habitat in the Valley Region.

**Table 4-2  
Critical Habitat in the Study Area in the Valley Region**

Critical Habitat Species		Total Critical Habitat in Study Area in Valley Region (Acres)	Total Critical Habitat Identified as Suitable in Study Area in Valley Region (Acres)
Common Name	Scientific Name		
California gnatcatcher	<i>Polioptila californica</i>	10.4	— <sup>a</sup>
Least Bell's vireo	<i>Vireo bellii pusillus</i>	5.8	1.2
Santa Ana sucker	<i>Catostomus santaanae</i>	915.8	— <sup>a</sup>
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	1,743.6	67.4
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	758.3	95.8

Source: USFWS 2017.

**Note:**

<sup>a</sup> Habitat assessments not required by resource agencies due to availability of data for these species and lack of direct impacts.

### 4.1.6.2 Plants

Out of 28 special-status plant species known to occur in the Valley Region, 6 special-status plant species are either confirmed present within the study area or have a moderate to high potential to occur. The remaining 22 species have a low potential to occur; this report does not further analyze the special-status species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

There are three federally listed and state-listed endangered plant species that are known to occur or have a moderate potential to occur within the study area in the Valley Region: Nevin's barberry

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(*Berberis nevinii*) (FE/SE/1B.1), Santa Ana River woollystar (FE/SE/1B.1), and slender-horned spineflower (FE/SE/1B.1), which are discussed in more detail in the text that follows. A total of three non-listed special-status plant species are known to occur or have a moderate potential to occur in the study area: Parry's spineflower (1B.1), Sanford's arrowhead (1B.2), and white-bracted spineflower (1B.2). These three non-listed special-status plant species are described in Appendix E.

### **Santa Ana River Woollystar**

Santa Ana River woollystar is a federally listed and state-listed endangered plant species and is known to occur within washes within the Valley Region study area. It is a short-lived (5–10 years), perennial subshrub that generally does not grow taller than 1 meter (3.3 feet) (USFWS 2010a; CDFW 2015). It requires periodic flood events with scouring and sediment deposition to maintain open sands and for seed dispersal. Suitable habitat conditions include a patchwork of pioneer, intermediate, and mature phases, although it grows most abundantly in pioneer stages of alluvial fan sage scrub. Santa Ana River woollystar is endemic to the Santa Ana River watershed drainage systems in San Bernardino and Riverside Counties (CDFW 2015). Current distribution includes the Santa Ana River mainstem, Mill Creek, Plunge Creek, City Creek, Cajon Wash, and Lytle Creek (USFWS 2010a).

### **Slender-Horned Spineflower**

Slender-horned spineflower is a federally listed and state-listed endangered plant species and has a moderate potential to occur within portions of the maintenance footprint that occur along wash terraces within the study area of the Valley Region. It is a small annual plant that is typically found in drought-prone alluvial benches subject to only rare flood events (CDFW 2014; USFWS 2010b). It is found on sandy and gravelly soils typically away from active channels in areas receiving little surface disturbance from flooding, but subject to sheet or overland flows (Wood and Wells 1997). The association of the species with older alluvial benches and terraces indicates the need or tolerance of infrequent flows to maintain suitable habitat conditions. Slender-horned spineflower is endemic to southwestern California, from northern Los Angeles County east to San Bernardino County, and south to southwest Riverside County. Localities in the vicinity of the study area include Cajon Creek near Devore and the Santa Ana River near Highland (USFWS 2010b). In the Santa Ana River, populations have been recorded in open sandy areas associated with California juniper.

### **Nevin's Barberry**

Nevin's barberry is a federally listed and state-listed endangered evergreen shrub that grows 3 to 12 feet tall and has a moderate potential to occur where the maintenance footprint overlaps suitable habitat in the Loma Linda Hills, the only area where this species has been documented in the study

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area of the Valley Region. This species generally grows on sandy soils in low-gradient washes, alluvial terraces, and canyon bottoms, along gravelly wash margins, or on coarse soils on steep, generally north-facing slopes in association with the following plant communities: alluvial scrub, cismontane chaparral, coastal sage scrub, oak woodland, and/or riparian scrub or woodland (USFWS 2009a). Nevin's barberry has never been observed as a common species within its limited range, which includes fourteen native occurrences distributed discontinuously across southern California from the foothills of the San Gabriel Mountains in Los Angeles County, south and east to the Loma Linda Hills on the San Bernardino/Riverside County border, and south to the Vail Lake/Oak Mountain area near the foothills of the Peninsular Ranges in southwestern Riverside County (USFWS 2009a). The only location of Nevin's barberry near the study area is within the Badlands, south of San Timoteo Canyon. Suitable habitat with a low potential to support this species overlaps the study area only within very limited portions of Reche Canyon where native habitat is present.

### **4.1.6.3 Wildlife**

A literature review identified a total of 40 special-status animal species documented in the Valley Region. Three species that are federally listed or state listed as endangered or threatened (including candidate species) are known to be present or have a high potential to occur within the study area: least Bell's vireo, Santa Ana sucker, and San Bernardino kangaroo rat. The federally endangered Delhi sands flower-loving fly has a moderate potential to occur in the study area, limited to those areas with Delhi sands. Three listed bird species have a low potential to occur in the study area, including tricolored blackbird, coastal California gnatcatcher, and southwestern willow flycatcher. One state fully protected species, white-tailed kite, has a low potential to nest within riparian woodlands in the study area, particularly in the Prado area. Least Bell's vireo, San Bernardino kangaroo rat, Santa Ana sucker, Delhi sands flower-loving fly, southwestern willow flycatcher, coastal California gnatcatcher, and tricolored blackbird are discussed in more detail herein.

A total of 18 non-listed wildlife species have a moderate or greater potential to occur in the study area in the Valley Region. These include western spadefoot, Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), glossy snake (*Arizona elegans*), silvery legless lizard (*Anniella* sp.), south coast gartersnake (*Thamnophis sirtalis* ssp.), Blainville's horned lizard, burrowing owl, loggerhead shrike (*Lanius ludovicianus*), yellow warbler (*Setophaga petechia*), cactus wren (*Campylorhynchus brunneicapillus*), yellow-breasted chat (*Icteria virens*), arroyo chub (*Gila orcuttii*), San Diego desert woodrat (*Neotoma lepida intermedia*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), western red bat (*Lasiurus blossevillei*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and western yellow bat (*Lasiurus xanthinus*). These species are described in Appendix E.

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The remaining species have a low potential to occur. This report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

### **Least Bell's Vireo (Federally Endangered, State Endangered, Known to be Present)**

Least Bell's vireo is largely associated with early successional riparian scrub and woodlands dominated by species such as mulefat, willows (*Salix* spp.), cottonwood (*Populus* sp.), and blue elderberry (*Sambucus nigra* ssp. *caerulea*) to an elevation of 4,100 feet amsl (Peterson et al. 2004; Grinnell and Miller 1944). Suitable riparian habitat is typically dense with well-defined vegetative strata or layers. Most areas that have least Bell's vireo populations are in early stages of succession where most woody vegetation is 5–10 years old (Franzreb 1989).

The most critical structural component of least Bell's vireo nesting habitat in California is a dense shrub layer 2 to 10 feet aboveground (Goldwasser 1981, as cited in Kus et al. 2010; Franzreb 1989), and least Bell's vireo can use any age riparian habitat if such an understory is present (Kus et al. 2010). Nests are typically placed below approximately 6.5 feet above the ground. In the Santa Ana River watershed between 2002 and 2012, nests were found mostly in willow species (48%), with arroyo willow and black willow predominating, followed by mulefat (29%) (SAWA 2013). Other plant species also known to support nests include blue elderberry (5%), cottonwood (4%), and California wild grape (*Vitis californica*) (3%) (SAWA 2013). The presence of water, including ponded surface water or moist soil conditions, may be an important component of least Bell's vireo nesting habitat (Barlow 1962) because it would promote shrubby growth of riparian habitat.

Least Bell's vireo requires a structurally diverse canopy for foraging, and the species will use all vegetative levels up to 20 meters (65 feet) above the ground, with activity concentrated in lower to mid-canopy during breeding (Barlow 1962; Kus 2002). Studies have determined that the distribution of least Bell's vireo foraging time across all heights was not a function of the availability of the vegetation at those heights but rather represented an actual preference for the 10 to 20 feet above the ground (Kus 2002).

Least Bell's vireo has been documented within riparian habitat in the study area. Based on an analysis of habitat suitability (Appendix A), the total amount of potential habitat for least Bell's vireo in the Valley Region is 135.6 acres (Table 4-3).

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**Table 4-3**  
**Least Bell’s Vireo Suitable Habitat in the Study Area in the Valley Region**

	Least Bell’s Vireo Suitability Classification			
	<i>Low (Acres)</i>	<i>Moderate (Acres)</i>	<i>High (Acres)</i>	<i>Total (Acres)</i>
<b>Total suitable habitat</b>	<b>21.1</b>	<b>13.3</b>	<b>101.2</b>	<b>135.6</b>

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

## **San Bernardino Kangaroo Rat (Federally Endangered, Known to be Present)**

Primary habitat for the San Bernardino kangaroo rat is Riversidean alluvial fan sage scrub within active alluvial floodplains. Each successional stage of this habitat (pioneer, intermediate, and mature) is used, but highest densities are often found in pioneer and intermediate phases. Negative predictors of occupancy include a high density of nonnative grass, compacted soils, or areas with limited sands and the presence of boulders. The species can occur in very sparsely vegetated areas as long as sandy, friable soils are present.

Based on an analysis of habitat suitability (Appendix A), the total amount of potential habitat in the Valley Region for this species is 149.8 acres (Table 4-4).

**Table 4-4**  
**San Bernardino Kangaroo Rat Suitable Habitat in the Study Area in the Valley Region**

	San Bernardino Kangaroo Rat Suitability Classification			
	<i>Low (Acres)</i>	<i>Moderate (Acres)</i>	<i>High (Acres)</i>	<i>Total (Acres)</i>
<b>Total suitable habitat</b>	<b>86.8</b>	<b>37.4</b>	<b>25.6</b>	<b>149.8</b>

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

Core populations of the San Bernardino kangaroo rat occur within the study area, including within the Santa Ana River, Mill Creek, Plunge Creek, City Creek, Lytle Creek, and Cajon Wash. This species was historically recorded in the Devil Creek area, but extensive recent trapping did not record the species as present (ECORP Consulting 2016). Considering the limited quality and distribution of the habitat, the isolation from core areas, and the lack of recent records, this species is not expected to recolonize this area and it is considered absent from the Devil Creek area.

The species has been recorded within Cable Creek in 2004 (MBA 2004), but extensive trapping conducted in a large swath of habitat near Little League Drive did not record the species (MBA 2005). Therefore, Cable Creek is considered an area where the species may persist in low numbers,

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but would not qualify as a core population. In addition, the Cable Creek area is currently isolated from core areas such as Lytle Creek and Cajon Wash.

### **Santa Ana Sucker (Federally Threatened, Known to Be Present)**

The Santa Ana sucker (sucker) is a federally threatened fish species endemic to the Los Angeles, San Gabriel, Santa Ana, and parts of Santa Clara River watersheds (Richmond et al. 2016). In general, suckers prefer cool, (<30°C (86°F)) streams with good water quality, moderate gradient, shallow depths (<1 meter (3.3 feet)), and streamside riparian vegetation that can provide refuge during seasonal floods (Buth and Crabtree 1982; Baskin and Haglund 1999; NEA 2004; NatureServe 2007). Although cool water is optimal, Santa Ana sucker can tolerate warm water temperatures and low dissolved oxygen levels, which are often found in diminishing pools of water (McGinnis 2006; SAWA 2014).

They occur in small- to medium-sized (<6.7 meters (22 feet) wide) perennial stream channels with sandy and gravelly to rocky substrates (Moyle et al. 1995; Impact Sciences 2002). Streams occupied by sucker may have flows from natural origins or from recycled wastewater discharge. Prime substrate for sucker consists of a mosaic of sand, gravel, cobble, and boulder substrates in a series of riffles, runs, and pools, with shallow sandy stream margins (Saiki 2000; NEA 2004; Feeney and Swift 2008; SAWA 2014). Santa Ana sucker requires gravel or cobble substrates for spawning (Moyle 2002; Haglund et al. 2003).

As a result of recycled wastewater discharges, perennial waters that support all life history stages for sucker, including spawning habitat, occur within the Rialto Channel and within the Santa Ana River from the Rialto Channel downstream to the County border. The primary discharge occurs downstream of Agua Mansa Road within the Santa Ana River, and is from the San Bernardino Municipal Water Department's Rapid Infiltration and Extraction facility, which receives and discharges approximately 33 million gallons per day from the Cities of San Bernardino, Loma Linda, and Highland, and some unincorporated San Bernardino County areas (City of San Bernardino 2017). The second discharge is 7–8 million gallons per day from the City of Rialto's wastewater treatment plant located upstream of Agua Mansa Road within the Rialto Channel. Periodic shutdowns of the Rapid Infiltration and Extraction facility for maintenance purposes have shown that the City of Rialto's discharge alone is not sufficient to support a perennial stream within the Santa Ana River (Center for Biological Diversity 2016; City of Rialto 2017). Currently, a drop structure impassable to Santa Ana sucker occurs at La Cadena Drive; therefore, Santa Ana sucker do not currently occur upstream of La Cadena Drive.

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## **Delhi Sands Flower Loving Fly (Federally Endangered, Moderate Potential to Occur)**

The Delhi Sands flower-loving fly is the only fly listed under the ESA. The Delhi Sands flower-loving fly is only known to occur in Riverside and San Bernardino Counties, with most occupied Delhi Sands flower-loving fly habitat located within a limited area of southwestern San Bernardino County (USFWS 2008a). Urban development has rapidly progressed within the range of the Delhi Sands flower-loving fly since the listing of the subspecies. Occupied sites have become increasingly isolated by surrounding development.

Delhi sands that provide potential habitat for this species have been mapped within several District facilities and associated channels. Within the Ontario recovery unit are Declez Basin; Riverside Basin (Delhi sands mapped immediately adjacent); Wineville Basin; Chris Basin; Ely Basins 1, 2, and 3; Grove Avenue Basin; and Lower Cucamonga Spreading Grounds. The facilities that occur in the Ontario recovery unit may not support Delhi sands flower-loving fly because habitat conditions have changed since the 1990s (when the most recent occurrences were recorded), such that they preclude long-term conservation goals (USFWS 2008a). District facilities within the Jurupa recovery unit include Declez Channel. District facilities within the Colton recovery unit include Randall Basin, Mill Basin, Pepper Basin, and Rialto Channel. Delhi sands flower-loving fly occurrences were recorded in the vicinity of Randall Basin in 2013 (EnviroPlus Consulting 2013).

Based on an analysis of habitat suitability (Appendix A), the total amount of suitable habitat for this species within the study area is provided in Table 4-5.

**Table 4-5  
Delhi Sands Flower-Loving Fly Suitable Habitat in the Study Area in the Valley Region**

	Delhi Sands Flower-Loving Fly Suitability Classification			
	<i>Restorable- Low Quality (Acres)</i>	<i>Moderate Quality (Acres)</i>	<i>High Quality (Acres)</i>	<i>Total (Acres)</i>
Total suitable habitat	2.7	2.3	0	5.0

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

## **Southwestern Willow Flycatcher (Federally Endangered, State Endangered, Low Potential to Occur)**

Southwestern willow flycatcher is a federally and state listed endangered songbird. The flycatcher breeds in riparian vegetation typically found alongside rivers, streams, creeks, or various water impoundments. Generally, this species prefers mosaics of relatively dense and expansive growths of trees and shrub near or adjacent to surface water or underlain by saturated soil. The exact habitat

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characteristics such as dominant plant species, size and shape of habitat patch, tree canopy structure, vegetation height, and vegetation density vary widely among breeding sites (USFWS 2014). However, nests are typically placed in trees where the plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density canopy (USFWS 2014).

As noted in Chapter 3, Methods, habitat suitability was not analyzed for this species in Appendix A. However, this report assumes that any least Bell's vireo habitat of low, moderate, or high suitability (i.e., ranked 4 or higher in Appendix A) is also suitable for southwestern willow flycatcher. Based on that, the total amount of suitable habitat for this species in the Valley Region is 135.6 acres (see Table 4-3).

Within the Valley Region, southwestern willow flycatchers have been recorded in the Prado Basin, Mill Creek, San Timoteo Canyon, and the Santa Ana River. However, many of these populations are in decline. For example, despite the presence of abundant suitable habitat distributed as a large patch in the Prado Dam area, only two territories were recorded in 2006, with only one nest successfully producing three fledglings (Pike et al. 2006). However, no breeding southwestern willow flycatchers were found at any of the sites monitored by the Santa Ana Watershed Association in the Santa Ana River watershed in 2015 or 2016 (SAWA 2016). The Santa Ana Watershed Association monitoring area overlaps the San Timoteo Creek facility included in the proposed program study area. The most recent record of southwestern willow flycatcher in San Timoteo is from 2001 (USFWS 2016). The District has conducted several years of protocol surveys within the Santa Ana River upstream of Riverside Avenue to approximately Orange Show Road where suitable riparian habitat occurs with negative results. One additional historical record is documented within the study area at Mill Creek in 1999 (USFWS 2016).

Overall, the study area has a very low potential to support southwestern willow flycatcher considering the regional status of the species in the Santa Ana River Watershed, and the limited locations within the study area where there is suitable riparian habitat with historic records: Cucamonga Creek (in Prado Basin), Mill Creek, and San Timoteo Creek.

### **Tricolored Blackbird (California Candidate Endangered, Low Potential to Occur)**

The tricolored blackbird is a state candidate endangered species, which means it is subject to the same legal protections as endangered or threatened species under CESA. Habitat requirements for a breeding colony include open water, appropriate nesting substrate, and nearby foraging habitat (Beedy and Hamilton 1999). Nesting habitat in the Valley Region is typically cattail/bulrush, but also weedy areas dominated by species such as bull thistle (*Cirsium vulgare*), mustard, nettle, and cheeseweed mallow (*Malva parviflora*) (Dudek 2012), as well as blackberries. Foraging areas

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include grasslands, open fields, and agricultural areas, especially alfalfa fields and sunflower (Beedy 2008; Beedy and Hamilton 1997; Dudek 2012, pp. 10, 3, 5, 6).

Approximately 95% of tricolored blackbird historical breeding range occurs within California. Within the Valley Region, breeding has been documented at the following locations: pond adjacent to the Santa Ana River in Colton (100 recorded in 2009; none recorded in 2011 and 2014), Wineville Basin near Jurupa Street in Ontario (1,000 in 1999, 10 suspected non-breeding males observed in 2014), and Mill Creek Wetlands (1,000 in 2014, 300 in 2015, and none in 2016) (UCD 2017).

Overall, the study area has a low potential to support nesting tricolored blackbirds. Although tricolored blackbirds were historically recorded as nesting at Wineville Basin and Jurupa Basin in 1999, areas surrounding these basins have become considerably more developed since 1999, thus lowering the potential for the area to support sufficient food resources for a breeding population. In addition, Chris Basin and portions of the lower Cucamonga Spreading Grounds have potential to support tricolored blackbirds due to the presence of marsh-like habitat and the adequate foraging in the surrounding area. The remainder of the study area is not expected to support sufficient nesting habitat for a breeding tricolored blackbird nesting colony.

### **Coastal California Gnatcatcher**

Davis et al. (1998) provides a review of history and status of the California gnatcatcher in San Bernardino County that indicates very few records existed between 1960 and 1997; at one time, they were believed to be extirpated from the County (Atwood 1993). However, somewhat sporadic records of California gnatcatcher within the County have been recorded from 1998 to present. One well-documented breeding population occurs east of the Redlands Municipal Airport and on the south side of Mill Creek, east of its confluence with the Santa Ana River and within an area of fairly mature alluvial fan sage scrub habitat (CDFW 2016). The following paragraphs provide a summary of California gnatcatcher distribution within the study area.

The western portion of the study area along the foothills of the San Gabriel Mountains from Frankish Canyon to Cucamonga Canyon north of San Antonio Heights, as well as farther east to Archibald Avenue, does not have any historical locations of California gnatcatcher within the California Natural Diversity Database or the USFWS Carlsbad office database (CDFW 2016; USFWS 2013a). Additionally, the species was absent from this area during protocol California gnatcatcher surveys that were conducted in 2009 (nine visits, nonbreeding; ICF 2009) and 2013 (six visits, breeding) of the West Frankish Basin, San Antonio Basins 1–6, Cucamonga Dam, Cucamonga Crosswalls, Cucamonga Channel, and Demens Basin (ICF 2013). However, it should be noted that during the 2013 survey, Cucamonga Crosswalls and Cucamonga Channel were not included in the survey. A breeding California gnatcatcher survey (six visits) in 2012 along the

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Cucamonga Crosswalls was negative (Compliance Biology 2012). In addition, a focused breeding survey (six visits) in 2007 was negative for a 4-acre project site just south of Demens Basin (LSA 2007). These results suggest that California gnatcatcher currently do not occur in this area or occur at a very low level, perhaps during dispersal events that are not readily detectable with standard survey methods.

At Deer Creek Canyon, Day Creek Canyon, East Etiwanda Canyon, and Henderson Canyon, there are scattered historical records of California gnatcatcher (CDFW 2016). During 2013, California gnatcatcher breeding protocol focused surveys (six visits) of Hillside Basin, Deer Dam, Day Creek Debris Basin, and Etiwanda Debris Basin; no breeding California gnatcatchers were detected (ICF 2013). The only detection made was of a dispersing juvenile on one occasion at the Hillside Basin, which could indicate a breeding population somewhere in the vicinity. The Etiwanda Debris Basin had focused California gnatcatcher protocol breeding surveys (six visits) conducted in 2005 (Tom Dodson & Associates 2005) and 2012, with negative results. These results suggest that California gnatcatchers currently occur at a very low level, perhaps only during dispersal, within these basins.

Morse Canyon and San Sevaine Canyon, which feed San Sevaine Channel, do not have any historical records of California gnatcatcher, despite the presence of potentially suitable habitat. Focused protocol nonbreeding California gnatcatcher surveys (nine visits) in 2010–2011 for the San Sevaine Spreading Grounds were negative (Kidd Biological 2011a). Farther to the east, focused protocol California gnatcatcher breeding surveys (six visits) of the Rialto Municipal Airport project site in 2006 were negative (PCR Services Corporation 2006). The focused protocol California gnatcatcher nonbreeding surveys (nine visits) in 2010 and focused protocol California gnatcatcher breeding surveys (six visits) in 2012 for Cactus Basin were negative as well (Kidd Biological 2010a; ICF 2012). These results suggest that California gnatcatchers may not currently occur in these basins or occur at such low levels that they have not been detected.

Lytle Creek has historical records of the species to the east and west near I-15, near the confluence of Lytle Creek Wash and Cajon Wash, and in the hills below Glen Helen Pavilion (CDFW 2016). However, focused protocol California gnatcatcher nonbreeding surveys (nine visits) conducted 2006–2007 at the Glen Helen Parkway Grade Separation Project (Cajon Creek near I-15) were negative.

Farther to the east in the foothills of the San Bernardino Mountains, California gnatcatchers have been documented historically (1990s) in Sycamore and Badger Canyons (CDFW 2016). Another focused protocol California gnatcatcher breeding survey (six visits) of Devil Canyon in 2013 had negative results (Bloom Biological 2013). Farther east, there are no historical records of California gnatcatcher in the foothills of the San Bernardino Mountains through to Seven Oaks Dam.

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Within the alluvial fan sage scrub habitat of Plunge Creek, the Santa Ana River, and Mill Creek, there are scattered records of California gnatcatcher from the 1990s until recently (CDFW 2016). At Mill Creek and Garnett Bridge, focused protocol California gnatcatcher breeding surveys (six visits) of alluvial fan sage scrub habitat conducted in 2007, 2010, and 2011 were negative (Thomas Olsen Associates 2007; Kidd Biological 2010b, 2011b). Near Plunge Creek and Elder Creek, focused protocol California gnatcatcher breeding surveys (six visits) conducted in 2010 were negative.

Overall, the historical distribution and results of recent focused surveys indicate the possible absence or very limited distribution of nesting California gnatcatcher within or adjacent to proposed program facilities. However, it is expected that occasional dispersing individuals will use some of the proposed program facilities where the facility may be connected to a breeding population in the vicinity, such as the more mature habitat present to the east of Redlands Municipal Airport. Although California gnatcatchers appear to be absent or in very limited distribution within and adjacent to proposed program facilities, the possibility of breeding California gnatcatchers taking up residence in the future remains.

### **Nesting Birds**

The majority of the study area supports nesting opportunities to a wide variety of bird species. Vegetated portions of the study area have been documented as supporting nests of common species like song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), red-winged blackbird (*Agelaius phoeniceus*), lesser goldfinch (*Spinus psaltria*), blue grosbeak (*Passerina caerulea*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), and bushtit (*Psaltriparus minimus*). Portions of the study area that are largely unvegetated or sparsely vegetated can also support nests of species like killdeer (*Charadrius vociferus*), lesser nighthawk (*Chordeiles acutipennis*), burrowing owl, and black-necked stilt (*Himantopus mexicanus*). Concrete structures can also provide suitable nesting habitat for species like black phoebe (*Sayornis nigricans*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), and burrowing owl.

#### **4.1.7 Wildlife Corridors and Habitat Linkages**

The Valley Region is largely developed; however, existing resources have identified several habitat patches (open spaces) and wildlife corridors within the Region. Additionally, flood control facilities frequently function as wildlife corridors because by their nature they are linear features providing opportunities for unconstrained movement and resources such as food and cover when vegetation is present. The following paragraphs describe wildlife corridors mapped in the region. The locations of these features are depicted on Figure 4-4, Habitat Linkages and Wildlife Corridors in the Valley Region.

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## Mapped Linkages

A number of wildlife corridors and habitat linkages have been mapped within the study area. The California Essential Habitat Connectivity Project (Spencer et al. 2010) and the South Coast Missing Linkages project (South Coast Wildlands 2008) identify several linkages that partially overlap the study area, including the San Gabriel–San Bernardino Connection and San Bernardino–San Jacinto Connection.

### *California Essential Habitat Connectivity Project*

Spencer et al. (2010) includes foothill areas of the San Gabriel and San Bernardino Mountains and associated washes as linkage areas in the Valley Region of San Bernardino County. These are included in the greater San Gabriel–San Bernardino Connection.

**San Gabriel–San Bernardino Connection.** This linkage provides connectivity between two expansive areas of the Angeles and San Bernardino National Forests and includes three roughly parallel swaths through the Cajon Wash and Pass to accommodate diverse species and ecosystem functions. It partially overlaps Cajon Wash, Lytle Creek, and the Etiwanda Fan (San Gabriel foothills). This linkage provides habitat for special-status species wildlife such as American badger (*Taxidea taxus*). I-15 and State Route 138 (SR-138) are the major transportation routes that cross the linkage and pose the most substantial barriers to wildlife movement. There are currently three bridges along I-15 that accommodate animal movement.

**San Bernardino–San Jacinto Connection.** This linkage comprises five swaths and provides a connection between the San Bernardino and San Jacinto Mountains. It occurs partially within San Bernardino County and does not intersect any major transportation corridors. Linkage areas are identified east of Yucaipa in Wildwood Canyon, Cherry Canyon, Wallace Creek, and Little San Gorgonio Creek that connect with areas in Riverside County to the south.

### San Bernardino County Open Space Overlay Features

Wildlife corridors and open space areas identified in the San Bernardino County open space overlay map within the Valley Region are summarized in Table 4-6.

**Table 4-6  
San Bernardino County Open Space Overlay Features in the Valley Region**

Feature	Description
<i>Wildlife Corridors</i>	
Cajon Wash	This includes a large area along the Cajon Wash from the confluence with Lytle Creek northward to Mormon Rocks. It supports a wash with associated alluvial fan sage scrub habitat, as well as a stream

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**Table 4-6  
San Bernardino County Open Space Overlay Features in the Valley Region**

Feature	Description
	and associated riparian habitat further upstream. Cajon Wash supports important processes and habitat for species such as San Bernardino kangaroo rat, Santa Ana River woollystar, slender-horned spineflower, cactus wren, and Santa Ana speckled dace. Historically, it supported populations of arroyo toad.
Dispersion Corridor	This wildlife corridor is located between the Pisgah Peak area and the boundary of the national forest. This area is important as an area to maintain wildlife linkages between the Pisgah Peak area and the national forest.
East Etiwanda	This wildlife corridor includes the southern portion of Etiwanda Canyon, north of the national forest boundary, where private inholdings exist. The canyon contains a stream and associated riparian habitat.
Lytle Creek	This wildlife corridor follows the alignment of Lytle Creek from the Lytle Creek Gatehouse-Dam, north to the boundary of the national forest, and continuing northward to approximately Miller Narrows. It supports a wash with associated alluvial fan sage scrub habitat, as well as a stream and associated riparian habitat further upstream. Lytle Creek supports important processes and habitat for species such as San Bernardino kangaroo rat, Santa Ana River woollystar, and cactus wren.
Mill Creek	This wildlife corridor follows the alignment of Mill Creek from Forest Falls to its confluence with the Santa Ana River. Mill Creek supports riparian and alluvial fan habitat. Special-status species known to occur here include southwestern willow flycatcher and San Bernardino kangaroo rat.
Plunge Creek	This wildlife corridor follows a portion of Plunge Creek from the national forest to City Creek. Plunge Creek contains riparian and alluvial fan habitat, and provides a link from the national forest to City Creek and further to the Santa Ana River. Special-status species that occur in this area include the Santa Ana River woollystar, San Bernardino kangaroo rat, and Santa Ana speckled dace.
San Timoteo Canyon	This is the portion of the San Timoteo Canyon within the San Bernardino County, from the County line to where it is channelized upstream of its confluence with the Santa Ana River. San Timoteo Canyon supports riparian habitat with occurrences of least Bell's vireo and southwestern willow flycatcher documented.
Santa Ana River	This includes the lower portion of the Santa Ana River within San Bernardino County. The Santa Ana River, although urbanized along some portions of its length, is one of the most important habitat areas in the County. It supports primarily riparian and alluvial fan habitat. Listed species supported include Santa Ana sucker, Santa Ana River woollystar, slender-horned spineflower, San Bernardino kangaroo rat, least Bell's vireo, southwestern willow flycatcher, and California gnatcatcher, as well as a number of non-listed special-status species.
Spoor Canyon	This wildlife corridor describes a general area that links the Crafton Hills Open Space with national forest land.
Waterman Canyon	This wildlife corridor follows the alignment of Waterman Canyon northward from the City of San Bernardino into the national forest, and contains riparian habitat, as well as artesian wells that support habitat as mule deer fawning areas. Downstream, it connects with Strawberry Creek and with water from the Arrowhead Hot Springs.
<i>Policy Areas</i>	
Cajon Pass	This is the area generally within the Cajon Pass area near Devore. The Cajon Pass area separates the Angeles and San Bernardino national forest, and is in an area which animals must cross to travel between forests. This area also contains important riparian habitat and Cajon Wash and Lytle Creek.

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**Table 4-6  
San Bernardino County Open Space Overlay Features in the Valley Region**

Feature	Description
Crafton Hills Grove	This area describes an area of existing citrus operations west of the proposed Crafton Hills Open Space area. This area is of value primarily as an agricultural district, although it also has scenic value as an example of the once widespread citrus operations in the San Bernardino Valley.
Crafton Hills Open Space	This is an area adjacent to Yucaipa Regional Park, described as the lands in the Crafton Hills generally above an elevation of 2,400 feet. This is an important open space resource in the urbanizing Redlands/Yucaipa area, and has significant value as a relatively undisturbed habitat area, a scenic resource, and a potential area for recreational open space use.
Dispersion Corridor	This is the portion of the Puente–Chino Hills Wildlife Corridor that occurs within San Bernardino jurisdiction. This corridor is needed to link the Chino Hills area with other open space lands in the vicinity, including the Prado Dam inundation area. It is known to support cougar and cactus wren movement.
Pisgah Peak	This area is centered Pisgah Peak and include portions of Sections 33, 34, 35, R1WT1S, and Sections 2, 3, 4, R1WT2S. This area consists of a small mountain range, which supports a diversity of wildlife species, including large mammals.

## Riparian and Wash Corridors

Proposed program facilities that also provide wildlife movement but were not captured in the above discussion include Cable Creek and Devil Creek.

**Cable Creek.** Cable Creek, including tributaries (Ames Canyon and Meyers Canyon) and associated springs, provides foothill areas that link to the national forest to the north and east. Its extent is from Little League Drive to the National Forest Boundary. Riparian and alluvial fan habitat are supported, as well as a number of natural springs. Species that have been documented in this area include least Bell’s vireo, San Bernardino kangaroo rat, Los Angeles pocket mouse, and mule deer (*Odocoileus hemionus*, which use the area as a fawning area).

**Devil Creek.** Devil Creek, including tributaries (Sycamore Canyon and Badger Canyon) and associated springs, provides foothill areas that link to the national forest to the north and east. Its extent is primarily from north of California State University at San Bernardino east to areas north of the City of San Bernardino. Riparian habitat is supported, as well as a number of natural springs. Species that have been documented in this area include California gnatcatcher and springsnails (*Pyrgulopsis* sp.).

### 4.1.8 Conservation Plans

Several regional habitat conservation plans (HCPs) have been prepared or are in development within the Valley Region including the North Fontana Conservation Program, Upper Santa Ana

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River HCP, Upper Santa Ana Wash Land Management and Habitat Conservation Plan (Wash Plan), and Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The District is only a Permittee under the Wash Plan; however, ways in which these plans might be relevant to the proposed program are noted in this section. The planning limits of the various conservation plans are depicted on Figure 2-1, Conservation Planning Efforts.

### **North Fontana Conservation Program**

In recognition of the sensitivity of Riversidean alluvial fan sage scrub plant communities and their occurrence on the alluvial fans in north Fontana, the City of Fontana developed in 2004 an Interim North Fontana Multiple Species Habitat Conservation Plan (MSHCP) Policy that would allow the City of Fontana to approve development of parcels in north Fontana if no listed species were found on that property. However, if a listed species were found on a project site, an Individual Take Permit (ITP) under the federal ESA would be required from USFWS before development could occur. Under the Interim North Fontana MSHCP Policy, now designated as the North Fontana Conservation Program, an applicant for development was required to conduct a habitat assessment of their property, conduct focused surveys for small mammals (San Bernardino kangaroo rat and Los Angeles pocket mouse) and/or coastal California gnatcatcher if suitable habitat was present and pay a mitigation fee to offset impacts to Riversidean alluvial fan sage scrub. Since the inception of the Conservation Program in July 2004, no San Bernardino kangaroo rat or Los Angeles pocket mouse were identified during dozens of focused surveys within the Plan boundaries. The Plan Area for the North Fontana Conservation Program is entirely within the Valley Region. There are two facilities that fall within the boundary of the North Fontana Conservation Program: Hawker-Crawford Channel (facility number 1-806-1A) and San Sevaire Spreading Grounds – East Levee (facility number 1-802-5D); however, they are not within proposed conservation areas.

Under the approved North Fontana Conservation Program, the City has collected mitigation fees for 12 years to offset the loss of Riversidean alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with USFWS and CDFW to identify conservation properties for acquisition. The North Fontana Conservation Program could therefore compete with the proposed program for suitable Riversidean alluvial fan sage scrub habitat acquisitions.

### **Upper Santa Ana River HCP**

The entire Valley Region falls within the boundary of the Upper Santa Ana River HCP. This HCP is currently being developed by the HCP team, which is composed of nine water resource agencies (including the District) and the wildlife agencies (CDFW and USFWS). The draft list of species proposed to be covered by the HCP and potentially occurring in the Valley Region include slender-

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horned spineflower, Santa Ana River woollystar, Delhi sands flower-loving fly, Santa Ana sucker, southwestern willow flycatcher, least Bell's vireo, tricolored blackbird, coastal California gnatcatcher, and San Bernardino kangaroo rat (ICF 2014).

### **Wash Plan**

This plan will cover primarily expanded gravel mining in an area downstream of the Seven Oaks Dam, in the southern extent of the City of Highland and the northern extent of the City of Redlands. The following drainages in the study area are within the Wash Plan boundary: Elder Creek, Mill Creek, Plunge Creek, City Creek, and portions of the Santa Ana River. A portion of the proposed program maintenance activities that are within the Wash Plan boundary are covered by the Wash Plan. The covered species include California gnatcatcher, San Bernardino kangaroo rat, Santa Ana River woollystar, and slender-horned spineflower.

### **Western Riverside County MSHCP**

There are three facilities that fall within the Western Riverside County MSHCP boundary: Cucamonga Channel (facility number 1-301-1I), Riverside Basin (facility number 1-604-4A), and Declez Basin (facility number 1-814-3A). The Western Riverside County MSHCP is subdivided into Area Plans within which reserve areas are assembled from identified Criteria Cells. Cucamonga Channel is within the Eastvale Area Plan and Riverside Basin and Declez Basin are within the Jurupa Area Plan. Only Declez Basin falls within a Criteria Cell; Criteria Cell 10 within Cell Group B. Conservation within this Cell Group will focus on coastal sage scrub and grassland habitat focusing in the northeastern portion of the Cell Group.

Survey requirements at each of the District facilities within the Western Riverside County MSHCP are as follows:

- **Cucamonga Channel (1-301-1I).** The portion of the channel from Remington Avenue downstream to Hellman Avenue is located within the Western Riverside MSHCP overlay for burrowing owl. If potential habitat for burrowing owl is determined to be located on the property, focused surveys may be required during the appropriate season per Western Riverside County MSHCP requirements.
- **Riverside Basin (1-604-4A).** The basin is located within the Western Riverside County MSHCP overlay for narrow endemic plant species and burrowing owl. Potential narrow endemic species at this location include San Diego ambrosia (*Ambrosia pumila*), Brand's phacelia (*Phacelia stellaris*), and San Miguel savory (*Clinopodium chandleri*). If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season per Western Riverside County MSHCP requirements.

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- **Declez Basin (1-814-3A).** The basin is located within the Western Riverside County MSHCP overlay for narrow endemic plant species, mammalian species, and burrowing owl. Potential narrow endemic species at this location include San Diego ambrosia, Brand's phacelia, and San Miguel savory. Potential mammalian species at this location include San Bernardino kangaroo rat and Los Angeles pocket mouse. If potential habitat for these species is determined to be located on the property, focused surveys may be required during the appropriate season per Western Riverside County MSHCP requirements.

### **4.2 Program Impacts**

Due to the large number of activities covered by this proposed program, activities have been organized into categories of maintenance activity types as follows:

- *Ground-Disturbing Activities.* Ground-disturbing activities can range from large sediment-removal efforts for basins and channels for the purposes of flood control maintenance, channel flow, erosion control, or smaller efforts that might involve ground disturbance through vegetation management, bank repair and stabilization, road grading, or repair of flood control structures that might include ground disturbance to install riprap or replace facilities. Specifically, ground-disturbing activities would include the following:
  - Mechanized land clearance/sediment removal
  - Mechanized vegetation management
  - Ingress/egress: road grading, installation of fencing and gates, installation of free-standing signage
  - Bank repair
  - Stockpiling
- *Non-Ground-Disturbing Vegetation Management.* Non-ground-disturbing vegetation management would involve vegetation management without disking, excavators, or other machinery that would disturb soils. Primarily, these efforts would be by hand, and would include the following:
  - Pruning
  - Mowing
  - Hand clearing

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- *Non-Ground-Disturbing Activities.* Other non-ground-disturbing activities could include the following:
  - Sand and gravel operations: vendors sort materials on existing ground
  - Ingress/egress: Fencing and gate repairs, installation of non-free-standing signage, and pavement repair
  - Application of herbicide and rodenticide
  - Graffiti removal
  - Vector control
  - Stream gage maintenance: involves maintenance of stream gages for water quality monitoring and sampling within existing sites and wells

### Impacts from Local Overlapping Permitting Processes

As described in Section 1.2.4.3 of this report, LOPPs have the potential to impact biological resources within the proposed program area. Environmental clearance (including mitigation) for permanent direct impacts from maintenance activities within the proposed program would be conducted through the respective LOPP. Permanent direct impacts to biological resources from LOPPs are described herein; however, mitigation for these impacts would be incorporated from the respective LOPP.

#### 4.2.1 Definition of Impacts

**Permanent direct impacts** refer to portions of the maintenance footprint that are expected to result in permanent change of the existing vegetation and biological resources. In general, ground-disturbing activities would result in permanent direct impacts when maintenance activities would occur at a frequency that would not allow communities to regenerate prior to the next maintenance event. One exception is bank repair, which primarily involves use of excess sediment or sand from facility bottoms and applying it to the banks. It may also include incidental riprap placement and/or repair. This activity would not permanently remove vegetation, because vegetation would continue to grow through any native earth placed on the banks.

**Temporary direct impacts** typically refer to short-term removal of a biological resource where the resource is expected to *fully* recover its function upon completion of the activity. Non-ground-disturbing vegetation management would typically result in temporary direct impacts.

**Short-term indirect impacts** are reasonably foreseeable effects caused during proposed program implementation on adjacent biological resources outside the direct maintenance footprint

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disturbance zone. They include noise, dust, motion, ground vibration, and other maintenance-related impacts.

**Long-term indirect impacts** are reasonably foreseeable effects due to proposed program implementation that will have a permanent change on adjacent biological resources outside the direct maintenance footprint. They include downstream hydrology effects such as surface flow, sediment transport, and scour.

## 4.2.2 CEQA Thresholds

The criteria used to evaluate the significance of the proposed program's impacts on biological resources, including special-status species, are based on Appendix G of the CEQA Guidelines. A significant impact would occur if the proposed program:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.
- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

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## 4.2.3 Impact BIO-1

*Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.*

### 4.2.3.1 Ground-Disturbing Activities

#### Critical Habitat

##### *Program Impacts Within LOPPs*

As detailed in Table 4-7, proposed program maintenance activities covered by LOPPs within the proposed program area would result in direct impacts to Least Bell’s vireos and San Bernardino kangaroo rat critical habitat. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. With implementation of Mitigation Measure (MM) BIO-1 (Impacts Covered by LOPPs), maintenance activities shall not be initiated within LOPP areas until the required permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to critical habitat within LOPP areas.

**Table 4-7  
Program Ground-Disturbing Activity Impacts  
to Critical Habitat in the Valley Region Within LOPPs**

Species Critical habitat	El Niño Area	FLOD	Wash Plan
Least Bell’s vireo	21.1	N/A	N/A
San Bernardino kangaroo rat	20.7	81.1	107.0

LOPP = local overlapping permitting process; FLOD = First Line of Defense; N/A = not applicable.

##### *Program Impacts Not Within LOPPs*

As detailed in Table 4-8, ground-disturbing maintenance activities in the Valley Region would result in permanent and temporary direct impacts to designated critical habitat for the following species: California gnatcatcher, least Bell’s vireo, San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher. Section 7(a) of the ESA requires federal agencies (like USACE) consult with USFWS to ensure that actions they authorize do not destroy or adversely modify critical habitat. Any action that results in destruction or adverse modification of critical habitat, regardless of occupation, would be a significant impact. The adverse modification or destruction of critical habitat for California gnatcatcher and least Bell’s vireo would be minimal, and impacts would be less than significant. However, impacts to critical habitat for Santa Ana

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sucker, San Bernardino kangaroo rat, and southwestern willow flycatcher would be substantial and would constitute a significant impact. Avoidance, minimization, and mitigation measures described for special-status wildlife would reduce potentially significant impacts to critical habitat. Nevertheless, consultation with the USFWS is required and this impact remains potentially significant without mitigation. Implementation of MM-BIO-2 (Impacts to Critical Habitat) would reduce potentially significant impacts to less than significant.

**Table 4-8  
Program Ground-Disturbing Activity Impacts  
to Critical Habitat in the Valley Region Not Within LOPPs**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Suitable Habitat within Maintenance Footprint (Acres)	Temporary or Permanent
Santa Ana sucker	Bank repair	52.7	0	Temporary
	Federal maintenance layer	46.9	0	Permanent
	Ingress/egress	12.2	0	Permanent
	Mechanized land clearing	253.4	0	Permanent
	Stockpile locations	3.0	0	Permanent
	Vegetation management	24.7	0	Permanent
	<i>Subtotal permanent impacts</i>	340.2	0	
	<i>Subtotal temporary impacts</i>	52.7	0	
	<i>Subtotal all direct impacts</i>	392.92	0	
Southwestern willow flycatcher	Bank repair	32.5	3.1	Temporary
	Federal maintenance layer	42.1	4.0	Permanent
	Ingress/egress	12.9	0.0	Permanent
	Mechanized land clearing	160.7	1.88	Permanent
	Stockpile locations	0.9	0.0	Permanent
	Vegetation management	13.6	6.9	Permanent
	<i>Subtotal permanent impacts</i>	230.2	12.8	
	<i>Subtotal temporary impacts</i>	32.5	3.1	
	<i>Subtotal all direct impacts</i>	262.7	15.9	
California gnatcatcher	Bank repair	0.1	0	Temporary
	Federal maintenance	0.1	0	Permanent
	Ingress/egress	1.5	0	Permanent
	Mechanized land clearing	1.0	0	Permanent
	<i>Subtotal permanent impacts</i>	2.6	0	
	<i>Subtotal temporary impacts</i>	0.1	0	
	<i>Subtotal all direct impacts</i>	2.7	0	
Least Bell's vireo	Federal maintenance	2.5	1.0	Permanent
	Ingress/egress	0.6	0.0	Permanent

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**Table 4-8  
Program Ground-Disturbing Activity Impacts  
to Critical Habitat in the Valley Region Not Within LOPPs**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Suitable Habitat within Maintenance Footprint (Acres)	Temporary or Permanent
	Mechanized land clearing	1.6	0.3	Permanent
	<i>Subtotal permanent impacts</i>	4.7	1.3	
	<i>Subtotal temporary impacts</i>	0	0.0	
	<i>Subtotal all direct impacts</i>	4.7	1.6	
San Bernardino kangaroo rat	Bank repair	60.5	7.1	Temporary
	Federal maintenance	390.2	37.3	Permanent
	Ingress/egress	86.7	0.7	Permanent
	Mechanized land clearing	216.5	28.1	Permanent
	Stockpile locations	76.8	0.0	Permanent
	Vegetation management	77.6	6.6	Permanent
	<i>Subtotal permanent impacts</i>	847.8	72.7	
	<i>Subtotal temporary impacts</i>	60.5	7.1	
<i>Subtotal all direct impacts</i>	908.3	79.8		

**Source:** USFWS 2017.

**Note:** LOPP = local overlapping permitting process.

Potential long-term indirect impacts to critical habitat for these five species during ground-disturbing maintenance activities would primarily result from changes in hydrology, downstream erosion, and the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. As described in the Maintenance Plan, facilities currently have a high percentage of non-native invasive species. Proposed program vegetation management activities include the removal of invasive species and the vegetation management plan (incorporated as a component of the Maintenance Plan) provides methods for conducting vegetation management in a manner that limits spread of invasive species. Therefore, while maintenance activities can create edge conditions in which invasive plants can establish, the proposed program would result in the overall reduction of invasive species through its vegetation management practices. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. In addition, the Maintenance Plan SOPs related to hydrology and water quality would be implemented; therefore, long-term indirect impacts to critical habitat from changes in hydrology would be less than significant.

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Potential short-term indirect impacts to critical habitat from ground-disturbing activities would primarily result from the generation of fugitive dust, increased turbidity downstream, increased human activity, and the introduction of chemical pollutants. Increased human activity could result in temporal loss of habitat near the ground-disturbing activity, temporal loss of nesting sites for southwestern willow flycatcher, California gnatcatcher, and least Bell's vireo. With respect to fugitive dust, maintenance activities under the proposed program must adhere to Mojave Desert Air Quality Management District (MDAQMD) and South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. The District would minimize the potential impact from chemical pollutants with implementation of, SOP-BIO-16, which ensures that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

### **Special-Status Plant Species**

This section identifies impacts to the six special-status plant species known to occur within the study area or with a moderate to high potential to occur. This report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause significant direct, indirect, or cumulative impacts on them.

Special-status plant species could be directly impacted during ground-disturbing activities associated with implementation of the proposed program. Six special-status plants occur or have a moderate to high potential to occur within the study area within the Valley Region. Direct impacts could include removal of individual plants, changes in plant substrate, removal of cryptogamic crusts that stabilize the soils, and other changes in the microhabitats that support special-status plants. For purposes of this analysis, all ground-disturbing direct impacts are considered to be permanent for special-status plants. The District implements avoidance and minimization measures for special-status plants as described in SOP-BIO-14, Special Status Plants Pre-Activity Survey and Avoidance; however, permanent direct impacts to more than 10% of a special-status plant population within or adjacent to maintained facilities would be significant absent mitigation. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants) would reduce impacts to special-status plants to less than significant.

Potential long-term indirect impacts to special-status plants during ground-disturbing maintenance activities would primarily result from changes in hydrology from vegetation

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removal and could potentially cause the introduction of non-native species. Changes in hydrology, including changes in water velocity as a result of mechanized land clearing, could potentially result in impacts to special-status plant populations within the proposed program area. Implementation of MM-BIO-3, described in Section 4.3 of this report, would reduce impacts to special-status plants to less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. Changes in hydrology from vegetation removal could also result in localized erosion that affects special status plants, and channelization that affects the off-site transport of special-status plant seeds. The hydrology and water quality SOPs of the Maintenance Plan would be implemented; therefore, long-term indirect impacts to special-status plant species from changes in hydrology would be less than significant.

Potential short-term indirect impacts to special-status plant species from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, temporary increases in downstream sediment deposition, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District would implement SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

### **Special-Status Wildlife Species**

This section analyzes the impacts to listed special-status wildlife species with low to high potential to occur<sup>8</sup> and to non-listed special-status wildlife species with moderate or high potential to occur. This

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<sup>8</sup> It should be noted that Appendix A was used for quantification of suitable habitat for listed species analyzed in the document; however, the program footprint and mitigation approach have been revised since the development of Appendix A. Therefore, the impact analyses and mitigation in this report supersede the impacts and proposed mitigation found in Appendix A.

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report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

### *San Bernardino Kangaroo Rat*

#### Program Impacts Within LOPPs

Proposed program activities covered by the Wash Plan (a LOPP, as described in Section 1.2.4.3 of this report) would result in direct impacts to 4.4 acres of low-suitability habitat, 0.2 acres of moderate-suitability habitat, and 0.9 acres of high-suitability habitat for San Bernardino kangaroo rat. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by this LOPP. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), proposed program activities shall not be implemented in LOPP areas until all respective permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to San Bernardino kangaroo rat within LOPP areas.

#### Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program would result in direct impacts to San Bernardino kangaroo rat, a federally endangered species, on 87.0 acres of potentially suitable habitat (see breakdown of low–high suitability in Table 4-9). These impacts would be potentially significant because this species is not regionally widespread and is critically imperiled in the state. Implementation of MM-BIO-4 would reduce impacts to less than significant.

**Table 4-9  
Program Ground-Disturbing Activity Impacts  
to San Bernardino Kangaroo Rat Habitat Not Within LOPPs**

	San Bernardino Kangaroo Rat Suitability Classification			
	<i>Low (Acres)</i>	<i>Moderate (Acres)</i>	<i>High (Acres)</i>	<i>Total (Acres)</i>
Federal maintenance	14.0 (11.5 CH)	23.4 (23.4 CH)	2.4 (2.4 CH)	39.8 (37.3 CH)
Mechanized land clearing	23.6 (23.6 CH)	0.4 (0.4 CH)	4.1 (4.1 CH)	28.1 (28.1 CH)
Vegetation management	6.9 (3.0 CH)	3.1 (3.1 CH)	0.6 (0.6 CH)	10.6 (6.7 CH)
Ingress/egress	0.8 (0.7 CH)	0.2 (0.2 CH)	0.3 (0.3 CH)	1.3 (1.2 CH)
Stockpile	0	0	0	0
Bank repair	1.7 (1.7 CH)	1.1 (1.1 CH)	4.4 (4.4 CH)	7.2 (7.2 CH)
<b>Total impacts</b>	<b>47.0 (40.5 CH)</b>	<b>28.2 (28.2 CH)</b>	<b>11.8 (11.8 CH)</b>	<b>87.0 (80.5 CH)</b>

LOPP = local overlapping permitting process; CH = USFWS designated critical habitat.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

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The ground-disturbing maintenance activities in the Valley Region could result in several long-term indirect impacts to San Bernardino kangaroo rat, if they are present downstream of the maintenance area. These include long-term loss or isolation of downstream habitat due to channelization (center flow) and changes in habitat quality due to changes (reduction, removal, or increases) in water flows from segments of braided channels. If these changes in downstream hydrology were substantial, they could result in vegetation type conversion and loss of San Bernardino kangaroo rat habitat. However, the occasional minor changes in flow patterns or shifts in habitat quality in braided channels resulting from ground-disturbing maintenance activities are not expected to result in substantial effects to the hydrology or habitat for this species, which is adapted to periodic flooding and temporal variability in plant production. Therefore, long-term indirect impacts to San Bernardino kangaroo rat from ground-disturbing maintenance activities, if present downstream of the maintenance area, would be less than significant.

Potential short-term indirect impacts to San Bernardino kangaroo rat, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, short-term increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to San Bernardino kangaroo rat would be less than significant.

### ***Least Bell's Vireo***

#### **Program Impacts Within LOPPs**

Proposed program activities covered by LOPPs would result in direct impacts to approximately 1.0 acres of high suitability habitat for least Bell's vireo. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by this LOPP. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), proposed program activities would not be implemented in LOPP areas until all respective permits and environmental clearance have been obtained by the LOPP; therefore, there would be a less than significant impact to critical habitat within LOPP areas.

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### Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program would result in direct impacts to least Bell's vireo habitat, a state and federally endangered species (see breakdown of low-high suitability in Table 4-10).

**Table 4-10**  
**Program Ground-Disturbing Activity Impacts to Least Bell's Vireo Habitat  
and Critical Habitat in Valley Region Not Within LOPPs**

Maintenance Activity	Least Bell's Vireo Suitability Classification			
	Low (acres)	Moderate (acres)	High (acres)	Total (acres)
Federal maintenance	0.3	0.1	6.1 (1.0 CH)	6.5 (1.0 CH)
Mechanized land clearing	7.0	5.0	22.6 (0.3 CH)	33.6 (0.3 CH)
Vegetation management	7.0	3.0	10.5	20.5
Ingress/egress	0.1	0.1	0.1	0.3
Stockpile	0	0	0.1	0.1
Bank repair	1.1	1.3	2.7	5.1
<b>Total Impacts</b>	<b>15.4</b>	<b>9.5</b>	<b>41.1 (1.3 CH)</b>	<b>66.0 (1.3 CH)</b>

LOPP = local overlapping permitting process; CH = USFWS designated critical habitat.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Direct impacts to least Bell's vireo and its habitat would be significant because this species is considered imperiled in the state due to a very restricted range. Implementation of SOP-BIO-1 (Least Bell's Vireo) would avoid direct impacts to Least Bell's vireo individuals and their nests. Additionally, maintenance activities in riparian areas would be limited on average to once every three years, allowing riparian scrub habitat to regenerate in between maintenance events. Temporal losses would be potentially significant requiring mitigation. Riparian woodland is not likely to regenerate in that time period and loss of this habitat would be a potentially significant impact to least Bell's vireo. Implementation of MM-BIO-5 (Mitigation for Least Bell's Vireo) would reduce impacts to less than significant.

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to least Bell's vireo. Potential short-term indirect impacts to least Bell's vireo, if least Bell's vireo is present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels.

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Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity from maintenance crews by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to least Bell’s vireo would be less than significant.

### Delhi Sands Flower-Loving Fly

Ground-disturbing maintenance activities under the proposed program may result in direct impacts to Delhi sands flower-loving fly, a federally endangered species, as detailed in Table 4-11. Any impact to this species would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range.

**Table 4-11**

#### **Program Ground-Disturbing Activity Impacts to Delhi Sands Flower-Loving Fly Habitat**

Maintenance Activity	Delhi Sands Flower-Loving Fly Suitability Classification		
	<i>Restorable-Low Quality: Rank 3 (Acres)</i>	<i>Moderate Quality: Rank 4 (Acres)</i>	<i>High Quality: Rank 5 (Acres)</i>
Ingress/egress	0.5	0.6	0
<b>Total impacts</b>	<b>0.5</b>	<b>0.6</b>	<b>0.0</b>

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Direct impacts to 1.1 acre of suitable habitat for Delhi sands flower-loving fly would be potentially significant. MM-BIO-6 (Mitigation for Delhi Sands Flower-Loving Fly), would reduce this impact to less than significant.

Potential long-term indirect impacts to Delhi sands flower-loving fly during ground-disturbing maintenance activities would primarily result from the introduction of non-native invasive species. These non-native species could compete with the plant species upon which the Delhi sands flower-loving fly depends, and convert otherwise suitable habitat; however, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species. Another potential long-term indirect impact to Delhi sands flower-loving fly would be related to changes in topography from maintenance activities, as well as soil

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compaction from vehicle traffic and footpaths. These changes could reduce, isolate, or remove windblown sand deposition, altering the habitat of Delhi sand flower-loving fly. However, such changes would be highly speculative and it is also possible that changes in topography could improve deposition of sand. Therefore, long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Potential short-term indirect impacts to Delhi sands flower-loving fly, if present near the maintenance footprint, would primarily result from the generation of fugitive dust and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to Delhi sands flower-loving fly would be less than significant.

### Coastal California Gnatcatcher

Ground-disturbing activities at flood control facilities near the Redlands Airport have the potential to result in direct impacts to coastal California gnatcatcher, a federally threatened species. However, District focused surveys have not found breeding individuals to be present within its facilities. Additionally, the study area is on the northern fringe of this species known range. Despite a low potential for this species to be present, any impact to California gnatcatcher breeding territories would be significant because this species is imperiled in the state. In addition, a total of 2.7 acres of critical habitat overlaps the maintenance footprint. However, only 0.1 acres of the study area overlaps potentially suitable breeding habitat (brittle bush scrub and disturbed brittle bush scrub) and 0.8 acres overlaps potentially suitable foraging habitat (non-native grasslands, unvegetated wash, and disturbed land). The remaining 1.8 acres of critical habitat consists of unsuitable land cover types for the species, such as concrete channel and urban. Implementation of SOP-BIO-2 (Coastal California Gnatcatcher) would avoid direct impacts to coastal California gnatcatcher individuals and nests. Potentially significant direct impacts to coastal California gnatcatcher resulting from ground-disturbing activities would be reduced to less than significant with implementation of MM-BIO-7 (Mitigation for Coastal California Gnatcatcher).

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The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to California gnatcatcher. Potential short-term indirect impacts to California gnatcatcher, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to California gnatcatcher would be less than significant.

### Southwestern Willow Flycatcher

Ground-disturbing activities in riparian habitat under the proposed program may result in direct impacts to southwestern willow flycatcher, a state and federally listed threatened species. However, focused surveys in the Santa Ana River, as well as Santa Ana Watershed Association surveys in San Timoteo Canyon, have not found breeding individuals to be present within the study area. Additionally, this species is in severe decline in the region such that even the core areas (such as Prado Dam) only support one or two breeding territories with no confirmed successful nests in recent years. The maintenance footprint overlaps 262.7 acres of designated critical habitat. However, only 15.9 acres of critical habitat occurs where riparian habitat could be suitable for southwestern willow flycatcher. The remaining 246.8 acres do not support vegetation that would provide suitable nesting habitat for this species. Despite a low potential for this species to be present, any impact to southwestern willow flycatcher breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. Implementation of SOP-BIO-3 (Southwestern Willow Flycatcher) would avoid direct impacts to individuals of this species and their nests. Potential impacts to suitable habitat would be avoided, minimized and mitigated as described under the least Bell's vireo analysis above. With implementation of MM-BIO-5 (Mitigation for Least Bell's Vireo) and MM-BIO-8, direct impacts to southwestern willow flycatcher from ground-disturbing activities would be less than significant.

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to southwestern willow flycatcher. Potential short-term indirect impacts to southwestern willow flycatcher, if present near the maintenance footprint, would primarily result

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from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to southwestern willow flycatcher would be less than significant.

### Tricolored Blackbird

Ground-disturbing maintenance activities under the proposed program could result in impacts to both breeding and foraging habitat, a state candidate endangered species. Impacts to tricolored blackbird foraging habitat are expected to be less than significant because foraging opportunities would remain after the maintenance activity is completed. In addition, tricolored blackbirds tend to forage in agricultural or open fields adjacent to the study area rather than within facilities. The species has been documented as breeding in Wineville Basin and suitable nesting habitat could be present in Jurupa Basin, Chris Basin, and portions of the lower Cucamonga Spreading Grounds. Any impact to the ability of tricolored to breed at a site would be significant because this species is critically imperiled in the state due to extreme rarity. Implementation of MM-BIO-9 would reduce potential impacts to tricolored blackbird breeding habitat to less than significant.

The ground-disturbing maintenance activities in the Valley Region would not result in long-term indirect impacts to tricolored blackbird. Potential short-term indirect impacts to tricolored blackbird, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other

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organic material shall be allowed to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to tricolored blackbird would be less than significant.

### Santa Ana Sucker

Ground-disturbing activities under the proposed program would not result in any direct harm to Santa Ana sucker as the maintenance footprint does not overlap perennial portions of the Santa Ana River or portions of the Rialto Channel where sucker are known to occur and spawn. The footprint does overlap portions of the Santa Ana River upstream of the Rialto Channel and La Cadena Drive, but these are only temporarily wetted during the rainy season and do not support spawning grounds. SOP-BIO-4 would be implemented so that maintenance activities would only occur within portions of the Santa Ana River suitable for the species when the river is dry or implement a plan to avoid impacts to the species. Therefore, there would be no direct impacts to Santa Ana sucker as a result of ground-disturbing activities.

As a result of mechanized land clearing, the District would remove sediment in City Creek, in the Santa Ana River upstream of Waterman Avenue, Twin Creek, and Mill Creek near Garnet Street. The material removed from the channel bottoms may include sand, gravel, cobble, boulders, and other similar material that are important constituents of Santa Ana sucker spawning habitat. If this material is not transported downstream where suitable hydrology occurs for Santa Ana sucker spawning, it could result in indirect impacts to Santa Ana sucker. However, the amount of material removed would be limited to the facility's maintenance baseline for flood control purposes; sediment would remain within the channels and available for transport downstream to sucker spawning areas during suitable flow conditions. Further, accumulation of sand over downstream gravel and cobble may negatively impact otherwise suitable spawning habitat; therefore, the removal of accumulated sediment upstream may have a slight benefit to the Santa Ana sucker habitat downstream. Due to the relatively small area of sediment removal when compared to the overall system and the fact that not all sediment would be removed from the maintenance footprint, potential indirect impacts to the available sediment for transport to downstream reaches occupied by Santa Ana sucker would be less than significant.

### Non-Listed Special-Status Wildlife Species

#### *Burrowing Owl*

Ground-disturbing activities under the proposed program may result in direct impacts to burrowing owl burrow sites, a SSC species. Burrow sites where this species is known to nest have been recorded within the study area. Any impact to burrowing owl burrow sites or individuals would be significant because of their restricted range, small populations, and recent declines in the Valley Region.

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Maintenance activities could also result in a slight benefit to burrowing owl breeding and foraging habitat due to the reduction in vegetation density and height, which is preferred by this species. The District implements standard avoidance and minimization practices for burrowing owl as described in SOP-6 which would result in less than significant impacts to burrowing owl.

### Western Spadefoot

Western spadefoot is a California Species of Special Concern and is very rare, with few populations known in San Bernardino County. Some basins within the study area that temporarily hold water may be used by this species for breeding; therefore, ground-disturbing activities may result in direct impacts to western spadefoot if maintenance activities occur during the breeding cycle (generally January through March although can occur at other times if rain criteria are met). This potential impact would be significant because substantial direct impacts to individuals would occur during a critical period of these species' life cycles and would result in reduced reproductive success. However, the District implements avoidance measures as described in SOP-BIO-8; therefore, potential impacts to western spadefoot would be less than significant.

### Nesting Birds

Ground-disturbing activities during the nesting season (generally between January 15 and August 31) could result in direct impacts to non-listed special-status birds with potential to nest in the maintenance footprint, and indirect impacts to special-status birds with potential to nest adjacent to the maintenance footprint. Non-listed special-status species with moderate or high potential to nest in the maintenance footprint include loggerhead shrike, yellow warbler, cactus wren, and yellow-breasted chat. Species with a low potential to nest include least bittern, long-eared owl, and white-tailed kite. Direct impacts could include injury or mortality of adults and the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between January 15 and August 31). This impact would be significant because substantial direct impacts to individuals of non-listed special-status species would occur during a critical period of these species' life cycles and would result in reduced reproductive success. In addition, direct impacts that cause nest failure would also be a violation of the Migratory Bird Treaty Act and Fish and Game Code. The District implements avoidance measures as described in SOP-BIO-5 (Nesting Birds); therefore, potential impacts to nesting birds would be less than significant.

### Western Red Bat and Western Yellow Bat

Ground-disturbing activities under the proposed program could result in direct impacts to tree foliage roosting bats (western red bat and western yellow bat) that have moderate potential to use

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habitat for maternity sites within the maintenance footprint. Direct impacts could include injury or mortality of adults and the loss of pups if vegetation clearing of preferred habitat (mature riparian forests and woodlands) occurs during the bat maternity season (generally between April 1 and July 31). This impact would be significant because substantial harm to individuals could occur during the breeding period and would result in reduced reproductive success. However, the overall effect of potential loss of roosting habitat for these non-listed species is considered less than significant, as the minimal degree of habitat loss is not expected to result in measurable local or regional population declines. The District implements avoidance measures as described in SOP-BIO-7 (Bat Roosts); therefore, potential impacts to bats would be less than significant.

### *Other Special-Status Wildlife*

There are a number of non-listed special-status wildlife species that have a moderate or greater potential to occur within the proposed program area, but where impacts are expected to be less than significant due to one or more of the following: maintenance activities may only have impacts on very few individuals, the species is relatively abundant on a regional scale such that maintenance activities do not threaten the continued existence of these species locally or regionally, and some of these species are mobile and can avoid direct harm by moving away from the maintenance activity. Potential adverse impacts are expected to be less than significant for the following non-listed special-status wildlife species: orangethroat whiptail, California glossy snake, silvery legless lizard, south coast garter snake, Blainville's horned lizard, arroyo chub, Los Angeles pocket mouse, northwestern San Diego pocket mouse, San Diego desert woodrat, and San Diego black-tailed jackrabbit. In addition, mitigation measures for San Bernardino kangaroo rat and least Bell's vireo would also benefit these species. Short-term indirect impacts to non-nesting special-status wildlife species during implementation of the proposed program, such as noise and vibration, would be brief in duration and would have a minimal amount of adverse effects. Therefore, potential short-term indirect impacts to other special-status wildlife species would be less than significant.

### **4.2.3.2 Non-Ground-Disturbing Vegetation Management**

#### **Critical Habitat**

Non-ground-disturbing vegetation management in the Valley Region would occur within critical habitat for least Bell's vireo, San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher; however, this activity would not result in impacts to habitat for these species because it is limited to pruning and thinning with hand tools and would not result in habitat removal. These impacts would not constitute destruction or adverse modification of critical habitat.

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Similarly, indirect impacts to critical habitat from non-ground-disturbing vegetation management would be minimal, limited to short-term indirect impacts from vehicle access to the maintenance site and the effects of the additional human presence on the nearby maintenance footprint. These impacts would be less than significant.

### **Special-Status Plant Species**

Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to special-status plant species.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status plant species. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Potential short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the introduction of chemical pollutants. These potential short-term indirect impacts to special-status plant species would be significant absent SOPs. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the limits. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. Because these activities would not result in ground disturbance, fugitive dust is not an anticipated short-term indirect impact. With implementation of SOPs, short-term indirect impacts to special-status plants would be less than significant.

### **Special-Status Wildlife Species**

Non-ground-disturbing vegetation management in the Valley Region would not result in habitat removal for special-status wildlife species; therefore, there would be no permanent direct impacts to these species. Additionally, implementation of SOPs would ensure that no direct harm to individual animals would occur.

Similarly, indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would be very minimal, limited to only short-term indirect impacts from vehicle access to the maintenance site and the incremental effects of additional human presence. These impacts would be less than significant.

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## 4.2.3.3 Non-Ground-Disturbing Activities

### Critical Habitat

Non-ground-disturbing activities in the Valley Region would result in a moderate area of temporary direct impacts to designated critical habitat for the San Bernardino kangaroo rat, southwestern willow flycatcher, and Santa Ana sucker; and a small area of temporary direct impacts to designated critical habitat for the coastal California gnatcatcher (Table 4-12). Section 7(a) of the ESA requires federal agencies (like the USACE) to ensure that actions they authorize do not destroy or adversely modify critical habitat, by consulting with the USFWS. The minimal level of temporary disturbance associated with these activities would be a less than significant impact to habitat for these species. However, consultation with the USFWS is required and this impact remains potentially significant without consultation. Implementation of MM-BIO-2 (Impacts to Critical Habitat) would reduce potentially significant impacts to less than significant.

**Table 4-12  
Program Non-Ground-Disturbing Activity Impacts to Critical Habitat  
in the Valley Region**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Temporary or Permanent
San Bernardino kangaroo rat	Herbicide vector control	31.9	Temporary
Southwestern willow flycatcher	Herbicide vector control	7.1	Temporary
Coastal California gnatcatcher	Herbicide vector control	0.1	Temporary
Santa Ana sucker	Herbicide vector control	8.2	Temporary

Source: USFWS 2017.

Potential long-term indirect impacts to critical habitat from herbicide vector control would primarily result from the potential introduction of non-native invasive species within areas treated with herbicide. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species. Therefore, long-term indirect impacts to critical habitat associated with the establishment of invasive species would be less than significant.

Potential short-term indirect impacts to critical habitat from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area.

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SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to critical habitat from herbicides would be less than significant. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

### **Special-Status Plant Species**

This section identifies non-ground-disturbing impacts to the six special-status plant species known to occur within the study area or with a moderate to high potential to occur. This report does not further analyze the special-status species with low potential to occur because the proposed program is not likely to cause significant direct, indirect, or cumulative impacts on them.

Special-status plant species could be directly impacted during non-ground-disturbing activities (herbicide vector control) associated with implementation of the proposed program. Six special-status plants occur or have a moderate potential to occur within the study area within the Valley Region study area. Application of herbicide to special-status plant species would be a potentially significant impact. Implementation of SOP-BIO-14 would avoid and minimize potential direct impacts to special-status plants. However, without mitigation, permanent direct impacts to special-status plant species would be significant.. Implementation of MM-BIO-3 would reduce impacts to special-status plants to less than significant.

Potential short-term indirect impacts to special-status plants from herbicide vector control would result from the potential to introduce non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Potential short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide overspray. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly, and SOP-BIO-19 would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

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## Special-Status Wildlife Species

### *San Bernardino Kangaroo Rat*

Non-ground-disturbing activities under the proposed program could result in temporary direct impacts to San Bernardino kangaroo rat on a total of approximately 0.2 acres of habitat (Table 4-13). The herbicides used under the proposed program would not have toxic effects to San Bernardino kangaroo rat. Additionally, as described in Section 1.2.2 of this report, rodenticide used in areas containing protected rodents such as the San Bernardino kangaroo rat is applied using special traps, and in accordance with applicable federal and state laws, regulations, and policies and the County’s agency-approved Integrated Pest Management Plan. Given the District’s adherence to existing laws, regulations, and policies as well as the small disturbance area, impacts to San Bernardino kangaroo rat from herbicide and rodenticide would be less than significant.

**Table 4-13  
Program Non-Ground-Disturbing Activity Impacts to  
San Bernardino Kangaroo Rat Habitat in the Valley Region**

Program Activity	San Bernardino Kangaroo Rat Habitat Suitability Classification				Temporary or Permanent
	Not Suitable (Acres)	Low (Acres)	Moderate (Acres)	High (Acres)	
Herbicide vector control	0.01	0.1	0.1	0.03	Temporary

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Potential long-term indirect impacts to San Bernardino kangaroo rat from herbicide vector control would primarily result from the introduction of non-native invasive species within the treated areas, which could degrade San Bernardino kangaroo rat habitat. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Potential short-term indirect impacts to San Bernardino kangaroo rat from non-ground-disturbing activities would primarily result from increased human activity and overspray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. In addition, implementation of SOP-BIO-19 would minimize the risk of herbicide spray drift. With

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implementation of these SOPs, short-term indirect impacts to San Bernardino kangaroo rat would be less than significant.

### *Least Bell's Vireo*

Non-ground-disturbing activities under the proposed program would not directly impact least Bell's vireo habitat. Potential short-term indirect impacts to critical habitat from non-ground-disturbing activities could result from increased human activity at a site near least Bell's vireo habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to least Bell's vireo habitat from herbicides would be less than significant.

### *Delhi Sands Flower-Loving Fly*

Non-ground-disturbing activities under the proposed program could result in temporary direct impacts to Delhi sands flower-loving fly on a total of approximately 7.3 acres of habitat, including only 1.8 acres of moderately or highly suitable habitat (Table 4-14). With implementation of SOP-BIO-19, the herbicides used under the proposed program would not have toxic effects to Delhi sands flower-loving fly. This impact would be less than significant due to the small disturbance area and the temporary nature of disturbance.

**Table 4-14  
Program Non-Ground-Disturbing Activity Impacts to  
Delhi Sands Flower-Loving Fly Habitat in the Valley Region**

Program Activity	Delhi Sands Flower-Loving Fly Habitat Suitability Classification				Temporary or Permanent?
	Not Suitable (Acres)	Low (Acres)	Moderate (Acres)	High (Acres)	
Herbicide vector control	20.8	5.5	1.5	0.3	Temporary

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Potential long-term indirect impacts to Delhi sands flower-loving fly from herbicide vector control would primarily result from the introduction of non-native invasive species within areas treated with herbicide, which could remove the Delhi sands flower-loving fly host plants in favor of invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

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Potential short-term indirect impacts to Delhi sands flower-loving fly from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. In addition, SOP-BIO-19 would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to Delhi sands flower-loving fly would be less than significant.

### ***Coastal California Gnatcatcher***

Non-ground-disturbing activities under the proposed program would not directly impact coastal California gnatcatcher habitat. Potential short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near coastal California gnatcatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to southwestern willow flycatcher habitat from herbicides would be less than significant.

### ***Southwestern Willow Flycatcher***

Non-ground-disturbing activities under the proposed program would not directly impact southwestern willow flycatcher habitat. Potential short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near southwestern willow flycatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to southwestern willow flycatcher habitat from herbicides would be less than significant.

### ***Tricolored Blackbird***

Non-ground-disturbing activities under the proposed program could result in permanent direct impacts to tricolored blackbird if the herbicides remove tricolored blackbird breeding habitat. That habitat could include freshwater marsh vegetation such as tule (*Schoenoplectus acutus* var. *occidentalis*) and cattails, or invasive non-native vegetation such as Himalayan blackberry (*Rubus armeniacus*) or various thistle species. However, because herbicide would not remove the root structure of these communities and these communities are fast growing, they would expect to reestablish within a season. Implementation of SOP-BIO-5 would ensure that there would be no direct impacts to tricolored blackbird nests. Potential short-term indirect impacts from non-ground-

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disturbing activities could result from increased human activity at a site near tricolored blackbird habitat. Potential herbicide spray drift outside the maintenance footprint could result in long-term indirect impacts to the same types of tricolored blackbird habitat outside the maintenance areas. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to tricolored blackbird habitat from herbicides would be less than significant.

### ***Santa Ana Sucker***

Use of herbicide could result in short-term indirect impacts to any Santa Ana sucker located within the maintenance footprint, and short-term indirect impacts to downstream Santa Ana sucker. Some herbicides, such as triclopyr, are known to affect the physiology and behavior of fish. Herbicides could enter the water through direct overspray as well as through percolation, runoff, sediment transport, or wind erosion. The potential for impacts to Santa Ana sucker would be minimized through application of SOP-BIO-19. With implementation of that SOP, impacts to Santa Ana sucker from non-ground-disturbing activities would be less than significant.

### ***Non-Listed Special-Status Wildlife Species***

Non-ground-disturbing activities under the proposed program would not cause long-term direct impacts to non-listed special-status wildlife species. Potential short-term indirect impacts to these species from non-ground-disturbing activities could result from increased human activity at a site near occupied habitat and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to species habitat from herbicides would be less than significant.

#### **4.2.4 Impact BIO-2**

***Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.***

##### **4.2.4.1 Ground-Disturbing Activities**

#### **Program Impacts Within LOPPs**

As detailed in Table 4-15, proposed program activities within LOPPs would result in direct impacts to special-status vegetation communities. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), maintenance activities shall not be initiated within LOPP areas until the required permits and environmental clearance have

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been obtained; therefore, there would be a less than significant impact to special-status vegetation communities within LOPP areas.

**Table 4-15**  
**Program Ground-Disturbing Activity Impacts to Special-Status Vegetation**  
**Communities in the Valley Region Within LOPPs**

Program/Plan Name	Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (Acres)	Temporary (Acres)
El Niño Maintenance Area	Riparian forest and woodland	Fremont cottonwood forest alliance	10.5	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	10.8	<0.05
<i>El Niño Maintenance Area subtotal</i>			21.3	<0.05
First Line of Defense Basins	Coastal scrub	California sagebrush–California buckwheat scrub alliance	19.3	0.5
	Marsh	Cattail marshes alliance	4.4	1.6
	Oak woodlands and forests	Coast live oak woodland alliance	0.0	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	3.0	0.1
<i>First Line of Defense Basins subtotal</i>			26.7	2.2
Wash Plan	Coastal scrub	California sagebrush–California buckwheat scrub alliance	3.7	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	13.6	7.0
<i>Wash Plan subtotal</i>			17.3	7.0
<b>Total</b>			<b>71.1</b>	<b>9.2</b>

LOPP = local overlapping permitting process.

### Program Impacts Not Within LOPPs

Table 4-16 quantifies the permanent and temporary direct impacts to special-status vegetation communities that would occur as a result of implementation of ground-disturbing maintenance activities in the Valley Region. The following ground-disturbing activities were considered to have permanent impacts to special-status vegetation communities as the intent of the activity is to maintain the area free of vegetation or the activity would sufficiently remove the root structure such that natural revegetation is not expected: federal maintenance, ingress/egress, mechanized land clearing, and stockpiles. Vegetation management was considered a permanent impact for vegetation communities that would not reestablish within 3 years (time period between maintenance events). Bank repair was considered a temporary impact as was vegetation management for communities that would reestablish within 3 years. Permanent and temporary impacts that would result from ground-disturbing maintenance are defined and described in more detail in the following pages.

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**Table 4-16**  
**Program Ground-Disturbing Activity Impacts to Special-Status Vegetation**  
**Communities in the Valley Region Not Within LOPPs**

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (Acres)	Temporary (Acres)
Coastal scrub	Brittle bush scrub alliance	5.7	1.2
	California sagebrush–California buckwheat scrub alliance	134.4	0.5
<i>Coastal scrub subtotal</i>		<i>140.1</i>	<i>1.7</i>
Marsh	Cattail marshes alliance	4.3	<0.05
<i>Marsh subtotal</i>		<i>4.3</i>	<i>&lt;0.05</i>
Oak woodlands and forests	Coast live oak woodland alliance	2.5	0.9
	Disturbed coast live oak woodland alliance	2.6	0.2
<i>Oak woodlands and forests subtotal</i>		<i>5.1</i>	<i>1.1</i>
Riparian forest and woodland	Black willow thickets alliance	4.3	
	California sycamore woodlands alliance	1.1	0.1
	Fremont cottonwood forest alliance	28.6	18.8
	Red willow thickets alliance	<0.05	—
<i>Riparian forest and woodland subtotal</i>		<i>34.0</i>	<i>18.9</i>
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	297.1	26.8
<i>Riversidean alluvial fan sage scrub subtotal</i>		<i>297.1</i>	<i>26.8</i>
<b>Total</b>		<b>480.6</b>	<b>48.5</b>

LOPP = local overlapping permitting process.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Ground-disturbing vegetation management is considered a permanent impact to coastal scrub communities, oak woodlands and forest, riparian forest and woodlands, and Riversidean alluvial fan sage scrub because these vegetation communities are not likely to passively revegetate within 3 years. Thus, ground-disturbing maintenance activities, including mechanized land clearing, ingress/egress roads, federal maintenance, and ground-disturbing vegetation management, would result in permanent direct impacts to the following special-status vegetation alliances: brittle bush scrub; California sagebrush–California buckwheat scrub; coast live oak woodland (including disturbed); black willow thickets; California sycamore woodlands; Fremont cottonwood; red willow thickets; and scale broom scrub. Direct permanent impacts to these sensitive vegetation communities permanently impacted would be significant absent mitigation. However, implementation of MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley) shall be required and would mitigate these impacts to less than significant levels.

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Ground-disturbing vegetation management is considered a temporary impact for the cattail marsh alliance. The cattail marsh alliance typically passively revegetates within 6 months of vegetation management and can often function as suitable habitat the summer after being removed.

Bank repairs are considered a temporary impact. Direct temporary impacts associated with bank repair involve native soil being placed along facility banks for stabilization. Bank repairs would result in temporary direct impacts to the following special-status vegetation alliances: brittle bush scrub; California sagebrush–California buckwheat scrub; cattail marsh; coast live oak woodland (including disturbed); California sycamore woodlands; Fremont cottonwood; and scale broom scrub. Bank repair would result in minimal compaction of understory species in woodland communities and potential loss and minimal compaction of shrubs and herbaceous species within the shrub communities; therefore, temporary impacts to special-status vegetation communities would be less than significant.

Accidental maintenance activities outside designated maintenance areas may occur for various reasons. Implementation of SOP-BIO-15 would minimize the potential for temporary direct impacts from accidental maintenance activities by designating the vegetation removal area in the field to ensure that maintenance activities are conducted within the maintenance footprint. SOP-BIO-15 would also ensure that maintenance workers are familiar with sensitive resources, including special-status vegetation communities, and necessary avoidance measures. With implementation of these SOPs, temporary direct impacts to special-status vegetation communities would be less than significant.

Potential long-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from changes in hydrology that occur when vegetation is removed. In addition, the introduction of non-native invasive species may occur. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, SOP-HYD-1 through SOP-HYD-4 from the Maintenance Plan would be implemented; therefore, long-term indirect impacts to special-status vegetation communities from changes in hydrology would be less than significant.

Potential short-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing

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maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly and would minimize the potential impact from chemical pollutants to ensure that no debris, oil, petroleum products, or other organic material would be allowed to enter into adjacent natural habitat areas. The proposed program, with implementation of SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

### ***4.2.4.2 Non-Ground-Disturbing Vegetation Management***

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Because these impacts are not expected to substantially change the vegetation community, they are considered temporary.

Non-ground-disturbing vegetation management would not result in permanent direct impacts to special-status vegetation communities.

Because non-ground-disturbing vegetation management activities are limited to activities such as manual pruning, the potential impacts to vegetation communities are considered temporary. Manual pruning and other types of vegetation trimming is not expected to substantially affect special-status vegetation communities because the foliage of the plants pruned would be allowed to regrow between maintenance activities. Implementation of SOP-BIO-15 would minimize the potential for accidental impacts by designating the vegetation trimming area in the field to ensure that maintenance activities are limited to the designated maintenance area. With implementation of SOP-BIO-15, temporary direct impacts to special-status vegetation communities from non-ground-disturbing maintenance activities would be less than significant.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status vegetation communities. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Potential short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area.

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Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District would implement SOP-BIO-15 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas.

### 4.2.4.3 Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance are not expected to result in direct or indirect impacts to special-status vegetation communities. Sand and gravel operations would occur on disturbed areas and would not result in permanent or temporary direct impacts to special-status vegetation communities. Additionally, herbicide application areas and vector control areas were quantified. Table 4-17 shows the temporary impacts that could result from herbicide application and vector control.

**Table 4-17**  
**Program Non-Ground-Disturbing Activity Impacts**  
**to Special-Status Vegetation Communities in the Valley Region**

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Temporary
Coastal scrub	Brittle bush scrub alliance	0.1
	California sagebrush–California buckwheat scrub alliance	1.8
<i>Coastal scrub subtotal</i>		1.9
Oak woodlands and forests	Coast live oak woodland alliance	<0.05
	<i>Oak woodlands and forests subtotal</i>	
Riparian forest and woodland	California sycamore woodlands alliance	<0.05
	Fremont cottonwood forest alliance	0.5
<i>Riparian forest and woodland subtotal</i>		0.5
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	3.3
<i>Riversidean alluvial fan sage scrub subtotal</i>		3.3
<b>Total</b>		<b>5.8</b>

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Non-ground-disturbing activities would not result in permanent direct impacts to special-status vegetation communities.

Herbicide application would result in a total of 5.8 acres of temporary impacts to the following special-status vegetation alliances: brittle bush scrub; California sagebrush–California buckwheat scrub; coast live oak woodland; California sycamore woodlands; Fremont cottonwood; and scale broom scrub. Due to the small area of impact, this would be a less than significant impact.

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With respect to vector control, introduction of mosquito-larva-eating fish would not affect special-status vegetation communities. All applicable laws, regulations, safety precautions, and label directions would be followed when performing pest control. All pesticide applications will be performed by a contractor with a valid Qualified Applicator License and a valid Pest Control Business License. A licensed Pest Control Adviser will be consulted if specific pest control recommendations are required. Therefore, temporary direct impacts to special-status vegetation communities from the use of pesticides are considered less than significant.

Potential indirect impacts to special-status vegetation communities from non-ground-disturbing activities would include the improper use of pesticides and herbicide drift. As described previously, all applicable laws, regulations, safety precautions, and label directions would be followed when performing pest control. Therefore, potential long-term indirect impacts to special-status vegetation communities from the use of pesticides would be less than significant. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, indirect impacts to species habitat from herbicides would be less than significant.

Potential indirect impacts to special-status vegetation communities from sand and gravel operations include increased vehicle traffic, non-native soil introduction, and non-native plant species introduction. Increased traffic would be temporary and of short duration; therefore, this indirect impact would be less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and there would be a less than significant impact with respect to introduction of invasive species. To minimize the potential impact from non-native soil, the District would implement SOP-BIO-16 to ensure that organic material does not enter into adjacent natural habitat areas; therefore, indirect impacts to special-status vegetation communities would be less than significant.

### **4.2.5 Impact BIO-3**

***Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.***

A complete analysis of impacts to wetlands and other jurisdictional waters is being completed under a separate cover (Dudek 2017). Therefore, this will not be addressed in this report.

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### **4.2.6 Impact BIO-4**

*Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.*

Maintenance activities would occur within several of the wildlife corridors and linkages that occur in the Valley Region. However, because maintenance activities would only reduce or remove a small portion of the habitat in a given drainage or stream, and the result of these activities are unlikely to preclude use by dispersing wildlife, direct impacts to wildlife corridors and habitat linkages would be less than significant. Indirect impacts to wildlife corridors during the implementation of maintenance would be short term and would be less than significant.

### **4.2.7 Impact BIO-5**

*Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

By definition in the San Bernardino County Development Code, Chapter 88.01 Plant Protection and Management, local governmental entities, such as the District, are exempt from the Development Code. Therefore, maintenance activities are not in conflict with the San Bernardino County Development Code and no impact would occur. Nevertheless, as part of their environmentally sensitive practice, the District is avoiding and minimizing impacts as practicable to species covered by the Development Code include oak woodlands and riparian habitat.

### **4.2.8 Impact BIO-6**

*Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.*

#### **North Fontana Conservation Program**

Under the approved North Fontana Conservation Program, the City of Fontana has collected mitigation fees for 12 years to offset the loss of Riversidean alluvial fan sage scrub and Riversidean sage scrub habitats. The City is now coordinating with the USFWS and CDFW to identify conservation properties for acquisition. The proposed program would also be required to mitigate for the loss of Riversidean alluvial fan sage scrub habitat as identified in MM-BIO-10 (Compensation for Special-Status Vegetation Communities in the Valley); therefore, the proposed program could complete with the North Fontana Conservation Program for suitable Riversidean alluvial fan sage scrub habitat acquisitions. However, the District proposes to mitigate for

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Riversidean alluvial fan sage scrub habitat through District-owned lands or easements or other District-managed instruments not available to the North Fontana Conservation Program; therefore, the proposed program would not be conflict with the North Fontana Conservation Program.

### **Wash Plan**

Certain routine maintenance activities under the proposed program are covered by the Wash Plan. The District obtained GIS files of the Wash Plan covered activities from the San Bernardino Valley Water Conservation District, the lead agency for the Wash Plan. These were then overlaid with the proposed program activities. Proposed program activities that overlap with maintenance activities covered by the Wash Plan would receive environmental clearance through the Wash Plan. As outlined in MM-BIO-1, Impacts Covered by LOPPs, all conditions from the environmental clearance obtained through the Wash Plan shall be incorporated into the Maintenance Plan. As described in this measure, maintenance activities shall not occur within areas covered by the Wash Plan until all environmental clearance is obtained. Additional proposed program activities within the Wash Plan area but not covered by the Wash Plan are outside of designated conservation areas and are not in conflict with goals of the Wash Plan. With implementation of MM-BIO-1, the proposed program would not be in conflict with the Wash Plan.

### **Western Riverside County MSHCP**

There are three facilities that fall within the Western Riverside County MSHCP boundary: Cucamonga Channel (1-301-1I), Riverside Basin (1-604-4A), and Declez Basin (1-814-3A). Although the District is not a Permittee under the Western Riverside County MSHCP, this section's analyses are consistent with the Western Riverside County MSHCP for compliance with this CEQA threshold.

As described in Section 4.1.8, Conservation Plans, Declez Basin falls within a Criteria Cell 10 of Cell Group B. As described in the MSHCP, conservation within this Cell Group will focus on coastal sage scrub and grassland habitat focusing in the northeastern portion of the Cell Group. Declez Basin has been routinely maintained and activities covered under the proposed program would not substantially alter the vegetation communities or land use of the basin from existing conditions. Additionally, Declez basin is located in the northwestern portion of the Cell Group; therefore, the proposed program would not be in conflict with the conservation goals of this criteria cell.

All three facilities fall within the burrowing owl survey area of the Western Riverside County MSHCP. The District implements burrowing owl avoidance measures as described in SOP-BIO-6, Burrowing Owl, therefore, the proposed program would not result in impacts to burrowing owl and would not be in conflict with the goals of this survey area.

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Riverside Basin and Declez Basin are within the Narrow Endemic Plant Survey Area 7 for Brand's phacelia, San Diego ambrosia, and San Miguel savory. Implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance) and MM-BIO-3 (Mitigation for Special-Status Plant Species), would ensure that the proposed program is not in conflict with the goals of this survey area.

In addition, Declez Basin falls within Mammal Survey Area 3, which requires habitat assessments for San Bernardino kangaroo rat and Los Angeles pocket mouse. The proposed program has conducted an analysis of potential impacts to these small mammals and, with implementation of MM-BIO-4 (Mitigation for San Bernardino Kangaroo Rat), the proposed program would not be in conflict with the goals of this survey area.

The Western Riverside County MSHCP also requires that projects review the potential for impacts to riparian/riverine habitat. All three facilities would meet the definition of riparian/riverine habitat; however, avoidance, minimization, and mitigation measures for riparian communities described under Impact BIO-2 would ensure the proposed program would not be in conflict with the riparian/riverine guidelines of the Western Riverside County MSHCP.

The Western Riverside County MSHCP also requires a review for vernal pool and/or listed fairy shrimp habitat. The three facilities are comprised of well-drained soils typical of flood control facilities. Soils mapped within these facilities include silt loam, rocky sandy loam, sandy loam, fine sandy loam, fine sand, loamy sand, loamy fine sand, very fine sand, gravel pits, and riverwash (see Appendix D). None of these soil types are conducive to supporting vernal pools or ephemerally ponded areas that would support fairy shrimp species; therefore, the proposed program would not be in conflict with the vernal pool guidelines of the Western Riverside County MSHCP.

### **4.3 Mitigation**

This section identifies mitigation measures for impacts that were identified as significant.<sup>9</sup>

**MM-BIO-1**      **Impacts Covered by LOPPs.** Maintenance activities shall not occur within areas covered by local overlapping permitting processes (LOPPs) (including the Wash Plan, First Line of Defense (FLOD) project area, El Niño project area, and Lenwood facilities) until all relevant permits and environmental clearance have

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<sup>9</sup> The District coordinates with other water district and public agencies that have easements for use of District facilities. Program impacts that overlap with impacts from activities related to facility use by other agencies may be mitigated in coordination with those agencies. Additionally, where mitigation for biological resources overlap, mitigation completed by the District will be counted toward each resource such that the District is not mitigating twice for overlapping resources.

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been obtained for these LOPPs. Any measures (including mitigation measures in California Environmental Quality Act (CEQA) documents, conditions in permits for impacts to jurisdictional waters, and conditions in federal and/or state Incidental Take Permits (ITPs)) from the LOPPs shall be incorporated into the Maintenance Plan for implementation with other standard operating procedures (SOPs), mitigation measures, and permit conditions as applicable.

Should the District decide to conduct maintenance activities within LOPP areas in advance of environmental clearance being obtained through the LOPPs, the District shall implement mitigation measures and obtain relevant permits as described in this EIR for impacts within the LOPPs.

### **4.3.1 Impact BIO-1.1: Critical Habitat**

**MM-BIO-2 Impacts to Critical Habitat.** Prior to adverse modification of U.S. Fish and Wildlife Service (USFWS)-designated critical habitat, the District shall receive confirmation from USFWS either that (1) the action may affect, but not likely to adversely affect critical habitat, or (2) will receive authorization from USFWS for adverse modification to critical habitat through an informal consultation, biological opinion, habitat conservation plan, or other suitable mechanism. All conditions from the USFWS for potential adverse modification to critical habitat shall be incorporated into the Maintenance Plan and implemented with other SOPs and mitigation measures of this proposed program.

### **4.3.2 Impact BIO-1.2: Special-Status Plants**

**MM-BIO-3 Mitigation for Special-Status Plants.** In cases where significant impacts to special-status plant species cannot be avoided during implementation of SOP-BIO-14, Special Status Plants Pre-Activity Surveys and Avoidance, the following mitigation shall be implemented. For species federally and/or state listed as threatened or endangered, prior to maintenance activities occurring within occupied habitat, a mitigation and monitoring plan shall be submitted to and approved by the USFWS (for federally listed plants) and/or the California Department of Fish and Wildlife (CDFW) (for state-listed plants). Upon approval, the plan shall be implemented by the District or its designee. For non-listed plant species, if greater than 10% of a special-status plant population within or adjacent to maintained facilities would be impacted, the District shall develop and implement a mitigation plan for that species. The mitigation plan will include relocating the species to a suitable area for conservation and/or

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collection of seeds to be salvaged at a reputable seed bank. The mitigation plan shall detail relocation methods suitable for the species impacted, location of mitigation site, and conservation of the mitigation site.

The mitigation and monitoring plan for the transplanted special-status plant(s) shall describe the following as needed based on plant species: (1) the location of mitigation sites; (2) site preparation measures as needed such as topsoil treatment, soil decompaction, erosion control, temporary irrigation systems, removal of non-native species; (3) a schedule and action plan to maintain and monitor the mitigation areas; (4) adaptive management measures such as replanting, weed control, or erosion control to be implemented if habitat improvement/restoration efforts are not successful; (5) success criteria; and (6) annual monitoring and reporting requirements.

Take of any listed species, or collection and transplantation of any individuals and populations of any listed species, will require approval by the USFWS and/or CDFW and issuance of an ITP.

### **4.3.3 Impact BIO-1.3: Special-Status Wildlife Species**

**MM-BIO-4 Mitigation for San Bernardino Kangaroo Rat.** Compensatory mitigation ratios for San Bernardino kangaroo rat shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by the applicable resource agency permits. Mitigation shall be a combination of preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.

Prior to direct impacts to suitable habitat for San Bernardino kangaroo rat, the District shall receive authorization from the USFWS through the federal Endangered Species Act (ESA) ITP process, including the preparation of a Biological Assessment, for take of San Bernardino kangaroo rat and adverse modification of designated critical habitat. Any measures determined to be necessary through the Incidental Take Permit process to offset impacts to San Bernardino kangaroo rat may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

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### Proposed Mitigation Ratios and Estimated Mitigation Acreage for San Bernardino Kangaroo Rat Habitat in the Valley Region

Habitat Quality	Impacts (acres)	Mitigation Ratio	Total Mitigation (acres)
Low quality	47.0	1:1	47
Moderate quality	28.2	2:1	56.4
High quality	11.8	3:1	35.4
<b>Total</b>	<b>87</b>	—	<b>138.8</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation would be completed as determined by actual impact acreages.

**MM-BIO-5 Mitigation for Least Bell’s Vireo.** Compensatory mitigation ratios for least Bell’s vireo shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.

### Proposed Mitigation Ratios and Estimated Mitigation Acreage for Least Bell’s Vireo Habitat in the Valley Region

Habitat Quality	Impacts (acres)	Mitigation Ratio	Total Mitigation (acres)
Low quality	15.4	1:1	15.4
Moderate quality	9.5	2:1	19
High quality	41.1	3:1	123.3
<b>Total</b>	<b>66.0</b>	—	<b>157.7</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

Prior to removal of suitable least Bell’s vireo habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through the California Endangered Species Act (CESA) Sections 2081(b) and (c). The USFWS would issue a Biological Opinion that will authorize harm to least Bell’s vireo and adverse modification of designated critical habitat as applicable. Any measures determined to be necessary through the Incidental Take Permit process may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

**MM-BIO-6 Mitigation for Delhi Sands Flower-Loving Fly.** The District shall compensate for impacts to Delhi sands flower-loving fly habitat through replacement ratios

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of 1:1 for low-quality habitat and 2:1 for moderate-quality habitat or as otherwise required by applicable resource agency permits.

Prior to impacting suitable habitat for Delhi sands flower-loving fly, the District shall receive authorization from the USFWS through the ESA ITP process. The USFWS would issue a Biological Opinion that will authorize harm to Delhi sands flower-loving fly. Any conditions required by the ITP may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

**MM-BIO-7 Mitigation for Coastal California Gnatcatcher.** The District shall compensate impacts to up to three coastal California gnatcatcher breeding territories by preserving and/or enhancing 25.2 acres of sage scrub habitat or as otherwise required by the applicable resource agency permits.

Prior to impacting suitable habitat for California gnatcatcher, the District shall receive authorization from the USFWS through the ESA ITP process. The USFWS would issue a Biological Opinion that will authorize harm to California gnatcatcher. Any measures determined to be necessary through the ITP process may supersede measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

**MM-BIO-8 Impacts to Southwestern Willow Flycatcher.** Prior to removal of suitable habitat for southwestern willow flycatcher, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS would issue a Biological Opinion that will authorize adverse modification of designated critical habitat. Any conditions required by the ITP may supersede mitigation measures provided in this CEQA document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

**MM-BIO-9 Mitigation for Tricolored Blackbird.** If suitable nesting habitat for tricolored blackbird is present in Wineville Basin, Jurupa Basin, Chris Basin, portions of the lower Cucamonga Spreading Grounds, or other identified habitat to be removed, three breeding surveys for tricolored blackbird shall be conducted in April and May, separated by a minimum of 10 days, to determine whether a breeding colony is present prior to any maintenance activities being conducted.

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If the results of the survey are positive, avoidance of 100% of the occupied habitat and adjacent habitat suitable for nesting shall be avoided. If 100% avoidance is not feasible due to flood protection requirements, consultation with the CDFW shall be initiated prior to implementation of any activities that may impact habitat occupied by tricolored blackbird. The District shall submit a 2081 application to the CDFW for any maintenance activities that impact tricolored blackbird breeding habitat.

### 4.3.4 Impact BIO-2: Vegetation Communities and Land Cover Types

**MM-BIO-10 Compensation for Special-Status Vegetation Communities in the Valley Region.** Direct impacts to special status vegetation communities shall be mitigated at the ratios included in the following table or as otherwise required in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) the mitigation type (e.g., preservation, creation); (2) location of mitigation; (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated; (4) an implementation plan; (5) maintenance requirements; (6) monitoring requirements; (7) reporting requirements; (8) contingency measures; (9) long-term management; and (10) funding assurances.

#### Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities in the Valley Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (acres)	Mitigation Ratio	Mitigation Required (acres)
Coastal scrub	Brittle bush scrub alliance	5.7	1:1	5.7
	California sagebrush–California buckwheat scrub alliance	134.4	1:1	134.4
<i>Coastal scrub subtotal</i>		<i>140.1</i>	<i>1:1</i>	<i>140.1</i>
Oak woodlands and forests	Coast live oak woodland alliance	2.5	1:1	2.5
	Disturbed coast live oak woodland alliance	2.6	1:1	2.6
<i>Oak woodlands and forests subtotal</i>		<i>5.1</i>	<i>1:1</i>	<i>5.1</i>

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### Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities in the Valley Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (acres)	Mitigation Ratio	Mitigation Required (acres)
Riparian forest and woodland	Black willow thickets alliance	4.3	1:1	4.3
	California sycamore woodlands alliance	1.1	1:1	1.1
	Fremont cottonwood forest alliance	28.6	1:1	28.6
	Red willow thickets alliance	<0.05	1:1	0.05
<i>Riparian forest and woodland subtotal</i>		<i>34.0</i>	<i>1:1</i>	<i>34</i>
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	297.1	1:1	297.1
<i>Riversidean alluvial fan sage scrub subtotal</i>		<i>297.1</i>	<i>1:1</i>	<i>297.1</i>
<b>Total</b>		<b>476.3</b>		<b>476.3</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

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## 5 MOUNTAIN REGION: EXISTING CONDITIONS, IMPACTS, AND MITIGATION MEASURES

The Mountain Region is located within the San Gabriel and San Bernardino Mountain Ranges, and includes communities of Oak Glen, Mountain Home Village, Wrightwood, Running Springs, Green Valley Lake, Big Bear, and Fawnskin, as well as the City of Big Bear Lake. The Mountain Region consists of all of Zone 5 and portions of Zones 1, 2, 3, and 6 (see Figure 1-1, Program Area). Appendix D (Maintained Facilities Biological Conditions) lists each maintained facility and the biological resources within each facility, including soils, vegetation communities, and habitat for federally listed and/or state-listed species. This section provides a summary of biological resources within the Mountain Region.

### 5.1 Existing Conditions

#### 5.1.1 Climate

Annual rainfall amounts for the San Bernardino Mountains can reach up to 40 inches in some areas, with the wettest months being November through March. Summers are relatively dry with a few thunderstorms. In winter months, snow typically occurs above 3,000 feet amsl and is very common above 5,000 feet amsl. The average annual snowfall amount in Big Bear Lake is 72.3 inches. Rainfall in this region is a crucial source for the regional streams and rivers that feed the Santa Ana River. In the summer months, average high temperatures in Big Bear Lake are 81°F, with a low of 48°F. During the winter, average temperatures range between 47°F and 21°F (NOAA 2015). Annual rainfall in Big Bear Lake is 20.05 inches, with most of the precipitation occurring November through March.

#### 5.1.2 Soils

The Mountain Region has a variety of soil types and is constantly undergoing change due to geologically active uplift and fault activity. The majority of the area contains shallow soils consisting primarily of decomposed granite and sandy loam (USDA 2017). Appendix D identifies the soil types mapped at each facility. An endemic feature of this area is the presence of the pebble plains, which is discussed in more detail below.

#### Pebble Plains

Pebble plains are a unique soil composition with a very limited distribution in the northeastern San Bernardino Mountains, occurring between elevations of 6,000 and 7,500 feet amsl (Stephenson and Calcarone 1999). They are treeless remnant patches of an ice-age lakebed consisting of deep clay and quartzite pebble and gravel deposits, and are typically surrounded by Jeffrey pine forests

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or pinyon pine and juniper woodlands. Pebble plains support a rare suite of plants, including three federally threatened plants: Bear Valley sandwort (*Arenaria ursina*), southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*), and ash-gray paintbrush (*Castilleja cinerea*). Mapped pebble plain complexes (USFWS 2015; Stephenson and Calcarone 1999) do not overlap the study area.

### **5.1.3 Watersheds**

The dominant watersheds within the Mountain Region are Big Bear Lake, the upper Santa Ana River watershed, the Upper Mojave watershed, and Lytle/Cajon Creek watershed. Watershed-specific mapping completed as part of the proposed program identified 12 watersheds within the Mountain Region (see Figure 5-1, Watersheds in the Mountain Region). The major aquatic features within each watershed are described herein.

#### **Lucerne Storm Drain**

The Lucerne Storm Drain watershed is primarily in the Desert Region, south of Apple Valley; however, the southern tip extends into the Mountain Region. It collects flows from within the northern San Bernardino Mountains and funnels them north through numerous tributaries towards Lucerne Valley in the Desert Region. These tributaries flow through several maintained channels in Lucerne Valley before depositing in Lucerne Lake, a dry lakebed.

#### **Big Bear/Headwaters of Santa Ana River**

This watershed occurs within the San Bernardino Mountains with Big Bear Lake as the primary water body. Big Bear Lake is a man-made lake that lies at an elevation of about 6,800 feet amsl and is fed by runoff from numerous creeks that drain the mountains and valley floor. Big Bear Lake is contained by Bear Valley Dam at the west end of the lake. Primary maintained tributaries to Big Bear Lake include Grout Creek and Sand Canyon Creek, which funnel flows from the surrounding peaks and the community of Big Bear. Other maintained tributaries include Knickerbocker Creek, Rathbone Creek, and Van Dusen Creek.

#### **San Timoteo Watershed**

The San Timoteo watershed is primarily within the Valley Region but extends into the southeastern portion of the Mountain Region in the town of Oak Glen. Within the Mountain Region, the primary maintained waterway in the San Timoteo watershed is Oak Glen Creek with one maintained tributary, Birch Creek. Oak Glen Creek originates in Oak Glen and continues southwest to the confluence with Wilson Creek, which flows to Live Oak Creek and ultimately San Timoteo Creek.

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## **City Creek/Plunge Creek/Mill Creek Watershed**

The City Creek/Plunge Creek/Mill Creek watershed is located along the southern side of the San Bernardino Mountains. It captures flows coming south from the San Bernardino Mountains. Mill Creek flows east to west along the southeastern portion of the Mountain Region, while City Creek and Plunge Creek are to the west of Seven Oaks Dam. They converge at the Santa Ana River in the Valley Region. Maintained facilities within this watershed include portions of Mill Creek, Oak Creek, Oak Creek basin, and the upper Santa Ana River.

## **Upper Santa Ana Watershed**

The Upper Santa Ana watershed is located within the San Bernardino Mountains and captures flows upstream of Seven Oaks Dam. The Santa Ana River runs northeast to southwest through the watershed, where it pools behind the Seven Oaks Dam in the southern portion of the watershed. This reach of the Santa Ana River is the only maintained feature within the watershed. The Santa Ana River is the primary water source for this watershed.

## **Twin/Warm Watershed**

The Twin/Warm watershed is located mostly within the Valley Region with the northern portion of the watershed falling within the Mountain Region. Twin Creek commences in the lower elevations of the San Bernardino Mountains and flows southwest, eventually joining with the Santa Ana River at the southernmost portion of the watershed. Portions of Twin Creek within the Mountain Region are maintained as well as several basins, including Daley Basin, and Small Canyon Dam.

## **Upper Mojave**

The Upper Mojave watershed is located within the northern San Bernardino Mountains with the Mojave River as the primary geographic and hydraulic feature of the larger Mojave Watershed. The Mojave River is an intermittent river with most of the water flow occurring underground. The river's source starts within the San Bernardino Mountains and terminates at Soda Dry Lake, approximately 110 miles away. Primary maintained features within this watershed in the Mountain Region include Green Valley Creek and Seeley Creek. Green Valley Creek collects localized flows that flow into Green Valley Lake. Green Valley Lake outlets to Green Valley Creek, which flows southwest to Deep Creek, which conveys flows to the northwest to the Mojave River. Seeley Creek originates south of the Valley of Enchantment and continues north to Sawpit Canyon, which flows into Silverwood Lake. Silverwood Lake has an outlet to the West Fork of the Mojave River.

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## **Sheep Creek**

The Sheep Creek watershed is primarily in the Desert Region between the communities of Pinyon Hills and Phelan; however, the southern tip extends into the Mountain Region. It flows south to north at the northwestern edge of the Mountain Region. The major water body for this watershed is Sheep Creek. This is an intermittent stream that flows south to north, starting at Wright Mountain and terminating at El Mirage Lake, a dry lakebed.

## **Lytle Creek/Cajon Creek System**

The majority of this watershed is in the Mountain Region, with the southern tip extending into the Valley Region. The geographic boundaries of the Lytle Creek/Cajon Creek System are the San Gabriel Mountains to the west and the San Bernardino Mountains to the east. Runoff in the Mountain Region from these two mountain ranges flows into Lytle Creek and Cajon Creek, the two main river systems within this watershed, which flow southeast into the Valley Region and ultimately into the Santa Ana River. The dominant feature within the Mountain Region of this watershed consists of Cajon Creek Wash, which flows southeast towards the Santa Ana River.

## **Day Creek/Etiwanda–San Sevaine**

The Day Creek/Etiwanda–San Sevaine watershed is primarily in the Valley Region; however, the northern portion extends into the southwestern part of the Mountain Region. San Sevaine Channel and Day Creek are the two dominant water features within this watershed, both capturing runoff associated with the east side of Cucamonga Creek in the San Gabriel Mountains. Day Creek forms the western geographic boundary of this watershed. Another prominent feature of this watershed is Etiwanda Channel, which confluences with Day Creek to flow south through eastern Rancho Cucamonga to a confluence with the Santa Ana River. San Sevaine Channel and its tributaries form the eastern boundary of the watershed. Tributaries include Hawker-Crawford Channel and Highland Channel. These features flow south through to confluence with the Santa Ana River. Maintained facilities in this watershed in the Mountain Region include Day Creek Dam and Day Creek Spreading Grounds.

## **Cucamonga/West Cucamonga Creek System**

The Cucamonga/West Cucamonga Creek System is also largely in the Valley Region with the northern portion extending into the southwest part of the Mountain Region. It extends south from the San Gabriel Mountains to the San Bernardino County border. This watershed three prominent water systems: West Cucamonga Creek, Cucamonga Creek and Deer Creek. West Cucamonga Creek collects flows from the surrounding community at the base of Cucamonga Canyon before flowing south in a channelized system through the 8th Street Basins in the City of Upland and later Ely Basins

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in the City of Ontario. After passing through the Ely Basins, West Cucamonga Creek joins with Cucamonga Creek. Both Cucamonga Creek and Deer Creek begin within the San Gabriel Mountains. Specifically, Cucamonga Creek originates as runoff associated with Ontario Peak, while Deer Creek is fed by waters flowing from the west side of Cucamonga Peak. The creeks join within the City of Ontario and flow south, eventually joining the Santa Ana River approximately 8 miles away. Maintained facilities in this watershed in the Mountain Region include portions of Deer Creek Channel, Deer Creek Reception Levee, and Deer Creek Debris Basin.

### **San Antonio Creek System**

The San Antonio Creek System is the westernmost watershed within San Bernardino County. The northernmost portion of this watershed occurs in the Mountain Region, with the southern majority extending into the Valley Region. San Antonio Creek Channel, the dominant river system within this watershed, forms the western geographic boundary. This feature captures flows from Potato Mountain to the west, as well as runoff associated with Mount Baldy to the north. Prominent tributaries to San Antonio Creek Channel include Cypress Channel and Carbon Canyon Creek Channel, which capture flows from the urbanized landscape of the Cities of Ontario and Chino. San Antonio Creek Channel and its tributaries flow south to the Santa Ana River.

#### **5.1.4 Topography and Geomorphology**

The Mountain Region is composed of the San Bernardino and the San Gabriel Mountains, which are part of the Transverse Ranges of the Southern California mountain chain. The Mountain Region consists of steep mountainous terrain with multiple peaks exceeding 10,000 feet amsl. The range tops out at San Gorgonio Mountain with an elevation of 11,489 feet amsl. The mountains are extremely steep, with one of the deepest mountain passes in the United States, which exceeds the depth of the Grand Canyon by 2,000 feet.

The San Bernardino Mountains are bounded by a series of faults named the North-Frontal System (Miller 1987), with the mountain range interior traversing the Santa Ana faults. The southeastern and southwestern portions of the San Bernardino and San Gabriel Mountains are traversed by the San Andreas Fault Zone and bound the Santa Ana Basin to the north (USGS 2006). Both mountain ranges rise above 10,000 feet amsl and descend gradually to the Mojave Desert to the north. The Mountain Region is composed of steep canyons of unstable hillslope rock debris. This debris is constantly stripped away by slope failures and erosion. Debris sediment is then deposited on alluvial fan channels and surfaces (USGS 2006).

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## 5.1.5 Vegetation Communities/Land Cover Types

Table 5-1 provides a summary of acreages for each vegetation community and land cover identified and an asterisk (\*) denotes the special-status vegetation communities. Figures 5-2A through 5-2E depict the distribution of general habitat types within the Mountain Region and Appendix D identifies vegetation communities occurring at each facility. Descriptions of the vegetation communities and land covers are included in Sections 5.1.5.1 through 5.1.5.15. Disturbed forms of these communities consist of the dominant native species to which the community was mapped, but have a non-native cover of 20% to 50% and/or have been disturbed by anthropogenic causes; thus, disturbed forms are not described separately.

**Table 5-1  
Vegetation Communities and Land Cover Types within the Mountain Region**

Generalized Habitat Type ( <i>Macrogroup</i> ) (CDFG 2010)	Alliance Land Cover Type	Total Acres in Program Area
California bay forests and woodlands ( <i>California forest and woodland</i> )	California bay forests and woodlands*	0.8
<i>California bay forests and woodlands subtotal</i>		<i>0.8</i>
Coastal scrub ( <i>California coastal scrub and Mojavean–Sonoran desert scrub</i> )	Brittle bush scrub alliance*	0.6
	California buckwheat scrub alliance	29.8
	California sagebrush scrub alliance	6.5
	California sagebrush–California buckwheat scrub alliance*	8.7
	Disturbed California buckwheat scrub alliance	0.0
<i>Coastal scrub subtotal</i>		<i>45.5</i>
Eucalyptus naturalized forest ( <i>Introduced North American Mediterranean woodland and forest</i> )	Eucalyptus groves alliance	1.0
<i>Eucalyptus naturalized forest subtotal</i>		<i>1.0</i>
Great Basin scrub ( <i>cool semi-desert wash and disturbance scrub and western North America tall sage shrubland and steppe</i> )	Big sagebrush scrub alliance	4.2
	Disturbed big sagebrush scrub alliance	0.3
	Rubber rabbitbrush scrub alliance	0.2
<i>Great Basin scrub subtotal</i>		<i>4.7</i>
Incense-cedar forests ( <i>Californian–Vancouverian montane and foothill forest</i> )	Disturbed incense cedar forest*	0.4
<i>Incense-cedar forests subtotal</i>		<i>0.4</i>
Marsh ( <i>Western North American freshwater marsh</i> )	Cattail marshes alliance*	0.2
<i>Marsh subtotal</i>		<i>0.2</i>

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**Table 5-1  
Vegetation Communities and Land Cover Types within the Mountain Region**

Generalized Habitat Type ( <i>Macrogroup</i> ) (CDFG 2010)	Alliance Land Cover Type	Total Acres in Program Area
Oak woodlands and forests ( <i>California forest and woodland</i> )	Canyon live oak forest alliance*	6.3
<i>Oak woodlands and forests subtotal</i>		6.3
Open water	Open water	0.7
<i>Open water subtotal</i>		0.7
Pine forests and woodlands ( <i>Californian–Vancouverian montane and foothill forest</i> )	Jeffrey pine forest alliance	32.7
<i>Pine forests and woodlands subtotal</i>		32.7
Riparian forest and woodland ( <i>Southwestern North American riparian, flooded and swamp forest and western Cordilleran montane–boreal riparian scrub</i> )	Arroyo willow thickets alliance	3.7
	California sycamore woodlands alliance*	3.8
	Disturbed white alder groves alliance	2.8
	Fremont cottonwood forest alliance*	0.5
	White alder groves alliance	3.3
<i>Riparian forest and woodland subtotal</i>		14.3
Riversidean alluvial fan sage scrub ( <i>Madrean warm semi-desert wash woodland/scrub</i> )	Disturbed scale broom scrub alliance*	11.6
	Scale broom scrub alliance*	17.7
	<i>Riversidean alluvial fan sage scrub subtotal</i>	
Undifferentiated chaparral scrub ( <i>California chaparral</i> )	Scrub oak chaparral alliance	2.4
	<i>Undifferentiated chaparral scrub subtotal</i>	
Waterway	Concrete channel	2.6
	Unvegetated channel	33.0
	Unvegetated wash	14.6
<i>Waterway subtotal</i>		50.2
Grassland ( <i>California annual and perennial grassland</i> )	Non-native grasslands	1.3
	<i>Grassland subtotal</i>	
Non-natural land covers	Basin	28.6
	Disturbed land	54.5
	Agriculture	0.4
	Urban	29.7
<i>Non-natural land covers subtotal</i>		113.2
<b>Total</b>		<b>302.9</b>

Source: CDFG 2010.

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**Notes:** As discussed in Chapter 3, Methods, of this report, there are limitations to vegetation community mapping on a programmatic level and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status communities present that are not captured in this table, or acreages may vary from existing conditions.

\* Denotes a special-status plant community. Due to the limitations of the vegetation mapping, there may be special status vegetation communities that were not captured on this table or acreages may vary from existing conditions. As described in the Maintenance Plan, special-status communities will be mapped prior to maintenance activities. Impacts and mitigation for special-status communities will be based on actual conditions at time of maintenance.

## 5.1.5.1 California Bay Forests and Woodlands

The California bay forest alliance is within the California Forest and Woodland macrogroup and was mapped in the Mountain Region. The California bay forest alliance is considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

### California Bay Forest Alliance

The California bay forest alliance (*Umbellularia californica* alliance) includes California bay as the dominant or co-dominant tree or tall shrub in the canopy. This alliance has a continuous or intermittent canopy less than 82 feet (25 meters) in height with an open to intermittent shrub layer and sparse to abundant ground layer (Sawyer et al. 2009). The California bay forest alliance often occurs on valley bottoms, stream sides, coastal bluffs, inland ridges, steep north-facing slopes, rocky outcrops, and alluvial benches with shallow to deep, sandy to clay loam soils (Sawyer et al. 2009).

Species associated with the alliance include bigleaf maple, California buckeye, white alder, madrone, tanoak, ghost pine, California sycamore, bigcone Douglas-fir, coast live oak, canyon live oak, interior live oak, and redwood (*Sequoia sempervirens*) (Sawyer et al. 2009).

## 5.1.5.2 Coastal Scrub

Within the study area, the following alliances, including disturbed forms, are in the California coastal scrub macrogroup: the California buckwheat scrub, California sagebrush scrub, and California sagebrush–California buckwheat scrub alliances. The brittle bush scrub alliance is within the Mojavean–Sonoran desert scrub macrogroup. Each of these alliances is described in this section.

Four coastal scrub alliances were mapped in the Mountain Region, including disturbed forms of the California buckwheat scrub alliance. The brittle bush scrub and California sagebrush–California buckwheat scrub alliances are considered special status under CEQA (CDFG 2010).

### Brittle Bush Scrub Alliance

The brittle bush scrub alliance (*Encelia farinosa* scrub alliance) includes brittle bush as the dominant or co-dominant shrub in the canopy. This alliance has an open to intermittent shrub

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canopy less than 2 meters (7 feet) in height with an open ground layer with seasonal annuals (Sawyer et al. 2009). The brittle bush scrub alliance often occurs on alluvial fans, bajadas, slopes of small washes and rills, colluvium, and rocky hillsides containing well drained, rocky soils (Sawyer et al. 2009).

Species associated with the alliance include desert agave, white bursage, California sagebrush, teddy bear cholla, Engelmann's hedgehog cactus, thicketleaf yerba santa, California buckwheat, California barrel cactus, chaparral yucca, California four o'clock, and white sage (Sawyer et al. 2009).

### **California Buckwheat Scrub Alliance**

The California buckwheat scrub alliance (*Eriogonum fasciculatum* scrub alliance) includes California buckwheat as the dominant or co-dominant shrub in the canopy. This alliance has a continuous or intermittent shrub canopy less than 7 feet (2 meters) in height with a variable ground layer that may be grassy (Sawyer et al. 2009). The California buckwheat scrub alliance occurs on dry slopes, washes, and canyons as well as coastal bluffs (Gordon and White 1994). The alliance occurs on relatively gentle, south-facing lower slopes and toe-slopes. The California buckwheat scrub alliance occupies mostly shallow and moderately deep, well-drained and somewhat excessively drained soils. Soils range from coarse sand to moderately fine sandy clay loam (Klein and Evens 2005).

Species associated with the alliance include California sagebrush, bush mallow, Menzies' goldenbush, coyote brush, common deerweed, black sage, and white sage (Sawyer et al. 2009).

### **California Sagebrush Scrub Alliance**

The California sagebrush scrub alliance (*Artemisia californica* scrub alliance) includes California sagebrush as the dominant or co-dominant shrub in the canopy. This alliance has a continuous or intermittent shrub canopy less than 7 feet (2 meters) in height with a variable ground layer (Sawyer et al. 2009). The California sagebrush scrub alliance often occurs on steep, north-facing slopes and rarely flooded low-gradient deposits along streams in shallow alluvial or colluvial-derived soils (Sawyer et al. 2009).

Species associated with the alliance include black sage, white sage, California brittle bush, chaparral yucca, Menzies' goldenbush, coyote brush, common deerweed, and poison oak (Sawyer et al. 2009).

### **California Sagebrush–California Buckwheat Scrub Alliance**

The California sagebrush–California buckwheat scrub alliance (*Artemisia californica*–*Eriogonum fasciculatum* scrub alliance) includes California sagebrush and California buckwheat as co-

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dominant shrubs in the canopy. California sagebrush–California buckwheat scrub has a two-tiered continuous or intermittent shrub canopy with most shrubs less than 2 meters (7 feet) in height while others reach up to 5 meters (16 feet) in height. This alliance has a seasonally present herbaceous layer. The California sagebrush–California buckwheat scrub alliance most often occurs on steep, south-facing slopes with colluvial-derived soils (Sawyer et al. 2009).

Species associated with the California sagebrush–California buckwheat scrub alliance include chamise, narrowleaf goldenbush, chaparral yucca, bush monkeyflower, common deerweed, laurel sumac, sugarbush, and white sage (Sawyer et al. 2009).

### **5.1.5.3 *Eucalyptus* Naturalized Forest**

*Eucalyptus* groves semi-natural stands is in the introduced North American Mediterranean woodland and forest macrogroup and was mapped in the Mountain Region. *Eucalyptus* groves semi-natural stands are not considered special status under CEQA (CDFG 2010) and are described in more detail in this section.

#### **Eucalyptus Groves Semi-Natural Woodland Stands**

The eucalyptus groves semi-natural woodland stand (*Eucalyptus globulus*, *E. camaldulensis*) includes various eucalyptus species as the dominant tree in the canopy. *Eucalyptus* groves have an intermittent to continuous canopy less than 50 meters (164 feet) in height with a sparse to intermittent shrub layer and herbaceous layer. This semi-natural stand occurs as planted trees, groves, and windbreaks, as well as naturalized on uplands and stream courses (Sawyer et al. 2009).

### **5.1.5.4 *Great Basin Scrub***

The big sagebrush scrub alliance, including disturbed forms, is in the Western North America Tall Sage Shrubland and Steppe macrogroup and the rubber rabbitbrush scrub alliance is in the Western North America Tall Sage Shrubland and Steppe macrogroup. Neither the big sagebrush scrub alliance or rubber rabbitbrush scrub alliances are considered special-status species under CEQA (CDFG 2010) and are described in more detail in this section.

#### **Big Sagebrush Scrub Alliance**

The big sagebrush scrub alliance (*Artemisia tridentata* alliance) includes big sagebrush as the dominant or co-dominant shrub in the canopy. Big sagebrush scrub has an open to continuous shrub canopy less than 2 meter (6 feet) in height with a sparse to intermittent ground layer that may be grassy (Sawyer et al. 2009). This alliance often occurs on dry washes, seasonal and

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perennial stream channels, valley bottoms, plains, alluvial fans, bajadas, pediments, and lower slopes that contain sandy to loamy soils (Sawyer et al. 2009).

Species associated with the big sagebrush scrub alliance include black sagebrush (*Artemisia nova*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), black brush (*Coleogyne ramosissima*), Acton's brittlebush (*Encelia actoni*), Nevada jointfir (*Ephedra nevadensis*), Mormon tea (*Ephedra viridis*), rubber rabbitbrush (*Ericameria nauseosa*), California buckwheat, antelope bitter brush (*Purshia tridentata*), desert gooseberry (*Ribes velutinum*), desert snowberry (*Symphoricarpos longiflorus*), and spineless horsebrush (*Tetradymia canescens*). Emergent trees such as Utah juniper (*Juniperus osteosperma*), Jeffrey pine, or singleleaf pinyon (*Pinus monophylla*) may be present at a low cover (Sawyer et al. 2009).

### Rubber Rabbitbrush Scrub Alliance

The rubber rabbitbrush scrub (*Ericameria nauseosa*) alliance includes rubber rabbitbrush as the sole or dominant shrub in the canopy. Rubber rabbitbrush scrub has a continuous or open shrub canopy less than 3 meters (10 feet) in height with a sparse or grassy ground layer (Sawyer et al. 2009). Rubber rabbitbrush scrub occurs in all topographic settings with well-drained, sandy, and gravelly soil (Thomas et al. 2004).

Species associated with the rubber rabbitbrush scrub alliance include big sagebrush, yellow rabbitbrush, ephedra (*Ephedra* sp.), California buckwheat, California juniper, and antelope bitter brush. Emergent pines (*Pinus* sp.) and junipers (*Juniperus* sp.) may also be present at a low cover (Sawyer et al. 2009).

#### 5.1.5.5 Incense Cedar Forests

The incense cedar forests alliance is in the Californian–Vancouverian Montane and Foothill Forest macrogroup. The incense cedar alliance is considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

### Incense Cedar Forest Alliance

The incense cedar forest alliance (*Calocedrus decurrens* forest alliance) includes incense cedar as dominant or co-dominant tree in the canopy. Incense cedar forest has an open to continuous canopy less than 65 meters (213 feet) in height with a variable ground layer. This alliance occurs in raised stream benches, around wet meadows, upper slopes, ridges, and terraces (Sawyer et al. 2009).

Some species associated with the incense cedar forest alliance include white fir (*Abies concolor*), white alder, Sierra lodgepole pine (*Pinus contorta* ssp. *murrayana*), Coulter pine (*P. coulteri*),

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sugar pine (*P. lambertiana*), Jeffrey pine, ponderosa pine (*Pinus ponderosa*), Douglas-fir, canyon live oak, and California black oak (Sawyer et al. 2009).

### **5.1.5.6 Marsh**

The cattail marsh alliance is within the Western North American freshwater marsh macrogroup and was mapped in the Mountain Region. The cattail marsh alliance is not a designated sensitive community by the CDFW; however, wetland communities are typically afforded protection under CEQA and the Clean Water Act.

#### **Cattail Marshes Alliance**

The cattail marshes alliance (*Typha* spp. alliance) includes cattail species as the dominant or co-dominant herb in the herbaceous layer. Cattail marshes alliance has an intermittent to continuous canopy less than 1.5 meters (5 feet) in height (Sawyer et al. 2009). This alliance occurs on semi-permanently flooded freshwater or brackish marshes that contain clayey or silty soils (Sawyer et al. 2009).

Species associated with the cattail marshes alliance include creeping bentgrass, flatsedge, salt grass, barnyardgrass, pale spike rush, giant horsetail, rushes, least duckweed, perennial pepper weed, water-parsley, smartweed, dotted smartweed, common reed, American bulrush, California bulrush, and cocklebur (Sawyer et al. 2009).

### **5.1.5.7 Oak Woodlands and Forests**

The canyon live oak forest alliance is within the California Forest and Woodland macrogroup and was mapped in the Mountain Region. The canyon live oak forest alliance is considered special status in this report because of its protection under the County Development Code and is described in more detail in this section.

#### **Canyon Live Oak Forest Alliance**

The canyon live oak forest (*Quercus chrysolepis*) alliance is dominated by canyon live oaks in the canopy (Thomas et al. 2004). The structure of this community has an intermittent to continuous tree canopy less than 30 meters (98 feet) in height and may be one or two tiered (Sawyer et al. 2009). Shrubs are infrequent or common with a sparse or abundant ground layer that may be grassy (NatureServe 2008). Plant diversity is low in this alliance (Keeler-Wolf 1990).

The following species are associated with the canyon live oak forest alliance: incense cedar, California bay, ponderosa pine, Coulter pine (*Pinus coulteri*), and Douglas-fir (*Pseudotsuga menziesii*) (Sawyer and Keeler-Wolf 1995; Holland 1986; NatureServe 2008).

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### **5.1.5.8 Open Water**

The open water mapping unit is not recognized by the Natural Communities List (CDFG 2010) but is described by Jones & Stokes (1993). Open water consists of standing water with no emergent vegetation. Open water is not considered a riparian habitat because it lacks hydrophytic vegetation. Open water is not considered special status under CEQA (CDFG 2010).

### **5.1.5.9 Pine Forests and Woodlands**

The Jeffrey pine forest alliance is within the Californian–Vancouverian Montane and Foothill Forest macrogroup and was mapped in the Mountain Region. The Jeffrey pine forest alliance is not considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

#### **Jeffrey Pine Forest Alliance**

The Jeffrey pine forest alliance (*Pinus jeffreyi* alliance) includes Jeffrey pine as the dominant or co-dominant tree in the canopy. Jeffrey pine forest has a continuous to open canopy less than 60 meters (196 feet) in height with a sparse to abundant or grassy ground layer (Sawyer et al. 2009). The Jeffrey pine forest alliance occurs on all slopes and aspects along ridges, plateaus, and raised stream benches that contain commonly infertile and shallow soils (Sawyer et al. 2009).

Species associated with the Jeffrey pine forest alliance include white fir, California red fir (*Abies magnifica*), incense cedar, Port Orford cedar, western juniper (*Juniperus grandis*), knobcone pine (*Pinus attenuata*), foxtail pine (*P. balfouriana*), lodgepole pine (*P. contorta*), western white pine (*P. monticola*), ponderosa pine, Douglas-fir, canyon live oak, California black oak, and interior live oak (Sawyer et al. 2009).

### **5.1.5.10 Riparian Forest and Woodland**

The white alder groves alliance is in the Western Cordilleran montane–boreal riparian scrub macrogroup and the remainder of the riparian forest and woodland alliances are in the Southwestern North American riparian, flooded, and swamp forest macrogroup. The California sycamore woodlands and Fremont cottonwood forest alliances are considered special status under CEQA (CDFG 2010).

#### **Arroyo Willow Thickets Alliance**

The arroyo willow thickets alliance include arroyo willow as the dominant or co-dominant shrub or tree in the canopy. Arroyo willow thickets have a continuous to open canopy less than 10 meters

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(33 feet) in height with a variable ground layer. This alliance occurs along slope seeps, stream banks and benches, and along drainages (Sawyer et al. 2009).

Some species associated with arroyo willow thickets include bigleaf maple, coyote brush, mulefat, common buttonbush, red osier, California sycamore, cottonwoods, willows, and blue elderberry (Sawyer et al. 2009).

### **California Sycamore Woodlands Alliance**

The California sycamore woodlands alliance (*Platanus racemosa* alliance) includes California sycamore as the dominant or codominant tree in the canopy. This alliance forms an open to intermittent tree canopy less than 35 meters (115 feet) with an open to intermittent shrub layer and sparse or grassy ground layer. The alliance is found in a variety of wetland and riparian locations, including gullies, intermittent streams, springs, stream and river banks, and seeps. It can also be found on terraces next to floodplains that are subject to high-intensity flooding (Sawyer et al. 2009).

Species associated with the California sycamore woodlands alliance include white alder, California walnut, coast live oak, valley oak, Fremont cottonwood, California bay, arroyo willow, black willow, and red willow (Sawyer et al. 2009).

### **Fremont Cottonwood Forest Alliance**

The Fremont cottonwood forest alliance (*Populus fremontii* alliance) includes Fremont cottonwood as the dominant or co-dominant tree in the canopy. Fremont cottonwood forest alliance has a continuous to open canopy cover less than 25 meters (82 feet) in height, intermittent to open shrub layer, and variable herbaceous layer (Sawyer et al. 2009). This alliance occurs along low-gradient rivers, floodplains, perennial or seasonally intermittent streams, lower canyon of the desert mountains, alluvial fans, springs, and valleys with a dependable surface water supply (Sawyer et al. 2009).

Species associated with the Fremont cottonwood forest alliance include box-elder, Oregon ash, Northern California black walnut and hybrids (*Juglans* ssp.), California sycamore, coast live oak, narrowleaf willow, black willow, red willow, arroyo willow, shining willow, and yellow willow (Sawyer et al. 2009).

### **White Alder Groves Forest Alliance**

The white alder forest alliance (*Alnus rhombifolia* alliance) includes white alder as the dominant or co-dominant tree in the tree canopy. The white alder forest alliance has an open to continuous tree canopy cover less than 35 meters (114 feet) in height, sparse to continuous cover in the shrub

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layer, and variable herbaceous layer. White alder forest communities are found in riparian corridors, seeps, stream banks, incised canyons, floodplains, mid-channel bars, and terraces (Sawyer et al. 2009).

Species associated within the white alder groves forest alliance include bigleaf maple, Port Orford cedar, Oregon ash, tanoak, California sycamore, Fremont cottonwood, bigcone Douglas-fir, valley oak, and willows (Sawyer et al. 2009).

### **5.1.5.11 Riversidean Alluvial Fan Sage Scrub**

Riversidean alluvial fan sage scrub is a characteristic community of the Valley Region occurring on the alluvial fans at the base of the mountains. In the Mountain Region, it occurs within the canyons along the southern extent of the Mountain Region as it transitions into the Valley Region. Three phases of vegetation associated with Riversidean alluvial fan sage scrub have been recognized based on differences in flooding frequency and intensity: pioneer, intermediate, and mature.

Pioneer areas are the most frequently flooded areas where vegetation is sparse, and tend to be located adjacent to the active creek channel. Soils are characterized by high sand and low organic and clay content. Intermediate areas occur on terraces at mid-elevated locations above the active floodplain, are less frequently flooded, and can support rather dense vegetative cover (49% to 65% (Smith 1980, as cited in USFWS 2010a). Open areas may have cryptogamic crusts (Burk et al. 2007). Mature areas occur on the highest infrequently flooded elevated terraces and support mature plants with dense vegetative cover of 66% to 88% (Smith 1980 and Hanes et al. 1989, as cited in USFWS 2010a).

The scale broom scrub alliance is within the Madrean warm semi-desert wash woodland/scrub macrogroup and was mapped in the Mountain Region, including its disturbed form. The scalebroom scrub alliance, including its disturbed forms, is considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

### **Scale Broom Scrub Alliance**

The scale broom scrub alliance tends to occur in pioneer and intermediate Riversidean alluvial fan sage scrub, and much less so in mature phases. This community is identified by a dominance of scalebroom. Co-dominants may include California buckwheat, California sagebrush, white sage, brittlebush (*Encelia* spp.), pricklypear (*Opuntia* spp.), chaparral yucca, lemonade berry, sugarbush, and California juniper.

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### **5.1.5.12 Undifferentiated Chaparral Scrubs**

The scrub oak chaparral alliance is within the California chaparral macrogroup and was mapped in the Mountain Region. The scrub oak chaparral alliance is not considered special status under CEQA (CDFG 2010) and is described in more detail in this section.

#### **Scrub Oak Chaparral Alliance**

The scrub oak chaparral alliance (*Quercus berberidifolia* alliance) is dominated or co-dominated by scrub oak, generally exceeding 60% cover. Scrub oak chaparral has a continuous shrub canopy less than 6 meters (20 feet) in height with a sparse herbaceous layer (Sawyer et al. 2009).

Species associated with scrub oak chaparral alliance include chamise, redshank, Eastwood manzanita, bigberry manzanita, desert ceanothus, chaparral white thorn, California coffee berry, California ash, toyon, holly leaf cherry, interior live oak, holly leaf redberry, sugarbush, and poison oak. There may also be sparse, emergent trees, including California buckeye, coast live oak, California walnut, or ghost pine (Sawyer et al. 2009).

### **5.1.5.13 Waterways**

Waterways consist of concrete-lined channels, unvegetated channels, and unvegetated washes. Waterways are not considered special status under CEQA (CDFG 2010).

#### **Concrete-Lined Channel**

Concrete-line channel refers to man-made, concrete-lined channels, which are designed to convey low-frequency and high-volume surface water flows.

#### **Unvegetated Channel**

Unvegetated channel typically includes unvegetated, maintained or engineered, sandy bottom channels.

#### **Unvegetated Wash**

Unvegetated wash includes natural, sandy bottom washes that are primarily unvegetated.

### **5.1.5.14 Grasslands**

Non-native grasslands are in the California annual and perennial grassland macrogroup and were mapped within the Mountain Region. Non-native grasslands are not considered special status under CEQA (CDFG 2010) and are described in more detail in this section.

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## Non-Native Grassland

Non-native grasslands were mapped to the general habitat type because CDFW does not consider any of the semi-natural stands<sup>10</sup> special-status biological resources under CEQA (CDFG 2010). Non-native grassland has a sparse to dense cover of annual grasses that is typically 0.2 meters (0.7 feet) to 0.5 meters (1.6 feet) tall and can be up to 1 meter (3 feet) tall.

Grasses that occur in non-native grassland include oats, bromes, fescue, and Italian ryegrass. Forbs that occur with these grasses include California poppy, stork's bill, goldfields, phacelias, gilies, and baby blue eyes (Holland 1986). Non-native grassland also includes land that is used as pasture for grazing purposes containing non-native grasses such as barley and wild oats.

### 5.1.5.15 Non-Natural Land Covers

Non-natural land covers include the following communities and land cover types: agriculture, basin, disturbed land, and urban. None of the non-natural land covers are considered special status under CEQA (CDFG 2010).

#### Agriculture

Agricultural land includes the following agricultural types: agriculture (general), nurseries, orchard agriculture, pastures and crop agriculture, tilled earth, and vineyard–shrub agriculture.

#### Basin

Areas classified as basin are the bottoms of District flood control basins that tend to be historically and regularly disturbed through vegetation and sediment management activities. These can include debris basins and recharge basins (if not regularly filled with water). Basins often contain wetland and riparian vegetation, Riversidean alluvial fan sage scrub, and semi-natural stands such as non-native grasslands and upland mustards; however, vegetation communities within the proposed program area were mapped based on the 2009 baseline aerial, as discussed in Section 3.4.2 of this report. Areas mapped as basin lacked any vegetation signatures.

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<sup>10</sup> Semi-natural stands are invasive naturalized plant groups where “plants are sufficiently dominant to have replaced most of the natives, and, in many situations, the associates are themselves non-native species” (Sawyer et al. 2009).

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## Disturbed Land

Disturbed land refers to areas that are not developed yet lack vegetation, and generally are the result of severe or repeated mechanical perturbation. Disturbed land within the Mountain Region includes dirt roads and vacant lots devoid of vegetation.

## Urban

Urban and associated ornamental plantings are mapped in developed portions of the Mountain Region. Urban areas consist of buildings, structures, homes, parking lots, paved roads, and maintained areas and do not support native vegetation.

### 5.1.6 Special-Status Species

Appendix E provides a summary of the special-status species that have been documented in the Mountain Region of San Bernardino County, and includes information on status, distribution, habitat associations, and likelihood it occurs within the study area.

#### 5.1.6.1 Critical Habitat

Figure 5-3 depicts USFWS-designated critical habitat within the Mountain Region. Table 5-2 provides acreages of critical habitat that overlap the study area within the Mountain Region, which includes critical habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, and Santa Ana sucker. It is important to note that San Bernardino kangaroo rat does not historically occur within the Mountain Region; however, a small portion of critical habitat for this species is mapped within the lower elevational region of the foothill reaches of Lytle Creek. Due to this overlap, critical habitat for this species is being analyzed as a portion of the Mountain Region of this document.

**Table 5-2  
Critical Habitat in the Mountain Region**

Critical Habitat Species		Total Critical Habitat in Study Area in Mountain Region (Acres)	Total Critical Habitat Identified as Suitable in Study Area in Mountain Region (Acres)*
Common Name	Scientific Name		
Santa Ana sucker	<i>Catostomus santaanae</i>	4.7	N/A
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	6.5	0.0
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	41.1	0.0

Source: USFWS 2017.

Notes: N/A = not applicable.

\* Acreages only provided for those species for which habitat assessments were conducted, as described in Appendix A.

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## 5.1.6.2 Plants

Out of 89 special-status plant species documented within the Mountain Region, a total of 30 have a moderate potential to occur within the study area in the Mountain Region. Of those 30 species, none are known to occur within the study area, 5 of the species are federally listed and/or state listed, and 25 are non-listed special-status plant species. The remaining species are special-status species with a low potential to occur. This report does not further analyze the non-listed special-status plant species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

Listed plant species, all with a moderate potential to occur within the Mountain Region, include ash-gray paintbrush (FT/None/1B.2), San Bernardino bluegrass (*Poa atropurpurea*) (FE/None/1B.2), California dandelion (*Taraxacum californicum*) (FE/None/1B.1), bird-foot checkerbloom (*Sidalcea pedata*) (FE/SE/1B.1), and slender-petaled thelypodium (*Thelypodium stenopetalum*) (FE/SE/1B.1). These five species are further discussed below. A total of 20 non-listed special-status plant species were judged to have a moderate potential to occur in the proposed program area: Cienega Seca oxytheca (*Acanthoscyphus parishii* var. *cienegeensis*) (None/None/1B.3), rock sandwort (*Arenaria lanuginosa* var. *saxosa*) (None/None/2B.3), Big Bear Valley milk-vetch (*Astragalus lentiginosus* var. *sierra*) (None/None/1B.2), Big Bear Valley woollypod (*Astragalus leucolobus*) (None/None/1B.2), Parish's rockcress (*Boechera parishii*) (None/None/1B.2), Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*) (None/None/1B.2), western sedge (*Carex occidentalis*) (None/None/2B.3), San Bernardino Mountains owl's-clover (*Castilleja lasiorhyncha*) (None/None/1B.2), vanishing wild buckwheat (*Eriogonum evanidum*) (None/None/1B.1), Bear Lake buckwheat (*Eriogonum microthecum* var. *lacus-ursi*) (None/None/1B.1), San Bernardino gilia (*Gilia leptantha* ssp. *leptantha*) (None/None/1B.3), Parish's alumroot (*Heuchera parishii*) (None/None/1B.3), silver-haired ivesia (*Ivesia argyrocoma* var. *argyrocoma*) (None/None/1B.2), short-sepaled lewisia (*Lewisia brachycalyx*) (None/None/2B.2), lemon lily (*Lilium parryi*) (None/None/1B.2), San Bernardino Mountains monkeyflower (*Mimulus exiguous*) (None/None/1B.2), little purple monkeyflower (*Mimulus purpureus*) (None/None/1B.2), Baja navarretia (*Navarretia peninsularis*) (None/None/1B.2), San Bernardino ragwort (*Packera bernardina*) (None/None/1B.2), Parish's yampah (*Perideridia parishii* ssp. *parishii*) (None/None/2B.2), Big Bear Valley phlox (*Phlox dolichantha*) (None/None/1B.2), Bear Valley pyrrocoma (*Pyrrocoma uniflora* var. *gossypina*) (None/None/1B.2), Bear Valley checkerbloom (*Sidalcea malviflora* ssp. *dolosa*) (None/None/1B.2), southern jewel-flower (*Streptanthus campestris*) (None/None/1B.3), and San Bernardino aster (*Symphotrichum defoliatum*) (None/None/1B.2). These non-listed special-status plant species are described in Appendix E.

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### **Ash-Gray Paintbrush**

Ash-gray paintbrush is federally threatened herbaceous perennial plant. It is a hemiparasitic plant, so it has roots that penetrate the root tissues of a host plant to obtain nutrients and water. Host plants include *Eriogonum kennedyi* var. *austromontanum*, *Eriogonum kennedyi* var. *kennedyi* (Kennedy's wild-buckwheat), *Eriogonum wrightii* var. *subscaposum* (short-stemmed bastardsage), *Artemisia tridentata* ssp. *tridentata* (big sagebrush), *Artemisia nova* (black sagebrush), and other *Artemisia* taxa (USFS 2005, as cited in USFWS 2013b). However, it does not require a host plant species for its survival.

Ash-gray paintbrush is endemic to the San Bernardino Mountains at elevations between 1,800 and 3,300 meters (5,906 and 10,827 feet) (Wetherwax et al. 2012, as cited in USFWS 2013b). Ash-gray paintbrush occupies the meadow/forest transitional area, with pebble plains being the primary habitat; however, it is also has been recorded in non-pebble plain habitat: dry and wet forest meadows, mixed conifer, forests, open pine forests, and pinyon–juniper woodlands (USFWS 2013b).

There are five known occurrences of ash-gray paintbrush within 1 mile of the proposed program area (CDFW 2017), but preferred habitat, pebble plains, is absent. Therefore, it is judged to have a low potential to occur within the proposed program area, specifically areas around Big Bear Lake.

### **San Bernardino Bluegrass**

San Bernardino bluegrass is a federally endangered perennial grass species that is restricted to montane meadow habitat in the San Bernardino Mountains and Laguna and Palomar Mountains in San Diego County (USFWS 2008b). It is an upper-elevation plant occurring at 1,800 to 2,300 meters (5,906 to 7,546 feet) amsl, and commonly found in the drier margins of vernal moist meadows (Soreng 1993, as cited in USFWS 2008b). San Bernardino bluegrass is known to occur in 15 areas in the Big Bear area: Alden Meadow, Belleville Meadow, Big Bear City Meadow (fragments), Bluff Meadow, China Gardens/Eagle Point Meadow, Cienaga Seca Meadow, East Baldwin Meadow, Erwin Meadows, Hitchcock Meadow, Metcalf/Coldbrook Meadows, North Baldwin Meadow, Pan Hot Springs Meadow, Rathbun Meadow, Shay Meadow, and Wildhorse Meadow. The most robust populations are at Belleville Meadow (part of Holcomb Valley), Hitchcock Meadow (part of Holcomb Valley), North Baldwin Lake Meadow, Bluff Meadow (also known as Bluff Lake), Cienaga Seca meadow (also known as Blue Sky Meadow), and Pan Hot Springs Meadow (Eliason 2007, as cited in USFWS 2008b).

There are five known occurrences of San Bernardino bluegrass within 1 mile of the proposed program area (CDFW 2017). Preferred habitat includes vernal moist meadows and drainages.

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Therefore, it is judged to have a moderate potential to occur within the proposed program area, specifically areas around Big Bear Lake.

### **California Dandelion**

California dandelion is a federally endangered perennial herb species that is endemic to montane meadow habitat in the San Bernardino Mountains and occurs from 1,600 to 2,800 meters (5,249 to 9,186 feet) amsl. Suitable habitat includes vernal wet montane meadows without a closed tree canopy or other montane wetland areas dominated by wetland-associated grasses in forest openings. Occupied sites tend to be relatively flat and may occur along perennial streams (SBNF 2002, as cited in USFWS 2013c). California dandelion occur in the following meadows: Belleville Meadow, Big Meadow, Bluff Meadow, China Gardens/Eagle Point Meadows, Cienega Seca Meadow, Erwin Meadows, Fish Creek Meadows, Green Spring Meadow, Hitchcock Meadow, Horse Meadow, Lost Creek Meadow, Metcalf Meadow (two occurrences), Mission Springs Meadow, North Shore Meadows (Division Meadow, East and West Observatory Meadows, Juniper Meadow, and Minnelusa Meadow), North Baldwin Meadow, Pan Hot Springs Meadow, Shay Meadow, South Fork Meadows, unnamed meadow east of South Fork Meadow, and Wildhorse Meadows (USFWS 2013c).

This species is known to occur within or adjacent to urbanized areas in Big Bear City and known along mesic meadow edges that often intergrade with sagebrush scrub (USFWS 2013c). There are multiple known occurrences surrounding Big Bear Lake, some occurring within 1 mile of the maintenance footprint (CDFW 2017). Therefore, it is judged to have a moderate potential to occur within and adjacent to Rathbone Creek and Van Dusen Creek.

### **Bird-Foot Checkerbloom**

Bird-foot checkerbloom is a federally and state-endangered species that is restricted to the moist alkaline meadows of Big Bear Valley from 1,600 to 2,500 meters (5,249 to 8,202 feet) amsl (USFWS 2011a). However, it is a tolerant species and individuals are able to survive in areas that have been significantly disturbed, such as mowed, vacant, and compacted lots (Eliason, pers. obs. 2010, as cited in USFWS 2011a). Bird-foot checkerbloom is primarily found on clay soils that create vernal moist meadows, but it prefers the drier edges of these meadows where vegetation is sparsely vegetated (USFWS 2011a). The moist to wet open meadows where bird-foot checkerbloom occurs are at times interspersed with pebble plains. Bird-foot checkerbloom is known from three locations: near Bluff Lake, near Baldwin Lake, and the south shore of Big Bear Lake.

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The current distribution of bird-foot checkerbloom (USFWS 2011a, Figure 1) may overlap the proposed program area; therefore, it has a moderate potential to occur within and adjacent to Knickerbocker Creek, Rathbone Creek, and Van Dusen Creek.

### Slender-Petaled Thelypodium

Slender-petaled thelypodium is a federally and state-endangered herbaceous biennial that is restricted to the moist alkaline meadows of Big Bear Valley at elevations from 1,600 to 2,500 meters (5,249 to 8,202 feet) amsl (USFWS 2011b). Alkaline flats, meadows, and lakeshores with clay soils are considered suitable habitat, but it prefers the drier edges where they are often seen growing up through sagebrush (*Artemisia tridentata*) shrubs (USFWS 2011b). The moist to wet open meadows where slender-petaled thelypodium occurs are at times interspersed with pebble plains. The larvae of the Andrew's marble butterfly (*Euchloe hyantis andrewsii*), a species endemic to the San Bernardino Mountains, has been observed feeding on slender-petaled thelypodium, although the primary larval food source of Andrew's marble butterfly is identified as mountain tansymustard (*Descurainia incana*) (USFWS 2011b).

Species is known to occur along lakeshores and suitable mesic conditions are present within the maintenance footprint. There are five known occurrences within 1 mile of the maintenance footprint (CDFW 2017). Therefore, it is judged to have a moderate potential to occur within and adjacent to Rathbone Creek and Van Dusen Creek.

#### 5.1.6.3 Wildlife

A literature review identified a total of 42 special-status animal species documented in the Mountain Region. No listed species have a high potential to occur in the Mountain Region. The only listed species with moderate potential to occur in the proposed program area is the state-listed threatened southern rubber boa. Species with low potential to occur are the southwestern willow flycatcher and the state endangered and state fully protected bald eagle. These three species are described in more detail in this section.

A total of 10 non-listed wildlife species have a moderate or greater potential to occur in the Mountain Region study area. These include large-blotched salamander (*Ensatina eschscholtzii klauberi*), California mountain kingsnake (San Bernardino population; *Lampropeltis zonata*), coast patch-nosed snake (*Salvadora hexalepis virgulata*), Blainville's horned lizard (*Phrynosoma blainvillii*), two-striped gartersnake (*Thamnophis hammondi*), loggerhead shrike, olive-sided flycatcher (*Contopus cooperi*), western red bat, San Bernardino flying squirrel (*Glaucomys sabrinus californicus*), and western mastiff bat (*Eumops perotis*). Two state fully protected species,

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ringtail (*Bassariscus astutus*) and white-tailed kite, have a low potential to occur within the study area. These species are described in Appendix E.

The remaining species have a low potential to occur. This report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

### **Southern Rubber Boa (California Threatened, Moderate Potential to Occur)**

Southern rubber boa is a state-threatened species. In general, the southern rubber boa inhabits moist coniferous forests and woodland habitats in the San Bernardino and San Jacinto Mountains. Within these general habitats, the rubber boa is often found in fallen debris, rock piles, and steep, rocky montane areas above 1,540 meters (5,052 feet) amsl. Appendix B provides an analysis of the potential for southern rubber boa to occur within the study area. Facilities determined to be suitable for southern rubber boa include Green Valley Creek above Green Valley Lake and Grout Creek above Big Bear Lake and below Highway 38. Knickerbocker Creek, Rathbone Creek, and Sand Canyon, all tributaries of Big Bear Lake, were found to be unsuitable. Van Dusen Creek, a tributary of Baldwin Lake, was also determined to be unsuitable within the proposed program area.

This species eats small mammals (mice and shrews), birds, salamanders, lizards, snakes, and insects (Stebbins 1985; Shaw and Campbell 1974; Brown 1974). Breeding usually occurs between April and June (Zeiner et al. 1988), and two to eight live young are born between August (Erwin 1964) and November (Hudson 1957; Stebbins 1985). Females are thought to only bear young every 2 to 3 years (Stewart 1988).

### **Southwestern Willow Flycatcher (Federally Endangered, State Endangered, Low Potential to Occur)**

Southwestern willow flycatcher is a federally and state listed endangered songbird. The flycatcher breeds in riparian vegetation typically found alongside rivers, streams, creeks, or various water impoundments. Generally, this species prefers mosaics of relatively dense and expansive growths of trees and shrub near or adjacent to surface water or underlain by saturated soil. The exact habitat characteristics such as dominant plant species, size and shape of habitat patch, tree canopy structure, vegetation height, and vegetation density vary widely among breeding sites (USFWS 2014). However, nests are typically placed in trees where the plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density canopy (USFWS 2014).

The known geographical area historically occupied by both migrating and breeding flycatchers includes Southern California. As noted in Chapter 3, habitat suitability was not analyzed for this

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species in Appendix A. However, this analysis assumes that any least Bell’s vireo habitat of low, moderate, or high suitability is also suitable for southwestern willow flycatcher. Based on that, the total amount of potential habitat for this species in the Mountain Region is 0.9 acres (Table 5-3).

**Table 5-3  
Southwestern Willow Flycatcher Potential Habitat in Mountain Region**

	Southwestern Willow Flycatcher Suitability Classification		
	<i>Low (Acres)</i>	<i>Moderate (Acres)</i>	<i>High (Acres)</i>
Riparian forest and woodland	0.1	0.6	0
Marsh	0.1	0	0
Non-natural land covers	0.1	0	0
<b>Total potential habitat</b>	<b>0.3</b>	<b>0.6</b>	<b>0</b>

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

Based on the literature review described in Chapter 3, within the Mountain Region, southwestern willow flycatcher have been recorded in Metcalf Creek near Big Bear Lake (2001), Holcomb Creek downstream of Harry Spring (1999), Santa Ana River near confluence with Sand Creek and Mill Creek (1999), Santa Ana River upstream of confluence with Rattlesnake Creek (1999), Santa Ana River near Big Meadows (1999), Barton Creek near Jenks Meadow, and Cienaga Creek upstream of Heart Bar campground. On a regional level, the southwestern willow flycatcher population is in decline (Pike et al. 2006; SAWA 2016). Overall, the study area has a moderate potential to support southwestern willow flycatcher in the one location where there is potentially suitable riparian habitat within Mill Creek.

### **Bald Eagle (California Endangered, California Fully Protected, Low Potential to Occur)**

Bald eagle is a state endangered and state fully protected species. It migrates and winters in Southern California at locations in the San Bernardino Mountains typically associated with aquatic areas with some open water for foraging (Buehler 2000); they have been recorded wintering at Silverwood Lake, Lake Arrowhead, Lake Gregory, Baldwin Lake, and Big Bear Lake. Bald eagles typically breed in forested areas adjacent to large bodies of water (Buehler 2000). In 2002, the first confirmed bald eagle nest in the San Bernardino Mountains was recorded near Fawnskin, and reproduced one young successfully in 2015. In 2015, the egg was likely laid in early January, which is very early for a cold mountain region. Even within lower elevations, such as at Catalina Island, eggs are laid more typically in February (Sharpe 2007). However, nests observed in Mexico and Arizona may lay eggs from late December to mid-February (Henny et al. 1993, as cited in Buehler 2000).

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Overall, the study area in the Mountain Region has a low potential to support wintering bald eagle, and a very low potential to support a nest, considering only one nest has been documented in the San Bernardino Mountains. Although the study area is adjacent to Big Bear Lake, Baldwin Lake, and Green Valley Lake, the study area is mostly located away from the lakeshore and contains few large trees that would be preferred by this species. The one nest that has been recorded near Big Bear Lake occurs in Grout Bay, and is approximately 2,000 feet south of the study area in Grout Creek.

### **5.1.7 Wildlife Corridors and Habitat Linkages**

The Mountain Region contains many habitat linkages that allow wildlife to move from through open space associated with the San Bernardino or San Gabriel Mountains. While the majority of the Mountain Region is undeveloped and therefore not posing a constraint to wildlife movement, District-maintained flood control channels serve as a corridor in the more developed areas within the region. These channels and the basins they lead to contain suitable habitat patches that provide food and shelter for various wildlife species as they pass through. Several prominent features within the Mountain Region include canyons in the lower elevation areas where the headwaters to Birch Creek and Oak Glen Creek begin, as well as Mill Creek west of Forest Falls.

Although there are a number of documented wildlife corridors and habitat linkages that overlap the San Bernardino Mountains and San Gabriel Mountains, the study area in the Mountain Region is largely associated with urban areas and does not overlap these wildlife corridors. However, the proposed program area does overlap one wildlife corridor identified on the San Bernardino County Open Space Overlay Map (see Table 5-4 and Figure 5-4, Habitat Linkages and Wildlife Corridors in the Mountain Region).

**Table 5-4  
San Bernardino County Open Space Overlay Features  
in the Mountain Region that Occur within County Jurisdiction**

Feature	Type	Acres	Description
Mill Creek	Wildlife Corridor	1,778.2	This wildlife corridor follows the alignment of Mill Creek from Forest Falls to its confluence with the Santa Ana River. Mill Creek supports riparian and alluvial fan habitat. Special-status species known to occur here include southwestern willow flycatcher and San Bernardino kangaroo rat.

### **5.1.8 Conservation Plans**

#### **Upper Santa Ana River HCP**

The southwestern portion of the Mountain Region falls within the boundary of the Upper Santa Ana River Habitat Conservation Plan (HCP). The draft list of species proposed to be covered by

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the HCP and potentially occurring in the Mountain Region includes southwestern willow flycatcher (ICF 2014).

## 5.2 Program Impacts

Due to the large number of activities covered by the proposed program, activities have been organized into categories of maintenance activity types, as follows:

- **Ground-Disturbing Activities.** Ground-disturbing activities can range from large sediment-removal efforts for basins and channels for the purposes of flood control maintenance, channel flow, erosion control, or smaller efforts that might involve ground disturbance through vegetation management, bank repair and stabilization, road grading, or repair of flood-control structures that might include ground disturbance to install riprap or replace facilities. Specifically, ground-disturbing activities would include the following:
  - Mechanized land clearance/sediment removal
  - Mechanized vegetation management
  - Ingress/egress: road grading, installation of fencing and gates, installation of free-standing signage
  - Bank repair
  - Stockpiling
- **Non-Ground-Disturbing Vegetation Management.** Non-ground-disturbing vegetation management would involve vegetation management without disking, excavators, or other machinery that would disturb soils. Primarily, these efforts would be by hand, and would include the following:
  - Pruning
  - Mowing
  - Hand clearing
- **Non-Ground-Disturbing Activities.** Other non-ground-disturbing activities could include the following:
  - Sand and gravel operations: vendors sort materials on existing ground
  - Ingress/egress: Fencing and gate repairs, installation of non-free-standing signage, and pavement repair
  - Application of herbicide and rodenticide
  - Graffiti removal

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- Vector control
- Stream gage maintenance: involves maintenance of stream gages for water quality monitoring and sampling within existing sites and wells

## Impacts from Local Overlapping Permitting Processes

As described in Section 1.2.4.3, Local Overlapping Permitting Processes, of this report, LOPPs have the potential to impact biological resources within the proposed program area. Environmental clearance (including mitigation) for permanent direct impacts from maintenance activities within the proposed program would be conducted through the respective LOPP. Permanent direct impacts to biological resources from LOPPs are described herein; however, mitigation for these impacts would be incorporated from the respective LOPP.

### 5.2.1 Definition of Impacts

**Permanent direct impacts** refer to portions of the maintenance footprint that are expected to result in permanent change of the existing vegetation and biological resources. In general, ground-disturbing activities would result in permanent direct impacts when maintenance activities would occur at a frequency that would not allow communities to regenerate prior to the next maintenance event. One exception is bank repair, which primarily involves removal of excess sediment or sand from facility bottoms and applying it to the banks. It may also include incidental riprap placement and/or repair. This activity would not permanently remove vegetation as vegetation would continue to grow through any native earth placed on the banks.

**Temporary direct impacts** typically refer to short-term removal of a biological resource where the resource is expected to *fully* recover its function upon completion of the activity. Non-ground-disturbing vegetation management would typically result in temporary direct impacts.

**Short-term indirect impacts** are reasonably foreseeable effects caused during program implementation on adjacent biological resources outside the direct maintenance footprint disturbance zone. They include noise, dust, motion, ground vibration, and other maintenance-related impacts.

**Long-term indirect impacts** are reasonably foreseeable effects due to program implementation that will have a permanent change on adjacent biological resources outside the direct maintenance footprint. They include downstream hydrology effects such as surface flow, sediment transport, and scour.

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## 5.2.2 CEQA Thresholds

The criteria used to evaluate the significance of the proposed program's impacts on biological resources, including special-status species, are based on Appendix G of the CEQA Guidelines. A significant impact would occur if the proposed program:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

## 5.2.3 Impact BIO-1

*Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.*

### 5.2.3.1 Ground-Disturbing Activities

#### Critical Habitat

#### *Program Impacts Within LOPPs*

Proposed program maintenance activities covered by part of the First Line of Defense Basins (FLOD) project, a LOPP as described in Section 1.2.4.3 of this EIR, would result in direct impacts to 13.2 acres of San Bernardino kangaroo rat critical habitat. These impacts would be significant

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if maintenance activities occur within these areas prior to environmental clearance being obtained for the FLOD project. With implementation of MM-BIO-2, described in Section 4.3, the District shall implement maintenance activities within LOPPs only after all respective permits and environmental clearances have been obtained; therefore, there would be a less than significant impact to critical habitat within LOPPs.

### *Program Impacts Not Within LOPPs*

Ground-disturbing maintenance activities in the Mountain Region would result in permanent and temporary direct impacts to designated critical habitat for the San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher (Table 5-5). Section 7(a) of the ESA requires federal agencies (like the USACE) consult with the USFWS to ensure that actions they authorize do not destroy or adversely modify critical habitat. Any action that results in destruction or adverse modification of critical habitat, regardless of occupation, would be a significant impact. However, the impacts to southwestern willow flycatcher and Santa Ana sucker critical habitat would be temporary and would only affect 2.2 and 1.7 acres, respectively. Further, these species are considered to have low potential to occur within the proposed program area. Therefore, these impacts would not result in destruction or adverse modification of critical habitat, and this impact would be less than significant. The proposed program would result in permanent impacts to 15.4 acres of critical habitat for San Bernardino kangaroo rat. All of these areas were determined to not be suitable for San Bernardino kangaroo rat. Nevertheless, consultation with the USFWS is required and this impact remains potentially significant without mitigation. MM-BIO-1 (Impacts to Critical Habitat), described in Section 4.3 of this report, would reduce potentially significant impacts to less than significant.

**Table 5-5  
Program Ground-Disturbing Activity Direct Impacts  
to Critical Habitat in the Study Area in the Mountain Region**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Temporary or Permanent?
Southwestern willow flycatcher	Bank repair	2.2	Temporary
	<i>Subtotal all direct impacts</i>	2.2	—
San Bernardino kangaroo rat	Fed maintenance layer	2.1	Permanent
	Ingress/egress	0.6	Permanent
	Mechanized land clearing	0.8	Permanent
	Stockpile locations	6.9	Permanent
	Vegetation management	5.0	Temporary
	<i>Subtotal all direct impacts</i>	15.4	—
Santa Ana sucker	Bank repair	1.7	Temporary

Source: USFWS 2017.

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In addition to these proposed program impacts, 13.2 acres of San Bernardino kangaroo rat critical habitat would be directly impacted by the FLOD project that falls within the study area. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained for the FLOD project. With implementation of MM-BIO-2 (Impacts Covered by LOPPs), described in Section 4.3 of this report, the District shall implement maintenance activities within areas covered by other programs only after all respective permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to critical habitat within other programs.

Potential long-term indirect impacts to critical habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, and Santa Ana sucker during ground-disturbing maintenance activities would primarily result from changes in hydrology, downstream erosion, and the introduction of non-native invasive species. The proposed program would actively focus on the removal of invasive species. Therefore, long-term indirect impacts to critical habitat associated with the establishment of invasive species would be less than significant. The Hydrology and Water Quality SOPs of the Maintenance Plan would be implemented; therefore, long-term indirect impacts to critical habitat from changes in hydrology would be less than significant.

Potential short-term indirect impacts to critical habitat from ground-disturbing activities would primarily result from the generation of fugitive dust, increased turbidity downstream, increased human activity, and the introduction of chemical pollutants. Increased human activity could result in temporal loss of habitat near the ground-disturbing activity, temporal loss of nesting sites for southwestern willow flycatcher and bald eagle. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 (see Section 1.2.3, Standard Operating Procedures) would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material shall be allowed to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to critical habitat for San Bernardino kangaroo rat, Santa Ana sucker, and southwestern willow flycatcher would be less than significant.

### **Special-Status Plant Species**

This section identifies impacts to the 30 special-status plant species with a moderate potential to occur. This report does not further analyze the special-status species with low potential to occur

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because the proposed program is not likely to cause significant direct, indirect, or cumulative impacts on them.

Special-status plant species could be directly impacted during ground-disturbance activities associated with implementation of the proposed program. Thirty special-status plants occur or have a moderate potential to occur within the study area within the Mountain Region. Direct impacts could include removal of individual plants, changes in plant substrate, removal of cryptogamic crusts that stabilize the soils, and other changes in the microhabitats that support special-status plants. For purposes of this analysis, all ground-disturbing direct impacts are considered to be permanent impacts to special-status plants. Permanent direct impacts to potentially occurring special-status plant species would be significant absent mitigation. The District implements avoidance and minimization measures for special status plants as described in SOP-BIO-14 (Special-Status Plants Pre-Activity Survey and Avoidance); however, implementation of MM-BIO-3 (Mitigation for Special-Status Plants), described in Section 4.3 of this report, would reduce impacts to special-status plants to less than significant.

Potential long-term indirect impacts to special-status plants during ground-disturbing maintenance activities would primarily result from changes in hydrology from vegetation management and could potentially cause the introduction of non-native species. Changes in hydrology, including changes in water velocity as a result of mechanized land clearing, could potentially result in impacts to special-status plant populations within the proposed program area. Implementation of MM-BIO-3 would reduce impacts to special-status plants to less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. In addition, the SOPs of the Maintenance Plan related to hydrology and water quality would be implemented; therefore, long-term indirect impacts to special-status plant species from changes in hydrology would be less than significant.

Potential short-term indirect impacts to special-status plant species from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, temporary increases in downstream sediment deposition, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area.

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Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

### **Special-Status Wildlife Species**

This section analyzes the impacts to listed special-status wildlife species with low to high potential to occur<sup>11</sup> and to non-listed special-status wildlife species with moderate or high potential to occur. This report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

#### ***Southern Rubber Boa***

Ground-disturbing maintenance activities in the Mountain Region could result in direct impacts to southern rubber boa, a state-threatened species, and its potentially suitable habitat. This impact would be significant because this species is imperiled in the state due to its very restricted range. However, the proposed program includes SOP-BIO-13, which avoids direct impacts to southern rubber boa individuals by conducting maintenance activities between November 1 and April 1, when boas are likely in hibernation and deep in the ground. The District would also restrict vegetation management to manual vegetation management, as described in SOP-BIO-13, within suitable habitat for southern rubber boa. With implementation of SOP-BIO-13, potential short-term direct impacts to southern rubber boa would be less than significant because harm to individuals would be avoided by timing maintenance activities, using hand-crews, and providing educational training to workers about southern rubber boa. In addition, by hand-trimming riparian habitat within Green Valley Creek and Grout Creek, no permanent loss of potential habitat would occur; therefore, permanent direct impacts to southern rubber boa would be less than significant.

The ground-disturbing maintenance activities in the Mountain Region would not result in long-term indirect impacts to southern rubber boa. Potential short-term indirect impacts to southern rubber boa, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing

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<sup>11</sup> It should be noted that Appendix A was used for quantification of suitable habitat for listed species analyzed in the document; however, the program footprint and mitigation approach have been revised since the development of Appendix A. Therefore, the impact analyses and mitigation in this report supersede the impacts and proposed mitigation found in Appendix A.

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maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the maintenance area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to southern rubber boa would be less than significant.

### ***Southwestern Willow Flycatcher***

Ground-disturbing maintenance activities in the Mountain Region may result in direct impacts to southwestern willow flycatcher, a state and federally threatened species. Approximately 0.7 acre with moderate or low suitability for this species would be directly impacted by vegetation management and mechanized land clearing. Despite a low potential for this species to be present, any impact to southwestern willow flycatcher breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. The proposed program includes SOP-BIO-3 (Southwestern Willow Flycatcher), which would avoid direct impacts to individuals of this species and their nests. Additionally, implementation of MM-BIO-8 (Impacts to Southwestern Willow Flycatcher), described in Section 4.3 of this report, which requires consultation with the USFWS prior to implementation of activities within suitable habitat for this species, direct impacts to this species would be less than significant.

The ground-disturbing maintenance activities in the Mountain Region would not result in long-term indirect impacts to southwestern willow flycatcher. Potential short-term indirect impacts to southwestern willow flycatcher, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the maintenance area in the field with a biologist to ensure that maintenance activities do not occur outside the maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material shall be allowed to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to southwestern willow flycatcher would be less than significant.

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## *Bald Eagle*

Ground-disturbing maintenance activities in the Mountain Region are unlikely to result in permanent direct impacts to bald eagles. The one bald eagle nest that has been recorded near Big Bear Lake occurs in Grout Bay and is approximately 2,000 feet south of the proposed program maintenance footprint in Grout Creek. Although bald eagle have a low potential to occur in the maintenance footprint, maintenance activities would not include removal of trees that could be used by this species for nesting or as hunting perches. Therefore, permanent direct impacts to bald eagle would be less than significant.

The ground-disturbing maintenance activities in the Mountain Region would not result in long-term indirect impacts to bald eagle. Potential short-term indirect impacts to bald eagles, if present near the maintenance footprint, would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the maintenance area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District would implement SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material shall be allowed to enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to bald eagle would be less than significant.

## *Non-Listed Special-Status Wildlife Species*

### Nesting Birds

Ground-disturbing activities during the nesting season (generally between January 15 and August 31) could result in direct impacts to non-listed special-status birds with potential to nest in the maintenance footprint, and indirect impacts to special-status birds with potential to nest adjacent to the maintenance footprint. Direct impacts could include injury or mortality of adults and the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between January 15 and August 31). This impact would be significant because substantial direct impacts to individuals of non-listed special-status species would occur during a critical period of these species' life cycles and would result in reduced reproductive success. In addition, direct impacts that cause nest failure would also be a violation of the Migratory Bird Treaty Act and Fish and Game Code. The District implements

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avoidance measures as described in SOP-BIO-5 (Nesting Birds); therefore, potential impacts to nesting birds would be less than significant.

### Western Mastiff Bat and Western Red Bat

While the ground-disturbing activity maintenance footprint could support maternal roosts for western mastiff bat and maternity habitat for western red bat, suitable habitat, such as trees with cavities or a mature canopy, would not be removed. Therefore, potential direct impacts to bats during the maternity season are considered less than significant. Indirect impacts to these species could result from human presence in one area for an extended period of time, operation of heavy equipment and resultant noise near maternity roosts. The proposed program includes implementation of SOP-BIO-7 (Bat Roosts) to avoid the maternity season for bats; therefore, potential impacts to bats would be less than significant.

### Other Special-Status Wildlife

There are a number of non-listed special-status wildlife species that have a moderate or greater potential to occur within the proposed program area, but where impacts are expected to be less than significant due to one or more of the following: maintenance activity may not be removing habitat for that species (such as mature trees with cavities for flying squirrel), maintenance activities may only have impacts on very few individuals and the species is relatively abundant at a regional scale such that maintenance activities do not threaten the continued existence of these species locally or regionally, and some of these species are mobile and can avoid direct harm by moving away from the maintenance activity. Potential adverse impacts are expected to be less than significant for the following non-listed special-status wildlife species: ringtail, large-blotched salamander, California mountain kingsnake, coast patch-nosed snake, Blainville's horned lizard, two-striped gartersnake, and San Bernardino flying squirrel.

Potential short-term indirect impacts to non-nesting special-status wildlife species during implementation of the proposed program, such as noise and vibration, would be brief in duration, and would have minimal potential for adverse effects. Therefore, potential short-term indirect impacts to other special-status wildlife species would be less than significant.

The potential for ground-disturbing activities to result in long-term indirect impacts from altered hydrology is minimal based on the capacity of these systems to scour, erode, and deposit sediments. Therefore, long-term indirect impacts to special-status wildlife species would be less than significant. Some maintenance activities could result in a slight lowering for the potential of catastrophic fire, which is considered to be slightly beneficial to the special-status wildlife species, as most are not reliant on fire for habitat creation.

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## **5.2.3.2 Non-Ground-Disturbing Vegetation Management**

### **Critical Habitat**

Non-ground-disturbing vegetation management in the Mountain Region would likely result in no impact to critical habitat for southwestern willow flycatcher, San Bernardino kangaroo rat, or Santa Ana sucker. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from the additional human presence and vehicle access to the maintenance footprint. These impacts would not constitute destruction or adverse modification of critical habitat.

Similarly, indirect impacts to critical habitat from non-ground-disturbing vegetation management would be minimal, limited to only short-term indirect impacts from vehicle access to the maintenance site and the effects of the additional human presence on the nearby maintenance footprint.

### **Special-Status Plant Species**

Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to special-status plant species.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status plant species. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Potential short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the introduction of chemical pollutants. However, the proposed program includes SOP-BIO-15, which would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field to ensure that maintenance activities remain within the limits. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plants would be less than significant.

### **Special-Status Wildlife Species**

Non-ground-disturbing vegetation management in the Mountain Region would result in no impact to special-status wildlife species. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from additional human presence and vehicle access to

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the maintenance footprint, and implementation of SOPs would ensure no direct harm to individual animals would occur.

Similarly, indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would be minimal, limited to only short-term indirect impacts from vehicle access to the maintenance site and the incremental effects of additional human presence. The potential indirect impacts would be less than significant.

### **5.2.3.3 Non-Ground-Disturbing Activities**

#### **Critical Habitat**

##### ***Impacts within LOPPs***

Proposed program maintenance activities covered by the FLOD project (a LOPP, as described in Section 1.2.4.3 of this report) would result in temporary direct impacts to 1.6 acres of San Bernardino kangaroo rat critical habitat and 2.0 acres of southwestern willow flycatcher critical. The areas impacted do not fall within suitable habitat for either species. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained. With implementation of MM-BIO-1, described in Section 4.3, the District shall implement maintenance activities within areas covered by LOPPs only after all respective permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to critical habitat within LOPPs.

##### ***Impacts not within LOPPs***

Non-ground-disturbing activities in the Mountain Region would result in a small area of temporary direct impacts to designated critical habitat for San Bernardino kangaroo rat (Table 5-6). Section 7(a) of the ESA requires federal agencies (like USACE) to ensure that actions they authorize do not destroy or adversely modify critical habitat, by consulting with USFWS. The minimal level of temporary disturbance associated with these activities would not constitute destruction or adverse modification of critical habitat, and would be a less than significant impact. Nevertheless, consultation with the USFWS is required and this impact remains potentially significant without mitigation. Implementation of MM-BIO-2 (Impacts to Critical Habitat), described in Section 4.3 of this report, would reduce potentially significant impacts to less than significant.

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**Table 5-6  
Program Non-Ground-Disturbing Activity Direct Impacts to Critical Habitat  
in the Study Area in the Mountain Region**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Temporary or Permanent?
San Bernardino kangaroo rat	Herbicide vector control	0.1	Temporary

Source: USFWS 2017.

Potential long-term indirect impacts to critical habitat from herbicide vector control would primarily result from the introduction of non-native invasive species within areas treated with herbicide. However, the proposed program actively focuses on the removal of invasive species; therefore, long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to critical habitat from non-ground-disturbing activities would primarily result from increased human activity, and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. With respect to herbicide overspray, SOP-BIO-19 would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

### Special-Status Plant Species

Special-status plant species could be directly impacted during non-ground-disturbing activities (herbicide vector control) associated with implementation of the proposed program. Thirty special-status plants occur or have a moderate potential to occur within the Mountain Region study area. For purposes of this analysis, both permanent and temporary direct impacts are considered to be permanent. Absent mitigation, permanent direct impacts to potentially occurring special-status plant species would be significant. Implementation of MM-BIO-3, described in Section 4.3, would reduce impacts to special-status plants to less than significant.

Potential short-term indirect impacts to special-status plants from herbicide vector control could result from the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

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Potential short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity, and the potential for herbicide over spray. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. In addition, SOP-BIO-19 would minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

### **Special-Status Wildlife Species**

#### ***Southern Rubber Boa***

Non-ground-disturbing activities under the proposed program would not directly affect southern rubber boa or the species' habitat. Potential habitat within Green Valley Creek and Grout Creek would be hand trimmed rather than chemically treated, minimizing the likelihood of temporary direct or short-term indirect effects in and near the maintenance footprint. Therefore, impacts to southern rubber boa from non-ground-disturbing activities would be less than significant.

#### ***Southwestern Willow Flycatcher***

Non-ground-disturbing activities under the proposed program would not directly impact southwestern willow flycatcher habitat. Potential short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near southwestern willow flycatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, long-term indirect impacts to southwestern willow flycatcher habitat from herbicides would be less than significant.

#### ***Bald Eagle***

Non-ground-disturbing activities under the proposed program would not directly impact bald eagles or occupied bald eagle habitat. Potential short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near bald eagle nests, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift, and long-term indirect impacts to bald eagle habitat from herbicides would be less than significant.

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## *Santa Ana Sucker*

Use of herbicide could result in short-term indirect impacts to downstream Santa Ana sucker. Some herbicides, such as triclopyr, are known to affect the physiology and behavior of fish. Herbicides could enter the water through direct overspray as well as through percolation, runoff, sediment transport, or wind erosion. The proposed program includes SOP-BIO-19, which requires appropriate use of herbicide in aquatic sites; therefore, the potential for impacts to Santa Ana sucker would be minimized. Impacts to Santa Ana sucker from non-ground-disturbing activities would be less than significant.

## *Non-Listed Special-Status Wildlife Species*

Non-ground-disturbing activities under the proposed program would not cause long-term direct impacts to non-listed special-status wildlife species. Potential short-term indirect impacts to these species from non-ground-disturbing activities could result from increased human activity at a site near occupied habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-19 would minimize the risk of herbicide spray drift, and long-term indirect impacts to species habitat from herbicides would be less than significant.

### **5.2.4 Impact BIO-2**

*Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.*

### **Program Impacts Within LOPPs**

As detailed in Table 5-7, proposed program maintenance activities within LOPPs would result in direct impacts to special-status vegetation communities. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), maintenance activities shall not be initiated within LOPP areas until the required permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to special-status vegetation communities within LOPP areas.

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**Table 5-7**  
**Program Ground-Disturbing Activity Impacts to □Special-Status Vegetation**  
**Communities within LOPPs in the Mountain Region**

Program/Plan Name	Generalized Habitat Type	Alliance Land Cover Type (CDFG 2010)	Permanent Impact (Acres)	Temporary Impact (Acres)
First Line of Defense Basins	Coastal scrub	Brittle bush scrub alliance	0.2	—
	Coastal scrub	California sagebrush –California buckwheat scrub alliance	3.7	<0.05
	Riversidean alluvial fan sage scrub	Scale broom scrub alliance	5.8	0.1
<b>Total</b>			<b>9.7</b>	<b>0.1</b>

LOPP = local overlapping permitting process.

### 5.2.4.1 Ground-Disturbing Activities

Table 5-8 quantifies the permanent and temporary direct impacts to special-status vegetation communities that would occur as a result of implementation of ground-disturbing maintenance activities in the Mountain Region. The following ground-disturbing activities were considered to have permanent impacts to special-status vegetation communities as the intent of the activity is to maintain the area free of vegetation or the activity would sufficiently remove the root structure such that natural revegetation is not expected: federal maintenance, ingress/egress, mechanized land clearing, and stockpiles. Vegetation management was considered a permanent impact for vegetation communities that would not reestablish within 3 years (time period between maintenance events). Bank repair was considered a temporary impact as was vegetation management for communities that would reestablish within 3 years. Permanent and temporary impacts that would result from ground-disturbing maintenance are defined and described in more detail below.

**Table 5-8**  
**Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities**  
**not within LOPPs in the Mountain Region**

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Permanent Impact (Acres)	Temporary Impact (Acres)
California bay forests and woodlands	California bay forests and woodlands	0.3	0.1
<i>California bay forests and woodlands subtotal</i>		<i>0.3</i>	<i>0.1</i>
Coastal scrub	Brittle bush scrub alliance	<0.05	<0.05
	California sagebrush–California buckwheat scrub alliance	1.9	0.1
<i>Coastal scrub subtotal</i>		<i>1.9</i>	<i>0.1</i>

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**Table 5-8  
Program Ground-Disturbing Activity Impacts to Special-Status Vegetation Communities  
not within LOPPs in the Mountain Region**

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Permanent Impact (Acres)	Temporary Impact (Acres)
Marsh	Cattail marshes alliance	0.2	—
<i>Marsh subtotal</i>		0.2	—
Oak woodlands and forests	Canyon live oak forest alliance	2.1	0.4
<i>Oak woodlands and forests subtotal</i>		2.1	0.4
Riparian forest and woodland	California sycamore woodlands alliance	2.8	0.1
	Fremont cottonwood forest alliance	0.1	0.1
<i>Riparian forest and woodland subtotal</i>		2.9	0.2
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	0.4	—
<i>Riversidean alluvial fan sage scrub subtotal</i>		0.4	—
<b>Total</b>		<b>7.7</b>	<b>0.8</b>

LOPP = local overlapping permitting process.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Ground-disturbing vegetation management is considered a permanent impact to California bay forests and woodlands, coastal scrub communities, oak woodlands and forest, and riparian forest and woodlands because these vegetation communities are not likely to passively revegetate within 3 years. Thus, ground-disturbing maintenance activities, including mechanized land clearing, ingress/egress roads, federal maintenance, and ground-disturbing vegetation management, would result in permanent direct impacts to the following special-status vegetation alliances: California bay forests and woodlands, brittle bush scrub, California sagebrush–California buckwheat scrub, canyon live oak forest, California sycamore woodlands, Fremont cottonwood, and scale broom scrub. Direct permanent impacts to these vegetation communities would be significant absent mitigation. However, implementation of MM-BIO-11 (Compensation for Special-Status Vegetation Communities in the Mountain Region) shall be required and would mitigate these impacts to less than significant levels.

Ground-disturbing vegetation management is considered a temporary impact for the cattail marsh alliance. The cattail marsh alliance typically passively revegetates within 6 months of vegetation management and can often function as suitable habitat the summer after being removed.

Bank repairs are considered a temporary impact. Direct temporary impacts associated with bank repair involve native soil being placed along facility banks for stabilization. This would result in

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minimal compaction of understory species in woodland communities and potential loss and minimal compaction of shrubs and herbaceous species within the shrub communities.

Bank repairs would result in temporary direct impacts to the following special-status vegetation alliances: California bay forests and woodlands, brittle bush scrub, California sagebrush–California buckwheat scrub, canyon live oak forest, California sycamore woodlands, and Fremont cottonwood.

Accidental maintenance activities outside designated maintenance areas may occur for various reasons. Implementation of SOP-BIO-15 would minimize the potential for temporary direct accidental impacts by designating the vegetation management area in the field to ensure that maintenance activities remain within the designated maintenance area. SOP-BIO-15 would also ensure that maintenance workers are familiar with sensitive resources, including special-status vegetation communities, and necessary avoidance measures. With implementation of this SOP, temporary direct impacts to special-status vegetation communities would be less than significant.

Potential long-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from changes in hydrology which occurs when vegetation is removed. In addition, the introduction of non-native invasive species may occur. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. In addition, the District would implement SOP-HYD-1 through SOP-HYD-4 from the Maintenance Plan so long-term indirect impacts to special-status vegetation communities from changes in hydrology would be less than significant.

Potential short-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District would implement SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material would be allowed to enter into adjacent natural habitat areas. The

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proposed program, with implementation of SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

### **5.2.4.2 Non-Ground-Disturbing Vegetation Management**

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Because these impacts are not expected to substantially change the vegetation community, they are considered temporary.

Non-ground-disturbing vegetation management would not result in permanent direct impacts to special-status vegetation communities.

Because non-ground-disturbing vegetation management activities are limited to activities such as manual pruning, the potential impacts to vegetation communities are considered temporary. Manual pruning and other types of vegetation trimming is not expected to substantially affect special-status vegetation communities because the foliage of the plants pruned would regrow between maintenance activities. Implementation of SOP-BIO-15 would minimize the temporary direct impacts of accidental impacts by designating the vegetation trimming area in the field to ensure that maintenance activities remain within the maintenance area. With implementation of this SOP, temporary direct impacts to special-status vegetation communities from non-ground-disturbing maintenance activities would be less than significant.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status vegetation communities. Vegetation trimming would not substantially affect hydrology over the long-term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Potential short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation management area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas.

### **5.2.4.3 Non-Ground-Disturbing Activities**

Non-ground-disturbing activities, such as fencing and gate repairs, graffiti removal, and stream gage maintenance, are not expected to result in direct or indirect impacts to special-status

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vegetation communities. Sand and gravel operations would occur on disturbed areas and would not result in permanent or temporary direct impacts to special-status vegetation communities. Additionally, herbicide application areas and vector control areas were quantified. Table 5-9 shows the temporary impacts that could result from herbicide application and vector control.

**Table 5-9  
Program Non-Ground-Disturbing Activity Impacts  
to Special-Status Vegetation Communities in the Mountain Region**

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Temporary Impact (Acres)
Coastal scrub	Brittle bush scrub alliance	<0.05
	California sagebrush–California buckwheat scrub alliance	<0.05
<i>Coastal scrub subtotal</i>		<0.05
Oak woodlands and forests	Canyon live oak forest alliance	<0.05
	<i>Oak woodlands and forests subtotal</i>	
Riparian forest and woodland	California sycamore woodlands alliance	<0.05
	<i>Riparian forest and woodland subtotal</i>	
<b>Total</b>		<b>0.1</b>

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Non-ground-disturbing activities would not result in permanent direct impacts to special-status vegetation communities.

Herbicide application would occur in the following special-status vegetation alliances: brittle bush scrub, California sagebrush–California buckwheat scrub, canyon live oak forest, and California sycamore woodlands. Due to the small area of impact, this would be a less than significant impact.

With respect to vector control, introduction of mosquito-larva-eating fish would not affect special-status vegetation communities. All applicable laws, regulations, safety precautions, and label directions would be followed when performing pest control. All pesticide applications would be performed by a contractor with a valid Qualified Applicator License and a valid Pest Control Business License. A licensed Pest Control Adviser would be consulted if specific pest control recommendations are required. Only non-native species would be targeted for treatment. Therefore, temporary direct impacts to special-status vegetation communities from the use of pesticides would be less than significant.

Potential long-term and short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would include improper use of pesticides and herbicide drift. As described previously, all applicable laws, regulations, safety precautions, and label directions

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would be followed when performing pest control. Therefore, potential indirect impacts to special-status vegetation communities from the use of pesticides are less than significant. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, indirect impacts to species habitat from herbicides would be less than significant.

Potential indirect impacts to special-status vegetation communities from sand and gravel operations include increased vehicle traffic, non-native soil introduction, and non-native plant species introduction. Increased traffic would be temporary and of short duration; therefore, this indirect impact would be less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and there would be a less than significant impact with respect to introduction of invasive species. To minimize the potential impact from non-native soil, the District would implement SOP-BIO-16 to ensure that organic material does not enter into adjacent natural habitat areas; therefore, indirect impacts to special-status vegetation would be less than significant.

### **5.2.5 Impact BIO-3**

*Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

A complete analysis of impacts to wetlands and other jurisdictional waters is being completed under separate cover (Dudek 2017). Therefore, this impact will not be addressed in this report.

### **5.2.6 Impact BIO-4**

*Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.*

Maintenance activities would occur within several wildlife corridors in the Mountain Region. These include Mill Creek and several of the foothill canyons also included in the Mountain Region (e.g., City Creek, Waterman Creek, and Twin Creek). However, because maintenance activities would only remove a small portion of the habitat in these facilities, the result of these activities is unlikely to preclude use by dispersing wildlife. Therefore, permanent direct impacts to wildlife corridors and habitat linkages would be less than significant. Temporary direct and short-term indirect impacts to wildlife corridors would occur as a result of human presence, noise, and dust during maintenance

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activities. These impacts would be of low intensity and would occur only once every 3 years; therefore, impacts to wildlife corridors would be less than significant.

### **5.2.7 Impact BIO-5**

*Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

By definition in the San Bernardino County Development Code, Chapter 88.01, Plant Protection and Management, local governmental entities, such as the District, are exempt. Therefore, removal of trees that may otherwise be protected, such as in riparian areas (88.01.080), is not in conflict with the San Bernardino County Development Code and no impact would occur. Nevertheless, as part of their environmentally sensitive practice, the District is avoiding and minimizing impacts as practicable to species covered by the Development Code including oak woodlands and riparian habitat.

### **5.2.8 Impact BIO-6**

*Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.*

There are no approved plans that overlap the Mountain Region; therefore, the proposed program would not conflict with any approved plans in the Mountain Region.

## **5.3 Mitigation**

This section identifies mitigation measures for impacts that were identified as significant.<sup>12</sup>

MM-BIO-1 (Impacts Covered by LOPPs), described in Section 4.3 of this report, is applicable to the Mountain Region as well.

### **5.3.1 Impact BIO-1.1: Critical Habitat**

MM-BIO-2 (Impacts to Critical Habitat), described in Section 4.3 of this report, is applicable to the Mountain Region as well.

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<sup>12</sup> The District coordinates with other water districts and public agencies that have easements for use of District facilities. Program impacts that overlap with impacts from activities related to facility use by other agencies may be mitigated in coordination with those agencies. Additionally, where mitigation for biological resources overlap, mitigation completed by the District will be counted toward each resource such that the District is not mitigating twice for overlapping resources.

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### 5.3.2 Impact BIO-1.2: Special-Status Plants

MM-BIO-3 (Mitigation for Special-Status Plants), described in Section 4.3 of this report, is applicable to the Mountain Region as well.

### 5.3.3 Impact BIO-1.3: Special-Status Wildlife Species

MM-BIO-8 (Impacts to Southwestern Willow Flycatcher), described in Section 4.3 of this report, is applicable to the Mountain Region as well.

### 5.3.4 Impact BIO-2: Vegetation Communities and Land Cover Types

**MM-BIO-11 Compensation for Special-Status Vegetation Communities in the Mountain Region.** Direct impacts to special-status vegetation communities in the Mountain Region shall be mitigated at the ratios included in the following table or as otherwise required in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement, and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) mitigation type (e.g., preservation, creation), (2) location of mitigation, (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated, (4) an implementation plan, (5) maintenance requirements, (6) monitoring requirements, (7) reporting requirements, (8) contingency measures, (9) long-term management, and (10) funding assurances.

#### Proposed Mitigation Ratios and Estimated Acreages for Special-Status Vegetation Communities in the Mountain Region

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Permanent (acres)	Mitigation Ratio	Mitigation (acres)
California bay forests and woodlands	California bay forests and woodlands	0.3	1:1	0.3
<i>California bay forests and woodlands subtotal</i>		<i>0.3</i>	<i>—</i>	<i>0.6</i>
Coastal scrub	Brittle bush scrub alliance	<0.05	1:1	0.05
	California sagebrush–California buckwheat scrub alliance	1.9	1:1	1.9
<i>Coastal scrub subtotal</i>		<i>1.9</i>	<i>—</i>	<i>1.9</i>
Oak woodlands and forests	Canyon live oak forest alliance	2.1	1:1	2.1

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### Proposed Mitigation Ratios and Estimated Acreages for Special-Status Vegetation Communities in the Mountain Region

Generalized Habitat Type (CDFG 2010)	Alliance Land Cover Type (CDFG 2010)	Permanent (acres)	Mitigation Ratio	Mitigation (acres)
<i>Oak woodlands and forests subtotal</i>		2.1	—	2.1
Riparian forest and woodland	California sycamore woodlands alliance	2.8	1:1	2.8
	Fremont cottonwood forest alliance	0.1	1:1	0.1
<i>Riparian forest and woodland subtotal</i>		2.9	—	2.9
Riversidean alluvial fan sage scrub	Scale broom scrub alliance	0.4	1:1	0.4
<i>Riversidean alluvial fan sage scrub subtotal</i>		0.4	—	0.4
<b>Total</b>		<b>7.7</b>	<b>—</b>	<b>7.7</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

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## 6 DESERT REGION: EXISTING CONDITIONS, IMPACTS, AND MITIGATION

The Desert Region is composed of Zone 4 and most of Zone 6 and is the largest of the three geographic regions (see Figure 1-1, Program Area). Maintenance activities occur primarily near the following cities and communities: Pinon Hills, Hesperia, Victorville, Adelanto, Oro Grange, Helendale, Barstow, Apple Valley, Daggett, Yermo, Needles, Twentynine Palms, Joshua Tree, Yucca Valley, Morongo Valley, Argus Searles Valley, and Baker. Appendix D (Maintained Facilities Biological Conditions) lists each maintained facility and the biological resources within each facility, including soils, vegetation communities, and habitat for federally listed and/or state-listed species. This section provides a summary of biological resources within the Desert Region and the potential for impacts to biological resources as a result of implementation of the proposed program.

### 6.1 Existing Conditions

#### 6.1.1 Climate

The Desert Region has hot, dry summers accompanied by mild to cold winters. Rain events, while typically spread out in frequency, are derived from winter frontal storms coming off the Pacific Ocean and intermittent summer convective monsoons. There are three distinct ecoregions within the Desert Region of the County: the Mojave Desert, the Sonoran Desert, and the foothills. The Mojave Desert is situated northwest of the Sonoran Desert and is bounded on the west by the Sierra Nevada, as well as by the San Bernardino, Tehachapi, and San Gabriel Mountain Ranges. The Sonoran Desert is bounded on the west by the Peninsular Ranges and on the east by the Colorado River. A result of these large mountain ranges is the creation of a rain-shadow effect that creates the arid desert climate. Discussed below are the three distinct ecoregions within the Desert.

#### Mojave Desert

The Mojave Desert covers a large portion of San Bernardino County in the central, northern, and eastern portions of the County. Unlike the Sonoran Desert, which experiences two distinct wet seasons, the Mojave Desert traditionally experiences most of its rain during the winter months (Redmond 2009). The valleys within the Mojave Desert typically sees from 2 to 5 inches of annual rain and the mountains typically get between 10 to 30 inches of annual rain (Webb et al. 2009). The Mojave Desert sees some monsoonal rainfall as well, with an average of 1.5 inches annually (TNC 2010). Wet years and periods of drought typically follow the El Niño Southern Oscillation cycle. This cycle includes a variation from predicted sea surface temperatures that results in increased winter precipitation in southern and central California (NOAA 2016).

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## **Sonoran Desert**

The portion of the Sonoran Desert within California is also sometimes referred to as the Colorado Desert and has a lower average elevation than the Mojave Desert; as a result, it is hotter and drier than the Mojave Desert. The majority of the Sonoran Desert is lower than 1,000 feet amsl, the lowest elevation being 275 feet below mean sea level at the Salton Trough (CDFG 2007, Chapter 8). The mountains of the Sonoran Desert are shorter than that of the Mojave Desert, seldom exceeding 3,000 feet amsl (CDFG 2007). As a result of these lower elevations, the Sonoran Desert experiences some snow at the higher elevations during cold winter storms, but rarely has sub-freezing temperatures and frost. There are two distinct wet seasons in this portion of the Desert Region: annual winter rains and North American monsoons during the end of summer and beginning of fall (from July to late September (NOAA 2004)). The temperature and precipitation patterns are typically more consistent in the Sonoran Desert in comparison with the Mojave Desert. July is usually the hottest month, with an average high of 107°F and an average low of 75°F. December and January are typically the coldest months, with an average high of 68°F and an average low of 38°F.

## **Foothills**

The foothills encompass the northern edges of the San Gabriel, San Bernardino, and Western Transverse mountain ranges and are generally composed of chaparral vegetation. The foothills have relatively cool winters and warm summers with winter temperatures ranging from 34°F to 58°F and summer temperatures ranging from 67°F to 96°F. A typical annual precipitation for these areas is about 10 inches of rain and 0.8 inches of snow (WRCC 2011).

### **6.1.2 Soils**

The Desert Region is predominantly composed of sandy gravel. This soil type is characterized by high runoff coefficients and fast percolation. Additionally, various mountain ranges have exposed bedrock and mineral deposits in granite rock. Distinctive geologic types include the formation of major dunes, desert pavement, and dry alkaline lake beds.

Appendix D identifies the soil types mapped at each facility. Soil types that support sensitive biological resources are outlined below.

## **Aeolian Sand Dunes**

Aeolian sand dunes can be found in various portions of the Desert Region, particularly the areas of Barstow, Lenwood, Yermo, and Dagget. This soil type is composed of fine-grained particles loosely stacked and oftentimes blown by wind. This soil type is critical for the Mojave fringe-toed

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lizard, which typically burrows beneath the fine sand. There are also numerous rare plant species whose primary habitat associations consist of sandy dunes.

### **6.1.3 Watersheds**

Watershed specific mapping completed as part of the proposed program identified 10 watersheds within the study area of the Desert Region (see Figure 6-1, Watersheds in the Desert Region).

#### **Yucca Creek**

The Yucca Creek watershed is located at the southern portion of the Desert Region along the San Bernardino and Riverside County border. This watershed spans from Yucca Valley to the west to Twentynine Palms to the east. The two main waterbodies are Yucca Creek and Mesquite Creek. Yucca Creek joins Coyote Creek before flowing into Coyote Lake, a dry lakebed. Yucca Creek is fed by numerous maintained facilities, including Joshua Tree Wash, Burnt Mountain Wash, Old Woman Springs Creek, and Hospital Channel, High School Channel, Church Street Channel, Long Canyon Channel, and Quail Wash. Mesquite Creek originates as runoff from Cooper Mountain and is joined by numerous maintained tributaries stemming from the San Bernardino Mountains before depositing in Mesquite Lake, a dry lakebed. This watershed originates within the Little San Bernardino Mountains in Joshua Tree National Park, including Quail Mountain and Eureka Peak. Furthermore unnamed stream channels flowing from the Sawtooth Mountains to the northwest contribute to this watershed. Mesquite Creek does not have any District-maintained facilities.

#### **Little Morongo Creek**

The Little Morongo Creek watershed is adjacent to the west of the Yucca Creek watershed in the southern portion of the Desert Region, north of Morongo Valley, east of the San Bernardino Mountains, and west of Yucca Valley. The main water body is Little Morongo Creek, flowing from Little Morongo Canyon within the San Gorgonio Mountains southeast past Highway 62.

#### **Lucerne Storm Drain**

The Lucerne Storm Drain watershed is in the southeast portion of the Desert Region, south of Apple Valley. It collects flows from within the northern San Bernardino Mountains and funnels them north through numerous tributaries toward Lucerne Valley. These tributaries flow through several maintained channels in Lucerne Valley before depositing in Lucerne Lake, a dry lakebed.

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## Upper Mojave

The Upper Mojave watershed is located within the northern San Bernardino Mountains and along the southern border of the Desert Region at the higher elevation ranges of the Mojave Desert. The Granite Mountains and Sidewinder Mountains form the eastern border to this watershed, with its dominant hydrologic features being the Mojave River and its primary tributary in the Mountain Region, Deep Creek. The Mojave River is an intermittent river with most of its water flow occurring underground; however, it does typically flow aboveground in the City of Victorville. Maintained tributaries to the Mojave River include Antelope Creek, Desert Knolls Wash, and Oro Grande Wash.

## Middle Mojave

The Middle Mojave watershed is located along the western edge of the Desert Region, extending from the community of Helendale in the north to the San Bernardino Mountains in the south. The Mojave River is the dominant hydrologic feature of this watershed, beginning in the San Bernardino Mountains and terminating at Soda Dry Lake to the northeast. Numerous maintained tributaries feed this feature, including Fremont Wash and Buckthorn Wash. Another prominent hydrologic feature within this watershed is the California Aqueduct, which runs west to east along the southern end of the watershed. Horse Canyon, which conveys flows from the San Bernardino Mountains north through the community of Phelan, is the primary maintained feature feeding the California Aqueduct.

## Lower Mojave

The Lower Mojave watershed is located within the lower elevation ranges of the Mojave Desert, extending from Iron Mountain in the west to the town of Yermo in the east. The Mojave River is the primary geographic and hydraulic feature of the Mojave Watershed. The Mojave River is an intermittent river, with most of the water flow occurring underground. The river's source starts within the San Bernardino Mountains and terminates at Soda Dry Lake. Maintained tributaries to the Mojave River within this watershed include Lenwood Channel, Waterman Road Channel, Southwest Barstow Channel, Yermo Flood Channel, and Daggett Channel.

## Mojave–Baker

The Mojave–Baker watershed is located within and surrounding the City of Baker and Halloran Springs. This watershed originates within Otto and Turquoise Mountains and flows into Soda Dry Lake and continues north along Death Valley Road within Salt Creek. The main water body for this watershed is Soda Dry Lake, a dry lakebed that is the final destination of the Mojave River. The Mojave River and its associated levees within Baker are the only maintained facilities within

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this watershed. Major maintained tributaries to this feature within this watershed include East Baker Channel and Baker Levee.

### **Needles–Sacramento Wash**

The Needles–Sacramento Wash watershed is located at the northeastern boundary of the Desert Region, with the Colorado River forming the eastern border. This watershed captures flows from the New York Mountains and ends at the California and Arizona border in Needles, California, flowing into the Colorado River. The main waterbody for this watershed is the Needles–Sacramento Wash, which captures flows from the southern side of the Piute Mountains and feeds them east toward Highway 95. Another major feature of this watershed is Piute Wash, which originates from the northern side of the Piute Mountains and travels south to merge with the Needles–Sacramento Wash. Neither of these features supports District-maintained facilities. Maintained features within this watershed include Eagle Pass Levee, Needles Flood Channel, Needles Riverview Levee, and the S Street Channel Inlet Levee. .

### **Sheep Creek**

The Sheep Creek watershed is located between the communities of Pinyon Hills and Phelan. The major water body for this watershed is Sheep Creek, which flows south to north along the southwestern section of the Desert Region and near the western border of San Bernardino County. It is an intermittent creek originating at Wright Mountain and terminating at El Mirage Dry Lake.

### **Trona**

The Trona watershed is located in the northwestern corner of the Desert Region of San Bernardino County and flows into Searles Valley. Multiple maintained tributaries from the Argus Range directly adjacent to the west of Searles valley flow east into Borax Flat–Searles Lake. These tributaries include Cemetery Channel, Trona Flood Channel, Borosolvay Channel, and South Trona Channel.

#### **6.1.4 Topography and Geomorphology**

The Desert Region is characterized by shorter remote mountain ranges surrounded by desert plains. These mountains ranges often have alluvial fans associated with them; these are fan-shaped aprons of sediment wrapping the base of mountains. These landforms originate from flashflood debris and stream sediment accretion (Harden 2004). When an alluvial fan becomes larger and the paths become more integrated, it is referred to as a bajada. Other significant landforms within the desert include mountains, plateaus, basins, playas, and dunes. The space between the mountainous areas is often characterized by playas and basins, which form dry lakes.

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The majority of the Desert Region ranges from 1,000 to 5,000 feet amsl, with some areas falling below 1,000 feet amsl within valleys and washes.

The Desert Region is bounded on the south by the San Bernardino and San Gabriel Mountain Ranges. The foothills on the northern side level off quickly, with the southern part of the desert lying relatively flat with elevations around 1,000 feet and scattered low-elevation mountains ranging between 2,000 and 4,000 feet amsl.

The flattest parts of the Desert Region include the Chemehuevi, Ward, and Fenner Valleys at the eastern part of the County next to the Colorado River, as well as the Chadiz Valley northeast of Twentynine Palms. The highest areas of the Desert Region include Granite Peak, which is west of Lucerne Valley and measures 6,130 feet amsl, while Clark Mountain in the Mojave National Preserve measures 7,929 feet amsl.

### 6.1.5 Vegetation Communities/Land Cover Types

Table 6-1 provides a summary of acreages for each vegetation community and land cover identified and an asterisk (\*) denotes the special-status vegetation communities. Figures 6-2A through 6-2L depict the distribution of general habitat types within the study area in the Desert Region. Descriptions of the vegetation communities and land covers are provided in Table 6-1. Disturbed forms of these communities consist of the dominant native species to which the community was mapped, but have a non-native cover of 20% to 50% and/or have been disturbed by anthropogenic causes; therefore, disturbed forms are not described separately.

**Table 6-1  
Vegetation Communities and Land Cover Types within the Desert Region**

Generalized Habitat Type ( <i>Macrogroup</i> ) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
Chenopod scrub <i>(Cool semi-desert alkali-saline flats, Mojavean-Sonoran desert scrub, and warm semi-desert/Mediterranean alkali-saline wetland)</i>	Allscale scrub alliance	312.1
	Disturbed allscale scrub alliance	37.0
	Disturbed fourwing saltbush scrub alliance	40.0
	Fourwing saltbush scrub alliance	529.6
	Quailbush scrub alliance	0.8
	Shadscale scrub alliance	2.2
<i>Chenopod scrub subtotal</i>		921.6

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**Table 6-1  
Vegetation Communities and Land Cover Types within the Desert Region**

Generalized Habitat Type ( <i>Macrogroup</i> ) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
Desert dry wash woodland ( <i>Madrean warm semi-desert wash woodland/scrub</i> )	Desert willow woodland alliance*	21.6
	Disturbed smoke tree woodland alliance*	17.6
	Mesquite bosque, mesquite thicket alliance*	10.1
	Smoke tree woodland alliance*	0.0
<i>Desert dry wash woodland subtotal</i>		49.3
Desert dunes ( <i>North American warm semi-desert cliff, scree, and other rock vegetation</i> )	Desert panic grass patches*	79.2
	North American warm desert dunes and sand flats*	5.6
<i>Desert dunes subtotal</i>		84.8
Desert sink scrub ( <i>Warm semi-desert/Mediterranean alkali-saline wetland</i> )	Bush seepweed scrub alliance*	5.3
<i>Desert sink scrub subtotal</i>		5.3
Grassland ( <i>California annual and perennial grassland</i> )	Non-native grasslands	31.4
<i>Grassland subtotal</i>		31.4
Great Basin scrub ( <i>Cool semi-desert wash and disturbance scrub</i> )	Disturbed rubber rabbitbrush scrub alliance	0.6
	Rubber rabbitbrush scrub alliance	254.7
<i>Great Basin scrub subtotal</i>		255.3
Joshua tree woodland ( <i>Mojavean-Sonoran desert scrub</i> )	Disturbed Joshua tree woodland*	1.8
	Joshua tree woodland*	11.4
<i>Joshua tree woodland subtotal</i>		13.2
Juniper woodlands ( <i>California forest and woodland</i> )	California juniper woodland alliance	3.5
	Disturbed California juniper woodland alliance	0.2
<i>Juniper woodlands subtotal</i>		3.8
Marsh ( <i>Western North American freshwater marsh</i> )	Cattail marshes alliance*	1.4
<i>Marsh subtotal</i>		1.4
Open water	Open water	0.0
<i>Open water subtotal</i>		0.0

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**Table 6-1  
Vegetation Communities and Land Cover Types within the Desert Region**

Generalized Habitat Type ( <i>Macrogroup</i> ) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
Riparian forest and woodland ( <i>Southwestern North American riparian, flooded and swamp forest</i> )	Fremont cottonwood forest alliance*	223.6
	Red willow thickets alliance*	19.3
	Sandbar willow thickets alliance	34.9
<i>Riparian forest and woodland subtotal</i>		<i>277.8</i>
Riparian scrub ( <i>Southwestern North American riparian, flooded and swamp forest</i> )	Mulefat thickets alliance	46.1
	Tamarisk thickets semi-natural stands	1658.3
<i>Riparian scrub subtotal</i>		<i>1704.4</i>
Sonoran and Mojavean desert scrub ( <i>Mojavean–Sonoran desert scrub and Madrean warm semi-desert wash woodland/scrub</i> )	California joint fir scrub alliance*	8.2
	Catclaw acacia thorn scrub alliance	60.2
	Cheesebush scrub alliance	0.2
	Creosote bush scrub alliance	99.9
	Creosote bush–white burr sage scrub alliance	217.7
	Disturbed catclaw acacia thorn scrub alliance	2.8
	Disturbed creosote bush scrub alliance	92.4
	Disturbed creosote bush–white burr sage scrub alliance	3.7
	Disturbed Mojave yucca scrub alliance*	1.1
	Mojave yucca scrub alliance*	3.8
	Parish's goldeneye scrub alliance	0.1
	Scale broom scrub alliance*	95.8
<i>Sonoran and Mojavean desert scrub subtotal</i>		<i>585.8</i>
Waterway	Concrete channel	7.6
	Dry lake bed	0.2
	Unvegetated channel	563.8
	Unvegetated wash	4075.1
<i>Waterway subtotal</i>		<i>4646.7</i>

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**Table 6-1  
Vegetation Communities and Land Cover Types within the Desert Region**

Generalized Habitat Type ( <i>Macrogroup</i> ) (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Total Acres in Desert Region
Non-natural land covers	Deciduous orchard, vineyard	0.4
	Disturbed land	371.9
	Irrigated row and field crops	5.2
	Ornamental plantings	0.0
	Ruderal	0.0
	Urban	115.6
<i>Non-natural land covers subtotal</i>		493.2
<b>Total</b>		<b>9074.1</b>

As discussed in Chapter 3, Methods, of this report, there are limitations to vegetation community mapping on a programmatic level and the communities listed and acreages provided herein represent a best estimation of existing conditions. There may be special-status communities present not captured on this table or acreages may vary from existing conditions.

\* Denotes a special-status plant community. Due to the limitations of the vegetation mapping, there may be special status vegetation communities that were not captured on this table or acreages may vary from existing conditions. As described in the Maintenance Plan, special-status communities will be mapped prior to maintenance activities. Impacts and mitigation for special-status communities will be based on actual conditions at time of maintenance.

### 6.1.5.1 *Chenopod Scrub*

Within the study area, the following alliances, including disturbed forms, are in the cool semi-desert alkali-saline flats macrogroup: the fourwing saltbush scrub and shadscale scrub alliances. The allscale scrub alliance is within the Mojavean-Sonoran desert scrub macrogroup and the quailbush scrub alliance is within the warm semi-desert/mediterranean alkali-saline wetland macrogroup. None of these alliances are considered special-status under CEQA (CDFG 2010). Each of these alliances is described below.

#### **Allscale Scrub Alliance**

The allscale scrub (*Atriplex polycarpa*) alliance includes allscale (also known as cattle saltbush) as the sole or dominant shrub in the canopy. Allscale scrub has a continuous or open shrub canopy less than 3 meters (10 feet) in height with a variable ground layer (Sawyer et al. 2009). This alliance often occurs on dissected alluvial fans and rolling hills as well as washes, playa lake beds and shores, terraces, and edges of large, low-gradient washes. Soils may be carbonate-rich and sandy, alkaline, or sandy clay loams (Sawyer et al. 2009).

Species associated with the allscale scrub alliance include white bursage, fourwing saltbush (*Atriplex canescens*), smallseed sandmat (*Euphorbia polycarpa*), bladderpod spiderflower (*Peritoma arborea*), alkali goldenbush (*Isocoma acradenia*), and creosote bush (*Larrea tridentata*). Emergent mesquite (*Prosopis glandulosa*) may also be present at a low cover (Sawyer et al. 2009).

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## Fourwing Saltbush Scrub Alliance

The fourwing saltbush scrub (*Atriplex canescens*) alliance includes fourwing saltbush as the dominant or co-dominant shrub in the canopy. Fourwing saltbush scrub has an intermittent or open shrub canopy less than 3 meters (10 feet) in height with a variable ground layer with seasonal herbs and non-native grasses (Sawyer et al. 2009). This alliance often occurs on old beaches or shores, along lake deposits, playas, dissected alluvial fans, and rolling hills that contain carbonate rich, alkaline, sandy or sandy clay loam soils (Sawyer et al. 2009).

Species associated with the fourwing saltbush scrub alliance include white bursage, shadscale (*Atriplex confertifolia*), cattle saltbush, yellow rabbitbrush (*Chrysothamnus viscidiflorus*), bladderpod spiderflower, Mormon tea (*Ephedra viridis*), spiny hopsage (*Grayia spinosa*), creosote bush, and bush seepweed (*Suaeda nigra*). Emergent honey mesquite (*Prosopis glandulosa*) may also be present. (Sawyer et al. 2009).

## Quailbush Scrub Alliance

The quailbush scrub (*Atriplex lentiformis*) alliance includes quailbush (also referred to as big saltbush) as the sole or dominant shrub in the canopy. Quailbush scrub has an intermittent or open shrub canopy less than 5 meters (16 feet) in height with a variable ground layer (Sawyer et al. 2009). This alliance often occurs on gentle to steep slopes, wetlands, washes and alkali sinks and flats that contain alkaline or saline clay soils (Sawyer et al. 2009).

Species associated with the quailbush scrub alliance include California sagebrush, fourwing saltbush, coyote brush, mulefat, California brittle bush, green molly (*Kochia americana*), laurel sumac, myoporum (*Myoporum laetum*), arrowweed (*Pluchea sericea*), honey mesquite, lemonade sumac, alkali sacaton (*Sporobolus airoides*), and woolly seablite (*Suaeda taxifolia*).

## Shadscale Scrub Alliance

The shadscale scrub (*Atriplex confertifolia*) alliance includes shadscale as the dominant or co-dominant shrub in the canopy. Shadscale scrub has an open to continuous shrub canopy less than 1 meter (3 feet) in height with a sparse to abundant ground layer (Sawyer et al. 2009). This alliance often occurs on rocky hills, lower slopes, valleys, minor rills, washes, bajadas, flats, and edges of playas that contain variable soils such as carbonate rich, clay rich, or high sand content soils that may be covered with desert pavement (Sawyer et al. 2009).

Species associated with the shadscale scrub alliance include white bursage, cattle saltbush, yellow rabbitbrush, Virgin River brittle bush (*Encelia virginensis*), blackbrush (*Coleogyne ramosissima*), Nevada jointfir (*Ephedra nevadensis*), Heermann's buckwheat (*Eriogonum heermannii*), spiny

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hopsage, threadleaf snakeweed (*Gutierrezia microcephala*), winterfat (*Krascheninnikovia lanata*), creosote bush, water jacket (*Lycium andersonii*), Bailey's greasewood, and longspine horsebrush (*Tetradymia axillaris*) (Sawyer et al. 2009).

### **6.1.5.2 Desert Dry Wash Woodland**

The desert willow woodland alliance, mesquite bosque, mesquite thicket alliance, and smoke tree woodland alliance are in the Madrean warm semi-desert wash woodland/scrub macrogroup and all are considered special status under CEQA (CDFG 2010).

#### **Desert Willow Woodland Alliance**

The desert willow woodland (*Chilopsis linearis*) alliance includes desert willow as the dominant or co-dominant shrub or tree in the canopy. Desert willow woodland has a two-tiered open to intermittent canopy less than 6 meters (20 feet) in height and a sparse ground layer in which annuals are seasonally present (Sawyer et al. 2009). This alliance occurs on intermittent channels, washes, canyon bottoms, arroyos, and along wash terraces and floodplains. This alliance occurs where flooding is infrequent, but where subterranean water is available and contains soils that are well-drained sands and gravels (Sawyer et al. 2009).

Tree species associated with the desert willow woodland alliance include ironwood (*Olneya tesota*), honey mesquite, smoke tree (*Psoralea argemone*), and Joshua tree. Shrubs associated with this alliance include white bursage, sweetbush (*Bebbia juncea*), buckthorn cholla (*Cylindropuntia acanthocarpa*), Virgin River brittle bush, California jointfir, black-stem (*Ericameria paniculata*), California buckwheat, desert lavender (*Hyptis emoryi*), creosote bush, scale broom, Thurber's sandpaper plant (*Petalonyx thurberi*), threadleaf ragwort (*Senecio flaccidus*), and Mohave yucca (Sawyer et al. 2009; Thomas et al. 2004).

#### **Mesquite Bosque, Mesquite Thicket Alliance**

The mesquite bosque, mesquite thicket (*Prosopis glandulosa*) alliance includes honey mesquite as the dominant or co-dominant species in the low tree canopy. The mesquite bosque, mesquite thicket alliance has an open to continuous canopy less than 10 meters (33 feet) in height (Sawyer et al. 2009). This alliance often occurs on fringes of playa lakes, stream banks, floodplains, and river terraces and rarely on flooded margins of arroyos and washes, sand dunes (Sawyer et al. 2009).

Species associated with the honey mesquite scrub alliance include willows (*Salix exigua*, *S. lasiolepis*), blue elderberry, iodinebush, white bursage, fourwing saltbush, allscale, sweetbush, Thurber's sandpaper plant, arrowweed, sugarbush, or bush seepweed (Sawyer et al. 2009).

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## Smoke Tree Woodland Alliance

The smoke tree woodland alliance (*Psorothamnus spinosus*) includes smoke tree as the dominant or co-dominant tree or tall shrub in the canopy. Smoke tree woodland has an open to intermittent tree canopy less than 8 meters (26 feet) in height, an open to intermittent shrub canopy, and a generally sparse ground layer in which annuals are seasonally abundant (Sawyer et al. 2009). This alliance occurs on intermittently flooded channels, washes, and arroyos that contain sandy and well drained, moderately acidic or slightly saline soils (Sawyer et al. 2009).

Species associated with the smoke tree woodland alliance include blue paloverde (*Parkinsonia florida*), desert willow, and ironwood in the tree canopy. Shrubs associated with this alliance include catclaw acacia (*Senegalia greggii*), white bursage, sweetbush, desert lavender, creosote bush, brittlebush, Emory's baccharis (*Baccharis emoryi*), Thurber's sandpaper plant, rabbitbrush (*Chrysothamnus* spp.), California jointfir, and brownplume wire-lettuce (*Stephanomeria pauciflora*) (Sawyer et al. 2009).

### 6.1.5.3 Desert Dunes

Desert panic grass patches and North American warm desert dunes and sand flats are within the North American warm semi-desert cliff, scree, and other rock vegetation macrogroup and both are considered special status under CEQA (CDFG 2010).

#### Desert Panic Grass Patches

The desert panic grass patches (*Panicum urvilleanum*) alliance includes desert panic grass as the dominant or co-dominant herb. Desert panic grass patches scrub has a sparse to open herb layer, with the total cover usually less than 10% (Sawyer et al. 2009). This alliance often occurs on active to partially stabilized dunes and sand fields within the Mojave and Sonoran Deserts (Sawyer et al. 2009).

Species associated with the desert panic grass patches alliance include Indian ricegrass (*Stipa hymenoides*), desert twinbugs (*Dicoria canescens*), common sunflower (*Helianthus annuus*), birdcage evening primrose (*Oenothera deltoides*), and Thurber's sandpaper plant (Sawyer et al. 2009).

#### North American Warm Desert Dunes and Sand Flats

The North American warm desert dunes and sand flats vegetation group was not mapped to the alliance level. The following alliances are in the North American warm desert dunes and sand flats group: desert dunes (*Dicoria canescens*–*Abronia villosa*), desert panic grass patches, and patches of Eureka Valley dune grass (*Swallenia alexandrae*). This group is characterized by sand flats, open dunes, or

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dune aprons with a very open to sparse herbaceous layer with less than 10% cover (VegCAMP et al. 2013). In years with above average precipitation, annual blooms may be higher than 10%.

### 6.1.5.4 Desert Sink Scrub

The bush seepweed scrub alliance is in the warm semi-desert/mediterranean alkali–saline wetland macrogroup and is considered special status under CEQA (CDFG 2010).

#### Bush Seepweed Scrub Alliance

The bush seepweed scrub (*Suaeda nigra*) alliance includes bush seepweed (also referred to as Mojave seablite) as the dominant or co-dominant shrub in the canopy. Bush seepweed scrub has a continuous or open shrub canopy less than 1.5 meters (5 feet) in height with a sparse to intermittent ground layer (Sawyer et al. 2009). This alliance often occurs on gently sloping to flat valley bottoms, toe slopes adjacent to alluvial fans, bajadas and playas that contain deep saline or alkaline soils (Sawyer et al. 2009).

Species associated with the bush seepweed scrub alliance include iodinebush (*Allenrolfea occidentalis*), cattle saltbush, fourwing saltbush, alkali seaheath (*Frankenia salina*), rusty molly (*Kochia californica*), Bailey’s greasewood (*Sarcobatus baileyi*), and alkali sacaton.

### 6.1.5.5 Grasslands

Non-native grasslands are in the California annual and perennial grassland macrogroup and were mapped within the Desert Region. Non-native grasslands are not considered special status under CEQA (CDFG 2010) and are described in more detail in this section below.

#### Non-Native Grassland

Non-native grasslands were mapped to the general habitat type because the CDFW does not consider any of the semi-natural stands<sup>13</sup> special-status biological resources under CEQA (CDFG 2010). Non-native grassland has a sparse to dense cover of annual grasses that is typically 0.2 meters (0.7 feet) to 0.5 meters (1.6 feet) tall and can be up to 1 meter (3 feet) tall.

Grasses that occur in non-native grassland include oats, brome, fescue, and Italian ryegrass. Forbs that occur with these grasses include California poppy, stork’s bill, goldfields, phacelias, gilies, and baby blue eyes (Holland 1986). Non-native grassland also includes land that is used as pasture

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<sup>13</sup> Semi-natural stands are invasive naturalized plant groups where “plants are sufficiently dominant to have replaced most of the natives, and, in many situations, the associates are themselves non-native species” (Sawyer et al. 2009).

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for grazing purposes. Grasses such as barley (*Hordeum* spp.) and wild oats may grow in these areas. This grassland has very few native species.

### **6.1.5.6 Great Basin Scrub**

The Rubber rabbitbrush scrub alliance is in the cool semi-desert wash and disturbance scrub macrogroup and is not considered a special-status vegetation community under CEQA (CDFG 2010).

#### **Rubber Rabbitbrush Scrub Alliance**

The rubber rabbitbrush scrub (*Ericameria nauseosa*) alliance includes rubber rabbitbrush as the sole or dominant shrub in the canopy. Rubber rabbitbrush scrub has a continuous or open shrub canopy less than 3 meters (10 feet) in height with a sparse or grassy ground layer (Sawyer et al. 2009). Rubber rabbitbrush scrub occurs in all topographic settings with well-drained, sandy, and gravelly soil (Thomas et al. 2004).

Species associated with the rubber rabbitbrush scrub alliance include big sagebrush, yellow rabbitbrush, ephedra (*Ephedra* sp.), California buckwheat, California juniper, and antelope bitterbrush. Emergent pines (*Pinus* sp.) and junipers (*Juniperus* sp.) may also be present at a low cover (Sawyer et al. 2009).

### **6.1.5.7 Joshua Tree Woodland**

The Joshua tree woodland alliance is in the Mojavean–Sonoran desert scrub macrogroup and is considered a special-status vegetation community under CEQA (CDFG 2010).

#### **Joshua Tree Woodland Alliance**

The Joshua tree woodland alliance (*Yucca brevifolia* alliance) includes Joshua tree as the emergent small tree over a shrub or grass within the canopy. Joshua tree woodland alliance has an open to intermittent tree canopy less than 14 meters (46 feet) in height with an open to intermittent ground layer that may include perennial grasses and seasonal annuals (Sawyer et al. 2009). This alliance often occurs on ridges, gently moderate slopes, and alluvial fans on coarse sands, fine silts, gravel, or sandy loam soils (Sawyer et al. 2009).

Species associated with the Joshua tree woodland alliance include white bursage, big sagebrush, yellow rabbitbrush, blackbrush, buckthorn cholla, Nevada jointfir, California buckwheat, threadleaf snakeweed, winterfat, creosote bush, water jacket, and Mojave yucca. Emergent trees including California juniper, Utah juniper, or singleleaf pinyon may be present at a low cover (Sawyer et al. 2009).

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### **6.1.5.8 Juniper Woodlands**

The juniper woodland alliance is in the California forest and woodland macrogroup and is not considered a special-status vegetation community under CEQA (CDFG 2010).

#### **California Juniper Woodland Alliance**

The California juniper woodland alliance (*Juniperus californica* alliance) includes California juniper as the dominant or co-dominant small tree in the canopy. California juniper woodland has an open to intermittent canopy less than 5 meters (16 feet) in height with a sparse or grassy ground layer (Sawyer et al. 2009). This alliance occurs on alluvial fans, valley bottoms, slopes, ridges and valleys that contain porous, rocky, coarse, sandy or silty soils that are often shallow (Sawyer et al. 2009).

Species associated with the California juniper woodland alliance include singleleaf pinyon, parry pinyon (*Pinus quadrifolia*), blue oak (*Quercus douglasii*), and Joshua tree (*Yucca brevifolia*). Shrubs include desert agave (*Agave deserti*), big sagebrush, blackbrush, ephedra, chaparral yucca, scale broom, Parry's beargrass (*Nolina parryi*), Stansbury cliffrose (*Purshia stansburyana*), Muller oak (*Quercus cornelius-mulleri*), and Mojave yucca (*Yucca schidigera*) (Sawyer et al. 2009).

### **6.1.5.9 Marsh**

The cattail marsh alliance is within the Western North American freshwater marsh macrogroup and was mapped in the Valley Region. The cattail marsh alliance is not a CDFW-designated special-status community; however, wetland communities are typically afforded protection under CEQA and the Clean Water Act. This alliance is described in more detail in this section.

#### **Cattail Marshes Alliance**

The cattail marshes alliance (*Typha* spp. alliance) includes cattail species (*Typha* spp.) as the dominant or co-dominant herb in the herbaceous layer. Cattail marshes alliance has an intermittent to continuous canopy less than 1.5 meters (5 feet) in height (Sawyer et al. 2009). This alliance occurs on semi-permanently flooded freshwater or brackish marshes that contain clayey or silty soils (Sawyer et al. 2009).

Species associated with the cattail marshes alliance include creeping bentgrass, flatsedge, salt grass, barnyard grass, pale spike rush, giant horsetail, rushes, least duckweed, perennial pepper weed, water-parsley, smartweed, dotted smartweed, common reed, American bulrush, California bulrush, and cocklebur (Sawyer et al. 2009).

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### **6.1.5.10 Open Water**

The open water mapping unit is not recognized by the Natural Communities List (CDFG 2010) but is described by Jones & Stokes (1993). Open water consists of standing water with no emergent vegetation. Open water is not considered a riparian habitat because it lacks hydrophytic vegetation.

### **6.1.5.11 Riparian Forest and Woodland**

The riparian forest and woodland alliances are in the Southwestern North American riparian, flooded and swamp forest macrogroup. The Fremont cottonwood forest and red willow thickets alliances are considered special-status vegetation communities under CEQA (CDFG 2010).

#### **Fremont Cottonwood Forest Alliance**

The Fremont cottonwood forest alliance (*Populus fremontii*) includes Fremont cottonwood as the dominant or co-dominant tree in the canopy. Fremont cottonwood forest alliance has a continuous to open canopy cover less than 25 meters (82 feet) in height, intermittent to open shrub layer, and variable herbaceous layer (Sawyer et al. 2009). This alliance occurs along low-gradient rivers, floodplains, perennial or seasonally intermittent streams, lower canyon of the desert mountains, alluvial fans, springs, and valleys with a dependable surface water supply (Sawyer et al. 2009).

Species associated with the Fremont cottonwood forest alliance include box-elder, Oregon ash, Northern California black walnut and hybrids, California sycamore, California live oak, narrowleaf willow, black willow, red willow, arroyo willow, shining willow, and yellow willow (Sawyer et al. 2009).

#### **Red Willow Thickets Alliance**

The red willow thickets (*Salix laevigata*) alliance includes red willow as the dominant or co-dominant tree in the tree canopy. The red willow thickets alliance has an open to continuous tree canopy cover less than 20 meters (66 feet) in height, open to intermittent cover in the shrub layer, and variable herbaceous layer. Red willow thickets communities are found in ditches, floodplains, lake edges, and low-gradient deposits along streams (Sawyer et al. 2009).

Species associated within the red willow thickets alliance include box-elder, California buckeye, white alder, incense cedar, Jeffrey pine, ghost pine, California sycamore, Fremont cottonwood, California live oak, canyon live oak, black willow, arroyo willow, Pacific willow, and blue elderberry (Sawyer et al. 2009).

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## **Sandbar Willow Thickets Alliance**

The sandbar willow thickets (*Salix exigua*) alliance, also referred to as narrowleaf willow, includes narrowleaf willow as the dominant or co-dominant shrub in the canopy. The sandbar willow thickets alliance has an intermittent to continuous shrub canopy cover with shrubs less than 7 meters (23 feet) in height with a variable ground layer (Sawyer et al. 2009). The alliance occurs in temporarily flooded floodplains, deposits along rivers and streams, and at springs (Sawyer et al. 2009).

Species associated with the sandbar willow thickets alliance include baccharis (*Baccharis* spp.), California brickellbush (*Brickellia californica*), California wildrose (*Rosa californica*), Himalayan blackberry, California blackberry (*Rubus ursinus*), arroyo willow, and dusky willow (*Salix melanopsis*). Emergent trees of many different species may be present at low cover (Sawyer et al. 2009).

### **6.1.5.12 Riparian Scrub**

Both the mulefat thickets and tamarisk thickets alliance are in the Southwestern North American riparian, flooded and swamp forest macrogroup. Neither of these alliances is considered a special-status vegetation community.

## **Mulefat Thickets Alliance**

The mulefat thickets alliance includes mulefat as the dominant or co-dominant shrub in the canopy. Mulefat thickets have a continuous shrub canopy with the first tier less than 2 meters (7 feet) in height and the second tier less than 5 meters (16 feet) in height with a sparse ground layer (Sawyer et al. 2009). The mulefat thickets alliance occurs in canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels on mixed alluvium soils (Sawyer et al. 2009).

Species associated with the mulefat thickets alliance include willows (*Salix* spp.), California sagebrush, coyote brush, tree tobacco (*Nicotiana glauca*), arrowweed, and laurel sumac. Emergent sycamore, Fremont cottonwood, oaks (*Quercus* spp.), and willows may be present (Sawyer et al. 2009).

## **Tamarisk Thickets Semi-Natural Stands**

The tamarisk thickets (*Tamarix* spp.) semi-natural stands includes various tamarisk species as the dominate shrub in the shrub canopy. The tamarisk thickets semi-natural stand has a continuous to open shrub canopy cover less than 8 meters (26 feet) in height and a sparse herbaceous layer. Tamarisk thickets semi-natural stands are found on arroyo margins, lake margins, ditches, washes, rivers, and other watercourses (Sawyer et al. 2009).

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Species associated with the tamarisk thickets semi-natural stand include emergent tree species such as Fremont cottonwood or willows at a low cover (Sawyer et al. 2009).

### **6.1.5.13 Sonoran and Mojavean Desert Scrub**

Within the study area, the following alliances, including disturbed forms, are in the Mojavean–Sonoran desert scrub macrogroup: cheesebush scrub alliance; creosote bush scrub alliance; creosote bush-white burr sage scrub alliance; Mojave yucca scrub alliance; Parish’s goldeneye scrub alliance, and scale broom scrub alliance. The California joint fir scrub alliance, catclaw acacia thorn scrub alliance, and scale broom scrub alliance are in the Madrean warm semi-desert wash woodland/scrub. The California joint fir scrub alliance, Mojave yucca scrub alliance, and scale broom scrub alliance are considered special-status vegetation communities under CEQA (CDFG 2010; California Food and Agricultural Code, Section 80071 et seq.).

#### **California Joint Fir Scrub Alliance**

The California joint fir scrub (*Ephedra californica*) alliance includes California joint fir as the dominant or co-dominant shrub in the canopy. California joint fir scrub has an open to intermittent shrub canopy less than 2 meters (7 feet) in height with an open to intermittent ground layer of annual or perennial herbs and grasses (Sawyer et al. 2009). The California joint fir scrub alliance occurs on intermittently flooded arroyos. In the Desert Mountains, this alliance occurs in washes and on adjacent alluvial fans. Soils are coarse to medium sands, loamy sands, and sandy clay loams (Sawyer et al. 2009).

Species associated with the California joint fir scrub alliance include Cooper’s dogweed (*Adenophyllum cooperi*), white bursage, bladderpod spiderflower, creosote bush, water jacket, branched pencil cholla (*Cylindropuntia ramosissima*), and threadleaf ragwort (*Senecio flaccidus*) (Sawyer et al. 2009).

#### **Catclaw Acacia Thorn Scrub Alliance**

The catclaw acacia thorn scrub (*Senegalia greggii* [*Acacia greggii*]) alliance includes catclaw acacia as the dominant or co-dominant shrub in the canopy. Catclaw acacia thorn scrub has an intermittent or open shrub canopy less than 3 meters (10 feet) in height with a sparse herbaceous layer in which annuals are seasonally present (Sawyer et al. 2009). The catclaw acacia thorn scrub alliance often occurs on channels, washes, arroyos, and canyon walls containing moderately acidic to slightly saline soils that are coarse and well drained (Sawyer et al. 2009).

Species associated with the catclaw acacia thorn scrub alliance include white bursage, sweetbush, buckhorn cholla, Virgin River brittle bush, ephedra (*Ephedra* ssp.), green rabbitbrush (*Ericameria*

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*teretifolia*), California buckwheat, desert lavender, creosote bush, desert almond (*Prunus fasciculata*), sugarbush, and desertsenna (*Senna armata*). Emergent desert willow, California juniper, desert ironwood, or smoke tree may also be present (Sawyer et al. 2009).

### **Cheesebush Scrub Alliance**

The cheesebush scrub (*Ambrosia salsola*) alliance, also referred to as burrobrush, includes burrobrush (*Ambrosia salsola*) as the dominant or co-dominant shrub in the canopy. Cheesebush scrub has an open to intermittent shrub canopy less than 2 meters (7 feet) in height with a sparse or seasonally present ground layer (Sawyer et al. 2009). The cheesebush scrub alliance often occurs on valleys, flats, or rarely flooded low-gradient deposits over shallow, sandy, gravelly soils or disturbed desert pavement (Sawyer et al. 2009).

Species associated with the cheesebush scrub alliance include California jointfir, California brittle bush, black-stem, California buckwheat, creosote bush, Wiggins' cholla (*Cylindropuntia echinocarpa*), beavertail pricklypear (*Opuntia basilaris*), smoketree, bladder sage (*Scutellaria mexicana*), and desertsenna. Emergent catclaw acacia, blue paloverde, desert willow, and ironwood may also be present at a low cover (Sawyer et al. 2009).

### **Creosote Bush Scrub Alliance**

The creosote bush scrub (*Larrea tridentata*) alliance includes creosote bush as the dominant or co-dominant shrub in the canopy. Creosote bush scrub has an intermittent to open shrub canopy less than 3 meters (10 feet) in height with an open ground layer in which annuals or perennial grasses are seasonally present (Sawyer et al. 2009). The creosote bush scrub alliance often occurs on alluvial fans, bajadas, minor intermittent washes, and upland slopes with well-drained soils and may have desert pavement surface present (Sawyer et al. 2009).

Species associated with the creosote bush scrub alliance include Shockley's goldenhead (*Acamptopappus shockleyi*), white bursage, shadscale, cattle saltbush, woolly brickellbush (*Brickellia incana*), ephedra (*Ephedra* spp.), saltbushes (*Atriplex* spp.), and California brittle bush. Joshua tree and honey mesquite may be present at a low cover (Sawyer et al. 2009).

### **Creosote Bush–White Bursage Scrub Alliance**

The creosote bush–white bursage scrub (*Larrea tridentata*–*Ambrosia dumosa*) alliance includes creosote bush and white bursage as co-dominant shrubs in the canopy. Creosote bush–white bursage scrub has a two-tiered shrub canopy less than 3 meters (10 feet) in height with an open to intermittent ground layer in which annuals are seasonally present (Sawyer et al. 2009). This alliance often occurs

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in minor washes and rills, on alluvial fans, bajadas, and upland slopes on well-drained, alluvial, colluvial, sandy soils, and may have desert pavement surface (Sawyer et al. 2009).

Species associated with the creosote bush–white bursage scrub alliance include Fremont’s chaffbush (*Amphipappus fremontii*), saltbushes, sweetbush, California croton (*Croton californicus*), California brittle bush, cottontop cactus (*Echinocactus polycephalus*), ephedras (*Ephedra* spp.), hairy prairie clover (*Dalea mollis*), water jacket, indigo bush (*Psorothamnus* spp.), bladder sage, and desertsenna. Emergent Joshua tree or ocotillo (*Fouquieria splendens*) may also be present at a low cover (Sawyer et al. 2009).

### **Mojave Yucca Scrub Alliance**

The Mojave yucca scrub (*Yucca schidigera*) alliance includes Mojave yucca as the dominant or characteristically present in the shrub or small tree canopy. Mojave yucca scrub alliance has a canopy less than 5 meters (16 feet) in height with a shrub and grass layer that is open to intermittent (Sawyer et al. 2009). This alliance often occurs on rocky slopes, alluvial fans, and upper bajadas on well-drained, sandy loam soils (Sawyer et al. 2009).

Species associated with the Mojave yucca scrub alliance include white bursage, blackbrush, buckthorn cholla, California brittle bush, Nevada jointfir, California buckwheat, creosote bush, big galleta (*Hilaria rigida*), bladder sage, jojoba (*Simmondsia chinensis*), and Parish’s goldeneye (Sawyer et al. 2009).

### **Parish’s Goldeneye Scrub Alliance**

The Parish’s goldeneye scrub (*Bahiopsis parishii*) alliance includes Parish’s goldeneye as the dominant or co-dominant shrub in the canopy. Parish’s goldeneye scrub alliance has an open or intermittent shrub canopy with most shrubs less than 2 meters (7 feet) in height with an open to intermittent ground layer of seasonal annuals (Sawyer et al. 2009). This alliance most often occurs on the margins of washes and arroyos, rocky to boulder alluvium, or moderate to steep colluvial slopes; substrates are generally granitic or volcanic (Sawyer et al. 2009).

Species associated with the Parish’s goldeneye scrub alliance include desert agave, sweetbush, buckthorn cholla, Wiggins’ cholla, California brittle bush, Nevada jointfir, green rabbitbrush, California buckwheat, California barrel cactus, threadleaf snakeweed, white ratany, desert apricot (*Prunus fremontii*), bladder sage, purple sage, jojoba, sugarbush, and Mojave yucca. Emergent catclaw acacia, ocotillo, and California juniper may be present at a low cover (Sawyer et al. 2009).

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## Scale Broom Scrub Alliance

The scale broom scrub (*Lepidospartum squamatum*) alliance includes scalebroom as the dominant or co-dominant shrub in the canopy. Scale broom scrub alliance has an open to continuous shrub canopy that is often two tiered with most shrubs less than 2 meters (7 feet) in height with a variable ground layer that may contain grasses (Sawyer et al. 2009).

Species associated with scale broom scrub alliance include California buckwheat, California sagebrush, white sage, brittlebush (*Encelia* spp.), pricklypear (*Opuntia* spp.), chaparral yucca, lemonade berry, sugarbush, and California juniper.

### 6.1.5.14 Waterways

There are four different waterway categories within the study area in the Desert Region: concrete channel, dry lake bed, unvegetated channel, and unvegetated wash. Waterways are not considered special status under CEQA (CDFG 2010).

#### Concrete-Lined Channel

Concrete-line channels refers to man-made, concrete-lined channels, that are designed to convey low-frequency, and high-volume surface water flows.

#### Dry Lake Bed

The dry lake bed category includes areas of a dry ephemeral lakebed, or remnants of an endoheric<sup>14</sup> lake. Dry lake bed is mapped within the northwestern portion of the Desert Region within Searles Lake.

#### Unvegetated Channel

Unvegetated channel typically includes unvegetated maintained or engineered sandy-bottom channels.

#### Unvegetated Wash

Unvegetated wash includes natural, sandy bottom washes that are primarily unvegetated. Within the Desert Region, unvegetated wash includes ephemeral unvegetated washes and the Mojave River, an intermittent river.

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<sup>14</sup> *Endoheric* means of or relating to a drainage basin that has no outlet.

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## **6.1.4.15 Non-Natural Land Covers**

Non-natural land covers include the following communities and land cover types: agriculture, disturbed land, and urban. None of the non-natural land covers are considered special status under CEQA (CDFG 2010).

### **Deciduous Orchard, Vineyard**

Orchards consist of irrigated agriculture dominated by one or sometimes several tree or shrub species. Vineyards include crops planted in rows that are typically supported by trellises. Understory growth of both orchard and vineyard crops often include short grasses and other herbaceous plants between rows. Deciduous indicates that the crop sheds its leaves annually.

### **Disturbed Land**

*Disturbed land* refers to areas that are not developed yet lack vegetation, and generally are the result of severe or repeated mechanical perturbation. Disturbed land within the Desert Region includes dirt roads and vacant lots devoid of vegetation.

### **Irrigated Row and Field Crops**

Irrigated row and field crops are artificially irrigated crops grown in rows with open space between the rows. The particular crop typically changes frequently by season and year. Row crops frequently occur in floodplains or upland areas with high soil quality.

### **Ornamental Plantings**

*Ornamental plantings* refers to areas where non-native ornamentals and landscaping have been installed.

### **Ruderal**

*Ruderal lands* refers to areas dominated by non-native weeds. Generally, ruderal lands are characterized by forbs such as Maltese star thistle and sweet-fennel. Lands dominated by non-native mustard species were categorized separately.

### **Urban**

Urban areas consist of buildings, structures, homes, parking lots, paved roads, and maintained areas. Urban areas do not support native vegetation.

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## 6.1.6 Special-Status Species

Appendix E provides a summary of the special-status species that have been documented in the Desert Region of San Bernardino County, and includes information on status, distribution, habitat associations, and likelihood of occurrence within the study area. A brief summary of those species potentially occurring in the Valley Region is described in this section with further details provided for those species that are federally listed and/or state listed.

### 6.1.6.1 Critical Habitat

Within the Desert Region, the USFWS has designated critical habitat for two federally threatened and endangered species: desert tortoise and southwestern willow flycatcher. The acreage of critical habitat in the Desert Region is summarized in Table 6-2 and locations are depicted on Figure 6-3, Critical Habitat in the Desert Region.

**Table 6-2  
Critical Habitat in the Desert Region**

Critical Habitat Species		Total Critical Habitat in Study Area in Desert Region (Acres)	Total Critical Habitat Identified as Suitable in Study Area in Desert Region (Acres)
Common Name	Scientific Name		
Desert tortoise	<i>Gopherus agassizii</i>	38.5	19.3
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	1109.0	197.9

Source: USFWS 2017.

### 6.1.6.2 Plants

Out of 46 special-status plant species documented within the Desert Region, a total of 25 have potential to occur within the study area in the Desert Region. Of those 25 species, none have been confirmed present within the study area. Two of the 25 species are federally listed and have a low potential to occur in the study area, and 23 of the species are non-listed and have a moderate potential to occur.

There are two federally listed plant species that have a low potential to occur within the study area in the Desert Region: Parish's daisy (*Erigeron parishii*) (FT/None/1B.1) and triple-ribbed milkvetch (*Astragalus tricarinatus*) (FE/None/1B.1). These two species are discussed in further detail below. A total of 23 non-listed special-status plant species were judged to have a moderate potential to occur in the study area: alkali mariposa lily (*Calochortus striatus*) (None/None/1B.2), Barstow woolly sunflower (*Eriophyllum mohavense*) (None/None/1B.2), Beaver Dam breadroot

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(*Pediomelum castoreum*) (None/None/1B.2), Booth's evening-primrose (*Eremothera boothii* ssp. *boothii*), (None/None/2B.3) creamy blazing star (*Mentzelia tridentate*) (None/None/1B.3), Emory's crucifixion-thorn (*Castela emoryi*) (None/None/2B.2), jackass-clover (*Wislizenia refracta* ssp. *refracta*) (None/None/2B.2), Latimer's woodland-gilia (*Saltugilia latimeri*) (None/None/1B.2), little San Bernardino Mtns. linanthus (*Linanthus maculatus*) (None/None/1B.2), Mojave menodora (*Menodora spinescens* var. *mohavensis*) (None/None/1B.2), Mojave monkeyflower (*Diplacus mohavensis*) (None/None/1B.2), Parish's alkali grass (*Puccinellia parishii*) (None/None/1B.1), Parish's club-cholla (*Grusonia parishii*) (None/None/2B.2), Parish's phacelia (*Phacelia parishii*) (None/None/1B.1), Parish's popcorn-flower (*Plagiobothrys parishii*) (None/None/1B.1), pinyon rockcress (*Boechera dispar*) (None/None/2B.3), Pioneertown linanthus (*Linanthus bernardinus*) (None/None/1B.2), purple-nerve cymopterus (*Cymopterus multinervatus*) (None/None/2B.2), salt spring checkerbloom (*Sidalcea neomexicana*) (None/None/2B.2), San Bernardino milk-vetch (*Astragalus bernardinus*) (None/None/1B.2), short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) (None/None/1B.2), spiny-hair blazing star (*Mentzelia tricuspis*) (None/None/2B.1), and Wright's jaffueliobryum moss (*Jaffueliobryum wrightii*) (None/None/2B.3). These 23 non-listed special-status plant species are described in Appendix E.

### Parish's daisy

Parish's daisy is a federally threatened perennial plant species endemic to the San Bernardino Mountains and surroundings. It is typically found associated with pinyon woodlands, pinyon–juniper woodlands, and blackbush scrub vegetation communities from 3,842 to 6,400 feet amsl where rocky slopes, active washes, and outwash plains on substrates with limestone materials or quartz monzonite (summarized in USFWS 2009b). Within the Desert Region, this species is known to occur at Burns Pinyon Ridge Reserve and at an adjacent occurrence near Pioneertown, as well as the southernmost portion of Lucerne Valley, where limestone outwash occurs within the various creeks and canyons south of the San Bernardino Mountains (USFWS 2009b).

Due to the specific soil conditions this species requires, the Study Area is judged to only have a low potential to support the species at the following facilities that drain from the vicinity of Burns Pinyon Ridge Reserve and Pioneertown: Little Morongo Creek, Old Woman Springs Creek, and Yucca Creek. No other facilities are judged to have any potential due to this species restricted range and specific soil requirements.

### Triple-Ribbed Milkvetch

Triple-ribbed milkvetch is a federally endangered species endemic to California. It is generally described as a perennial, but more commonly behaves as an annual (Sanders n.d.). Triple-ribbed

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milkvetch is found in transition areas of the Sonoran and Mojave Deserts near Morongo Valley and Joshua Tree within San Bernardino County. Occurrences of this species at the heads of watersheds likely act as sources for isolated or small groups of plants that are not self-sustaining. Historically, it was primarily the non-self-sustaining populations that were described as occurring on sandy or gravelly soils on canyon bottoms and alluvial fans, or on decomposed granite slopes in canyons. However, source populations have been found in established soils with developed horizons on undisturbed upslope ridge tops (USFWS 2009c). The associated plants that have been recorded at these source population include bigberry manzanita, desert ceanothus (*Ceanothus greggii*), bush poppy (*Dendromecon rigida*), California buckwheat, hairy yerba santa (*Eriodictyon trichocalyx*), Mojave yucca (*Yucca schidigera*), creosote bush, burrobrush (*Ambrosia salsola* var. *pentalepis*), and deer weed (*Acmispon glaber*) (Amsberry and Meinke 2007, La Doux 2007, and White 2004, as cited in USFWS 2009c).

In San Bernardino County, triple-ribbed milkvetch species is only known from eight locations from the vicinity of Morongo Valley and the Little San Bernardino Mountains: Wathier Landing, Catclaw Flat, Mission Creek, Dry Morongo Creek, Big Morongo Canyon, Long Canyon, Coyote Hole Spring, and Key's Ranch (USFWS 2009b). This rare species is judged to have a low potential to occur at the following facilities where suitable habitat conditions may occur: Little Morongo Creek, Yucca Creek, Joshua Tree Wash, Quail Wash, and 49 Palms Spreading Grounds.

### 6.1.6.3 Wildlife

A literature review identified a total of 54 special-status animal species documented in the Desert Region. Listed species with a high potential to occur in the study area include Mohave ground squirrel, desert tortoise, least Bell's vireo, and southwestern willow flycatcher. Tricolored blackbird, a candidate for listing, has a moderate potential to occur. Arroyo toad, a federal endangered species, has a low potential to occur in the study area; however, it has been documented in the Mojave River immediately upstream of the Mojave Forks Dam and approximately 0.5 miles downstream of the southern extent of the study area. These six species are discussed in detail in this section. Yellow-billed cuckoo (*Coccyzus americanus*), a listed species, although not documented in the study area, has been reported as a migrant in the study area and is also discussed in more detail below.

A total of 15 non-listed wildlife species have a moderate or greater potential to occur in the study area within the Desert Region. These include western pond turtle, Blainville's horned lizard, Mojave fringe-toed lizard, burrowing owl, loggerhead shrike, yellow warbler, yellow-breasted chat, Bendire's thrasher (*Toxostoma bendirei*), crissal thrasher (*T. crissale*), summer tanager (*Piranga rubra*), vermilion flycatcher (*Pyrocephalus rubinus*), American badger, Mojave River vole (*Microtus californicus mohavensis*), and pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*). These species are described in Appendix E.

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## Mohave Ground Squirrel

Mohave ground squirrel is a state listed threatened species found in the Desert Region. Mojave creosote bush scrub is the preferred habitat (Aardahl and Roush 1985, as cited in 76 FR 62214–62258), but it is also found in Mojave mixed woody scrub, desert saltbush scrub, blackbrush scrub, Mojave desert wash scrub, Joshua tree woodland, and shadscale scrub (Gustafson 1993 and BLM 1998, as cited in 76 FR 62214–62258). It is typically found on relatively flat topography, often in large alluvial-filled valleys, containing fine- to medium-textured soil with little or no rocks, and with the presence of a variety of native shrubs, including creosote bush, white bursage, and saltbush (Aardahl and Roush 1985, as cited in 76 FR 62214–62258). The species is absent from very rocky areas, lava flows, and dry lakebeds, although juveniles may disperse through such areas (Leitner, pers. comm., as cited in Laabs et al. 1980, as cited in 76 FR 62214–62258).

Based on an analysis of habitat suitability (Appendix A), the total amount of potential habitat in the Desert Region is 938.3 acres, and the amount of habitat that is likely to support Mohave ground squirrel is 223.7 acres (Table 6-3).

**Table 6-3**  
**Mohave Ground Squirrel Suitable Habitat in Study Area in Desert Region**

	Mohave Ground Squirrel Habitat Suitability Classification			
	<i>Unlikely to Support</i>		<i>Likely to Support</i>	
	<i>Poor (Acres)</i>	<i>Fair (Acres)</i>	<i>Good (Acres)</i>	<i>Excellent (Acres)</i>
Total suitable habitat	508.0	206.6	220.5	3.2

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

As detailed in Appendix A, a number of facilities were assessed as having habitat likely to support the species: Lenwood Channel, Lenwood Spreading Grounds, El Evado Channel, Buckthorn Wash, Turner Ditch, Lucerne Valley Channel, portions of the Mojave River, Fremont Wash, Lucerne Valley Channel, Sheep Creek, North Barstow Channel, Southwest Barstow Channel, Waterman Road Basin, Trona Flood Channel, and Rockcrusher Channel.

## Tricolored Blackbird (California Candidate Endangered, Moderate Potential to Occur)

The tricolored blackbird is a state candidate endangered species, which means it is subject to the same legal protections as endangered or threatened species under CESA. The tricolored blackbird is a state candidate endangered species, which means it is subject to the same legal protections as endangered or threatened species under CESA. Habitat requirements for a breeding colony include open water, appropriate nesting substrate, and nearby foraging habitat (Beedy and Hamilton 1999).

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Nesting habitat in the Desert Region is typically cattail/bulrush, but also weedy areas dominated by species such as bull thistle, mustard, nettle, and cheeseweed mallow (Dudek 2012), as well as blackberries. Foraging areas include grasslands, open fields, and agricultural areas, especially alfalfa fields and sunflower (Beedy 2008; Beedy and Hamilton 1997; Dudek 2012, pp. 10, 3, 5, 6).

Approximately 95% of tricolored blackbird historic breeding range occurs within California. Within the Desert Region, tricolored blackbird has been documented at several locations. Within the Mojave River at Rockview Park approximately 400 tricolored blackbirds nested within cattail marsh in 2003; however, 1-day surveys in 2008 and 2014 in this area were negative despite presence of suitable habitat (UCD 2017; CDFW 2017). At least three private ponds in the Newberry Springs area have cattails and have been documented as supporting tricolored blackbird breeding colonies; in 2016, it is estimated these ponds supported just over 1,000 tricolored blackbirds (UCD 2017). In addition, there is a pond with cattails in the Camp Cady Wildlife Area of the Mojave River that supported approximately 450 tricolored blackbirds in 2015. It is believed that the alfalfa fields in this area support high-quality foraging opportunities.

The study area has a moderate potential to support nesting tricolored blackbirds at two locations on the Mojave River where suitable nesting habitat is present. One location is upstream and downstream of I-15, where they were historically recorded as nesting. The second location is upstream and downstream of Heritage Way, where ponding and associated wetland vegetation occur.

### **Desert Tortoise (Federally Threatened, California Threatened, Known to Occur)**

The species occupies a variety of habitats from flats and slopes typically characterized by creosote bush scrub dominated by creosote bush and white bursage at lower elevations. Tortoises occur most commonly on gently sloping terrain with friable soils and where there is sparse cover of shrubs for herbaceous plant growth (Germano et al. 1994, as cited in 75 FR 78094–78146).

Based on an analysis of habitat suitability (Appendix A), the total amount of suitable habitat in the Desert Region is 715.8 acres (Table 6-4).

**Table 6-4  
Desert Tortoise Suitable Habitat in Study Area in Desert Region**

	Desert Tortoise Habitat Suitability Classification			
	<i>Low (Acres)</i>	<i>Moderate (Acres)</i>	<i>High (Acres)</i>	<i>Total (Acres)</i>
Total suitable habitat	230.7	105.7	363.3	699.7

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

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The District maintains an internal database of desert tortoise individuals, as well as sign (such as scat, tracks, and carcasses) and potential burrows. Some of the facilities that have nearby observations of desert tortoise, desert tortoise sign, or desert tortoise burrows include Freemont Wash, Buckthorn Wash, Lenwood spreading grounds, the Mojave River near Mountain View Road, north Barstow channel, Waterman Road basin and channel, Yermo flood channel, north Needles basin, Needles Riverview levee, Yucca Creek, Covington Wash, Pinto Cove Creek, Twentynine Palms flood channel, and 49 Palms spreading grounds.

### **Least Bell's Vireo (Federal Endangered, State Endangered, Known to Occur)**

Least Bell's vireo is largely associated with early successional riparian scrub and woodlands dominated by species such as mulefat, willows (*Salix* spp.), cottonwood (*Populus* sp.), and blue elderberry (*Sambucus nigra* ssp. *caerulea*) to an elevation of 4,100 feet amsl (Peterson et al. 2004; Grinnell and Miller 1944). Suitable riparian habitat is typically dense with well-defined vegetative strata or layers. Most areas that have least Bell's vireo populations are in early stages of succession where most woody vegetation is 5–10 years old (Franzreb 1989).

The most critical structural component of least Bell's vireo nesting habitat in California is a dense shrub layer 2 to 10 feet aboveground (Goldwasser 1981, as cited in Kus et al. 2010; Franzreb 1989), and least Bell's vireo can use any age riparian habitat if such an understory is present (Kus et al. 2010). Nests are typically placed below approximately 6.5 feet above ground surface. In the Santa Ana River watershed between 2002 and 2012, nests were found mostly in willow species (48%), with arroyo willow and black willow predominating and with mulefat (29%) (SAWA 2013). Other plant species also known to support nests include blue elderberry (5%), cottonwood (4%), and California wild grape (3%) (SAWA 2013). The presence of water, including ponded surface water or moist soil conditions, may be an important component of least Bell's vireo nesting habitat (Barlow 1962) because it would promote shrubby growth of riparian habitat.

Least Bell's vireo requires a structurally diverse canopy for foraging, and the species will use all vegetative levels up to 20 meters (65 feet) above the ground, with activity concentrated in lower to midcanopy during breeding (Barlow 1962; Kus 2002). Studies have determined that the distribution of least Bell's vireo foraging time across all heights was not a function of the availability of the vegetation at those heights but rather represented an actual preference for the 10- to 20-foot-aboveground zone (Kus 2002).

Least Bell's vireo has been documented within riparian habitat in the Desert Region. Based on an analysis of habitat suitability (Appendix A), the total amount of suitable habitat for least Bell's vireo in the Desert Region is 205.4 acres (Table 6-5).

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**Table 6-5  
Least Bell’s Vireo Suitable Habitat in the Study Area in the Desert Region**

	Least Bell’s Vireo Suitability Classification			
	<i>Low (Acres)</i>	<i>Moderate (Acres)</i>	<i>High (Acres)</i>	<i>Total (Acres)</i>
Total suitable habitat	95.6	12.5	97.3	205.4

This report provides results of a programmatic level review of potentially suitable habitat and acreages represent a best estimation of existing conditions. Habitat that would be impacted by maintenance activities would be mapped and reported annually in accordance with the Maintenance Plan.

Within the Desert Region, least Bell’s vireo primarily occupy the Mojave River. Currently, not all suitable areas of the Mojave River are occupied by least Bell’s vireo, thus the species distribution is somewhat sporadic. The District’s least Bell’s vireo monitoring program has consistently found the species within maintained areas in the study area downstream of I-15. Additionally, least Bell’s vireo were recorded in the Mojave River near the study area at Bryman Road in 2016 during assessments conducted as part of this report. Overall, large portions of the Mojave River either support high quality habitat for least Bell’s vireo or are known to be occupied.

**Southwestern Willow Flycatcher (Federally Endangered, State Endangered, Known to Occur)**

Southwestern willow flycatcher is a federally and state listed endangered songbird. The flycatcher breeds in riparian vegetation typically found alongside rivers, streams, creeks, or various water impoundments. Generally, this species prefers mosaics of relatively dense and expansive growths of trees and shrub near or adjacent to surface water or underlain by saturated soil. The exact habitat characteristics such as dominant plant species, size and shape of habitat patch, tree canopy structure, vegetation height, and vegetation density vary widely among breeding sites (USFWS 2014). However, nests are typically placed in trees where the plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density canopy (USFWS 2014).

The known geographical area historically occupied by both migrating and breeding flycatchers includes Southern California. As noted in Chapter 3, habitat suitability was not analyzed for this species in Appendix A. However, this report assumes that any least Bell’s vireo habitat of low, moderate, or high suitability is also suitable for southwestern willow flycatcher. Based on that, the total amount of potential habitat for southwestern willow flycatcher in the Valley Region is 205.4 acres (see Table 6-5).

Within the Desert Region, southwestern willow flycatcher were recorded in 2012 in the Mojave River downstream of I-15 and in 1999 upstream of the Mojave River Dam in Deep Creek. The study

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area is within 800 feet of the 2012 record in the Mojave River. District surveys conducted in the Mojave River in 2002 and 2008 were negative for southwestern willow flycatcher, although migrant willow flycatchers were observed. Due to the presence of suitable riparian habitat and a recent southwestern willow flycatcher occurrence, this species is judged to have a moderate potential for occurrence within the Mojave River where the study area overlaps suitable riparian vegetation; this only occurs within the Mojave River from downstream of D street to approximately Bell Mountain Wash and upstream and downstream of Heritage Way. This is also listed as critical habitat for southwestern willow flycatcher.

### **Yellow-Billed Cuckoo – Western Distinct Population Segment (Federally Threatened, State Endangered, Moderate Potential to Occur)**

The western distinct population segment of the yellow-billed cuckoo (*Coccyzus americanus*) occupy wooded habitat with dense cover and water nearby, including woodlands with low, scrubby vegetation; overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. Cottonwood willow forests (*Populus* spp. - *Salix* spp.) are most often used, although other riparian tree species can be important components of breeding habitat as well, such as alder (*Alnus* spp.), box-elder, mesquite (*Prosopis* spp.), Arizona walnut (*Juglans major*), Arizona sycamore (*Platanus wrightii*), oak (*Quercus* spp.), netleaf hackberry (*Celtis reticulata*), velvet ash (*Fraxinus velutina*), Mexican elderberry (*Sambucus mexicanus*), seepwillow (*Baccharis glutinosa*), and occasionally, tamarisk (*Tamarix* spp.). Yellow-billed cuckoos require relatively large (>20 hectares), contiguous patches of multilayered riparian habitat for nesting (Hughes 1999; Johnson 2009).

While there have been occurrences within San Bernardino County, this species is listed in the California Natural Diversity Database as “possibly extirpated.” The two occurrences in the County since 2012 were likely transient individuals, including one sighting in riparian habitat of the Mojave River near the I-15 bridge (Nerhus, pers. comm. 2017), and one sighting in Victorville (CDFW 2016). No nesting has been documented in San Bernardino County or even west of the Colorado River since 1998 (Haltermann 2012).

Yellow-billed cuckoo has been documented recently as a transient within riparian habitat in the Desert Region (CDFW 2017; Sims, pers. comm. 2017). Due to the low likelihood of this species occurring or nesting within the study area, a detailed assessment of suitable habitat was not conducted; however, suitable habitat for yellow-billed cuckoo would overlap suitable southwestern willow flycatcher habitat.

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## Arroyo Toad (Federally Endangered, Low Potential to Occur)

The arroyo toad is a federally endangered species that breeds in slow-moving streams with shallow pools, nearby sandbars, and adjacent stream terraces (USFWS 2010c). Eggs are deposited and tadpoles develop in shallow pools with minimal current, little or no emergent vegetation, and a substrate generally of sand or fine gravel overlain with silt (USFWS 2010c). Outside of the breeding season, arroyo toads are essentially terrestrial and are known to use a variety of upland habitats including but not limited to: sycamore–cottonwood woodlands, oak woodlands, coastal sage scrub, chaparral, and grassland.

For the Desert Region, arroyo toad have been documented from 1995 in the Mojave River downstream of Mojave Forks Dam. They were also documented in this same general area in 2015 by District ecologists. These occurrences are approximately 4,000 feet upstream from the study area within the Mojave River. Stream flows within the Mojave River at the study area are variable from year to year, and the study area does not support riparian vegetation. Therefore, arroyo toad are judged to have a low potential to occur within the upstream portions of the Mojave River when surface waters are present, generally upstream of Hesperia Lake Park because there is rarely surface water present below this point.

### 6.1.7 Wildlife Corridors and Habitat Linkages

The majority of the Desert Region is undeveloped resulting in fewer obstacles to wildlife movement. Nevertheless, wildlife corridors have been mapped within the Desert Region. These are described in the following paragraphs and depicted on Figure 6-4, Habitat Linkages and Wildlife Corridors in the Desert Region.

#### Mapped Linkages

A number of wildlife corridors and habitat linkages have been mapped within the study area, as follows:

- **San Bernardino–Little San Bernardino Connection** is mapped by the South Coast Missing Linkages Project (South Coast Wildlands 2008). It occurs near the study area in Morongo and Yucca Valleys. This linkage connects San Bernardino National Forest with Joshua Tree National Park and includes five major swaths.
- **Joshua Tree–Twentynine Palms Connection** is identified by Penrod et al. (2008) and occurs near the study area in the vicinity of Yucca Valley, Joshua Tree, and Twentynine Palms.

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## San Bernardino County Open Space Overlay Map

Wildlife corridors and open space areas identified in the County open space overlay map within the Desert Region relevant to the proposed program are summarized in Table 6-6.

**Table 6-6**  
**San Bernardino County Open Space Overlay Features in the Desert Region**

Feature	Type	Description
Mojave River	Wildlife corridor	This wildlife corridor follows the alignment of the Mojave River from Lake Silverwood, through Hesperia and Victorville northward to past Barstow. The Mojave River is the major perennial river in the Desert Region, and is an area of extreme biological importance, containing rare desert riparian habitat (including habitat that supports arroyo toad, least Bell's vireo, southwestern willow flycatcher, Mojave River vole, yellow-breasted chat, and summer tanager). The Mojave River historically supported Mohave tui chub, but it was extirpated in the 1960s and has been replaced by a number of non-native species. Closer to Barstow, the Mojave River is also a source for wind-blown sands that support species such as the Mojave fringe-toed lizard.
Deep Creek	Wildlife corridor	This wildlife corridor follows the alignment of Grass Valley Creek near the Mojave River. The creek serves as a dispersion corridor to and from the national forest. This area contains riparian habitat and is suitable for least Bell's vireo and arroyo toad.

### 6.1.8 Conservation Plans

Several USFWS HCPs and CDFW NCCPs are being implemented or are under development in the Desert Region. Depending on how the plans and associated permits are written, the District could potentially use these plans and permits to obtain coverage for incidental take of special-status species. That potential is discussed for each plan below. The military installations within the Desert Region (e.g., Twentynine Palms Marine Corps Air Ground Combat Center, Fort Irwin National Training Center) have adopted Integrated Natural Resource Management Plans that govern conservation of species and habitats on those installations; however, they do not include any preservation or other conservation activities outside the boundaries of the military installations. The planning limits of the various conservation plans are depicted on Figure 2-1.

#### Desert Renewable Energy Conservation Plan

The DRECP is a landscape-level renewable energy and conservation planning effort covering 10.8 million acres of public lands managed by the Bureau of Land Management in the California desert. The Bureau of Land Management's Land Use Plan Amendment, which was Phase I of the DRECP, identifies priority areas for renewable energy development within federal lands while setting aside millions of acres for conservation and outdoor recreation. The plan designates Development Focus Areas with high-quality solar, wind, and geothermal

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energy potential and access to transmission, sited in areas with few land use conflicts. Phase I of the DRECP also identifies National Conservation Lands and designates Areas of Critical Environmental Concern, wildlife allocations, and National Scenic and Historic Trail management corridors to conserve biological, cultural, and other values.

Phase II of the DRECP addresses the non-federal lands within the DRECP planning area and is led by the California Energy Commission. Counties with primary land use and permitting authority on private lands in the DRECP planning area include Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego.

## Lower Colorado River MSCP

The Lower Colorado River MSCP was finalized in 2004. However, the study area does not overlap the Lower Colorado River MSCP area, and the nearest boundary is more than 100 miles from the study area. Therefore, the proposed program is not expected to affect or be affected by the Lower Colorado River MSCP.

## 6.2 Program Impacts

Due to the large number of activities covered by the proposed program, activities have been organized into categories of maintenance activity types as follows:

- **Ground-Disturbing Activities.** Ground-disturbing activities can range from large sediment-removal efforts for basins and channels for the purposes of flood control maintenance, channel flow, erosion control, or smaller efforts that might involve ground disturbance through vegetation removal, bank repair and stabilization, road grading, or repair of flood control structures that might include ground disturbance to install riprap or replace facilities. Specifically, ground-disturbing activities would include the following:
  - Mechanized land clearance/sediment removal
  - Mechanized vegetation management
  - Ingress/egress: road grading, installation of fencing and gates, installation of free-standing signage
  - Bank repair
  - Stockpiling
- **Non-Ground-Disturbing Vegetation Management.** Non-ground-disturbing vegetation management would involve vegetation removal without disking, excavators, or other

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machinery that would disturb soils. Primarily, these efforts would be by hand, and would include the following:

- Pruning
- Mowing
- Hand clearing
- **Non-Ground-Disturbing Activities.** Other non-ground-disturbing activities could include the following:
  - Sand and gravel operations: vendors sort materials on existing ground
  - Ingress/egress: Fencing and gate repairs, installation of non-free-standing signage, and pavement repair
  - Application of herbicide and rodenticide
  - Graffiti removal
  - Vector control

Stream gage maintenance: involves maintenance of stream gages for water quality monitoring and sampling within existing sites and wells.

### **Impacts from Local Overlapping Permitting Processes**

As described in Section 1.2.4.3 of this report, LOPPs have the potential to impact biological resources within the proposed program area. Environmental clearance (including mitigation) for permanent direct impacts from maintenance activities within the proposed program would be conducted through the respective LOPP. Permanent direct impacts to biological resources from LOPPs are described herein; however, mitigation for these impacts would be incorporated from the respective LOPP.

#### **6.2.1 Definition of Impacts**

**Permanent direct impacts** refer to portions of the maintenance footprint that are expected to result in permanent change of the existing vegetation and biological resources. In general, ground-disturbing activities would result in permanent direct impacts when maintenance activities would occur at a frequency that would not allow communities to regenerate prior to the next maintenance event. One exception is bank repair, which primarily involves removal of excess sediment or sand from facility bottoms and applying it to the banks. It may also include incidental riprap placement and/or repair. This activity would not permanently remove vegetation, because vegetation would continue to grow through any native earth placed on the banks.

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**Temporary direct impacts** typically refer to short-term removal of a biological resource where the resource is expected to *fully* recover its function upon completion of the activity. Non-ground-disturbing vegetation management would typically result in temporary direct impacts.

**Short-term indirect impacts** are reasonably foreseeable effects caused during implementation of the proposed program on adjacent biological resources outside the direct maintenance footprint disturbance zone. They include noise, dust, motion, ground vibration, and other maintenance-related impacts.

**Long-term indirect impacts** are reasonably foreseeable effects due to implementation of the proposed program that will have a permanent change on adjacent biological resources outside the direct maintenance footprint. They include downstream hydrology effects such as surface flow, sediment transport, and scour.

## 6.2.2 CEQA Thresholds

The criteria used to evaluate the significance of the proposed program's impacts on biological resources, including special-status species, are based on Appendix G of the CEQA Guidelines. A significant impact would occur if the proposed program:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

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- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

### **6.2.3 Impact BIO-1**

*Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.*

#### **6.2.3.1 Ground-Disturbing Activities**

##### **Critical Habitat**

Ground-disturbing maintenance activities in the Desert Region would result in permanent and temporary direct impacts to designated critical habitat for the desert tortoise and southwestern willow flycatcher (Table 6-7). Section 7(a) of the ESA requires federal agencies (like USACE) consult with USFWS to ensure that actions they authorize do not destroy or adversely modify critical habitat. Any action that results in destruction or adverse modification of critical habitat, regardless of occupation, would be a significant impact. However, as noted in the analysis of impacts to desert tortoise below, a small portion of the impacted critical habitat is moderately or highly suitable for the species (0.6 acres). Therefore, the impacts to desert tortoise critical habitat would not constitute destruction or adverse modification of the habitat. Of the 249.2 acres of impact to southwestern willow flycatcher critical habitat, 24.3 acres are moderately or highly suitable for the species. This amount of removal or adverse modification of critical habitat for southwestern willow flycatcher would be significant. Avoidance, minimization, and mitigation measures described for desert tortoise and southwestern willow flycatcher would reduce potentially significant impacts to critical habitat. Nevertheless, consultation with the USFWS is required and this impact remains potentially significant without mitigation. Implementation of MM-BIO-2 (Impacts to Critical Habitat) would reduce potentially significant impacts to less than significant.

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**Table 6-7  
Program Ground-Disturbing Activity Impacts to Critical Habitat in the Desert Region**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Suitable Habitat within Maintenance Footprint (Acres)	Temporary or Permanent
Desert Tortoise	Bank repair	5.1	0.1	Temporary
	Ingress/egress	6.8	0.5	Permanent
	Mechanized land clearing	7.6	0	Permanent
	Stockpile locations	0.4	0	Permanent
	<i>Subtotal permanent impacts</i>	14.8	0.5	
	<i>Subtotal temporary impacts</i>	5.1	0.1	
	<i>Subtotal all direct impacts</i>	19.9	0.6	
Southwestern willow flycatcher	Bank repair	58.4	3.0	Temporary
	Ingress/egress	9.9	0.1	Permanent
	Mechanized land clearing	180.3	21.2	Permanent
	Stockpile locations	0.6	0	Permanent
	<i>Subtotal permanent impacts</i>	190.8	21.3	
	<i>Subtotal temporary impacts</i>	58.4	3.0	
	<i>Subtotal all direct impacts</i>	249.2	24.3	

Source: USFWS 2017.

Potential long-term indirect impacts to critical habitat for desert tortoise and southwestern willow flycatcher during ground-disturbing maintenance activities would primarily result from changes in hydrology, downstream erosion, and the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. As described in the Maintenance Plan, facilities currently have a high percentage of non-native invasive species. Proposed program vegetation management activities include the removal of invasive species and the vegetation management plan (incorporated as a component of the Maintenance Plan) provides methods for conducting vegetation management in a manner which limits spread of invasive species. Therefore, while maintenance activities can create edge conditions in which invasive plants can establish, the proposed program would result in the overall reduction of invasive species through its vegetation management practices. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, the hydrology and water quality SOPs of the Maintenance Plan would be implemented; therefore, long-term indirect impacts to critical habitat from changes in hydrology would be less than significant.

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Potential short-term indirect impacts to critical habitat from ground-disturbing activities would primarily result from the generation of fugitive dust, increased turbidity downstream, increased human activity, and the introduction of chemical pollutants. Increased human activity could result in temporal loss of habitat near the ground-disturbing activity and temporal loss of nesting sites for southwestern willow flycatcher, tricolored blackbird, yellow-billed cuckoo, and least Bell's vireo. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. The District would minimize the potential impact from chemical pollutants with implementation of SOP-BIO-16, which ensures that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to critical habitat for desert tortoise and southwestern willow flycatcher would be less than significant.

### **Special-Status Plant Species**

This section identifies potential impacts to the 25 special-status plant species with a moderate to high potential to occur (or low potential to occur for two federally listed species). This report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause significant direct, indirect, or cumulative impacts on them.

Special-status plant species could be directly impacted during ground-disturbing activities associated with implementation of the proposed program. Twenty-five special-status plants have a moderate potential (or low potential to occur for two federally listed species) to occur within the study area within the Desert Region. Direct impacts could include removal of individual plants, changes in plant substrate, removal of cryptogamic crusts that stabilize the soils, and other changes in the microhabitats that support special-status plants. For purposes of this analysis, all ground-disturbing direct impacts are considered to be permanent for special status plants. Permanent direct impacts to potentially occurring special-status plant species would be significant absent mitigation. The District implements avoidance and minimization measures for special status plants as described in SOP-BIO-14 (Special-Status Plants Pre-Activity Survey and Avoidance); however, permanent direct impacts to more than 10% of a special-status plant population within or adjacent to maintained facilities would be significant absent mitigation. Implementation of MM-BIO-3 would reduce impacts to special-status plants to less than significant.

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Potential long-term indirect impacts to special-status plants during ground-disturbing maintenance activities would primarily result from changes in hydrology from vegetation removal and could potentially cause the introduction of non-native species. Changes in hydrology, including changes in water velocity as a result of mechanized land clearing, could potentially result in impacts to special-status plant populations within the proposed program area. Implementation of MM-BIO-3 (Mitigation for Special-Status Plants), described in Section 4.3 of this report, would reduce impacts to special-status plants to less than significant. With respect to the introduction of non-native species, With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. Changes in hydrology from vegetation removal could also result in localized erosion that affects special-status plants, and channelization that affects the off-site transport of special-status plant seeds. The hydrology and water quality SOPs in the Maintenance Plan would be implemented; therefore, long-term indirect impacts to special-status plant species from changes in hydrology would be less than significant.

Potential short-term indirect impacts to special-status plant species from ground-disturbing activities would primarily result from the generation of fugitive dust, increased human activity, temporary increases in downstream sediment deposition, and the introduction of chemical pollutants. With respect to fugitive dust, maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District would implement SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

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## Special-Status Wildlife Species

This section analyzes the impacts to listed special-status wildlife species with low to high potential to occur<sup>15</sup> and to non-listed special-status wildlife species with moderate or high potential to occur. This report does not further analyze the non-listed special-status species with low potential to occur because the proposed program is not likely to cause direct, indirect, or cumulative impacts on them.

### *Mohave Ground Squirrel*

#### Program Impacts Within LOPPs

Proposed program maintenance activities within the Lenwood facilities (a LOPP as described in Section 1.2.4.3 of this report) would result in direct impacts on Mohave ground squirrel habitat as detailed in Table 6-8. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by this LOPP. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), proposed program maintenance activities shall not be implemented in LOPP areas until all respective permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to Mohave ground squirrel within LOPP areas.

**Table 6-8  
Program Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat  
in the Desert Region Within LOPPs**

Program Activity	Mohave Ground Squirrel Habitat Suitability Classification				Temporary or Permanent
	Unlikely to Support		Likely to Support		
	Poor (Acres)	Fair (Acres)	Good (Acres)	Excellent (Acres)	
Federal maintenance	9.9	5.1	5.0	—	Permanent
Mechanized land clearing	—	10.1	4.8	—	Permanent
Ingress/egress	0.2	1.5	1.7	—	Permanent
Stockpile	—	—	—	—	Permanent
Bank repair	—	—	—	—	Temporary
<i>Subtotal permanent direct impacts</i>	<i>10.1</i>	<i>16.7</i>	<i>11.5</i>	<i>—</i>	
<i>Subtotal temporary direct impacts</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	
<b>Total direct impacts</b>	<b>33.4</b>	<b>34.1</b>	<b>28.6</b>	<b>1.0</b>	

LOPP = local overlapping permitting process.

<sup>15</sup> It should be noted that Appendix A was used for quantification of suitable habitat for listed species analyzed in the document; however, the program footprint and mitigation approach have been revised since the development of Appendix A. Therefore, the impact analyses and mitigation in this report supersede the impacts and proposed mitigation found in Appendix A.

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### Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program could result in permanent and temporary direct impacts to Mohave ground squirrel, a state threatened species, as shown in Table 6-9. Direct impacts to Mohave ground squirrel, if present, would include direct mortality of individuals due to vehicle strikes, crushing of burrows and removal of habitat. This impact would be significant because this species is imperiled in the state due to a restricted range and relatively few populations. Implementation of MM-BIO-12 (Mitigation for Mohave Ground Squirrel) would reduce impacts to less than significant.

**Table 6-9  
Program Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat  
in the Desert Region Not Within LOPPs**

Program Activity	Mohave Ground Squirrel Habitat Suitability Classification				Temporary or Permanent
	Unlikely to Support		Likely to Support		
	Poor (Acres)	Fair (Acres)	Good (Acres)	Excellent (Acres)	
Federal maintenance	4.6	8.7	2.5	0	Permanent
Mechanized land clearing	2.3	5.3	9.4	0.3	Permanent
Ingress/egress	10.9	8.2	5.0	0.5	Permanent
Stockpile	0.3	0.5	0.3	0	Permanent
Bank repair	15.3	11.4	11.4	0.2	Temporary
<i>Subtotal permanent direct impacts</i>	<i>18.1</i>	<i>22.7</i>	<i>17.2</i>	<i>0.8</i>	
<i>Subtotal temporary direct impacts</i>	<i>15.3</i>	<i>11.4</i>	<i>11.4</i>	<i>0.2</i>	
<b>Total direct impacts</b>	<b>33.4</b>	<b>34.1</b>	<b>28.6</b>	<b>1.0</b>	

LOPP = local overlapping permitting process.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Potential long-term indirect impacts could result from the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Mohave ground squirrels outside the maintenance footprint would also be subject to disturbance from noise, vibration, and dust from ground-disturbing maintenance activities. Human presence during ground-disturbing activities would also indirectly impact Mohave ground squirrel outside

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the maintenance footprint. However, the potential for indirect impacts to Mohave ground squirrel is expected to be of short duration and limited to once every 3 years; therefore, indirect impacts to Mohave ground squirrel would be less than significant.

### *Desert Tortoise*

#### Program Impacts Within LOPPs

Proposed program maintenance activities within the Lenwood facilities (a LOPP, as described in Section 1.2.4.3 of this report) would result in direct impacts desert tortoise habitat as detailed in Table 6-10. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by this LOPP. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), proposed program maintenance activities shall not be implemented in LOPP areas until all respective permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to desert tortoise within LOPP areas.

**Table 6-10  
Program Ground-Disturbing Activity Impacts to Desert Tortoise and Critical Habitat  
in the Desert Region Within LOPPs**

Program Activity	Desert Tortoise Habitat Suitability Classification			Temporary or Permanent
	Low (Acres)	Moderate (Acres)	High (Acres)	
Federal maintenance	—	20.3	0.7	Permanent
Mechanized land clearing <sup>a</sup>	—	—	—	Permanent
Ingress/egress	—	0.6	10.8	Permanent
Stockpile	—	—	—	Permanent
Bank repair	—	—	—	Temporary
Vegetation management	—	—	—	Permanent
<i>Subtotal permanent direct impacts</i>	—	20.9	11.5	
<i>Subtotal temporary direct impacts</i>	—	—	—	
<b>Total direct impacts</b>	—	<b>20.9</b>	<b>11.5</b>	

LOPP = local overlapping permitting process.

<sup>a</sup> This analysis assumes that mechanized land clearing is limited to channel and basin bottoms, which only provide move-through habitat for desert tortoise. This assumption is subject to review by USFWS and CDFW; the outcome of which could result in increased impact calculations for this proposed program activity.

#### Program Impacts Not Within LOPPs

Ground-disturbing activities under the proposed program would result in permanent and temporary direct impacts to desert tortoise, a federal and state threatened species, as detailed in Table 6-11. Impacts to habitat likely to support the species (moderate and high suitability) would be significant

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because they would result in the degradation of a substantial area of suitable habitat for an imperiled species. Impacts to low quality habitat are expected to have less than significant effects to desert tortoise because populations are expected to be absent or low, these areas are not essential to maintenance of viable populations. Direct impacts to tortoise individuals could also be caused due to collisions with vehicles or heavy equipment and crushing of burrows within the maintenance footprint. The District implements avoidance and minimization measures for desert tortoise as described in SOP-BIO-8 (Desert Tortoise Avoidance); however, permanent direct impacts to desert tortoise that could not be avoided would be significant absent mitigation. Implementation of MM-BIO-13 (Mitigation for Desert Tortoise) would reduce potential impacts to desert tortoise to less than significant.

**Table 6-11  
Program Ground-Disturbing Activity Impacts to Desert Tortoise and Critical Habitat  
in the Desert Region Not Within LOPPs**

Program Activity	Desert Tortoise Habitat Suitability Classification			Temporary or Permanent
	Low (Acres)	Moderate (Acres)	High (Acres)	
Federal maintenance	4.3	5.1	4.3	Permanent
Mechanized land clearing <sup>a</sup>	—	—	—	Permanent
Ingress/egress	15.3 (1.8 CH)	5.2	2.6 (0.5 CH)	Permanent
Stockpile	1.4	0.2	25.3	Permanent
Bank repair	58.3 (1.1 CH)	4.7	0.6 (0.1 CH)	Temporary
Vegetation management	5.9	0.2	6.3	Permanent
<i>Subtotal permanent direct impacts</i>	26.9 (2.9 CH)	10.7	38.5 (0.5 CH)	
<i>Subtotal temporary direct impacts</i>	58.3 (1.1 CH)	4.7	0.6 (0.1 CH)	
<b>Total direct impacts</b>	<b>89.8 (2.9 CH)</b>	<b>36.3</b>	<b>51.2 (0.6 CH)</b>	

LOPP = local overlapping permitting process; CH = amount of total that is critical habitat.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

<sup>a</sup> This analysis assumes that mechanized land clearing is limited to channel and basin bottoms, which only provide move through habitat for desert tortoise. This assumption is subject to review by USFWS and CDFW, the outcome of which could result in increased impact calculations for this proposed program activity.

Long-term indirect impacts to desert tortoise habitat could be caused by introduction of non-native plant species. The proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Short-term indirect impacts to desert tortoise could result from fugitive dust, human presence, and increased noise levels outside the maintenance footprint. Maintenance activities under the proposed

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program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 ensures that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, SOP-BIO-16 outlines best management practices implemented by the District to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs, short-term indirect impacts to desert tortoise would be less than significant.

### *Least Bell's Vireo*

Ground-disturbing activities under the proposed program would result in permanent and temporary direct impacts in the Desert Region to 38.6 acres of potentially suitable riparian habitat for least Bell's vireo, a federally and state listed endangered species.

Other temporary direct impacts to least Bell's vireo could include disruption of breeding activity due to increased noise and human presence within the maintenance footprint associated with ground-disturbing maintenance activities (see Table 6-12). Impact to this species would be significant because this species is considered imperiled in the state due to a very restricted range. The District implements avoidance and minimization measures for least Bell's vireo as described in SOP-BIO-1 (Least Bell's Vireo Avoidance); however, permanent direct impacts to least Bell's vireo that could not be avoided would be significant absent mitigation. Implementation of MM-BIO-14 (Mitigation for Least Bell's Vireo Habitat in the Desert Region) would reduce impacts resulting from habitat loss to less than significant.

**Table 6-12  
Program Ground-Disturbing Activity Impacts to Least Bell's Vireo Habitat  
in the Desert Region**

Program Activity	Least Bell's Vireo Habitat Suitability Classification			Temporary or Permanent?
	Low (Acres)	Moderate (Acres)	High (Acres)	
Federal maintenance	0	0	0	Permanent
Mechanized land clearing	5.4	4.2	17.0	Permanent
Ingress/egress	0.0	0	0.1	Permanent
Stockpile	0	0	0	Permanent
Bank repair	8.8	0	3.1	Temporary

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**Table 6-12**  
**Program Ground-Disturbing Activity Impacts to Least Bell's Vireo Habitat**  
**in the Desert Region**

Program Activity	Least Bell's Vireo Habitat Suitability Classification			Temporary or Permanent?
	Low (Acres)	Moderate (Acres)	High (Acres)	
Vegetation management	0	0	0	Permanent
<i>Subtotal permanent direct impacts</i>	5.4	4.2	17.1	
<i>Subtotal temporary direct impacts</i>	8.8	0	3.1	
<b>Total direct impacts</b>	<b>14.2</b>	<b>4.2</b>	<b>20.2</b>	

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Short-term indirect impacts to least Bell's vireo could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Implementation of SOP-BIO-1 (Least Bell's Vireo Avoidance) would avoid potential impacts to breeding least Bell's vireo adjacent to the maintenance footprint.

Potential long-term indirect impacts to least Bell's vireo from ground-disturbing maintenance activities would primarily result from changes in hydrology resulting from vegetation removal and could potentially result in the introduction of non-native invasive species that would reduce habitat quality for least Bell's vireo. The proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, the hydrology and water quality SOPs in the Maintenance Plan would be implemented and would ensure that long-term indirect impacts to least Bell's vireo from changes in hydrology are less than significant.

### *Southwestern Willow Flycatcher*

Ground-disturbing activities under the proposed program would result in permanent and temporary direct impacts in the Desert Region to 38.6 acres of potentially suitable riparian habitat for southwestern willow flycatcher, a federally and state listed threatened species (see Table 6-13). Previous focused surveys in the Mojave River have not found breeding individuals to be present within the maintenance footprint. However, a southwestern willow flycatcher was documented in 2012 just downstream of the maintenance footprint, and the maintenance footprint for ground-disturbing activities overlaps potentially suitable riparian habitat. The District implements

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avoidance and minimization measures for southwestern willow flycatcher as described in SOP-BIO-3 (Southwestern Willow Flycatcher Avoidance); however, any impact to southwestern willow flycatcher breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. Implementation of MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo) would reduce impacts to southwestern willow flycatcher to less than significant.

**Table 6-13  
Program Ground-Disturbing Activity Impacts to  
Southwestern Willow Flycatcher Habitat in the Desert Region**

Program Activity	Southwestern Willow Flycatcher Habitat Suitability Classification			Temporary or Permanent
	Low (Acres)	Moderate (Acres)	High (Acres)	
Federal maintenance	0	0	0	Permanent
Mechanized land clearing	5.4 (5.4 CH)	4.2 (4.2 CH)	17.0 (17.0 CH)	Permanent
Ingress/egress	0.0	0	0.1 (0.1 CH)	Permanent
Stockpile	0	0	0	Permanent
Bank repair	8.8 (8.1 CH)	0	3.1 (3.0 CH)	Temporary
Vegetation management	0	0	0	Permanent
<i>Subtotal direct permanent impacts</i>	5.4	4.2	17.1	
<i>Subtotal direct temporary impacts</i>	8.8	0	3.1	
<b>Total direct impacts</b>	<b>14.2 (13.5 CH)</b>	<b>4.2 (4.2 CH)</b>	<b>20.2 (20.1 CH)</b>	

CH = amount of total that is critical habitat.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Short-term indirect impacts to southwestern willow flycatcher could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Implementation of SOP-BIO-3 (Southwestern Willow Flycatcher Avoidance) would avoid potential impacts to breeding southwestern willow flycatcher adjacent to the maintenance footprint.

Potential long-term indirect impacts to southwestern willow flycatcher from ground-disturbing maintenance activities would primarily result from changes in hydrology resulting from vegetation removal and could potentially result in the introduction of non-native invasive species that would reduce habitat quality for southwestern willow flycatcher. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term

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indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, the hydrology and water quality SOPs in the Maintenance Plan would be implemented and would ensure long-term indirect impacts to southwestern willow flycatcher from changes in hydrology are less than significant.

### ***Tricolored Blackbird***

Ground-disturbing maintenance activities under the proposed program could result in impacts to both breeding and foraging habitat for the tricolored blackbird, a state candidate endangered species. Impacts to tricolored blackbird foraging habitat are expected to be less than significant because foraging opportunities would remain after the maintenance activity is completed. In addition, tricolored blackbirds tend to forage in agricultural or open fields adjacent to the study area rather than within facilities. Ground-disturbing activities under the proposed program could result in removal of potentially suitable breeding habitat within the Mojave River upstream and downstream of I-15. Any impact to the ability of tricolored to breed at a site would be significant because this species is experiencing substantial population declines across its range. Implementation of MM-BIO-9, described in Section 4.3.3 of this report, would reduce impacts to tricolored blackbird to less than significant.

Long-term indirect effects to tricolored blackbird could result from diversion or modification of water flows in their breeding habitat or the establishment of non-native invasive plants within aquatic habitat that make the habitat unsuitable. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, implementation of the hydrology and water quality SOPs in the Maintenance Plan would result in less than significant long-term indirect impacts from changes in hydrology.

Short-term indirect impacts to tricolored blackbird could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Implementation of SOP-BIO-5 (Nesting Birds Avoidance) would avoid indirect impacts to nesting tricolored blackbird.

### ***Yellow-Billed Cuckoo (Western DPS)***

Focused surveys in the Mojave River found a transient individual of yellow-billed cuckoo near the I-15 bridge (Sims, pers. comm. 2017), but breeding has not been documented for this species west

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of the Colorado River in decades. However, the maintenance footprint for ground-disturbing activities overlaps potentially suitable riparian habitat for this species. Potential impacts to this species would be the same as described for southwestern willow flycatcher as they occupy similar habitat. Any impact to yellow-billed cuckoo breeding territories would be significant because this species is critically imperiled in the state due to extreme rarity and a very restricted range. Implementation of MM-BIO-15 (Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo) would reduce impacts to less than significant.

### ***Arroyo Toad***

Ground-disturbing activities under the proposed program may result in direct harm to arroyo toad, a federally endangered species, along the upper Mojave River when surface waters are present (generally upstream of Hesperia Lake Park). Direct harm to adults, metamorphs, or egg masses could occur. All life stages of this species are small and cryptic, so avoidance during activities can be difficult. Any direct harm to arroyo toad would be significant because this species is imperiled in the state due to a restricted range and relatively few populations. Implementation of SOP-BIO-9 (Arroyo Toad Avoidance) would avoid direct harm to this species. Due to the nature of the maintenance activities, permanent removal of suitable arroyo toad breeding habitat is not expected, and the site will remain usable by breeding arroyo toad; therefore, direct impacts to arroyo toad habitat would be less than significant.

Short-term indirect impacts to arroyo toad could include disruption of breeding activity for individuals outside the maintenance footprint due to increased dust, noise, and human presence associated with ground-disturbing maintenance activities. Short-term increases in sedimentation could also temporarily reduce downstream habitat quality, if arroyo toad are present in those locations. However, these impacts would be temporary and of limited intensity, and surveys have not indicated that arroyo toad are present downstream from the maintenance footprint.

Potential long-term indirect impacts to arroyo toad from ground-disturbing maintenance activities would primarily result from changes in hydrology. Vegetation removal could impact hydrology and may result in the introduction of non-native invasive species, reducing habitat quality. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, the hydrology and water quality SOPs in the Maintenance Plan would be implemented and would ensure long-term indirect impacts to arroyo toad from changes in hydrology are less than significant.

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## *Non-Listed Special-Status Wildlife Species*

### Mojave Fringe-Toed Lizard

Ground-disturbing activities may result in direct harm to Mojave fringe-toed lizard, a CDFW Species of Special Concern, where wind-blown sands overlap the study area. Direct impacts could include injury or mortality of juveniles and adults when they are not active at the surface; they tend to be active when its internal body temperature is between 79°F and 112°F (Hollingsworth and Beaman 1999, as cited in 76 FR 61321–61330) and they hibernate November to February (Mayhew 1966, as cited in 76 FR 61321–61330). Proposed program activities from May to July, when eggs may be present in sands, may negatively impact reproduction. Harm to Mojave fringe-toed lizard would be potentially significant because the species is vulnerable in the state and has a restricted range and relatively few populations. However, implementation of SOP-BIO-9 (Mojave Fringe-Toed Lizard Avoidance) would avoid direct harm to Mojave fringe-toed lizard and ensure that direct impacts from ground-disturbing activities would be less than significant. Due to the nature of the maintenance activities and that wind-blown sands naturally shift, permanent removal of suitable Mojave fringe-toed lizard habitat is not expected.

### Mojave River Vole

Ground-disturbing activities would result in direct harm to Mojave River vole, a CDFW Species of Special Concern, where saturated wetland and riparian habitat overlap the maintenance footprint. A portion of this area was previously determined to support at least 414 voles (Kindt et al. 2003). This species is tied to wetland areas and does not have the mobility to flee a large area where suitable habitat is being removed. Removal of suitable habitat for Mojave River vole could be significant because this species is critically imperiled in the state.. There are limited locations along the Mojave River that are known to support occupied habitat for this species, and it is not known if the current distribution includes non-contiguous patches of suitable habitat (such as near the Victor Valley wastewater treatment plant). Previously, disconnected wetland patches, such as at National Trails Highway, were determined to be unoccupied (Kindt et al. 2003). In addition, the frequency of proposed maintenance activities could result in an overall reduction of habitat quality. Implementation of MM-BIO-16 would reduce impacts to Mojave River vole to less than significant.

### Western Pond Turtle

Ground-disturbing activities may result in impacts to western pond turtle, a CDFW Species of Special Concern. There may be pools within the Mojave River maintenance footprint, however, the potential for impacts is considered low as the majority of study areas have flowing water, not pools. Removal of pools could reduce the amount of suitable habitat for western pond turtle. Direct

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impacts to individuals from ground-disturbing activities would be avoided through implementation of SOP-BIO-10 (Western Pond Turtle Avoidance).

### Burrowing Owl

Ground-disturbing activities may result in direct impacts to burrowing owl burrow sites, a California species of special concern. Burrow sites where this species is known to nest have been recorded, in very small numbers, within the study area. Any impact to burrowing owl burrow sites or burrowing owl individuals would be significant because of restricted range, relatively few populations, and recent range-wide declines. Maintenance activities could result in a slight benefit to burrowing owl breeding and foraging habitat due to the reduction in vegetation density and height, which is preferred by this species. The District implements standard avoidance and minimization practices for burrowing owl, as described in SOP-BIO-6 (see Section 1.2.3), which would result in less than significant impacts to burrowing owl.

### Nesting Birds

Ground-disturbing activities during the nesting season (generally between January 15 and August 31) could result in direct impacts to non-listed special-status birds with potential to nest in the maintenance footprint, and indirect impacts to special-status birds with potential to nest adjacent to the maintenance footprint. Non-listed special-status birds with potential to nest in the Desert Region include loggerhead shrike, yellow warbler, yellow-breasted chat, Bendire's thrasher, crissal thrasher, summer tanager, and vermilion flycatcher. Direct impacts could include injury or mortality of adults and the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the nesting season (generally between January 15 and August 31). This impact would be significant because direct impacts to nesting individuals could occur during a critical period of these species' life cycles and would result in reduced reproductive success. In addition, direct impacts that cause nest failure would also be a violation of the Migratory Bird Treaty Act and the California Fish and Game Code. Implementation of SOP-BIO-5 (Nesting Birds Avoidance) would avoid direct impacts to nesting birds.

### Other Special-Status Wildlife

There are a number of non-listed special-status wildlife species that have a moderate or greater potential to occur within the study area, but where direct impacts are expected to be less than significant due to one or more of the following: maintenance activity may not be removing habitat specifically suitable for that species, maintenance activities may only have impacts on very few individuals and the species is relatively abundant on a regional scale such that maintenance activities do not threaten the continued existence of these species locally or regionally, and some of these

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species are mobile and can avoid direct harm by moving away from the maintenance activity. Potential adverse impacts are expected to be less than significant for the following non-listed special-status: Blainville's horned lizard, American badger, and pallid San Diego pocket mouse. Potential short-term indirect impacts to non-nesting special-status wildlife species during implementation of the proposed program, such as noise and vibration, would be very brief in duration, and would have a minimum amount of potential for adverse effects. Therefore, potential short-term indirect impacts to other special-status wildlife species would be less than significant.

### **6.2.3.2 Non-Ground-Disturbing Vegetation Management**

#### **Critical Habitat**

Non-ground-disturbing vegetation management in the Desert Region would likely result in no impact to critical habitat for desert tortoise and southwestern willow flycatcher. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from the additional human presence and vehicle access to the maintenance footprint. These impacts would not constitute destruction or adverse modification of critical habitat.

Similarly, indirect impacts to critical habitat from non-ground-disturbing vegetation management would be very minimal, limited to only short-term indirect impacts from vehicle access to the maintenance site and the effects of the additional human presence on the nearby maintenance footprint.

#### **Special-Status Plant Species**

Non-ground-disturbing vegetation management would not result in permanent or temporary direct impacts to special-status plant species.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status plant species. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Potential short-term indirect impacts to special-status plant species from non-ground-disturbing activities could primarily result from increased human activity and the introduction of chemical pollutants. These potential short-term indirect impacts to special-status plant species could be significant, absent SOPs. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the limits. Implementation of SOP-BIO-16 would ensure that trash and debris are disposed of properly. To minimize the potential impact from

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chemical pollutants, SOP-BIO-16 describes best management practices the District employs to ensure that no debris, oil, petroleum products, or other organic material shall be allowed to enter into adjacent natural habitat areas. Because these activities would not result in ground disturbance, fugitive dust is not an anticipated short-term indirect impact. With implementation of these SOPs, short-term indirect impacts to special-status plants would be less than significant.

### Special-Status Wildlife Species

Non-ground-disturbing vegetation management in the Desert Region would likely result in no impact to special-status wildlife species. Disturbance from pruning or thinning of vegetation would be limited to temporary minor direct impacts from additional human presence and vehicle access to the maintenance footprint, and implementation of SOPs would ensure no direct harm to individual animals would occur.

Similarly, indirect impacts to special-status wildlife species from non-ground-disturbing vegetation management would be very minimal, limited to only short-term indirect impacts from vehicle access to the maintenance site and the incremental effects of additional human presence.

### 6.2.3.3 Non-Ground-Disturbing Activities

#### Critical Habitat

Non-ground-disturbing activities in the Desert Region would result in a small area of temporary direct impacts to designated critical habitat for the southwestern willow flycatcher (Table 6-14). SOP-BIO-19 would ensure that herbicide vector control would not be used inside desert tortoise critical habitat. Section 7(a) of the ESA requires federal agencies (like the USACE) to ensure that actions they authorize do not destroy or adversely modify critical habitat, by consulting with the USFWS. The minimal level of temporary disturbance associated with these activities would not constitute destruction or adverse modification of critical habitat, and would be a less than significant impact.

**Table 6-14  
Program Non-Ground-Disturbing Activity Impacts to Critical Habitat in the Desert  
Region**

Species Critical Habitat	Program Activity	Maintenance Footprint (Acres)	Suitable Habitat within Maintenance Footprint (Acres)	Temporary or Permanent
Southwestern willow flycatcher	Herbicide vector control	0.3	0.0	Temporary

Source: USFWS 2017.

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Potential long-term indirect impacts to southwestern willow flycatcher critical habitat from herbicide vector control could primarily result from the introduction of non-native invasive species within areas treated with herbicide. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and indirect impacts related to spread of invasive species would be less than significant.

Potential short-term indirect impacts to critical habitat from non-ground-disturbing activities could primarily result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. SOP-BIO-19 (Herbicide Application) would minimize the risk of herbicide spray drift and reduce long-term indirect impacts to critical habitat from herbicides to less than significant levels. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

### **Special-Status Plant Species**

Special-status plant species could be directly impacted during non-ground-disturbing activities (herbicide vector control) associated with implementation of the proposed program. Twenty-five special-status plants have a moderate potential to occur (or low potential to occur for the two federally listed impacts) within the Desert Region study area. Application of herbicide to special-status plant species could be a potentially significant impact. Implementation of SOP-BIO-14 (Special-Status Plants Pre-Activity Surveys and Avoidance) would avoid and minimize potential direct impacts to special-status plants. However, without mitigation, permanent direct impacts to special-status plant species would be significant. Implementation of MM-BIO-3 would reduce impacts to special-status plants to less than significant.

Short-term indirect impacts to special-status plants from herbicide vector control could result from the introduction of non-native invasive species. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

Potential short-term indirect impacts to special-status plant species from non-ground-disturbing activities would primarily result from increased human activity and the potential for herbicide over spray. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human

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activity by reviewing and/or designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-15 ensures that trash and debris are disposed of properly. With respect to herbicide spray drift, the District implements SOP-BIO-19 to minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to special-status plant species would be less than significant.

### Special-Status Wildlife Species

#### *Mohave Ground Squirrel*

Non-ground-disturbing activities under the proposed program could result in temporary direct impacts to Mohave ground squirrel, a state threatened species, on a total of 1.7 acres of habitat, including 0.8 acres of habitat likely to support the species (Table 6-15). The herbicides used under the proposed program would not have toxic effects to Mohave ground squirrel. Additionally, as described in Section 1.2.2, Program Activities and Schedule, of this report, rodenticide used in areas containing protected rodents such as the Mohave ground squirrel is applied using special traps, and in accordance with applicable federal and state laws, regulations, and policies and the County’s agency-approved Integrated Pest Management Plan. Therefore, impacts to Mohave ground squirrel from herbicide and rodenticide would be less than significant.

**Table 6-15**  
**Non-Ground-Disturbing Activity Impacts to Mohave Ground Squirrel Habitat**  
**in the Desert Region**

Program Activity	Mohave Ground Squirrel Habitat Suitability Classification				Temporary or Permanent?
	Unlikely to Support		Likely to Support		
	Poor (Acres)	Fair (Acres)	Good (Acres)	Excellent (Acres)	
Herbicide vector control	0.7	0.2	0.8	0.0	Temporary

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Potential long-term indirect impacts to Mohave ground squirrel from herbicide vector control would primarily result from the introduction of non-native invasive species within the treated areas, which could degrade Mohave ground squirrel habitat. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant.

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Potential short-term indirect impacts to Mohave ground squirrel from non-ground-disturbing activities would primarily result from increased human activity and overspray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain in the designated maintenance area. With respect to herbicide overspray, the District implements SOP-BIO-19 (Herbicide Application) to minimize the risk of herbicide spray drift. With implementation of these SOPs, short-term indirect impacts to critical habitat would be less than significant.

### ***Desert Tortoise***

Non-ground-disturbing activities under the proposed program would not result in direct impacts to desert tortoise. SOP-BIO-19 requires the District to avoid using any herbicides in areas identified as having low, moderate, or high suitability for desert tortoise.

Potential long-term indirect impacts to desert tortoise from herbicide vector control would primarily result from the introduction of non-native invasive species within areas treated with herbicide, outside of desert tortoise habitat. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts to desert tortoise associated with the establishment of invasive species would be less than significant.

Potential short-term indirect impacts to critical habitat from non-ground-disturbing activities would primarily result from potential for drift of herbicide overspray applied outside the desert tortoise habitat. The District implements SOP-BIO-19 (Herbicide Application) to minimize the risk of herbicide spray drift. With implementation of this SOP, short-term indirect impacts to desert tortoise would be less than significant.

### ***Least Bell's Vireo***

Non-ground-disturbing activities under the proposed program would not directly impact least Bell's vireo habitat. Potential short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near least Bell's vireo habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-1 (Least Bell's Vireo Avoidance) would avoid impacts to nesting least Bell's vireo adjacent to the maintenance areas. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to least Bell's vireo habitat would be less than significant.

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### ***Southwestern Willow Flycatcher***

Non-ground-disturbing activities under the proposed program would not directly impact southwestern willow flycatcher habitat. Potential short-term indirect impacts to species habitat from non-ground-disturbing activities could result from increased human activity at a site near southwestern willow flycatcher habitat, and the potential for herbicide spray drift outside the maintenance footprint. SOP-BIO-3 (Southwestern Willow Flycatcher Avoidance) would avoid impacts to nesting southwestern willow flycatcher adjacent to the maintenance areas. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to southwestern willow flycatcher habitat would be less than significant.

### ***Tricolored Blackbird***

Non-ground-disturbing activities under the proposed program could result in permanent direct impacts to tricolored blackbird if the herbicides removed tricolored blackbird breeding habitat. That habitat could include freshwater marsh vegetation such as tules and cattails, or invasive non-native vegetation such as Himalayan blackberry or various thistle species. Implementation of MM-BIO-9 (Mitigation for Tricolored Blackbird), described in Section 4.3.3 of this report, would reduce impacts to tricolored blackbird habitat to less than significant.

Potential short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near tricolored blackbird habitat. Implementation of SOP-BIO-5 (Nesting Birds Avoidance) would avoid potential impacts to nesting tricolored blackbirds adjacent to the maintenance area. Potential herbicide spray drift outside the maintenance footprint could result in long-term indirect impacts to the same types of tricolored blackbird habitat outside the maintenance areas. SOP-BIO-19 (Herbicide Application) minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to tricolored blackbird habitat would be less than significant.

### ***Yellow-Billed Cuckoo***

Non-ground-disturbing activities under the proposed program would not directly impact yellow-billed cuckoo habitat. Potential short-term indirect impacts from non-ground-disturbing activities could result from increased human activity at a site near occupied habitat and the potential for herbicide spray drift outside the maintenance footprint. However, as only two transient individuals have been found in the Desert Region in the last two decades, the potential for impacts to this species is less than significant.

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## *Arroyo Toad*

Herbicide treatments under the proposed program could cause temporary direct impacts to the arroyo toad. Potential short-term indirect impacts to arroyo toad from non-ground-disturbing activities could result from increased human activity and the potential for herbicide spray drift outside the maintenance footprint. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field with a biologist to ensure that maintenance activities remain in the designated maintenance area. SOP-BIO-19 minimizes the risk of herbicide spray drift. With implementation of these SOPs, long-term indirect impacts to arroyo toad habitat would be less than significant.

## *Non-Listed Special-Status Wildlife Species*

Non-ground-disturbing activities under the proposed program would not cause long-term direct impacts to non-listed special status wildlife species.

### **6.2.4 Impact BIO-2**

*Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.*

#### **6.2.4.1 Ground-Disturbing Activities**

### **Program Impacts Within LOPPs**

As detailed in Table 6-16, LOPPs that fall within the proposed program area would result in direct impacts to special-status vegetation communities. These impacts would be significant if maintenance activities occur within these areas prior to environmental clearance being obtained by the LOPPs. With implementation of MM-BIO-1 (Impacts Covered by LOPPs), maintenance activities shall not be initiated within LOPP areas until the required permits and environmental clearance have been obtained; therefore, there would be a less than significant impact to special-status vegetation communities within LOPP areas.

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**Table 6-16**  
**Program Ground-Disturbing Activity Impacts to**  
**Special-Status Vegetation Communities in the Desert Region Within LOPPs**

Program/Plan Name	Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent Impacts (Acres)	Temporary Impacts (Acres)
Lenwood	Desert dunes	North American warm desert dunes and sand flats	1.9	0.1
<b>Total</b>	—	—	<b>1.9</b>	<b>0.1</b>

LOPP = local overlapping permitting process.

### Program Impacts Not Within LOPPs

Table 6-17 quantifies the permanent and temporary direct impacts to special-status vegetation communities that could occur as a result of implementation of ground-disturbing maintenance activities in the Desert Region. The following ground-disturbing activities were considered to have permanent impacts to special-status vegetation communities as the intent of the activity is to maintain the area free of vegetation or the activity would sufficiently remove the root structure such that natural revegetation is not expected: federal maintenance, ingress/egress, mechanized land clearing, and stockpiles. Vegetation management was considered a permanent impact for vegetation communities that would not reestablish between maintenance events (within 3 years for most facilities). Bank repair was considered a temporary impact as was vegetation management for communities that would reestablish within 3 years. Permanent and temporary impacts that would result from ground-disturbing maintenance are defined and described in more detail below.

**Table 6-17**  
**Program Ground-Disturbing Impacts to Special-Status Vegetation Communities**  
**in the Desert Region Not Within LOPPs**

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (Acres)	Temporary (Acres)
Desert dry wash woodland	Desert willow woodland alliance	9.6	1.9
	Mesquite bosque, mesquite thicket alliance	—	1.0
<i>Desert dry wash woodland subtotal</i>		9.6	3.0
Desert dunes	Desert panic grass patches	6.0	2.7
	North American warm desert dunes and sand flats	0.4	—
<i>Desert dunes subtotal</i>		6.3	2.7
Desert sink scrub	Bush seepweed scrub alliance	0.2	0.4
<i>Desert sink scrub subtotal</i>		0.2	0.4

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**Table 6-17**  
**Program Ground-Disturbing Impacts to Special-Status Vegetation Communities**  
**in the Desert Region Not Within LOPPs**

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (Acres)	Temporar y (Acres)
Joshua tree woodland	Disturbed Joshua tree woodland	0.6	0.2
	Joshua tree woodland	1.7	2.6
<i>Joshua tree woodland subtotal</i>		2.3	2.8
Marsh	Cattail marshes alliance	0.1	<0.05
<i>Marsh subtotal</i>		0.1	<0.05
Riparian forest and woodland	Fremont cottonwood forest alliance	14.3	18.0
	Red willow thickets alliance	1.1	0.1
<i>Riparian forest and woodland subtotal</i>		15.5	18.0
Sonoran and Mojavean desert scrub	California joint fir scrub alliance	0.4	—
	Disturbed Mojave yucca scrub alliance	0.5	0.2
	Mojave yucca scrub alliance	1.2	0.4
	Scale broom scrub alliance	12.6	7.3
<i>Sonoran and Mojavean desert scrub subtotal</i>		14.7	7.9
<b>Total</b>		<b>48.7</b>	<b>34.7</b>

LOPP = local overlapping permitting process.

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

Ground-disturbing vegetation management is considered a permanent impact to desert dry wash woodland, desert dunes, desert sink scrub, Joshua tree woodland, riparian forest and woodland, and Sonoran and Mojavean desert scrub communities because these vegetation communities are not likely to passively revegetate within 3 years. Thus, ground-disturbing maintenance activities, including mechanized land clearing, ingress/egress roads, federal maintenance, and ground-disturbing vegetation management, would result in permanent direct impacts to the following special-status vegetation alliances: desert willow woodland alliance; desert panic grass patches; North American warm desert dunes and sand flats; bush seepweed scrub alliance; Joshua tree woodland (including disturbed forms); Fremont cottonwood forest alliance; red willow thickets alliance; scale broom scrub alliance; California joint fir scrub alliance; and Mojave yucca scrub alliance, including disturbed forms. Direct permanent impacts to these vegetation communities would be significant absent mitigation. However, implementation of MM-BIO-17 (Compensation for Special-Status Vegetation Communities in the Desert Region) would mitigate these impacts to less than significant levels.

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Ground-disturbing vegetation management is considered a temporary impact for the cattail marsh alliance. The cattail marsh alliance typically passively revegetates within 6 months of vegetation management and can often function as suitable habitat the summer after being removed.

Bank repairs are considered a temporary impact. Bank repairs would result in temporary direct impacts to the following special-status vegetation alliances: desert willow woodland alliance; mesquite bosque, mesquite thicket alliance; desert panic grass patches; North American warm desert dunes and sand flats; bush seepweed scrub alliance; Joshua tree woodland (including disturbed forms); cattail marshes alliance; Fremont cottonwood forest alliance; red willow thickets alliance; scale broom scrub alliance; and Mojave yucca scrub alliance, including disturbed forms. Direct temporary impacts associated with bank repair involve native soil being placed along facility banks for stabilization. This would result in minimal compaction of understory species in woodland communities and potential loss and minimal compaction of shrubs and herbaceous species within the shrub communities; therefore, temporary impacts to special-status vegetation communities would be less than significant.

Accidental maintenance activities outside designated maintenance areas may occur for various reasons. Implementation of SOP-BIO-15 (Worker Environmental Awareness Program) would minimize the potential temporary direct impacts of accidental impacts by designating the vegetation removal area in the field to ensure that maintenance activities remain within the designated maintenance area. SOP-BIO-15 training for all maintenance field managers would also ensure compliance with the SOPs and other mitigation measures. With implementation of SOP-BIO-15, temporary direct impacts to special-status vegetation communities would be less than significant.

Potential long-term indirect impacts to special-status vegetation communities from ground-disturbing activities would primarily result from changes in hydrology that occur when vegetation is removed. In addition, the introduction of non-native invasive species may occur. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area. Therefore, the proposed program would have a beneficial impact by reducing invasive species, and long-term indirect impacts associated with the establishment of invasive species would be less than significant. With respect to changes in hydrology, the District implements hydrology and water quality SOPs as described in the Maintenance Plan. With implementation of these SOPs, long-term indirect impacts to special-status vegetation communities from changes in hydrology would be less than significant.

Potential short-term indirect impacts to special-status vegetation communities from ground-disturbing activities could primarily result from the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. With respect to fugitive dust,

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maintenance activities under the proposed program must adhere to MDAQMD and SCAQMD Rule 403 (Fugitive Dust) during maintenance activities, which would assist in minimizing maintenance activity-generated fugitive dust emissions to less than significant levels. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in the field to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 ensures that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. The proposed program, with implementation of these SOPs, would not result in significant short-term indirect impacts to special-status vegetation communities.

### **6.2.4.2 Non-Ground-Disturbing Vegetation Management**

Non-ground-disturbing vegetation management activities are not quantified and involve activities such as manual pruning. Because these impacts are not expected to substantially change the vegetation community, they are considered temporary. Non-ground-disturbing vegetation management would not result in permanent direct impacts to special-status vegetation communities.

Because non-ground-disturbing vegetation management activities are limited to activities such as manual pruning, the potential impacts to vegetation communities are considered temporary. Manual pruning and other types of vegetation trimming is not expected to substantially affect special-status vegetation communities because the foliage of the plants pruned would be allowed to regrow between maintenance activities. Implementation of SOP-BIO-15 would minimize the potential temporary direct impacts of accidental impacts by designating the vegetation trimming area in the field to ensure that maintenance activities remain in the designated work area. SOP-BIO-15 (Worker Environmental Awareness Program) training for all maintenance field managers would also ensure compliance with the SOPs and other mitigation measures. With implementation of SOP-BIO-15, temporary direct impacts to special-status vegetation communities from non-ground-disturbing maintenance activities would be less than significant.

Manual pruning and other types of vegetation trimming would not result in significant long-term indirect impacts to special-status vegetation communities. Vegetation trimming would not substantially affect hydrology over the long term and the lack of soil disturbance would not encourage the establishment of non-native invasive species.

Potential short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities could primarily result from increased human activity and the introduction of chemical pollutants. Implementation of SOP-BIO-15 would minimize the short-term impacts of increased human activity by designating the vegetation removal area in

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the field with a biologist to ensure that maintenance activities remain within the designated maintenance area. Implementation of SOP-BIO-16 ensures that trash and debris are disposed of properly. To minimize the potential impact from chemical pollutants, the District implements SOP-BIO-16 to ensure that no debris, oil, petroleum products, or other organic material enter into adjacent natural habitat areas. With implementation of these SOPs short-term indirect impacts would be less than significant.

### 6.2.4.3 Non-Ground-Disturbing Activities

Non-ground-disturbing activities such as fencing and gate repairs, graffiti removal, and stream gage maintenance are not expected to result in direct or indirect impacts to special-status vegetation communities. Sand and gravel operations would occur in disturbed areas and would not result in permanent or temporary direct impacts to special-status vegetation communities. Additionally, herbicide application areas and vector control areas were quantified. Table 6-18 shows the temporary impacts that could result from herbicide application and vector control.

**Table 6-18**  
**Program Non-Ground-Disturbing Activity Impacts**  
**to Special-Status Vegetation Communities in the Desert Region**

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Temporary (Acres)
Desert dry wash woodland	Desert willow woodland alliance	<0.05
<i>Desert dry wash woodland subtotal</i>		<0.05
Desert dunes	Desert panic grass patches	0.2
	North American warm desert dunes and sand flats	<0.05
<i>Desert dunes subtotal</i>		0.2
Desert sink scrub	Bush seepweed scrub alliance	<0.05
<i>Desert sink scrub subtotal</i>		<0.05
Joshua tree woodland	Disturbed Joshua tree woodland	<0.05
	Joshua tree woodland	0.1
<i>Joshua tree woodland subtotal</i>		0.1
Riparian forest and woodland	Fremont cottonwood forest alliance	<0.05
<i>Riparian forest and woodland subtotal</i>		<0.05
Sonoran and Mojavean desert scrub	California joint fir scrub alliance	<0.05
	Scale broom scrub alliance	<0.05
<i>Sonoran and Mojavean desert scrub subtotal</i>		<0.10
<b>Total</b>		<b>0.4</b>

Total acreage of impacts would be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time based on a programmatic level of review. Mitigation would be completed as determined by actual impact acreages.

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Non-ground-disturbing activities would not result in permanent direct impacts to special-status vegetation communities.

Herbicide application would occur in the following special-status vegetation alliances: desert willow woodland alliance; desert panic grass patches; North American warm desert dunes and sand flats; bush seepweed scrub alliance; Joshua tree woodland (including disturbed forms); Fremont cottonwood forest alliance; scale broom scrub alliance; and California joint fir scrub alliance. Due to the small area of impact, this would be a less than significant impact.

With respect to vector control, introduction of mosquito-larva-eating fish would not affect special-status vegetation communities. All applicable laws, regulations, safety precautions, and label directions would be followed when performing pest control. All pesticide applications will be performed by a contractor with a valid Qualified Applicator License and a valid Pest Control Business License. A licensed Pest Control Adviser will be consulted if specific pest control recommendations are required. Only non-native species would be targeted for treatment. Therefore, temporary direct impacts to special-status vegetation communities from the use of pesticides are considered less than significant.

Potential indirect impacts to special-status vegetation communities from non-ground-disturbing activities would include the improper use of pesticides and herbicide drift. As described previously, all applicable laws, regulations, safety precautions, and label directions would be followed when performing pest control. Therefore, potential long-term indirect impacts to special-status vegetation communities from the use of pesticides are less than significant. SOP-BIO-19 would minimize the risk of herbicide spray drift; therefore, indirect impacts to species habitat from herbicides would be less than significant.

Potential indirect impacts to special-status vegetation communities from sand and gravel operations include increased vehicle traffic, non-native soil introduction, and non-native plant species introduction. Increased traffic would be temporary and of short duration; therefore, this indirect impact would be less than significant. With respect to the introduction of non-native invasive species, the proposed program includes a vegetation management component that would reduce the spread of non-native species in the proposed program area; therefore, the proposed program would have a beneficial impact by reducing invasive species, and there would be a less than significant impact with respect to introduction of invasive species. To minimize the potential impact from non-native soil, the District would implement SOP-BIO-16 to ensure that organic material does not enter into adjacent natural habitat areas; therefore, indirect impacts to special-status vegetation communities would be less than significant.

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Potential short-term indirect impacts to special-status vegetation communities from non-ground-disturbing activities would be limited to the improper use of pesticides. As described previously, all applicable laws, regulations, safety precautions, and label directions would be followed when performing pest control. Therefore, potential short-term indirect impacts to special-status vegetation communities from the use of pesticides would be less than significant.

### **6.2.5 Impact BIO-3**

*Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

A complete analysis of impacts to wetlands and other jurisdictional waters is being completed under separate cover (Dudek 2017). Therefore, this will not be addressed in this report.

### **6.2.6 Impact BIO-4**

*Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.*

Maintenance activities would occur within one identified wildlife corridor (Mojave River) in the Desert Region. However, because maintenance activities would only remove or degrade a small portion of the habitat in the Mojave River, the result of these activities is unlikely to preclude use by dispersing wildlife. Therefore, permanent direct impacts to wildlife corridors and habitat linkages would be less than significant. Temporary direct and short-term indirect impacts to the Mojave River wildlife corridor would occur as a result of human presence, noise, and dust during maintenance activities. These impacts would be low intensity and would occur only once every 3 years; therefore, less than significant impacts to wildlife corridors would occur.

### **6.2.7 Impact BIO-5**

*Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

By definition in the San Bernardino County Development Code, Chapter 88.01 Plant Protection and Management, local governmental entities, such as the District, are exempt. Therefore, removal of trees that may otherwise be protected, such as those in riparian areas (88.01.080), are not in conflict with the San Bernardino County Development Code and no impact would occur. Nevertheless, as part of their environmentally sensitive practice, the District is avoiding and

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minimizing impacts as practicable to species covered by the Development Code including oak woodlands, Joshua trees, and riparian habitat.

## 6.2.8 Impact BIO-6

*Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.*

The proposed program would not impede the achievement of the biological goals and measurable objectives of existing or future conservation plans in the Desert Region. Proposed program impacts to the two plans already adopted or in development within the Desert Region are described below.

### Desert Renewable Energy Conservation Plan

The Desert Region overlaps the DRECP, which amended the California Desert Conservation Area plan and established Conservation Management Actions that apply to activities on BLM lands. Appendix D of the Maintenance Plan provides measures applicable to facilities that occur on BLM land implemented by the District. With implementation of these measures, the program would be consistent with the DRECP.

### Lower Colorado River MSCP

The Lower Colorado River MSCP area is far removed from the study area. Therefore, no impacts to the implementation of the MSCP would result from the proposed program.

## 6.3 Mitigation

This section identifies mitigation measures for impacts that were identified as significant.<sup>16</sup>

MM-BIO-1 (Impacts Covered by LOPPs), described in Section 4.3 of this report, is applicable to the Desert Region as well.

### 6.3.1 Impact BIO-1.1: Critical Habitat

MM-BIO-2 (Impacts to Critical Habitat), described in Section 4.3.1 of this report, is applicable to the Desert Region as well.

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<sup>16</sup> The District coordinates with other water districts and public agencies that have easements for use of District facilities. Program impacts that overlap with impacts from activities related to facility use by other agencies may be mitigated in coordination with those agencies. Additionally, where mitigation for biological resources overlap, mitigation completed by the District will be counted toward each resource such that the District is not mitigating twice for overlapping resources.

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## 6.3.2 Impact BIO-1.2: Special-Status Plants

MM-BIO-3 (Mitigation for Special-Status Plants), described in Section 4.3.2 of this report, is applicable to the Desert Region as well.

## 6.3.3 Impact BIO-1.3: Special-Status Wildlife Species

MM-BIO-9 (Mitigation for Tricolored Blackbird), described in Section 4.3.3 of this report, is applicable to the Desert Region, as are the following measures:

**MM-BIO-12** Mitigation for Mohave Ground Squirrel. Compensatory mitigation ratios for Mohave ground squirrel shall be at a ratio of 1:1 for permanent direct impacts to Good quality habitat and 1.5:1 for permanent direct impacts to Excellent quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of preservation, enhancement, and/or creation and shall be coordinated with CDFW as part of the ITP.

Prior to impacts of potentially occupied Mohave ground squirrel habitat, the District shall receive authorization from the CDFW through CESA Sections 2081(b) and (c). Any measures determined to be necessary through the ITP process to offset impacts to Mohave ground squirrel may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

### Proposed Mitigation Ratios and Estimated Mitigation Acreage for Mohave Ground Squirrel in the Desert Region

Habitat Quality	Impacts (acres)	Mitigation Ratio	Total Mitigation (acres)
Good	28.7	1:1	28.7
Excellent	0.8	1.5:1	1.2
<b>Total</b>	<b>29.5</b>	—	<b>29.9</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

**MM-BIO-13** Mitigation for Desert Tortoise. Compensatory mitigation ratios for desert tortoise shall be at a ratio of 0.5:1 for permanent direct impacts to moderate-quality habitat and 1:1 for permanent direct impacts to high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of preservation, enhancement, and/or creation and shall be coordinated with the USFWS and CDFW as part of the ITP.

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Prior to impacts of potentially occupied desert tortoise habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS would issue a Biological Opinion that will authorize removal of desert tortoise habitat and adverse modification of designated critical habitat. Any measures determined to be necessary through the ITP process to offset impacts to desert tortoise may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

### Proposed Mitigation Ratios and Estimated Mitigation Acreage for Desert Tortoise in the Desert Region

Habitat Quality	Impacts (acres)	Mitigation Ratio	Total Mitigation (acres)
Moderate	78.7	0.5:1	39.4
High	209.1	1:1	209.1
<b>Total</b>	<b>287.8</b>	—	<b>248.5</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

**MM-BIO-14 Mitigation for Least Bell’s Vireo Habitat in the Desert Region.** Compensatory mitigation ratios for least Bell’s vireo shall be at 1:1 for low-quality habitat, 2:1 for moderate-quality habitat, and 3:1 for high-quality habitat or as otherwise required by applicable resource agency permits. Mitigation shall be a combination of preservation, enhancement, and/or creation and shall be coordinated with the USFWS as part of the ITP.

### Mitigation Ratios and Acreage for Least Bell’s Vireo Habitat in the Desert Region

Habitat Quality	Impacts (acres)	Mitigation Ratio	Total Mitigation (acres)
Low quality	5.4	1:1	5.4
Moderate quality	4.2	2:1	8.4
High quality	17.1	3:1	51.3
<b>Total</b>	<b>26.7</b>	—	<b>65.1</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

Prior to removal of suitable least Bell’s vireo habitat, the District shall receive authorization from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c). The USFWS would issue a Biological Opinion that will authorize harm to least Bell’s vireo, including adverse modification of designated critical habitat as applicable. Any measures

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determined to be necessary through the ITP process may supersede measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

### **MM-BIO-15 Mitigation for Southwestern Willow Flycatcher and Yellow-Billed Cuckoo.**

Due to the presence of moderately suitable southwestern willow flycatcher and yellow-billed cuckoo habitat within the Mojave River maintenance footprint, focused protocol surveys shall be completed for these species prior to initiation of maintenance activities in this area and repeated every 5 years to determine the presence/absence of these species.

If the results of the survey are positive, occupied areas shall be avoided to the maximum extent practicable. If 100% avoidance is not feasible due to flood protection requirements, consultation with the USFWS and CDFW shall be initiated prior to implementation of any activities that may impact occupied habitat, directly or indirectly.

Authorization for removal of occupied southwestern willow flycatcher and/or yellow-billed cuckoo habitat and critical habitat shall be obtained from the USFWS through the ESA ITP process and from the CDFW through CESA Sections 2081(b) and (c) prior to initiating maintenance activities in occupied areas. Any conditions required by the ITP process may supersede mitigation measures provided in this document and shall be incorporated into the Maintenance Plan for implementation with other SOPs and mitigation measures.

**MM-BIO-16** Mitigation for Mojave River Vole. Prior to implementation of maintenance activities in suitable Mojave River vole habitat upstream and downstream of I-15, a Mojave River vole management plan shall be prepared, submitted, and approved by the CDFW. At a minimum, the Mojave River vole management plan shall address methodologies and timing to phase removal of occupied habitat so that suitable patches are sustained through time, as well as height of mowing to achieve flood protection goals. In addition, it will analyze the feasibility of relocating Mojave River vole from removal areas to areas confirmed to be unoccupied. The Mojave River vole management plan will include a process for identifying and confirming potentially unoccupied sites (such as areas downstream of Victor Valley or areas downstream of the Mojave Dam), need and timing of trapping surveys, relocation techniques, monitoring, and reporting.

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### 6.3.4 Impact BIO-2: Vegetation Communities and Land Cover Types

**MM-BIO-17 Compensation for Special-Status Vegetation Communities in the Desert Region.** Direct impacts to special status vegetation communities shall be mitigated at the ratios included in the following table or as otherwise determined in applicable resource agency permits. Mitigation shall include preservation, creation, enhancement, and/or rehabilitation or restoration of impacted vegetation communities. Mitigation for species may overlap with mitigation for sensitive communities and will be included as part of the total mitigation obligation for sensitive communities such that the District is not mitigating twice for the same resource. A final mitigation plan shall be prepared for special-status vegetation communities that includes the following elements: (1) the mitigation type (e.g., preservation, creation, etc.); (2) location of mitigation; (3) evaluation of how the functions and values of the impacted vegetation communities will be mitigated; (4) an implementation plan; (5) maintenance requirements; (6) monitoring requirements; (7) reporting requirements; (8) contingency measures; (9) long-term management; and (10) funding assurances.

#### Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities in the Desert Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (acres)	Mitigation Ratio	Mitigation (acres)
Desert dry wash woodland	Desert willow woodland alliance	9.6	1:1	9.6
	Mesquite bosque, mesquite thicket alliance	—		—
<i>Desert dry wash woodland subtotal</i>		9.6		9.6
Desert dunes	Desert panic grass patches	6.0	1:1	6.0
	North American warm desert dunes and sand flats	2.2	1:1	2.2
<i>Desert dunes subtotal</i>		8.2		8.2
Desert sink scrub	Bush seepweed scrub alliance	0.2	1:1	0.2
	<i>Desert sink scrub subtotal</i>		0.2	
Joshua tree woodland	Disturbed Joshua tree woodland	0.6	1:1	0.6
	Joshua tree woodland	1.7	1:1	1.7
<i>Joshua tree woodland subtotal</i>		2.3		2.3
Riparian forest and woodland	Fremont cottonwood forest alliance	14.3	1:1	14.3
	Red willow thickets alliance	1.1	2:1	1.1
<i>Riparian forest and woodland subtotal</i>		15.5		15.5

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### Proposed Mitigation Ratios and Estimated Mitigation Acreages for Special-Status Vegetation Communities in the Desert Region

Generalized Habitat Type (CDFG 2010)	Alliance (CDFG 2010) Land Cover Type	Permanent (acres)	Mitigation Ratio	Mitigation (acres)
Sonoran and Mojavean desert scrub	California joint fir scrub alliance	0.4	1:1	0.4
	Disturbed Mojave yucca scrub alliance	0.5	1:1	0.5
	Mojave yucca scrub alliance	1.2	1:1	1.2
	Scale broom scrub alliance	12.6	1:1	12.6
<i>Sonoran and Mojavean desert scrub subtotal</i>		<i>14.7</i>		<i>14.7</i>
<b>Total</b>		<b>50.5</b>	—	<b>50.5</b>

Total acreage of impacts and mitigation shall be calculated and reported annually as described in the Maintenance Plan; therefore, these acreages are provided as best estimates at this time. Mitigation shall be completed as determined by actual impact acreages.

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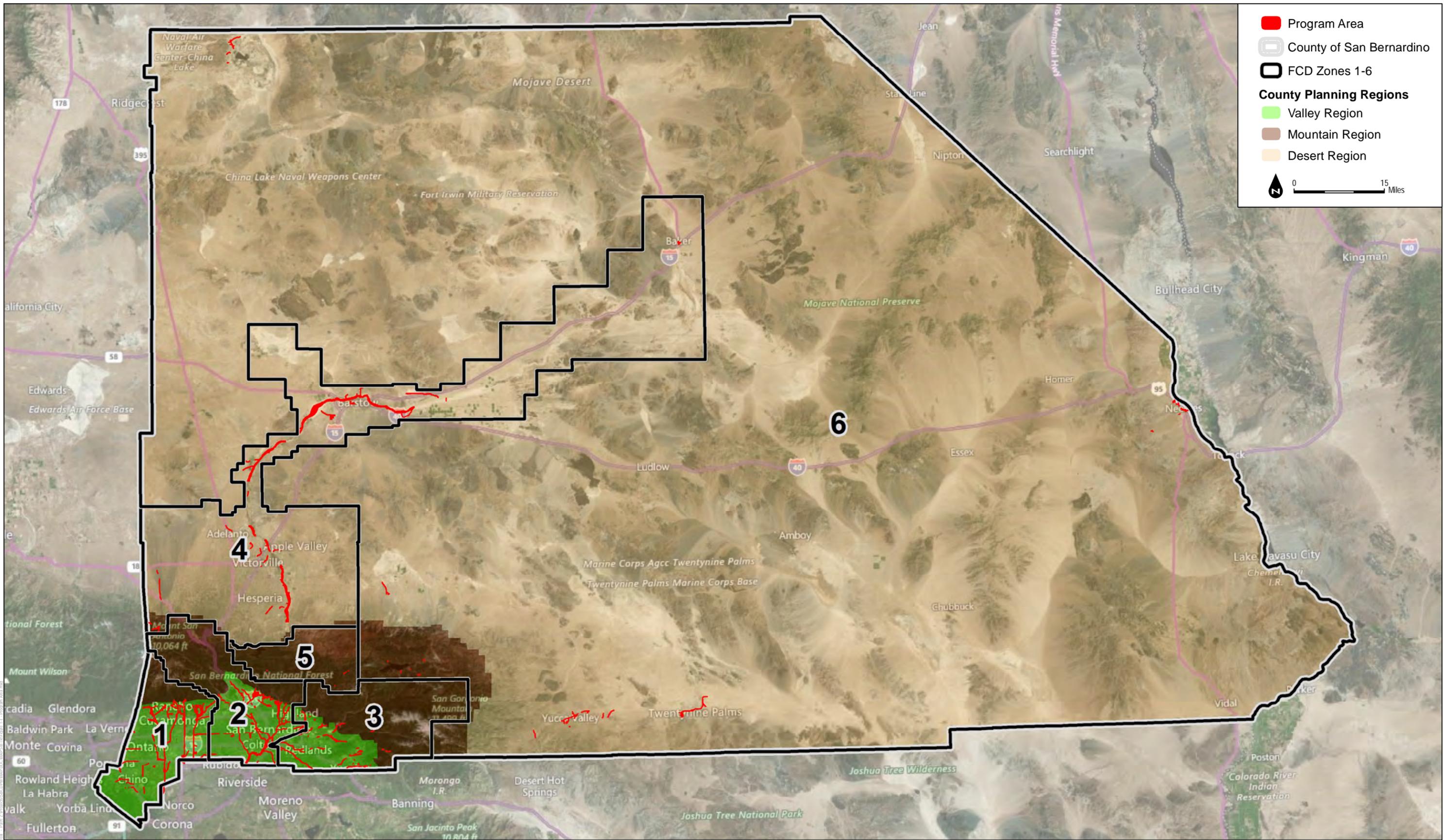
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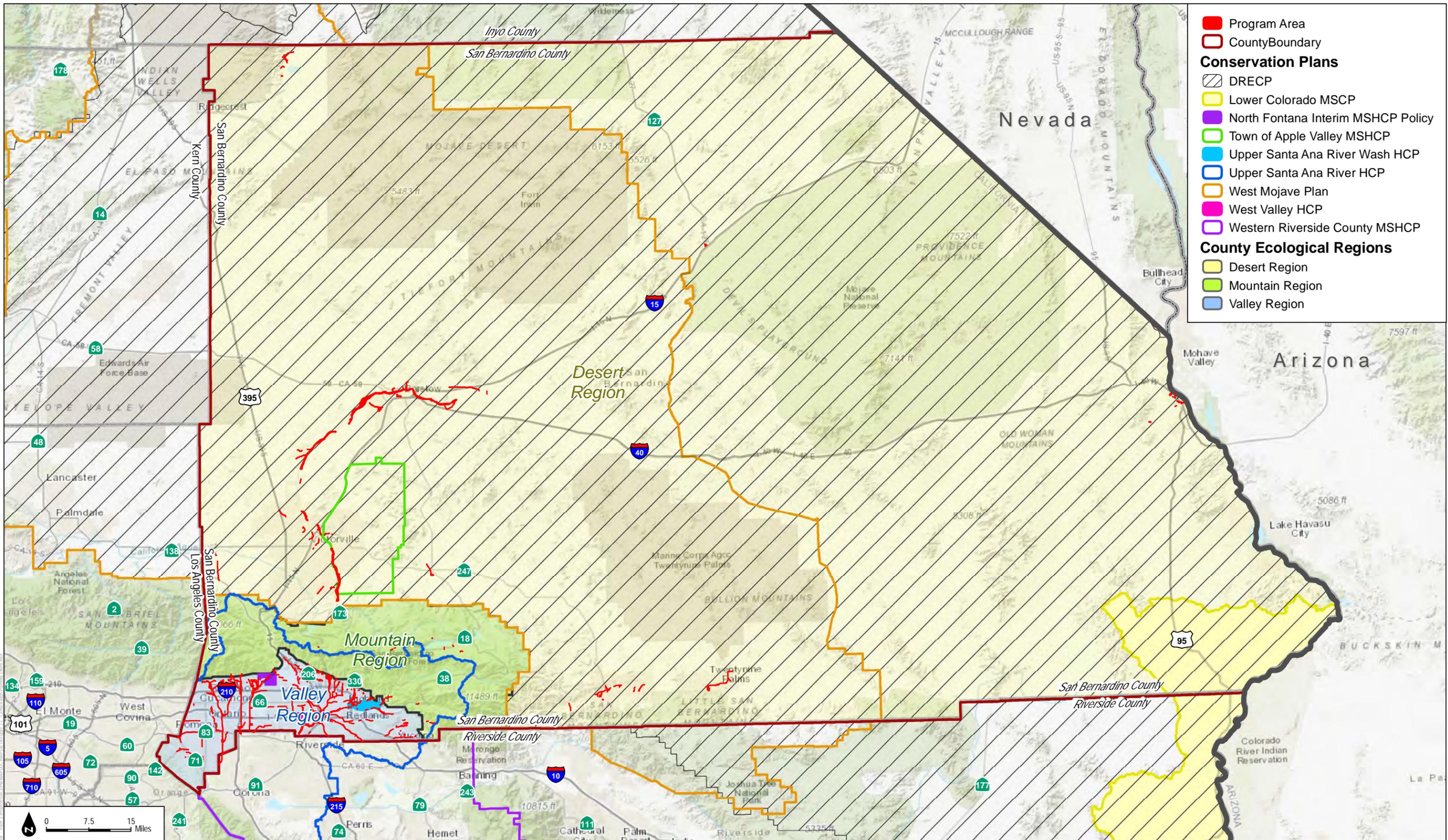
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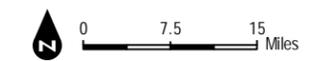
SOURCE: ArcGIS Online Basemap (Bing), SBCDPW

**FIGURE 1-1**  
Program Area

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- Program Area
- County Boundary
- Conservation Plans**
- DRECP
- Lower Colorado MSCP
- North Fontana Interim MSHCP Policy
- Town of Apple Valley MSHCP
- Upper Santa Ana River Wash HCP
- Upper Santa Ana River HCP
- West Mojave Plan
- West Valley HCP
- Western Riverside County MSHCP
- County Ecological Regions**
- Desert Region
- Mountain Region
- Valley Region



SOURCE: Bing Maps, 2016

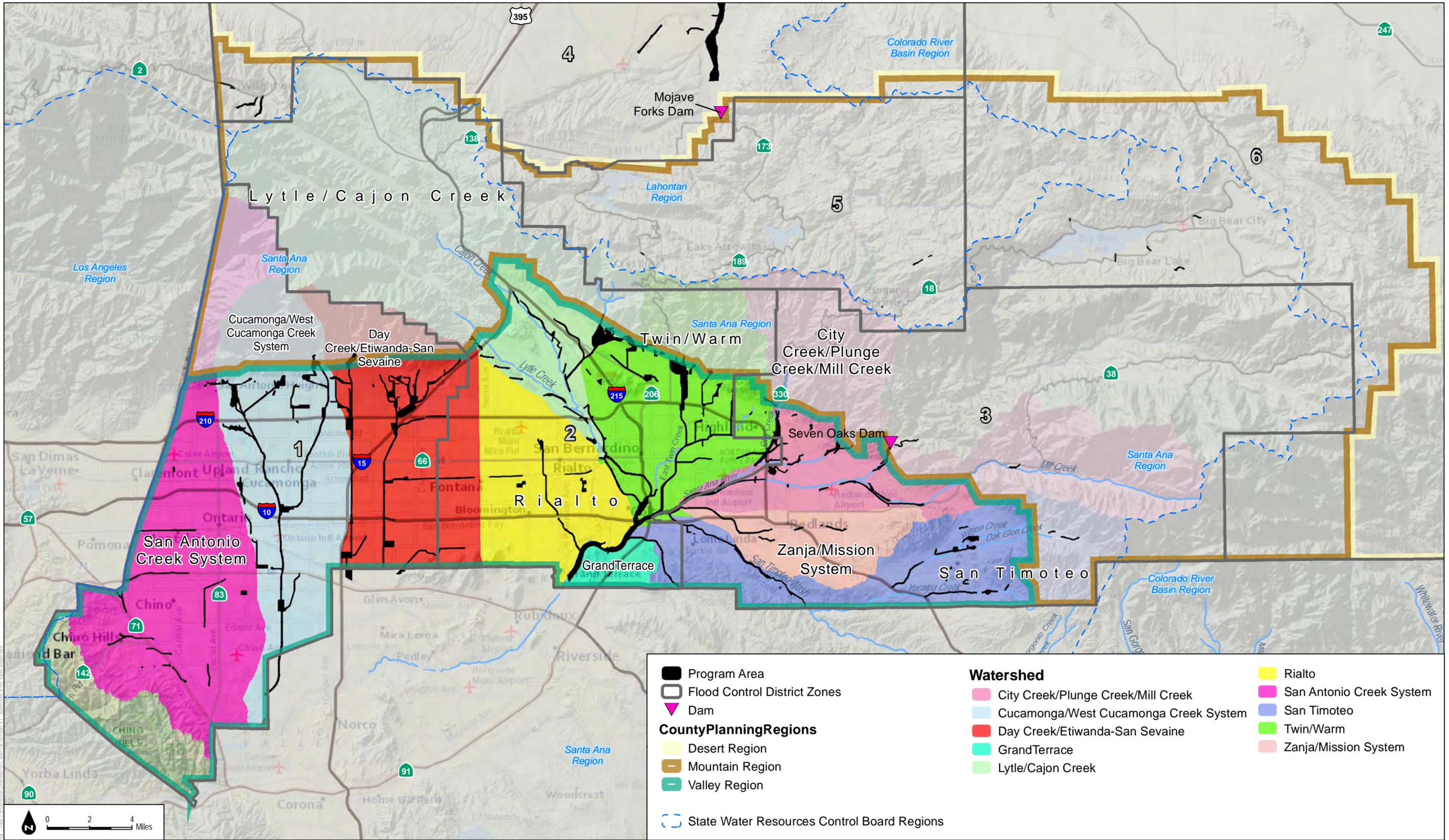


San Bernardino County Flood Control District

**FIGURE 2-1**

Conservation Planning Efforts

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SOURCE: ArcGIS Online Basemap (Nat Geo), SBCEPW

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San Bernardino County Flood Control District

**FIGURE 4-1**

**Watersheds in the Valley Region**

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Figure 4-2A Vegetation Communities in the Valley Region – See Appendix F

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Figure 4-2B Vegetation Communities in the Valley Region – See Appendix F

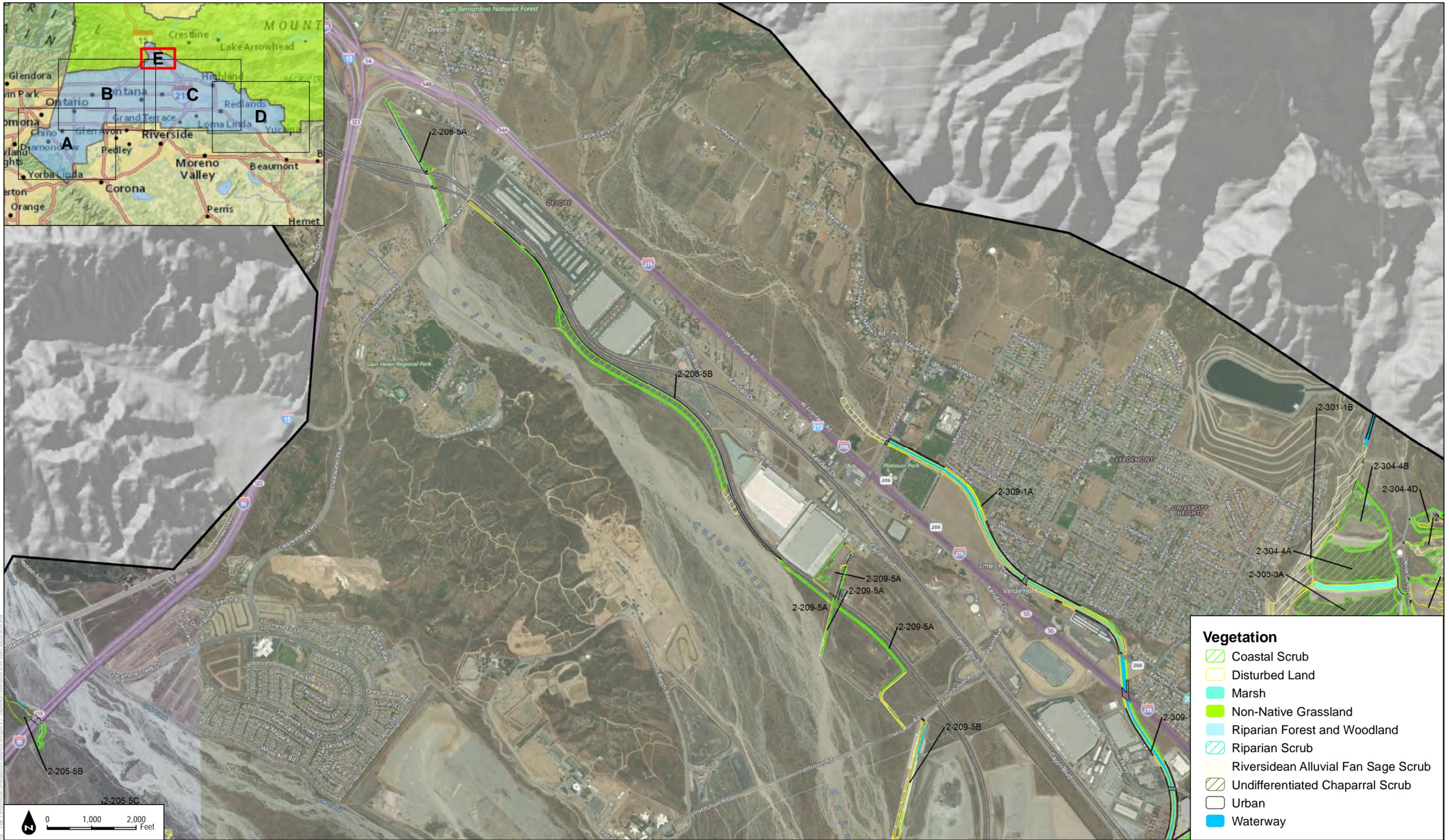
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Figure 4-2C Vegetation Communities in the Valley Region – See Appendix F

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Figure 4-2D Vegetation Communities in the Valley Region – See Appendix F

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- Vegetation**
-  Coastal Scrub
  -  Disturbed Land
  -  Marsh
  -  Non-Native Grassland
  -  Riparian Forest and Woodland
  -  Riparian Scrub
  -  Riversidean Alluvial Fan Sage Scrub
  -  Undifferentiated Chaparral Scrub
  -  Urban
  -  Waterway

**FIGURE 4-2E**

**Vegetation Communities in the Valley Region**

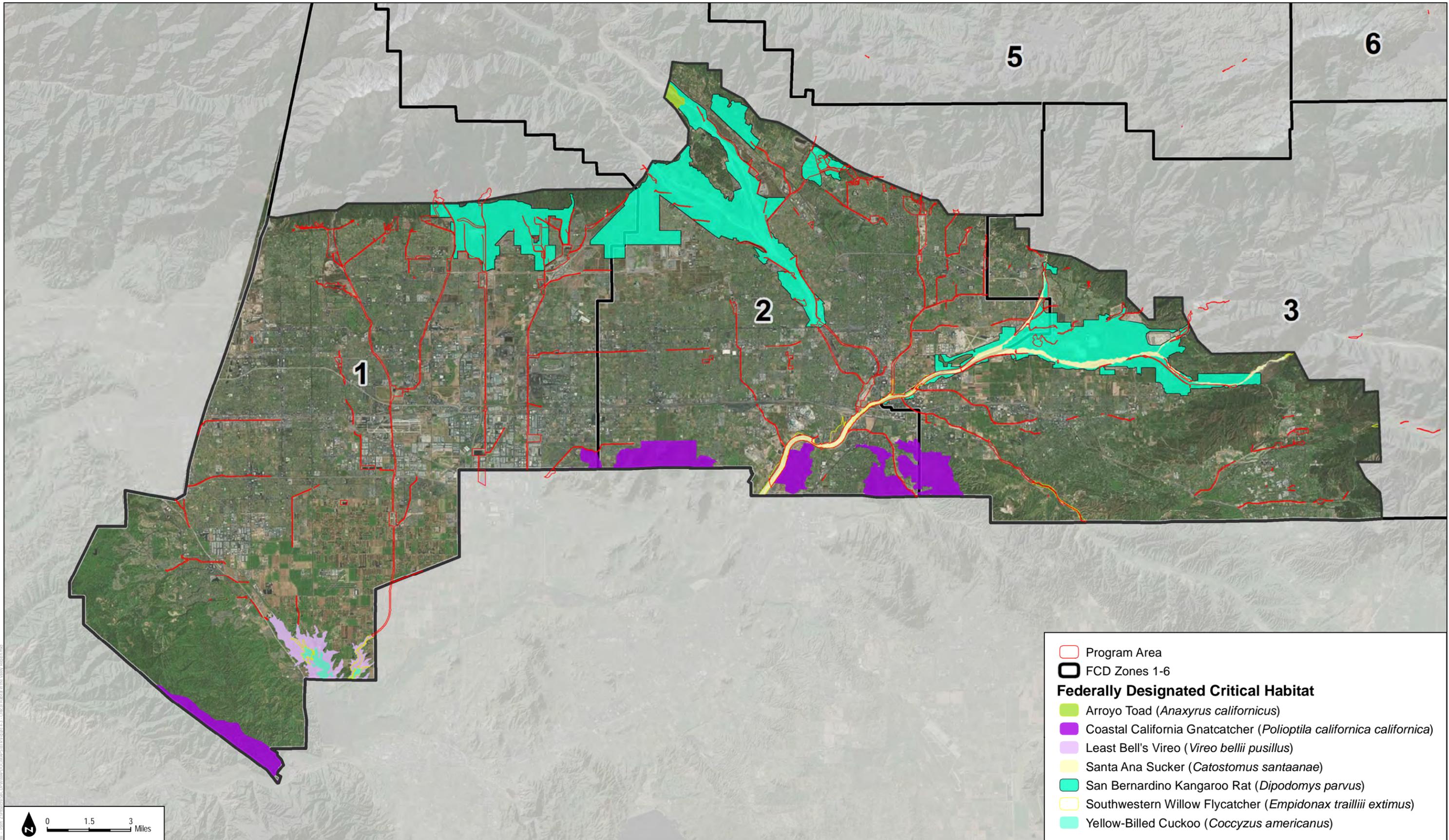
Master Storm Water System Maintenance Program Biological Technical Report

SOURCE: ArcGIS Online Basemap (Bing), Dudek



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- Program Area
- FCD Zones 1-6
- Federally Designated Critical Habitat**
- Arroyo Toad (*Anaxyrus californicus*)
- Coastal California Gnatcatcher (*Poliptila californica californica*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Santa Ana Sucker (*Catostomus santaanae*)
- San Bernardino Kangaroo Rat (*Dipodomys parvus*)
- Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
- Yellow-Billed Cuckoo (*Coccyzus americanus*)

SOURCE: ArcGIS Online Basemap (Bing), USFWS 2017

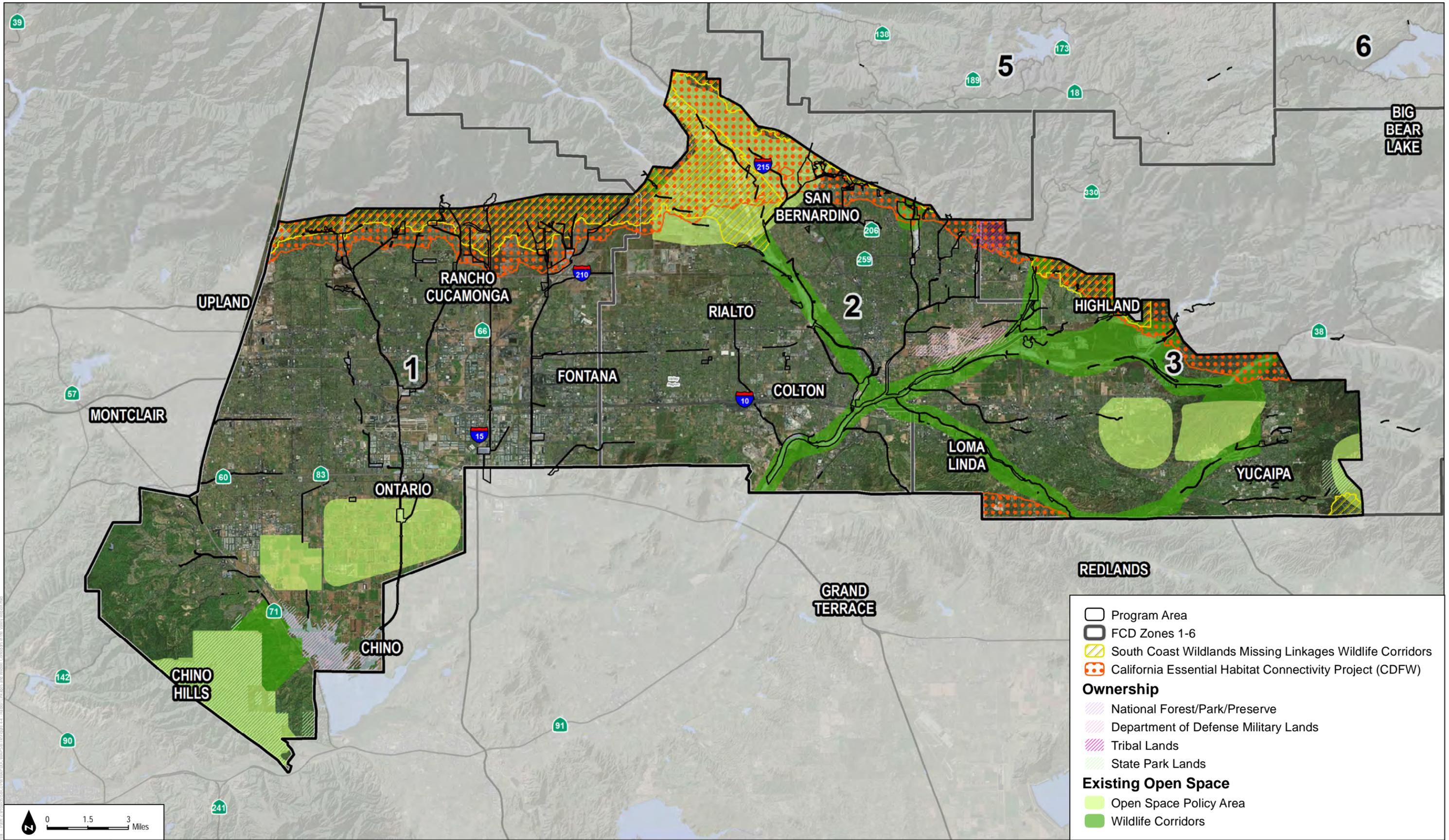


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**FIGURE 4-3**

Critical Habitat in the Valley Region

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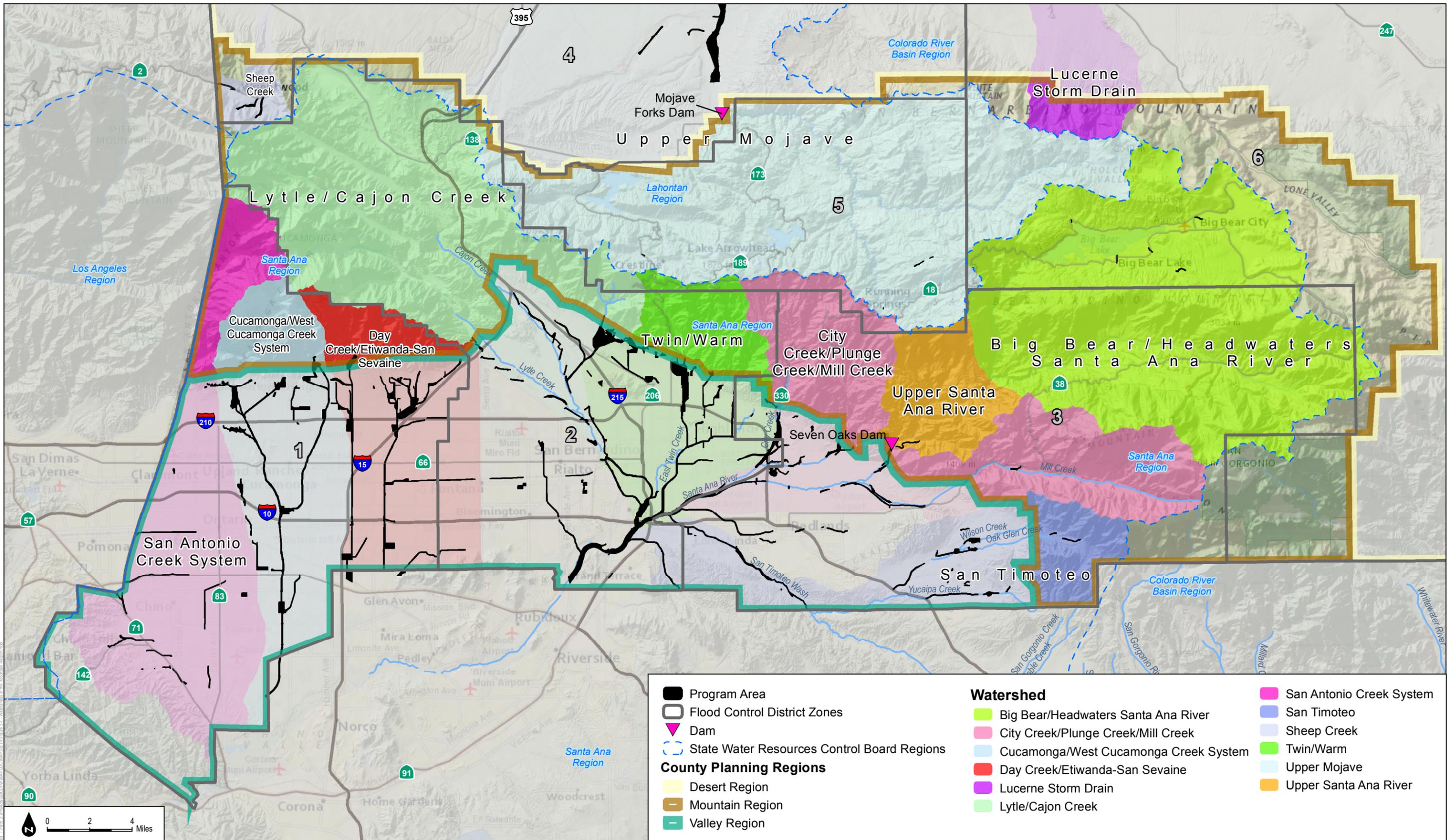


SOURCE: ArcGIS Online Basemap (Bing), USFWS 2016, BLM 2014, South Coast Wildlands 2012, CDFW 2010

**FIGURE 4-4**

Habitat Linkages and Wildlife Corridors in the Valley Region

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SOURCE: ArcGIS Online Basemap (Nat Geo), SBDCPW

**DUDEK**

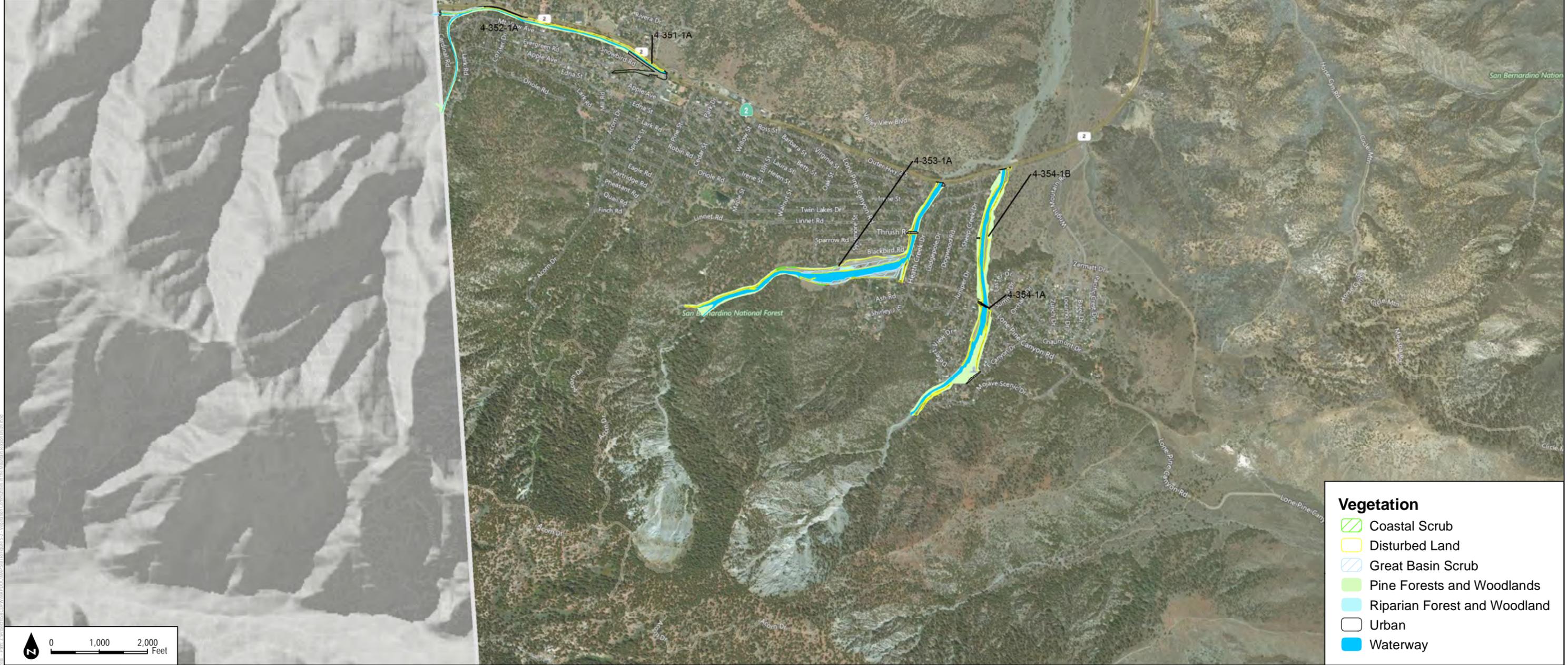
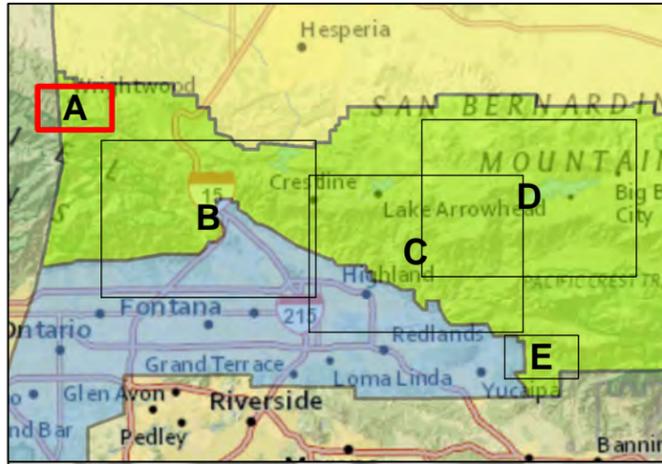
San Bernardino County Flood Control District

**FIGURE 5-1**

**Watersheds in the Mountain Region**

Master Storm Water System Maintenance Program Biological Technical Report

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SOURCE: ArcGIS Online Basemap (Bing), Dudek

**DUDEK**

San Bernardino County Flood Control District

**FIGURE 5-2A**

**Vegetation Communities in the Mountain Region**

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Figure 5-2B Vegetation Communities in the Mountain Region – See Appendix F

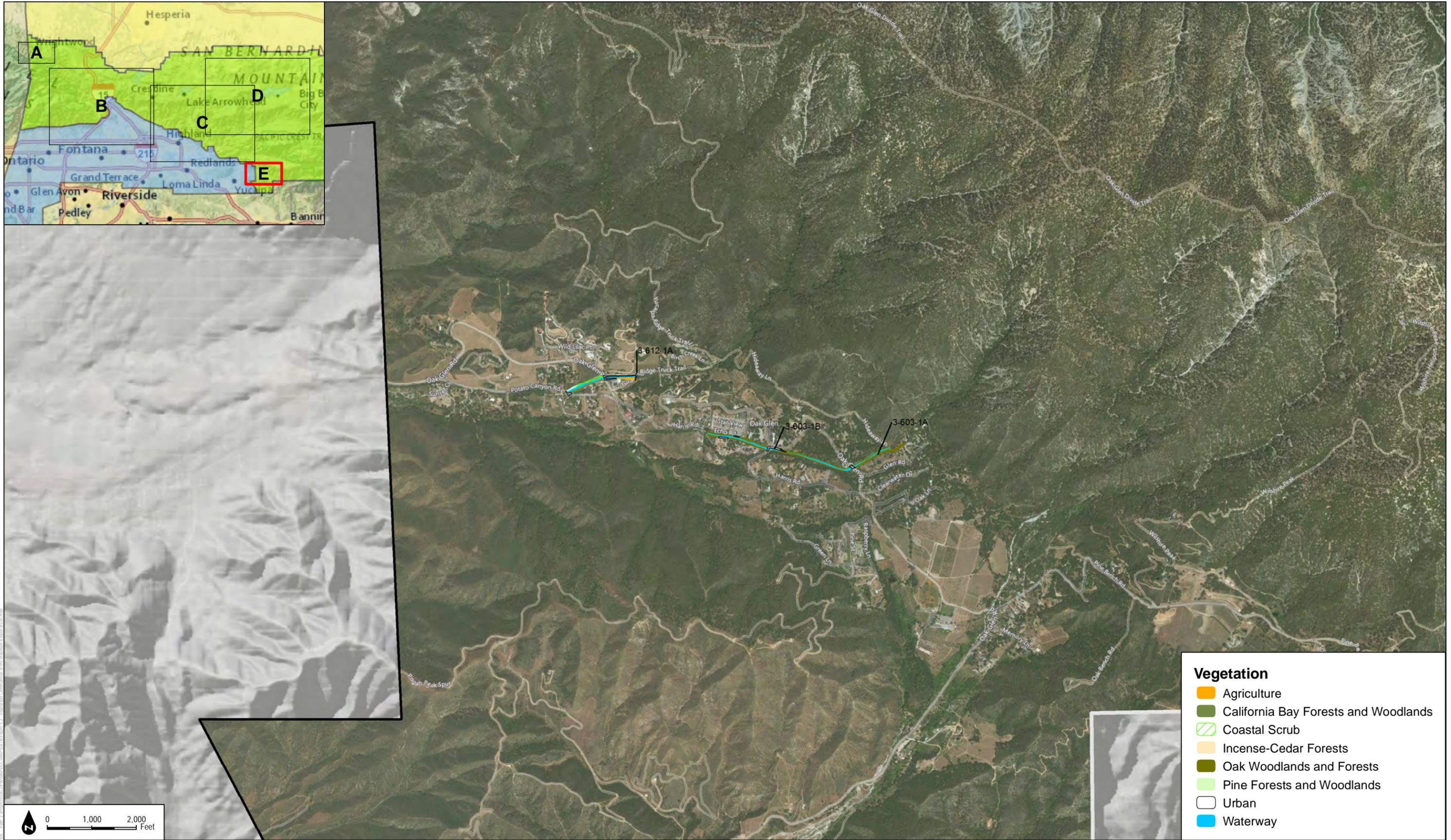
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Figure 5-2C Vegetation Communities in the Mountain Region – See Appendix F

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Figure 5-2D Vegetation Communities in the Mountain Region – See Appendix F

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**Vegetation**

- Agriculture
- California Bay Forests and Woodlands
- Coastal Scrub
- Incense-Cedar Forests
- Oak Woodlands and Forests
- Pine Forests and Woodlands
- Urban
- Waterway

0 1,000 2,000 Feet

SOURCE: ArcGIS Online Basemap (Bing), Dudek



San Bernardino County Flood Control District

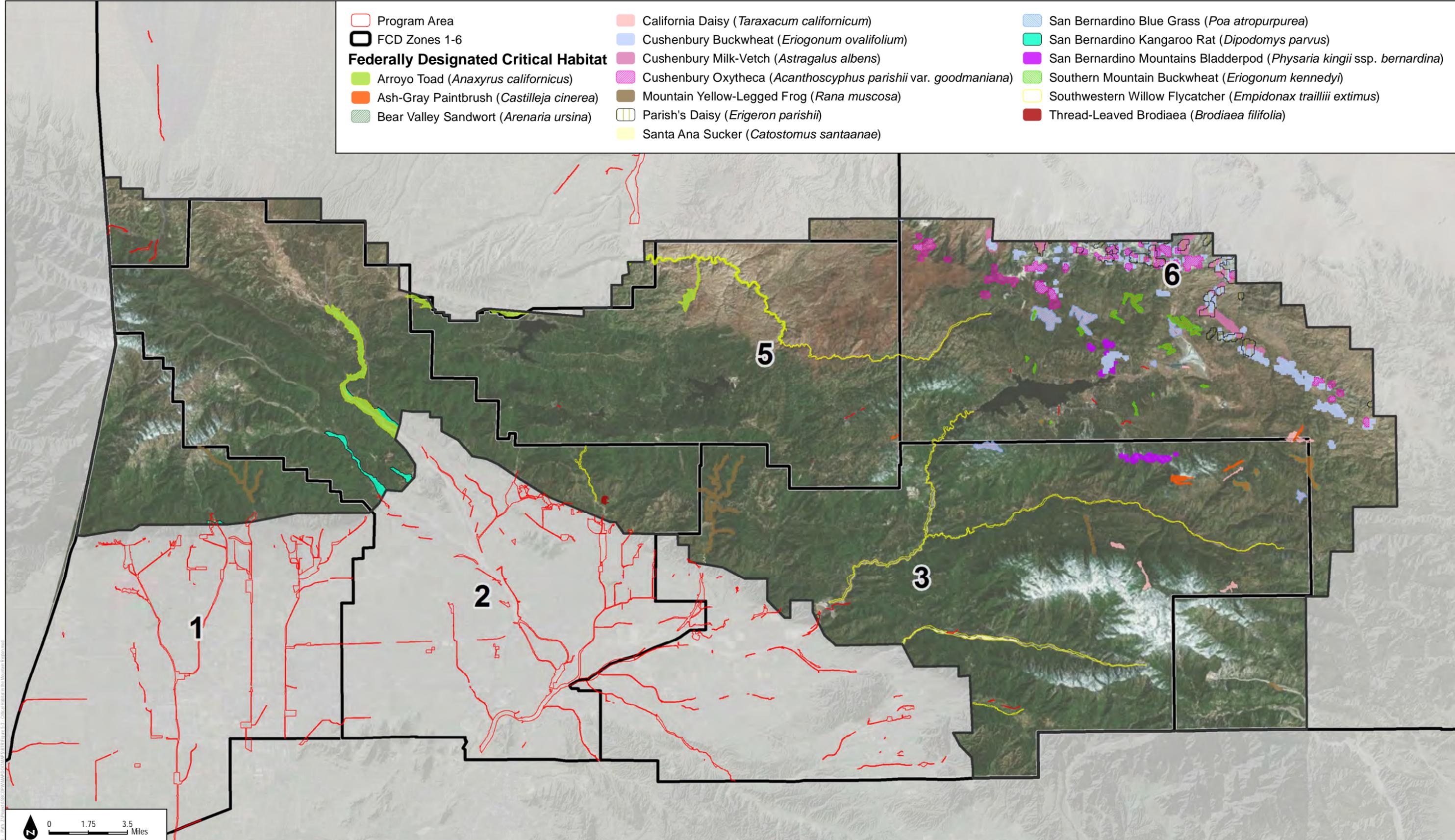
**FIGURE 5-2E**

**Vegetation Communities in the Mountain Region**

Master Storm Water System Maintenance Program Biological Technical Report

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- Program Area
- FCD Zones 1-6
- Federally Designated Critical Habitat**
- Arroyo Toad (*Anaxyrus californicus*)
- Ash-Gray Paintbrush (*Castilleja cinerea*)
- Bear Valley Sandwort (*Arenaria ursina*)
- California Daisy (*Taraxacum californicum*)
- Cushenbury Buckwheat (*Eriogonum ovalifolium*)
- Cushenbury Milk-Vetch (*Astragalus albens*)
- Cushenbury Oxytheca (*Acanthoscyphus parishii* var. *goodmaniana*)
- Mountain Yellow-Legged Frog (*Rana muscosa*)
- Parish's Daisy (*Erigeron parishii*)
- Santa Ana Sucker (*Catostomus santaanae*)
- San Bernardino Blue Grass (*Poa atropurpurea*)
- San Bernardino Kangaroo Rat (*Dipodomys parvus*)
- San Bernardino Mountains Bladderpod (*Physaria kingii* ssp. *bernardina*)
- Southern Mountain Buckwheat (*Eriogonum kennedyi*)
- Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
- Thread-Leaved Brodiaea (*Brodiaea filifolia*)



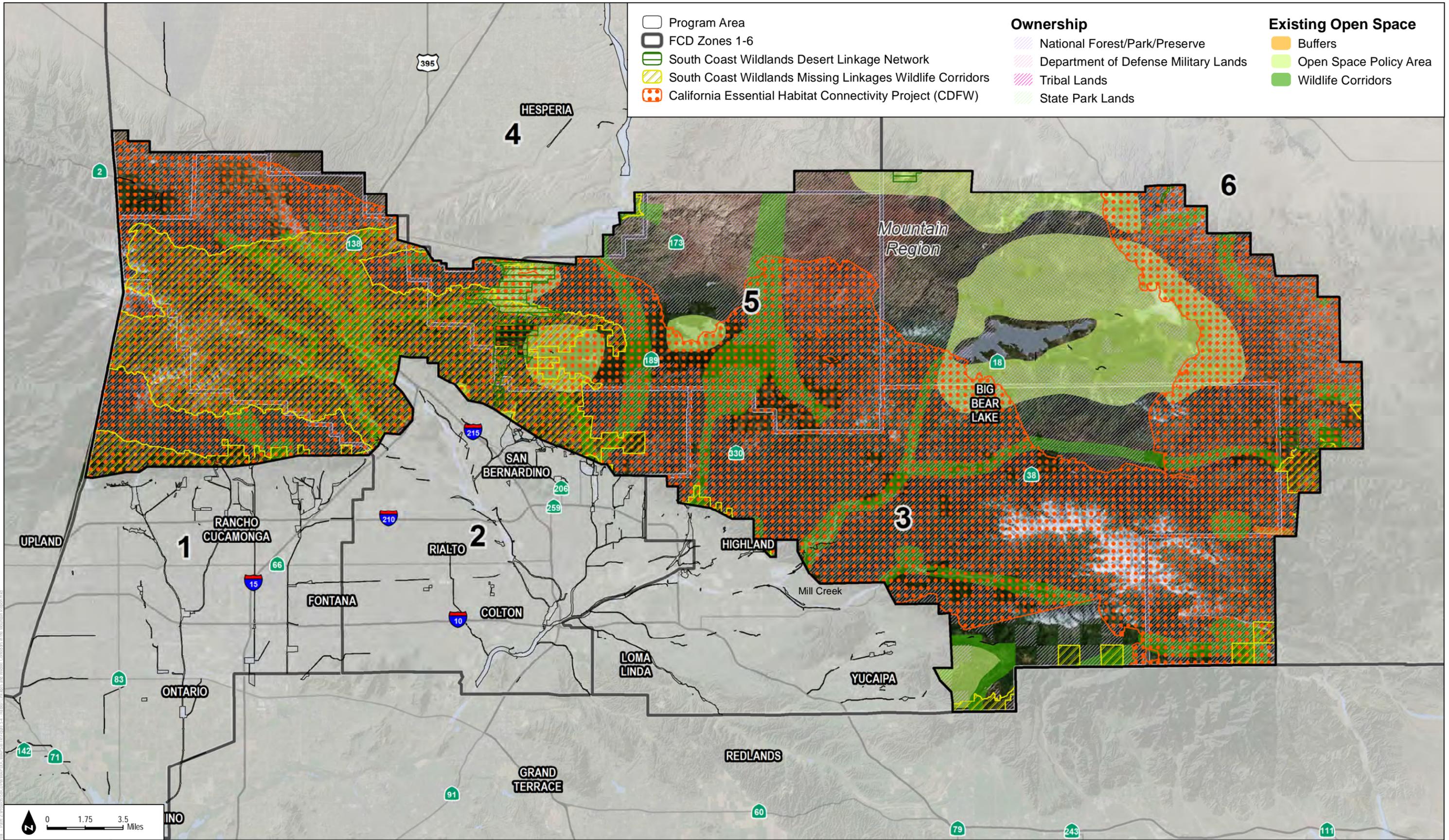
SOURCE: ArcGIS Online Basemap (Bing), USFWS 2017



San Bernardino County Flood Control District

**FIGURE 5-3**  
Critical Habitat in the Mountain Region

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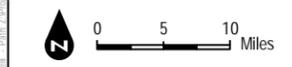
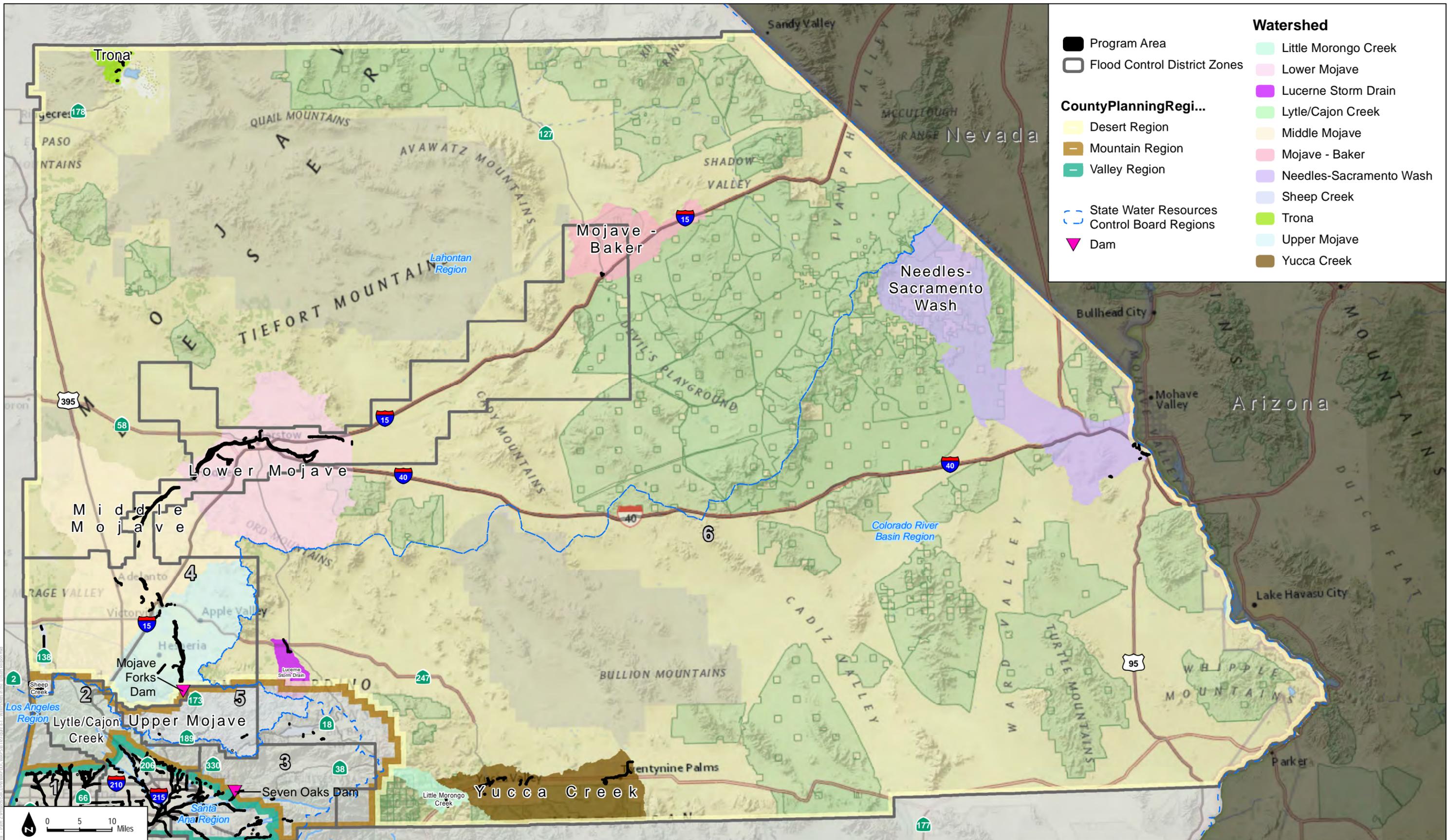
SOURCE: ArcGIS Online Basemap (Bing), USFWS 2016, BLM 2014, South Coast Wildlands 2012, CDFW 2010

FIGURE 5-4

Habitat Linkages and Wildlife Corridors in the Mountain Region



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SOURCE: ArcGIS Online Basemap (Nat Geo), SBDCDPW

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San Bernardino County Flood Control District

**FIGURE 6-1**

**Watersheds in the Desert Region**

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Figure 6-2A Vegetation Communities in the Valley Region – See Appendix F

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Figure 6-2B Vegetation Communities in the Valley Region – See Appendix F

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Figure 6-2C Vegetation Communities in the Valley Region – See Appendix F

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Figure 6-2D Vegetation Communities in the Desert Region – See Appendix F

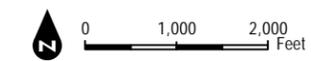
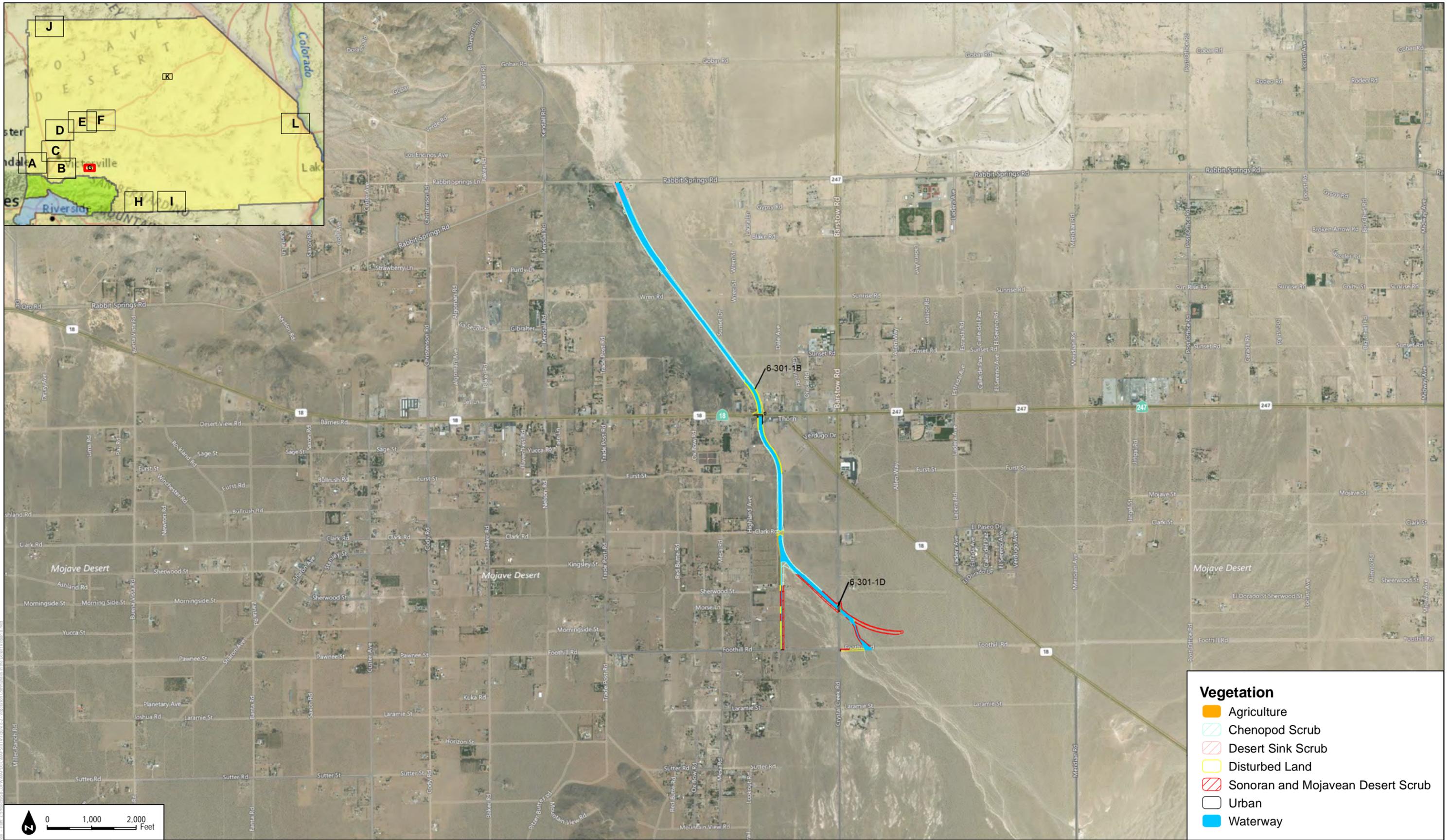
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Figure 6-2E Vegetation Communities in the Desert Region – See Appendix F

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Figure 6-2F Vegetation Communities in the Desert Region – See Appendix F

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SOURCE: ArcGIS Online Basemap (Bing), Dudek



San Bernardino County Flood Control District

**FIGURE 6-2G**

**Vegetation Communities in the Desert Region**

Master Storm Water System Maintenance Program Biological Technical Report

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Figure 6-2H Vegetation Communities in the Desert Region – See Appendix F

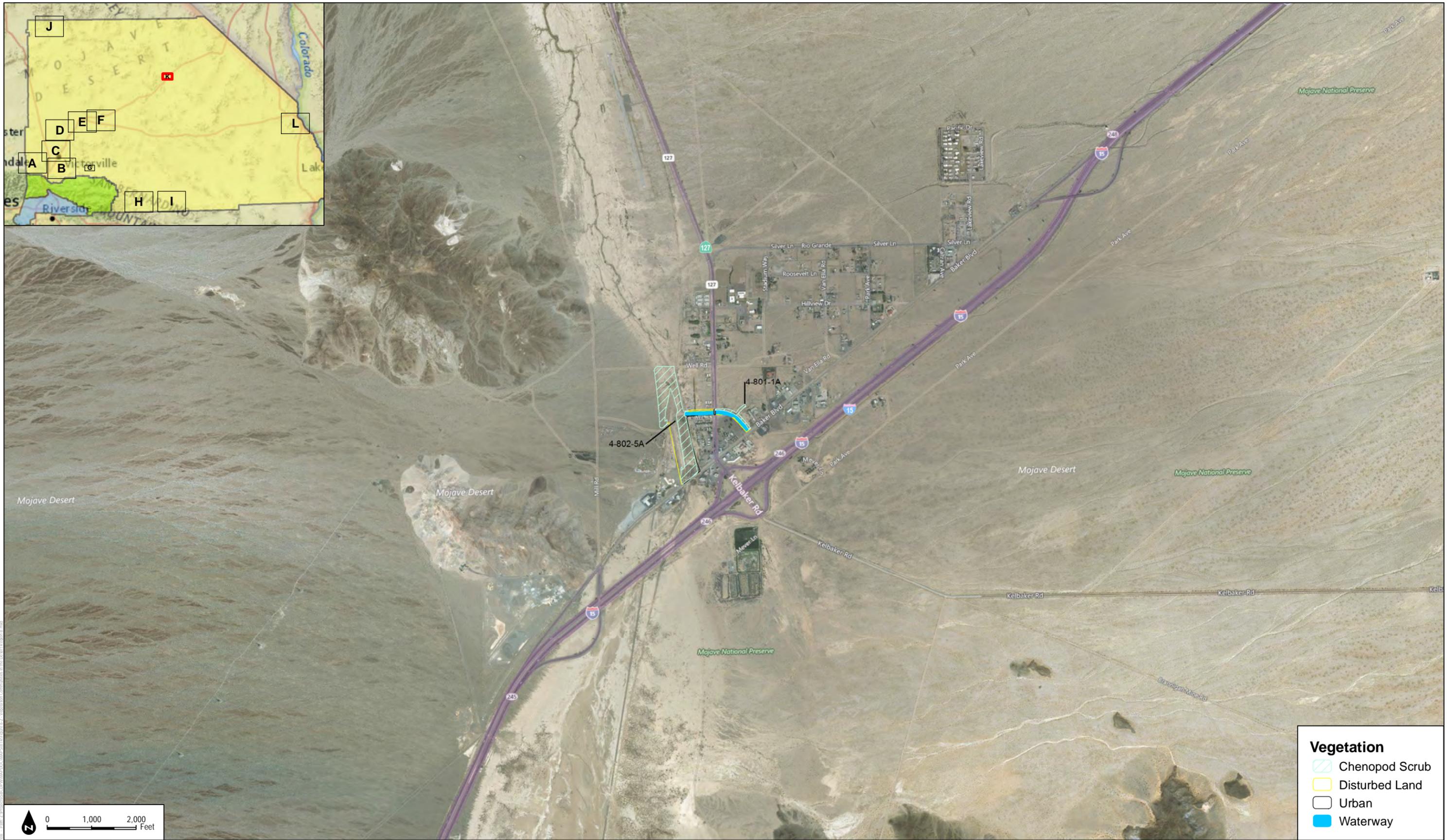
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Figure 6-2I Vegetation Communities in the Desert Region – See Appendix F

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Figure 6-2J Vegetation Communities in the Desert Region – See Appendix F

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- Vegetation**
- Chenopod Scrub
  - Disturbed Land
  - Urban
  - Waterway

0 1,000 2,000 Feet

SOURCE: ArcGIS Online Basemap (Bing), Dudek

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San Bernardino County Flood Control District

**FIGURE 6-2K**

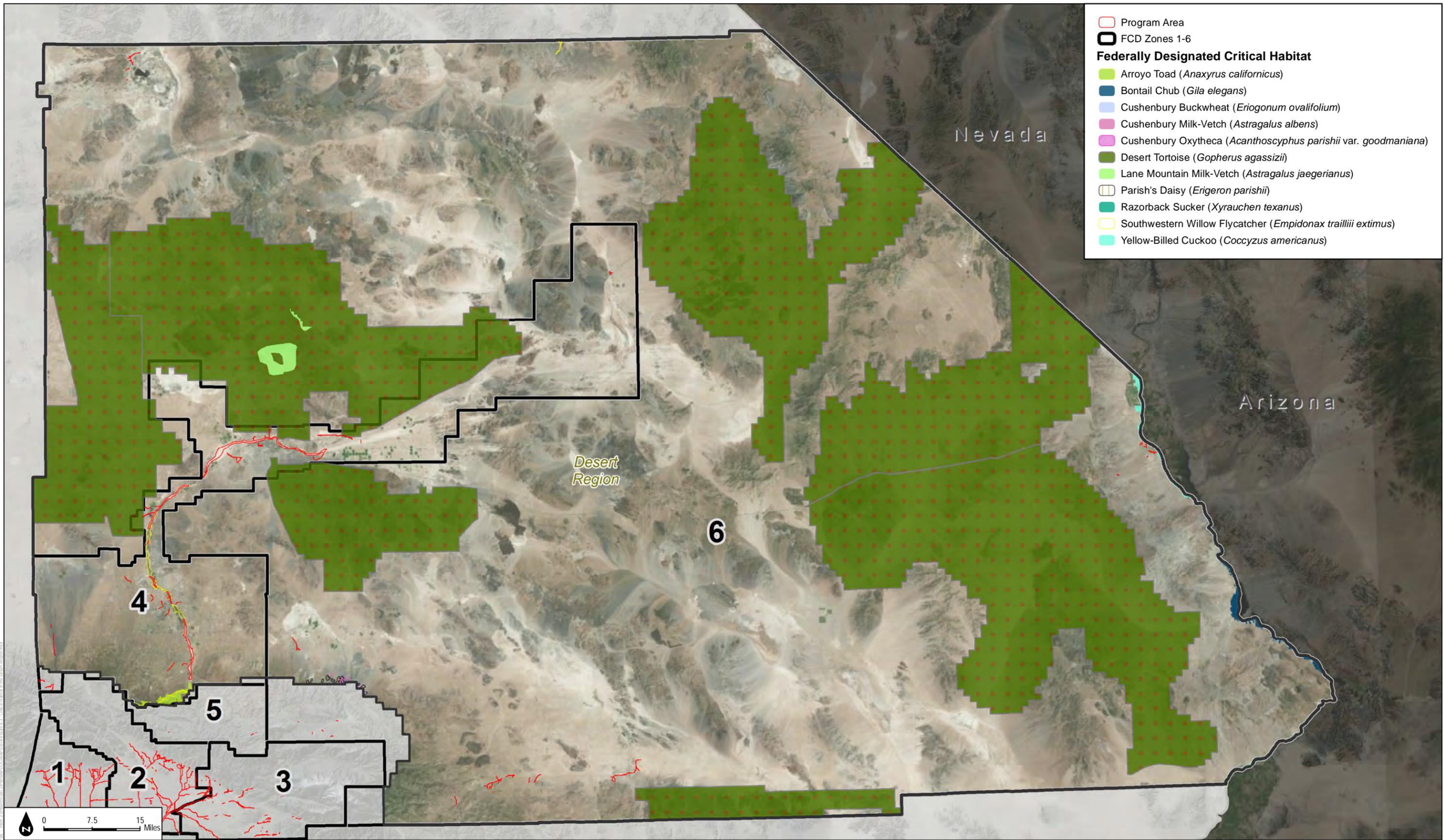
**Vegetation Communities in the Desert Region**

Master Storm Water System Maintenance Program Biological Technical Report

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Figure 6-2L Vegetation Communities in the Desert Region – See Appendix F

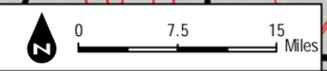
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□ Program Area  
 FCD Zones 1-6

**Federally Designated Critical Habitat**

- Arroyo Toad (*Anaxyrus californicus*)
- Bontail Chub (*Gila elegans*)
- Cushenbury Buckwheat (*Eriogonum ovalifolium*)
- Cushenbury Milk-Vetch (*Astragalus albens*)
- Cushenbury Oxytheca (*Acanthoscyphus parishii* var. *goodmaniana*)
- Desert Tortoise (*Gopherus agassizii*)
- Lane Mountain Milk-Vetch (*Astragalus jaegerianus*)
- Parish's Daisy (*Erigeron parishii*)
- Razorback Sucker (*Xyrauchen texanus*)
- Southwestern Willow Flycatcher (*Empidonax traillii* extimus)
- Yellow-Billed Cuckoo (*Coccyzus americanus*)



SOURCE: ArcGIS Online Basemap (Bing), USFWS 2017

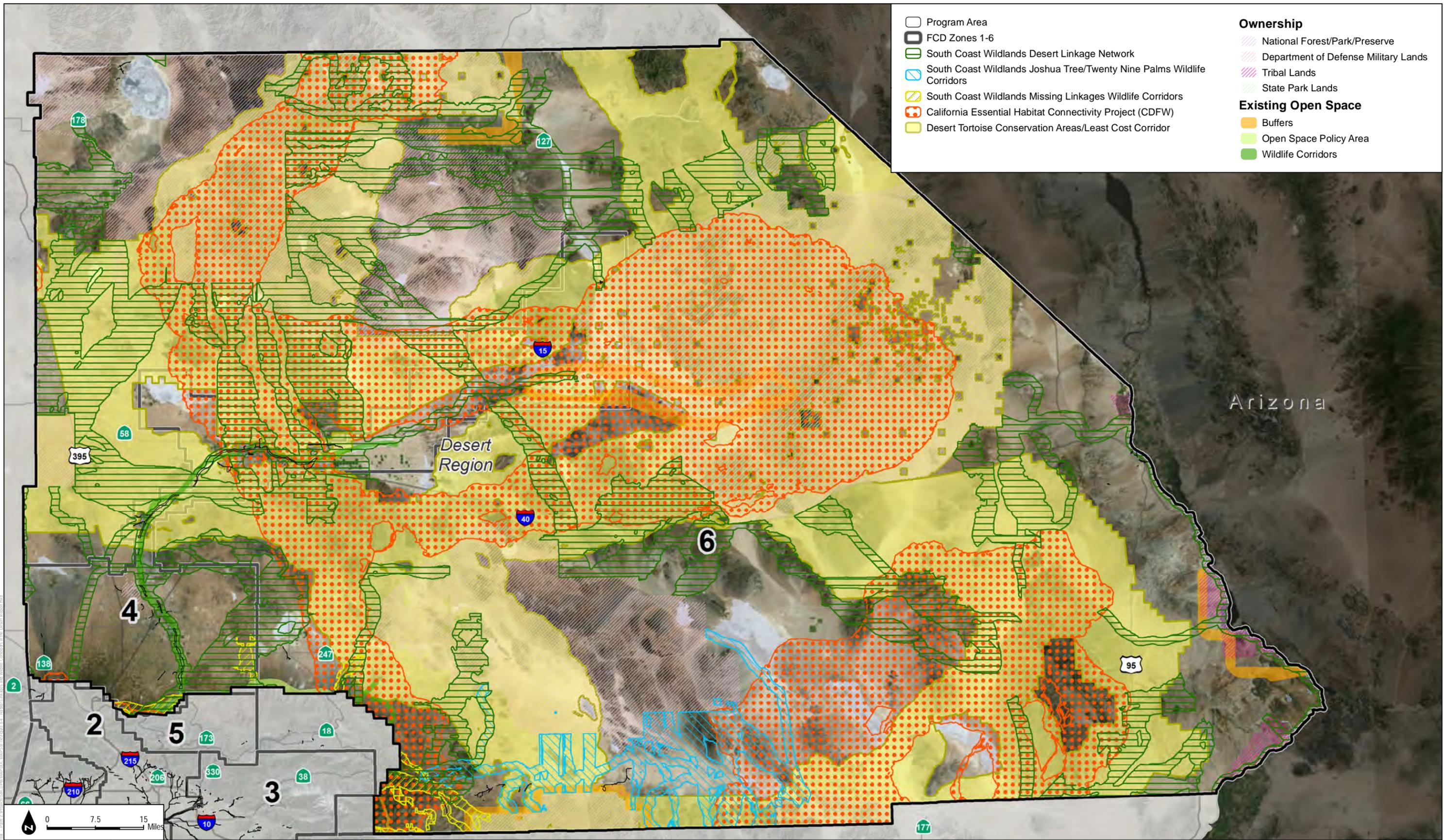


San Bernardino County Flood Control District

**FIGURE 6-3**

Critical Habitat in the Desert Region

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SOURCE: ArcGIS Online Basemap (Bing), USFWS 2016, BLM 2014, South Coast Wildlands 2012, CDFW 2010

**FIGURE 6-4**

**Habitat Linkages and Wildlife Corridors in the Desert Region**

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